Xircom

# Pocket Ethernet Adapter II

## User's Guide

Xircom

# POCKET ETHERNET ADAPTER II
## USER'S GUIDE

Xircom, Inc.

26025 Mureau Road

Calabasas, CA 91302

(818) 878-7600

September 1991

# FCC WARNING

Computing devices and peripherals manufactured by Xircom generate, use, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions in this manual, may cause interference to radio communications. Such equipment has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart J of Part 15 of the FCC Rules, which are designed to provide reasonable protection against radio interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case users—at their own expense—will be required to take whatever measures may be required to correct the interference.

Xircom reserves the right to make improvements and/or changes in the products and programs described in this User's Guide at any time without notice.

The software described in this manual is furnished under a license and may be used or copied only in accordance with such license.



Xircom is a registered trademark of Xircom, Inc. 3Com, 3+, 3+Share, and 3+Open are registered trademarks of 3Com Corporation. StarGROUP is a trademark of AT&T. Banyan VINES is a trademark of Banyan Systems, Inc. PCSA, PATHWORKS, and DECnet-DOS are trademarks of Digital Equipment Corp. NEXOS is a trademark of DSC. PC/TCP and LANWatch are trademarks of FTP Software, Inc. IBM, AT, XT, OS/2, and NetView are trademarks of International Business Machines Corporation. Microsoft, MS-NET, and MS-DOS are registered trademarks of Microsoft Corporation. Novell and NetWare are registered trademarks of Novell, Inc. PC-NFS is a registered trademark of SUN Microsystems, Inc. Tenset/TCP is a registered trademark of Tenset Technologies Ltd. Net/One is a registered trademark of Ungermann-Bass Corporation. WIN and PathWay are trademarks of The Wollongong Group, Inc.

# CONTENTS

# PREFACE

This guide is intended to introduce users to the Xircom Pocket Ethernet Adapter II. It includes complete instructions for hardware and software installation, configuration and diagnostic procedures, and Xircom Customer Service and Bulletin Board access.

This document has four chapters, two appendixes, and an index:

**Introduction** highlights the features, functions, and specifications of the Pocket Ethernet Adapter II.

**Installation and Setup** contains instructions for unpacking and installing your Adapter, an explanation of standard and bidirectional modes and a list of network driver files provided with the Adapter.

**Configuration and Diagnostics** provides instructions running the Adapter self test and interpreting the test results.

**Software Setup and Operation** explains how to install the network drivers supported by the Pocket Ethernet Adapter II.

**Appendix A. Error Messages** lists the error messages that are displayed when a problem occurs while you are setting up the Adapter and tells you how to correct the error.

**Appendix B. Novell Installation/ECONFIG Utility** describes how to install Novell NetWare, generate a NetWare shell, and use the ECONFIG utility to accommodate for differences between Ethernet and IEEE 802.3.

**Index.** An alphabetical list of topics covered in this guide and the page number where each topic is found.

## SERVICE

For service information, contact Xircom Customer Service:

Xircom
Customer Service
26025 Mureau Road
Calabasas, California 91302

(800) 874-4428 Toll Free Customer Service
(818) 878-7630 Fax
(818) 878-7618 Bulletin Board Service (24-hour access)

(800) 874-7875 Toll Free Sales and Product Information

Hours: 8:00 am to 5:00 pm Pacific time (except 24-hour BBS)

Before placing a call to Xircom Customer Service, please review the Error Messages in Appendix A and run the self test and diagnostic program included on your Xircom Network Drivers diskette (see instructions in the *Configuration and Diagnostics* section).

## BULLETIN BOARD SERVICE

Xircom maintains an online bulletin board service (BBS) for its customers. On it you will find information about Xircom products, including the latest versions of our network drivers and how to download them.

To use the BBS, first set up your modem to xxxx,N,8,1 (where xxxx is your modem's maximum speed). Dial (818) 878-7618 to connect to one of our 9600 bps modems. (These will automatically fall back to 2400 bps or 1200 bps, if required.)

Once connected, you will be prompted for an ID. If you are already a registered BBS user, just type your User ID and password and proceed to the Main Menu. If you are a first time BBS user, type "NEW" as your ID. New users will be asked a few questions such as name, company, address, etc., to register as a BBS user. **(Be sure to note your User ID and password for future use.)**

Once at the BBS Main Menu, you will be presented with various options. You will be able to look around, read information files, and download network drivers. To **DOWNLOAD** updated versions of all released Xircom drivers (subject to the terms of your Xircom Software License Agreement), follow the onscreen instructions provided.

## LIMITED WARRANTY, DISCLAIMER, AND LIMITATION OF LIABILITY

Xircom warrants to the original purchaser that:

1. when purchased, the Pocket Ethernet Adapter II (the "Adapter") is free from defects in material and workmanship; and
2. for two years from the purchase date, the software accompanying the Adapter (the "Software") and the Adapter itself will perform as stated in the User's Guide.

Xircom will honor claims under this Warranty only if the User completes the following steps before making the claim and makes the claim according to the procedure below:

1. Read the User's Guide and follow its installation, setup, software setup, and operation instructions;
2. Run the diagnostic program; and
3. Use the Adapter and Software only in the environments described in the User's Guide.

Xircom will not honor this Warranty (and this Warranty will be automatically void) if there has been any (1) tampering with the Adapter's external label containing the Adapter's serial number; (2) attempt to remove the label or to open the Adapter's case; or (3) repair or attempt to repair made by anyone other than a Xircom-authorized technician.

This Warranty does not cover, and Xircom will not be liable for, any damage or failure caused by misuse, abuse, acts of God, accidents (like dropping the Adapter or the diskette containing the Software), electrical irregularity, or other causes beyond Xircom's control, or claim by other than the original purchaser.

If, after inspection, Xircom determines there is a defect or failure covered by this Warranty, Xircom will elect to repair or replace the Adapter or Software or refund the purchase price (if replacement is not possible or repair is not practical). The replacement may be a new or refurbished product.

To report a problem or to request warranty service, the purchaser must first contact Xircom's Technical Support department at **(800) 874-4428** and obtain a *Return Material Authorization* ("RMA") number. Products returned for any reason must be complete and must include the Adapter, all software diskettes, User's Guide, AC adapter, all other components from the original package, and a copy of the receipt of purchase, and must be shipped prepaid to the address shown below.

The statements in this Warranty are the only warranty made by Xircom for the Adapter and Software.

XIRCOM DISCLAIMS AND WILL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES (SUCH AS PERSONAL INJURY OR DAMAGE TO ANY COMPUTER OR DATA).

*THE DURATION OF ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR USE OR PURPOSE IS LIMITED TO THE FIRST TO ELAPSE OF THE WARRANTY PERIOD PROVIDED ABOVE, OR SUCH SHORTER PERIOD AS APPLICABLE LAW PERMITS OR REQUIRES.*

Some states do not allow exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Inquiries or claims under this Warranty should be directed to Xircom at:

Xircom, Inc.
26025 Mureau Road
Calabasas, California 91302
(800) 874-4428

**Note**

**For better service, Xircom requests that you promptly fill out and return the attached Product Registration Card.**

# INTRODUCTION

The Xircom Pocket Ethernet Adapter II, shown in Figure 1, allows you to connect an IBM or 100%-compatible PC to an Ethernet or IEEE 802.3 local area network (LAN). These adapters connect externally to a standard parallel printer port, which eliminates the need to install an internal Ethernet card. They are easy to handle and transport, and because they support all types of Ethernet cabling, they are ideal for laptop and desktop computer users who need a flexible LAN connectivity solution.

The Pocket Ethernet Adapter II is also the ideal choice for workstations where board slots or power are at a premium. These Adapters are also an economical choice for groups of infrequent network users, since the Adapters can be quickly and easily moved from computer to computer. Since they contain no configuration switches, they are not subject to the address and interrupt conflicts common with other Ethernet adapters.

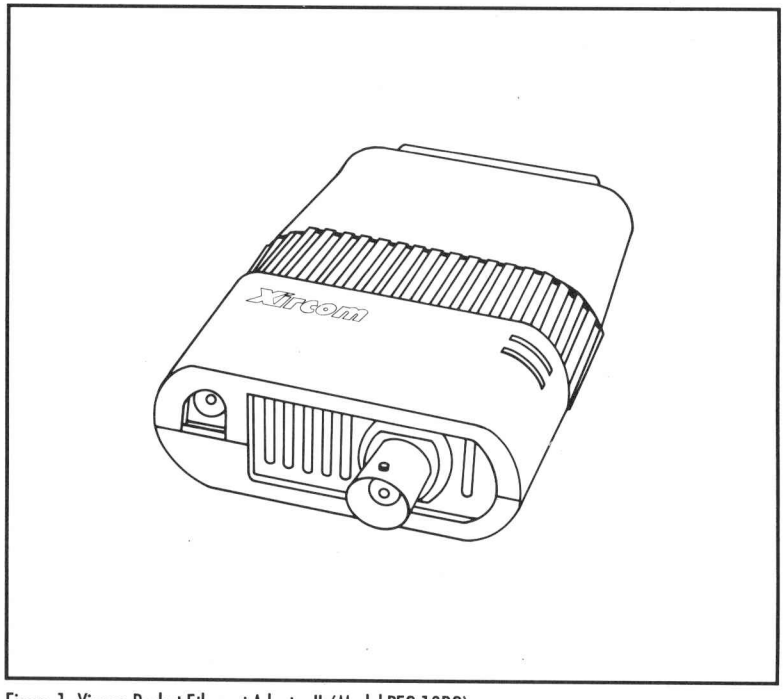


Figure 1. Xircom Pocket Ethernet Adapter II (Model PE2-10B2)

The Pocket Ethernet Adapter II is available in three versions, one for each type of Ethernet cabling:

| | |
|---|---|
| **Model PE2-10B2** | 10BASE-2 thin coaxial with a BNC connector |
| **Model PE2-10BT** | 10BASE-T unshielded twisted pair with an RJ-45 connector |
| **Model PE2-10BX** | 10BASE-5 standard thick Ethernet and proprietary twisted pair with a 15-pin AUI connector |

Drivers for all major Ethernet environments are included (see the list at the end of the section on *Installation and Setup*).

