This manual covers installation and operating instructions for the following U.S. Robotics modems:

Sportster® 56 kbps* Winmodem™

7770 North Frontage Road
Skokie, IL 60077-2690

* **IMPORTANT!** All x2 products are capable of 56 kbps downloads; however, due to FCC rules which restrict power output of the service providers' modems, current download speeds are limited to 53 kbps. Actual speeds may vary depending on line conditions. Uploads from users to service providers travel at speeds up to 33.6 kbps. An x2-capable modem, an x2-compatible analog phone line and an x2-capable Internet Service Provider are necessary for these high-speed downloads.

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WELCOME TO x2™ TECHNOLOGY INFORMATION ACCESS

The latest breakthrough in online communications

Until now, 33.6 kbps was thought to be the practical limit for speed over standard phone lines. Now, x2 Technology shatters that barrier, to bring you high speed downloads. x2 Technology is capable of 56kbps downloads, but, due to FCC rules which restrict power output of your service provider's modems, current download speeds are limited to 53 kbps. This modem is software upgradable, allowing easy upgrades to new features and enhancements as they become available.

An integrated end-to-end solution from the leader

3Com is well positioned to bring you x2 Technology. Our U.S. Robotics Sportster® modems are the world's number one seller, and our Total Control™ and Courier™ product lines are favored by many Internet service providers. This widespread acceptance allows 3Com to offer x2 Technology to virtually anyone.

Taking advantage of the modern telephone network

x2 Technology takes advantage of the typical network configuration found when an analog subscriber connects to a digitally connected server. x2 can use nearly all of the available 64K network bandwidth. (Upstream data, typically less speed sensitive, travels at the standard V.34 rate.)

The result is a completely new kind of transmission technique. Based on "encoding" rather than "modulation," it can give you download speeds that you never thought possible. What's more, with standard V.42 *bis* compression, x2 can download at speeds up to a blistering 115.2 kbps.

Updating x 2 technology is easy and FREE!

Read the section of this manual titled "U.S. Robotics Modem Update Wizard" (page 41) for information about using this software (on the *Connections*™ CD) to update your modem's code to the latest version.

The new standard for online speed

3Com has already submitted x2 to the ITU-T standards committee for acceptance as the next online standard. For more information on U.S. Robotics' x2 technology, see our World Wide Web page at **http://x2.usr.com**.

PRODUCT FEATURES

Your new x2 modem provides many advanced features. Here are just a few:

Modulation Schemes

x2 technology
ITU-T V.34+
ITU-T V.34
ITU-T V.32bis
ITU-T V.32
ITU-T V.22bis
ITU-T V.22
ITU-T V.23
Bell 212A
ITU-T V.21
Bell 103

Error Control and Data Compression Schemes

ITU-T V.42
ITU-T V.42bis
MNP 2-5

Fax Modulation Schemes

ITU-T V.17
ITU-T V.29
ITU-T V.27ter
ITU-T V.21

Fax Standards

EIA 578 Class 1 FAX
EIA 592 Class 2.0 FAX

Front Channel Link Rates

33333, 37333, 41333, 42666, 44000, 45333, 46666, 48000, 49333, 50666, 52000, 53333, 54666, 56000, 57333

Back Channel Link Rates

4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200

V.34+ Link Rates

4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, 33600

V.32bis Link Rates

4800, 7200, 9600, 12000, 14400

Additional Link Rates

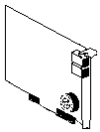
300, 1200/75 (V.23), 1200, 2400

Fax Link Rates

2400, 4800, 7200, 9600, 12000, 14400

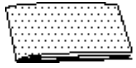
WINDOWS 95 HARDWARE INSTALLATION

You'll need these items from your Sportster modem box:


the modem


a phone cord


the Connections CD


this manual


Winmodem disk


Installation Guide

Plus:  **a screwdriver** ***(not included)***

NOTE! These instructions are for Windows 95 users. If your computer is running Windows 3.x, please refer to the online documentation included on the Connections CD-ROM. The software installation instructions in the "Software Installation and Testing" section of this manual apply to both Windows 95 and Windows 3.x users.

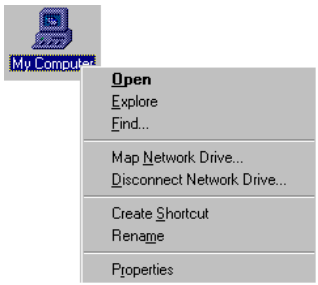
Windows 95 Users

To install your Winmodem properly, you must first know which version of Windows 95 you have. Please follow these instructions to check.

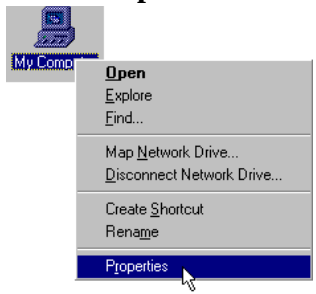
Checking Your Version of Windows 95

1. Start Windows

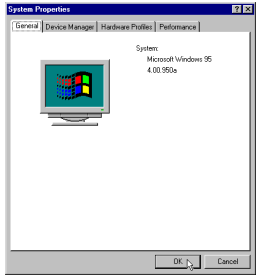
   Right-click the **My Computer** icon.



2. Select **Properties**.



3. Find your version number in the upper right corner of the “General” screen below.



In the example preceding, the version is 950a.

Make a note of the Windows version you are using. You will follow different instructions for navigating the "New Hardware Found" screens depending on which version of Windows you are using.

How to Insert the Modem

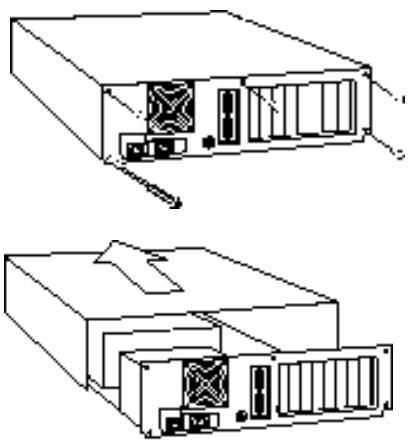
NOTE: Before installing your modem, write down the modem's serial number in the manual. (The serial number is on the bar coded sticker on the modem and on the outside of the box the modem came in.) If you ever need to call our technical support department, the technical support representative will ask you for the serial number. This will help him or her identify the type of modem you have.

1. Turn off your computer and unplug it from the electrical outlet.
2. Unplug any peripheral devices (printer, monitor, keyboard, mouse, etc.) from the computer.

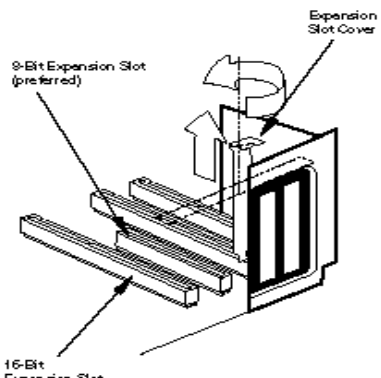
TIP: If you haven't added accessories to your computer before, we suggest labeling the cords and cables before unplugging them.

CAUTION : To avoid being shocked, make sure your computer and all peripheral devices are turned off and unplugged from the electrical outlets.

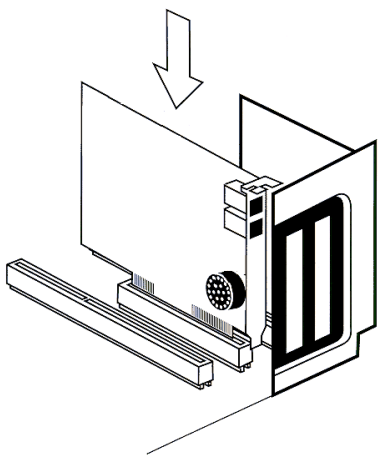
3. Remove the screws from your computer's cover and then remove the cover. Your computer may look different from this drawing, but the basic principle for removing the cover should be the same. Refer to your computer manufacturer's manual if you need further instructions.



4. Find an empty ISA expansion slot that's at least as long as the gold edge of your modem. (ISA slots are black plastic grooves lined with metal.) Unscrew and remove the expansion slot cover (the long narrow piece of metal that keeps dust from entering through the opening that's perpendicular to the slot).



Holding the modem by each corner, align the gold edge with an empty expansion slot. Push down gently until the modem snaps into the slot. (Note: The drawing shows horizontally aligned expansion slots. Some computers have vertically aligned slots. The instructions apply to both styles.)



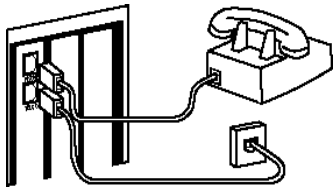
You'll have to apply a little pressure to seat the modem properly. Sometimes a gentle back-and-forth motion helps get the modem all the way into the slot. If you feel resistance, the modem may not be properly lined up with the slot. Do not force it. Take the modem all the way out and try again.

5. Once the modem is seated, secure it using the screw you removed in step 4.
6. Put the computer's cover back on and replace the screws.
7. If you currently have a phone plugged into the wall jack you're going to use for the modem, disconnect the phone's cable from the jack.
8. Plug one end of the phone cable that came with the modem into the TELCO jack at the rear of the modem.

WARNING : Be certain you are plugging the phone line into an ANALOG jack. Many office phones use DIGITAL lines. Attaching your modem to a digital line will damage the modem!

9. Plug the other end of the cable into the wall jack.

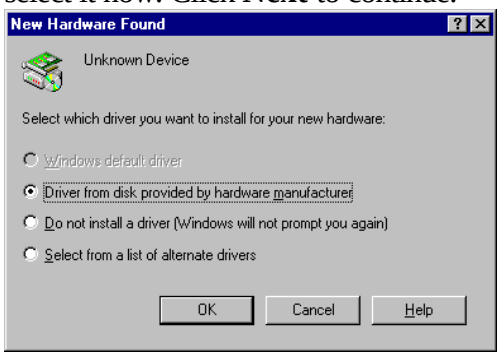
10. (If you want to use a telephone on the same line as the modem, plug the telephone's cable into the modem's PHONE jack.)



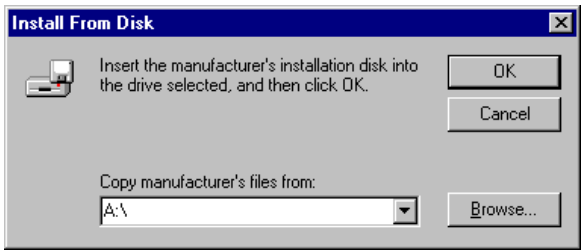
11. Plug the power cords, cables, and peripherals back into the computer and turn the computer on.

How to Move Through the "New Hardware Found " Screens in Windows 950 or 950a.

1. This screen will come up when Windows restarts. If the **Driver from disk…** option is not already selected, select it now. Click **Next** to continue.

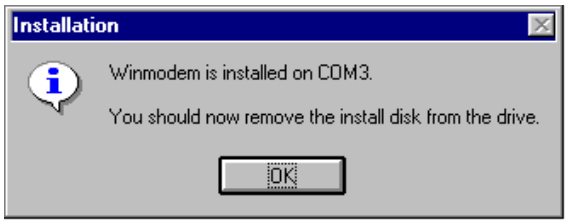


2. When you see this screen, insert the Winmodem floppy disk and Click **OK**.



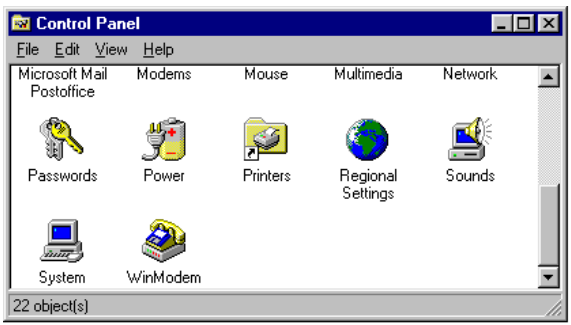
3. You will see a screen confirming that you are installing a Winmodem. When that finishes, remove the Winmodem disk. The following screen tells you which communications port your Winmodem has been installed to.

Make a note of the COM port and then click **OK.** You may need this information when installing communications software.



4. Windows will now restart. Click **Yes** on this screen to restart Windows.

5. When Windows restarts, check to see if the Winmodem is correctly installed. Click **Start** and point to **Settings**. Click **Control Panel**. You should see a new Winmodem icon like the one pictured below. Turn to the section entitled 'Software Installation and Testing" (page 21) to begin installing your RapidComm communications software.

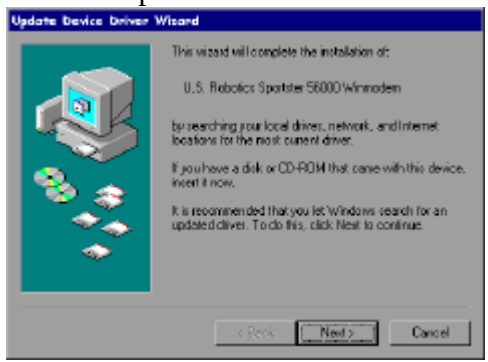


NOTE: If you did not see a Winmodem icon or the screen directly preceding, or if you instead got a message that files are corrupt—turn to the section entitled: "Uninstalling the Winmodem Software".

Installing the Winmodem software under Windows 950b.

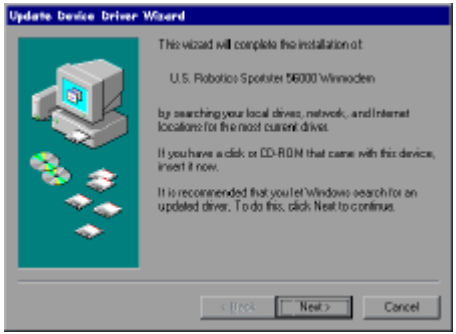
The procedure for installing your Winmodem software is slightly different under Windows 950b. Please follow these instructions to install your software.

1. When you see this screen after Windows starts,
   DO NOT click anything
   DO NOT press **ENTER.**

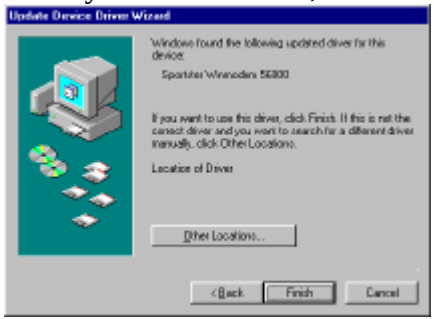


   Instead, insert your Winmodem disk in your floppy drive. (Once you've installed the Winmodem software, the modem will be correctly identified.)

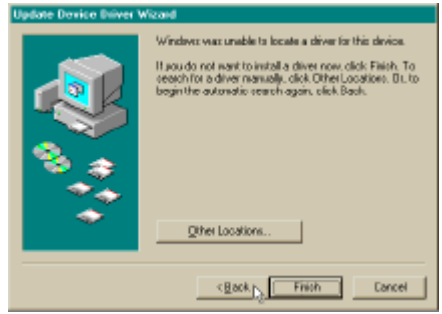
2. Click **Next** on this screen to continue.



3. When you see this screen, click **Finish.**

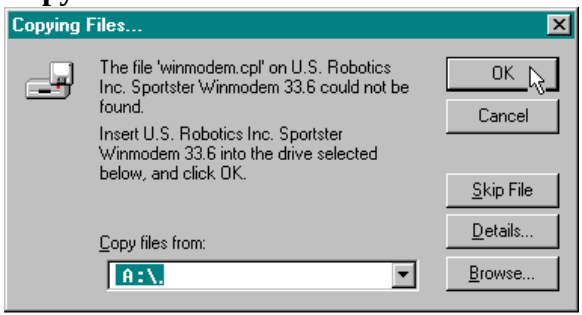


NOTE: If you see the screen below instead of the screen preceding, click the **Back** button.



4. When you see this screen, click the **OK** button:

5. When you see this screen, type **A:\.** (Be sure to type the period after the backslash.) to replace whatever is in the **Copy files from** box.



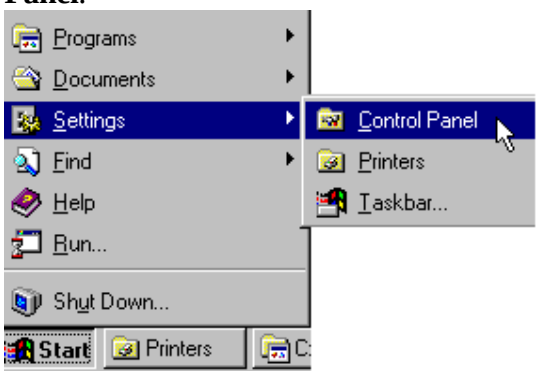
Then click **OK**..

6. You will see a series of screens as files copy and drivers build.

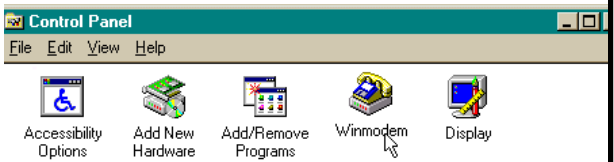
7. Finally, you will see a screen telling you that the modem has been installed. This screen will also show the COM port assignment for the modem. Click **OK**.

8. Windows will now restart.

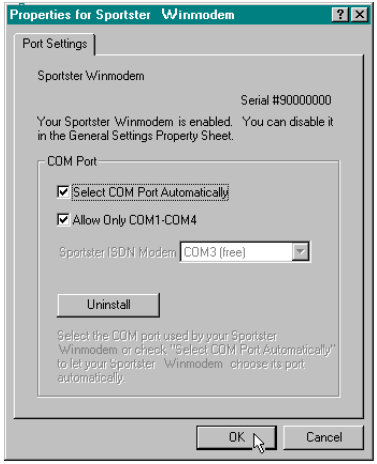
9. Once Windows restarts, check the installation by going into the **Control Panel**.



