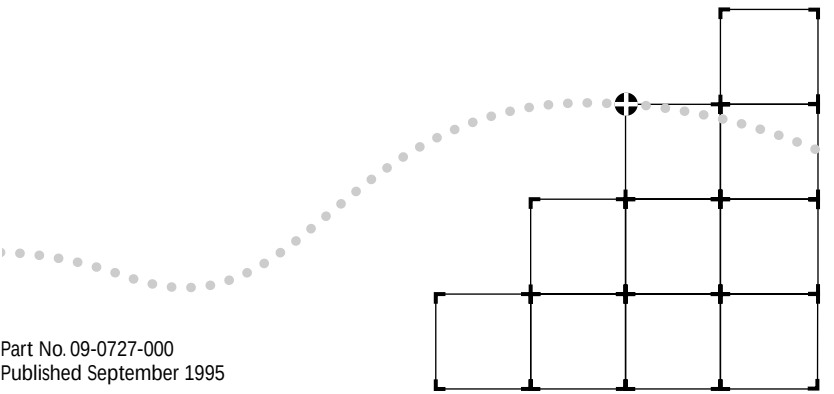
ETHERLINK® III LAN PC CARD USER GUIDE

A member of the EtherLink III product family



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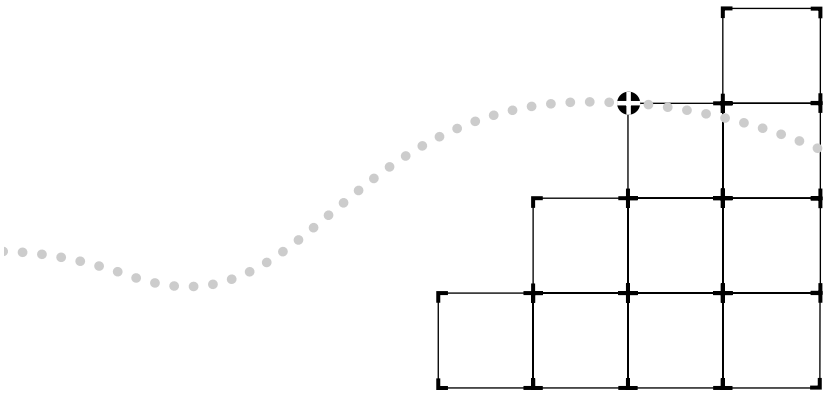

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  Globe Park Marlow-on-Thames
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ABOUT THIS GUIDE

Introduction

This guide describes how to install, configure, and troubleshoot the 3Com® EtherLink® III LAN PC Card (referred to as the 3C589C PC Card in this guide). See the README.TXT file on the *EtherDisk*® diskette for Windows 95 installation instructions.

If the information in the README.TXT file on the EtherDisk *diskette shipped with your product differs from the information in this guide, follow the instructions in this file.*

How to Use This Guide

The following table shows where to find specific information in this guide.

If you are looking for:	Turn to:
EtherLink III LAN PC Card overview	Chapter 1
Instructions for 3C589C PC Card installation and cabling	Chapter 2
Instructions for installing the NetWare driver	Chapter 3
Instructions for installing the NDIS driver	Chapter 4
Instructions for changing the 3C589C PC Card configuration settings	Chapter 5
Troubleshooting tips and procedures	Chapter 6
Card Services information	Appendix A
3C589C PC Card physical specifications and sample software files	Appendix B
Technical support information	Appendix C
Definition of terms used in this guide	Glossary

Conventions

Table 1 and Table 2 list text and icon conventions that are used throughout this guide:

Table 1 Text Conventions

Convention	Description
Text represented as `screen display`	`This typeface` is used to represent displays that appear on your terminal screen, for example: `Login:`
Text represented as **`commands`**	**`This typeface`** is used to represent commands that you enter, for example: **`A: Install`**
Italics	*Italics* are used to denote *new terms* or *emphasis*.

Table 2 Notice Icons

Icon	Type	Description
	Information Note	Information notes call attention to important features or instructions.
	Caution	Cautions alert you to personal safety risk, system damage, or loss of data.
	Warning	Warnings alert you to the risk of severe personal injury.

1 INTRODUCTION

Overview

The 3Com® EtherLink® III LAN PC Card (referred to as the 3C589C PC Card in this guide) is a LAN adapter that lets you connect a PC to an Ethernet network.

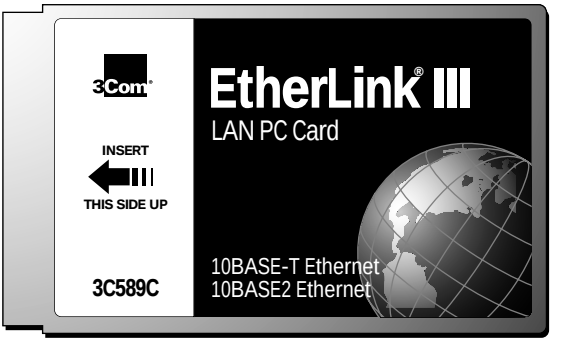

Figure 1-1 3C589C PC Card

The 3C589C PC Card, shown in Figure 1-1, operates in PCs containing Personal Computer Memory Card International Association Release 2.0 or 2.1 Type II or Type III slots.

This chapter describes the following:

- 3C589C PC Card features
- 3C589C PC Card requirements
- 3C589C PC Card software
- Card Services

3C589C PC Card Features

The 3C589C PC Card has the following features:

- Parallel Tasking® architecture for greater network speed.
- Automatic PC Card configuration (AutoLink™ program) for Novell® NetWare®.
- Compliance with 10BASE-T and 10BASE2 standards.
- Integrated Card Services support.
- "Hot Swap" support (you can remove and replace the PC Card without rebooting the PC if you have Card Services installed).
- *EtherDisk*® diskette containing the 3C589C PC Card software, network drivers, and text files that contain technical information about the 3C589C PC Card.

3C589C PC Card Requirements

To use the 3C589C PC Card successfully, make sure you meet the following installation requirements:

- Your PC must have a PCMCIA Release 2.1, Type II or Type III (or PC Card standard) card slot and a 3 1/2-inch diskette drive.
- Your PC must be running DOS 3.1 or higher.
- Your PC must have an 80386 or higher processor.
- Your PC must have 450 K of memory to run the 3C589C installation software.
- You must have access to a network port for a network connection. See your MIS representative to get a network port.
- If your PC is using a memory manager (all PCs using Microsoft® Windows® use a memory manager) and you do not have Card Services installed, you must exclude upper memory. Refer to the section "Avoiding Memory Manager Conflicts" in Appendix A for a sample procedure.

3C589C PC Card Software

The 3C589C PC Card software copies the 3C589C files to the PC, configures the PC Card, and runs tests on the PC Card. The *EtherDisk* diskette contains a README.TXT file that describes important information that became available after the guide was printed.

3C589C PC Card Installation Options

The software on the *EtherDisk* diskette provides two installation options for the 3C589C PC Card:

- AutoLink installer for NetWare DOS ODI clients and NetWare 4.0 installer for NetWare WIndows clients
- OEM installers for NDIS network operating systems

These options are described in the following sections. Ask your MIS representative or system administrator which type of network operating system you are connecting to.

NetWare Driver Installation

You can install the NetWare driver with the AutoLink program or the Network 4.0 installer.

The AutoLink feature automatically configures your PC as a NetWare DOS ODI client. The AutoLink program:

- Configures the 3C589C PC Card
- Copies the NetWare client files to the PC
- Modifies PC startup files

After the 2- to 3-minute AutoLink installation, you can reboot your PC and log into a NetWare server. For more information about the AutoLink feature, see Chapter 3, *Installing the NetWare Driver*.

The NetWare 4.0 installer installs the 3Com network driver for Windows NetWare clients. For more information about the NetWare 4.0 installer, see Chapter 3, *Installing the NetWare Driver*.

NDIS Driver Installation

You can install the 3Com NDIS network driver using the OEM import method. The OEM import method allows you to use your network operating system installer to import the 3Com network driver. For more information about NDIS driver installation, refer to Chapter 4, *Installing the NDIS Driver*.

Troubleshooting

The 3C589C PC Card software contains a diagnostic program described in Chapter 6, *Troubleshooting*. This program runs tests that report the status of the PC Card.

3C589C PC Card Software Program Icons

The 3C589C PC Card software contains program icons that promote easy installation, configuration, status displays, and troubleshooting. Table 1-1 shows each 3C589C program icon and describes what happens when you click that icon.

Table 1-1 3C589C PC Card Program Icons

Icon	Name	Description
	*AutoLink*	Automatically configures the 3C589C PC Card as a NetWare DOS ODI client.
	*Manual*	Accesses manual installation for NetWare and NDIS network drivers.
	*Tools*	Accesses the configuration and diagnostic programs.
	*Help*	Displays information about the 3C589C PC Card and programs.
	*Exit*	Exits the 3C589C PC Card software program.

(continued)

Table 1-1 3C589C PC Card Program Icons (continued)

Icon	Name	Description
	*Cancel*	Cancels the current operation.
	*OK*	Activates the current operation.
	*NetWare Version*	Displays the NetWare driver version number.
	*Main*	Returns to the Main screen.
	*Copy*	Copies selected files into the displayed directory.
	*Config*	Accesses the configuration program that allows you to change the 3C589C PC Card configuration settings.
	*Auto*	Reconfigures the 3C589C PC Card to default settings.
	*Save*	Saves displayed configuration settings.
	*File*	Saves displayed configuration settings or test results in a file.
	*PC Card Information*	Displays configuration information about the 3C589C PC Card.
	*Upgrade Driver*	Updates the driver.
	*Display Version*	Displays the NDIS driver version number.
	*Diagnostic*	Accesses the diagnostic program that tests the 3C589C PC Card.
	*Start Test*	Starts the selected diagnostic test(s).

(continued)

Table 1-1 3C589C PC Card Program Icons (continued)

Icon	Name	Description
	*Stop Test*	Stops the selected diagnostic test(s).
	*Technical Support*	Displays technical support information.
	*Return*	Returns to the previous screen.
	*Echo*	Accesses the echo exchange test.
	*Statistics*	Displays 3C589C PC Card statistics.
	*Trouble-shooting*	Displays troubleshooting tips.

Transcend PC Link SmartAgent Support

You can manage the 3C589C PC Card using 3Com's Transcend® PC Link SmartAgent™ software. Refer to the *Transcend PC Link SmartAgent Software User Guide* for more information.

Card Services

Card Services coordinates PC Card access to device drivers, utilities, and application programs. Card Services is usually supplied with your PC. Card Services assigns the I/O Base Address, Interrupt Request Level, and CIS Memory Base Address for the 3C589C PC Card. For more information about Card Services, see Appendix A. The 3C589C PC Card supports Card Services but does not require it to operate.

What to Do Next

Figure 1-2 depicts the installation and configuration process and where to find detailed information for each step.