The triangle that "dots" the letter "i" in the name Xircom on the Pocket Ethernet Adapter II displays as a red "power on" indicator when power is applied to both computer and Adapter. In addition, there are two diagnostic indicator lights on the front of the unit. These are explained in the section on *Configuration and Diagnostics*.

# SPECIFICATIONS

## Media Interface Specifications (By Model)

**Model PE2-10B2**

Thin Ethernet and IEEE 802.3 (10BASE-2) with BNC connector. BNC "T" connector also supplied.

**Model PE2-10BT**

Twisted Pair Ethernet and IEEE 802.3 (10BASE-T) with RJ-45 connector. Supports 10BASE-T configurations.

**Model PE2-10BX**

Standard Ethernet and IEEE 802.3 (10BASE-5) with 15-pin AUI connector. Supports all external transceiver (MAU) configurations for thick Ethernet, proprietary twisted pair (non-10BASE-T), and fiber optic.

## Common Specifications (All Three Versions)

| | |
|---|---|
| **Size:** | 4.2 in. x 2.4 in. x 0.9 in. overall including connectors |
| **Weight:** | 3.1 oz |
| **Operating Temperature Range:** | 0°C to 50°C |
| **Storage Temperature Range:** | -40°C to 80°C |
| **Memory Size:** | 32K x 8 network buffer<br>256-bit EEPROM configuration storage |
| **Transfer Rate:** | 10 megabits per second |
| **Diagnostics:** | Loopback and self test capability |
| **FCC Certification:** | Part 15, Subpart J, Class A |

## AC POWER ADAPTER

The AC adapter is a wall mount unit with the following specifications:

| | |
|---|---|
| **Input voltage:** | 100VAC to 125VAC* |
| **Output voltage:** | 12VDC unregulated |
| **Size:** | 2.6 in. x 2.6 in. x 2.2 in. overall including connector and cord exit |
| **Cord length:** | 6 ft |
| **Weight:** | 9 oz |

*AC adapters for other voltage requirements are available as options.

## SOFTWARE MEDIA

Drivers and diagnostic programs are supplied on 3.5-inch and 5.25-inch diskettes. NetWare versions 2.x and 3.x, DECnet-DOS and DEC PCSA, Sun PC-NFS, Wollongong WIN/TCP for DOS, NDIS, ODI, and packet drivers are included. See the end of the *Installation and Setup* section for a list of files and subdirectories.

Contact Xircom for information regarding the use of Xircom's Pocket Ethernet Adapter II in other networking environments.

# INSTALLATION AND SETUP

Follow the instructions in this section to unpack and install your Xircom Pocket Ethernet Adapter II. Included in this section is a discussion of the standard versus bidirectional modes of operation and a list of files on the Xircom Network Drivers diskette.

## UNPACKING AND INSPECTION

After opening the Pocket Ethernet Adapter II box, remove the contents and make certain that all parts are included and that none have been damaged during transportation. Compare the contents with the items shown in Figure 2. Retain the packing materials in case you have to return the unit for service.

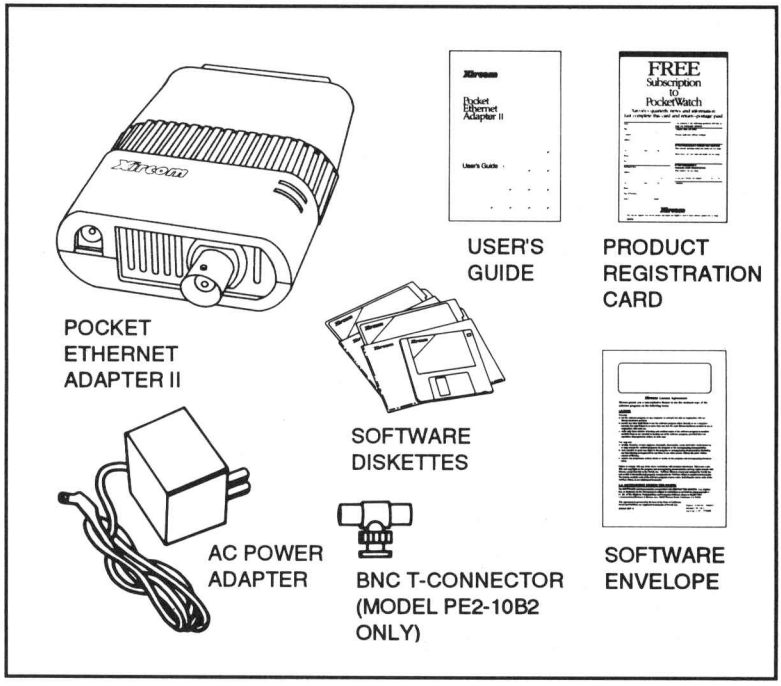


Figure 2. Contents of the Pocket Ethernet Adapter II Package

## PACKAGE CONTENTS

Use this as a checklist of the contents of the package.

- Xircom Pocket Ethernet Adapter II
- AC power adapter
- BNC T-connector (Model PE2-10B2 only)
- Xircom Pocket Ethernet II Adapter User's Guide
- Product Registration Card
- One envelope containing one 3.5-inch Network Drivers diskette and two 5.25-inch Network Drivers diskettes

***Fill out the enclosed Product Registration Card and return it to Xircom immediately.***

## OTHER REQUIRED EQUIPMENT

To install the Pocket Ethernet Adapter II, you need the following:

1. A supported local area network operating system. See the section on *Software Setup and Operation* for information about systems for which Xircom supplies drivers.
2. For connection to a 10BASE-2 thin Ethernet cable, a BNC T-connector (supplied), and a 50 ohm terminator (not supplied) if your connection is at the end of a cable segment..
3. For connection to a 10BASE-T twisted pair Ethernet cable, a dual twisted pair cable terminated with RJ-45 modular jacks (AT&T or D8W, or similar).
4. For connection to a 10BASE-5 thick Ethernet cable, a transceiver and transceiver cable.

## POCKET ETHERNET ADAPTER II INSTALLATION

Before you install the Pocket Ethernet Adapter II, make sure that power is turned off to your personal computer.

The following sections describe how to install your Pocket Ethernet Adapter II. You must know which network cable type you are using: 10BASE-2 (thin), 10BASE-T (unshielded twisted pair), or 10BASE-5 (AUI thick wire, proprietary twisted pair, or fiber optic transceivers).

After connecting your Pocket Ethernet Adapter II, install the AC power adapter by following the instructions later in this section.



## INSTALLATION OF MODEL PE2-10B2 (THIN ETHERNET)

1. Attach the T-connector (and thin Ethernet network cabling) to the BNC connector on your Pocket Ethernet Adapter II as shown in Figure 3.

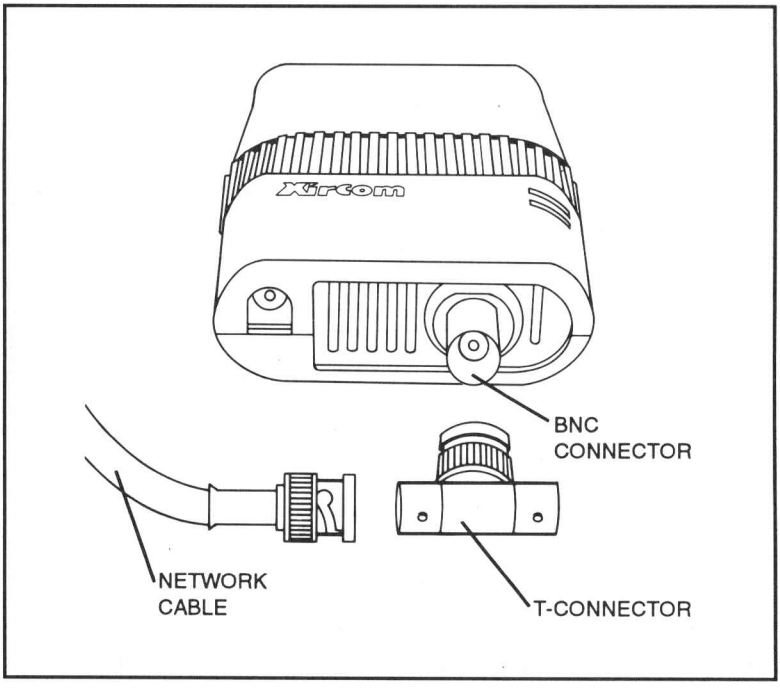


Figure 3. Attaching the Thin Ethernet Cable to Model PE2-10B2

**Note**

**Both ends of the T-connector must be attached to network cabling. If the adapter is at the end of a network segment, the end of the T-connector not attached to the network must have a 50 ohm terminator installed.**

## INSTALLATION OF MODEL PE2-10BT (TWISTED PAIR)

1. Plug one end of the modular data cable into the mating connector on the Pocket Ethernet Adapter II, shown in Figure 4. (This is an RJ-45 connector which looks like a large telephone jack connector.)
2. Plug the other end of the modular data cable into a network access port (usually a wall connection).