10. Click the **Winmodem** icon:



11. You should then see this screen: Click **OK.**



NOTE: If you did not see a Winmodem icon or the screen directly above—if you instead got a message that files are corrupt—turn to the section entitled: "Re-Installing the Winmodem Software".

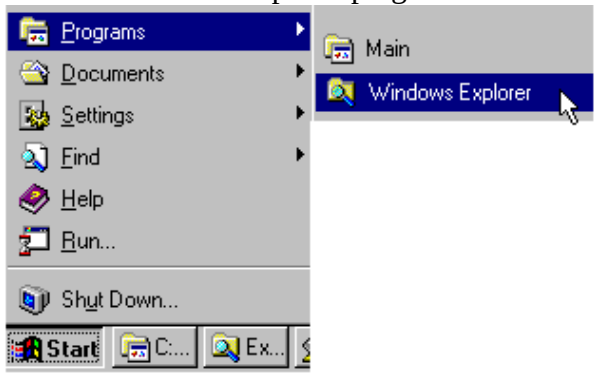
12. For instructions on how to install the RapidComm fax/data software, go to the section entitled **"**Software Installation and Testing" (page 21).

Uninstalling the Winmodem Software in Windows 95.

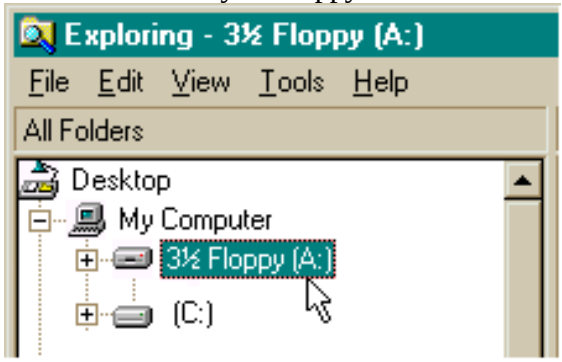
From the Start Menu, point to **Settings** and then click **Control Panel.** Click the Winmodem icon and then select Uninstall. Follow the onscreen prompts.

After running the uninstall, please follow these steps to insure that the Winmodem software has been completely removed from your system.

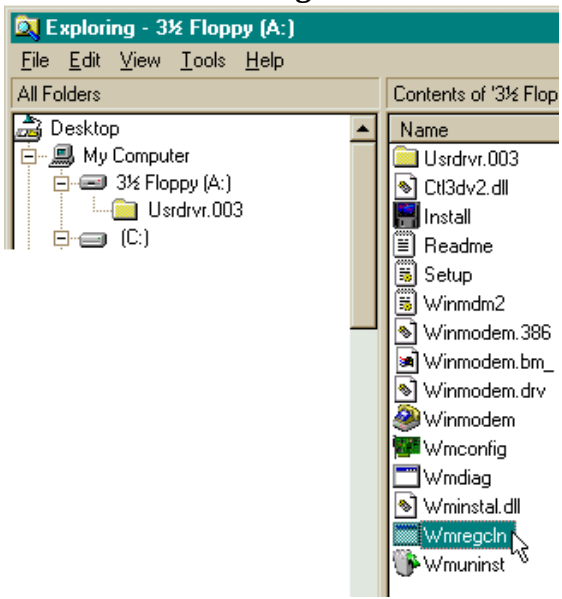
1. Restart Windows.
2. Insert the Winmodem disk that came with your new modem into your floppy drive.
3. Start the Windows Explorer program.



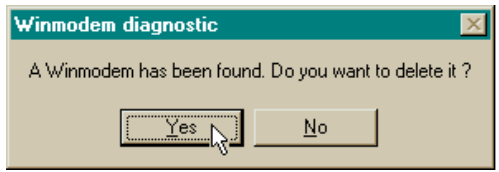
4. Click the icon for your floppy drive.



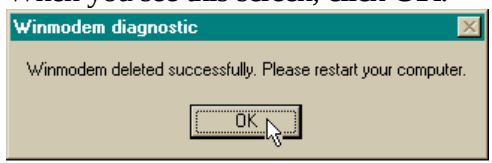
5. Double-click the **Wmregcln** file.



6. If the uninstall program completely removed the Winmodem software from your system, you will see a screen saying that "No Winmodem was found." Otherwise, when you see this screen, click **Yes**.



7. When you see this screen, click **OK**.



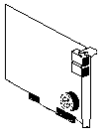
8. Shut down your computer.
9. Start Windows.
10. If you are uninstalling your Winmodem Software due to a failed installation, please proceed to the section entitled "Installing the Winmodem Software under Windows 950 or 950A" (page 11), or the section entitled "Installing the Winmodem Software under Windows 950b" (page

13). If you are not sure which version of Windows 95 you are using, please refer to the section entitled “Checking your Windows Version” (page 6).

These instructions cover the installation of the Winmodem hardware and the accompanying software under Windows 3.x. These instructions are for users of either Windows 3.1, Windows 3.11, or Windows for Workgroups

WINDOWS 3.X HARDWARE INSTALLATION

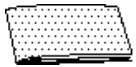
You'll need these items from your Sportster modem box:



the modem

a phone cord

the Connections CD



this manual

Winmodem disk

Installation Guide

Plus:  **a screwdriver** *(not included)*

This chapter will walk you through the installation of your Winmodem. There are two parts to the installation: hardware (the modem) and software. The modem must be installed before the software.

Plug and Play:
Your Winmodem supports Plug and Play installation, the fastest, easiest way to add new features (a modem, a sound card, etc.) to your PC.

How to Insert the Modem

NOTE: Before installing your modem, write down the modem's serial number in the manual. (The serial number is on the bar coded sticker on the modem and on the outside of the box the modem came in.) If you ever need to call our technical support department, the technical support representative will ask you for the serial number. This will help him or her identify the type of modem you have.

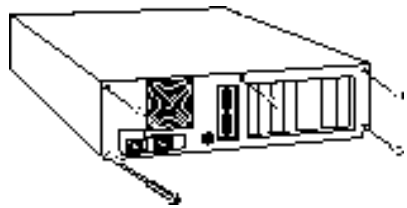
1. Turn off your computer and unplug it from the electrical outlet.
2. Unplug any peripheral devices (printer, monitor, keyboard, mouse, etc.) from the computer.

TIP: If you haven't added accessories to your computer before, we suggest labeling the cords and cables before unplugging them.

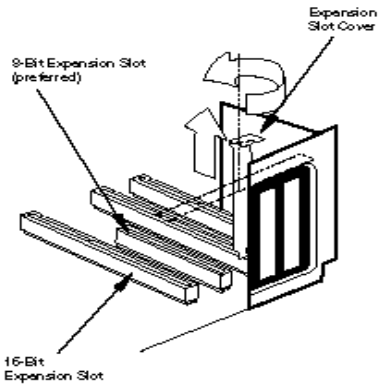
CAUTION: To avoid being shocked, make sure your computer and all peripheral devices are turned off and unplugged from the electrical outlets.

3. Remove the screws from your computer's cover and then remove the cover. Your computer may look different from this drawing, but the basic principle for

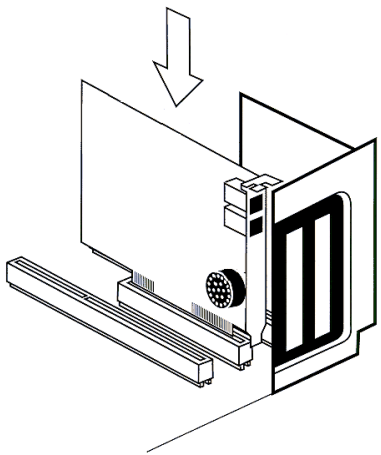
removing the cover should be the same. Refer to your computer manufacturer's manual if you need further instructions.



4. Find an empty ISA expansion slot that's at least as long as the gold edge of your modem. (ISA slots are black plastic grooves lined with metal.) Unscrew and remove the expansion slot cover (the long narrow piece of metal that keeps dust from entering through the opening that's perpendicular to the slot).



Holding the modem by each corner, align the gold edge with an empty expansion slot. Push down gently until the modem snaps into the slot. (Note: The drawing shows horizontally aligned expansion slots. Some computers have vertically aligned slots. The instructions apply to both styles.)

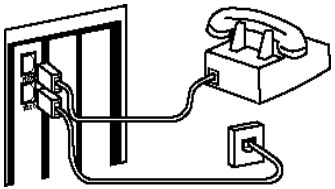


You'll have to apply a little pressure to seat the modem properly. Sometimes a gentle back-and-forth motion helps get the modem all the way into the slot. If you feel resistance, the modem may not be properly lined up with the slot. Do not force it. Take the modem all the way out and try again.

5. Once the modem is seated, secure it using the screw you removed in step 4.
6. Put the computer's cover back on and replace the screws.
7. If you currently have a phone plugged into the wall jack you're going to use for the modem, disconnect the phone's cable from the jack.
8. Plug one end of the phone cable that came with the modem into the TELCO jack at the rear of the modem.

WARNING : Be certain you are plugging the phone line into an ANALOG jack. Many office phones use DIGITAL lines. Attaching your modem to a digital line will damage the modem!

9. Plug the other end of the cable into the wall jack.
10. (If you want to use a telephone on the same line as the modem, plug the telephone's cable into the modem's PHONE jack.)



11. Plug the power cords, cables, and peripherals back into the computer and turn the computer on.
12. If Windows does not start automatically, please start it now.

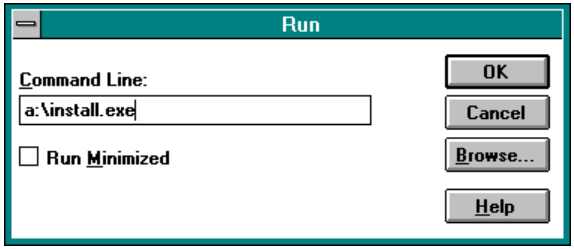
Modem Initialization

Your Winmodem came with a diskette that contains an installation program that will help your computer finish installing the modem. The installation program will also copy modem programs from the disk onto your computer's hard drive.

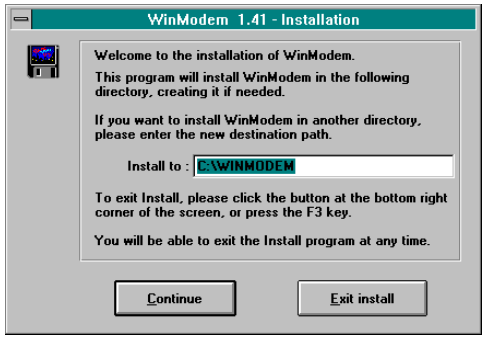
Running the Installation Program on a Windows 3.1 or 3.11 System

After inserting the Winmodem follow these steps:

1. Insert the installation diskette. Click **File** and select **Run.** In the Command Line text box, type **a:\install.exe**. Click **OK**.

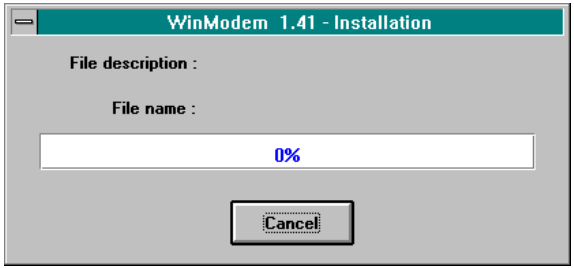


2. The next screen will tell you where the Winmodem installation files will be located. Click **Continue** to copy the Winmodem files to this directory. If you wish to copy the Winmodem files to a different directory, type the path to that directory here.



3. This screen tells you that the software will create the new Winmodem directory. Click **Yes.**

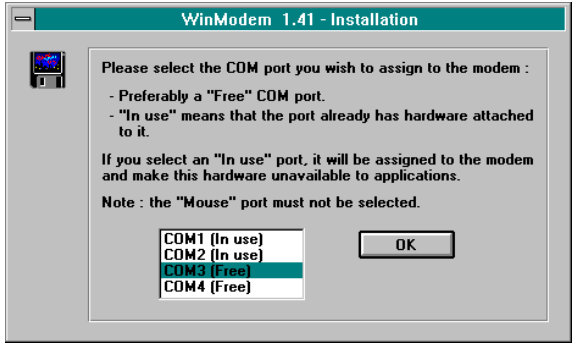
4. The following screen lets you know the installation software is being loaded to your hard drive. Let it finish.



5. This next screen tells you that modifications have been made to your Windows system files. Click **OK**.

6. This next screen tells you that the software will automatically detect available communications ports for the Winmodem. Click **OK.**

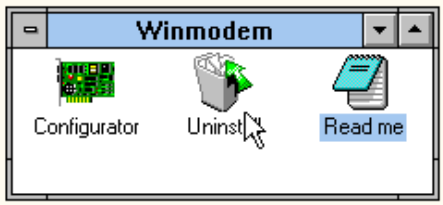
7. After the software detects the available COM ports, it will ask you select one for the Winmodem. Highlight any free one and then click **OK**. See the troubleshooting section if the software does not locate an available COM port.



8. Congratulations, your Winmodem software has been installed. Click **Restart Windows** to finish the process.

9. Windows will now restart. At this point, you will see a new **Winmodem** group like

the one shown below.



(Note: if you do not see a new **Winmodem** group, you will instead see the **Configuration** screen. You will have to choose an available I/O address and an available IRQ. Do **not** select **Let plug and play configure…**)

- For the I/O address: Choose any on the list.
- For the IRQ: The COM port/IRQ combinations shown here work with most computer set-ups:

COM	IRQ
1	4
2	3
3	5, 7, or 9
4	5, 7, or 9

If you have a sound card, SCSI card, or game card, it might be using IRQ 5 or 7. Do not make 5 or 7 your first choice then, because it might not be available.

Once you've chosen a combination, restart Windows. You should see the **Winmodem** group. If you do not see this group, try a different combination of resources.

- If you chose an unavailable I/O address, you will get an error message. Choose another I/O address in the **Configuration** dialog box that appears.
- If you chose an unavailable IRQ, you may encounter problems when your communications software program tells you it cannot find the modem. At that point choose another IRQ in the **Configuration** dialog box. (You can find it by clicking on the **Configurator** icon in the **Winmodem** group in the **Program Manager** window.)

Once you've finished installing your modem, you are ready to install the RapidComm communications software. Please turn to the section entitled "Software Installation and Testing"(page 33).

SOFTWARE INSTALLATION AND TESTING

Software Installation and Registration Using the Setup Wizard

This section guides you through the U.S. Robotics Setup Wizard, the *Connections* CD-ROM interface, and the installation of RapidComm (fax/data software). It also shows you how to register and test your new Sportster modem.

RapidComm fax/data software simplifies sending and receiving faxes directly from your computer desktop. You can build your own fax directory, send faxes to specified groups of phone numbers, request individual cover pages when necessary, and send individual faxes without exiting your word processing program.

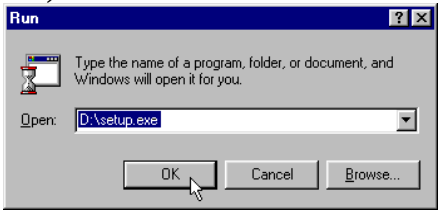
Additionally, RapidComm lets you connect to BBSs and other online data providers. Take advantage of this access to enter a new world of information and entertainment.

NOTE: The following instructions apply to Windows 3.x and Windows 95 users. However, only Windows 95 screens are shown.

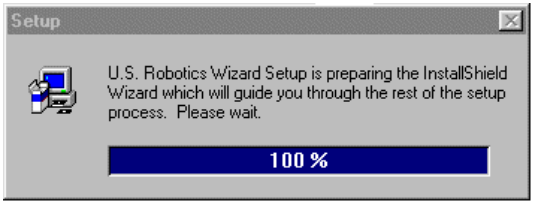
NOTE: If you have an older version of RapidComm installed on your system, you must uninstall it before continuing.

1. From the Windows 95 desktop, click **Start** and select **Run**.

2. In the **Run** text box, type **D:\setup.exe**. (If your CD-ROM drive has a letter name other than **D**, type that letter in place of **D**.) Click **OK**.

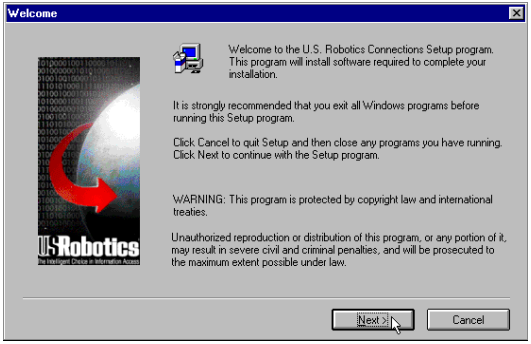


3. You will briefly see a screen that looks like this.

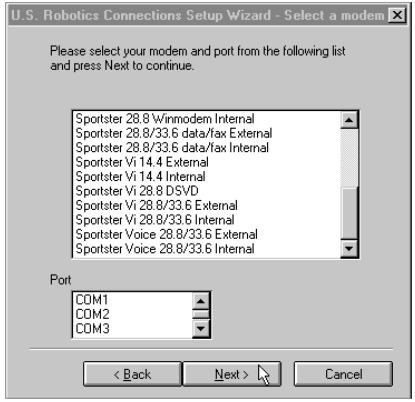


4. When you are asked if you wish to run the Setup Wizard, click **Yes**.

5. This is the introduction to the Setup Wizard. After reading this screen, click **Next**.

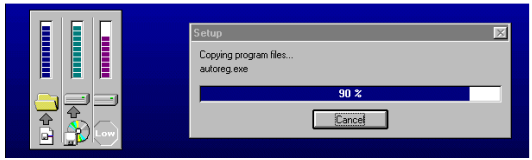


6. When you see the following screen, select your modem from the list, verify that the COM port setting is correct, and then click **Next.**

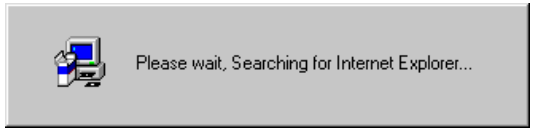


7. When you see the next two screens, fill in the blank boxes with the appropriate information, pressing the TAB key to move between fields. Click **Next** on each screen when you have filled in all of the necessary information.

