3Com Fast EtherLink® XL

10/100 PCI Network Interface Cards User Guide

MODEL NOS.
3C905B-TX
3C905B-TX-M
3C905B-TX-NM
3C905B-COMBO
3C905B-FX(SC)





Fast EtherLink® XL 10/100 PCI Network Interface Cards User Guide

http://www.3com.com/
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ABOUT THIS GUIDE

This guide describes how to install, configure, and troubleshoot the following 3Com® Fast EtherLink® XL 10/100 PCI network interface cards (NICs):

- 3C905B-TX
- 3C905B-TX-M
- 3C905B-TX-NM
- 3C905B-COMBO
- 3C905B-FX(SC)

This guide is intended for those who install and configure Ethernet NICs. Some familiarity with Ethernet networks and NICs is assumed.



If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

http://www.3com.com/

You can download Acrobat Reader from the Adobe Systems Incorporated Web site:

http://www.adobe.com/

Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Commands`	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To launch the DOS diagnostics program, enter the following command: **`a: install`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

Year 2000 Compliance

For information on Year 2000 compliance and 3Com products, visit the 3Com Year 2000 Web page:

`http://www.3com.com/products/yr2000.html`

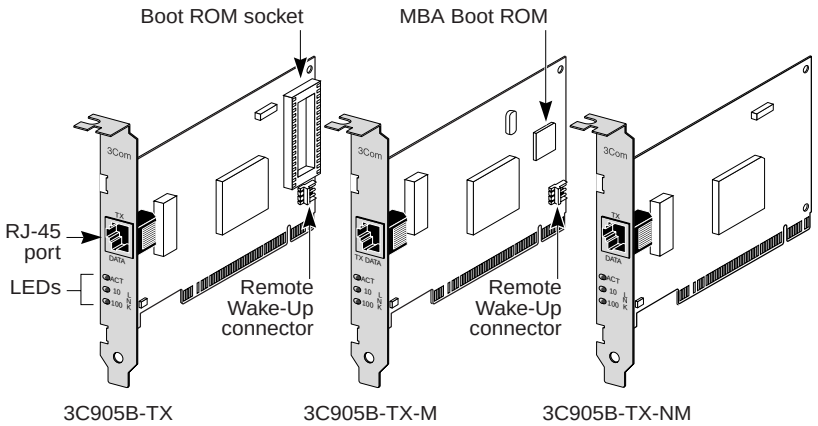
1 INTRODUCTION

This chapter describes the 3Com® Fast EtherLink® XL 10/100 PCI (3C905B) network interface cards (NICs).

3C905B NICs Overview

Figure 1 shows the three versions of the 3C905B-TX NIC. Figure 2 shows the 3C905B-COMBO and 3C905B-FX(SC) NICs.

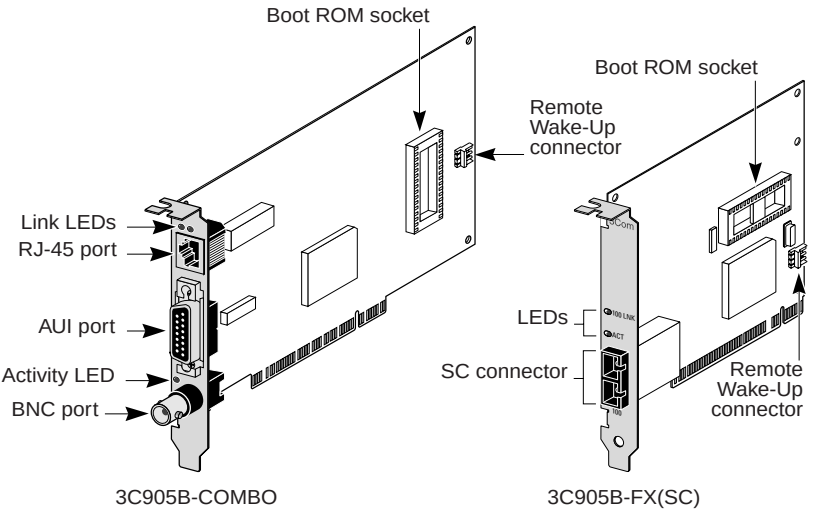
Figure 1 3C905B-TX NICs



The RJ-45 port on the 3C905B-TX NIC provides a 10 Mbps or 100 Mbps connection automatically, depending on the speed of the connected hub or switch.

Table 3 describes the features of the 3C905B-TX NICs.

Figure 2 3C905B-COMBO and 3C905B-FX(SC) NICs



The RJ-45 port on the 3C905B-COMBO NIC provides a 10 Mbps or 100 Mbps connection automatically, depending on the speed of the connected hub or switch. The AUI and BNC ports provide a 10 Mbps connection only.

The SC port on the 3C905B-FX(SC) NIC provides a 100 Mbps fiber-based connection only.

Table 3 describes the features of the various 3C905B NICs.

Table 3 3C905B NICs Summary

	3C905B NIC Model				
Features Supported	**-TX**	**-TX-M**	**-TX-NM**	**-COMBO**	**-FX**
■ RJ-45 connector for 10BASE-T or 100BASE-TX	✔	✔	✔	✔	
■ AUI and BNC connectors for 10BASE5 and 10BASE2				✔	
■ SC connector for 100BASE-FX					✔
■ Remote Wake-Up	✔	✔		✔	✔
■ Dynamic*Access* software	✔	✔	✔	✔	✔
■ DMI 2.0	✔	✔	✔	✔	✔
■ Boot ROM socket	✔			✔	✔

(continued)

Table 3 3C905B NICs Summary (continued)

	3C905B NIC Model				
Features Supported	**-TX**	**-TX-M**	**-TX-NM**	**-COMBO**	**-FX**
■ Integrated boot ROM with Managed PC Boot Agent (MBA) software*		✔			

* A boot ROM with MBA software can be purchased separately for use with the 3C905B-TX, 3C905B-COMBO, and 3C905B-FX(SC) NICs.

Unless specifically indicated, 3C905B is used throughout this guide to refer to all 3C905B NIC models.

Using Remote Wake-up

Remote Wake-Up is the ability to remotely power on a network PC for after-hours administration.

Support is automatically enabled when the NIC's Remote Wake-Up connector (see Figure 1 and Figure 2) is attached to the 3-pin Remote Wake-Up connector on a PC motherboard.

When the PC is powered off and receives a wake-up packet that is sent through the network from a desktop management application, the NIC turns on the power to the PC.

Your PC or server must have the following items to use Remote Wake-Up:

- 3-pin Remote Wake-Up connector on the PC motherboard
- BIOS that supports Remote Wake-Up
- 5-volt standby power supply unit rated at a minimum of 600 milliamperes

Your network must also have a management application that is capable of sending a Remote Wake-Up event or a Magic Packet frame.

If you are unsure whether your PC meets the requirements listed above, refer to your PC documentation or contact your PC manufacturer.

For more information on Remote Wake-Up, including a list of PCs that currently support this feature, go to the following 3Com World Wide Web site:

`http://www.3com.com/partners/acpi`

Using Dynamic*Access* Software

The 3C905B NIC comes with Dynamic*Access*® software, advanced network software that improves performance, management, and control of your network.

Dynamic*Access* software adds intelligence to the NIC by integrating the following features:

- Distributed RMON (dRMON) — Enables full RMON reporting on all network segments, including switched networks, without the need to place dedicated RMON probes throughout the network.
- Traffic prioritization — Ensures that business-critical and delay-sensitive traffic (such as multimedia applications) has priority over normal data.
- Fast IP — Eliminates router bottlenecks and improves performance in switched networks.
- Efficient multicast control — Prevents flooding of switched networks by multicast applications such as video training, stock quotes, or online news.

Dynamic*Access* software can be installed on a PC running Windows 95, Windows 98, or Windows NT. See Appendix C for more information.

For detailed information on Dynamic*Access* software, go to the following 3Com World Wide Web site:

http://www.3com.com/dynamicaccess

Using DMI 2.0

DMI (Desktop Management Interface) 2.0 enables managed PCs and net PCs to report details about themselves and their peripheral devices across the network to a DMI 2.0 management application.

A network administrator can then use this information to assist in remotely managing and configuring PC clients and servers.

For more information and to download DMI 2.0 agents for use with the 3C905B NIC, go to the following 3Com World Wide Web site:

http://www.3com.com/managedpc

Using the MBA Boot ROM

The 3C905B-TX-M NIC has an integrated boot ROM that contains Managed PC Boot Agent (MBA) software.



A boot ROM with MBA software can be purchased separately for installation and use with the 3C905B-TX, 3C905B-COMBO, and 3C905B-FX(SC) NICs.

The MBA boot ROM adds management capabilities to the NIC by enabling the PC to boot from the server, rather than from its local drive.

This preboot support allows you to use management applications to perform tasks such as:

- Installing and configuring a new PC that has never been connected to the network.
- Upgrading software.
- Performing disaster recovery tasks.

For more information on using and configuring the MBA boot ROM, see Appendix D. Detailed information is available in the *Managed PC Boot Agent User Guide*, located on the MBA Utility diskette included with the 3C905B-TX-M NIC.

2 NETWORK INTERFACE CARD INSTALLATION

This chapter describes how to install the NIC in your PC and connect it to an Ethernet or Fast Ethernet network.

CAUTION: *Do NOT physically install the NIC in your PC until you have run the preinstallation program, as described in "Running the Preinstallation Program."*

Preparing for Installation

Before you install the NIC in a PC, make sure that you have the following items:

- 3C905B NIC
- 3Com *EtherDisk* diskettes 1, 2, and 3
- Remote Wake-Up cable (optional; install this cable only if your NIC and PC support Remote Wake-Up and you want to use this feature)

If any of these items are damaged or missing, contact your shipper or network supplier. (The 3C905B-TX-NM NIC does not come with a Remote Wake-Up cable.)

You also need to know the following about your network environment:

- The kind of network cabling that is used to connect to the network at your site. You must use the same kind of network cable and connect it to the appropriate port on the NIC.
- Your network protocol (IPX, NetBEUI, or TCP/IP).

Running the Preinstallation Program

Before you physically install the NIC in a PC, you must run the following preinstallation program to prevent conflicts with the NIC.



If you do not perform this procedure, the NIC driver and software will not be installed correctly.

To run the NIC preinstallation program:

1. **Do not install the NIC in the PC.**
2. **Turn on the power to the PC and start Windows.**
3. **Insert *EtherDisk* diskette 1 in drive A.**
4. **From the Windows *Start* menu, select *Run*.**
5. **Run the preinstallation program. Enter:**
   `a:\preinstl`
6. **After the preinstallation program finishes, turn off the power to the PC.**
   The next step is to install the NIC in your PC.

Inserting the NIC

The following instructions apply to installing the NIC in most PCs. If these instructions are not appropriate for your PC, refer to the documentation that accompanied your PC.



CAUTION: *Do NOT install the NIC in your PC until you have run the preinstallation program, as described in the previous section, "Running the Preinstallation Program."*

To install the NIC in your PC:

1. **Make sure that you have run the preinstallation program, as described in the previous section.**
2. **Remove all jewelry from your hands and wrists. Use only insulated or nonconducting tools.**



CAUTION: *Before handling the NIC, touch the bare metal case of your PC to discharge static electricity from your body. While you are handling the NIC, wear a wrist strap grounded to the PC chassis.*

3. **Make sure that the power to the PC is turned off and that the power cord is unplugged.**

4 Remove the cover from the PC.

5 Locate an empty, nonshared bus mastering PCI slot and remove the corresponding slot cover. Save the screw.

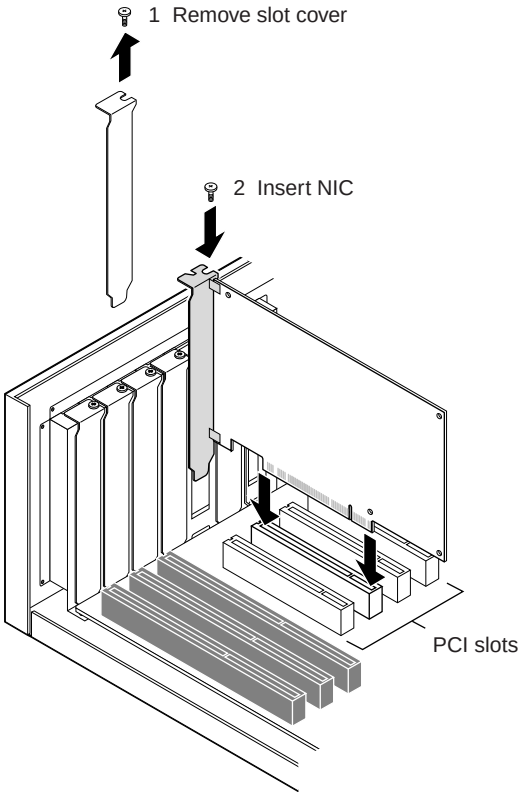
Do not install the NIC in a *shared* PCI slot. Avoid any PCI slot next to an ISA slot. This is often a shared slot and does not support bus mastering.