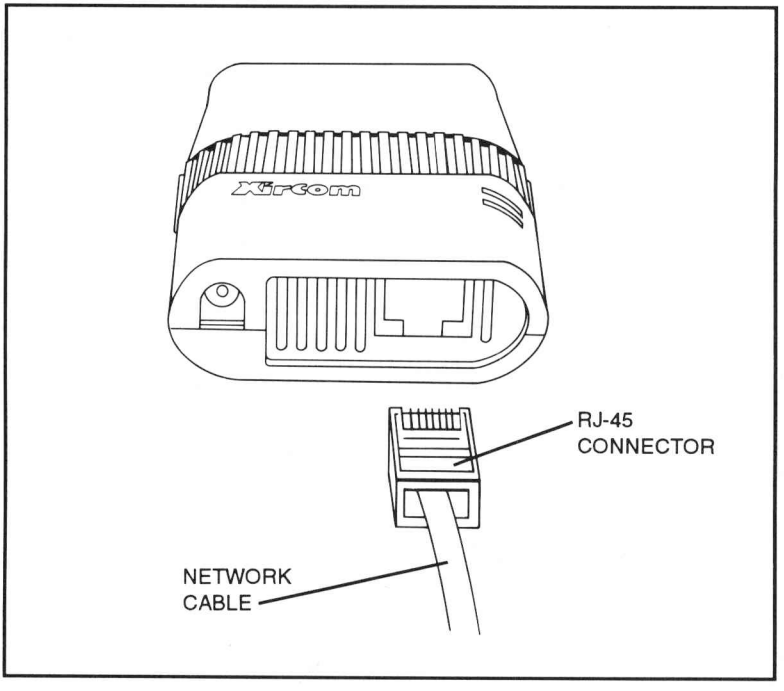


Figure 4. Attaching Twisted Pair Cabling to Model PE2-10BT

## INSTALLATION OF MODEL PE2-10BX (AUI CONNECTOR)

1. Connect the 15-pin male end of the AUI cable to the female AUI connector on the Adapter. Use the "D" shape of the plug to help you attach the cable properly. Press the slide latch to the left to lock the connector in place. See Figure 5.
2. Attach the other end of the AUI cable in series with the existing network cabling. Exact methods may vary; however, they will be consistent with the other node installations on your network.



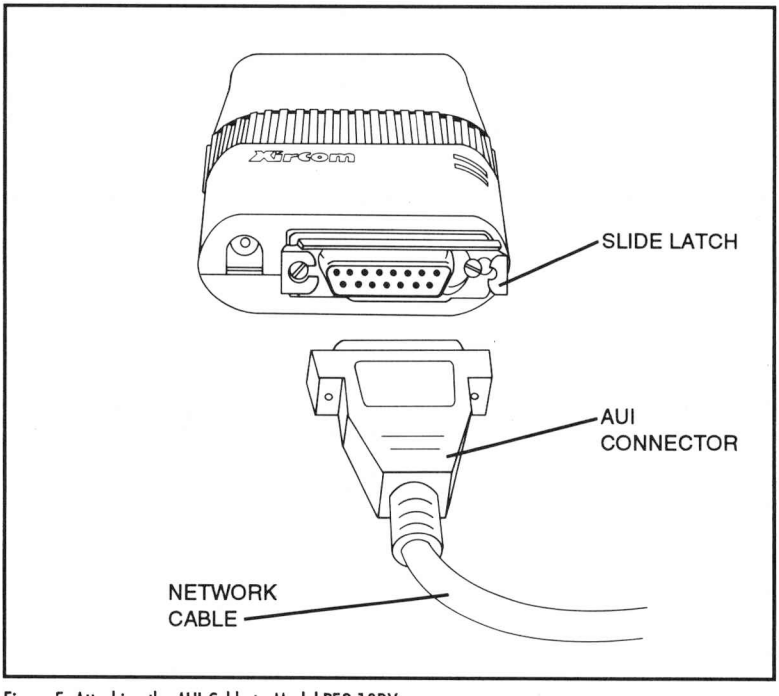


Figure 5. Attaching the AUI Cable to Model PE2-10BX

## CONNECTING THE POCKET ETHERNET ADAPTER II TO THE COMPUTER

Connect the Adapter to the parallel port of your personal computer using the 25-pin D-type connector at the end of the unit opposite the network connector.

1. Plug the 25-pin male D-type connector on your Pocket Ethernet Adapter II into the parallel port on the back of your computer, holding the Adapter with the Xircom logo and indicator lights on the top. The two parallel port attachment screws will align with the holes on each side of the parallel port connector.

2. Rotate the red band ("tractor grip") on the Adapter clockwise until the screws are firmly secured. Refer to Figure 6. When the screws are tight, the band will "click" as you rotate it. Rotate the band counterclockwise to unscrew the screws.

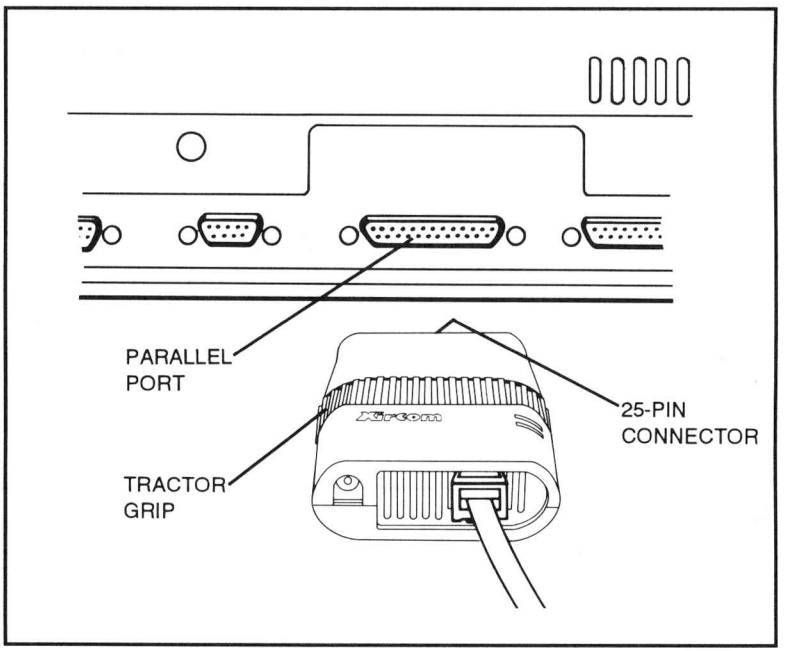


Figure 6. Connecting the Adapter to the Parallel Port on the Computer

**Note**

**The location of your parallel port may be different from that shown. Check your PC's user documentation if you can't find the parallel port.**

## STANDARD VERSUS BIDIRECTIONAL MODE

Many PC designs allow the parallel printer port to be switched to a bidirectional (or extended) mode of operation. This results in an improvement of approximately 50% in the input transfer rate.

To find out if you can switch your parallel port, refer to the instruction manual or technical reference manual for your computer. For assistance, contact Xircom Customer Service.

## INSTALLING THE AC POWER ADAPTER

1. Plug the AC power adapter into any standard electrical outlet as shown in Figure 7.
2. Plug the AC power adapter cable into the small round socket on the Pocket Ethernet Adapter II to the left of the network connector. See Figure 7.

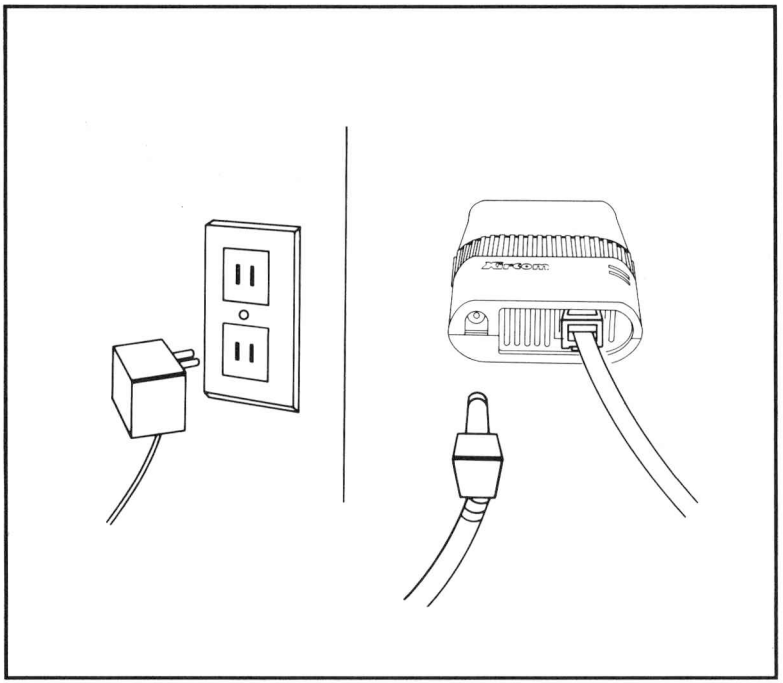

Figure 7. Plugging in the AC Power Adapter

Hardware installation is now complete.