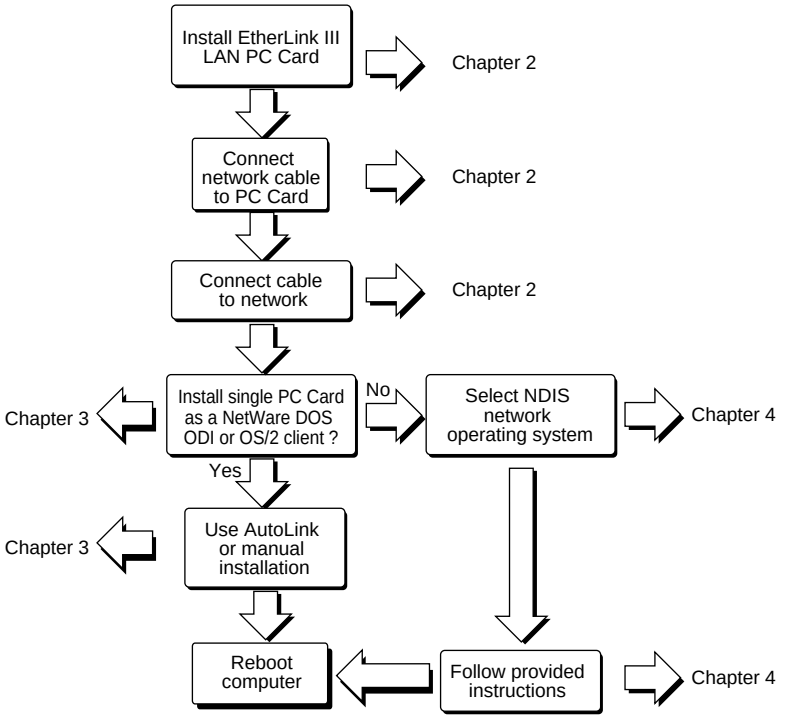

Figure 1-2 3C589C PC Card Installation and Configuration

To install the 3C589C PC Card, go to Chapter 2.

2 INSTALLING THE 3C589C PC CARD

This chapter describes the 3C589C PC Card installation steps, as shown in Figure 2-1.

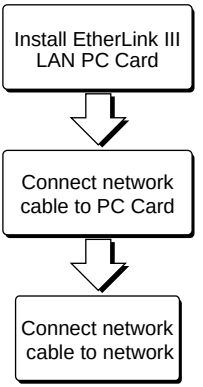

Figure 2-1 3C589C PC Card Installation

Unpacking the 3C589C PC Card

The contents of your 3C589C PC Card package are listed below. If any of these items are missing, contact your authorized network supplier immediately.

- 3Com EtherLink III LAN PC Card (3C589C)
- PC Card cable
- Network cable
- *EtherLink III LAN PC Card User Guide*
- *EtherDisk* diskette

To return the PC Card to 3Com, pack it in the original (or equivalent) packing material, or the warranty will be voided.

Inserting the 3C589C PC Card

Before you install the PC Card, make sure that you meet the requirements described in Chapter 1. The 3C589C PC Card can be inserted into any PC Card slot on your PC whether the power is ON or OFF.

These are general instructions that apply to most PCs. Refer to the manual that accompanied your PC for more instructions.

Insert the 3C589C PC Card into the PC Card slot, as shown in Figure 2-2, and slide it in until it is firmly seated.

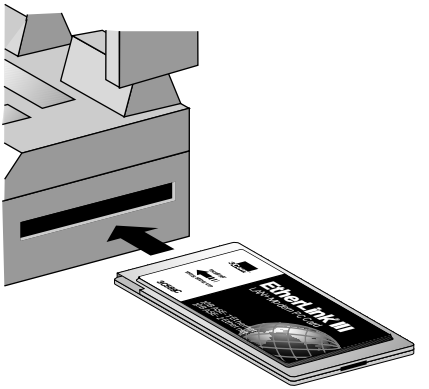

Figure 2-2 Inserting the 3C589C PC Card

CAUTION: *Do not force the 3C589C PC Card into the slot, or you may bend the pins inside the slot.*

Once you have inserted the PC Card, you can connect it to the network port.

Connecting the 3C589C PC Card to the Network

There are two types of connectors for the 3C589C PC Card network connection: an RJ-45 connector (3C589C-TP cable) and a combination RJ-45 and BNC connector (3C589C-COMBO cable). Both types of connections are described in the following sections.

Using the 3C589C-TP Cable to Connect to the Network

To connect the 3C589C PC Card to the network with the 3C589C-TP cable and RJ-45 connector, follow these steps:

1. Attach the supplied PC Card cable with the RJ-45 connector to the PC Card connector, as shown in Figure 2-3.

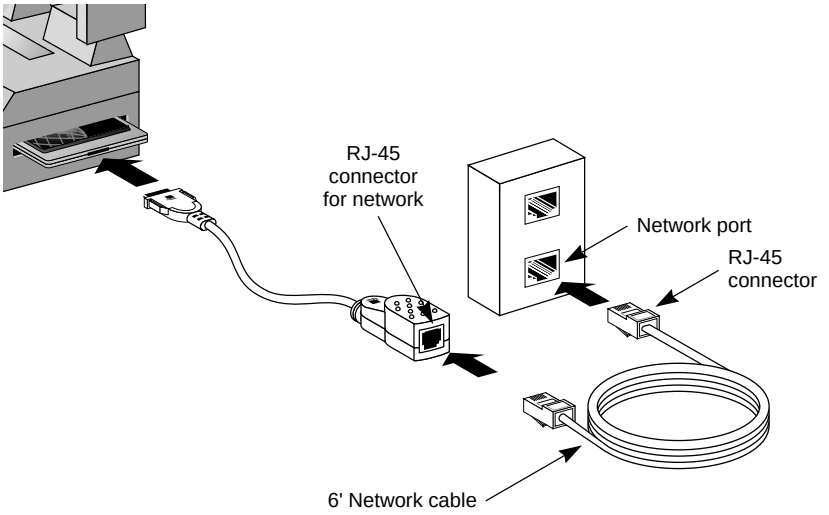

Figure 2-3 Connecting the 3C589C PC Card to the Network Using the 3C589C-TP Cable

2. Attach the RJ-45 connector on the other end of the PC Card cable to the supplied network cable and then to the network port, as shown in Figure 2-3.

   Once the PC Card is connected to the network port, the installation is complete.

   To configure the 3C589C PC Card, go to Chapter 3 if you are on a Novell NetWare network. If you are on any other network operating system, go to Chapter 4, *Installing the NDIS Driver*.

Using the 3C589C-COMBO Cable to Connect to the Network

To connect the 3C589C PC Card to the network using the 3C589C-COMBO cable, follow these steps:

1 Attach the supplied PC Card cable to the PC Card connector, as shown in Figure 2-4.

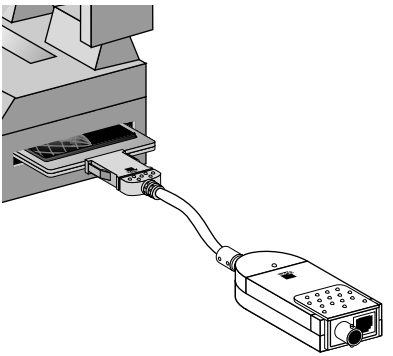

Figure 2-4 Connecting the 3C589C PC Card to the Network Using the 3C589C-COMBO Cable

2 To use the RJ-45 connector on the 3C589C-COMBO cable, attach the RJ-45 connector to the network cable and then to the network port, as shown in Figure 2-5.

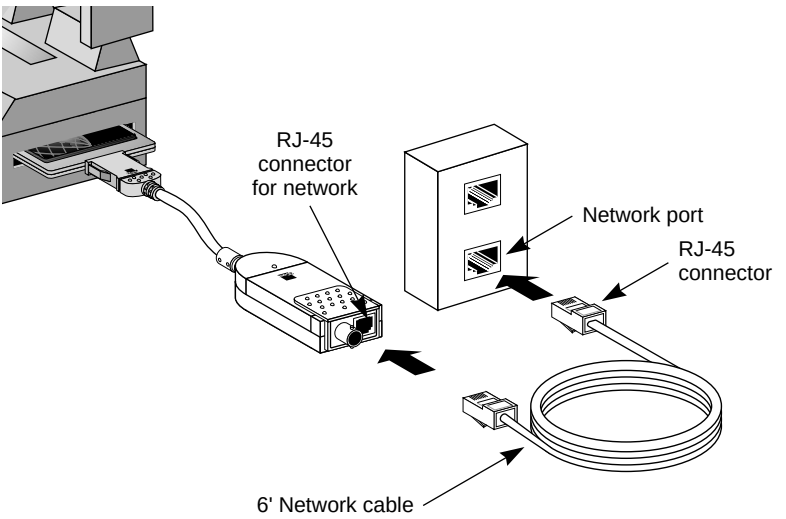

Figure 2-5 Attaching the Network Cable to the Network Port

3 To use the BNC connector on the 3C589C-COMBO cable, attach the BNC connector to the network cable, as shown in Figure 2-6.

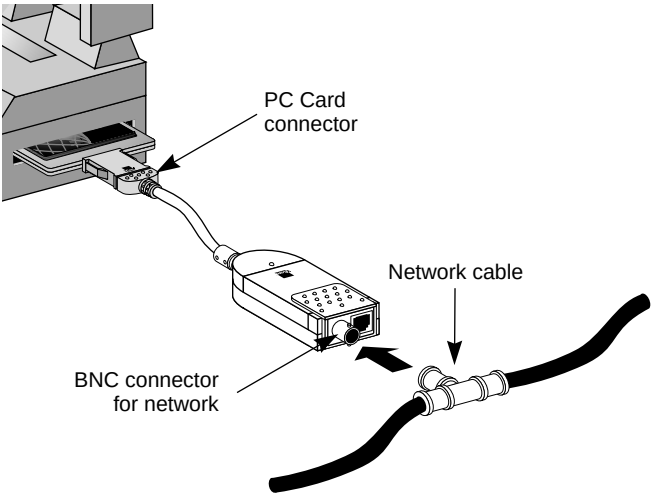

Figure 2-6 Attaching the BNC Connector to the Network

Once the PC Card is connected to the network, the installation is complete. To configure the 3C589C PC Card, go to Chapter 3 if you are on a Novell NetWare network. If you are on any other network operating system, go to Chapter 4, *Installing the NDIS Driver*.

Removing the 3C589C PC Card

The PC Card can be removed whether the power to the PC is ON or OFF. Follow these steps to remove the PC Card:

1 Disconnect the cables from the 3C589C PC Card.

2 Remove the PC Card from your PC.

Many PCs have a button or lever to assist in removing the PC Card. Refer to the instructions provided in your PC manual.

3 Store the PC Card in its original or similar packaging.

This completes the procedure for removing the PC Card.

3 INSTALLING THE NETWARE DRIVER

The 3C589C PC Card software automatically installs the NetWare DOS ODI client driver and updates the PC startup files using the AutoLink feature. You can also use the NetWare 4.X installer to install the 3Com NetWare driver and add Windows client support, NetWare User Tools for printing, and the capability to log in and out using Windows.

Ask your MIS department or system administrator which network operating system you will be connecting to.

This chapter describes the AutoLink feature and using the NetWare 4.X installer to install the driver.

AutoLink Program Overview

The AutoLink program performs the following functions:

- Configures the 3C589C PC Card.
- Installs the Novell NetWare DOS ODI (3C589.COM) driver.
- Logs in to the server and updates the NetWare client software if a 3Install account exists on the server; otherwise, the client software is installed from the *EtherDisk* diskette.
- Modifies the CONFIG.SYS and AUTOEXEC.BAT files and copies the NET.CFG file. (The original versions of these files are renamed CONFIG.3CM and AUTOEXEC.3CM.)

If you want to configure the PC Card as an NDIS client, see Chapter 4, Installing the NDIS Driver.

AutoLink Requirements

Verify that you meet the following requirements in addition to those stated in Chapter 1.

- The 3C589C PC Card must be installed in your PC and connected to the network.
- NetWare on the server must be version 2.2 or later.
- You must have an assigned user ID and password on the target NetWare server or you will not be able to log in to the server after you run the AutoLink program.

  Ask your MIS department or system administrator for your user ID and password if you do not have one.

AutoLink 3Install Account

A 3Install account on the server allows the AutoLink program to download the latest NetWare client software from the server instead of from the *EtherDisk* diskette. The 3Install account can be used to install newer versions of the software or to customize your installation.