If you do not know how to identify a PCI slot, check your PC documentation or ask your system administrator.

If you are planning to install the Remote Wake-Up cable, choose an empty PCI slot that is close to the 3-pin Remote Wake-Up connector on the PC motherboard.

6 Carefully insert the NIC into the empty PCI slot (see Figure 3). Press firmly with steady pressure to ensure that the NIC is fully seated in the slot.

Figure 3 Installing the NIC



7 **Secure the NIC with the screw you removed in step 5.**

If you are installing the Remote Wake-Up cable, go to the next section, "Connecting the Remote Wake-up Cable," to continue the installation. If you are not installing the cable, continue with step 8.

8 **Replace the PC cover and plug in the power cord.**

Do not turn on the power to the PC.

9 **Go to "Connecting to the Network" later in this chapter.**

Connecting the Remote Wake-up Cable

Connecting the Remote Wake-Up cable is optional. Connect this cable only if your NIC and PC support Remote Wake-Up and you want to use this feature. See Chapter 1 for a list of Remote Wake-Up requirements.

WARNING: *Make sure that the PC power cord is unplugged. Only properly trained and authorized personnel should perform service. Contact your PC manufacturer for information about safe service techniques.*

To connect the Remote Wake-Up cable:

1 **Make sure that the NIC is properly installed in a PCI slot.**

2 **Insert the Remote Wake-Up cable into the connector on the NIC (see Figure 4).**

3 **Attach the cable to the connector on the PC motherboard (see Figure 4).**

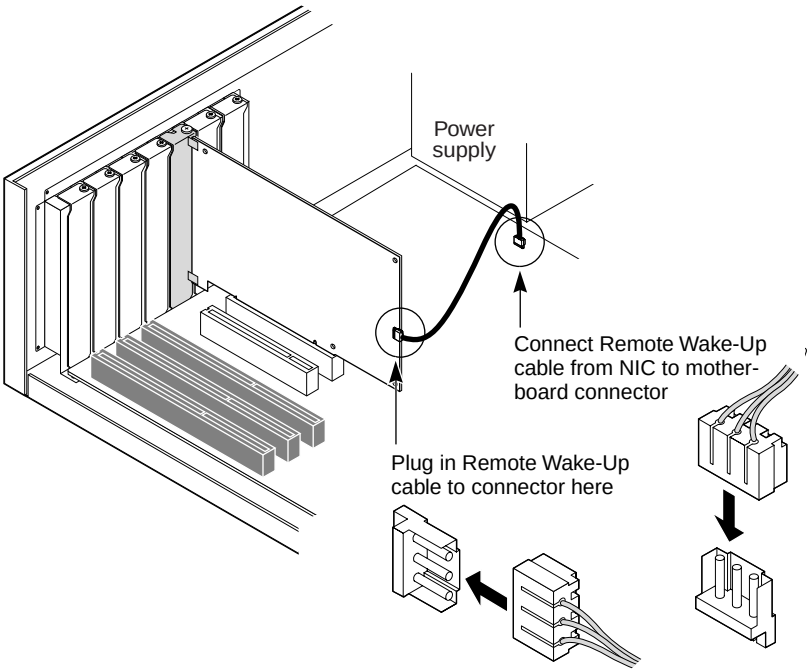
Refer to your PC documentation if you need help with locating the connector.

4 **Replace the PC cover and plug in the power cord.**

Do not turn on the power to the PC.

5 **Go to the next section, "Connecting to the Network."**

Figure 4 Connecting the Remote Wake-up Cable



Connecting to the Network

This section describes how to connect the NIC to an Ethernet or Fast Ethernet network.

Follow the procedure for the port that matches your NIC and your network environment.

RJ-45 Port

The RJ-45 port provides a 10 Mbps or 100 Mbps connection automatically, depending on the speed of the connected hub or switch.

Table 4 shows the cable requirements and maximum network cable lengths for the RJ-45 port.

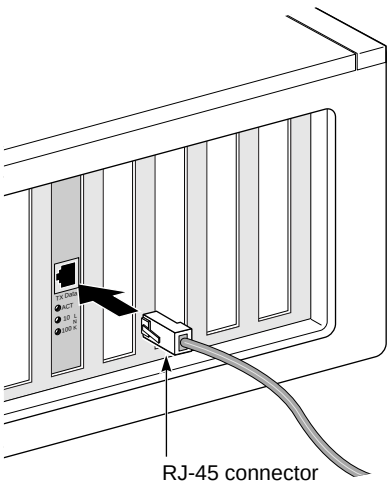
Table 4 RJ-45 Port Specifications

Port	Cable Required	Maximum Network Cable Length
RJ-45	Category 3, 4, or 5 unshielded twisted-pair (10BASE-T)	100 m (328 ft)
	Category 5 unshielded twisted-pair (100BASE-TX)	100 m (328 ft)

To connect the RJ-45 port to a 10 Mbps Ethernet or 100 Mbps Fast Ethernet network:

1 Plug the RJ-45 connector on the network cable into the RJ-45 port on the NIC backplate (see Figure 5).

Figure 5 Connecting the RJ-45 Port



2 Connect the other end of the network cable to an active Ethernet or Fast Ethernet network port.

The next step is to install the NIC driver and software. Go to the appropriate chapter for your operating system.

BNC Port

The BNC port on the 3C905B-COMBO NIC provides a 10 Mbps connection only.

Table 5 shows the cable requirement and maximum network cable length for the BNC port.

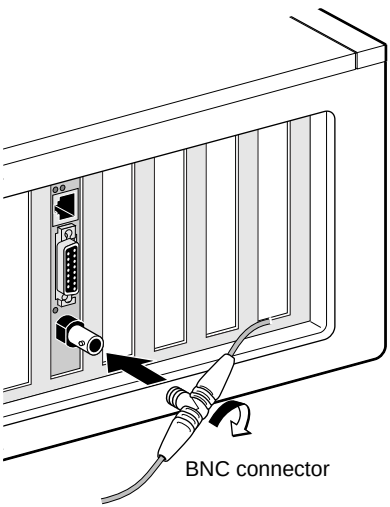
Table 5 BNC Port Specifications

Port	Cable Required	Maximum Network Cable Length
BNC	10BASE2 thin Ethernet coaxial (10 Mbps only)	185 m (607 ft)

To connect the BNC port to a 10 Mbps Ethernet network:

1 **Connect the BNC connector on the thin Ethernet cable to the BNC port on the NIC (see Figure 6).**

Figure 6 Connecting the BNC Port



2 **Connect the other end of the network cable to another PC or to a 50-ohm terminator.**

If your PC is the last physical device in the network daisy chain, you must connect a 50-ohm terminator to the other end of the BNC T-connector.

The next step is to install the NIC driver and software. Go to the appropriate chapter for your operating system.

AUI Port

The AUI port on the 3C905B-COMBO NIC provides a 10 Mbps connection only.

Table 6 shows the cable requirement and maximum network cable length for the AUI port.

Table 6 AUI Port Specifications

Port	Cable Required	Maximum Network Cable Length
15-pin AUI	10BASE5 thick Ethernet coaxial (10 Mbps only)	500 m (1,640 ft)

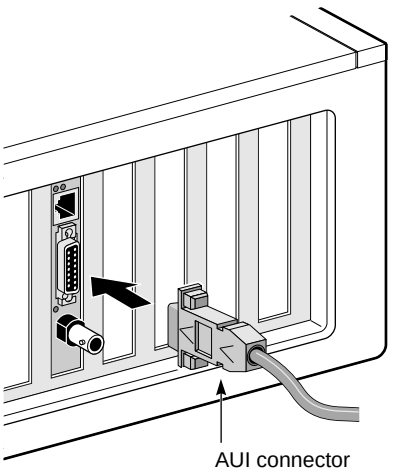
To connect the AUI port to a 10 Mbps Ethernet network:

1 **Locate the 15-pin AUI port on the NIC and move the slide latch down to the open position.**

2 **Connect the thick Ethernet coaxial cable to the AUI port on the NIC (see Figure 7).**

This connector attaches in only one way. Orient the AUI connector to match the AUI port on the NIC.

Figure 7 Connecting the AUI Port



3 Move the slide latch up to the closed position to lock the AUI connector in place.

4 Connect the other end of the network cable to an external transceiver.

The next step is to install the NIC driver and software. Go to the appropriate chapter for your operating system.

SC Port

The SC port on the 3C905B-FX(SC) NIC provides a 100 Mbps fiber-based connection only.

Table 7 shows the cable requirements and maximum network cable lengths for the SC port.

Table 7 SC Port Specifications

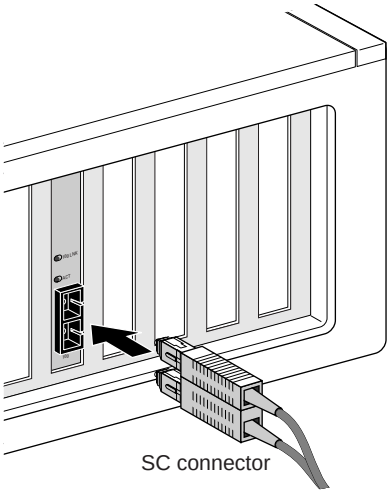
Port	Cable Required	Maximum Network Cable Length
SC	Long-wavelength fiber-optic (1300 nm):	
	■ 50 μ/125 μ multimode fiber	Full-duplex: 2,000 m (6,560 ft) Half-duplex: 412 m (1,351 ft)
	■ 62.5 μ/125 μ multimode fiber	Full-duplex: 2,000 m (6,560 ft) Half-duplex: 412 m (1,351 ft)

To connect the SC port to a 100 Mbps fiber-based Fast Ethernet network:

1 Remove the protective cover from the NIC's SC connector.

2 Connect the network cable to the SC connector on the NIC, as shown in Figure 8.

Figure 8 Connecting the SC Port



3 Connect the other end of the cable to an active 100BASE-FX Fast Ethernet network port.

The next step is to install the NIC driver and software. Go to the appropriate chapter for your operating system.

3 WINDOWS 95/98 AND WINDOWS NT DRIVER INSTALLATION

This chapter describes how to install the NIC driver and software on a PC running Windows 95, Windows 98, Windows NT 4.0, or Windows NT 3.51.

To obtain the latest version of a driver, go to:

http://www.3com.com/

For a list of drivers supported by the 3C905B NIC, see Appendix B, "Supported Network Drivers."

Installation Overview

You install the NIC driver and software using the *EtherDisk* diskettes. The driver can be used in both Microsoft and NetWare network environments.



Do not use the 3Com AutoLink™ software to install the NIC driver under Windows 95, Windows 98, or Windows NT. The 3Com AutoLink software is for Windows 3.x and DOS clients connecting to a NetWare server. See Chapter 4 for more information.

Installing Multiple NICs

If you are installing multiple 3C90x NICs in a PC or server, or if you already have a 3C90x NIC installed and are adding one or more 3C90x NICs, follow the instructions in "Installing Multiple NICs" at the end of this chapter.

Upgrading Windows 95 to Windows 98

If you are upgrading a PC from Windows 95 to Windows 98 that already has a 3C90x NIC installed, you must remove the NIC and its software and then reinstall them after installing Windows 98. See the WIN98.TXT file located in the HELP directory on *EtherDisk* diskette 3 for instructions.

Updating *EtherDisk* 3.x Software to *EtherDisk* 4.x Software

To update *EtherDisk* 3.x software to *EtherDisk* 4.x software, follow the instructions appropriate for your operating system in the HELP directory on *EtherDisk* diskette 3. Do not follow the instructions in this chapter.

Windows 95

If you encounter problems during the installation, see the W95NDIS.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.
- Make sure that you have the Windows 95 installation files. These files may be on a CD or diskettes, or they may have been copied to your hard drive when Windows 95 was installed on your PC.

To install the NIC driver and software in a PC running Windows 95:

1 Turn on the power to the PC.

Windows 95 detects the NIC.

Depending on the version of Windows 95 that you have installed, the New Hardware Found dialog box appears or the Update Device Driver Wizard starts.

If the New Hardware Found dialog box appears:

a Select *Driver from disk provided by hardware manufacture*r, and then click *OK*.

b Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.

c Go to step 2 when prompted for *EtherDisk* diskette 2.

If the Update Device Driver Wizard starts:

a Insert *EtherDisk* diskette 1 in drive A, and then click *Next*.