**Note**

**The Pocket Ethernet Adapter II automatically shuts off when power to the personal computer to which it is attached is turned off or when you remove the Pocket Ethernet Adapter II from the computer's parallel port.**

## SOFTWARE SUPPLIED

The Xircom Network Drivers diskette contains the following files and subdirectories:

**README.DOC** The latest information about the software. To view, type:

**MORE <A:README.DOC**

at the DOS prompt.

**PE2TEST.EXE** Self test diagnostic program.

**\DECNET** Subdirectory containing DECnet-DOS and DEC PCSA driver files.

**\NDIS** Subdirectory containing the NDIS/LAN Manager driver files for 3Com 3+ Open, AT&T StarGROUP, Banyan VINES, DEC PATHWORKS, HP LAN Manager, Microsoft LAN Manager, Ungermann-Bass LAN Manager, and other network operating systems using the NDIS interface.

**\ODI** Subdirectory containing a self-configuring driver for running Novell NetWare using ODI.

**\NOVELL** Subdirectory containing driver files for Novell NetWare versions 2.x and 3.x.

**\PKTDRV** Subdirectory containing packet driver files that conform to FTP Software's public domain packet driver specification.

**\SUN** Subdirectory containing SUN PC-NFS driver files.

**\WIN_TCP** Subdirectory containing Wollongong WIN/TCP for DOS driver files.

See the section on *Software Setup and Operation* for a complete description of the files in each subdirectory. Contact Xircom Customer Service for information about other networking environments.

# CONFIGURATION AND DIAGNOSTICS

The information in this section explains the configuration of the Pocket Ethernet Adapter II, and includes a detailed description of the Adapter's diagnostic features, both hardware (diagnostic indicator lights) and software (diagnostic program called PE2TEST). For additional diagnostic information, see the error messages in Appendix A.

## DIAGNOSTIC INDICATOR LIGHTS

On the front of the Pocket Ethernet Adapter II are two LED indicator lights and a power-on indicator, as shown in Figure 8 on the next page. The indicator lights function according to the type of Ethernet connection being used.

## MODELS PE2-10B2 AND PE2-10BX

The top LED on these models displays yellow/orange to indicate a cable fault or collision. The bottom LED indicator flashes green to show transmission activity.

## MODEL PE2-10BT

The top LED indicator displays green when the RJ-45 media connection is active ("good link"). The bottom LED indicator flashes green to show transmission activity. The network device driver must be loaded before the "good link" light becomes active.

The Adapter power-on indicator is the "dot" over the letter "i" in the Xircom logo. It will illuminate with a red light when the adapter and the computer to which it is attached are under power.

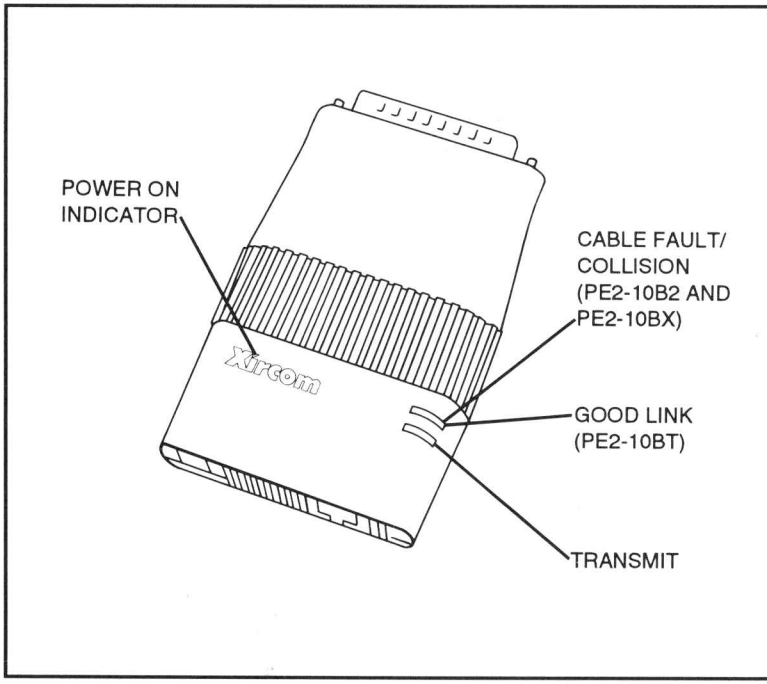


Figure 8. Pocket Ethernet Adapter II Indicator Lights

## DIAGNOSTIC SELF TEST

In addition to these diagnostic and power-on indicators, Xircom provides a self test and serial number determination diagnostics program. This program, located on the Network Drivers diskette, tests the Pocket Ethernet Adapter II for configuration, setup, checksum, memory, and loopback. It also reports test results, the serial number of the unit, and the node address. There are three test configurations:

1. Physically connected to a network as described in the section on *Installation and Setup.*
2. Connected to an isolated medium:
   - For model PE2-10B2, terminated by attaching a dummy load (two 50-ohm network terminators on a T-connector) to the BNC connector located at the rear of the Adapter.
   - For model PE2-10BX, terminated by attaching a dummy load (25-ohm) loopback connector to the AUI (15-pin) connector located at the rear of the Adapter.
   - For model PE2-10BT, terminated by attaching a data turn-around plug to the RJ-45 connector located at the rear of the Adapter.
3. Neither connected to a network nor in isolated turnaround mode. Because the unit cannot send messages to itself (loopback), the loopback tests will be disabled for this test configuration.

## EXECUTING THE SELF TEST

Use the following steps to execute the self test.

1. Install the Pocket Ethernet Adapter II in one of the configurations described on the previous page (option 1, physical connection, is recommended).

2. Boot your personal computer from DOS, as you normally do (either from a hard disk, floppy, ROM, etc.). A network driver **must not be loaded** for PE2TEST to run.

3. Insert the Xircom Network Drivers diskette in the floppy disk drive on your personal computer and change to the A drive.

4. At the A drive DOS prompt run the diagnostics by typing **PE2TEST** and then press Enter.

   The PE2TEST program executes all tests.

   The diagnostic program displays the following windows on your computer's screen showing test parameters and results:

   - Memory Test
   - Setup
   - Loopback Test
   - Configuration
   - EEPROM Test
   - EEPROM Data

An explanation of the self test results follows.

## MEMORY TEST, SETUP AND EEPROM TEST

The Memory Test tests the 32K x 8 RAM on the Pocket Ethernet Adapter II. The Setup box displays the status of tests run on the Data Configuration Register and Adapter initialization. The EEPROM test verifies the EEPROM checksum.

A failure in any of these boxes may indicate that service is required for the Pocket Ethernet Adapter II. Contact Xircom Customer Service for assistance.

## CONFIGURATION

This portion of the diagnostic screen describes the parallel port transfer mode. Some computers allow the parallel port to be switched between fast and slow modes. For an optimal transfer rate, the unit should be in fast (bidirectional) mode. If the parallel port on your computer is configured in slow (nonbidirectional) mode, **PE2TEST** reports that. If the unit has been improperly connected, if there is a failure of the parallel port, or if there is a failure of the Adapter, the number **1** appears in the box below **Failed.**

To find out if you can switch modes on your parallel port, consult the documentation for your computer. For assistance, contact Xircom Customer Service.

## LOOPBACK TEST

The loopback test generates network control and data packets which are sent to each of three data turnaround points. The data are then sent back to the computer for verification.

The results of the tests are useful in determining the exact location of any failures within the Pocket Ethernet Adapter II. If a failure occurs, contact Customer Service.

## EEPROM DATA

This section displays the model number, serial number, manufacturing date of the unit, and the network node address. All of this data has been preprogrammed at the factory and cannot be altered.

The self test program loops continuously, testing the Adapter every few seconds. Counters in the Test Pass, Write Fail, Read Fail, and Compare Fail columns notify you of the number of times the self test runs. One hundred passes of the test take about a minute. Press any key to terminate the self test.

The serial number and the node address of your Pocket Ethernet Adapter II are displayed in the EEPROM Data box in the lower right corner of the computer screen.

Record the serial number here: _____

Record the node address here: _____

Customer Service will ask you to supply the serial number when requesting technical assistance or warranty service from Xircom.

# SOFTWARE SETUP AND OPERATION

This section describes the available Pocket Ethernet Adapter II driver software, its installation and startup. The section is organized under the main headings listed below. These headings correspond to the subdirectories on your Xircom Network Drivers diskette. Network operating systems using NDIS drivers or Xircom packet drivers are listed alphabetically under the main headings "NDIS Drivers" and "Packet Drivers" respectively. All operating systems covered are also cross referenced to the main heading under which they are discussed.

- **DEC PCSA and DECnet-DOS Drivers**
- **NDIS Drivers** (for 3Com 3+Open, AT&T StarGROUP, Banyan VINES, HP LAN Manager, Microsoft LAN Manager, Ungermann-Bass LAN Manager, and others)
- **Novell Netware Drivers** for NetWare versions 2.x and 3.x
- **ODI Driver** for DOS
- **Packet Driver** (uses FTP Software's public domain specification to support FTP Software PC/TCP, FTP Software LANWatch, NCSA Telnet, Tenset Technology Tenset/TCP, and others)
- **Sun PC-NFS Driver** (including NDIS option)
- **Wollongong WIN/TCP for DOS Driver**

## 3Com 3+Open

See 3Com 3+Open under the heading "NDIS Drivers."