Installation instructions for creating the 3Install account and preparing the server can be found in the \QINSTALL\SERVER\README.TXT file on the *EtherDisk* diskette.

AUTOLINK.CFG File

The AUTOLINK.CFG file can be used to modify the AutoLink process. The AUTOLINK.CFG file in the root directory of the *EtherDisk* diskette contains default settings and descriptions of other control parameters. Appendix B contains a sample AUTOLINK. CFG file.

Using the AutoLink Feature

If you are not using Card Services and are using a memory manager, you must exclude memory for the memory manager before you configure the PC Card. For more information about Card Services, see Appendix A.

Delete references to any other network adapter in the AUTOEXEC.BAT file and in the NET.CFG file prior to executing AutoLink. You can delete the NET.CFG file, and a new one will be copied over.

Follow these steps to use the AutoLink feature:

1. Place the *EtherDisk* diskette in a diskette drive on your PC. Make that drive the active drive and start the installation program. For example, type the following:

   `A: Install [Enter]`

   The main screen appears, as shown in Figure 3-1.

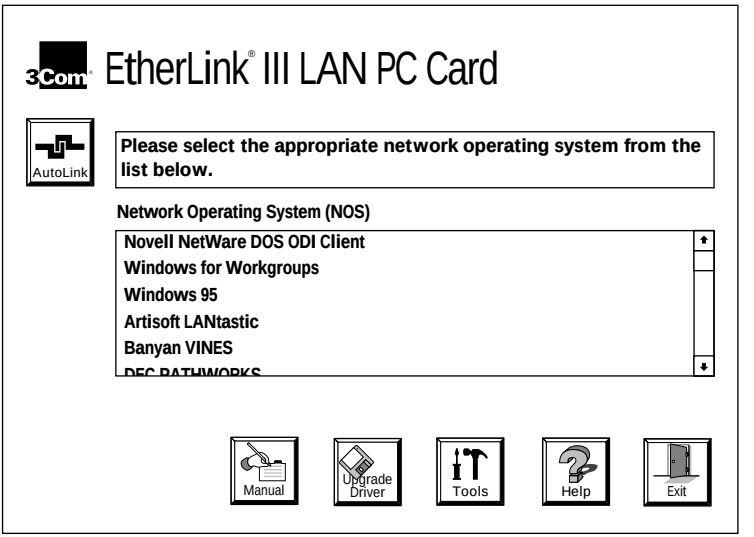

Figure 3-1 Main Screen

2 Click *AutoLink*.

A screen appears, asking if you want to use AutoLink or display the NetWare 4.X installation instructions.

3 Click *AutoLink* to proceed with the AutoLink installation.

The software copies the NetWare DOS ODI driver (3C589.COM) and associated files to your PC.

After 2–3 minutes, a message appears, stating that the AutoLink program has completed the configuration.

4 Remove the *EtherDisk* diskette and reboot your PC.

The log-in prompt for a NetWare server appears.

5 Log in to the NetWare server using your user ID and password provided by your network administrator.

The 3C589C PC Card is now a NetWare DOS ODI client. Installation and configuration are complete.

If you have problems, you can display the AutoLink.Log file, which contains a log of all of the events that occurred during the AutoLink installation and configuration process. To display the AutoLink.Log file, type the following:

```
C:\ Type AutoLink.Log | More
```

Using the NetWare 4.X Installer

This procedure describes how to install the 3Com NetWare driver using the NetWare 4.X installer. Using the NetWare installer adds Windows client support, provides NetWare User Tools for printing, and allows you to log in and out using Windows.

1 Insert the WSDOS1 NetWare diskette in your floppy drive.

2 Type:

```
Install
```

3 Accept the defaults for the first four options.

4 Select *Driver Option*.

The driver list is displayed.

5 Scroll through the list and select *Others*.

6 Remove the NetWare diskette from the floppy drive.

7 Insert the *EtherDisk* diskette in the floppy drive.

8 Press [Return].

The 3Com EtherLink III PC Card is displayed on the screen.

9 Press [Return] to accept the network board.

10 Press [F10] to install the driver.

11 Press [Return] and follow the NetWare instructions to complete the installation.

12 Reboot the PC to load the new driver.

This completes the NetWare 4.X installation.

Installing the NetWare OS/2 ODI Driver

These instructions describe how to install the NetWare OS/2 ODI driver (3C589.SYS).

1 Select Novell NetWare OS/2 ODI Client on the main screen, and click *Manual*.

2 Follow the displayed instructions to complete the installation.

4 INSTALLING THE NDIS DRIVER

The Network Driver Interface Specification (NDIS) was developed by Microsoft and 3Com. This software specification is used for DOS- and OS/2-based network operating systems to create drivers for network adapters. The following network operating systems support the NDIS driver:

- Microsoft Windows for Workgroups
- Banyan® VINES®
- Microsoft LAN Manager
- IBM LAN Server
- Artisoft™ LANtastic®/AI
- DEC® PATHWORKS®

For Windows 95 installation, see the README.TXT file on the *EtherDisk* diskette.

Ask your MIS department or system administrator which network operating system you will be connecting to. This chapter provides instructions for adding the NDIS driver to the network operating systems listed above.

Installing the NDIS Driver

Both the DOS NDIS 2.01 (ELPC3.DOS) network driver and the OS/2 NDIS driver (ELPC3.OS2) are shipped on the *EtherDisk* diskette. You can install the NDIS driver using your network operating system installer. Instructions are provided for all network operating systems listed above in the following sections.

To install the NDIS driver, perform the following steps:

1. Place the *EtherDisk* diskette in a floppy drive on your PC and make that drive the active drive. For example, type:

   `A: [Enter]`

2 Type at the prompt:

```
Install [Enter]
```

The 3C589C PC Card main screen appears, as shown in Figure 4-1.

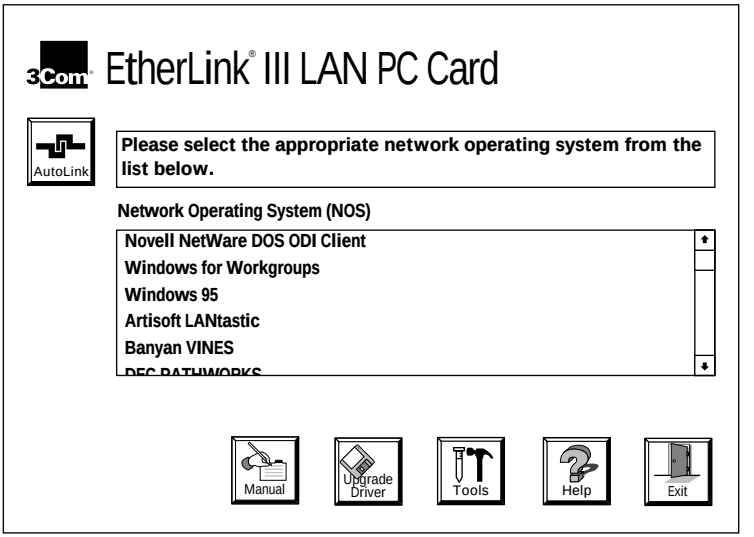

Figure 4-1 Main Screen

3 Select your network operating system from the list shown in Figure 4-1.

4 Click *Manual*.

A screen appears for the selected network operating system.

5 Click *Exit* and follow the instructions for your network operating system in the following sections.

You can access the 3Com bulletin board service (3ComBBS) for the latest network drivers and for information about them. For more information about 3ComBBS, see Appendix C, Technical Support.

Microsoft Windows for Workgroups

The *EtherDisk* diskette contains a subdirectory structure and files that make it an OEM import disk for Windows for Workgroups (WFW). To install the driver for WFW, follow these steps:

1. Using the *Windows* menu, select *Network*.
2. Select *Network Setup*.
3. In the Network Setup dialog box, select the *Networks...* button.
4. Select *Install Microsoft Windows Network* and then click *OK*.
5. Select the *Drivers...* button.
6. In the Network Adapters dialog box, click *Add Adapter*.

   A dialog box appears, listing the supported network adapters on the diskette.
7. From the list of network adapters, select *Unlisted Or Updated Network Adapter*, and click *OK*.
8. Insert the *EtherDisk* diskette in drive A, and click *OK*.
9. Select *3Com 3C589 EtherLink III LAN PC Card* and click *OK*.

   A dialog box appears, prompting you to specify the drive or directory where the ELPC3.DOS driver can be found.
10. To specify the directory, type:

    `A:\NDIS\DOS`
11. Click *OK*.
12. In the Network Adapters dialog box, click *Close*.
13. In the Network Setup dialog box, click *OK*.
14. A message appears, prompting you to restart your PC. Click *Continue* instead.

15 If you are not using Card Services and you are using a memory manager (all PCs running Windows have a memory manager), you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

This completes the procedure that imports the 3Com network driver for Windows for Workgroups.

Banyan VINES

To install the 3Com NDIS driver for VINES 6.0, follow these instructions. DOS must be installed on the target workstation C: drive, or you must have a bootable DOS floppy. Before you start, you need the IRQ for your adapter to complete this procedure. To display the configuration with the IRQ, see the instruction in the section "Displaying Configuration Information" in Chapter 5.

1 Use the DOS MD command to create a subdirectory called \VINES.

2 Copy the contents of the VINES LAN S/W (DOS) Install diskette into the \VINES subdirectory.

3 Copy the contents of the NDIS subdirectory on the VINES LAN S/W (DOS) 2 of 2 diskette into the \VINES subdirectory.

4 Copy the PROTOCOL.INI fragment from the NDIS\DOS subdirectory on the *EtherDisk* diskette to the \VINES subdirectory.

5 Edit the PROTOCOL.INI file to read as follows:

```
[PROTOCOL MANAGER]
   DRIVERNAME = PROTMAN$
[VINES_XIF]
   DRIVERNAME = NDISBAN$
   BINDINGS = ELINKPC3
[ELINKPC3]
   DRIVERNAME = ELPC3$
```

6 Run the PCCONFIG.EXE program located in the \VINES subdirectory.

7 Select option 1, *Network Card Settings*.

8 Select the *NDIS Ethernet* option.

The NDIS workstation screen appears.

9 Enter the IRQ that you selected for the 3C589C PC Card. Select the IRQ using the configuration program.

10 Edit the CONFIG.SYS file and add the following lines, substituting A: for C: for a floppy disk installation.

```
DEVICE = C:\VINES\PROTMAN.DOS /I:C:\VINES
DEVICE = C:\VINES\ELPC3.DOS
LASTDRIVE = M
```

11 Edit the AUTOEXEC.BAT file and add the following lines:

```
CD\VINES
BAN /NC
NDISBAN
NETBIND
REDIRALL
Z:
LOGIN
```

These additions allow you to log in after your PC starts up.

12 If you are not using Card Services and you are using a memory manager, you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

This completes the Banyan VINES installation procedure.

Microsoft LAN Manager

The *EtherDisk* diskette contains a subdirectory structure and files that make it an OEM import disk for the LAN Manager installer. Use the import function of the LAN Manager installer to capture the NDIS driver from the *EtherDisk* diskette. Be sure to save the new configuration before exiting the installer.

To install the 3Com NDIS driver for LAN Manager version 2.2 for DOS, follow these instructions:

1. Begin the MS-DOS LAN Manager installation by inserting the MS-DOS Setup diskette in drive A: and typing:

   A:SETUP

   Follow the instructions provided.

   After the system reads the *Microsoft Drivers 1* diskette, a window appears, showing available network adapter drivers.

2. Select the option *Select Other Driver*.

3. When prompted to insert your network driver diskette, insert the *EtherDisk* diskette.

   After the driver is imported from the *EtherDisk* diskette, a box will be displayed, showing the driver.