Windows finds the driver and asks if you want to use this driver.

b Click *Finish*, and then click *OK* when prompted for *EtherDisk* diskette 1.

c Go to step 2 when prompted for *EtherDisk* diskette 2.

2 Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.

Files are copied.

- If this is the first time that networking is being installed on your PC, the Identification tab of the Network screen appears. Go to step 3.
- If networking has already been installed, you are prompted for the Windows 95 CD. Go to step 4.

3 In the specified fields of the Identification tab screen, enter the following information, and then click *OK*:

- Computer Name — Identifies the PC on the network for other users. This entry must be a unique name of 15 characters or fewer, containing no spaces.
- Workgroup — Identifies the group (for example, your department name) to which your PC belongs. If you belong to a peer-to-peer network, this entry must be exactly the same for all the PCs in your network.
- Computer Description — Displays additional details to other users on the network about this PC. For example, you could specify that the PC has a printer attached. Filling in this field is optional.

4 Insert the Windows 95 CD or diskette, and then click *OK*.

If the Windows 95 installation files are on your hard drive, click *OK*. Enter the directory in the Copy files from entry box (usually C:\WINDOWS\OPTIONS\CABS), and then click *OK*.

Files are copied. You are prompted to reboot your PC.

5 Remove *EtherDisk* diskette 2 from drive A, and then click *Yes* to reboot the PC.

You must reboot the PC to complete the installation.

The installation is complete. Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.

After Windows restarts, double-click the Network icon in the Windows Control Panel and make sure that the configuration settings are properly configured for your network environment. Contact your system administrator for assistance.

Windows 98

If you encounter problems during the installation, see the WIN98.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.
- Make sure that you have the Windows 98 installation files. These files may be on a CD or diskettes, or they may have been copied to your hard drive when Windows 98 was installed on your PC.

To install the NIC driver and software in a PC running Windows 98:

1 Turn on the power to the PC.

Windows 98 detects the NIC. The Add New Hardware Wizard (Figure 9) starts.

Figure 9 Add New Hardware Wizard



2 **Insert *EtherDisk* diskette 1 in drive A, and then click *Next*.**

3 **Select *Search for the best driver for your device (Recommended)*, and then click *Next*.**

4 **Select *Floppy disk drives*, and then click *Next*.**

Windows finds the driver file for the device.

5 **Click *Next*.**

Files are copied.

If the Insert Disk dialog box appears, prompting you to insert EtherDisk *diskette 1, click* OK.

You are prompted for *EtherDisk* diskette 2.

6 **Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.**

Files are copied. You are prompted for the Windows 98 CD.

7 Insert the Windows 98 CD or diskette, and then click *OK*.

If the Windows 98 installation files are on your hard drive, click *OK*. Enter the directory in the Copy files from entry box (usually C:\WINDOWS\OPTIONS\CABS), and then click *OK*.

Files are copied. The installation is complete when you are prompted to click *Finish*.

8 Click *Finish*.

You are prompted to restart the PC.

9 Remove *EtherDisk* diskette 2 from drive A, and then click *Yes* to restart the PC.



You must reboot your PC to complete the installation.

The installation is complete. Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.



After Windows restarts, double-click the Network icon in the Windows Control Panel and make sure that the configuration settings are properly configured for your network environment. Contact your system administrator for assistance.

Windows NT 4.0

If you encounter problems during the installation, see the WINNT.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.

To install the NIC driver and software in a PC running Windows NT 4.0:

1 Turn on the power to the PC.

2 Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.

The Network window appears.

3 Click the Adapters tab.

If networking has not been installed on your PC before, Windows NT asks you if you want to install networking. Click *Yes*. See the WINNT.TXT file located on *EtherDisk* diskette 3 or your Windows NT documentation for instructions.

4 Click *Add*.

The Select Network Adapter dialog box appears.

5 Click *Have Disk*.

The Insert Disk dialog box appears.

6 Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.

The OEM Option dialog box appears.

7 Make sure that the 3Com NIC is selected, and then click *OK*.

Files are copied. You are prompted for *Etherdisk* diskette 2.

8 Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.

Files are copied. The Adapters tab of the Network screen appears. The name of the installed NIC appears in the list of network adapters.

9 Click *Close*.

- If the Microsoft TCP/IP Properties screen appears, enter the requested information for your network environment. Refer to your system administrator or the Windows NT documentation for assistance.
- If the Microsoft TCP/IP Properties screen does not appear, the installation is complete.

10 Remove *EtherDisk* diskette 2 from drive A, and then reboot your PC.

Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.

Windows NT 3.51

If you encounter problems during the installation, see the WINNT.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.

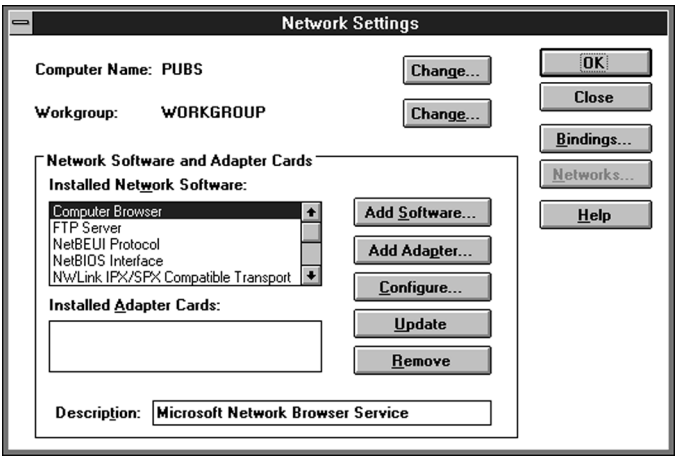
To install the NIC driver and software in a PC running Windows NT 3.51:

1 **Turn on the power to the PC.**

2 **In the Main window of the Program Manager, double-click the Control Panel icon and then the Network icon.**

The Network Settings window (Figure 10) appears.

Figure 10 Network Settings Window



3 **Click *Add Adapter.***

The Add Network Adapter window appears.

4 **Open the Network Adapter Card list box, and scroll down and select *<Other> Requires disk from manufacturer.***

5 **Click *Continue*.**

The Insert Disk dialog box appears.

6 **Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.**

The Select OEM Option window appears.

7 **Make sure that the 3Com NIC is selected, and then click *OK*.**

Files are copied. You are prompted for *EtherDisk* diskette 2.

8 **Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.**

Files are copied. The Network Settings window appears. The name of the installed NIC appears in the list of installed adapter cards.

9 **Click *OK*.**

- If the TCP/IP Configuration screen appears, enter the requested information for your network environment. Refer to your system administrator or the Windows NT documentation for assistance.
- If the TCP/IP Configuration screen does not appear, the installation is complete.

10 **Remove *EtherDisk* diskette 2 from drive A, and then reboot the PC.**

Go to the next section, "Verifying Successful Installation," to confirm that the NIC is properly installed.

Verifying Successful Installation

This section describes how to verify that the NIC and its software are properly installed on your PC. Follow the instructions appropriate for your operating system.

Windows 95 and Windows 98

To verify successful NIC installation on a PC running Windows 95 or Windows 98:

1 **Open the Windows *Start* menu, select *Settings*, and then select *Control Panel*.**

2 **Double-click the System icon, and then select the Device Manager tab.**

3 **Double-click *Network adapters* and make sure that the name of the NIC appears.**

If a red X or a yellow exclamation point (!) appears next to the name of the NIC, the installation was not successful. See "Frequently Asked Questions" in Chapter 6 for troubleshooting help.

Windows NT 4.0

To verify successful NIC installation on a PC running Windows NT 4.0:

1 **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**

2 **Select the Adapters tab.**

3 **Make sure that the name of the NIC appears in the list of network adapters.**

If the name of the NIC does not appear in the list of network adapters, the installation was not successful. See Chapter 6 for troubleshooting help.

Windows NT 3.51

To verify successful NIC installation on a PC running Windows NT 3.51:

1 **Double-click the File Manager icon.**

2 **From the *Disk* menu select *Connect Network Drive*.**

The presence of network server names confirms successful installation.

If you cannot connect a network drive, the installation was not successful. See Chapter 6 for troubleshooting help.

Installing Multiple NICs

This section describes how to install multiple 3C90x NICs in a Windows 95, Windows 98, or Windows NT 4.0 PC.

These procedures ensure that the NICs maintain separate resource assignments and are installed free of conflicts.



You must use these procedures to install multiple 3C90x NICs. Failure to follow these procedures may lead to problems requiring you to reinstall your operating system.

Follow the steps appropriate for your operating system.

Windows 95 and Windows 98

To install multiple NICs in a PC running Windows 95 or 98, install and configure each NIC individually, following these steps:

1. **Run the preinstallation program, as described in Chapter 2.**
2. **Install the first NIC in your PC and connect it to the network, as described in Chapter 2.**



CAUTION: *Do not physically install the second NIC in your PC until you complete the NIC driver installation for the first NIC, following the steps below.*

3. **Turn the power on to the PC and start Windows.**
4. **When Windows detects the NIC and prompts you for a diskette, insert *EtherDisk* diskette 1 in drive A, and then click *OK*.**
5. **Follow the prompts on the screen to install the NIC driver and software.**

   See the "Windows 95" or "Windows 98" section earlier in this chapter for instructions.
6. **After the NIC driver is installed, reboot the PC.**
7. **After the PC reboots, exit Windows and turn the power off to the PC. Make sure that the PC is unplugged.**
8. **Install the second NIC in your PC and connect it to the network.**
9. **Plug the PC power cord in, turn the power on to the PC, and then start Windows.**

   Windows detects the second NIC. The second NIC uses the same driver and software as the first NIC.

   When Windows starts, the second NIC appears under *Network adapters* in the Device Manager.
10. **Repeat the process for each additional NIC to be installed.**

Windows NT 4.0

To install multiple NICs in a PC running Windows NT 4.0:

1. **Install the NICs in your PC and connect each to the network.**
2. **Turn on the power to the PC and start Windows NT.**
3. **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**
   The Network screen appears.
4. **Select the Adapters tab.**
5. **Click *Add*.**
   The Select Network Adapter screen appears.
6. **Click *Have Disk*.**
7. **Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.**
   The Select OEM Option screen appears with the name of one of the NICs selected. Only one NIC appears on this screen.
8. **Click *OK*.**
   Files are copied.
9. **Insert *EtherDisk* diskette 2 when prompted.**
   Files are copied. The Network screen appears with the name of the first installed NIC.
10. **Close the Network screen.**
    If you are prompted for network information, enter the requested information.
11. **Reboot the PC.**
12. **When Windows NT starts, repeat steps 3 through 11 for each NIC that is installed in the PC.**



You will not be prompted for EtherDisk *diskette 2 when you install the driver and software for the second NIC.*

4 NETWARE CLIENT AND SERVER DRIVER INSTALLATION

This chapter describes how to install the Novell NetWare client driver for DOS, Windows 3.1, or Windows for Workgroups and the NetWare server driver.

To install the network drivers for Windows 3.1x, Windows for Workgroups, or DOS in a non-NetWare environment, see the appropriate text files in the HELP directory on EtherDisk *diskette 3.*

To obtain the latest shipping version of a driver, go to:

`http://www.3com.com/`

For a list of drivers supported by the 3C905B NIC, see Appendix B, "Supported Network Drivers."

Installing the NetWare Client Driver

The NetWare client driver enables PCs running DOS, Windows 3.x, or Windows for Workgroups to access resources on a NetWare 3.1x or 4.x network.

You use the 3Com AutoLink software to install the client software and drivers for Novell NetWare 3.1x or 4.x.

Do not use the AutoLink software if you are running Windows 95, Windows 98, or Windows NT. See Chapter 3 for procedures to install network drivers under these operating systems.

About AutoLink Software

AutoLink software automatically configures your NIC and PC for use as a NetWare client.

The AutoLink software creates a new AUTOEXEC.BAT file and saves the old file as AUTOEXEC.3CM. It also creates a new CONFIG.SYS file and saves the old file as CONFIG.3CM.

AutoLink Requirements

To use the AutoLink program:

- Make sure that your PC has only one 3C905B NIC installed.
- Make sure that you are using NetWare 3.x or 4.x as your network operating system.
- Make sure that your PC has at least 1 MB of available hard drive space.

If you have more than one 3C905B NIC installed, see the NetWare installation instructions in the DOS diagnostic program. (See "Starting the 3Com DOS Diagnostic Program" in Chapter 5 for instructions on using this program.)