## AT&T StarGROUP

See AT&T StarGroup under the heading "NDIS Drivers."

## Banyan VINES

See Banyan VINES under the heading "NDIS Drivers."

## DEC PATHWORKS

For versions of DEC's PATHWORKS 4.0 and later, refer to Microsoft LAN Manager under the heading "NDIS Drivers."

## DEC PCSA AND DECNET-DOS INSTALLATION

The Xircom Network Drivers diskette contains the following DECnet file in the \DECNET subdirectory:

| | |
|---|---|
| **DLL_PE2.EXE** | Datalink driver for Digital Equipment's DECnet-DOS and PCSA versions 2.2 and 3.0. |

1. Install Digital Equipment Corporation's DECnet-DOS or PCSA product according to the instructions provided by DEC (select any datalink controller and local boot).

2. Copy DLL_PE2.EXE from your Xircom Network Drivers diskette to your DECNET subdirectory (typically C:\DECNET). and rename it DLL.EXE.

3. Using an ASCII text editor, edit the files C:\STARTNET.BAT and C:\DECNET\MSNET.INI. Replace each invocation of DLL with your own DLL invocation.

   For example:

   replace `DLL /IRQ:2 /T:2`

   with `DLL`

Xircom's DLL_PE2.EXE is a self-configuring driver that searches for and uses the appropriate LPT and interrupt. If the driver does not find an IRQ, it uses a polling method from the system timer. If you need to override the automatic selections, use the general form:

```
DLL [/IRQ:n] [/PORT:p]
```

where

**n** can be set to 5 or 7. This switch indicates the interrupt request line that responds to the selected parallel printer port. The default is 7.

**p** can be set to 1, 2, or 3, which corresponds to the parallel port to which the Pocket Ethernet Adapter II is attached: LPT1, LPT2, or LPT3, respectively.

4. For PCSA version 3.0, ensure that the files C:\STARTNET.BAT and C:\DECNET\MSNET.INI select the correct model of DNPETHxx.EXE and DNNETHxx.EXE.

   Use DNPETHAT.EXE or DNNETHAT.EXE for 80286, 80386, and 80486 machines. Use DNPETHPC.EXE or DNNETHPC.EXE for 8088 and 8086 machines.

5. Reboot your computer.

**Note**

**1. Remote boot and remote floppy boot are not supported.**

**2. The Pocket Ethernet Adapter II driver does not operate if an adapter other than the Xircom Pocket Ethernet Adapter II is initialized during startup.**

## Important

Examine the LAD startup line in STARTNET.BAT and MSNET.INI (if used). The typical LAD command line looks like the following:

```
LAD /R:-1 /W:-1 /A:D
```

/R:-1 specifies the default value for the /R switch, which is 15. Therefore, /R:-1 is the same as /R:15. The /R switch specifies the transaction size of virtual disk read operations. For example, it specifies the number of back-to-back packets that can be handled by the client. Many factors affect the ability to receive back-to-back packets, including adapter buffer size, CPU model and speed, and the number of datalink buffers.

A transaction size that is too large can cause data overruns. This can occur if the datalink does not have enough buffers. The CPU may not be able to transfer packets from the adapter to the datalink quickly enough; or the adapter may not be able to buffer enough of the transaction.

In any event, data overruns cause LAST transport timeouts. An excessive number of LAST transport timeouts can result in terminating the LAST transport LAD connections. The Pocket Ethernet Adapter II has a maximum receive capacity of 20 packets. If the adapter is connected to a slow machine, start with an initial value of /R:4. If you experience no difficulties, increase the transaction size.

Use the NCP command SHOW LINE COUNTERS to determine whether or not data overruns are occurring and if so, whether or not they are excessive.

### Datalink Size

**On disk, the datalink executable code requires 23K bytes. Part of that code, however, is used for initialization only and is then removed from memory. The remaining executable code uses only 15K. The datalink requires buffers and these buffers use 1528 bytes each. The more buffers you include, the more memory the driver occupies. Use the NCP command SHOW EXECUTOR CHARACTERISTICS to examine the current MAXIMUM BUFFERS value. The default value is 24. Use the NCP command DEFINE EXECUTOR MAXIMUM BUFFERS *n* to set the number of buffers, where *n* is a minimum of 4.**

## DSC NEXOS

See DSC NEXOS under the heading "Packet Drivers."

## FTP Software PC/TCP

See FTP Software PC/TCP under the heading "Packet Drivers."

## Hewlett-Packard HP LAN Manager

See 3Com 3+Open 1.x (HP LAN Manager) under the heading "NDIS Drivers."

## IBM PC LAN Program

See "NETBIOS Drivers" in this section.

## NCSA Telnet

See NCSA Telnet under the heading "Packet Drivers."

## NDIS DRIVERS

The Xircom Network Drivers diskettes contain the following NDIS files in the \NDIS subdirectory.

| | |
|---|---|
| **PE2_NDIS.DOS** | NDIS driver for DOS |
| **PE2_NDIS.OS2** | NDIS driver for OS/2 |
| **PROTOCOL.INI** | Sample Protocol Initialization file/segment |
| **XIRCOS2.NIF** | Configuration file used by Microsoft LAN Manager installation program in configuring an OS/2 workstation. |
| **XIRCDOS.NIF** | Configuration file used by Microsoft LAN Manager installation program in configuring a DOS workstation. |
| **XIRCATT.NIF** | Configuration file used in the installation of AT&T's StarGROUP Software. |

The NDIS driver conforms to the Microsoft Network Driver Interface Specification. This driver supports many third party network operating systems including 3Com 3+Open, AT&T StarGROUP, Banyan VINES, DEC PATHWORKS 4.0, FTP Software PC/TCP, HP LAN Manager, Microsoft LAN Manager, and Ungermann-Bass LAN Manager.

## 3Com 3+Open 1.x (and HP LAN Manager)

Use the following instructions for installation of 3Com 3+Open 1.x, HP LAN Manager, and most other 1.x and 2.x LAN Manager networks.

1. Install your Network Operating System according to the manufacturer's instructions, selecting the Xircom Pocket Ethernet Adapter II as your hardware choice. If the Xircom Adapter is not among the listed choices, select either a proprietary driver or the 3Com 3C503 driver. Before rebooting your system, continue with these instructions.

2. Copy PE2_NDIS.DOS or PE2_NDIS.OS2, depending on which operating system you are using on your workstation, from the \NDIS subdirectory on the Xircom Network Drivers diskette to the drive and subdirectory you are using for your Network Operating System.

3. Use an ASCII text editor to edit your CONFIG.SYS file to contain a reference to the Xircom device driver as shown below, substituting the proper [path] for your system. For example:

```
DEVICE=C:\3OPEN\DOSWKSTA\LANMAN\DRIVERS\PE2_NDIS.DOS
```

4. Use the text editor to edit your PROTOCOL.INI file, as follows:

   - Add the following fragment:

```
;XIRCOM ADAPTER

[XIRCOMNET]

DRIVERNAME = XIRCOM$
```

   where

   **DRIVERNAME** references the Xircom driver

   - For each protocol that you want to bind, set the protocol definition area of PROTOCOL.INI to:

```
BINDINGS = XIRCOMNET
```

For Example:

```
;XNS protocol

[XNS_TRANSPORT]

DRIVERNAME = XNSTP$

BINDINGS = ETHERLINK
```

where

```
BINDINGS = ETHERLINK
```

becomes

```
BINDINGS = XIRCOMNET
```

## AT&T StarGROUP (version 3.5 or later)

Use the following instructions for installation on an AT&T StarGROUP version 3.5 or later client workstation. For versions 3.3 and 3.4, refer to the heading immediately following this one. You must have your StarGROUP Client Drivers diskette and the Xircom Pocket Ethernet Adapter II Network Drivers diskette which contains the \NDIS subdirectory.

1. Make a working copy of the StarGROUP Client Drivers diskette using the DOS DISKCOPY command.
2. Copy the file XIRCATT.NIF from the \NDIS subdirectory of the Xircom Network Drivers diskette onto the \DOS\DRIVERS2 subdirectory of the StarGROUP Client Drivers diskette.
3. From the floppy drive containing the StarGROUP Client Drivers diskette, change to the Subdirectory \DOS\DRIVERS2:

```
A:>CD DOS\DRIVERS2
```

4. Create a XIRCATT subdirectory under the \DOS\DRIVERS2 subdirectory and change to that directory:

```
A:\DOS\DRIVERS2>MD XIRCATT

A:\DOS\DRIVERS2>CD XIRCATT
```

5. Use a text editor to create a file called PROTOCOL.INI in the \DOS\DRIVERS2\XIRCATT directory:

```
[protocol manager]

        drivername = PROTMAN$

[attiso]

        drivername = ATTISO$

        bindings = xircomnet

        nsess = 5

        ncmds = 14

        use_emm = n

[xircomnet]

        drivername = XIRCOM$
```

6. If you created your PROTOCOL.INI file on your hard drive, be sure to copy it to the \DOS\DRIVERS2\XIRCATT subdirectory of the Client Drivers diskette.