8. You will see the following screen as the Setup Wizard creates a U.S. Robotics *Connections* program group.

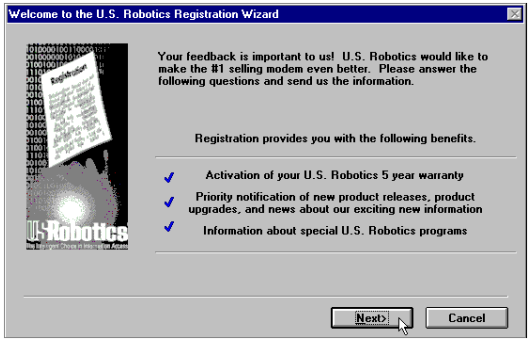


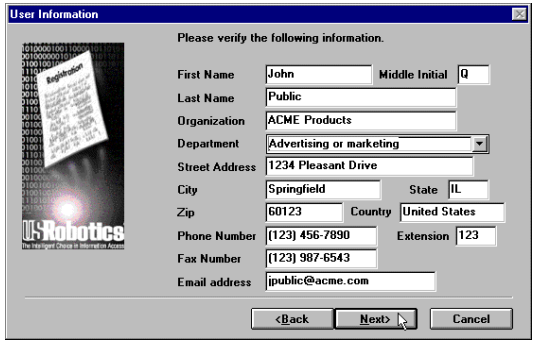
9. Next, the Setup Wizard looks for Microsoft's Internet Explorer on your system.

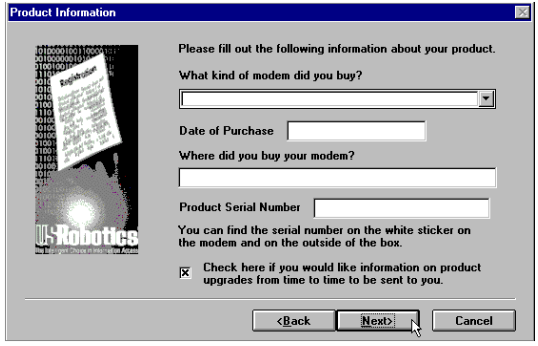


If the Setup Wizard does not find Internet Explorer, it will automatically install the application later in the Setup Wizard process.

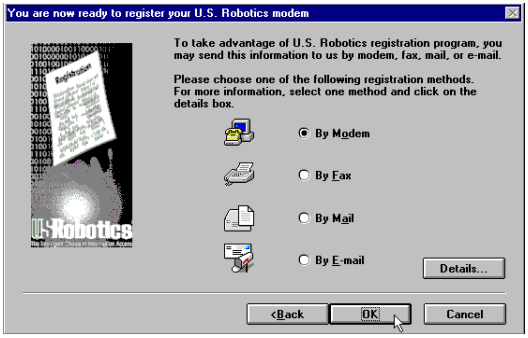
10. The next screen introduces the U.S. Robotics Registration Wizard. After you read the screen, click **Next**. Read through each of the next two screens and verify or correct the information you typed earlier. Click **Next** on each screen to move on.







11. When you see this screen, you are ready to register your new Sportster. **By Modem** will already be selected. We recommend you choose the **By Modem** option because it's a great way to verify that your Sportster is correctly installed. Choose **By Modem** by clicking **OK**.

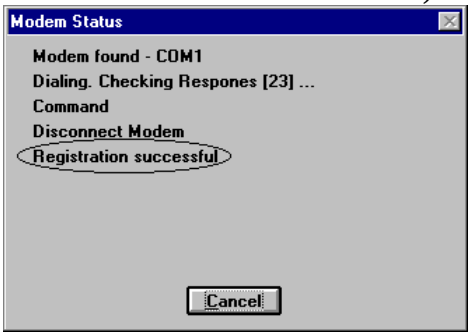


12. When you see this screen…

- If you need to dial a prefix (such as 9) to make a call outside your building, type the prefix before the 1 in the **Prefix** box and then click **Dial**. If the modem still does not dial the number properly, you may need to insert a comma between the prefix and the 1 to force the modem to pause after dialing the prefix.

- If you do not need to dial a prefix, simply click **Dial**.

13. You will see a screen indicating that the registration information has been sent (see the circled text in the screen below).

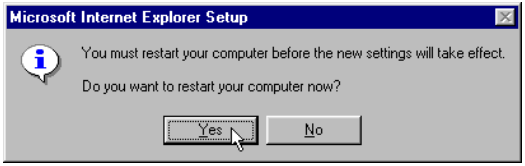


14. The next screen indicates that the Setup Wizard is finished. Click **OK** to launch the *Connections* CD-ROM.

NOTE: If the Setup Wizard detected Internet Explorer on your system during the setup process, your computer will launch the *Connections* CD-ROM when you click **OK**. Continue at step 15.

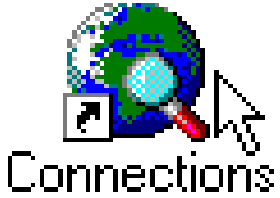
If the Setup Wizard *DID NOT* detect Internet Explorer on your system earlier in the setup process, it will launch the Internet Explorer installation utility after you click **OK**. When you see the following screen, click **Install Internet Explorer** and follow the on-screen instructions to complete the installation of the software.

At the end of the installation process, you will see the following screen. Click **Yes.**

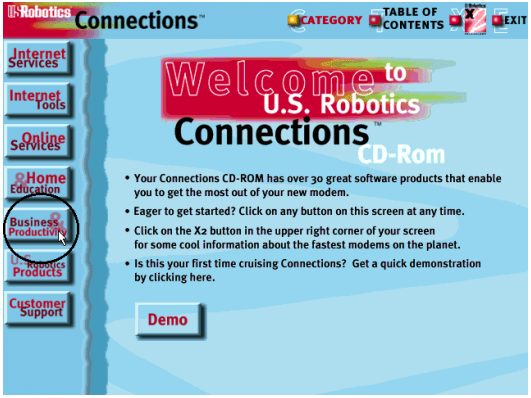


Windows 95 users: Windows will restart and the *Connections* CD will launch automatically upon restart.

Windows 3.x users: Windows will restart. When your desktop reappears, you will see a ***Connections*** icon (shown below) in the *Connections* program group. Double-click on this icon to launch the CD.



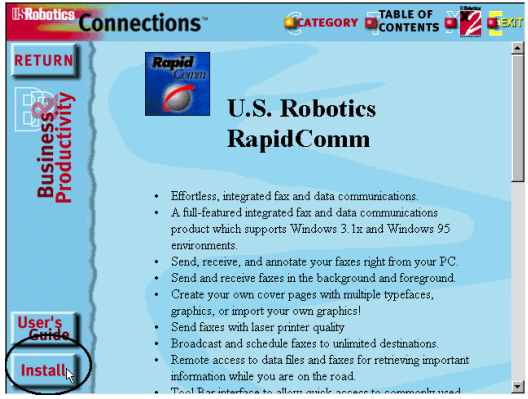
15. When the main *Connections* menu appears, click **Business & Productivity** in the menu on the left hand side of the screen (circled below).



16. Double-click the RapidComm button on the **Business & Productivity** menu (circled in the following screen shot). RapidComm is the fax/data software you can use to send faxes directly from your desktop, transfer files electronically, or dial into a BBS.

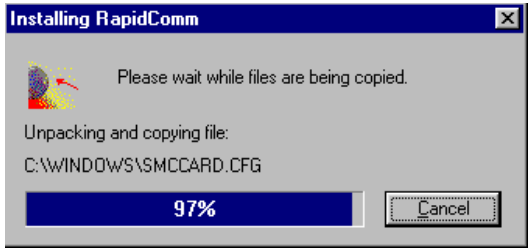
17. The next screen contains another menu on the right hand side of the screen. Click **Learn More & Get Software** (circled in the screen image below).

18. The next screen displays information about RapidComm. You can use the scroll bar on the right hand side of the screen to scroll through the text. When you are ready to install RapidComm, click **Install** (circled in the lower left hand corner of the following screen image).



19. The screen shown below is the first of the RapidComm Setup screens. When this screen appears, make sure the location shown in the text box is where you would like the files copied to and then click **Install**. If you wish to copy the RapidComm files to a different directory, type that location in the text box before clicking on **Install**.

20. You will see this screen as files are copied.



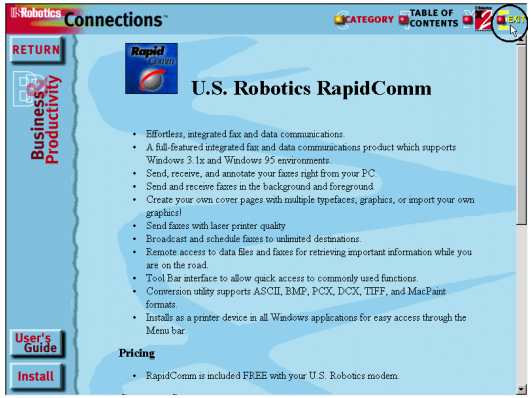
21. When you see this screen, click on either **Yes** or **No.**

- If you click **Yes,** every document you print will be treated as a fax unless you change the printer selection in the program from which you are printing.
- If you click **No,** RapidComm will not be selected as the default printer. When you

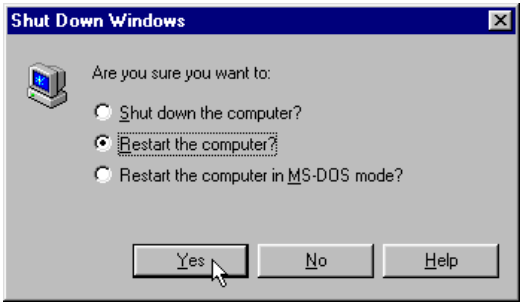
want to send a fax, you must select RapidComm as the printer in the program from which you are printing.

22. This screen marks the end of the RapidComm installation. Click **OK**

23. Clicking **OK** returns you to the *Connections* interface. Click **Exit** (circled in the following screen image).

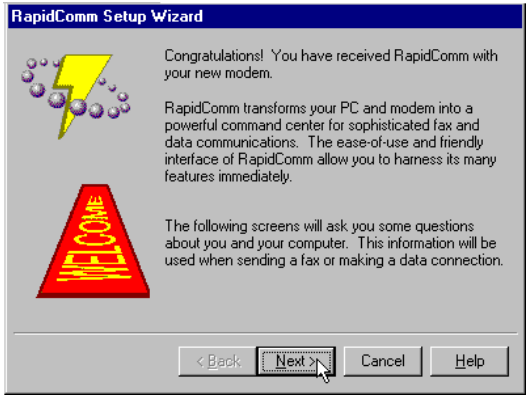


24. Restart Windows by selecting the **Restart the Computer?** option from the **Shut Down** menu in the Windows **Start** menu.

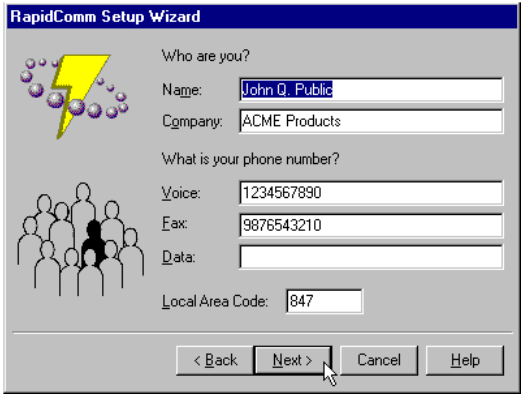


25. When your desktop appears, launch RapidComm from the Windows **Start** menu.

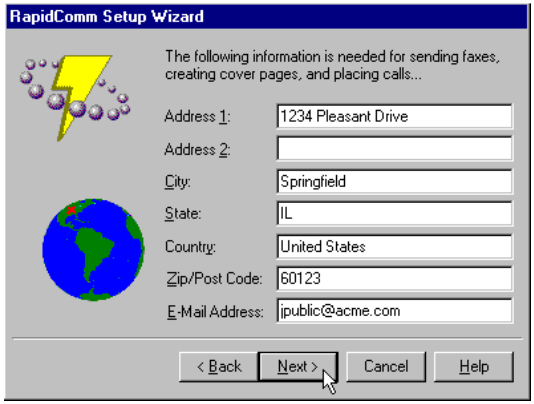
26. The following screen is the first screen of the RapidComm Setup Wizard. After you read the screen, click **Next**.



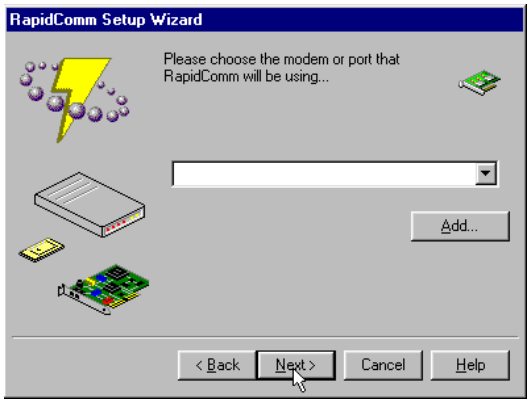
27. When you see this screen, verify the information shown and then fill in the **Data** box (if you have a third phone number just for your modem) and the **Local Area Code** box. Then click **Next**.



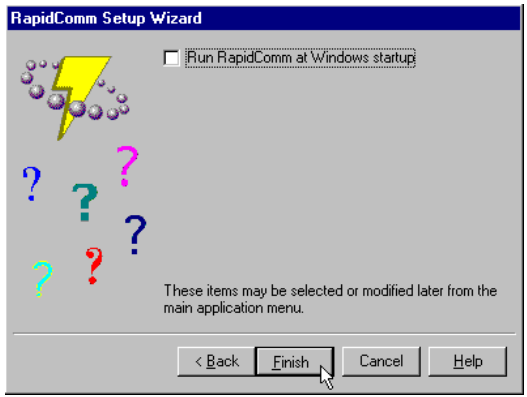
28. After you verify the information on this screen, click **Next**.



29. Select the correct modem in the text box on the following screen. Then click **Next.**

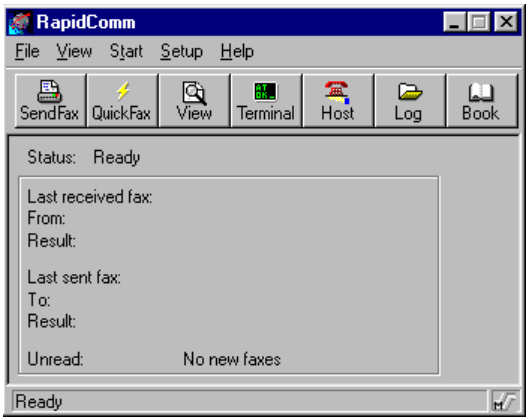


30. When you see this screen…



- If you want RapidComm to launch with every Windows startup, click on the box to the left of **Run RapidComm at Windows startup**. A check will appear in the box. Then click **Finish.**
- If you do not want RapidComm to start every time you start Windows, simply click **Finish**.

31. You will see this screen.

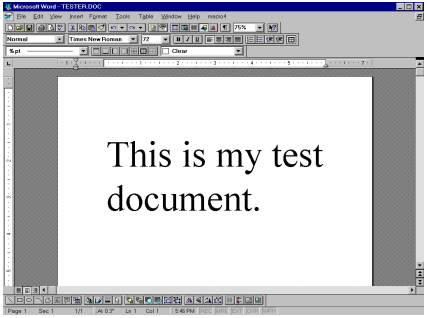


This is the main RapidComm screen. To send your first fax, keep this screen open. (After this initial run, RapidComm will not need to be running in order to send a fax.)

Sending Your First Fax

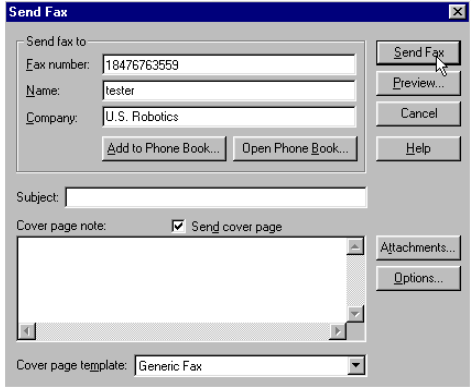
Using RapidComm, you can send and receive faxes directly from your computer and eliminate the need for an expensive fax machine. Once you learn the basics of sending faxes, you can learn more involved fax functions, such as sending documents to groups of numbers at assigned times and how to transfer data files. These more advanced functions are explained in the electronic RapidComm manual on your *Connections* CD. This chapter will walk you through sending your first fax.

1. Open an application in which you can create documents that you might want to fax (e.g., a word processing application). Create a document containing only a sentence or two. Name the document "tester". Keep the document open.