Running the AutoLink Installation Program

To run AutoLink software to install the client software and drivers for a NetWare network:

1. **Install the NIC and connect it to the network, as described in Chapter 2.**
2. **Reboot to DOS.**
3. **Insert *EtherDisk* diskette 3 in drive A.**
4. **At the DOS prompt, enter:**

   ```
   a:install
   ```

   The *EtherDisk* diskette main menu appears.
5. **Select *Auto Install and Config for NetWare (AutoLink)* and press Enter.**
6. **Select *DOS*, *Windows 3.1x*, or *Windows for Workgroups 3.11*, and follow the instructions.**
7. **When the installation process is finished, remove *EtherDisk* diskette 3 and reboot the PC.**



If you are running Windows 3.1x, after you connect to the NetWare server, run the WSINSTALL program for full Windows support. Contact your system administrator for the location of this NetWare utility.

If problems occur when you run AutoLink software, display or print the AUTOLINK.LOG file. This file contains a list of all events that occur during the AutoLink installation and configuration process.

- To display the file, enter:
  `type autolink.log | more`
- To print the file, enter:
  `print autolink.log`

Installing the NetWare Server Driver

This section describes how to install the NetWare driver on a Novell server running NetWare 3.12, 4.10, or 4.11.



The 3C905B NIC does not support NetWare 3.11 and 4.0x servers.

The \NWSERVER directory on *EtherDisk* diskette 3 contains the network driver file (3C90X.LAN) to be used for servers running NetWare 3.12, 4.10, and 4.11.

Additional files (NetWare Loadable Modules [NLMs]) are required for servers running NetWare 4.10 or 4.11. NLM files are on *EtherDisk* diskette 3 in the /NWSERVER directory, or they can be obtained from Novell.

Obtaining NetWare Loadable Modules

You can obtain current NLMs for the NetWare servers listed in Table 8 from the Novell World Wide Web site:

`http://www.support.novell.com`

Table 8 NetWare NLMs

NetWare Server	NLM Name
NetWare 3.12	ETHERTSM.NLM
	NBI31X.NLM
	MSM31X.NLM
NetWare 4.10, 4.11	ETHERTSM.NLM
	NBI.NLM
	MSM.NLM

NetWare 3.12

To install the driver in a NetWare 3.12 server:

1. **Obtain the MSM31X.NLM, ETHERTSM.NLM, and NBI31X.NLM files from Novell and copy them to the directory on your hard drive where other NLM files are located.**
2. **Copy the LAN driver file (3C90X.LAN) from *EtherDisk* diskette 3 to the same directory.**
3. **Add the following two lines to the AUTOEXEC.NCF file:**

```
loadC:\NWSERVER\3C90X.LANslot=<slot>NAME=<name>
   FRAME=<frametype>
bind ipx to <name> net=<number>
```

4. **Save and exit the file, and then reboot the server.**

NetWare 4.10 and 4.11

To install the driver in a NetWare 4.10 or 4.11 server:

1. **Install the NetWare server software.**

   The NIC Selection menu appears.
2. **Press Enter to display a list of NIC drivers.**
3. **Press Insert to install an unlisted driver.**
4. **Insert *EtherDisk* diskette 3 in your PC, and then press Enter.**
5. **Press Enter after the driver is loaded.**
6. **Save parameters and continue the installation.**

Multiple NICs

To support more than one NIC in a NetWare server, change the AUTOEXEC.NCF file to the following format:

```
load C:\NWSERVER\3C90X.LAN slot=<slot1>
   NAME=<name1> FRAME=<frametype1>
bind ipx to <name1> net=<net1>
load C:\NWSERVER\3C90X.LAN slot=<slot2>
   NAME=<name2> FRAME=<frametype2>
bind ipx to <name2> net=<net2>
```

The values <slot1> and <slot2> are the numbers of the PCI slots in which the NICs are installed. To view the numbers of the PCI slots in which the NICs are installed, use the 3Com DOS diagnostic program. See the next section, "Verifying the PCI Slot Number," for instructions.

The values <name1> and <name2> are unique names assigned to each NIC by your network administrator. The values <name1> and <name 2> must be different.

The frame parameters <frametype1> and <frametype2> can be one of the following:

- Ethernet_802.2
- Ethernet_802.3
- Ethernet_II
- Ethernet_SNAP

Make sure that the frametype for the server and the workstation is the same. For example, if the server uses Ethernet_802.2, the workstation must also use Ethernet_802.2.

The values <net1> and <net2> are unique numbers assigned by the network administrator to each NIC. Make sure that <net1> and <net2> are different numbers.

See the appropriate Novell NetWare manuals for further information.

Verifying the PCI Slot Number

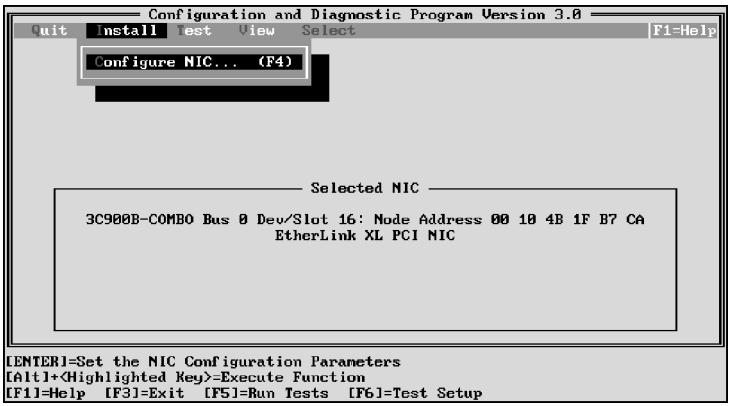
To view the PCI slot number in which a NIC is installed:

1. **Reboot to a DOS prompt.**
2. **Insert *EtherDisk* diskette 3 in drive A.**
3. **Change to the A:\> prompt, and enter:**

   `3c90xcfg.exe`

   The Selected NIC screen (Figure 11) of the DOS Configuration and Diagnostic Program appears.

Figure 11 Selected NIC Screen



The slot number appears in the Selected NIC panel.

This slot value must match the slot value entered in the load line of the AUTOEXEC.NCF file.

5 NIC CONFIGURATION

This chapter describes how to configure the NIC.

Before you change the NIC's configuration settings, contact your system administrator.

Table 9 lists the configuration options for the NIC. The default setting is in bold in the Settings column.

Table 9 Configuration Options

Option	Description	Settings
Network Driver Optimization	Specifies how to optimize the network driver for your network by allowing trade-offs between network performance and CPU utilization. ■ *Normal* balances CPU utilization and network performance. ■ *Minimized CPU Utilization* saves CPU resources for other tasks. ■ *Maximized Network Performance* is appropriate if no other applications are making major demands on CPU resources.	■ **Normal** ■ Minimized CPU Utilization ■ Maximized Network Performance
Duplex	Specifies the duplex mode, which determines if the NIC transmits data across the network in both directions simultaneously (full-duplex) or in one direction at a time (half-duplex). ■ *Full-Duplex* manually sets the NIC to operate in full-duplex mode. To use this setting, the switch that you are connected to must support full-duplex. You must also manually set the NIC's *Media Type* setting to the appropriate setting for your network. ■ *Half-Duplex* manually sets the NIC to operate in half-duplex mode. You must also manually set the NIC's *Media Type* setting. ■ *Auto Select* allows the NIC to automatically connect at the duplex mode of the connected hub or switch. When you select this setting, the NIC's *Media Type* setting is automatically set to *Auto Select*.	■ **Auto Select** ■ Full-Duplex ■ Half-Duplex

(continued)

Table 9 Configuration Options (continued)

Option	Description	Settings
Boot PROM	Disables or enables the NIC's boot PROM (if a boot PROM is installed on the NIC).	■ **Enabled** ■ Disabled
Media Type	Determines the type of media your network is using. *Auto Select* allows the NIC to automatically select the Media Type for you. If you set the *Duplex* setting to *Auto Select*, the *Media Type* is automatically set to *Auto Select*.	■ **Auto Select** ■ 100BASE-TX (100Mb/s) ■ 10BASE-T (10Mb/s) ■ 100BASE-FX ■ 10BASE-2 (10Mb/s) ■ AUI (10Mb/s)

Running NIC Diagnostic Programs

The 3C905B NIC has two types of NIC diagnostic programs: a DOS-based diagnostic program and a Windows-based diagnostic program.

Use the 3Com DOS diagnostic program if you are running any of the following operating systems:

- DOS
- Windows 3.x
- Windows for Workgroups
- Windows NT 3.51

Use the Windows-based 3Com NIC diagnostic program if you are running any of the following operating systems:

- Windows 95
- Windows 98
- Windows NT 4.0



This chapter explains how to start both NIC diagnostic programs. However, specific instructions for configuring the NIC are provided for the Windows-based 3Com NIC diagnostic program only. For instructions on using the 3Com DOS diagnostic program, see the DOSDIAG.TXT file located in the HELP directory on EtherDisk *diskette 3.*

Starting the 3Com DOS Diagnostic Program

To start the 3Com DOS diagnostic program:

1. **Insert *EtherDisk* diskette 3 in drive A.**
2. **Enter the following at the DOS prompt:**

```
a:\3c90xcfg.exe
```

For PCs running Windows NT 3.51, do not run the DOS diagnostic program from the MS-DOS box. Exit Windows NT 3.51, reboot with a DOS-bootable diskette, and then run the program.

For instructions on using the 3Com DOS diagnostic program, see the DOSDIAG.TXT file in the HELP directory on *EtherDisk* diskette 3.

Starting the Windows-based 3Com NIC Diagnostic Program

To start the Windows-based 3Com NIC diagnostic program:

1. **Make sure that the NIC is installed and is connected to the network and that the driver is installed.**
2. **Click *Start* in the Windows taskbar.**
3. **Select *Programs*, and then select *3Com NIC Utilities.***
4. **Click *3Com NIC Doctor.***

   The 3Com NIC Diagnostic General screen appears.

Click the Help *button to obtain general information about the function of the screen. To obtain specific information about any topic on the screen, click the question mark (?) in the upper right corner of the screen, move it over a topic, and click once.*

Displaying NIC Configuration Settings

To display the NIC's current configuration settings:

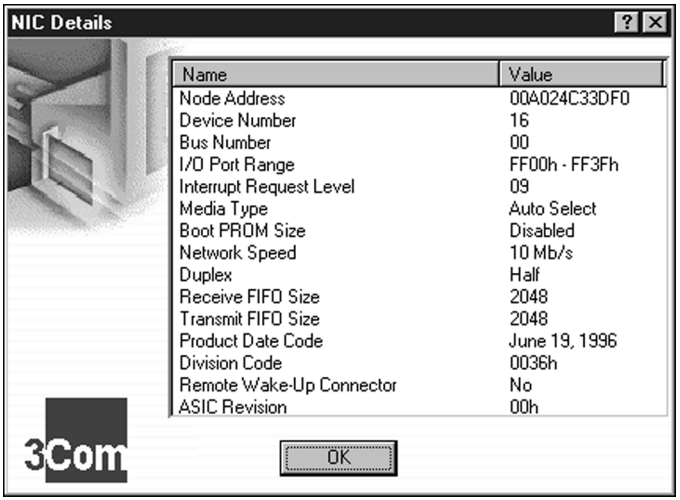
1. **Start the 3Com NIC diagnostic program.**

   See the previous section, "Starting the Windows-based 3Com NIC Diagnostic Program," for instructions.

   The 3Com NIC Diagnostic General screen appears.
2. **Click *NIC Details* on the General screen.**

   The NIC Details screen (Figure 12) appears.

Figure 12 NIC Details Screen



Each configuration setting is displayed with its current value.

For a description of each setting, click the question mark (?) in the upper right corner of the screen, move it over a setting and click once. A pop-up box displays a description of the setting.

3 Click *OK* to exit this screen.

Changing NIC Configuration Settings

To change the NIC's configuration settings:

1 Start the 3Com NIC diagnostic program.

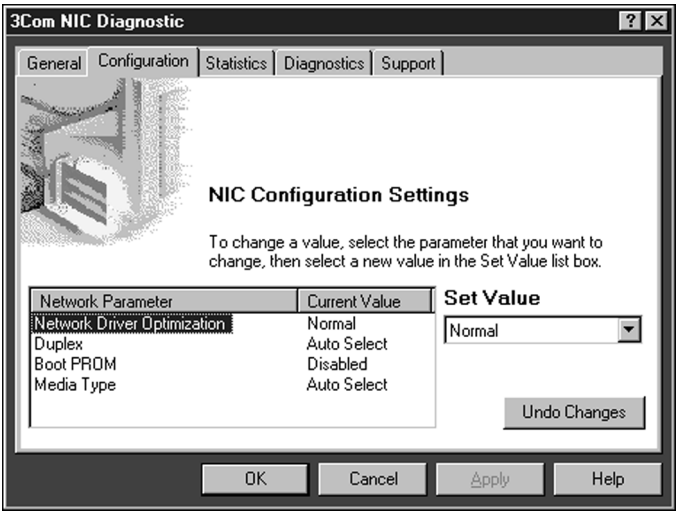
See "Starting the Windows-based 3Com NIC Diagnostic Program" earlier in this chapter for instructions.