7. Copy the PE2_NDIS.DOS file on the Xircom Network Drivers diskette to the \DOS\DRIVERS2\XIRCATT subdirectory of the Client Drivers diskette.

8. You may now use the modified StarGROUP Client Drivers diskette to install StarGROUP on the Client Computer. Refer to the documentation for StarGROUP for further information.

## AT&T StarGROUP (versions 3.3 and 3.4)

The following section describes installation of an AT&T StarGROUP (versions 3.3 and 3.4) Client workstation. You must have your StarGROUP Client Install diskette and the Xircom Pocket Ethernet Adapter II Network Drivers diskette before proceeding.

In order to install StarGROUP 3.3 or 3.4 on a Client workstation, follow the instructions listed under the preceding heading for StarGROUP version 3.5, with the following differences:

a. When copying XIRCATT.NIF to the working diskette, DO NOT copy it to the \DOS\DRIVERS2 subdirectory but to the \DOS\DRIVERS subdirectory.

b. After copying the XIRCATT.NIF file to the \DOS\DRIVERS subdirectory of the working diskette, use a text editor to change the second line of the file to:

```
DeviceDriver=PROTMAN.DOS\i:%lanroot%\DRIVERS\xircom
```

c. The \XIRCOM subdirectory must be created under the \DOS\DRIVERS subdirectory of the working diskette, rather than the \DOS\DRIVERS2 subdirectory.

d. When creating the PROTOCOL.INI file in the \DOS\DRIVERS\XIRCOM subdirectory, change "ncmds = 14" to "ncmds = 12."

e. The PE2_NDIS.DOS driver must be copied to the \DOS\DRIVERS\XIRCOM subdirectory, rather than to the \DOS\DRIVER2\XIRCATT subdirectory.

This working diskette can now be used to install a StarGROUP 3.3 or 3.4 Client workstation.

## Banyan VINES

Banyan VINES version 4.0 and above supports the Xircom Pocket Ethernet Adapter II through the NDIS Ethernet Interface using the 4.00 (2) patch, available from your Banyan authorized support center.

Refer to your VINES Network Installation Guide for additional information.

1. Install the appropriate Banyan 4.00 patches on your VINES server using Banyan's Patch Instructions. You may need an extra Banyan patch if you intend to run more than one protocol stack, such as VINES and TCP/IP.
2. Create a bootable DOS diskette with DOS 3.1 or above.
3. From an existing workstation login to the server.
4. With your new boot diskette in the floppy drive, run PCCOPY.
5. Select PC CONFIG and NDIS Ethernet from the PCCOPY menu.
6. Select the drive in which the new diskette is loaded.
7. At the Redirector menu, select REDIRALL.EXE or REDIR3.EXE. This copies the VINES software to your boot diskette.
8. Change to the floppy drive and type PCCONFIG.
9. Select Network Card Settings.
10. From the list, choose NDIS Ethernet.
11. Select interrupt level 7 if your Pocket Ethernet Adapter II is using LPT1 or LPT3, or interrupt level 5 if the adapter is using LPT2.
12. Set the driver file name to PE2_NDIS.DOS if you are running only the VINES network protocol, or to XIRCOMNET if you plan to run multiple network protocols, such as FTP Software PC/TCP.
13. Press F10 to save.
14. Press ESC to return to the Main Menu.
15. Press F10 to save.

16. Create a CONFIG.SYS file on the diskette that contains the following statements. (If you are running VINES from a hard disk, ensure that the following statements appear in the CONFIG.SYS file on that PC's hard disk.)

```
DEVICE=PROTMAN.DOS

DEVICE=PE2_NDIS.DOS
```

17. Create a LANMAN subdirectory in the root directory on your boot diskette (or on the hard drive used in step 16). Copy PROTOCOL.INI from the \NDIS subdirectory on the Network Drivers diskette to the \LANMAN subdirectory. The settings in PROTOCOL.INI should agree with your selection in step 11.

```
;XIRCOM ADAPTER

[XIRCOMNET]

DRIVERNAME=XIRCOM$
```

18. Copy PE2_NDIS.DOS from the \NDIS subdirectory on the Xircom Network Drivers diskette to your boot diskette (or, alternatively, to the hard disk used above).

    Your boot diskette is now complete. (To run VINES from your hard disk, copy the boot disk files to the hard disk on the PC you are using).

**Note**

**If you are running on a personal computer with a slow clock speed (for example, a 4.77 MHz PC XT) and your personal computer hangs at the BAN command, your VINES software may have a short timeout value. If this occurs, you may need a different version of Banyan's NDISBAN.COM file. Contact Xircom Customer Service for assistance.**

## DEC PATHWORKS

See Microsoft LAN Manager below.

## HP LAN Manager

See 3Com 3+Open 1.x above.

## Microsoft LAN Manager (and DEC PATHWORKS)

Use the following instructions for installation on Microsoft LAN Manager version 2.0 or later client workstation.

1. Install the Network Operating System according to the manufacturer's installation instructions.

2. Copy the appropiate .NIF file from the \NDIS subdirectory of the Xircom Network Drivers diskette into the C:\LANMAN\DRIVERS \NIF subdirectory of the LAN Manager client computer. If the client computer is running DOS, copy XIRCDOS.NIF to the \NIF subdirectotry; and if the client is running OS/2, copy XIRCOS2.NIF to the \NIF subdirectory. For example, from the Xircom Network Drivers diskette, \NDIS subdirectory, type:

   For DOS:

   ```
   A:>COPY XIRCDOS.NIF C:\LANMAN\DRIVERS\NIF
   ```

   For OS/2

   ```
   A:>COPY XIRCOS2.NIF C:\LANMAN\DRIVERS\NIF
   ```

3. Make a new subdirectory "XIRCOM" on the client computer under the C:\LANMAN\DRIVERS\ETHERNET subdirectory, as follows:

   ```
   C:>CD LANMAN\DRIVERS\ETHERNET

   C:\LANMAN\DRIVERS\ETHERNET>MD XIRCOM

   C:\LANMAN\DRIVERS\ETHERNET>CD XIRCOM
   ```

4. Copy the PROTOCOL.INI file from the \NDIS subdirectory of the Xircom Network Drivers diskette to the C:\LANMAN\DRIVERS\ETHERNET\XIRCOM subdirectory you just created.

5. Copy the appropriate PE2_NDIS.* file for your client operating system (PE2_NDIS.DOS for a DOS client, PE2_NDIS.OS2 for an OS/2 client) from the \NDIS subdirectory of the Xircom Network Drivers diskette to the C:\LANMAN\DRIVERS\ETHERNET\XIRCOM subdirectory.

6. Reboot the client computer. At the C:\LANMAN> prompt, run **setup.** Choose Actions, then View/Modify. Accept default selections until the Network Drivers screen appears. The "Network Adapter Cards" dialog box will display all available network adapter drivers. Select the Xircom Pocket Ethernet Adapter II option; then choose Add Driver.

7. Continue configuring your workstation options, including selection of a protocol stack, according to the instructions in the Microsoft LAN Manager *Installation Guide & Network Device Driver Guide.*

## Ungermann-Bass LAN Manager

The Xircom Pocket Ethernet Adapter II is supported on Ungermann-Bass LAN Manager and MS-NET networks. There are two NDIS driver packages available from UB: NDIS For XNS and NDIS for TCP/IP. These packages, used with a Xircom NDIS driver, provide files that support both DOS and OS/2 workstations. They are available from UB or an authorized UB representative. UB can be reached at (408) 496-0111 or toll free at (800) USE-NET1.

1. Create a boot disk by following the instructions for third party drivers as described in Ungermann-Bass' NDIS Protocol Driver Installation Manual.

2. Copy PE2_NDIS.DOS or PE2_NDIS.OS2, depending on which operating system you are using, from the \NDIS subdirectory on the Xircom Network Drivers diskette to the same drive and subdirectory that you are using for your Network Operating System.

3. The boot disk is created initially for the UB MAC Driver. Following the UB instructions, modify your CONFIG.SYS to recognize the Xircom Adapter, PE2_NDIS.DOS (or .OS2): For example:

```
DEVICE=[path]PE2_NDIS.DOS
```

4. Use an ASCII text editor to modify your PROTOCOL.INI file as follows:

   - Add the following fragment:

```
;XIRCOM ADAPTER

[XIRCOMNET]

DRIVERNAME = XIRCOM$
```

   - For each protocol that you want to bind, set the protocol definition area of PROTOCOL.INI to:

```
BINDINGS = XIRCOMNET
```

## NETBIOS Drivers

The IBM PC LAN Program, as well as other Network Operating Systems run directly on top of a NETBIOS Driver or on top of the NETBIOS interface in Novell's NetWare. For additional information contact Xircom Customer Service.