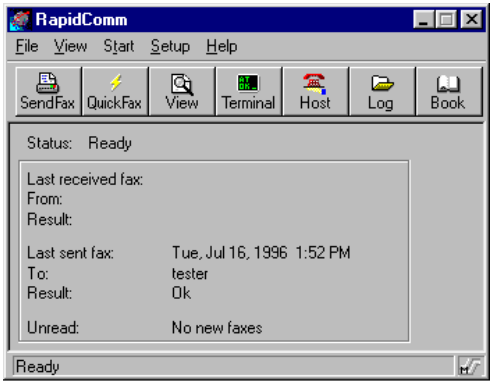
2. From the **File** menu, select **Print**.
3. Select RapidComm as the printer. This can be changed in most Windows applications in the **Print** dialog box.
4. Click **OK** or **Print** (whichever button you click in your application to indicate that you are ready to print) in the **Print** dialog box.
5. When you see the following screen, fill in the necessary information in the text boxes. For testing purposes, send your "tester" document to the U.S. Robotics fax number, 847-676-3559.

NOTE: If you need to enter a prefix (such as 9) to dial a number outside your building, type the prefix before the fax number in the Fax Number field.



When you've finished, click **Send Fax.**

6. You will see a series of screens as the fax is being transmitted. When the fax has been successfully transmitted, you will see a screen that looks like the screen on the right.



Congratulations —you are now ready to start using your Winmodem!

Go to the electronic RapidComm manual on your *Connections* CD for more detailed instructions on sending faxes and other things you can do using your Winmodem and RapidComm.

USING OTHER COMMUNICATIONS SOFTWARE

Your new Winmodem was designed and tested using a wide range of Windows communications software. If you'd like to use another package instead of RapidComm, this section will provide you with some of the information commonly required when installing communications software.

NOTE! Your Winmodem requires the use of fully Windows-based communications software.

Type of Modem

Most communications software programs will ask you to specify the modem you are using. Select a **U.S. Robotics Sportster high speed modem**. If that selection is not listed, select **U.S. Robotics Courier™ V.Everything®** or one of the other **Courier** high speed modems.

KEY POINT : Refer to the manual that came with your software for its installation instructions. The software's installation program will ask you questions about the modem you are using.

Initialization String

For hardware flow control, a fixed serial port rate and full result codes type:

AT&F1 and press **ENTER**.

If you must use software flow control, type:

- **AT&F2** and press **ENTER**.

Flow Control

- For hardware flow control (highly recommended), select **RTS/CTS**
- For software flow control, select **XON/XOFF**.

NOTE: Disable the type of flow control (hardware or software) that you are not using.

NOTE: DO NOT select a 28,800, 14,400, or 12,000 bps serial port rate if offered. Your modem will NOT work correctly with any of these settings. Fix or lock the serial port (baud) rate (if it's referred to as autobaud, select OFF).

U.S. ROBOTICS MODEM UPDATE WIZARD

Your *Connections* CD-ROM includes the U.S. Robotics Modem Update Wizard. Periodically, we make enhancements to the Winmodem software. The Modem Update Wizard enables you to quickly and easily add these enhancements to your Winmodem.

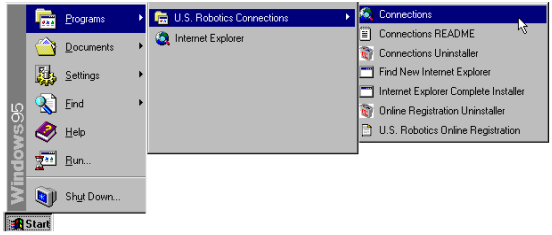
NOTE: You can obtain the Modem Update Wizard from our BBS (847-982-5092) or from our World Wide Web page (www.usr.com) if you do not have a Connections CD-ROM.

NOTE : Complete the instructions in the "Software Installation and Testing" section of this manual before installing the Modem Update Wizard.

NOTE: These instructions pertain to Windows 3.x and Windows 95. However, only Windows 95 screen shots are shown unless the process for Windows 3.x users differs significantly.

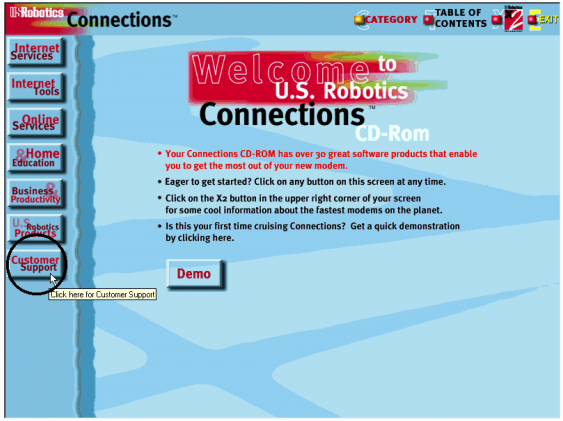
Installation

1. Insert the *Connections* CD-ROM into your CD-ROM drive.
2. From the Windows **Start** menu, point to **Programs,** point to **U.S. Robotics Connections**, and select **Connections**.



NOTE: Windows 3.x users launch the CD-ROM by clicking on the Connections icon in the Connections program group.

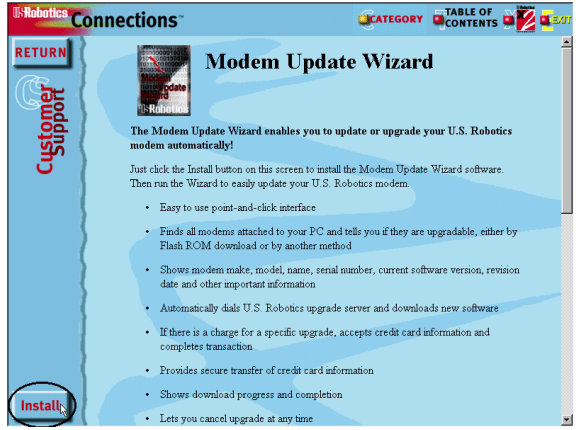
3. From the main ***Connections*** menu, click **Customer Support** (circled in the following screen shot).



4. When the **Customer Support** menu appears, click on the **Modem Update Wizard** button (circled in the following screen shot).

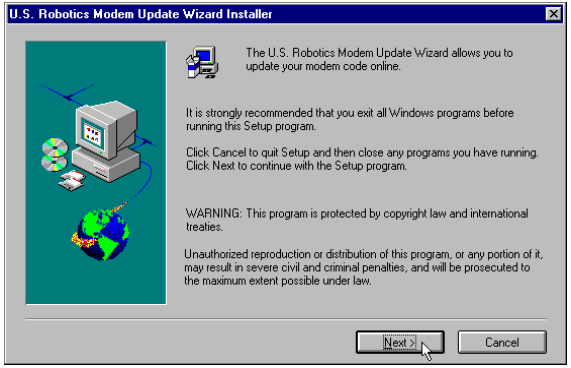
5. Next, click on the **Learn More & Get Software** button (circled in the following screen shot).

6. In the following screen, click on the **Install** button (circled below).

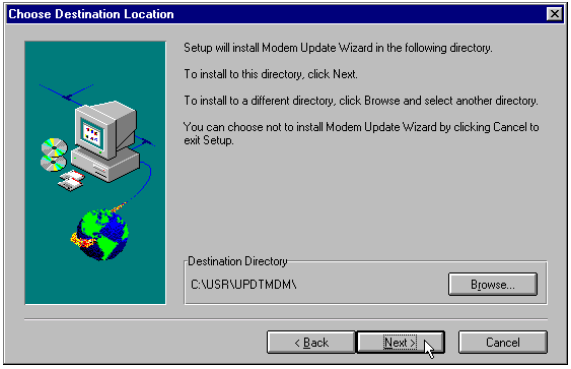


7. This launches the U.S. Robotics Modem Update Wizard Installer. You will see the following screen for a moment.

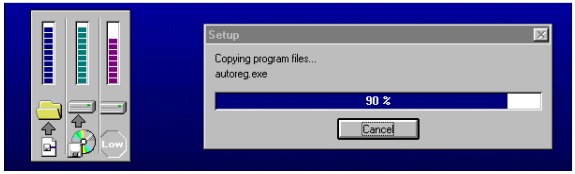
8. The screen that follows is the welcome screen for the installer. After you read this screen, click **Next**.



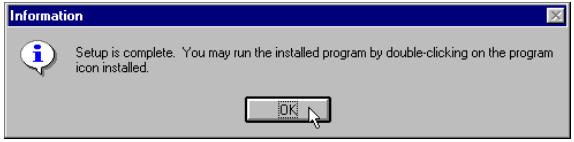
9. The next screen indicates where the installer will store the files for the Update Wizard. If the indicated location is acceptable, click **Next**. Otherwise, click **Browse** to find an acceptable directory.



10. You will see the following screen for a moment as the installer creates the **Modem Update Wizard** program group.



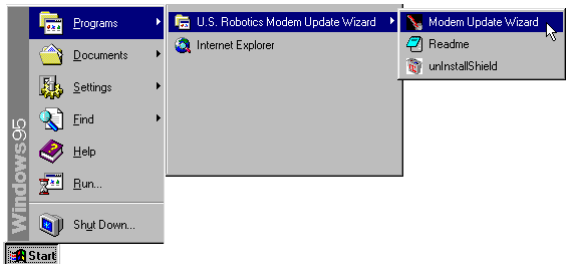
11. This screen indicates that the setup is complete. Click **OK.**



Operation

1. Close any other Windows applications and start the program by clicking **Start** and pointing to **Programs.**

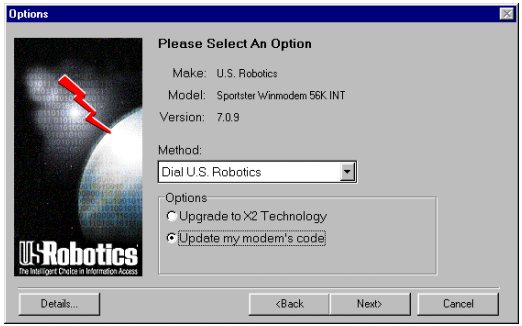
Select Modem Update Wizard from the **U.S. Robotics Modem Update Wizard** program group.



2. Click **Next** on the welcome screen to bring up the license agreement.
3. After reading the license agreement, click **Accept** to continue.
4. The software will detect any modems installed on your system.
5. Once the detection phase finishes, you will see this screen. (Your screen will list any U.S. Robotics modems found on your system.)

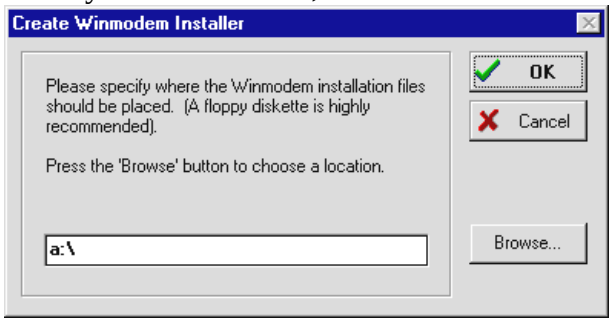
6. Highlight the U.S. Robotics modem you wish to upgrade and click **Next** to continue.
7. A screen will tell you to have a blank, formatted diskette ready. You'll save downloaded files to the diskette. (If you do not have a diskette, you can save the files to your hard drive. We recommend you save the downloaded files to your diskette drive. This will enable you to easily reinstall your Winmodem if necessary in the future.)

8. When you see this screen, click **Next** to continue.



9. The next screen automatically dials the U.S. Robotics Update Server. Select **Tone** or **Pulse** dialing as necessary and then click **Dial**. You will see a series of screens as the files are downloaded.

10. When you see this screen,



- Insert a blank, formatted diskette. (If you prefer to copy the files to your hard drive, click **Browse** to select the drive and folder to store the files in.) We highly recommend saving the Winmodem update files to diskette. This ensures that they will be available in the event you have to reinstall your Winmodem.
- Click **OK**.

11. When you see the screen telling you to remove the diskette after clicking the **OK** button, click **OK**.

12. You must now restart your system in order to complete the installation.

If you have Windows 3.xx:

- Remove the diskette from the drive.
- After exiting Windows, turn off your computer.
- Turn on your computer and restart Windows.

If you have Windows 95:

- Windows will automatically shut down your system.
- When you see a screen saying "It's now safe to turn off your computer", turn off your computer.
- Remove the diskette from the drive.
- Restart Windows by turning the computer back on.

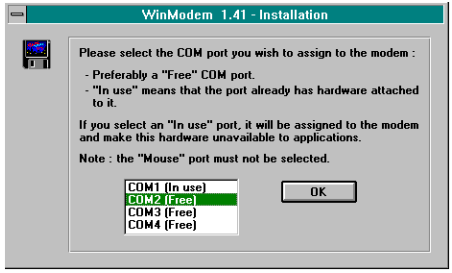
13. When your system restarts,

If you have Windows 3.xx:

- Click the **File** menu (from Program Manager) and then click **Run**.
- After inserting the diskette created by the Modem Update Wizard, type **A:\install.exe** and press **ENTER**.

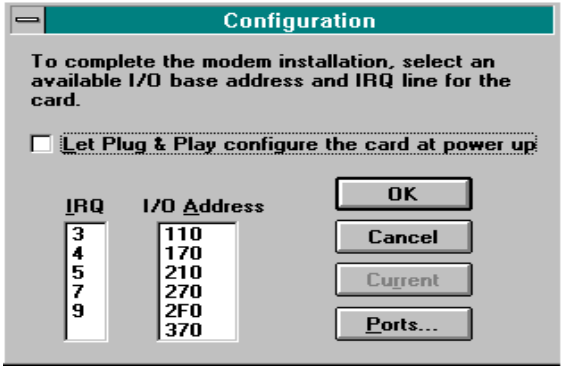
(If you saved the file to your hard drive, type in the path to the Winmodem files, instead.)

- You will see a screen displaying the directory the Winmodem files will be installed in. Click **OK** to continue.
- Click **OK** on the screen confirming that backups have been made of your Windows system files.
- When you see the screen on the right, choose one of the COM ports labeled **Free** and then click **OK**.



- The next screen will ask you to restart Windows. Click **OK** to restart Windows.
- When Windows restarts, you will see the screen on the next page.

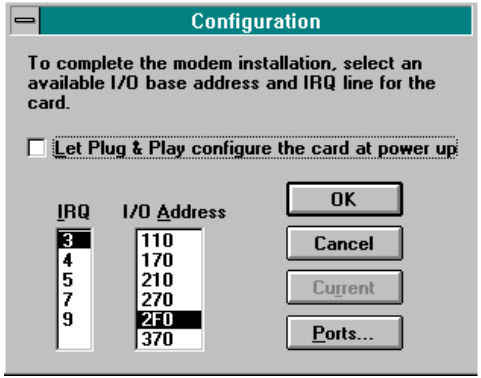
Note: if your system is Plug and Play capable, Windows may automatically configure your modem. In that case, you will not see any of the Configuration screens on the following two pages.



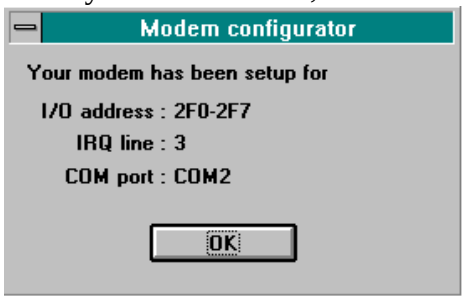
Note: If you do not see this screen up front on your desktop, look behind your Program Manager screen.

Select the **IRQ** and **I/O Address** settings that your Winmodem has been using and click **OK.**

Note: If you do not know what the settings are, try different settings.



- When you see this screen, click **OK**.



You will now want to confirm that the update is complete.

- If the Modem Update Wizard does not start automatically, start it by clicking on its icon.
- You will see a series of familiar screens. You do not have to do anything with them.
- You will see a screen telling you that the update was successful, click **Finished**.
- Congratulations—you've successfully updated your Winmodem!

If you have Windows 95:

- You will see a series of "New Hardware Found" screens after Windows restarts.
- You will then see a screen asking you to select which driver to use to install your new hardware. Select "**Driver from disk provided by manufacturer**".
- If you saved the files downloaded from the server to diskette (recommended), insert that diskette into your diskette drive.
- Select the letter for your diskette drive (usually **a:**\).
- If you instead downloaded the files to your hard drive, select the folder to which you downloaded the files.
- The updated files will now be installed on your system.
- You will see a window showing what COM port your Winmodem has been

installed to. Make a note of this information if you haven't already.

- Windows will now restart.
- After the system finishes testing your modem, you will see a screen indicating that your modem was successfully installed. Congratulations—you have successfully updated your Winmodem!
- When you see the screen telling you to remove the diskette after clicking the **OK** button, click **OK**.
- You must now restart your system in order to complete the installation.

If you have Windows 3.xx:

- Remove the diskette from the drive.
- After exiting Windows, turn off your computer.
- Turn on your computer and restart Windows.

If you have Windows 95:

- Windows will automatically shut down your system.
- When you see a screen saying "It's now safe to turn off your computer", turn off your computer.
- Remove the diskette from the drive and turn the computer back on.

14. Windows will test your modem and then display a screen indicating that your update was successful.

Congratulations—you have successfully updated your Winmodem to the latest technology!

TROUBLESHOOTING AND ONLINE HELP RESOURCES

This section provides you with some fast solutions to common modem problems. It also explains how to contact us via our various Internet sites, and how to use our BBS.