The 3Com NIC Diagnostic General screen appears.

2 Click the Configuration tab.

The Configuration screen (Figure 13) appears.

Figure 13 Configuration Screen



3 Under Network Parameter, select a setting.

For a description of each setting, see Table 9 at the beginning of this chapter or click the question mark (?) in the upper right corner of the screen, move it over a setting, and click once.

4 Select a new value from the list of available options in the Set Value list box.

Repeat the process to change any other setting. The settings are not saved until you click *OK*.

5 To undo changes and return the settings to their previous values, click *Undo Changes*.

6 To save the new settings, click *OK*.

6 TROUBLESHOOTING

This chapter explains how to isolate and solve problems that may occur when you install and use the NIC. It also explains how to run NIC diagnostic tests, view network statistics, and remove the NIC software.

Accessing the 3Com Knowledgebase

To access a database of technical information that can help you diagnose and solve 3C905B NIC installation, configuration, and upgrade problems, go to:

http://knowledgebase.3com.com

Troubleshooting the Installation

If you have trouble installing your NIC, or if the installation failed as described in "Verifying the Installation" in Chapter 3, follow these basic troubleshooting tips.



CAUTION: *Before inserting or removing the NIC from the PC, turn the PC's power off and unplug the power cord.*

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed correctly in a PCI slot. Check for specific hardware problems, such as broken traces or loose or broken solder connections.
- Inspect all cables and connections. Make sure that the cable complies with its proper length and specifications, as described in Chapter 2 and Appendix A.
- Make sure that you are running the latest BIOS for your PC. If your BIOS has not been upgraded in the previous 12 months, contact your PC manufacturer to obtain the current version of your BIOS software.
- Run the NIC diagnostics tests, as described in this chapter.

- Replace the failed NIC with a working NIC and run the diagnostics tests again, using the same option settings as those used on the failed NIC. If the working NIC passes all tests, the original NIC is probably defective. For information on product repair, see Appendix E.

Interpreting the LEDs

The 3C905B NICs have light-emitting diodes (LEDs), as described in Table 10, that can assist with network troubleshooting. (See Chapter 1 for a picture of the LEDs).

Some LNK LED states do not apply to the AUI, BNC, and SC connectors, as indicated by *N/A* in the table.

Table 10 LED Interpretations

			Connector			
LED	**State**	**Meaning**	**RJ-45**	**AUI**	**BNC**	**SC**
10 LNK (link)	On	If drivers are installed, the 10BASE-T connection is active.	Yes	N/A	N/A	N/A
		If drivers are not installed, the NIC is receiving power.	Yes	Yes	Yes	N/A
	Off	Something is preventing the connection between the NIC and the hub or switch.	Yes	N/A	N/A	N/A
	Blinking	The cable polarity is reversed. Try a different network cable or contact your system administrator.	Yes	N/A	N/A	N/A
100 LNK (link)	On	If drivers are installed, the 100BASE-TX or 100BASE-FX connection is active.	Yes	N/A	N/A	Yes
		If drivers are not installed, the NIC is receiving power.	Yes	Yes	Yes	Yes
	Off	Something is preventing the connection between the NIC and the hub or switch.	Yes	N/A	N/A	Yes
ACT (activity)	Blinking	Network traffic is present.	Yes	Yes	Yes	Yes
	Steady	Heavy network traffic is present.	Yes	Yes	Yes	Yes
	Off	No network traffic is present.	Yes	Yes	Yes	Yes

If a LNK LED indicates a problem, check the following:

1 **Ensure that your network hub or switch and the cable connecting to your NIC comply with the specifications appropriate for your network connection.**

2 **Ensure that the hub or switch is powered on.**

Running NIC Diagnostic Programs

The 3C905B NIC has two types of NIC diagnostic programs: a DOS-based diagnostic program and a Windows-based diagnostic program.

Use the 3Com DOS diagnostic program if you are running any of the following operating systems:

- DOS
- Windows 3.x
- Windows for Workgroups
- Windows NT 3.51

Use the Windows-based 3Com NIC diagnostic program if you are running any of the following operating systems:

- Windows 95
- Windows 98
- Windows NT 4.0



This chapter explains how to start both NIC diagnostic programs. However, specific instructions are provided for using the Windows-based 3Com NIC diagnostic program only.

Starting the 3Com DOS Diagnostic Program

To start the 3Com DOS diagnostic program:

1 **Insert *EtherDisk* diskette 3 in drive A.**

2 **Enter the following at the DOS prompt:**

```
a:\3c90xcfg.exe
```

For PCs running Windows NT 3.51, do not run the DOS diagnostic program from the MS-DOS box. Exit Windows NT 3.51, reboot with a DOS-bootable diskette, and then run the program.

For instructions on using the 3Com DOS diagnostic program, see the DOSDIAG.TXT file in the HELP directory on *EtherDisk* diskette 3.

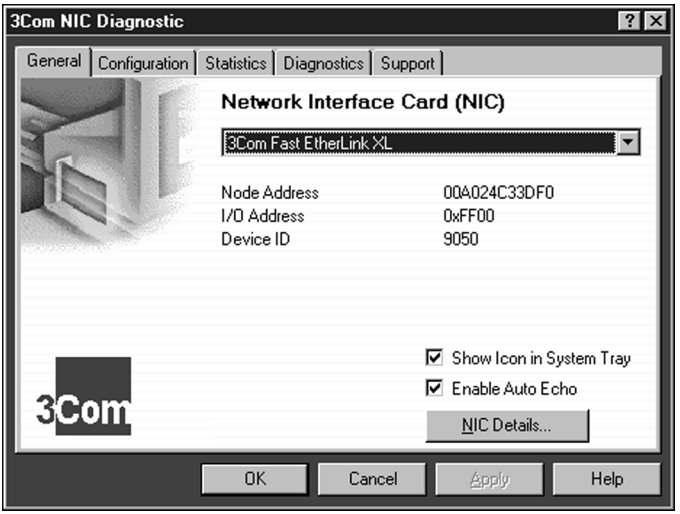
Starting the Windows-based 3Com NIC Diagnostic Program

To start the 3Com NIC diagnostic program:

1. **Make sure that the NIC is installed and is connected to the network and that the driver is installed.**
2. **Click *Start* in the Windows taskbar.**
3. **Select *Programs*, and then *3Com NIC Utilities.***
4. **Click *3Com NIC Doctor.***

The 3Com NIC Diagnostic General screen (Figure 14) appears.

Figure 14 General Screen



The General screen displays the NIC's node address, I/O address, and device ID.

This screen also allows you to show or not show the 3Com icon in the Windows system tray and to enable Auto Echo, which sets the PC to automatically respond to requests from other PCs that run the Remote Wake-Up Test.

Click Help *to obtain general information about the function of the screen. To obtain specific information about any topic on the screen, click the question mark (?) in the top right corner of the screen, move it over a topic, and click. A pop-up box displays information about the topic.*

Running the NIC Diagnostics Tests

Run the Network Test to check the NIC's connectivity to the network.

Run the NIC Test to check the physical components, connectors, and circuitry on the NIC.

Run the Remote Wake-Up Test if your NIC and PC support Remote Wake-Up, you have the Remote Wake-Up cable installed, and you want to test its functionality.

No applications other than the NIC diagnostics tests are able to access the network during these tests.

To run the NIC Test, Network Test, or Remote Wake-Up Test:

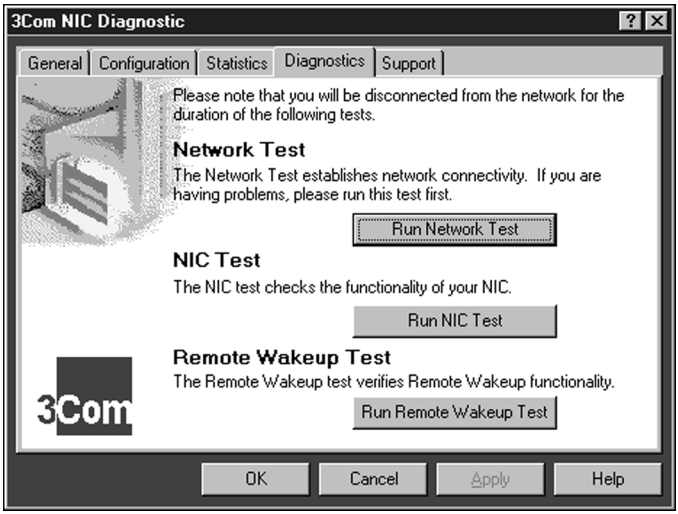
1 **Start the 3Com NIC diagnostic program.**

See the previous section, "Starting the Windows-based 3Com NIC Diagnostic Program," for instructions.

2 **Click the Diagnostics tab.**

The Diagnostics screen (Figure 15) appears.

Figure 15 Diagnostics Screen



If the Run Remote Wakeup Test *button is not available, the NIC that is installed in the PC does not support Remote Wake-Up.*

To Run the Network Test

Run the Network Test to check the NIC's connectivity to the network.

1 **Click *Run Network Test* on the Diagnostics screen.**

The Network Connectivity Test screen appears.

2 **Click *Start*.**

While the test is running, a progress bar indicates test progress.

If the test fails:

- Make sure that the NIC is properly connected to the network cable.
- Make sure that the hub or switch to which the NIC is connected is powered on.
- Make sure that the cable complies with the proper length and specifications for your network.

If the test passes, the NIC's connection to the network is functioning correctly.

3 **Click *Close*.**

To Run the NIC Test

Run the NIC Test to check the physical components, connectors, and circuitry on the NIC.

1 **Click *Run NIC Test* on the Diagnostics screen.**

The NIC Test screen appears.

2 **Click *Perform NIC Test*.**

While the test is running, a progress bar indicates test progress.

If the test fails, a message indicates the error type. Click the *Help* button in the error message screen to obtain more information.

If the test passes, the NIC is functioning correctly.

3 **Click *Close*.**

To Run the Remote Wake-up Test

You need at least two PCs on your network that contain a 3Com NIC with *EtherDisk* diskette 4.0 or later software to run the Remote Wake-Up Test.

1 **On the first PC, enable Auto Echo:**

a Open the 3Com NIC diagnostic program and make sure that Auto Echo is enabled on the General screen.

b Close the 3Com NIC diagnostic program.

c Make sure that the PC remains powered on and connected to the network.

2 **On the second PC, run the Remote Wake-Up Test:**

a Click *Run Remote Wakeup Test* on the Diagnostics screen.



If the Run Remote Wakeup Test *button is not available, the NIC does not support Remote Wake-Up.*

The Remote Wake-Up Test screen appears.

b Click *Test Remote Wake Up* to verify that another PC exists on the network that has the *EtherDisk* 4.0 software Auto Echo feature enabled.

If the test passes, another PC with the Auto Echo feature enabled was detected on the network.

If the test fails, another PC with the Auto Echo feature enabled was *not* detected on the network. You will not be able to run the Remote Wake-Up Test (the *Test Remote Wake Up Restart* button will be unavailable).

c Enter the number of seconds in the Seconds Until Wakeup entry box that the PC remains shut down until it receives a wake-up packet from the first PC.

d Click *Test Remote Wake Up Restart.*

The PC shuts down.

- If the PC automatically powers on after the number of seconds specified in the Seconds Until Wakeup entry box, Remote Wake-Up is functioning correctly.
- If the PC does not power on, Remote Wake-Up is not functioning. See "Troubleshooting Remote Wake-up" later in the chapter for more help.

Viewing Network Statistics

To view statistical information about the network:

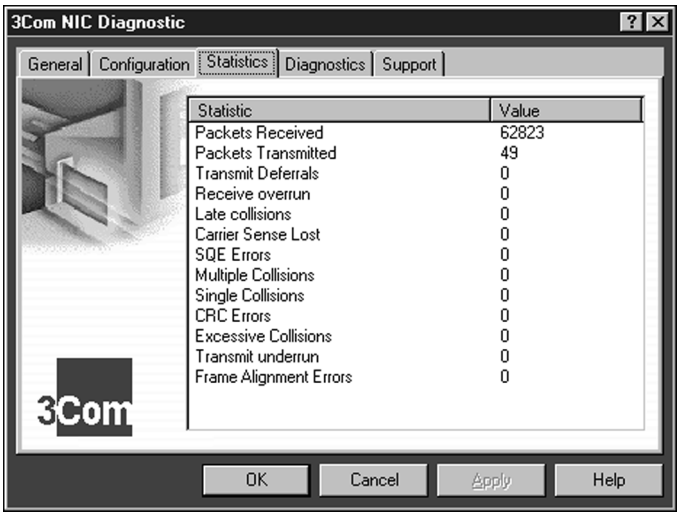
1 Start the 3Com NIC diagnostic program.