## NOVELL NETWARE VERSIONS 2.X AND 3.X

The Xircom Network Drivers diskette contains the following files in the \NOVELL subdirectory (these files are compatible with NetWare versions 2.x and 3.x. The Pocket Ethernet Adapter II does not include software support for Novell NetWare version 2.0a. If you wish to use your Adapter with NetWare version 2.0a, contact Xircom Customer Service.):

| | |
|---|---|
| **IPXPE2.COM** | self-configuring, pregenerated IPX interface driver for NetWare versions 2.x and 3.x |
| **NET5.COM**<br>**NET4.COM**<br>**NET3.COM** | shells for use with DOS 5, 4, and 3 |
| **XIRCPE2.LAN** | description file used by SHGEN or WSGEN to create NetWare shell drivers |
| **PE2SHELL.OBJ** | object file used by SHGEN or WSGEN to create shell drivers |

### NetWare Workstation Installation/Startup

If your network is running version 2.x or 3.x of Novell NetWare, copies of pregenerated IPX and NET programs are included in the \NOVELL subdirectory to simplify initial software installation. IPXPE2.COM is a preconfigured driver that allows you to bypass the Novell SHGEN or WSGEN procedure in most situations. The IPXPE2.COM program is a self-configuring IPX driver that searches for and uses an available LPT and interrupt. Also included are NET3.COM, NET4.COM, and NET5.COM for use with DOS 3.x, DOS 4.x, and DOS 5.x, respectively.

Xircom's preconfigured driver IPXPE2.COM was generated and certified with the latest Novell SHGEN or WSGEN files available at the time. If Novell has updated its code since the date of Xircom's driver, you may want to run the SHGEN or WSGEN procedures described in Appendix B of this User's Guide.

If you have questions about NetWare use on Xircom's Pocket Ethernet Adapter II, contact Xircom's Customer Service.

1. Use DOS to copy IPXPE2.COM to the root directory of either your hard disk or network boot diskette.

2. Copy the NETn.COM file that corresponds to your version of DOS to the same directory. NET3.COM, NET4.COM, and NET5.COM for use with DOS 3.x, DOS 4.x, and DOS 5.x are included in the \NOVELL subdirectory. Refer to your NetWare User's Guide for further clarification.

3. To start the workstation, run IPXPE2.

4. Run NET*n* , where *n* is 3, 4, or 5 depending on your version of DOS.

5. Change to network drive (usually F:\LOGIN>)

6. Log in to the network.

## NetWare ECONFIG Utility

If your NetWare configuration shares the same Ethernet cabling with other Network Operating Systems (such as DECnet or TCP/IP), you may need to run the Novell ECONFIG utility as described in Appendix B.

## NetWare Network Printing

To print during a network session, issue a NetWare CAPTURE command to redirect all printer output to a printer attached to the file server. Do not issue the CAPTURE command to access the local printer. To determine if CAPTURE has been loaded at a workstation,

```
CAPTURE SH
```

If CAPTURE has been loaded and you wish to redirect your printer output to your local printer, type:

```
ENDCAP
```

**Note**

**If you run Novell NetWare with DOS 2.x, you need a special file. Contact Xircom Customer Service for assistance.**

## ODI DRIVER FOR DOS

To run Novell NetWare using ODI, follow the steps below:

1. Load LSL.COM from your NetWare Utilities diskette.

2. Run **PE2MLID.COM** on the Network Drivers diskette in the \ODI subdirectory. This is self configuring.

3. Run IPXODI.COM from your NetWare diskette.

4. Run NET5.COM, NET4.COM, or NET3.COM, corresponding to your version of DOS.

5. Copy PE2_NDIS.DOS or PE2_NDIS.OS2, depending on which operating system you are using on your workstation, from the \NDIS subdirectory on the Xircom Network Drivers diskette to the same drive and subdirectory you are using for your Network Operating system.

6. Use an ASCII text editor to edit your CONFIG.SYS file to contain a reference to the Xircom device driver, substituting the proper [path] for your system.

7. Use the text editor to edit your PROTOCOL.INI file as follows:

   Add the following fragment:

   ```
   ;XIRCOM ADAPTER

   [XIRCOMNET]

   DRIVERNAME=XIRCOM$
   ```

   where

   **DRIVERNAME** references the Xircom driver

Xircom's DLL_PE2.EXE is a self-configuring driver that searches for and uses the appropriate LPT and interrupt values. If the driver does not find an IRQ, it uses a polling method from the system timer.

If, however, you have an unusual configuration and need to override the automatic selections, use the general form:

```
DLL [/IRQ:n] [/PORT:p]
```

where

**n** can be set to 5 or 7. This switch indicates the interrupt request line that responds to the selected parallel printer port. The default is 7.

**p** can be set to 1, 2, or 3, which corresponds to the parallel port to which the Pocket Ethernet Adapter II is attached, LPT1, LPT2, or LPT3, respectively.

For each protocol that you want to bind, set the protocol definition area of PROTOCOL.INI to:

```
BINDINGS = XIRCOMNET
```

## PACKET DRIVER

Xircom's packet driver is based on FTP Software's public domain specification. The driver file, **PE2PKTDR.COM** is located in the \PKTDRV subdirectory of the Xircom Network Drivers diskette.

## FTP Software PC/TCP Installation

Xircom's Packet Driver works with FTP Software's PC/TCP Generic Ethernet Kernel ETHDRV.EXE, FTP part number PC-210. The instructions below relate to revision 2.05 or later.

1. To configure the PC/TCP software, follow the directions given in the PC/TCP Installation Guide. The PC/TCP installation program chooses the ETHDRV.EXE driver by default. The ETHDRV.EXE driver correctly works with PE2PKTDR.COM.
2. At the end of the PC/TCP installation program, copy PE2PKTDR.EXE from the Xircom Network Drivers diskette to the same subdirectory specified in the PC/TCP INSTALL procedures.
3. Follow the instructions given in the PC/TCP Installation Guide for altering your system's CONFIG.SYS file.

**Note**

**The PC/TCP Installation Guide describes a method for adjusting the configuration of PC/TCP. The Xircom PE2PKTDR.COM driver is self-configuring for its printer port and interrupt and does not use an I/O Base address or PC memory address. Therefore, these values are not adjusted through the *ifconfig* program.**

4. Reboot your PC.

5. To run PC/TCP, your must execute the Xircom Packet Driver, PE2PKTDR, based on your system configuration, as follows:

```
PE2PKTDR SIN=xx LPT=y IRQ=z
```

where

**xx** is the software interrupt number, in the range hex 60 to 80. The default is 60.

**y** is the printer port, which can be 1, 2, or 3. It defaults to auto-configuration.

**z** is the printer port interrupt, which can be 5 or 7. It defaults to auto-configuration.

The Xircom Packet Driver is self-configuring and finds its own LPT port and interrupt under most circumstances. If the Pocket Ethernet Adapter II is directly plugged into LPT1, for example, the packet driver uses LPT1 and IRQ7. You may override the self-configured choices by using the command line options in step 5. For more information on command line options type:

```
PE2PKTDR ?
```

6. Run the ETHDRV.EXE kernel program supplied with PC/TCP. This loads the PC/TCP kernel into memory. The packet driver must always load before the kernel.

7. Continue your server or workstation startup as instructed in the PC/TCP Installation Guide.

## NetWare ECONFIG Utility

If you run the packet driver with TCP/IP and NetWare concurrently, you must run the Novell ECONFIG utility to ensure that the packets for both protocols use the same format. Refer to the description of ECONFIG in Appendix B for additional information.

## FTP Software LANWatch

Installation of FTP's LANWatch Network Monitor Software (FTP part number LW-110, version 2.01 or above) is very similar to installation of PC/TCP except that you need not run the PC/TCP kernel, ETHDRV.EXE. You may have to reboot your PC after running LANWatch to deactivate promiscuous mode which is needed to watch all packets.

## NCSA Telnet

Xircom's Packet Driver works with NCSA Telnet, a public domain Telnet implementation from the National Center for Supercomputing Applications. Contact Xircom Customer Service for additional information..

## Tenset/TCP Installation/Startup

Xircom's Packet Driver, PE2PKTDR.COM, works with Tenset Technology's Tenset/TCP. To configure Tenset/TCP, follow the instructions in the Tenset/TCP User Guide.

1. Run the Tenset/TCP INSTALL Program as instructed in the Tenset/TCP User Guide. Select the destination drive and directory into which you want to install the Tenset/TCP programs.

2. If your copy of Tenset/TCP does not include the packet driver for the Xircom Pocket Ethernet Adapter II, select the Proprietary driver. Then, after INSTALL completes, copy the Xircom Packet Driver, PE2PKTDR.COM, to the directory in which you installed Tenset/TCP.

3. INSTALL causes the following line to be added to your CONFIG.SYS file:

   ```
   DEVICE=[path]\NETDEV.SYS
   ```

   INSTALL also adds SET RESOURCES and SET HOSTS lines to AUTOEXEC.BAT. Before rebooting, ensure that both your CONFIG.SYS and AUTOEXEC.BAT files are correct by typing TYPE AUTOEXEC.BAT and TYPE CONFIG.SYS at the DOS prompt. The SET RESOURCES and SET HOSTS lines should be there. Then, reboot to load NETDEV.SYS.