4. Select the EtherLink III PC Card driver.

5. Continue with the remainder of the installation by selecting a protocol to use with the EtherLink III PC Card driver.

6. If you are not using Card Services and you are using a memory manager, you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

   For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

   This completes the procedure for installing the 3Com NDIS driver for LAN Manager.

IBM LAN Server 4.0 for DOS and OS/2

To install the 3Com NDIS driver for IBM LAN Server 4.0, follow these instructions. Instructions are provided for both DOS and OS/2 installations.

IBM DOS LAN Services Install v4.0 for DOS

1. Insert the DOS LAN Services Disk 1 diskette into your diskette drive.
2. Change to that drive and type:

   ```
   INSTALL
   ```

3. Choose the directory where you want the software installed.

   The default directory is C:\NET. A menu appears that provides a list of network cards.

4. Choose *Network card not shown in the list below...*
5. Type:

   ```
   A:\IBM_40
   ```

6. Remove the DOS LAN Services Disk 1 diskette and insert the *EtherDisk* diskette.

   The next menu displays the EtherLink III PC Card. Additional menus will appear.

7. Choose the appropriate options for your network environment.

   Refer to the IBM manual if there are questions regarding these menus.

8. If you are not using Card Services, you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

   For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

9. After completing the installation, copy ELPC3.DOS to C:\NET before rebooting.

10 Reboot the PC.

This completes the installation process for IBM DOS LAN Services Install v4.0 for DOS.

OS/2 LAN Server Installation

This procedure describes how to install the 3Com NDIS driver for LAN Server 4.0. OS/2 must be already installed on your computer. To install the NDIS driver for the 3C589C PC Card, follow these steps:

1 Open an OS/2 prompt.

2 Insert the LAN Server MPTS (Multi-Protocol Transport Services) Disk 1 diskette in your diskette drive.

3 Make that drive your current drive. Type:

```
A: [Enter]
```

4 Type:

```
Install [Enter]
```

5 Click *OK*.

6 Click *Install*.

7 Select a target drive and then click *OK*.

The default drive is C.

8 Insert the Disk 2 diskette when prompted and click *OK*.

9 Click *OK* when the MPTS installation is complete.

10 Click *Configure*.

11 Select *LAN Adapters and Protocols* and then click *Configure*.

12 Select *Other Adapters* and then click *OK*.

13 Insert the *EtherDisk* diskette in the diskette drive and enter the drive letter and path to the 3Com NDIS drivers.

For example, type:

```
A:\NDIS\OS2
```

14 Click *OK*.

15 Select *EtherLink III PC Card for OS/2* and then click *Add*.

16 Under Current Configuration, select *3Com EtherLink III PC Card for OS/2* and then click *Edit*.

17 Enter the 12-digit address of your EtherLink III LAN PC Card and then click *OK*.

The address is found on the back of the PC Card following the characters EA=.

18 Select the protocol(s) you will be using with your network and then click *Add*.

19 Select your protocol(s) under Current Configuration and then click *Edit*.

20 Enter the 12-digit address of your EtherLink III LAN PC Card and then click *OK*.

21 Click *OK*.

22 Click *Close*.

23 Click *Exit*.

24 Select *Update CONFIG.SYS* and click *Exit*.

25 Click *OK*.

26 Click *Exit*.

27 Quit OS/2 and reboot for the changes to take effect.

28 Follow the IBM instructions on installing LAN Server to complete the installation.

Artisoft LANtastic 6.0

To install the 3Com NDIS driver (ELPC3.DOS) for Artisoft LANtastic 6.0, follow these steps. You can install the driver from either the DOS prompt or Windows.

Installing from the DOS Prompt

1. Insert Artisoft's LANtastic Disk 1 in the diskette drive.
2. Type:

   INSTALL

   This launches Windows and starts the installation of LANtastic.
3. Go to step 4 under the "Installing from Windows" procedure and continue with the remaining steps.

Installing from Windows

1. Launch Windows, if it is not already opened.
2. Select *Run* from the *File* menu.
3. Type:

   A:\INSTALL

   If you are using a different drive, use the letter for that drive.
4. Follow the instructions and enter the PC name and configuration information.
5. Select *NDIS Support for Network Adapters* in the Select Network Adapter window.
6. When prompted, remove the LANtastic diskette, insert the *EtherDisk* diskette provided with the 3C589C PC Card, and press [Enter].

   The NDIS driver is copied to your hard drive.
7. When prompted, reinsert the LANtastic Disk 1 in the drive.
8. If you are not using Card Services and you are using a memory manager, you must exclude the CIS memory

address range for the 3C589C PC Card and other Card Services devices.

For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

This completes the installation for Artisoft LANtastic. The changes to the PC startup files are described in the following section.

Changes and Additions to PC Startup Files

The following lines are added or changed in the PC startup files:

AUTOEXEC.BAT File

```
call C:\LANTASTI\STARTNET.BAT
```

CONFIG.SYS File

```
DEVICE=C:\LANTASTI\PROTMAN.DOS /I:C:\LANTASTI
DEVICE=C:\LANTASTI\ELPC3.DOS
```

PROTOCOL.INI File

```
[PROTMAN]
   DRIVERNAME = PROTMAN$
   DYNAMIC = YES
[ELPC3_NIF]
   DRIVERNAME = ELPC3$
```

STARTNET.BAT File

```
C:
cd C:\LANTASTI
SET LAN_CFG=C:\LANTASTI
rem If LANtastic is disabled, skip
everything.
IF EXIST DISABLED GOTO :STARTNET_DONE
@echo ===== Begin LANtastic configuration
=====
PATH C:\LANTASTI;C:\LANTASTI\NW;%PATH%
SET LAN_DIR=C:\LANTASTI.NET
SET NWDBPATH=C:\LANTASTI\NW
LOADHIGH AI-NDIS BIND_TO=ELPC3_NIF
AILANBIO @STARTNET.CFG
REDIR TOSHIBA4800CT @STARTNET.CF >Just an
example
IF EXIST NOSHARE GOTO :NOSHARE
```

```
SERVER C:\LANTASTI.NET @STARTNET.CFG
NET LOGIN \\TOSHIBA4800CT > Just an example!
GOTO :CONTINUE
:NOSHARE
@echo LANtastic server was installed but turned
off.
:CONTINUE
rem If CONNECT.BAT exists, run it to set up
connections.
IF EXIST CONNECT.BAT GOTO :CONNECT
rem Otherwise set up connections specified
rem  during install.
NET LOGIN/wait \\ABC => Just an example !!!
NET USE D: \\ABC\C-DRIVE => Just an example!
NET LPT TIMEOUT 10
GOTO :CONNECT_DONE
:CONNECT
@echo Setting up LANtastic connections from
CONNECT.BAT
rem Build CONNECT.BAT like this:
rem          "NET SHOW/BATCH >
C:\LANTASTI\CONNECT.BAT"
rem    (or run the batch file SETNET.BAT)
call CONNECT.BAT
:CONNECT_DONE
NET POSTBOX
@echo ===== End LANtastic configuration =====
:STARTNET_DONE
cd \
```

SYSTEM.INI File (Windows)

```
[boot]
shell=progman.exe
network.drv=C:\LANTASTI\LANTNET.DRV
[boot.description]
network.drv=LANtastic for Windows Version 6.00
[386Enh]
network=*vnetbios,C:\LANTASTI\LANTASTI.386
[network drivers]
netcard=elpc3.dos
[LANtastic]
Comment=Add 1 Network_IRQ per adapter, specify
correct Irq values.
Network_IRQ=15
```

WIN.INI File (Windows)

```
[windows]
spooler=no
load=NWPOPUP.EXE  C:\LANTASTI\WNET.EXE
run=C:\LANTASTI\MKWGROUP.EXE
```

DEC PATHWORKS

You can use the 3Com NDIS driver with both version 4.1 and version 5.1 of DEC PATHWORKS. To install the 3Com NDIS driver for DEC PATHWORKS, follow the appropriate instructions.

These instructions assume the DEC PATHWORKS for DOS/Windows software has been installed on the hard drive. Refer to the DEC manual for installation instructions if the software has not been installed. Refer to the DEC manual for templates and options.

DEC PATHWORKS for DOS/Windows Version 5.1

Run the AutoLink program on the *EtherDisk* diskette if you are installing DEC PATHWORKS with Retail NetWare or NetWare with ODI drivers. To install DEC PATHWORKS for DOS/Windows 5.1:

1. Go to the drive where the PATHWORKS software is installed.
2. Change the directory to PCAPP.
3. Execute PWSETUP.
4. Enter the name of the directory where you want the software installed.

   The default is C:\PW.
5. Select *CUSTOMIZE* under the *Select a Configuration Option* menu.
6. Select a template in the *Select a Workstation Template* menu.
7. Under the *Customize: Modify Workstation Configuration* menu, put an X beside the *Network Adapter Information* line.

   Additional menus will appear.

8 Choose the appropriate options for your network environment.

Refer to the DEC manual for information regarding these menus.

9 Choose *Other Network Adapter* under the *Customize: Network Adapter Information* menu.

10 If you are not installing Retail NetWare or NetWare with ODI drivers, follow these instructions:

a On the Driver File: line, type:

```
a:\mslanman.dos\drivers\ethernet\elpc3\ELPC3.DOS
```

b On the PROTOCOL.INI Stub: line, type:

```
a:\mslanman.dos\drivers\ethernet\elpc3\protocol.ini
```

11 Verify that (I) Ethernet is marked and click *OK*.

12 Click *OK* under the *Customize: Network Adapter Information* menu.

Additional menus will appear.

13 Follow the DEC instructions to complete the installation.

14 If you are not using Card Services and you are using a memory manager, you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

15 Reboot the system.

16 This completes the installation procedure for DEC PATHWORKS DOS/Windows version 5.1.

DEC PATHWORKS for DOS/Windows Version 4.1

To install DEC PATHWORKS version 4.1 on a DOS NDIS workstation, DOS must be installed on the target workstation C: drive, or you must have a bootable DOS floppy. Follow these steps:

1 Insert the PATHWORKS DOS Client Setup diskette version 4.1 in your floppy drive.

2. Change to the diskette drive and execute the NETSETUP.EXE program.

3. Follow the screens to select a transport protocol.

4. Insert the appropriate diskettes for the selection you made in step 3.

5. Select your network adapter. Type:

   ETHERNET

6. Select *OTHER NDIS*.

7. When prompted for the DRIVE:\PATH\FILENAME for the NDIS driver, type:

   A:\MSLANMAN.DOS\DRIVERS\ETHERNET\ELPC3\ELPC3.DOS

8. When prompted for the full DRIVE:\PATH of the PROTOCOL.INI fragment, type:

   A:\MSLANMAN.DOS\DRIVERS\ETHERNET\ELPC3\PROTOCOL.INI

9. Follow the rest of the installation screens and the procedure for writing the KEY DISK.

   The NETSETUP program will build the PROTOCOL.INI file for you and modify your startup files to use the adapter you have selected.

You must add the /n parameter that starts the network scheduler to the STARTNET.BAT file. For example, type:

%BOOT%\DECNET\sch /h /n

10. If you are not using Card Services and you are using a memory manager, you must exclude the CIS memory address range for the 3C589C PC Card and other Card Services devices.

    For more information, see the section "Avoiding Memory Manager Conflicts" in Appendix A.

    This completes the procedure for installing the 3Com driver for DEC PATHWORKS.

Displaying the NDIS Driver Version

To display the NDIS driver version, follow these steps. They assume the main screen is displayed, as shown in Figure 4-1.