See "Starting the Windows-based 3Com NIC Diagnostic Program" earlier in this chapter for instructions.

2 Click the Statistics tab.

The Statistics screen (Figure 16) appears.

Figure 16 Statistics Screen



The information is updated by the NIC driver every 5 seconds.

For a description of each statistic, click the question mark (?) in the upper right corner of the screen, drag it over a statistic and click once. A popup box appears, displaying information about the statistic.

3 Click *OK* to exit the NIC diagnostic program. To go to another diagnostic screen, click the associated tab.

Accessing 3Com Support Services

The 3Com NIC diagnostic program provides access to several support services such as the 3Com World Wide Web site, BBS information, and customer support information databases.

To access 3Com support services:

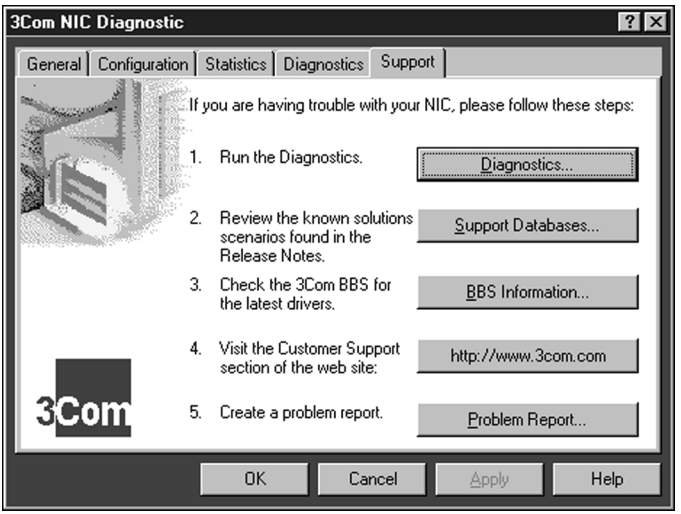
1 Start the 3Com NIC diagnostic program.

See "Starting the Windows-based 3Com NIC Diagnostic Program" earlier in this chapter for instructions.

2 Click the Support tab.

The Support screen (Figure 17) appears.

Figure 17 Support Screen



- Click *Diagnostics* to open the Diagnostics tab and run NIC tests. See "Running the NIC Diagnostics Tests" earlier in this chapter for information on how to run the tests.
- Click *Support Databases* to display customer support databases about the NIC in three categories:
  - Release notes—Display tips about installing and using the NIC.
  - Frequently asked questions—Display common questions asked by customers and answered by 3Com support experts.
  - KnowledgeBase topics—Display NIC compatibility topics.
- Click *BBS Information* to display the 3Com BBS telephone numbers and modem speeds.
- Click *http://www.3com.com* to open your Web browser and access the 3Com World Wide Web site.
- Click *Problem Report* to generate a report about a NIC problem. Fill in the information as requested. You can then e-mail this report to 3Com.

Accessing the 3Com NIC Help System

The 3Com NIC Help system is a Windows Help application that includes numerous Help topics about the 3C905B NIC.

To access the 3Com NIC Help system:

1. **Click *Start* in the Windows taskbar.**
2. **Select *Programs*, and then *3Com NIC Utilities*.**
3. **Select *3Com NIC Doctor Help*.**

   The main Help screen appears.
4. **Click *Help Topics* to display a list of Help topics or click *Find* to search for a Help topic.**

Using the 3Com Icon in the Windows System Tray

If the 3Com icon is visible in the Windows system tray, double-click the icon to start the 3Com NIC diagnostic program.



If a red circle with a line through it appears over the 3Com icon, there is no connection between the NIC and the network. See "Frequently Asked Questions" later in this chapter for help.

To show the 3Com icon in the Windows system tray:

1. **Start the 3Com NIC diagnostic program.**
2. **On the General screen, select the check box next to *Show Icon in System Tray*.**
3. **Close the 3Com NIC diagnostic program.**

When you drag your mouse arrow over the 3Com icon, but before you double-click the icon, a network statistics box appears displaying the following information:

- Frames Sent and Received—A count of the number of frames (packets) sent and received through the NIC since the last time statistics were reset.
- Link Speed—The speed (10 Mbps or 100 Mbps) at which the NIC is connected to the network.

The information is updated each time you move your mouse pointer over the 3Com icon.

Troubleshooting Remote Wake-up

If your NIC and PC support Remote Wake-Up and your PC does not boot when a wake-up packet is sent over the network, perform these troubleshooting steps:

1. **Make sure that the PC meets the Remote Wake-Up requirements listed in Chapter 1.**
2. **Make sure that you are using the latest driver for the NIC.**

   This driver is shipped with the NIC on the *EtherDisk* diskettes. It can also be downloaded from the 3Com World Wide Web site:

   `http://www.3com.com/`

3 **Perform the Remote Wake-Up Test.**

See "Running the NIC Diagnostics Tests" earlier in this chapter for instructions.

4 **Check the PC's BIOS.**

a Boot the PC and enter the BIOS.

If you do not know how to enter the BIOS, consult the reference manual for your PC or contact your PC vendor.

b Locate the Wake-Up on LAN event setting.

c Verify that the setting is enabled.

5 **Turn off the power to the PC, remove the PC cover, and check the Remote Wake-Up cable connection.**

Make sure that the Remote Wake-Up cable is plugged in to the NIC as well as the PC motherboard. Unplug and reinsert the cable if necessary.

6 **Replace the Remote Wake-Up cable with a known functioning Remote Wake-Up cable and perform the Remote Wake-Up Test again.**

7 **If the previous steps have failed, install a known functioning Remote Wake-Up NIC in the PC and connect the Remote Wake-Up cable.**

If Remote Wake-Up works with the new NIC installed, contact your network vendor for a replacement NIC.

If Remote Wake-Up does not work with the new NIC installed, there may be a problem with the PC motherboard. Contact your PC vendor.

Removing NIC Software

This section describes how to remove the 3C905B NIC and its software from your PC. This section also applies to removing older NIC drivers from your PC.

CAUTION: *If you want to reinstall the NIC software, you must first remove the software, as described in this section.*

Windows 95 and Windows 98

To remove NIC software in a PC running Windows 95 or Windows 98:

1. **Double-click the My Computer icon, then the Control Panel icon, and then the System icon.**
2. **Click the Device Manager tab.**
3. **Double-click *Network adapters*.**
4. **Highlight the name of the NIC.**
5. **Click *Remove*.**
6. **Click *OK* to confirm the device removal.**

   You are prompted to restart the PC.

   - If you are physically removing the NIC from the PC, click *No*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
   - If you are reinstalling the NIC software, click *Yes* to restart the PC.

Windows NT 4.0

To remove NIC software in a PC running Windows NT 4.0:

1. **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**

   The Network screen appears.
2. **Click the Adapters tab.**
3. **Highlight the name of the NIC in the Network Adapters box, and then click *Remove*.**
4. **Click *Yes* to confirm the removal.**
5. **Click *Close* to close the Network screen.**

   You are prompted to restart the PC.

   - If you are physically removing the NIC from the PC, click *No*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
   - If you are reinstalling the NIC software, click *Yes* to restart the PC.

Windows NT 3.51

To remove NIC software in a PC running Windows NT 3.51:

1. **In the Main program window, double-click the Control Panel icon, and then double-click the Network icon.**

   The Network Settings window appears.

2. **In the Installed Adapter Cards panel, select the name of the installed NIC, and then click *Remove*.**

   A warning message appears.

3. **Click *Yes* to confirm the removal.**

   The Network Settings window appears. The NIC no longer appears in the Installed Adapter Cards panel.

4. **Click *OK*.**

   The NIC driver and software are removed from the PC. You are prompted to restart the PC.

   - If you are physically removing the NIC from the PC, click *Don't Restart Now*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
   - If you are reinstalling the NIC software, click *Restart Now* to restart the PC.

Frequently Asked Questions

Table 11 describes some common questions and answers about the 3C905B NIC.

For additional information about the NIC, see the text files located in the HELP directory on *EtherDisk* diskette 3 or go to the following 3Com World Wide Web site:

`http://knowledgebase.3com.com/`

Table 11 Frequently Asked Questions

Question	Answer
In Windows 95/98, what if a yellow exclamation point (!) appears next to the NIC name in the Device Manager?	**1** In the Device Manager, double-click *Other Devices*. **2** Click *PCI Ethernet Controller* or the duplicate NIC entry. **3** Click *Remove*. **4** Reboot your PC.
In Windows 95/98, what if a red X appears next to the NIC name in the Device Manager?	**1** Double-click the name of the NIC. **2** Select the General tab. **3** Make sure that *Disable in this hardware profile* is not selected.
What if a red circle with a line through it appears over the 3Com icon in my Windows system tray?	If you enabled the 3Com icon to appear in the Windows system tray, and a red circle with a line through it appears over the icon, the network link is lost (that is, the PC is no longer physically connected to the network). ■ Check the cable between the NIC and the hub or switch. Make sure that it follows the appropriate cable specifications. See Appendix A. ■ Make sure that the hub or switch is powered on. ■ Reboot the PC.
Why does the NIC install as a generic PCI Ethernet controller under *Other Devices* in the Windows 95/98 Device Manager?	When Windows 95/98 is installed after the NIC has already been physically installed in the PC, Windows 95/98 installs the NIC as a generic PCI Ethernet controller. To work around this problem, follow these steps: **1** In the Device Manager, double-click *Other Devices*. **2** Click *PCI Ethernet Controller*, and then click *Remove*. **3** Reboot your PC.
Where can I get more information about the MBA boot ROM?	For more information on using, configuring, and troubleshooting the MBA boot ROM, see Appendix D in this user guide or refer to the documentation included with the MBA boot ROM. General information about the MBA boot ROM is available on the 3Com World Wide Web site: **`http://www.3com.com/managedpc`**

(continued)

Table 11 Frequently Asked Questions (continued)

Question	Answer
Which PCI slot should I use for my PCI NIC?	3Com PCI NICs are designed to work in any bus-mastering PCI slot, preferably slot 1. Normally, slot 1 is marked on the PC motherboard and is located closest to the computer power supply. Avoid any PCI slot next to an ISA slot. This is often a shared slot and does not support bus mastering. Refer to your PC manual for information on which slots support bus-mastering data transfers.
Do I have to configure the NIC?	PCI is a self-configuring bus architecture. Most of the time you only need to install the NIC in your PC; PCI does the rest. However, on some PCI computers, you may be required to configure the computer's BIOS manually after installing your PCI NIC. Refer to the owner's guide for your PC.
What interrupts should I avoid?	You should avoid using any interrupts used by ISA/EISA boards that do not properly support shared interrupts (level-triggered). If you do not know or are unsure whether other devices or adapters in your PC support shared interrupts, then avoid using them. Avoid using the same interrupt as your local hard disk (normally IRQ 14 for IDE drives and IRQ 11 for most SCSI host adapters), because not all hard disks support shared interrupts at this time. Avoid using 9 because it cascades with 2. For Novell NetWare servers, avoid using IRQ 7 or 15. These IRQs support only nonshared devices and may cause problems if they are shared between two devices.
What is the hardware IP header checksum?	The header checksum is a field in the IP header. When the NIC receives IP data, it computes the IP header checksum. If an error occurs, the packet is dropped and not passed to the protocol stack. By computing the CRC through hardware, the NIC can increase the performance of IP traffic and reduce CPU processing required by the protocol stack. To avoid having the CRC computed twice (once in the hardware and again in the software by the protocol stack), make sure that your IP protocol does not compute the CRC, or if it does, disable that function.
Does the NIC support full-duplex?	Yes, all versions of the 3C905B NIC support full-duplex at 10 Mbps or 100 Mbps.