Problem	Diagnoses	Solutions
The computer or software will not recognize the modem.	You may not be using fully Windows-based software	The Winmodem requires FULLY Windows-based software. Some software may run in Windows, but have DOS-components. Check with your software manufacturer for more information
	You may have your modem assigned to a COM port or IRQ that is in use by another device.	Check to make sure that you have the correct COM port and IRQ settings assigned in your software and in Windows.
	You might not be entering modem commands properly.	Modem commands must be entered in either all upper (AT) or all lower (at) case.
You are seeing double characters in Terminal Mode.	Local echo is activated on both the modem and the software.	Disable local echo by typing **ATE0** and pressing **ENTER** while in Terminal mode

Problem	Diagnoses	Solutions
The modem won't go off hook to dial or won't answer the phone.	The phone cord may not be properly connected.	The phone cord should run from the wall jack to the TELCO jack on the modem. Do not use a cord longer than 12 feet. Use the cord included with your Winmodem if possible.
	You may have plugged the phone cord into a digital line.	If you are unsure if you have a digital line, contact your phone company. Plugging your modem into a digital line can damage the modem.
	You may have other devices sharing the phone line with the modem.	There should be no line splitters, fax machines, etc., between the modem and the wall jack
	You may have a poor line connection.	Place the call again. The phone company routes call differently each time. You can verify a valid phone connection by entering **ATX3DT18479825092**. (the U.S. Robotics BBS)
	If you have voice mail messages waiting, your dial tone may be altered.	Retrieve your voice mail messages in order to restore your normal dial tone.

Problem	Diagnoses	Solutions
The modem won't go off hook to dial or won't answer the phone. (cont.)	The software you are using may not have auto-answer enabled.	Check to make sure that auto-answer is enabled in your software. In RapidComm, type **ATS0=1** in Terminal Mode.
Your screen keeps displaying random garbage characters.	Your settings for word length, parity, and stop bits may be different from the remote modem's.	Set your modem's word length, parity and stop bits to match those the remote modem is using.
	Your software and modem may not be set to use the same flow control settings.	Make sure that your software and your modem are set to use the same flow control settings.
	The optimum flow control settings may not be enabled on your modem.	Load the optimal settings by typing this command in Terminal Mode: **AT&F1** and pressing the **ENTER** key.
	The phone connection might not be able to handle high-speed data transmission.	Try lowering the connection speed you are using.

Problem	Diagnoses	Solutions
Your communications software is reporting many cyclic redundancy check (CRC) errors and low characters per second (CPS).	You may have a bad phone connection.	Try placing the call again. The phone company routes calls differently each time.
	You may not have the optimum flow control settings enabled on your modem.	Type **AT&F1** and press the **ENTER** key while in Terminal Mode.
	The serial port rate in your communications software may be set too high for your modem's UART or your area's phone lines.	Lower the serial port rate settings in your communications software to 38,400 bps or 19,200 bps
	The remote site you are dialing into may have trouble with the file transfer protocol you are using.	Try using a different file transfer protocol. Do not Xmodem if other protocols are available.
	There may be a memory resident program (such as a virus checker, clock or calendar program, or system monitoring software) running in the background.	These programs can interfere with data communications. Try disabling any memory resident or TSR programs running in the background.

Problem	Diagnoses	Solutions
Errors are occurring constantly in your V.17 fax transmissions.	You may not be using the ideal modem initialization string for fax transmissions.	Enter the following initialization string in your software setup screen: **AT&H3&I2&R2S7=90.**
	You may have a memory resident program running in the background.	Some memory resident programs can interfere with data or fax communications. Disable any memory resident programs running in the background.
	You may have an outdated or incorrect comdriver on your system.	Load the comdriver that came with your fax software. This may require re-installation of your modem software.
RapidComm fails to initialize the modem.	Your "baud" rate may be set too high.	Lower the "baud" rate to 9600.
	RapidComm's port settings may be incorrect.	Make sure RapidComm's port settings are correctly set up for your system. (Refer to your system documentation for assistance in determining correct port settings for your computer.)

Online Help Resources

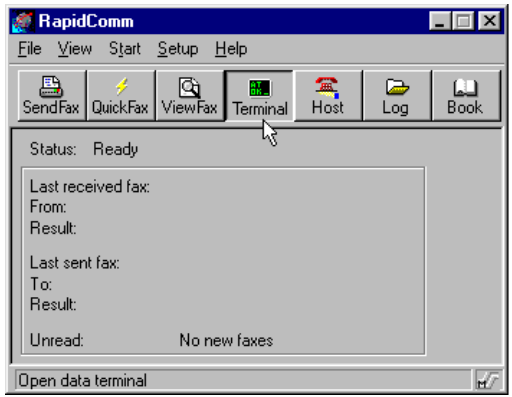
Connecting to the 3Com BBS

To connect to the 3Com Bulletin Board System, follow these steps:

1. Start RapidComm. The software settings for the BBS are:

   ANSI terminal emulation
   Data Bits: 8
   Parity: None
   Stop Bits: 1

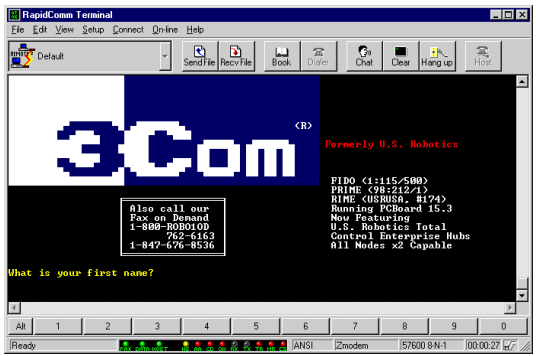
2. Put RapidComm in Terminal mode by clicking on the **Terminal** button (see the following screen image).



3. Type the following command: **ATDS0** and press **ENTER**.

NOTE: ATDS0 automatically dials 1-847-982-5092, the U.S. Robotics BBS. If you must dial a number (such as "9")to reach an outside line, instead type ATDT9,18479825092. If you dial a different number, substitute that for "9" in the string above.

If this is your first time connecting to our BBS, you will be asked to enter your name and a password and to fill out a questionnaire.

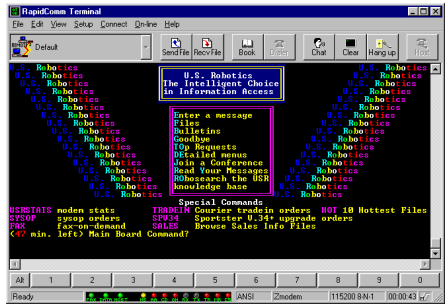


The preceding screen shot is what the introduction screen of the 3Com BBS will look like.

Using the BBS, you can send a message to Technical Support, or access the U.S. Robotics File Library. The library contains hundreds of helpful files and tips to make using your modem and computer a breeze.

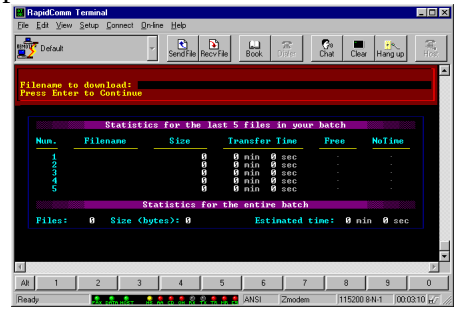
Downloading the Technical Reference Guide

1. To download the Technical Reference Guide, follow these steps: From the main menu, select **D** for **Download a file**.



(This is what the main menu will look like.)

2. A **Filename to Download***:* text box appears on the screen.



3. Type the name of the file you wish to receive. See below for more information.

   WINM-MAN.ZIP is the User's Guide in PDF Format. If you haven't already installed it, you will need to install Adobe Acrobat™ Reader on your system. Adobe Acrobat Reader is available for download on our BBS.

4. **Protocol Type for Transfer**. Your selection depends on what your software supports. If possible, make Zmodem your first choice. Xmodem should be your last choice since it is very slow.
5. Depending on the software you are using, you will either be prompted where you want the file placed, or the file will be placed in the directory where your communications software is loaded.
6. When the file transfer is complete, and you are ready to leave the BBS, select **G** for **Good-bye** from the main menu.

U.S. Robotics offers a number of other online technical support options. Choose any one of the following if you need help with your new Sportster or want to learn more about it.

Internet FTP

The FTP site contains the same files as the BBS site. FTP to **ftp.usr.com.**

Internet on Demand

Provides automatic technical support through a library containing product information, quick reference cards, and installation help. To obtain an index of available documents, send a blank
e-mail to **support@usr.com**. To have a document e-mailed to you, send the document's number as the subject.

World Wide Web

A U.S. Robotics Home Page containing the same information as the Internet on Demand listing as well as information about U.S. Robotics. Log on to **http://www.usr.com**. (correct web address?)

CompuServe

Access U.S. Robotics Support and Service by selecting **GO USRobotics.**

America Online

Connect to U.S. Robotics through America Online. Go to the **Keyword** field and type **USROBOTICS** to connect to various U.S. Robotics resources, such as file libraries, message boards, online customer support, and product announcements.

Fax and Technical Support Hotline

Technical questions about U.S. Robotics modems can also be answered via fax or by technical support representatives.

Fax (847) 676-7323
Standard Voice Support (847) 982-5151

No-Hold Service

U. S. Robotics also staffs its own 900 toll number for immediate assistance. These lines are staffed from 8 a.m. - 6 p.m. CST Monday through Friday.

No-Hold line 900-555-USR1

There is a $1.50 per minute charge which will appear on your local phone bill. You must be 18 or older or have parental permission. Service available in U.S.

Are You Still Having Problems?

- Review this manual.
- Call or visit your modem dealer. They may be able to assist you.
- If your dealer can't help you, contact 3Com/U.S. Robotics Customer Support.

  When you call, specify your modem serial number (found on the modem and on the outside of the box), the software being used, and, if possible, the contents of your ATI7 screen.

If You Must Return the Modem to Us...

If the Customer Support representative determines that you need to return the modem, you will receive an SRO (Service Repair Order) number. You must have an SRO number before returning the modem to us. Ship the unit, postage paid, in a strong box made of corrugated cardboard with plenty of packing material. Include your SRO number, name, and address on the shipping label as well as inside the package. **Do not send any booklets, cables or software. They will not be returned.**

Ship to the following address:

3Com Corporation
Attn: RMA
SRO#
6201 W. Oakton, East Dock
Morton Grove, IL 60053

RapidComm Troubleshooting Tips

PROBLEM: *The lights in RapidComm's modem light monitor do not correspond to the modem's actual lights.*
DIAGNOSIS: Under certain circumstances, the modem light monitor does not correctly report the activity of the modem. We are aware of this problem and are working to rectify the situation in upcoming versions of the software.

PROBLEM: *The station ID works intermittently.*
DIAGNOSIS: Under certain circumstances (including receiving a fax), the station ID may not work properly.

PROBLEM: *RapidComm does not work properly at 115.2 Kbps.*
DIAGNOSIS: The presence of disk compression software on your system hampers RapidComm's ability to work properly at 115.2 Kbps. Removal of the disk compression software from your system will allow RapidComm to operate at 115.2 Kbps.

A Note to Users with Older Versions of RapidComm on Their Systems

You must uninstall older versions of RapidComm from your system before installing the most recent version (contained on the CD-ROM that came with your new 56K modem). Otherwise you may introduce conflicts in your system that will hamper RapidComm's ability to work properly.

USING MODEM STATION

Why Modem Station?

- Modem commands can be confusing and difficult to memorize.
- Communications software often needs technical information about your modem.
- You may want to "tweak" your modem for optimum performance.

What Does Modem Station Do?

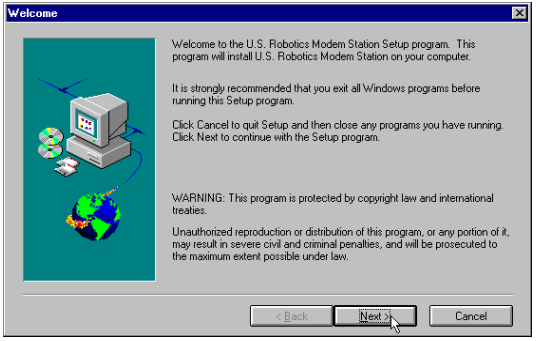
- Modem Station provides a simple to use interface that takes the pain out of communicating with your modem.
- Modem Station allows you to point and click your way through configuration.
- Modem Station can automatically detect your modem and provide you with all the technical information you need, whenever you need it!

Installing Modem Station

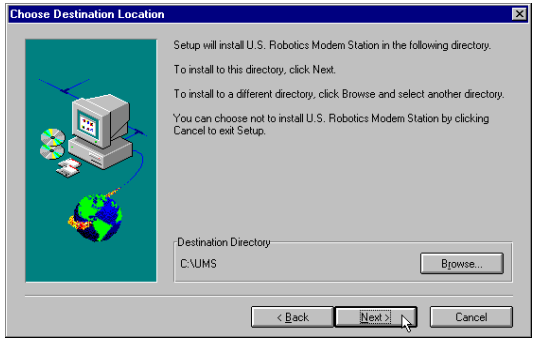
If you did not install Modem Station when you first installed the **Connections** CD, please follow these instructions.

1. Place the **Connections** CD in your CD-ROM drive.
2. Double-click the **My Computer** icon on your Desktop.
3. Double-click the icon for your CD- ROM drive.
4. Double-click the **USR Tools** folder.

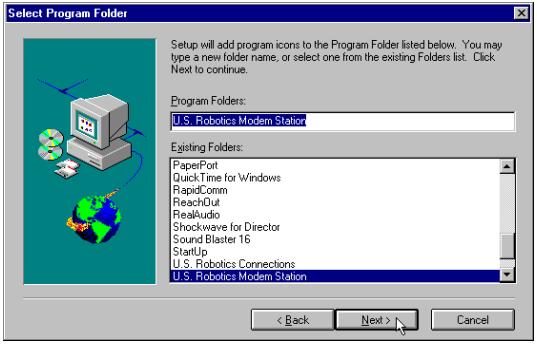
5. Double-click the **umssetup** icon.
6. You will be asked whether you wish to install Modem Station. Click **Yes**.
7. Wait a few moments for the Installation Wizard to load.
8. After reading the information on the Welcome screen, click **Next** to continue.



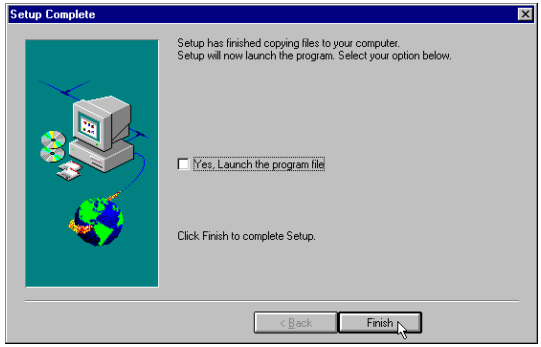
9. When you see this screen, click **Next** to accept the default directory or choose **Browse** to change directories.



10. Clicking **Next** in the following screen accepts the default program folder. You can place Modem Station in an existing folder by selecting one from the list.



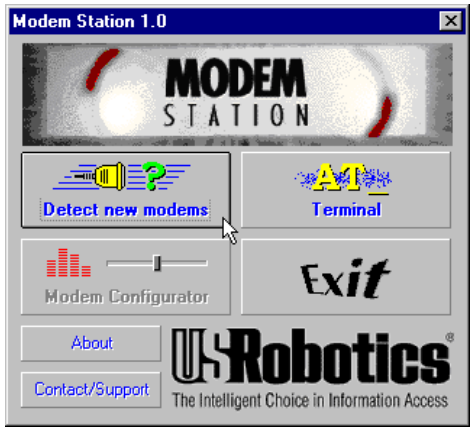
11. When you see the next screen, click **Finish** to complete the installation.



If this is the first time you've installed Modem Station, you may be asked to restart your computer.

Starting Modem Station

1. If you didn't start Modem Station from the Setup Program, please start it now.
2. Click **Start** and point to **Programs**. Select **U.S. Robotics Modem Station** (or the folder you selected during installation).
3. Double-click the **Modem Station** icon. This brings up the main menu shown on the right.



The main menu gives you direct access to the following options:

- DETECT NEW MODEMS
- TERMINAL
- MODEM CONFIGURATOR
- ABOUT
- CONTACT/SUPPORT

DETECT NEW MODEMS

This option detects installed USR modems and shows what COM port they are using. Run this if you are running Modem Station for the first time, if you are changing modems, or if you simply need to know what port your modem is using.

TERMINAL

Terminal allows you to send commands directly to your modem and displays the responses. You can use Terminal to dial up BBSs. In addition, you can configure your modem using Terminal. However, it is much easier to use the Modem Configurator.

MODEM CONFIGURATOR

Modem Configurator provides an easy-to-use interface for entering hard to remember commands. Use Modem Configurator for troubleshooting, initial configuration, and tuning your modem for optimum performance. Using the options available in Modem Configurator, you can control nearly every aspect of your modem's performance. We will discuss Modem Configurator's options in more detail in later sections.

ABOUT

The About option provides copyright and version information.

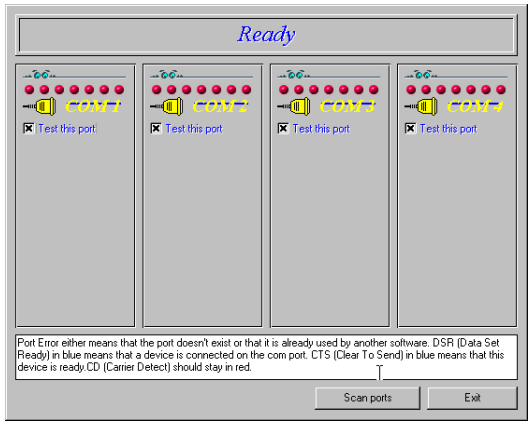
CONTACT/SUPPORT

This option details how to get in touch with U.S. Robotics.