1. Select your network operating system.
2. Click *Manual*.

   The screen for the selected NOS appears.
3. Click *NDIS Driver Version*.

   The NDIS driver version is displayed on the screen.
4. Click *Return* to go back to the NDIS Driver screen for your network operating system.

This completes the procedure for displaying the driver version.

Updating the Current NDIS Driver

If you are updating an NDIS driver (rather than installing one for the first time), follow these steps. These steps assume the main screen is displayed, as shown in Figure 4-1.

1. Select your network operating system.
2. Click *Manual*.
3. Click *NDIS Upgrade Driver*.
4. Click *Search* to find the old 3Com driver.
5. Click *Yes* to update the driver.
6. Click *Return* to go back to the NDIS driver screen.

This completes the procedure for updating the NDIS driver.

Installing the OS/2 Warp Connect Driver

Read the OS2WARP.TXT file in the \NDIS directory on the *EtherDisk* diskette for instructions on how to install the OS/2 Warp™ Connect driver.

5 CHANGING CONFIGURATION SETTINGS

This chapter describes how to change the 3C589C PC Card configuration settings. To display the current configuration settings, follow the instructions in the next section.

Displaying Configuration Information

This step assumes you are at the main screen, shown in Figure 5-1.

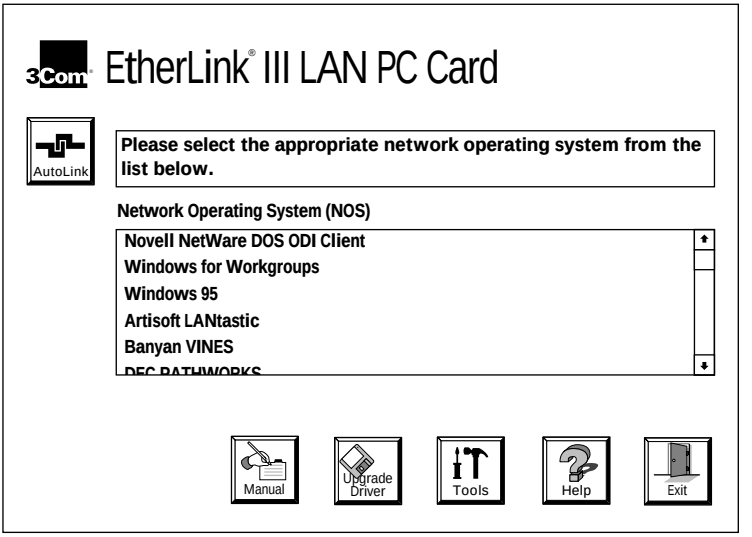

Figure 5-1 Main Screen

To display the current 3C589C PC Card configuration settings, follow these steps:

1 Click *Tools*.

The Tools screen appears, as shown in Figure 5-2.

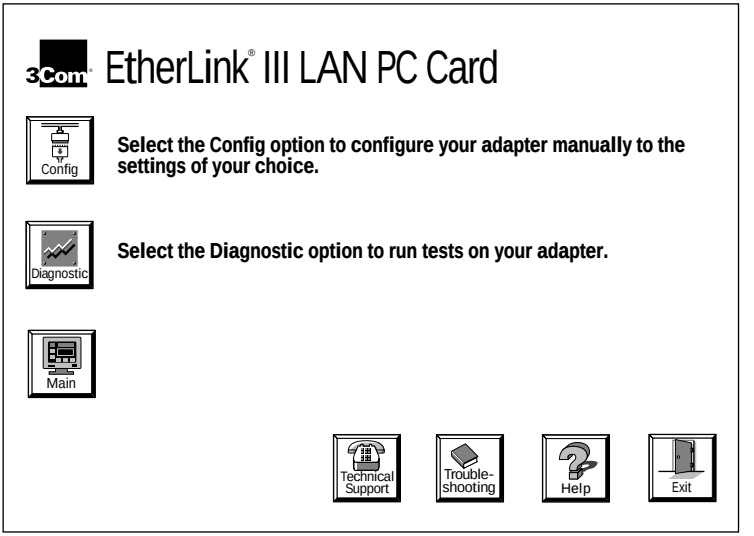

Figure 5-2 Tools Screen

2 Click *Config*, shown in Figure 5-2.

A Configuration screen similar to Figure 5-3 appears. The values shown here are not default values.

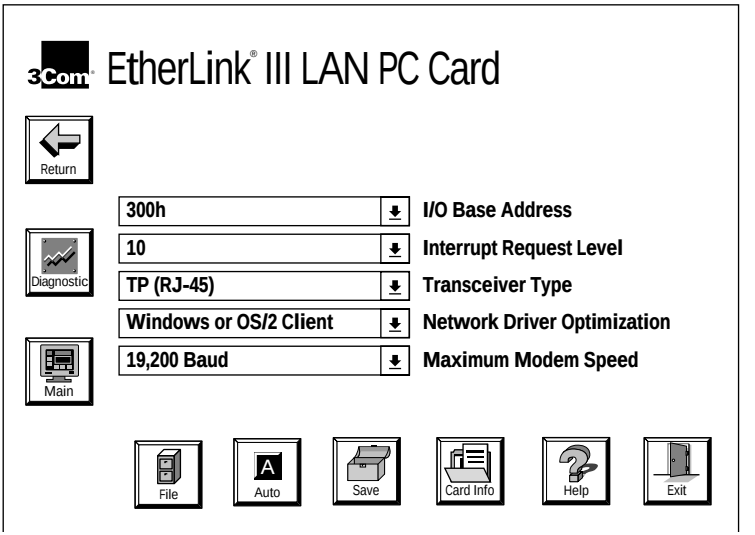

Figure 5-3 Configuration Screen

3 Click *Card Info*.

The PC Card Configuration Information screen appears, as shown in Figure 5-4. The values shown here are not default values.

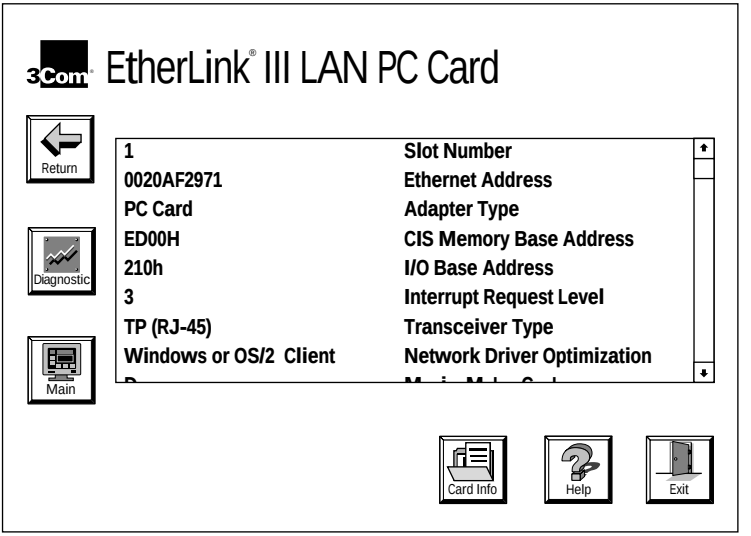

Figure 5-4 Configuration Information Screen

This screen provides the current configuration values for the 3C589C PC Card. To change these configuration settings, see the instructions in the next section. The configuration settings are described later in this chapter.

Changing Configuration Settings

To change the configuration settings, follow these steps:

1. Click *Tools* on the main screen, shown in Figure 5-1.

   The Tools screen appears, as shown in Figure 5-2.

2. Click *Config*.

   The Configuration screen appears, as shown in Figure 5-3. You can change the following PC Card configuration parameters: I/O Base Address, Interrupt Request Level, Transceiver Type, Network Driver Optimization, and Maximum Modem Speed.

If you are using Card Services, the I/O Base Address and the Interrupt Request Level settings are assigned by Card Services. If you change these settings here, they will be saved to the EEPROM, but the PC will still use the values Card Services allocated at start-up.

3. To change the PC Card configuration settings, scroll through the values next to each configuration setting shown in Figure 5-3, until you find the value you want.

   The configuration settings and possible values are defined in the next section.

4. To set the new values, click *Save*, shown in Figure 5-3.

5. Click *Main* to return to the main screen.

   This completes the procedure for changing the configuration settings.

Configuration Settings Descriptions

This section describes each configuration setting for the 3C589C PC Card.

I/O Base Address

This setting specifies the portion of the PC's I/O address space that will be used by the PC Card for communication between the PC Card and the PC. The PC Card uses 16 bytes of I/O space, starting at the I/O Base Address.

Make sure that no other device is using the same value. The I/O Base Address range is from 200h to 3A0h and is assigned by Card Services. If you are not using Card Services, the default is 300h.

Interrupt Request Level

This setting specifies the Interrupt Request Level that is used by the PC Card for communication between the PC Card and the PC.

The 3C589C PC Card can operate on one of eight interrupt levels: 3, 5, 7, 9, 10, 11, 12, or 15.

The preferred interrupt level is 10, but the PC Card can operate on the other levels if necessary. If a conflict continues, you may have to change the setting of other adapters or options that are in the PC.

CIS Memory Base Address

The CIS Memory requires a 4 K segment of memory for drivers and an 8 K block when you are running diagnostics.

Transceiver Type

The Transceiver Type can be Auto Sense or Twisted-Pair. The default is Auto Sense. If the PC Card cannot automatically sense what type of cable is connected to the network, it will assign Twisted-Pair.

Network Driver Optimization

This setting specifies whether to optimize the network driver for a DOS client, a Microsoft Windows or IBM OS/2 client, or a server environment. Changing this option to match your system may improve the network performance. The response time of your system in performing network tasks may also improve.

Maximum Modem Speed

Selecting a modem speed tells the adapter how long it can disable interrupts without causing problems with the serial port. The lower the modem speed, the longer the adapter can keep interrupts disabled.

On slower computers, running with longer disabled interrupts can improve network performance. On those computers, changing the option setting to 2400, 1200, or No Modem may improve performance.

On faster computers, there is little performance difference among the settings.

If you experience problems with your modem, such as dropped characters or excessive retries, selecting a higher option setting should help.

If the problem is not due to the 3C589C adapter, changing the option setting will not make a difference.

CAUTION: *The default value (9600 baud) will work whether you have a modem or not, or even if the modem is slower than the default (for example, 2400 baud). Do not change the default option setting unless you experience problems.*

If you experience compatibility problems between your adapter and another device in the system other than a modem, selecting a higher option setting may help.

6 TROUBLESHOOTING

This chapter provides information for isolating and solving problems that may occur during the installation and configuration of the 3C589C PC Card.

Avoiding Memory Manager Conflicts

If you are not using Card Services and you are using an expanded (EMM386.EXE) or extended (HIMEM.SYS) memory manager on your PC, you must exclude an 8 K block of upper memory from use by the memory manager. The memory requirement is 4 K when the diagnostic tests are not running.

All PCs running Windows have a memory manager.

Follow these steps to exclude 8 K of memory for the 3C589C PC Card:

1. Make a backup copy of the CONFIG.SYS file. Type the following:

   `copy CONFIG.SYS CONFIG.OLD`

2. Use a text editor to edit the CONFIG.SYS file on your PC.

3. Exclude the memory range that the 3C589C PC Card is using. For example, type this line into the device section of the new CONFIG.SYS file:

   `device=c:\windows\emm386.exe x=DE00H–DFFFH noems`

   where *x* stands for exclude, followed by the memory range that the PC Card is using. In this example, the memory setting is DE00H–DFFFH.

Refer to the manual that accompanied the memory manager software for additional instructions and information on how to exclude memory.

4 Save the CONFIG.SYS file and exit the text editor.

5 Reboot the PC.

This completes the procedure for avoiding conflicts with a memory manager.