(continued)

Table 11 Frequently Asked Questions (continued)

Question	Answer
Does the 3C905B-COMBO NIC support 100 Mbps on the AUI or the BNC port?	No, the 3C905B-COMBO NIC supports 100 Mbps only on the RJ-45 port (using Category 5 unshielded twisted-pair cable).
Does the NIC support NetWare version 3.11 or 4.0x?	The NIC does not support NetWare version 3.11 or 4.0x. These versions require the use of a server driver that conforms to the HSM 3.2 specification. 3Com no longer develops NetWare server drivers that conform to the HSM 3.2 specification.
Does the NIC support Windows NT 3.51 on the DEC Alpha PC?	No, the NIC network driver supports only Windows NT 4.0 on the DEC Alpha PC.
Are the 3C905B NIC network drivers Microsoft-certified?	Yes.
Are the 3C905B bus master ODI drivers Novell-certified?	Yes.
Where can I get a SCO driver?	Obtain the SCO driver from the 3Com World Wide Web site: **`http://www.3com.com/`**
Where can I get more information about Fast IP and Dynamic*Access* software?	Fast IP, part of 3Com's Dynamic*Access* software, improves performance on switched networks by allowing end systems (workstations and servers) to discover switched communication paths. By creating switched shortcuts, Fast IP allows end stations to bypass the router and transfer data across wire-speed switched paths. For more information on Fast IP, see the FASTIP.TXT file located in the HELP directory on *EtherDisk* diskette 3. For more information on Dynamic*Access* software, see Chapter 1 in this user guide or go to: **`http://www.3com.com/dynamicaccess`**

(continued)

Table 11 Frequently Asked Questions (continued)

Question	Answer
What does Remote Wake-Up do, and where can I get more information about it?	Remote Wake-Up powers on a network PC remotely using a wake-up packet that is sent through the LAN from a network management station. With this method, no one has to be at the PC to turn it on. Remote Wake-Up is also known as Wake on LAN. For more information, see Chapter 1 in this user guide or the WAKEFAQ.TXT file located in the Help directory on *EtherDisk* diskette 3. Information is also available on the 3Com World Wide Web site: **`http://www.3com.com/partners/acpi`**

A SPECIFICATIONS AND CABLING REQUIREMENTS

This appendix lists the specifications, cable requirements, and connector pin assignments for the 3C905B NIC.

Specifications

	3C905B NIC Model		
	-TX, -TX-M, -TX-NM	**-COMBO**	**-FX**
Dimensions			
Length:	12.07 cm (4.75 in.)	17.459 cm (6.874 in)	12.1 cm (4.75 in.)
Width:	8.57 cm (3.375 in.)	10.033 cm (3.950 in)	9.53 cm (3.75 in.)
Operating Ranges			
Temperature:	0˚ to 70 ˚C (32˚ to 158 ˚F)	0˚ to 70 ˚C (32˚ to 158 ˚F)	0˚ to 70 ˚C (32˚ to 158 ˚F)
Humidity:	10-90% (noncondensing)	10-90% (noncondensing)	10-90% (noncondensing)
Altitude:	3000 m (9800 ft)	3000 m (9800 ft)	3000 m (9800 ft)
Power Requirements	+5 V ± 5% at 600 mA max	+12V ± 5% at 390 mA max +5 V ± 5% at 520 mA max	+5V ± 5% at 600 mA max
Network Interface	Ethernet IEEE 802.3 industry standard 10 Mbps baseband CSMA/CD (10BASE-T) and 100 Mbps baseband CSMA/CD (100BASE-T, FX) standards		

Cabling Requirements

The cable, quality, distance, and connectors must comply with the Electronic Industries Association/Telecommunications Industries Association (EIA/TIA) 568 *Commercial Building Wiring Standard* and the Technical Services Bulletin TSB38 standards.

Twisted-Pair Cable

Twisted-pair cable consists of copper wires surrounded by an insulator. Two wires are twisted together (the twisting prevents interference problems) to form a pair, and the pair forms a circuit that can transmit data. A cable is a bundle of one or more twisted pairs surrounded by an insulator.

Unshielded twisted pair (UTP) is the most commonly used type of twisted-pair cable. Shielded twisted pair (STP) provides protection against crosstalk. Twisted-pair cable is now commonly used in Ethernet, Fast Ethernet, and other network topologies.

The EIA/TIA defines five categories of unshielded twisted-pair cable (see Table 12).

Table 12 Unshielded Twisted-pair Cable Categories

Category	Use
1	Traditional telephone cable.
2	Data transmissions up to 4 MHz.
3	Voice and data transmission up to 25 MHz. The cable typically has four pairs of wires. Category 3 is the most common type of installed cable found in older corporate wiring schemes.
4	Voice and data transmission up to 33 MHz. The cable normally has four pairs of wire. This grade of UTP is not common.
5	Voice and data transmission up to 125 MHz. The cable normally has four pairs of copper wire and three twists per foot. Category 5 UTP is the most popular cable used in new installations today.

10BASE-T Operation

10BASE-T is the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard for Ethernet signaling over unshielded twisted-pair wire at 10 Mbps.

Ethernet, as the most widely used network protocol, uses 10BASE-T as its primary cabling scheme. Ethernet's characteristics include:

- A data rate of 10 Mbps.
- A broadcast architecture.
- A specific media-access control (MAC) scheme.

The 10BASE-T name indicates a signaling speed of 10 Mbps and twisted-pair wiring. *Base* stands for baseband, which denotes a technique for transmitting signals as direct-current pulses rather than modulating them onto separate carrier frequencies.

A wiring topology using 10BASE-T specifies a wiring hub, cable arranged in a star configuration, and unshielded twisted-pair cable. Each node has a separate cable run that must not exceed 100 meters (328 ft) from the node to the hub.

10BASE2 Operation

10BASE2 is the IEEE 802.3 standard for Ethernet signaling over thin coaxial cable at 10 Mbps.

A wiring topology using 10BASE2 specifies a wiring hub, cable arranged in a bus configuration, and thin coaxial cable. The total length of the cable in the bus configuration must not exceed 185 meters (607 ft).

10BASE5 Operation

10BASE5 is the IEEE 802.3 standard for Ethernet signaling over thick coaxial cable at 10 Mbps.

A wiring topology using 10BASE5 specifies a wiring hub, cable arranged in a bus configuration, and thick coaxial cable. The total length of the cable in the bus configuration must not exceed 500 meters (1,640 ft).

100BASE-TX Operation

100BASE-TX is the IEEE 802.3u standard for Fast Ethernet signaling over Category 5 UTP or STP wire at 100 Mbps.

Based on an extension to the IEEE 802.3 Ethernet specification, Fast Ethernet's characteristics include:

- A data rate of 100 Mbps.
- A broadcast architecture.
- A specific media-access control (MAC) scheme.

A wiring topology using 100BASE-TX specifies a wiring hub, cable arranged in a star configuration, and Category 5 UTP or STP wiring. Each node has a separate cable run that must not exceed 100 meters (328 ft) from the node to the hub.

100BASE-FX Operation

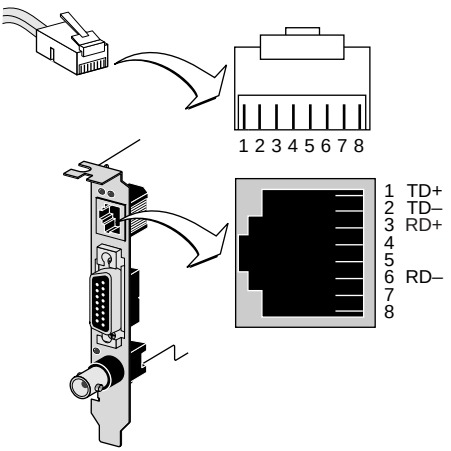
100BASE-FX is the IEEE 802.3u standard for Fast Ethernet signaling over multimode fiber-optic cable at 100 Mbps.

A wiring topology using 100BASE-FX specifies a wiring hub, cable arranged in a star configuration, and multimode fiber-optic cable. Each node has a separate cable run that must not exceed 2,000 meters (6,560 ft) from the node to the hub.

RJ-45 Connector Pin Assignments

Figure 18 shows the RJ-45 connector pin assignments for the 3C905B-TX, 3C905B-TX-M, 3C905B-TX-NM, and 3C905B-COMBO NICs.

Figure 18 RJ-45 Connector Pin Assignments



B SUPPORTED NETWORK DRIVERS

This appendix provides the text file and driver names for some of the network drivers supported by the 3C905B NIC.

The text files, which describe how to install the associated network driver, are located in the HELP directory on *EtherDisk* diskette 3.

Table 13 Network Driver Text File Names

Network Operating System	Text File Name	Network Driver Name
Windows 98	WIN98.TXT	EL90XND5.SYS
Windows 95 OSR2	W95NDIS.TXT	EL90XND4.SYS
Windows 95 Build 950	W95NDIS.TXT	EL90XND3.SYS
Windows NT 4.0	WINNT.TXT	EL90XND4.SYS
Windows NT 3.51	WINNT.TXT	EL90XND3.SYS
NetWare 4.1x server	NETWARE.41X	3C90X.LAN
NetWare client for DOS, Windows 3.1, and Windows for Workgroups	NWDOSODI.TXT	3C90X.COM
Windows for Workgroups (NetWare)	WFWNETWR.TXT	3C90X.COM
Windows for Workgroups (NDIS 2)	WFWNDIS.TXT	EL90X.DOS
Windows for Workgroups (NDIS 3)	WFWNDIS.TXT	EL90X.386
Clarkson Packet	PACKET.TXT	3C90XPD.COM

For a list of additional supported network drivers and instructions on how to install them, go to the 3Com World Wide Web site:

http://www.3com.com/

C DYNAMIC*Access* SOFTWARE INSTALLATION AND CONFIGURATION

This appendix explains how to install and configure Dynamic*Access* software on a PC running Windows 95, Windows 98, or Windows NT.

*For detailed information on using, configuring, and troubleshooting Dynamic*Access *software, go to:*

http://www.3com.com/dynamicaccess

Client PC Requirements

Dynamic*Access* software can be installed on a PC running Windows 95, Windows 98 or Windows NT.

CAUTION: *If you plan to install Dynamic*Access *software on a multiprocessor PC running Windows NT 4.0, Service Pack 4, you must first download and install the appropriate Microsoft patch available at:*

http://www.3com.com/dynamicaccess/hotfixes

Failure to install the patch will result in system failure.

Table 14 lists the minimum client PC requirements and recommended Microsoft Service Packs (if any) for the version of Dynamic*Access* software that is included with your NIC on *EtherDisk* diskette 2.

Table 14 Dynamic*Access* Software Minimum Client PC Requirements

Operating System	PC Requirements	Recommended Microsoft Service Pack
Windows 95	486/75 MHz CPU 16 MB RAM (32 MB recommended) 5 MB available hard drive space	Windows 95 OSR2 or Service Pack 1
Windows 98	486/75 MHz CPU 16 MB RAM (32 MB recommended) 5 MB available hard drive space	
Windows NT 4.0	Pentium/100 MHz CPU 32 MB RAM 5 MB available hard drive space	Service Pack 3
Windows NT 3.51	Pentium/100 MHz CPU 32 MB RAM 5 MB available hard drive space	Service Pack 5

Installing Dynamic*Access* Software

To install Dynamic*Access* software:

1 **Make sure that the NIC and its software are installed on your PC.**

See "Verifying Successful Installation" in Chapter 3 to confirm the NIC's installation.

CAUTION: *If you have a multiprocessor PC that is running Windows NT 4.0, Service Pack 4, download and install the appropriate Microsoft patch before beginning the installation. Failure to install the patch will result in system failure. This patch can be downloaded from:*

`http://www.3com.com/dynamicaccess/hotfixes`

2 **Start Windows.**

3 Double-click the DAINST.EXE file on your hard drive.

The DAINST.EXE file is automatically installed with the NIC driver into the following default directory:

- Windows 95/98 — C:\WINDOWS\SYSTEM
- Windows NT 4.0 — C:\WINNT\SYSTEM32
- Windows NT 3.51 — C:\WINNT35\SYSTEM32

The file is expanded and the Dynamic*Access* software is installed on your PC.

4 Reboot your PC.

You must reboot your PC to complete the installation.

Verifying Successful Installation

After Dynamic*Access* software is installed, the following changes are visible in the Windows Network dialog box:

- For each physical NIC that is installed in the PC, a virtual NIC entry appears in the list of network adapters.

  All protocols are re-bound to the virtual NIC. The bindings to the physical NIC are still intact.
- A 3Com Dynamic*Access* software entry appears as a protocol.
- A 3Com Dynamic*Access* software icon is installed in the Windows Control Panel.

Configuring Dynamic*Access* Software

Contact your system administrator about using Dynamic*Access* software at your site.