TIP: For your convenience, we provide many on-line support avenues. For specific questions, our fax-on-demand service is a good place to start. You can download FAQs, software, and help files from our Web sites and BBS, or receive individualized support via support@usr.com. Type 0000 (4 zeroes) in the subject line of your e-mail.

Using Detect New Modems

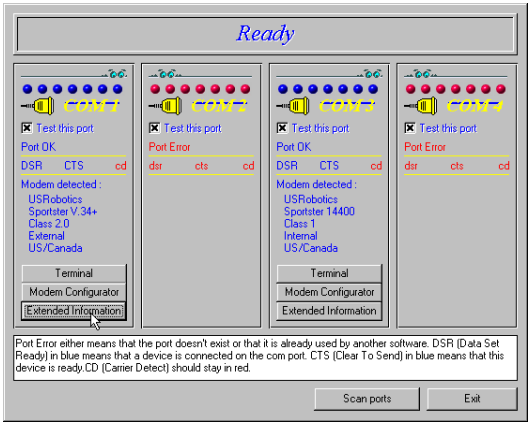
1. Click **Detect New Modems** to bring up this screen.



The screen consists of four columns, one for each possible COM port on a PC. You can choose a specific port(s) to scan by clicking the checkbox for that port.

2. Click **Scan** to have Modem Station check for installed modems. This may take a few moments.

3. When the scan finishes, you will see the following display. Your display may differ depending on the type and number of modems installed.



If your modem is installed and configured correctly, Modem Station will find the modem and display make and model information under the assigned port. All currently active ports should display "Port OK" under the heading. If a port displays a "Port Error", it usually means that the port is disabled in system setup.

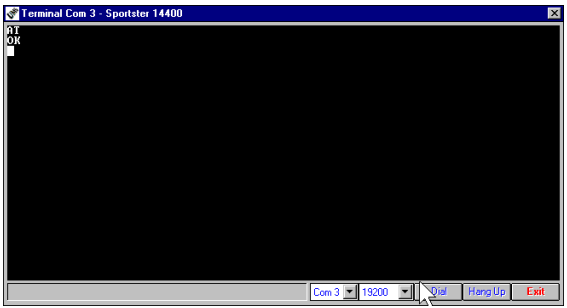
NOTE: Different systems and BIOSes use different methods of disabling COM ports. As a result, we cannot provide support for enabling COM ports. Please refer to your system's documentation or contact the manufacturer of your system for further information.

If you look at the information for the port your modem is using, you will see three buttons. These allow you to access Terminal and Modem Configurator without going back to the main menu. Extended Information provides detailed information about your modem,

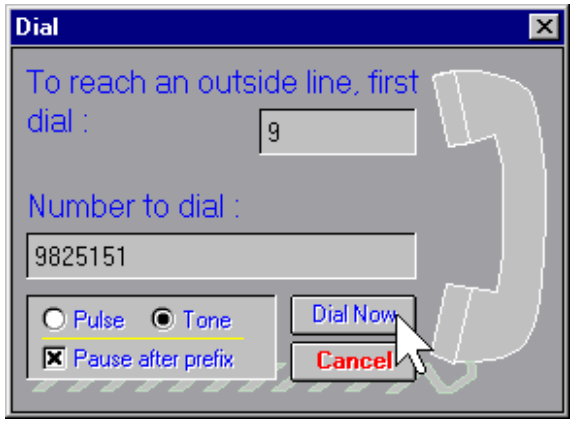
previous connections, firmware dates, etc. This next section details using the Terminal option.

Using Terminal

You can access Terminal from either the main menu or the Detect New Modems screen. Clicking **Terminal** to bring up the Terminal window.



In addition to allowing direct entry of modem commands, the Terminal screen also allows you to dial into Bulletin Boards, listing services, and other online services.



NOTE: Modem Station's Terminal window is provided primarily for troubleshooting convenience. If you frequently use BBSs, you will probably want to use a separate, full-featured Terminal program such as that provided in our RapidComm software.

On the lower part of the Terminal screen, you will see the COM port your modem is currently using. To select another modem, simply click on the arrow and select that modem's assigned port.

To the right of the port settings are the port speed settings. Port speed is the speed at which your computer sends data to the modem. We discuss port speed settings in detail later in this section.

Terminal includes a basic auto dialer.

To have Terminal dial a number for you, click on *Dial* to bring up the Dial screen.

You need to tell the Dialer a few things about your phone system, such as whether it uses tone or pulse dialing, what digit, if any, you need to dial to get an outside line, and whether the dialer should wait between dialing that digit and the rest of the number. Once you provide this information, simply enter the phone number as if you were dialing a telephone. Click on *Dial Now* to dial the number.

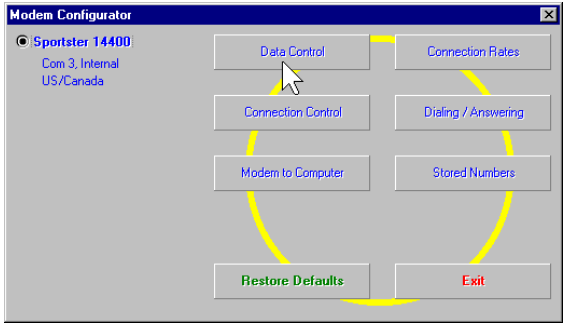
You can end a call by clicking on *Hang Up* at the bottom of the screen.

When you are finished using Terminal, click on *Exit* to return to the screen you accessed it from.

Using Modem Configurator

You can access Modem Configurator from either the main menu or the Detect New Modems screen.

Click on the *Modem Configurator* button to bring up this menu.

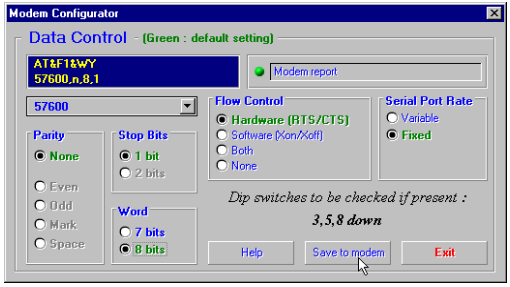


The Modem Configurator menu gives you access to the following options:

- DATA CONTROL
- CONNECTION CONTROL
- MODEM TO COMPUTER
- CONNECTION RATES
- DIALING/ANSWERING
- STORED NUMBERS
- RESTORE DEFAULTS
- EXIT

Data Control

This is the Data Control screen.



The Data Control screen allows you to assign the following basic communications settings:

- PORT SPEED
- PARITY
- STOP BITS
- WORD
- FLOW CONTROL
- SERIAL PORT RATE

For information on using these settings, please refer to the Glossary at the back of this manual.

Click on *Help* for quick definitions of the terminology used in this screen.

In the upper left-hand corner of the screen, you will see the data control commands currently in use.

Once you have entered the Data Control settings, click on *Save to Modem*. This stores the settings so that you do not have to re-enter them.

This screen also displays the default DIP switch settings.

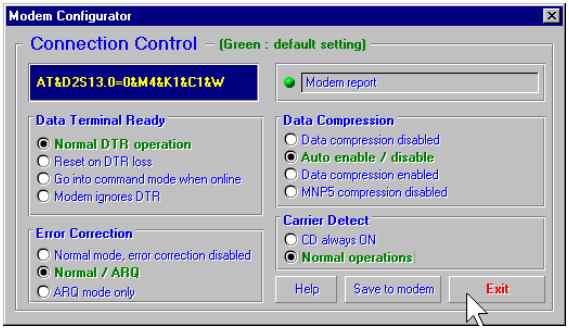
TECHNICAL STUFF: DIP switches are tiny switches that control a few basic functions on some external modems. On modems without DIP switches, these functions are handled by modem commands.

Click on *Exit* to return to the Modem Configurator menu.

CONNECTION CONTROL

This is where you adjust your modem's connection and transmission settings.

Click on the *Connection Control* button to bring up this screen.



In the upper left hand corner of this screen, you will the current Connection Control settings.

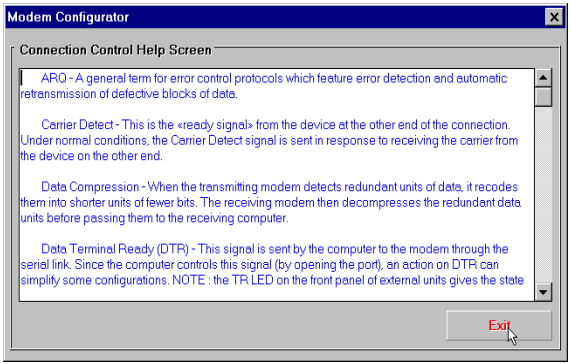
Use the Connections Control screen to configure the following settings:

- DATA TERMINAL READY (DTR)
- ERROR CORRECTION
- DATA COMPRESSION
- CARRIER DETECT

For detailed information about these settings, refer to the **Glossary** or the **Technical Quick Reference** sections of this manual.

TIP: On external modems, receiving a Data Terminal Ready signal causes the TR light to light up.

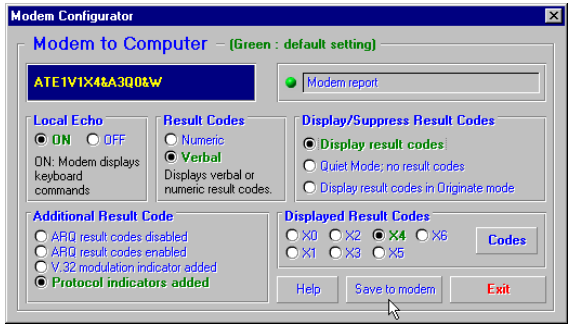
Click on the *Help* button for quick definitions of terminology used in this screen.



Once you have configured your Connection Control settings, click on the *Save to Modem* button to save your settings

Using Modem to Computer

These settings control how your modem and computer communicate with each other. They control what you see on your terminal screen and how results are displayed.



If you look in the upper right hand corner of the display, you will see the commands currently in use.

The Modem to Computer screen allows you to configure the following settings:

- LOCAL ECHO
- RESULT CODES
- CONNECTION RATES
- RESULT CODE PREFERENCES

TIP: There are few things more annoying than typing ATDT and seeing 'AATTDDTT' on your screen. This happens when both your software and modem have Local Echo set to 'ON'. Turn Local Echo 'OFF' on EITHER the modem or the software to get rid of this annoyance.

For details on using the commands in this screen, refer the Glossary or Technical Quick Reference sections of this manual.

Click on *Help* to see quick definitions of terminology used in this screen.

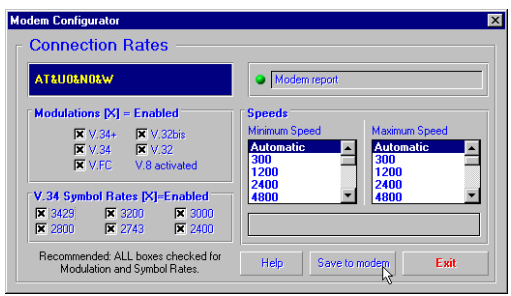
This screen also includes a chart of the ways result codes can be displayed. Click on *Codes* to view a chart of the display options.

Once you configure your settings, click on *Save To Modem* to save your choices.

CONNECTION RATES

The Connection Rates screen allows you to configure modem speeds and protocols.

WARNING! Use caution when changing connection settings. Improper settings may cause your modem to function incorrectly, disconnect, or fail to connect at all.



In the upper left hand corner of the screen you will see the current connection commands.

This screen allows you to configure the following settings:

- MODULATIONS
- V.34 SYMBOL RATES
- SPEEDS

Again, once you have selected your settings, click on *Save to Modem* to save them.

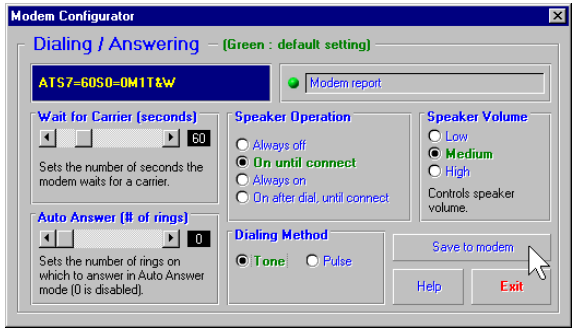
When you are finished, click on *Exit* to return to the Modem Configurator menu.

Please refer to the main body of the manual and the Glossary for detailed information about the terminology and settings used in this screen.

Click on *Help* for quick definitions of terminology used in this screen.

DIALING/ANSWERING

The next screen allows you to adjust how your modem initiates and receives calls.



Using this screen, you can configure the following dial settings:

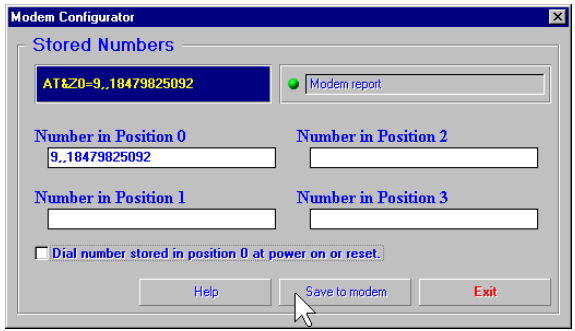
- WAIT FOR CARRIER
- AUTO-ANSWER # OF RINGS
- SPEAKER OPERATION
- DIALING METHOD
- SPEAKER VOLUME

TECHNICAL STUFF:
"Negotiation" is what all that squawking is about when two modems connect. The modems exchange information about their respective protocols and configurations. Once they agree on the fastest protocol they can both handle, transmission begins.

STORED NUMBERS

The Stored Numbers screen displays the phone numbers currently stored in your modem's memory.

Use this screen to edit or add numbers stored in the modem's memory.



To store a number in your modem's memory, simply click in one of the entry boxes. Type in the phone number exactly as you would dial it. NOTE: Position Zero has a special feature. You can set your modem to automatically dial this number at Power On or at reset.

This is very useful if you're using your modem with a "dumb terminal" or know that you need to connect to a specific bulletin board or listing service.

You can change stored numbers by highlighting them and then typing the new numbers in their place. Once you store your numbers, you can dial them by entering this command from Terminal Mode:

ATDS0, ATDS1, ATDS2, etc.

Your U.S. Robotics modem comes with one phone number already stored in Position 0. If you haven't changed the default, typing **ATDS0** will automatically dial the U.S. Robotics BBS. You will want to change this if you are using a dumb terminal or online listing service, of course.

Once you've entered the numbers you wish to store, click on *Save To Modem* to store them. Click on *Exit* to return to the main menu.

The last option, Restore Defaults, resets your modem to factory specifications. This option is available from many of the screens within Modem Station. When you select Restore Defaults, you will see a confirmation screen asking if you are
sure you want to Restore Defaults. Click on *OK* to proceed.

TIP: Restore Defaults is the "Help!! Get me outta here!!!" option. When all else fails, Restore Defaults will set your modem back to factory specifications. Also, since the default configuration is that most commonly used, it is a good starting place for trouble-shooting.

The Extended Information Screens

Extended Information provides access to specialized technical information about your modem. Extended Information makes it more efficient and convenient for a technician to gain access to that information.

If you need to call Customer Support for assistance with your modem, the Support representative may instruct you to go into the Extended Information screens if needed to continue troubleshooting.

GLOSSARY

Cross references are printed in **boldface**. Cross references with items in the Command Summary, found in the Technical Quick Reference, are printed in *italics*.

analog loopback

A modem self-test in which data from the keyboard or an internal test pattern is sent to the modem's transmitter, turned into analog form, looped back to the receiver, and converted back into digital form.

analog signals

A variety of signals and wavelengths that can be transmitted over communications lines such as the sound of a voice over the phone line. Contrast with **digital signals**.

answer mode

The mode used by your modem when answering an incoming call from an originating modem. The transmit/receive frequencies are the reverse of the originating modem, which is in **originate mode**.

application

A computer program designed to perform a specific function, such as word processing or organizing data into a spreadsheet.

ARQ

Automatic Repeat reQuest. A general term for a function that automatically allows your modem to detect flawed data and retransmit it. See **MNP** and **V.42**.

ASCII

American Standard Code for Information Interchange. A code used to represent letters, numbers, and special **characters** such as $, !, and /.

asynchronous transmission

Data transmission in which the length of time between transmitted **characters** may vary. Because the time lapses between transmitted characters are not uniform, the receiving modem must be signaled as to when the data bits of a character begin and when they end. The addition of **start/stop bits** to each character serves this purpose.