3C589C PC Card Diagnostic Program

Run the diagnostic program for your installed 3C589C PC Card when you need to do the following:

- Test for setup/configuration and cabling
- Test for PC Card problems
- View PC Card statistics

If you have already installed the network driver, you need to reboot and press [F5] or use a DOS diskette before you run the diagnostic program. Use a DOS diskette if you are running DOS 5.0 or earlier.

Testing the 3C589C PC Card

Follow these steps to run the 3C589C PC Card diagnostic program to test the 3C589C PC Card itself and the setup:

1 Place the *EtherDisk* diskette in a diskette drive on your PC and make that drive the active drive. For example, type:

```
A: [Enter]
```

2 Type at the prompt:

```
Install [Enter]
```

The main screen appears, as shown in Figure 6-1.

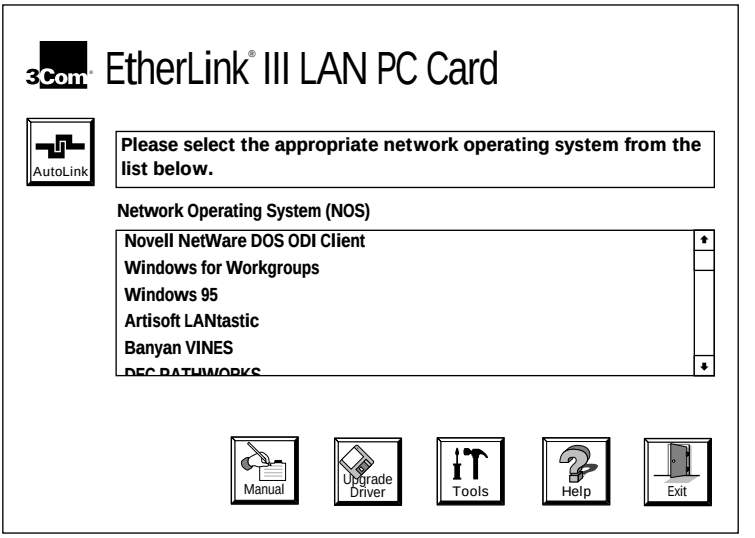

Figure 6-1 Main Screen

3 Click *Tools*.

The Tools screen appears, as shown in Figure 6-2.

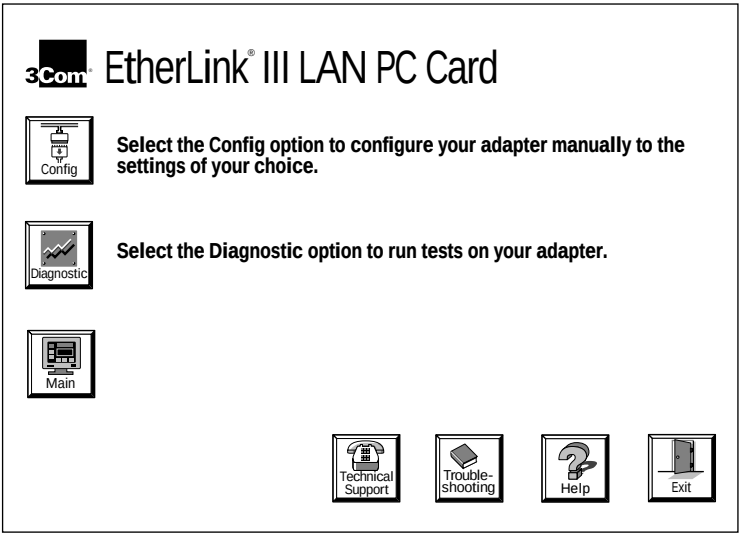

Figure 6-2 Tools Screen

4 Click *Diagnostic*.

The Diagnostic Program screen appears, as shown in Figure 6-3, with all tests selected to run.

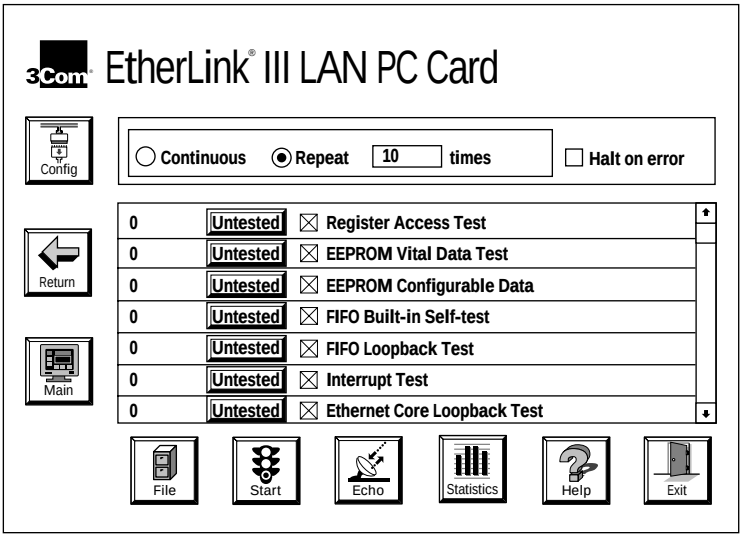

Figure 6-3 Diagnostic Program Screen

5 Click the check box next to any test that you do *not* want to run.

6 In the Repeat Times box, enter the number of times you want the test to run.

If you want to run the tests continuously, click *Continuous* (and deselect the Halt on Error box if it is selected).

7 To start a test, click *Start*.

8 To stop a test, click *Stop*.

Click *Help* for tips on what to do if a test fails. For more information, see "Troubleshooting Tips" later in this chapter.

Echo Exchange Test

To test the PC Card's ability to transmit and receive data while on the network, run the echo exchange test.

CAUTION: *Do not use an active network to run the echo exchange test. The test packets transmitted and received by the PC Card are nonstandard and may slow network response time.*

To run the echo exchange test on the network, you need a second PC set up as an echo server. The echo server receives packets from the EtherLink III PC Card being tested and echoes them back to the PC Card. The second PC must contain a 3Com PC Card or adapter running *EtherDisk* diskette diagnostics.

To set up an echo server, follow these steps:

1. Select a PC to use as an echo server.

   Make sure that the PC is connected to an inactive network and that a 3Com PC Card is installed in both PCs. Make sure that you have two *EtherDisk* diskettes.

2. Click *Tools* on the main screen on both PCs, shown in Figure 6-1.

   The Tools screen appears, as shown in Figure 6-2.

3. Click *Diagnostic* on both PCs, shown in Figure 6-2, to start the diagnostic program.

   The Diagnostic Program screen appears on both PCs, as shown in Figure 6-3.

4. Click *Echo*, shown in Figure 6-3, on the echo server computer.

5. Click *Echo* on the computer to be tested.

6. Click *Start*, shown in Figure 6-3, on the echo server.

7 Click *Start*, shown in Figure 6-3, on the computer to be tested.

8 Click *Stop* on both computers to stop the test.

After the test is completed, the Echo Exchange Test Results screen appears, as shown in Figure 6-4.

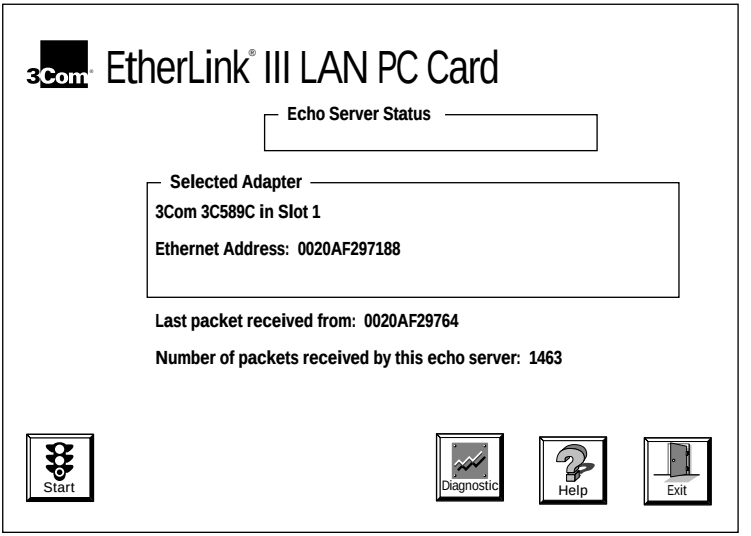

Figure 6-4 Echo Exchange Test Results Screen

This completes the echo exchange test. If the test fails, see "Troubleshooting Tips" later in this chapter.

Display Statistics

You can display statistics from the 3C589C PC Card.

To display the statistics, click *Statistics* on the Diagnostic Program screen, shown in Figure 6-3. The Statistics screen appears, as shown in Figure 6-5.

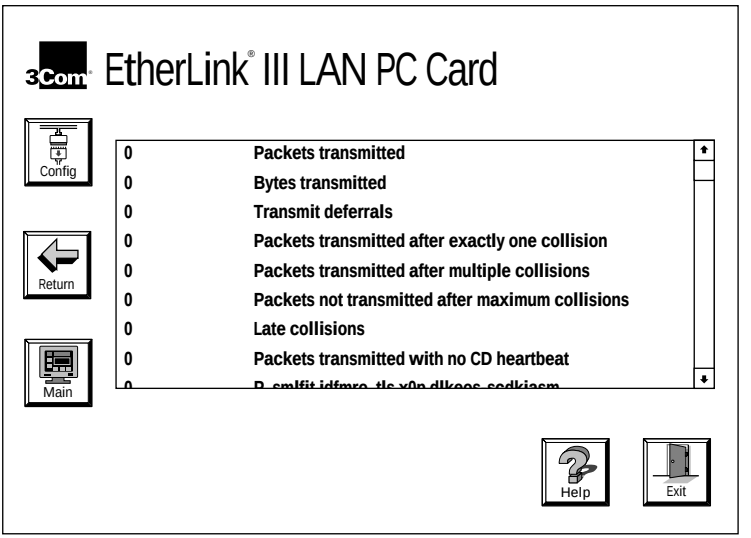

Figure 6-5 Statistics Screen

Troubleshooting Tips

If the diagnostic tests fail, the 3C589C PC Card may not be defective. The problem may be incorrect option settings, option settings that conflict with the settings of other boards, or improper installation. Follow these steps to test the PC Card further:

1. Make sure that the 3C589C PC Card is operating in a PC containing a Personal Computer Memory Card International Association (PCMCIA) Release 2.01 or 2.1, Type II or Type III slot.

2. Make sure that the PC Card is seated correctly in the slot.

   Review the installation instructions in Chapter 2, *Installing the 3C589C PC Card*.

3 Inspect all cables and connections.

Use the supplied cabling. Refer to Chapter 2.

4 Make sure that your PC is running DOS 3.1 or later, and that no network device drivers are loaded.

5 Make sure that the I/O Base Address and the Interrupt Request Level settings for the PC Card are not the same settings used on other cards or system units.

To display the 3C589C PC Card settings, see the "Displaying Configuration Information" section in Chapter 5.

6 Use only the drivers that are on the *EtherDisk* diskette that shipped with the 3C589C PC Card. The *EtherDisk* diskette contains the following four drivers:

- Novell NetWare DOS ODI driver (3C589.COM)
- Novell NetWare OS/2 ODI driver (3C589.SYS)
- NDIS 2.1 DOS driver (ELPC3.DOS)
- NDIS 2.1 OS/2 driver (ELPC3.OS2)

7 If you are running the echo exchange test, make sure that the PC Card is connected to a properly cabled and inactive network and that an echo server is set up on the network.

8 Install the PC Card in another functioning PC and run the tests again.

Your PC may be defective. If the PC Card passes the tests in the second PC, contact the reseller or manufacturer of the original PC.