*Dynamic*Access *software configuration instructions are intended for network administrators who have experience installing software and using management tools for an Ethernet network.*

The instructions in this section are for configuring Dynamic*Access* software on a local PC. You can obtain the complete configuration instructions by expanding the downloadable file that contains the Dynamic*Access* software from the 3Com World Wide Web site:

`http://www.3com.com/dynamicaccess`

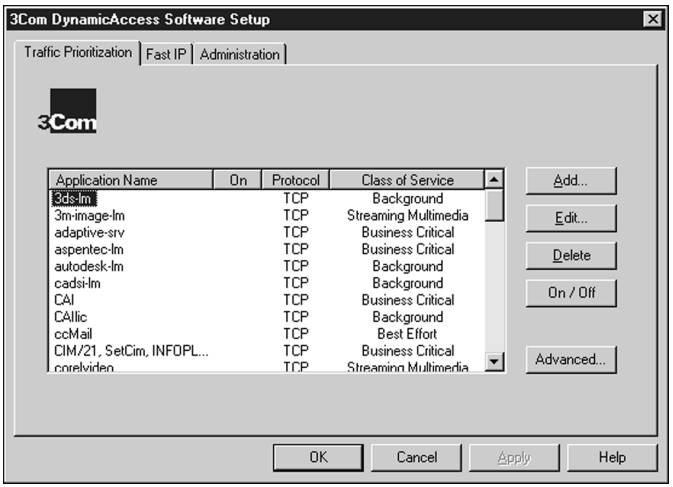
To view the complete configuration instructions you need a Web browser. You do *not* need to reinstall the software.

To configure Dynamic*Access* software on a local PC:

1 Double-click the 3Com Dynamic*Access* icon in the Windows Control Panel.

The Traffic Prioritization tab of the Dynamic*Access* Software Setup screen (Figure 19) appears.

Figure 19 Dynamic*Access* Software Setup Screen—Traffic Prioritization



2 Select the tab containing the information you want to configure.

- Traffic Prioritization — Allows you to prioritize applications, which can ease bottlenecks in your network and allow critical applications to take network precedence.
- Fast IP — Allows you to enable and configure Fast IP.
- Administration — Allows you to set Dynamic*Access* control panel access, set VLAN options, enable efficient multicast control, and enable the prioritizing of multicast traffic.

*For specific instructions on configuring any of the Dynamic*Access *software options, click* Help *on the 3Com Dynamic*Access *Software screen or go to the following 3Com World Wide Web site:*

`http://www.3com.com/dynamicaccess`

Removing Dynamic*Access* Software

To remove Dynamic*Access* software from your PC, follow the instructions appropriate for your operating system.



*Contact your system administrator before you remove Dynamic*Access *software from your PC.*

Windows 95 and Windows 98

If the 3Com Dynamic*Access* Control Panel Administration utility is set to *Read Only*, you cannot remove the Dynamic*Access* software. You must change the access to *Read/Write,* and then remove Dynamic*Access* software.



Your network connections will break if you select the DA Transport protocols from either the virtual NIC or the physical NIC and click Remove.

To remove Dynamic*Access* software from a PC running Windows 95 or Windows 98:

1. **Double-click the Add/Remove Programs icon in the Control Panel.**
2. **Select the Dynamic*Access* Software entry and click *Remove*.**
3. **Reboot the PC when prompted.**

   Dynamic*Access* software is removed from the PC.

Windows NT 4.0 and Windows NT 3.51

To remove Dynamic*Access* software from a PC running Windows NT 4.0 or Windows NT 3.51:

1. **Double-click the Network icon in the Control Panel.**
2. **Select the *DAPassThru Driver Transport* protocol.**
   - Windows NT 4.0 — this protocol is located on the Protocols tab.
   - Windows NT 3.51 — this protocol is located in the list of installed network software on the Network Settings screen.
3. **Click *Remove*.**
4. **Close the Network screen, and then reboot the PC when prompted.**

   Dynamic*Access* software is removed from the PC.

D MANAGED PC BOOT AGENT (MBA) BOOT ROM CONFIGURATION

This appendix explains how to enable and configure the 3C905B-TX-M NIC's MBA boot ROM to boot from the network.

The information also applies to the MBA boot ROM that can be purchased separately and installed on the 3C905B-TX, 3C905B-COMBO, and 3C905B-FX(SC) NICs.

For detailed information on using, configuring, and troubleshooting the MBA boot ROM, see the documentation that came with the MBA. For 3C905B-TX-NM NICs, this information is located on the MBA utility diskette included with the NIC.

Enabling or Disabling the Boot ROM Setting

The default NIC boot ROM setting is *Enabled*. This setting can be changed through the 3Com NIC diagnostic program.

To enable or disable the NIC boot ROM setting using the 3Com NIC diagnostic program:

1. **Start the 3Com NIC diagnostic program.**

   See "Starting the Windows-based 3Com NIC Diagnostic Program" in Chapter 5 for instructions.

2. **Click the Configuration tab.**

   The Configuration screen appears.

3. **Under Network Parameter, select Boot PROM.**

4. **Open the Set Value list box and select *Enabled* to enable the boot ROM or *Disabled* to disable the boot ROM.**

   The setting is not saved until you click *OK*.

5. **Click *OK*.**

Booting with the MBA Boot ROM

The boot process for the MBA boot ROM varies depending on the type of PC you have (BBS BIOS-compatible or non-BBS BIOS-compatible).

If your PC was purchased recently, it may be BBS (BIOS Boot Specification) BIOS-compatible. The BBS determines how the system BIOS identifies boot devices in a PC (such as a CD-ROM drive, a hard drive, or a floppy drive), allows the user to select the boot order of these devices, and then sequentially attempts to boot from each device in the specified order.

Refer to your PC documentation if you do not know which type of PC you have.

BBS BIOS-Compatible PCs

To enable a BBS BIOS-compatible PC to boot from the network using the MBA boot ROM:

1. **Make sure that the NIC's boot ROM setting is *Enabled.***

   See the previous section, "Enabling or Disabling the Boot ROM Setting" for instructions.

2. **Manually set the MBA as the first boot device in the PC's BIOS.**

   Refer to your PC documentation for instructions on accessing and configuring the PC's BIOS.

3. **Reboot the PC.**

   The MBA attempts to boot from the network using the default protocol TCP/IP DHCP.

   To change the default protocol or any other MBA configurations, press Ctrl+Alt+B when the following message appears:

   ```
   Initializing MBA. Press Ctrl+Alt+B to configure...
   ```

   If the network boot fails, the following message appears:

   ```
   Network boot aborted, press any key to continue
   ```

   The BIOS continues to the next device in the boot order (for example, the local hard drive).



To cancel the network boot on a BBS BIOS-compatible PC, press Esc anytime during the network boot process.

Non-BBS BIOS-Compatible PCs

To enable a non-BBS BIOS-compatible PC to boot from the network using the MBA boot ROM:

1. **Make sure that the NIC's boot ROM setting is *Enabled.***

   See "Enabling or Disabling the Boot ROM Setting" earlier in this chapter for instructions.

2. **Change the MBA's default boot setting from *Local* to *Network*.**

   To change the default boot setting or any other MBA configurations, use the MBACFG utility located on the MBA utility diskette included with your NIC or press Ctrl+Alt+B when the following message appears:

   ```
   Initializing MBA. Press Ctrl+Alt+B to
   configure...
   ```



For more information on using, configuring, and troubleshooting the MBA boot ROM, see the documentation that came with the MBA. For 3C905B-TX-NM NICs, this information is located on the MBA utility diskette included with the NIC.



TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the very latest, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com FTP site
- 3Com Bulletin Board Service (3Com BBS)
- 3Com Facts℠ automated fax service

World Wide Web Site

Access the latest networking information on the 3Com Corporation World Wide Web site by entering the URL into your Internet browser:

`http://www.3com.com/`

This service provides access to online support information such as technical documentation and software library, as well as support options ranging from technical education to maintenance and professional services.

3Com FTP Site

Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **ftp.3com.com** (or **192.156.136.12**)
- Username: **anonymous**
- Password: **<your Internet e-mail address>**



A user name and password are not needed with Web browser software such as Netscape Navigator and Internet Explorer.

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 14,400 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 3345 7266
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 53,333 bps	1 847 262 6000

Access by Digital Modem

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, use the following number:

1 847 262 6000

3Com Facts Automated Fax Service

The 3Com Facts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727 7021

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, please call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Below is a list of worldwide technical telephone support numbers:

Country	Telephone Number
Asia Pacific Rim	
Australia	1 800 678 515
Hong Kong	800 933 486
India	61 2 9937 5085
Indonesia	001 800 61 009
Japan	0031 61 6439
Malaysia	1800 801 777
New Zealand	0800 446 398
Pakistan	61 2 9937 5085
Philippines	1235 61 266 2602
P.R. of China	10800 61 00137 or 021 6350 1590
Singapore	800 6161 463
S. Korea	
From anywhere in S. Korea:	82 2 3455 6455
From Seoul:	00798 611 2230
Taiwan, R.O.C.	0080 611 261
Thailand	001 800 611 2000
Europe	
From anywhere in Europe, call:	+31 (0)30 6029900 phone +31 (0)30 6029999 fax
From the following European countries, you may use the toll-free numbers:	
Austria	06 607468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0130 821502
Hungary	00800 12813
Ireland	1 800 553117
Israel	177 3103794
Italy	1678 79489
Netherlands	0800 0227788
Norway	800 11376
Poland	0800 3111206
Portugal	05 05313416
South Africa	0800 995014
Spain	900 983125
Sweden	020 795482
Switzerland	0800 55 3072
U.K.	0800 966197

(continued)

Country	Telephone Number
Latin America	
Argentina	AT&T +800 666 5065
Brazil	0800 13 3266
Chile	1230 020 0645
Colombia	98012 2127
Mexico	01 800 CARE (01 800 2273)
Peru	AT&T +800 666 5065
Puerto Rico	800 666 5065
Venezuela	AT&T +800 666 5065
North America	1 800 NET 3Com (1 800 638 3266)

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain a Return Materials Authorization (RMA) number. Products sent to 3Com without RMA numbers will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	65 543 6500	65 543 6348
Europe, South Africa, and Middle East	+ 44 1442 435860	+ 44 1442 435718

From the following European countries, you may call the toll-free numbers; select option 2 and then option 2:

Austria	06 607468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0130 821502
Hungary	00800 12813
Ireland	1800553117
Israel	177 3103794
Italy	1678 79489
Netherlands	0800 0227788
Norway	800 11376
Poland	00800 3111206
Portugal	05 05313416
South Africa	0800 995014
Spain	900 983125
Sweden	020 795482
Switzerland	0800 55 3072
U.K.	0800 966197

(continued)

Country	Telephone Number	Fax Number
Latin America	1 408 326 2927	1 408 326 3355
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266)	1 408 326 7120

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3Com Corporation LIMITED WARRANTY

HARDWARE

3Com warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from 3Com or its authorized reseller:

Network Interface Cards	Lifetime
Other hardware products *unless otherwise specified above	1 year*
Spare parts and spares kits	90 days

If a product does not operate as warranted above during the applicable warranty period, 3Com shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

SOFTWARE

3Com warrants that the software programs licensed from it will perform in substantial conformance to the program specifications therefor for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation with respect to this express warranty shall be (at 3Com's discretion) to refund the purchase price paid by Customer for any defective software products, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product.

YEAR 2000 WARRANTY

In addition to the Hardware Products Warranty and Software Products Warranty identified above, 3Com warrants that all Heritage 3Com products sold or licensed to Customer on and after January 1, 1998 that are date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com products, including hardware, software, and firmware, accurately exchange date data with the 3Com products, with the exception of those products identified at 3Com's Web site, http://www.3com.com/products/yr2000.html, as not meeting this standard. A product is considered a "Heritage 3Com product" if it is a member of a product family which was manufactured by 3Com prior to its merger with US Robotics Corporation. This Year 2000 limited warranty does not apply to Heritage US Robotics Corporation products. If it appears that any such product does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days or until April 1, 2000, whichever is later.

OBTAINING WARRANTY SERVICE

Customer must contact 3Com's Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after receipt of the defective product by 3Com.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. When an advance replacement is provided and Customer fails to return the defective product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

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FCC CLASS B STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1 This device may not cause harmful interference, and

2 This device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, and the Canadian Department of Communications Equipment Standards entitled, "Digital Apparatus," ICES-003.These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, 3Com requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.

FCC Declaration of Conformity

We declare under our sole responsibility that the

Model:	**Description:**
3C905B-TX	Fast EtherLink XL PCI 10/100 Mbps Network Interface Card
3C905B-TX-M	Fast EtherLink XL PCI 10/100 Mbps Network Interface Card
3C905B-TX-NM	Fast EtherLink XL PCI 10/100 Mbps Network Interface Card
3C905B-COMBO	Fast EtherLink XL PCI Combo Network Interface Card
3C905B-FX	Fast EtherLink XL Fiber PCI Network Interface Card

to which this declaration relates, is in conformity with the following standards or other normative documents:

- ANSI C63.4-1992 Methods of Measurement
- Federal Communications Commission 47 CFR Part 15, subpart B
  15.107 (e) Class B Conducted Limits
  15.109 (g) Class B Radiated Emissions Limits

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