Auto Answer

Sets the modem to pick up the phone line when it detects a certain number of rings. See S-register S0 in the "Technical Quick Reference."

auto dial

A process where your modem dials a call for you. The dialing process is initiated by sending an *ATDT* (dial tone) or *ATDP* (dial pulse) command followed by the telephone number to dial. Auto dial is used to dial voice numbers. See command *Dn*.

baud rate

A term used to measure the speed of an analog transmission from one point to another. Although not technically accurate, baud rate is commonly used to mean **bit rate**.

binary digit

A 0 or 1, reflecting the use of the binary numbering system (only two digits). Used because the computer recognizes either of two states, OFF or ON. Shortened form of binary digit is bit.

bit rate

Also referred to as transmission rate. The number of **binary digits**, or bits, transmitted per second (**bps**). Communications channels using telephone channel modems are established at set bit rates, commonly 2400, 4800, 9600, 14,400, 28,800 and higher.

bits per second (bps)

The bits (**binary digits**) per second rate. Thousands of bits per second are expressed as kilobits per second or Kbps.

buffer

A memory area set aside to be used as temporary storage during input and output operations. An example is the modem's command buffer.

byte

A group of **binary digits** stored and operated upon as a unit. In user documentation, the term usually refers to 8-bit units or **characters**. One kilobyte (KB) is equal to 1,024 bytes or characters; 640 KB indicates 655,360 bytes or characters.

carrier

The basic tone or signal that the modem alters (modulates) to send data.

character

A representation, coded in **binary digits**, of a letter, number, or other symbol.

characters per second (CPS)

A data transfer rate generally estimated from the **bit rate** and the **character** length. For example, at 2400 bps, 8-bit characters with **start/stop bits** (for a total of ten bits per character) will be transmitted at a rate of approximately 240 characters per second (cps). Some **protocols**, such as error-control protocols, employ advanced techniques such as longer transmission **frames** and **data compression** to increase cps.

class 1 and 2.0

International standards used between fax **application** programs and faxmodems for sending and receiving faxes.

cyclic redundancy checking (CRC)

An error-detection technique consisting of a test performed on each block or **frame** of data by both sending and receiving modems. The sending modem inserts the results of its tests in each data block in the form of a CRC code. The receiving modem compares its results with the received CRC code and responds with either a positive or negative acknowledgment.

data communications

Communications between computers utilizing an electronic medium.

data compression table

A table containing values assigned for each **character** during a call under **MNP**5 data compression. **Default** values in the table are continually altered and built during each call. The longer the table, the more efficient the **throughput**.

data mode
The mode used by a faxmodem to send and receive data.

DCE
Data communications (or Circuit-Terminating) equipment, such as dial-up modems that establish and control the data link via the telephone network.

default
Any settings assumed, at installation, startup or reset, by the computer's software and attached devices. These settings remain in effect until changed by the user or other software.

detect phase
In the **ITU-T** V.42 error-control **protocol**, the first stage in establishing if both modems attempting to connect have **V.42** capability.

dictionary
The term used for compression codes built by the **V.42 *bis*** data compression algorithm.

digital loopback
A test that checks the modem's RS-232 interface and the cable that connects the **terminal** or computer and the modem. The modem receives data (in the form of **digital signals**) from the computer or terminal, and immediately returns the data to the screen for verification.

digital signals
Discrete, uniform signals. In this manual, the term refers to the **binary digits** 0 and 1. Contrast with **analog signals**.

DTE

Data **terminal** (or terminating) equipment. A computer that generates or is the final destination of data.

duplex

Indicates a communications channel capable of carrying signals in both directions. See **half duplex**, **full duplex**. **Electronic Industries Association (EIA)**

Group which defines electronic standards in the U.S.

error control

Various techniques that check the reliability of **characters** (**parity**) or blocks of data. **V.42** and **MNP** error-control **protocols** use error detection (**CRC**) and retransmission of flawed **frames** (**ARQ**).

facsimile

A method for transmitting the image on a page from one point to another. Commonly referred to as fax.

fax mode

The mode in which the faxmodem is capable of sending and receiving files in a **facsimile** format. See definitions for **V.17, V.27ter, V.29**.

flow control

A mechanism that compensates for differences in the flow of data into and out of a modem or other device. See commands *&Hn, &In, &Rn.*

frame

A **data communications** term for a block of data with header and trailer information attached. The added information usually includes a frame number, block size data, error-check codes, and Start/End indicators.

full duplex

Capable of signal flow in both directions simultaneously. In microcomputer communications, may refer to the suppression of the online **local echo**.

half duplex

Capable of signal flow in both directions, but signals may flow only one way at a time. In microcomputer communications, may refer to activation of the online **local echo**, which causes the modem to send a copy of the transmitted data to the screen of the sending computer.

Hz

Hertz, a frequency measurement unit used internationally to indicate one cycle per second.

ITU-T

An international organization that defines standards for telegraphic and telephone equipment. For example, the Bell 212A standard for 1200-bps communication in North America is observed internationally as ITU-T **V.22**. For 2400-bps communication, most U.S. manufacturers observe V.22 bis. The initials ITU-T represent the French name. In English it is known as the International Telegraph and Telephone Consultative Committee.

LAPM
Link Access Procedure for Modems. An error-control **protocol** defined in **ITU-T** Recommendation V.42. Like the **MNP** protocols, LAPM uses **cyclic redundancy checking** (**CRC**) and retransmission of corrupted data (**ARQ**) to ensure data reliability.

local echo
A modem feature that enables the modem to display keyboard commands and transmitted data on the screen. See command *Hn*.

MNP
Microcom Networking Protocol, an error-control **protocol** developed by Microcom, Inc., and now in the public domain. There are several different MNP protocols, but the most commonly used one ensures error-free transmission through error detection (**CRC**) and retransmission of erred **frames**.

modem
A device that transmits/receives computer data through a communications channel such as radio or telephone lines. It also changes signals received from the phone line back to **digital signals** before passing them to the receiving computer.

nonvolatile memory (NVRAM)

User-programmable random access memory whose data is retained when power is turned off. On the Sportster, it includes four stored phone numbers and the modem settings.

off/on hook

Modem operations that are the equivalent of manually lifting a phone receiver (taking it off-hook) and replacing it (going on-hook).

online fall back/fall forward

A feature that allows high-speed, error-control modems to monitor line quality and fall back to the next lower speed in a defined range if line quality diminishes. As line conditions improve, the modems switch up to the next higher speed.

originate mode

The mode used by your modem when initiating an outgoing call to a destination modem. The transmit/receive frequencies are the reverse of the called modem, which is in **answer mode**.

parity

A simple error-detection method that checks the validity of a transmitted **character**. Character checking has been surpassed by more reliable and efficient forms of error checking, including **V.42** and **MNP 2-4 protocols**. Either the same type of **parity** must be used by two communicating computers, or both may omit parity.

protocol
A system of rules and procedures governing communications between two or more devices. Protocols vary, but communicating devices must follow the same protocol in order to exchange data. The format of the data, readiness to receive or send, error detection and error correction are some of the operations that may be defined in protocols.

RAM
Random Access Memory. Memory that is available for use when the modem is turned on, but that clears of all information when the power is turned off. The modem's RAM holds the current operational settings, a **flow control buffer**, and a command **buffer**.

remote digital loopback
A test that checks the phone link and a remote modem's transmitter and receiver.

remote echo
The sending system displays data sent to the remote system. Remote echoing is a function of the remote system.

ROM
Read Only Memory. Permanent memory, not user-programmable.

serial transmission
The consecutive flow of data in a single channel. Compare to parallel transmissions where data flows simultaneously in multiple channels.

start/stop bits
The signaling bits attached to a **character** before the character is transmitted during **asynchronous transmission**.

terminal
A device whose keyboard and display are used for sending and receiving data over a communications link. Differs from a microcomputer or a mainframe in that it has little or no internal processing capabilities.

terminal mode
Software mode that allows direct communication with the modem. Also known as command mode.

throughput
The amount of actual user data transmitted per second without the overhead of **protocol** information such as **start/stop bits** or **frame** headers and trailers. Compare with **characters per second**.

V.8
The **ITU-T** standard specification that covers the initial handshaking process.

V.17 fax
An **ITU-T** standard for making **facsimile** connections at 14,400 bps, ,12,000 bps, 9,600 bps, 7,200 bps.

V.21
An **ITU-T** standard for modems operating in asynchronous mode at speeds up to 300 bps, **full-duplex**, on public switched telephone networks.

V.22
An **ITU-T** standard for modem communications at 1200 bps, compatible with the Bell 212A standard observed in the U.S. and Canada.

V.22 bis

An **ITU-T** standard for modem communications at 2400 bps. The standard includes an automatic link negotiation fallback to 1200 bps and compatibility with Bell 212A/V.22 modems.

V.27

An **ITU-T** standard for **facsimile** operations that specifies modulation at 4800 bps, with fallback to 2400 bps.

V.29

An **ITU-T** standard for **facsimile** operations that specifies modulation at 9600 bps, with fallback to 7200 bps.

V.32

An **ITU-T** standard for modem communications at 9600 bps and 4800 bps. V.32 modems fall back to 4800 bps when line quality is impaired.

V.32 bis

An **ITU-T** standard that extends the V.32 connection range: 4800, 7200, 9600, 12,000, and 14,400 bps. V.32 *bis* modems fall back to the next lower speed when line quality is impaired, fall back further as necessary, and also fall forward (switch back up) when line conditions improve (see **online fall back/fall forward**).

V.34

An **ITU-T** standard that currently allows data rates as high as 33,600 bps.

V.42
An **ITU-T** standard for modem communications that defines a two-stage process of detection and negotiation for **LAPM error control**.

V.42 bis
An extension of **ITU-T** V.42 that defines a specific data compression scheme for use during V.42 connections.

x2
A technology that uses the digital telephone network to increase the bit rate of the receive channel by eliminating the analog to digital conversion commonly found in modem connections. x2 connections require an x2 capable modem calling a digitally connected x2 capable host.

Xmodem
The first of a family of **error control** software **protocols** used to transfer files between modems. These protocols are in the public domain and are available from many bulletin board services.

XON/XOFF
Standard **ASCII** control **characters** used to tell an intelligent device to stop/resume transmitting data.

Ymodem
An error-checking **protocol** that can send several files of data at a time in 1024-**byte** (1K) blocks. This protocol can use either checksums or CRC for error checking.

Ymodem G

Similar to **Ymodem**, except it includes no error checking, which makes it faster.

Zmodem

Similar to **Xmodem** and **Ymodem**, except it includes batch transfer, the ability to recover from a partially complete transfer, an autostart feature, and improved efficiency

TECHNICAL QUICK REFERENCE

This section includes information about:

- *Command Summary*
- *S-Registers*

Command Summary

- Type commands in either upper or lower case, not a combination. Use the Backspace key to delete errors. (You cannot delete the original AT command since it is not stored in the modem buffer.)
- If a command has numeric options and you don't include a number, zero is assumed. For example, if you type ATB, the command ATB0 is assumed.
- Every command except A/ and +++ must begin with the AT prefix and be entered by pressing **<Return>**.
- The maximum command length is 58 characters. The modem doesn't count the AT prefix, carriage returns, or spaces.

Note: All defaults are based on the &F1—Hardware Flow Control template loaded in NVRAM when the modem is shipped. Defaults are listed in italics.

Command Set

$ Displays a basic command list; online help.

A Manual Answer: goes off hook in answer mode. Pressing any key aborts the operations.

A/ Re-executes the last issued command. Used mainly to redial. This does not require the AT prefix or a Carriage Return.

Any key Aborts off-hook dial/answer operation and hangs up.

AT Required command prefix, except with A/ and +++. Use alone to test for OK result code.

B*n* **U.S./ITU-T answer sequence.**

B0	*ITU-T answer sequence*
B1	U.S. answer tone

D*n* **Dials the specified phone number. Includes the following:**

L	Dials the last dialed number.
P	Pulse (rotary) dial
R	Originates call using answer (reverse) frequencies.
Sn	Dials the phone number string stored in NVRAM at position n

(n = 0–3). Phone numbers are stored with the &Zn=s command.

T Tone dial

, (Comma) Pause, See S8 definition; to which it is linked.

; (Semicolon) Return to Command mode after dialing.

“ Dials the letters that follow (in an alphabetical phone number).

! (Exclamation point) Flashes the switch hook.

/ Delays for 125 ms. before proceeding with dial string.

W Wait for second dial tone (X2 or X4); linked to S6 register.

@ Dials, waits for quiet answer, and continues (X3 or higher).

$ Displays a list of Dial commands.

E*n* **Sets local echo.**

E0 Echo OFF

E1 *Modem displays keyboard commands*

F*n* **Sets online local echo of transmitted data ON/OFF.**

F0 Local echo ON. Modem sends a copy of data it sends to the remote system to your screen.

F1 **Local echo OFF. Receiving system may send a remote echo of data it receives**

Hn **Controls ON/OFF hook.**

H0 Hangs up (goes on hook).

H1 Goes off hook.

I*n* **Displays the following information.**

I0 Four-digit product code

I1 Results of ROM checksum

I2 Results of RAM checksum

I3 Product type

I4 Current modem settings

I5 Nonvolatile memory (NVRAM) settings

I6 Link diagnostics

I7 Product configuration

M*n* **Operates speaker.**

M0 Speaker always OFF.

M1 *Speaker ON until CONNECT.*

M2 Speaker always ON.

M3 Speaker ON after dial, until CONNECT.

O*n* **Returns online.**

- O0 Returns online.
- O1 Returns online and retrains.

P **Sets pulse dial (for phone lines that don't support touch-tone dialing).**

Q*n* **Displays/suppresses result codes.**

- *Q0* *Displays result codes.*
- Q1 Quiet mode; no result codes.
- Q2 Displays result codes only in Originate mode.

S*r*.*b*=*n* **Sets bit *.b* of register *r* to *n* (0/OFF or 1/ON).**

S*r*=*n* **Sets register *r* to *n*.**

S*r*? **Displays contents of S-Register *r*.**

S$ **Displays a list of the S-Registers.**

T **Sets tone dial.**

V*n* **Displays verbal/numeric result codes.**

- V0 Numeric codes
- *V1* *Verbal codes*

Xn Sets result code displayed. Default is X4.

	X*n* Setting				
Result Codes	X0	X1	X2	X3	X4
0/OK	•	•	•	•	•
1/CONNECT	•	•	•	•	•
2/RING	•	•	•	•	•
3/NO CARRIER	•	•	•	•	•
4/ERROR	•	•	•	•	•
5/CONNECT 1200		•	•	•	•
6/NO DIAL TONE			•		•
7/BUSY				•	•
8/NO ANSWER*				•	•
10/CONNECT 2400		•	•	•	•
13/CONNECT 9600		•	•	•	•
18/CONNECT 4800		•	•	•	•
20/CONNECT 7200		•	•	•	•
21/CONNECT 12000		•	•	•	•
25/CONNECT 14400		•	•	•	•
43/CONNECT 16800		•	•	•	•
85/CONNECT 19200		•	•	•	•
91/CONNECT 21600		•	•	•	•
99/CONNECT 24000		•	•	•	•
103/CONNECT 26400		•	•	•	•
107/CONNECT 28800		•	•	•	•
151/CONNECT 31200		•	•	•	•
155/CONNECT 33600		•	•	•	•

Xn (continued)

	X*n* Setting				
Functions	X0	X1	X2	X3	X4
Adaptive Dialing		•	•	•	
Wait for 2nd Dial Tone (W)		•		•	
Wait for Answer (@)			•	•	
Fast Dial			•		•

*Requires @ in dial string; replaces NO CARRIER

Y*n* **Selects power-on/reset default configuration.**

Y0 *Default is profile 0 setting in NVRAM*

Y1 Default is profile 1 setting in NVRAM

Z **Resets modem.**

Z0 Resets modem to NVRAM profile selected by Y command or dip 7.

Z1 Resets modem to NVRAM profile 0

Z2 Resets modem to NVRAM profile 1

Z3 Resets modem to factory default profile 0 (&F0)

Z4 Resets modem to factory default profile 1 (&F1)

Z5 Resets modem to factory default profile 2 (&F2)

&$ **Displays a list of ampersand (&) commands. &A*n* enables/disables additional result code subsets (see X*n*).**

&A0 ARQ result codes disabled

&A1 ARQ result codes enabled

&A2 V.32 modulation indicator added

&A3 Protocol indicators added¾ LAPM/MNP/NONE

(error control) and V42 bis*/MNP5 (data compression)*

&B*n* Manages modem's serial port rate.

&B0 Variable, follows connection rate
&B1 Fixed serial port rate
&B2 Fixed in ARQ mode, variable in non-ARQ mode

&C*n* Controls Carrier Detect (CD) signal.

&C0 CD override
&C1 Normal CD operations

&D*n* Controls Data Terminal Ready (DTR) operations.

&D0 DTR override
&D1 DTR toggle causes online *Command* mode
&D2 Normal DTR operations
&D3 Resets on receipt of DTR

&F*n* Loads a read-only (non-programmable) factory configuration.

&F0 Generic template
&F1 Hardware flow control template
&F2 Software flow control template.

&G*n* **Sets Guard Tone.**

&G0 *No guard tone, U.S. and Canada*

&G1 550 Hz guard tone, some European countries, requires B0 setting.

&G2 1800 Hz guard tone, U.K., requires B0 setting.

&H*n* **Sets Transmit Data (TD) flow control (see also &R*n*).**

&H0 Flow control disabled

&H1 *Hardware flow control, Clear to Send (CTS)*

&H2 Software flow control, XON/XOFF

&H3 Hardware and software flow control

&I*n* **Sets Receive Data (RD) software flow control (see also &R*n*).**

&I0 *Software flow control disabled*

&I1 XON/XOFF signals to your modem and remote system

&I2 XON/XOFF signals to your modem only&K*n* Enables/disables data compression.

&K0 Data compression disabled

&K1 Auto enable/disable
&K2 Data compression enabled
&K3 MNP5 compression disabled

&M*n* Sets Error Control (ARQ) for connections at 1200 bps and higher.

&M0 Normal mode, error control disabled
&M1 Reserved
&M2 Reserved
&M3 Reserved
&M4 Normal/ARQ
&M5 ARQ mode

&N*n* Sets connect speed. If modem cannot connect at this speed, the modem will hang up. Sets ceiling connect speed if &U*n* is greater than 0. See &U*n*.