9 If you experience problems that occur only when running under Microsoft Windows, consult the README files that are provided in Windows.

The README.WRI, NETWORKS.WRI, and SYSTEM.WRI files all contain information that could be helpful.

Specifically, check the TimerCriticalSection parameter in the Windows SYSTEM.INI file. It may be necessary to set it. Make sure that the Network Driver Optimization mode is set to Windows on the Configuration Information screen described in Chapter 5. Refer to the Microsoft Windows documentation for more information.

10 If you experience problems that occur only when using the AutoLink program, display the AutoLink.Log file. Type the following:

```
C:\ Type AutoLink.Log | More
```

The AutoLink.Log file contains a log of the events that occurred during the AutoLink installation and configuration process.

11 To run the Diagnostic Program, you must bypass loading the network drivers. Reboot the PC and press [F5] (if running DOS 6.0 or later on your PC), or boot from a DOS diskette to avoid loading the drivers.

For additional technical support information, see Appendix C.

ABOUT CARD SERVICES

Card Services coordinates the 3C589C PC Card access to sockets and system resources, including device drivers, utilities, and application programs. Card Services is usually preloaded on your PC when you purchase it.

Card Services automatically sets the I/O Base Address, Interrupt Request Level, and the CIS Memory Base Address for the 3C589C PC Card. Card Services also blocks access to Socket Services by clients that do not conform to the PC Card standard.

This appendix describes the Card Services information for the 3C589C PC Card.

Verifying Card Services Is Installed

You can verify whether Card Services is installed in your PC by checking the boot screen and looking in the CONFIG.SYS file. The 3C589C PC Card software verifies whether Card Services is installed and also displays whether or not you have Card Services.

Boot Screen Display

The PC boot screen may display the following line for some versions of Card Services:

```
Card Services Installed
```

CONFIG.SYS File

If Card Services is not displayed on the boot screen, check the device section of the CONFIG.SYS file. If Card Services is installed, one device statement will list Card Services, Card

Serv, or CS on the device line and usually have a CS or SS in the driver name. Consult your Card Services documentation for more information.

If Your PC Does Not Have Card Services

If your PC does not have Card Services, the 3C589C PC Card uses the 3Com point enabler to manage system resources. The point enabler uses less memory but will not permit another PC Card in the same PC.

If you do not have Card Services, you may experience conflicts with the memory manager installed in your PC. For more information, see the next section.

Using the 3C589C PC Card Without Card Services

If you are having problems with Card Services or you want to disable it to save memory, you can reboot and press [F8] to avoid loading Card Services. The 3C589C PC Card software works without Card Services.

Avoiding Memory Manager Conflicts

If you are not using Card Services and you are using a memory manager on your PC (all PCs running Windows have a memory manager), you need to inform the memory manager of the memory used by the 3C589C PC Card.

The 3C589C PC Card requires 4 K for the CIS memory for normal operation (when you are running diagnostics, the PC Card needs 8 K of memory).

The 3C589C PC Card searches the upper memory, finds the 4 K block that has been excluded, and uses this area for storing the contents of the CIS memory. For this reason, you do not need to exclude a specific range, as long as it is contiguous.

Follow these steps to exclude a sample 4 K memory range:

1. Make a backup copy of the CONFIG.SYS file. Type the following:

   ```
   copy CONFIG.SYS CONFIG.OLD
   ```

2. Use a text editor to edit the CONFIG.SYS file on your PC.

3. Exclude the memory range that the 3C589C PC Card is using. For example, type this line in the CONFIG.SYS file:

   ```
   device=c:\windows\emm386.exe x=DF00H-DFFFH noems
   ```

   where *x* stands for exclude, followed by a 4 K contiguous block of memory. In this example, the memory setting is DF00H–DFFFH.

Refer to the manual that accompanied the memory manager software for additional instructions and information.

4. Save the CONFIG.SYS file and exit the text editor.

5. Reboot the PC.

This completes the procedure for avoiding conflicts with a memory manager.

B PC CARD SPECIFICATIONS AND SAMPLE FILES

This appendix describes the physical specifications for the 3C589C PC Card and contains sample AUTOLINK.CFG, NET.CFG, and PROTOCOL.INI files.

Physical Specifications

Table B-1 lists the 3C589C PC Card physical specifications.

Table B-1 3C589C PC Card Specifications

Network Interface	
3C589C PC Card	Ethernet IEEE 802.3 10BASE-T industry standard
Physical Dimensions	
Length	3.370 in. (85.6 mm)
Width	Type II, 0.197 in. (5.0 mm)
Height	2.126 in. (54 mm)
Weight	0.86 oz (24.4 g)
Environmental Operating Range	
Operating temperature	0 to 55˚C (32 to 131˚F)
Relative humidity	5 to 90% noncondensing
Card Information Structure (CIS) Memory Size	
	Diagnostics 8 K, drivers 4 K

(continued)

Table B-1 3C589C PC Card Specifications (continued)

Network Cable Specifications	
UTP Cable Requirements:	
Category 3 LAN and high-speed data cable (10 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (for example, Anixter® CM-00424BAG-3 or equivalent)	
Category 4 extended distance LAN cable (16 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (for example, Anixter CM-00424BAG-4 or equivalent)	
Category 5 voice and data transmission LAN cable (100 Mbps) that meets the requirements of EIA/TIA-568 and EIA/TIA TSB-36 (for example, AT&T® type 1061 or equivalent)	
Coax Cable Requirements:	
Thin Ethernet (coax) connections (50-ohm) require RG58 A/U, 3C530-xxx or equivalent cabling	
Power Requirements	
Operating voltage	+5 V ± 5% @ 50 mA
Mean Time Between Failures (hours calculated)	
3C589C-TP PC Card	
40 ˚C (104 ˚F) benign environment	346,440
50 ˚C (122 ˚F) benign environment	228,608
40 ˚C (104 ˚F) mobile environment	62,602
50 ˚C (122 ˚F) mobile environment	53,818
FCC Certification	Part 15, Class B

Sample AUTOLINK.CFG File

The AutoLink configuration file (AUTOLINK.CFG) allows you to customize your future AutoLink installations. Each of the parameters in the provided sample represents a feature that you can customize for your unique installations. Read the comments below each parameter for information on that parameter.

```
KEYWORD             VALUE         DESCRIPTION
=======            =======   ========================

CREATE_LOG_FILE    YES
          ; Option: [Yes|No]  Default = YES
          ;
          ; Creates the file C:\AUTOLINK.LOG, which
          ; contains information generated by AutoLink

RUN_DIAGNOSTICS    NO
          ; Option: [Yes|No]  Default = NO
          ;
          ; The diagnostic tests check the
          ; adapter's physical components and circuitry
          ; during AutoLink installation.

AUTO_CONFIGURE     YES
          ; Option: [Yes|No]  Default = YES
          ;
          ; Automatically configures the I/O Base Address,
          ; and Interrupt to settings that do not conflict
          ; with any other device in the computer.

CONFIGURATION_FILE
          ; Example: 3C589C.SET  Default = No Default
          ;
          ; Configures the adapter with the parameters
          ; saved in a configuration file.  For more
          ; information or to create the configuration
          ; file, refer to the Configuration and
          ; Diagnostic Program.

EDIT_CONFIG.SYS  YES
          ; Option: [Yes|No]  Default = YES
          ;
          ; YES allows C:\CONFIG.SYS to be edited and
          ; saves the original to C:\CONFIG.3CM.
          ;
          ; NO disables edits of C:\CONFIG.SYS.

EDIT_AUTOEXEC.BAT  YES
          ; Option: [Yes|No]  Default = YES
          ;
          ; YES allows C:\AUTOEXEC.BAT to be edited and
          ; saves the original to C:\AUTOEXEC.3CM.
          ;
          ; NO disables edits of C:\AUTOEXEC.BAT.

EDIT_NET.CFG       YES
          ; Option: [Yes|No]  Default = YES
          ;
          ; Allows editing of the NET.CFG file and saves
          ; the old file to NET.3CM.
          ;
          ; NO disables edits of C:\NET.CFG.
```

```
SMARTAGENT_INFO    YES
         ; Option: [Yes|No]  Default = YES
         ;
         ; Includes the Transcend SmartAgent section
         ; in NET.CFG file. The Transcend SmartAgent is
         ; already incorporated into the NetWare ODI
         ; driver. Including the SmartAgent section in
         ; NET.CFG allows the management information to
         ; be customized for each user.

3INSTALL_FRAME_TYPE
         ; Options:  Ethernet_802.2
         ;           Ethernet_802.3
         ;           Ethernet_II
         ;           Ethernet_SNAP
         ;
         ; Default = AutoDetects 802.2 & 802.3
         ;
         ; This parameter defines the frame type that
         ; AutoLink will use to connect to the 3INSTALL
         ; account on the server.
         ;
         ; If no value is specified, AutoLink will first
         ; attempt to connect using Ethernet_802.2 and
         ; then Ethernet_802.3.

TARGET_DIRECTORY   C:\NWCLIENT
         ; Default = C:\NWCLIENT
         ;
         ; If no existing NetWare installation is
         ; detected, AutoLink copies the NetWare client
         ; software to this target directory.  If
         ; AutoLink finds an existing NetWare client
         ; installation, AutoLink will install to that
         ; directory and this path will NOT be used.

CONNECT_TO_SERVER  YES
         ; Option: [Yes|No]  Default = YES
         ;
         ; YES enables AutoLink to connect to a 3INSTALL
         ; account on a server to copy the latest client
         ; software or custom configuration.
         ;
         ; NO installs the NetWare client software from
         ; this diskette and does NOT look for a server.
         ; For information on 3INSTALL read:
         ; A:\QINSTALL\SERVER\README.TXT.

PREFERRED_SERVER
         ; Default = No Default
         ;
         ; Preferred server is to identify which NetWare
         ; Server (2.x or 3.x) has the 3INSTALL account.
         ;
         ; For NetWare 4.x leave this parameter blank
         ; and use NetWare Directory Services to log in
         ; 3INSTALL to the correct server.
```

AutoLink.Log File

The AutoLink.Log file contains a log of the events that occurred during the AutoLink installation and configuration process. To display the AutoLink.Log file, type the following:

```
C:\ Type AutoLink.Log | More
```

Sample NET.CFG File

This sample NET.CFG file supplies information about parameters in the NET.CFG file and how they affect network operations. For a full description and explanation of the parameters, see the manual for the ODI shell for DOS, which ships with the NetWare package or is available from Novell, part # 100-000871-001.