&N0 Variable rate
&N1 300 bps
&N2 1200 bps
&N3 2400 bps
&N4 4800 bps
&N5 7200 bps
&N6 9600 bps
&N7 12,000 bps
&N8 14,400 bps
&N9 16,800 bps
&N10 19,200 bps
&N11 21,600 bps
&N12 24,000 bps
&N13 26,400 bps

&N14 28,800 bps
&N15 31,200 bps
&N16 33,600 bps
&N17 33,333 bps
&N18 37,333 bps
&N19 41,333 bps
&N20 42,666 bps
&N21 44,000 bps
&N22 45,333 bps
&N23 46,666 bps
&N24 48,000 bps
&N25 49,333 bps
&N26 50,666 bps
&N27 52,000 bps
&N28 53,333 bps
&N29 54,666 bps
&N30 56,000 bps
&N31 57,333 bps

&P*n* **Sets pulse (rotary) dial make/break ratio.**

&P0 *U.S./Canada ratio, 39%/61%*
&P1 U.K. ratio, 33%/67%

&R*n* **Sets Receive Data (RD) hardware flow control, Request to Send (RTS) (see also &H*n*).**

&R0 Reserved
&R1 Modem ignores RTS
&R2 *Received Data to computer only on RTS*

&S*n* **Controls Data Set Ready (DSR) operations.**

&S0 *DSR override; always ON*
&S1 Modem controls DSR

&T*n* **Begins test modes.**

&T0	Ends testing
&T1	Analog Loopback
&T2	Reserved
&T3	Local Digital Loopback
&T4	Enables Remote Digital Loopback
&T5	*Prohibits Remote Digital Loopback*
&T6	Initiates Remote Digital Loopback
&T7	Remote Digital with self-test and error detector
&T8	Analog Loopback with self-test and error detector

&U*n* **Sets floor connect speed when &U*n* is set greater than 0. &N*n* is the ceiling connect speed. See &N*n*.**

&U0	*Disabled*
&U1	300 bps
&U2	1200 bps
&U3	2400 bps
&U4	4800 bps
&U5	7200 bps
&U6	9600 bps
&U7	12,000 bps
&U8	14,400 bps
&U9	16,800 bps
&U10	19,200 bps
&U11	21,600 bps
&U12	24,000 bps
&U13	26,400 bps
&U14	28,800 bps
&U15	31,200 bps

&U16 33,600 bps
&U17 33,333 bps
&U18 37,333 bps
&U19 41,333 bps
&U20 42,666 bps
&U21 44,000 bps
&U22 45,333 bps
&U23 46,666 bps
&U24 48,000 bps
&U25 49,333 bps
&U26 50,666 bps
&U27 52,000 bps
&U28 53,333 bps
&U29 54,666 bps
&U30 56,000 bps
&U31 57,333 bps

&W*n* Writes current configuration to NVRAM templates.

&W0 Modifies the NVRAM 0 template (Y0)
&W1 Modifies the NVRAM 1 template (Y1)

&Y*n* Sets break handling.

&Y0 Destructive, but doesn't send break
&Y1 Destructive, expedited
&Y2 Nondestructive, expedited

&Z*n*=*s* Writes phone number string *s* to NVRAM at position *n* (*n* = 0–3).

&Z*n*=L Writes last executed dial string to NVRAM at position n (n = 0–3).

&Z*n*? Displays the phone number stored at position n (n = 0–3).

&ZL? Displays the last executed dial string.

+++ Escapes to online-command mode.

S-Registers

To change a setting, use the ATS*r*=*n* command, where *r* is the register and *n* is a decimal value from 0 – 255 (unless otherwise indicated).

Register	Default	Function
S0	0	Sets the number of rings on which to answer in Auto Answer Mode. When set to 0, Auto Answer is disabled.
S1	0	Counts and stores the number of rings from an incoming call. (S0 must be greater than 0.)
S2	43	Stores the ASCII decimal code for the escape code character. Default character is +. A value of 128 – 255 disables the escape code.
S3	13	Stores the ASCII code for the Carriage Return character. Valid range is 0 – 127.
S4	10	Stores the ASCII decimal code for the Line Feed character. Valid range is 0 – 127.
S5	8	Stores the ASCII decimal code for the Backspace character. A value of 128 – 255 disables the Backspace key's delete function.

Register	Default	Function
S6	2	Sets the number of seconds the modem waits before dialing. If X*n* is set to X2 or X4, this is the time-out length if there isn't a dial tone.
S7	60	Sets the number of seconds the modem waits for a carrier. May be set for much longer duration if, for example, the modem is originating an international connection.
S8	2	Sets the duration, in seconds, for the pause (,) option in the Dial command.
S9	6	Sets the required duration, in tenths of a second, of the remote modem's carrier signal before recognition by the Sportster.
S10	7	Sets the duration, in tenths of a second, that the modem waits to hang up after loss of carrier. This guard time allows the modem to distinguish between a line disturbance from a true disconnect (hang up) by the remote modem. While we don't recommend connecting the modem to a line with call waiting, if you have it, you may wish to adjust this setting upward to prevent the modem from misinterpreting the second call signal as a disconnect by the remote modem.

Register	Default	Function
S10	7	*(continued)* A better alternative is to ask your phone company how to temporarily disable call waiting (usually *70W). For example: ATDT *70W *phone number*. **Note:** If you set S10 = 255, the modem will not hang up when carrier is lost. Dropping DTR hangs up the modem.
S11	70	Sets the duration and spacing, in milliseconds, for tone dialing.
S12	50	Sets the duration, in fiftieths of a second, of the guard time for the escape code sequence (+++).
S13	0	Bit-mapped register. Select the bit(s) you want on and set S13 to the total of the values in the Value column. For example, ATS13 = 17 enables bit 0 (value is 1) and bit 4 (value is 16).

Bit	Value	Result
0	1	Reset when DTR drops.
1	2	Reset non-MNP transmit buffer from 1.5K to 128 bytes.*
2	4	Set backspace key to delete.

Register	Default	Function		
S13 *(cont.)*		**Bit**	**Value**	**Result**
		3	8	On DTR signal, auto dial the number stored in NVRAM at position 0.
		4	16	At power on/reset, Auto Dial the number stored in NVRAM at position 0.
		5	32	Reserved
		6	64	Reserved
		7	128	Disconnect on escape code.

* The 1.5K-byte non-ARQ buffer allows data transfer with Xmodem- and Ymodem-type file transfer protocols without using flow control.

The 128-byte option lets remote users with slower modems keep data you're sending from scrolling off their screens. When remote users send your computer an XOFF (Ctrl-S) and you stop transmitting, the data in transit from your modem's buffer doesn't exceed the size of their screen.

This is also very helpful in situations when a remote modem/printer application is losing characters.

S14	0	Reserved
S15	0	Bit-mapped register setup. To set the register, see instructions for S13.

Register	Default	Function		
S15 *(cont.)*		**Bit**	**Value**	**Result**
		0	1	Disable ARQ/MNP for V.22.
		1	2	Disable ARQ/MNP for .22bis.
		2	4	Disable ARQ/MNP V.32/V.32bis/V.32terbo.
		3	8	Disable MNP handshake.
		4	16	Disable MNP level 4.
		5	32	Disable MNP level 3.
		6	64	MNP incompatibility.
		7	128	Disable V.42 operation.
S16	0	Bit-mapped register setup. To set the register, see instructions for S13.		
		Bit	**Value**	**Result**
		0	1	Reserved
		1	2	Touch tone dialing test.
		2-7	4-128	Reserved
S17	0	Reserved		

Register	Default	Function
S18	0	Test timer for &T loopback testing. Sets the time in seconds of testing before the modem automatically times out and terminates the test. When set to 0, the timer is disabled. Valid range is 1-255.
S19	0	Sets the duration, in minutes, for the inactivity timer. The timer activates when there is no data activity on the phone line; at time-out the modem hangs up. S19 = 0 disables the timer.
S20	0	Reserved
S21	10	Sets the length, in 10-millisecond units, of breaks sent from the modem to the computer; applies to MNP or V.42 mode only.
S22	17	Stores the ASCII decimal code for the XON character.
S23	19	Stores the ASCII decimal code for the XOFF character.
S24	0	Reserved

Register	Default	Function
S25	20	Sets the duration, in hundredths of a second, that DTR must be dropped so that the modem doesn't interpret a random glitch as a DTR loss. (Most users will want to use the default; this register is useful for setting compatibility with older systems running under older operating software.)
S26	0	Reserved
S27	0	Bit-mapped register setup. To set the register, see instructions for S13.

Bit	Value	Result
0	1	Enables ITU-T V.21 modulation at 300 bps for overseas calls; in V.21 mode, the modem answers both overseas and domestic (U.S. and Canada) calls, but only originates V.21 calls. (Default Bell 103)
1	2	Enables unencoded (non-trellis coded) modulation in V.32 mode.
2	4	Disables V.32 modulation.
3	8	Disables 2100 Hz answer tone to allow two V.42 modems to connect faster.
4	16	Enables V.23 fallback mode.

Register	Default	Function
S27 ***(cont.)***		**Bit** **Value** **Result** 5 32 Disables V.32*bis* mode. 6 64 Reserved 7 128 Software compatibility mode. This setting disables the codes and displays the 9600 code instead. The actual rate of the call can be viewed on the ATI6 screen. Used for unusual software incompatibilities.
S28	0	Eliminates the V.32 answer tones for a faster connection.
	8	Default item, all times are in tenths of seconds.
	255	Disables all connections except V.32 at 9600 bps.
S29	20	Sets the duration, in tenths of a second, of the V.21 answer mode fallback timer.
S30	0	Reserved
S31	128	Reserved

Register	Default	Function

S32 — 2

Bit mapped register setup for the 28.8 and higher speed modems only. To set the register, see the instructions for S13.

Bit	Value	Result
0	1	V.8 Call Indicate enabled.
1	2	Enables V.8 mode.
3	8	Disable V.34 modulation.
4	16	Disable 33.6 Kbps support.
5-7	32-128	Reserved

S33 — 0

Bit mapped register setup for the 28.8 and higher speed modems only. To set the register, see the instructions for S13.

Bit	Value	Result
0	1	Disable 2400 symbol rate.
1	2	Disable 2743 symbol rate.
2	4	Disable 2800 symbol rate.
3	8	Disable 3000 symbol rate.
4	16	Disable 3200 symbol rate.
5	32	Disable 3429 rate.

Register	Default	Function		
S33 *(cont.)*		**Bit**	**Value**	**Result**
		6	64	Reserved
		7	128	Disable shaping.
S34	0	Bit mapped register setup for the 28.8 and higher speed modems only. To set registers, see instructions for S13.		
		Bit	**Value**	**Result**
		0	1	Disable 8S-2D trellis encoding.
		1	2	Disable 16S-4D trellis encoding.
		2	4	Disable 32S-2D trellis encoding.
		3	8	Disable 64S-4D trellis encoding.
		4	16	Disable non-linear coding.
		5	32	Disable TX level deviation.
		6	64	Disable Pre-emphasis.
		7	128	Disable Pre-coding.
S35-S37		Reserved		

Register	Default	Function
S38	0	Sets an optional delay, in seconds, before a forced hang-up and clearing of the Transmit buffer when DTR drops during an ARQ call. This allows time for a remote modem to acknowledge receipt of all transmitted data before it is disconnected. The modem immediately hangs up when DTR drops. This option only applies to connections terminated by dropping DTR. If the modem receives the ATH command, it ignores S38 and immediately hangs up.

Manufacturer's Declaration of Conformity

3Com Corporation
7770 North Frontage Road
Skokie, Illinois 60077-2690
U.S.A.

declares that the product *U.S. Robotics Sportster 56K Winmodem* conforms to the FCC's specifications:

Part 15:
Operation is subject to the following two conditions:
(1) this device may not cause harmful electromagnetic interference, and
(2) this device must accept any interference received including interference that may cause undesired operations.

Part 68:
This equipment complies with FCC Rules Part 68. Located on the bottom of the modem is the FCC Registration Number and Ringer Equivalence Number (REN). You must provide this information to the telephone company when requested.

The REN is used to determine the number of devices you may legally connect to your telephone line. In most areas, the sum of the REN of all devices connected to one line must not exceed five (5.0). You should contact your telephone company to determine the maximum REN for your calling area.

This equipment uses the following USOC jacks: RJ11C.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

An FCC compliant telephone cord and modular plug are provided with this equipment, which is designed to connect to the telephone network or premises wiring using a Part 68 compliant compatible jack. See installation instructions for details.

Caution to the User

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC (Canada)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled *Digital Apparatus*, ICES-003 of Industry Canada.
Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B préscrites dans la norme sur le matériel brouilleur: *Appareils Numériques*, NMB-003 édictée par l'Industrie Canada.

UL Listing/CUL Listing

This information technology equipment is UL-Listed and CUL-Listed for use with UL-Listed personal computers that have installation instructions detailing user installation of card cage accessories.

Connecting to the Telephone Company

It is not necessary to notify the telephone company before installing the modem. However, the telephone company may request the telephone number(s) to which the Sportster is connected and the FCC information printed on this page.

Be sure that the telephone line you are connecting the modem to is a standard analog line and not a digital (PBX), party, or coin telephone line.

If the modem is malfunctioning, it may affect the telephone lines. In this case, disconnect the modem until the source of the difficulty is traced.

Fax Branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent, an identification of the business or other entity, or other individual sending the message, and the telephone number of the sending machine or of such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

In order to program this information into your Sportster, refer to the RapidComm manual on the CD-ROM that shipped with your modem. If you're using a different communications software program, refer to its manual.

Radio and Television Interference

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. The modem has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause interference to radio or television reception, which you can determine by monitoring reception when the modem is installed and when it is removed from the computer, try to correct the problem with one or more of the following measures:

- Reorient the receiving antenna (for televisions with antenna reception only) or cable input device.
- Relocate the computer with respect to the receiver.
- Relocate the computer and/or the receiver so that they are on separate branch circuits.

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may find the following booklet, prepared by the Federal Communications Commission, helpful:

> *How to Identify and Resolve Radio-TV Interference Problems*
> Stock No. 004-000-0345-4
> U.S. Government Printing Office
> Washington, DC 20402

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications to the equipment described in this manual that are not expressly approved by 3Com Corporation or its subsidiaries. could void the user's authority to operate the equipment.

For Canadian Modem Users

NOTICE: The Industry Canada (IC) label identifies certified equipment. This certification means the equipment meets certain telecommunications network protective, operational, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

In some cases, the company's inside wiring associated with a single-line, individual service may be extended by means of a certified connector assembly (telephone extension cord.) The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Currently, telecommunication companies do not allow users to connect their equipment to jacks except in precise situations that are spelled out in tariffing arrangements with those companies.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

For your own protection, make sure that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Do ***NOT*** attempt to make such connections yourself. Instead contact an electric inspection authority or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

The Ringer Equivalence Number is located on the bottom of the modem's case (external modems) or on the modem's circuit board (internal modems).

WARRANTY AND REPAIR SERVICE CENTER:

Keating Technologies
25 Royal Crest Court, Ste.200
Markham, ONT, L3R 9X4
Phone: (905)479-0231 (8:30AM-6:00PM)
Automated Support (905)479-7170 x270
Fax: (905)479-0232

AVIS: L'étiquette de Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur. Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'enterprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordment. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations. Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilasateur ou à cause de mauvais fonctionnement. Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie

électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordé ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

NOTICE: L'Indice d'Equivalence de la Sonnerie (IES) de chaque appareil donne une indication du nombre maximal de terminaux qui peut être branché à l'interface téléphonique. La termination d'une interface peut consister de n'importe qu'elle combinaison d'appareils sur le réseau, seulement si la somme des IES de tous les appareils n'excède pas 5."

L'Indice d'Equivalence de la Sonnerie (IES) est situé au revers du modem (modems externes), ou sur le circuit imprimé (modems internes).

Centre de guarantie et de service après-vente:

(adresse et numéro de téléphone.)

Limited Warranty

U.S. Robotics Access Corp., a subsidiary of 3Com Corporation, warrants to the original end-user purchaser that this product will be free from defects in materials and workmanship for a period of five years from the date of purchase. During the limited warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or a similar model, which may be a refurbished model) at U.S. Robotics' option, without charge for either parts or labor. This limited warranty shall not apply if the product is modified, tampered with, misused, or subjected to abnormal working conditions (including, but not limited to, lightning and water damage).

THIS LIMITED WARRANTY DOES NOT GUARANTEE YOU UNINTERRUPTED SERVICE. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. U.S. ROBOTICS SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR CHARACTER, INCLUDING, WITHOUT LIMITATION, LOSS OF REVENUE OR PROFITS, FAILURE TO

REALIZE SAVINGS OR OTHER BENEFITS, LOSS OF DATA OR USE, DAMAGE TO EQUIPMENT, AND CLAIMS AGAINST THE PURCHASER BY ANY THIRD PERSON, EVEN IF U.S. ROBOTICS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This limited warranty gives you specific legal rights. You may have others, which vary from state to state. Some states do not allow limitations on duration of an implied warranty, or the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

To obtain service under this limited warranty, contact the 3Com Customer Support Department at 847-982-5151 or by mail at 3Com Corporation, 7770 N. Frontage Road, Attn.: Technical Support Dept., Skokie, Illinois 60077-2690. You will be given a Service Repair Order ("SRO") number to help 3Com keep track of your limited warranty request. Once you have received your SRO number, Send the product, postage prepaid and insured, to 3Com, Attn: RMA, [your SRO#], 6201 W. Oakton, East Dock, Morton Grove, IL 60053. Include proof of the date of purchase. IMPORTANT: If you send your unit, pack it securely, and be sure that your SRO number is visible on the outside of the package. Do not include any manuals, software, etc. They will not be returned.

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