Column spacing for the lines is critical for successful operation. The section header line must start in column 0 with subsequent lines in that section being indented. Comments are designated by semicolons (;). The NET.CFG file is not caps-sensitive.

```
;
;************************************************
;
NET.CFG File
LINK DRIVER 3C589
;   PORT 300
;     FRAME ETHERNET_802.2
;     FRAME ETHERNET_802.3
;   PROTOCOL IPX e0 ETHERNET_802.2
;     PROTOCOL IPX 0 ETHERNET_802.3 (binds IPX to
;     frame)
;   NODE ADDRESS 0020AFXXXXXX
;   ======
;     port [index] STARTING_PORT COUNT
;         This setting is only required when there are
;        2 adapters in the workstation.
;
;          All adapter-specific parameters are read
;        from the adapter.
;
;    mem [index] MEMORY_WINDOW (Optional)
;      If parameter not present in NET.CFG,
;      driver auto selects a free 4K memory window.
;      Released after initialization of card.
;      If specified, forces driver to use this
```

```
;      address to map card's CIS memory during driver
;      initialization. Window is released
;      after driver finishes initializing card or
;      fails to find card.
;              Use 0xC000 - 0xEF00 in steps of 0x100
;
; NOTE: frame ethernet_802.3
;       This is a version 4.X DOS ODI driver.  The
;      default frame type is 802.2, but you may be
;      using 802.3 if your server is version 3.11 or
;      earlier.
;   NODE ADDRESS 0020AFXXXXXX
```

Sample PROTOCOL.INI File

This sample PROTOCOL.INI file is similar to the PROTOCOL.INI file on your computer.

```
;3C589C 3Com EtherLink III LAN PC Card

PROTOCOL.INI File
;
DRIVERNAME = ELPC3$
;MEMORY = 0xEF00
; adapter memory window (optional)
; If parameter not present in PROTOCOL.INI, driver auto
; selects a  free 4K memory window. Released after
; initialization of card.   If specified, forces driver to
; use this address to map card's CIS memory during
; driver initialization. Window is released after
; driver finishes initializing card or fails to find card.
; Use 0xC000 - 0xEF00 in steps of 0x100
;IOADDRESS = 0x300
; adapter base address (optional)
; If parameter not present in PROTOCOL.INI, driver uses
; the value saved from running configuration program.
; This parameter is only used to specify a single adapter
; in a multi-adapter configuration. Must match value set
; by Diagnostic/Config.
; Use 0x200 - 0x3E0 in steps of 0x10
;SLOT = 2
; PC Card slot number (optional)
; If parameter not present in PROTOCOL.INI, driver
; searches all slots looking for for an Etherlink III
; LANPC Card Adapter.
; This parameter is only used to specify a single adapter
; in a multi-adapter configuration.
; Use 0 - 8
```

```
;NETADDRESS = "0020AF123456"
; network address (optional, default = card's netaddress
EEPROM
; value) the network address is 12 hex digits enclosed in
quotes
;MAXTRANSMITS = 8
; number of transmit queue elements (optional, default =
6)
; Min = 2, Max = 50
; Use the default for DOS clients. If you are running a
TCP/IP
; application and experiencing disconnects, increase to
30
; MAXTRANSMITS.
```

C TECHNICAL SUPPORT

3Com provides easy access to technical support information through the variety of services described in this appendix.

On-line Technical Services

3Com offers worldwide product support seven days a week, 24 hours a day, through the following on-line systems:

- 3Com Bulletin Board Service (3ComBBS)
- World Wide Web Site
- Ask3Com℠ on CompuServe®
- 3ComFacts℠ Automated Fax Service

3Com Bulletin Board Service

3ComBBS contains patches, software, and drivers for all 3Com products, as well as technical articles. This service is available via modem seven days a week, 24 hours a day. To reach the service, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Baud Rate	Telephone Number
Australia	up to 14400 baud	(61) (2) 955 2073
France	up to 14400 baud	(33) (1) 69 86 69 54
Germany	up to 9600 baud up to 9600 baud	(49) (89) 627 32 188 (49) (89) 627 32 189
Hong Kong	up to 14400 baud	(852) 537 5601
Italy (fee required)	up to 9600 baud	(39) (2) 273 00680
Japan	up to 14400 baud	(81) (3) 3345 7266
Singapore	up to 14400 baud	(65) 534 5693
Taiwan	up to 14400 baud	(886) (2) 377 5838 (886) (2) 377 5840
U.K.	up to 14400 baud	(44) (144) 227 8278
U.S.	up to 14400 baud	(1) (408) 980 8204

World Wide Web Site

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

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

This service features news and information about 3Com products, customer service and support, 3Com's latest news releases, selected articles from 3TECH™, 3Com's award-winning technical journal, and more.

Ask3Com on CompuServe

Ask3Com is a CompuServe-based service containing patches, software, drivers, and technical articles about all 3Com products, as well as an interactive forum for technical questions. To use Ask3Com, you need a CompuServe account.

To use Ask3Com:

1. Log on to CompuServe.
2. Enter **`go threecom`**
3. Press [Return] to see the Ask3Com main menu.

3ComFacts Automated Fax Service

3Com Corporation's interactive fax service, 3ComFacts, provides data sheets, technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, seven days a week. Within this service, you may choose to access CardFacts® for adapter information, or NetFacts® for network system product information.

- **CardFacts** provides adapter installation diagrams, configuration drawings, troubleshooting instruction, and technical articles.

  Document 9999 provides you with an index of adapter documents.

- **NetFacts** provides data sheets and technical articles on 3Com Corporation's hub, bridge, router, terminal server, and software products.

  Document 8888 provides you with an index of system product documents.

  Call 3ComFacts using your touch-tone telephone. International access numbers are:

Country	Fax Number
Hong Kong	(852) 537 5610
U.K.	(44) (144) 227 8279
U.S.	(1) (408) 727 7021

  Local access numbers are available within the following countries:

Country	Fax Number
Australia	800 123853
Denmark	800 17319
Finland	98 001 4444
France	05 90 81 58
Germany	0130 8180 63

Country	Fax Number
Italy	1678 99085
Netherlands	06 0228049
Norway	800 11062
Sweden	020 792954
U.K.	0800 626403

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:

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- Details about recent configuration changes, if applicable

If you are outside the U.S. and Canada, contact your local 3Com sales office to find your authorized service provider:

Country	Telephone Number
Australia (Sydney)	(61) (2) 959 3020
(Melbourne)	(61) (3) 653 9515
Belgium	(32) (2) 7164880
Brazil	(55) (11) 241 1571
Canada	(905) 882 9964
France	(33) (1) 69 86 68 00
Germany	(49) (89) 6 27 32 0
Hong Kong	(852) 868 9111
Italy	(39) (2) 273 02041
Japan	(81) (3) 33457251

Country	Telephone Number
Mexico	(525) 531 0591
Netherlands	(31) (3) 402 55033
Singapore	(65) 538 9368
South Africa	(27) (11) 803 7404
Spain	(34) (1) 3831700
Sweden	(46) (8) 632 91 00
Taiwan	(886) (2) 577 4352
United Arab Emirates	(971) (4) 349049
U.K.	(44) (1628) 897000

Returning Products for Repair

A product sent directly to 3Com for repair must first be assigned a Return Materials Authorization (RMA) number. A product sent to 3Com without an RMA number 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
U.S and Canada	(800) 876 3266, option 2	(408) 764 7120
Europe	(44) (1442) 278000	(44) (1442) 236824
Outside Europe, U.S. and Canada	(1) (408) 492 1790	(1) (408) 764 7290

GLOSSARY

AutoLink

A software installation program that configures the 3C589C PC Card, installs the DOS ODI client driver, and modifies PC startup files to allow you to log in to a NetWare server after you reboot your PC.

Card Information Structure (CIS)

A data structure written on every card that complies with the PC Card standard, containing information about the formatting and organization of the data on the card.

Card Services

A software program that coordinates PC Card access to sockets and system resources, including device drivers, utilities, and application programs. Card Services assigns the I/O Base Address, Interrupt Request Level, and the CIS Memory Base Address for the 3C589C PC Card. For more information about Card Services, see Appendix A, *About Card Services*.

Client

In the PC Card environment, an application program or device driver that uses Card Services and Socket Services.

Driver

A program, usually resident in server or workstation memory, that controls the PC Card or implements the protocol stacks that allow higher-level applications to communicate with the network hardware.

Ethernet

A local area network standard defining a physical medium and its method of placing data, or packet signaling, on a cable. Based on CSMA/CD and 10 Mbps.

IEEE 802.3

A subcommittee of the Institute for Electrical and Electronics Engineers (IEEE) 802 committee. Establishes standards for interface and protocol specifications for Ethernet in accordance with the ISO model.

Input/output (I/O)

The method, medium, or device (such as a keyboard, monitor, floppy disk, hard disk, network adapter, or printer) used to transfer data to a computing system or from the computing system back to a device, a network, etc.

Loopback

A type of diagnostic test in which the transmitted signal is returned to the sending device after passing through all, or a portion of, a data communications link or network. A loopback test permits the comparison of a returned signal with the transmitted signal.

NDIS

Network Driver Interface Specification, developed by Microsoft and 3Com. A software specification used in network operating systems, such as IBM LAN Server or Microsoft LAN Manager, to create drivers for network adapters. NDIS drivers support multiple protocols and multiple adapters and can be unloaded from memory to conserve conventional DOS RAM space.

ODI

Open Data-Link Interface. A MAC-level specification developed by Novell and Apple®. Drivers complying with this specification can work with NetWare 2.x, 3.x, or 4.x. Like NDIS, the ODI driver supports multiple protocols and adapters, and can be unloaded from memory to conserve conventional DOS RAM space.

Packet

The unit of information transmitted over the network, consisting of a preamble, a destination address, a source address, the data being transmitted, and a code that allows testing for correct transmission.

PCMCIA

Personal Computer Memory Card International Association.

PC Card

A new global standard that replaced the PCMCIA standard in 1994. The standard is designed to enhance compatibility and functionality among PC Cards (credit card-sized devices). It also provides for future high-performance PC Card applications through CardBus, a new 32-bit bus-mastering interface.

Release 1.0

In the PC Card environment, the Personal Computer Memory Card Standard Release 1.0, September 1990.

Release 2.0

In the PC Card environment, the release in which I/O capability and software support were added in September 1991.

Release 2.1

In the PC Card environment, the release containing typographical corrections to Release 2.0. There were no technical enhancements.

Socket

In the PC Card environment, the hardware in the host computer where the PC Card is placed. The socket maps the host's internal bus signals to the PC Card interface signals.

Socket Services

The software layer that provides a standardized interface to manipulate PC Cards, sockets, etc.

Transceiver

A hardware device that links a node to a baseband network cable and functions as both a transmitter and a receiver.

Twisted-pair

Wiring similar to that found in the telephone system, consisting of two insulated wires loosely twisted around each other to help cancel out induced noise in balanced circuits.

Type I card

In the PC Card environment, a 3.3 mm thick card that is typically used for memory cards.

Type I slot

In the PC Card environment, a slot that accepts a Type I card.

Type II card

In the PC Card environment, a 5.0 mm thick card that is often used for modem/fax cards and network adapters.

Type II slot

In the PC Card environment, a slot that accepts a Type I or Type II card.

Type III card

In the PC Card environment, a 10.5 mm thick card that is typically used for hard disk drives.

Type III slot

In the PC Card environment, a slot that accepts a Type I, II, or III card.

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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:

Internetworking products	One year
Network adapters	Lifetime
Ethernet stackable hubs and unmanaged Ethernet fixed port repeaters	Lifetime* (One year if not registered)
*Power supply and fans in these stackable hubs and unmanaged repeaters	One year
Other hardware products	One year
Spare parts and spares kits	90 days

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FCC CLASS B CERTIFICATION STATEMENT

3Com Corporation
Model Nos: 3C589C
FCC ID: DF63C589C
Made in U.S.A.

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.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CE NOTICE

Marking by the symbol CE indicates compliance of this 3Com system to the EMC directive of the European Community. Such marking is indicative that this 3Com system meets or exceeds the following technical standards:

- EN 55022—"Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment."
- EN 50082-1—"Electromagnetic compatibility—Generic immunity standard Part 1: Residential, commercial, and light industry."
- IEC 801-2—"Electromagnetic compatibility for industrial-process measurement and control equipment Part 2: Electrostatic discharge requirements."—Severity level 3.
- IEC 801-3—"Electromagnetic compatibility for industrial-process measurement and control equipment Part 3: Radiated electromagnetic field requirements."—Severity level 2.
- IEC 801-4—"Electromagnetic compatibility for industrial-process measurement and control equipment Part 4: Electrical fast transient/burst requirements."—Severity level 2.
- A "Declaration of Conformity" in accordance with the above standards has been made and is on file at 3Com.