4. Run CUSTOM netdev according to your own needs. At the very least, select a unique Local Site IP Address.

5. Before you can run Tenset/TCP, you must execute the Xircom Packet Driver, PE2PKTDR, based on your system configuration, as follows:

```
PE2PKTDR SIN=xx LPT=y IRQ=z
```

where

**xx** is the software interrupt number, in the range hex 60 to 80. The default is 60.

**y** is the printer port, which can be 1, 2, or 3. It defaults to auto-configuration.

**z** is the printer port interrupt, which can be 5 or 7. It defaults to auto-configuration.

The Xircom Packet Driver is self-configuring and finds its own LPT port and interrupt under most circumstances. If the Pocket Ethernet Adapter II is directly plugged into LPT1, for example, the packet driver uses LPT1 and IRQ7. You may override the self-configured choices by using the command line options in step 5. For more information on command line options type:

```
PE2PKTDR ?
```

## SUN MICROSYSTEMS PC-NFS DRIVER

The Xircom Network Drivers diskette contains the following file in the \SUN subdirectory.

| | |
|---|---|
| **PE2-NFS.SYS** | PC-NFS device driver for use with the Pocket Ethernet Adapter II. |

### PC-NFS Installation/Startup

PC-NFS versions 3.5 or later will support the Xircom Pocket Ethernet Adapter II using either the Xircom direct driver (PE2-NFS.SYS) or the NDIS driver for PC-NFS. Verisons earlier than 3.5 utilize only the PE2-NFS.SYS driver. The following steps pertain to installation of the direct PE2-NFS.SYS driver. Instructions on use of the NDIS driver follow the direct driver section. Refer to the Sun PC-NFS installation guide for additional information.

1. Create a directory named \NFS on the disk on which you will be installing PC-NFS.
2. Copy PE2-NFS.SYS from the \SUN subdirectory on the Xircom Network Drivers diskette to the directory \NFS you just created.
3. Follow the instructions for installing PC-NFS in Sun Microsystem's PC-NFS documentation. You must supply your network administrator with your Ethernet address which you can obtain by running PE2TEST, as described in *Configuration and Diagnostics* section in this User's Guide.
4. At the PC-NFS Installation Program screen, select **Ethernet,** then select **Other** from the list of adapters.
5. A dialog box displays prompting you to enter a line in your CONFIG.SYS for the Xircom driver. For a automatic configuration type:

```
DEVICE=\NFS\PE2-NFS.SYS
```

If you wish to override the automatic configuration, type:

```
DEVICE=\NFS\PE2-NFS.SYS /In /Pm
```

where

*n* is the interrupt number and *m* is the LPT number.

6. Complete the installation, then continue with the configuration process of PC-NFS as described Sun Microsystem's Installation Guide. Ensure that your CONFIG.SYS contains the following:

```
DEVICE=C:\DOS\ANSI.SYS

BUFFERS=20

FILES=20

DEVICE=C:\NFS\NFS.SYS

DEVICE=C:\NFS\SOCKDRV.SYS

DEVICE=C:\NFS\PE2-NFS.SYS
```

and that your AUTOEXEC.BAT file contains the following:

```
PATH=C:\NFS

SET NFSDRIVE=C

TYPE=PRT*

NFSRUN
```

7. To start PC-NFS, boot your workstation disk. Login to the network. Refer to your PC-NFS User's Guide for information about the use of PC-NFS.

## SUN PC-NFS Installation Utilizing the NDIS Driver

To utilize the NDIS driver for Sun's PC-NFS versions 3.5 or later, copy the PE2_NDIS.DOS driver and PROTOCOL.INI file from the \NDIS subdirectory of the Xircom Network Drivers diskette to the C:\LANMAN subdirectory of the PC-NFS workstation.

Additional instructions for configuration and use of the NDIS drivers are documented in the PC-NFS Installation Guide.

## Ungermann-Bass LAN Manager

See Ungermann-Bass LAN Manager under the heading "NDIS Drivers."

## WOLLONGONG WIN/TCP FOR DOS

The Wollongong WIN/TCP for DOS driver is a Shared Novell NetWare IPX driver. This driver is also compatible with NetWare versions 2.x and 3.x. The Xircom Network Drivers diskette contains the following files in the \WIN_TCP subdirectory. Wollongong can be reached at (415) 962-7200.

| | |
|---|---|
| **IPXPE2W.COM** | self-configuring, pregenerated IPX interface driver for NetWare versions 2.x and 3.x. |
| **XIRCPE2W.LAN** | description file used by SHGEN or WSGEN to create WIN/TCP shell drivers. |
| **P2WSHELL.OBJ** | object file used by SHGEN or WSGEN to create shell drivers. |

**Note**

**In addition to the shared Novell driver, WIN/TCP 4.1 or greater can be run with either a packet driver or an NDIS driver. If you do not have a NetWare installation, you can contact Wollongong for information on how to install using their NDIS or packet interfaces. You may also contact Xircom Customer Service for assistance.**

## Wollongong WIN/TCP Installation/Startup

1. Install WIN/TCP for DOS following the procedures in the Wollongong TCP/IP for DOS Installation Guide.

   At the end of the installation procedure, reboot your machine. Before doing so, verify that your CONFIG.SYS has been properly modified to include the following statement:

   ```
   DEVICE=C:\WINTCP\WINTCP.SYS
   ```

2. Copy the file IPXPE2W.COM from the WIN_TCP subdirectory located on the Xircom Network Drivers diskette to the \WINTCP subdirectory just created. You may, as an alternative, copy the driver to a different subdirectory, for example, to your Novell subdirectory. IPXPE2W.COM is a self-configuring driver which automatically selects the LPT and interrupt values. Xircom's preconfigured driver IPPE2W.COM was generated and certified with the latest Novell SHGEN or WSGEN files available at the time. If Novell has updated its code since the date of Xircom's driver, you may want to run the SHGEN or WSGEN procedures described in Appendix B.

3. If you run Novell NetWare, copy the NETn.COM file that corresponds to your version of DOS from the \NOVELL subdirectory on the Xircom Network Drivers diskette or from your Novell diskette to the same subdirectory as that used above.

4. Configure WIN/TCP for DOS as described in Setting the Internet Address in the Wollongong WIN/TCP Installation Guide. (At the very least, you have to set the internet address for this node. There may be additional items required in this step.)

5. To start WIN/TCP, type the following commands from either the root directory or the WINTCP\ subdirectory to load the Wollongong and Xircom drivers:

```
IPXPE2W
```

   IPXPE2W.COM is a self-configuring IPX driver that searches for and uses an appropriate LPT and interrupt. If you wish to override the automatic selection, see Appendix B.

6. If, but only if, you run both NetWare and WIN/TCP for DOS concurrently, run NET3, NET4, or NET5 (depending on your version of DOS).

7. Type the following command from the \WINTCP subdirectory to load the shared NetWare/Wollongong driver. You must run this even if you are not planning to run Novell NetWare.

```
NETWARE
```

8. Type the following command from the \WINTCP subdirectory:

```
WINTCP
```

Step 2 of the WIN/TCP installation procedure describes setting up your AUTOEXEC.BAT file to automatically load WIN/TCP each time you reboot your system. Add the following lines to the AUTOEXEC.BAT file:

```
PATH=C:\WINTCP

IPXPE2W

NETx   (if running NetWare)

NETWARE

WINTCP
```

Refer to your WIN/TCP for DOS manual for complete instructions on running TCP/IP applications.

# APPENDIX A. ERROR MESSAGES

In addition to the network error messages described in your network operating system manuals, the Xircom network drivers report the following problems if they occur during the initialization of a network session.

**Pocket Ethernet Adapter II missing, not powered, or malfunctioned**

Make sure the AC adapter is connected properly to a functioning AC outlet and to the power input socket on the rear of the Pocket Ethernet Adapter II.

Ensure that the Pocket Ethernet Adapter II is securely connected to the parallel port (LPT1, LPT2 . . .) specified during software installation.

**Parallel port selected is unavailable, or driver already loaded**

You may have specified a nonexistent parallel port during software installation, or a Pocket Ethernet Adapter II device driver is already loaded. Rerun the installation procedure.

**Pocket Ethernet Adapter II Address EEPROM unreadable**

The Pocket Ethernet Adapter II had an internal failure. Run the self test program described in the section on *Configuration and Diagnostics* before requesting service.

**Pocket Ethernet Adapter II failed initialization**

The Pocket Ethernet Adapter II had an internal failure. Run the self test program described in the section on *Configuration and Diagnostics* before requesting service.

**Pocket Ethernet Adapter II failed memory test**

The Pocket Ethernet Adapter II had an internal failure. Run the self test program described in the section on *Configuration and Diagnostics* before requesting service.

# APPENDIX B. NOVELL INSTALLATION/ECONFIG UTILITY

This appendix contains instructions for generating your own Novell NetWare shell, for versions 2.x and 3.x of NetWare and for running Novell's ECONFIG utility program.

## LONG FORMAT NETWARE WORKSTATION CONFIGURATION

The preconfigured drivers for NetWare 2.x and 3.x, as described in Software Setup and Operation, allow users the capability of avoiding the following SHGEN or WSGEN procedures in most cases.

Xircom's preconfigured driver IPXPE2.COM (or IPXPE2W.COM for Wollongong's WIN/TCP) was generated with the latest Novell code available at the time. If Novell has updated its code since the date of the driver, you may run the SHGEN or WSGEN procedures described below with a newer version of NetWare.

1. Using the DOS LABEL command, label a blank formatted diskette as follows:

   | | |
   |---|---|
   | Type: | `LABEL` |
   | The system prompts: | `Enter a Volume Label (up to 11 characters)` |
   | Type: | `LAN_DRV_002` |

   Alternatively, if you are using the hard drive or network drive installation method, make a subdirectory at the same level as your SHGEN-1 or WSGEN directory called LAN_DRV_.002 if does not already exist.

2. Copy the PE2SHELL.OBJ and XIRCPE2.LAN files from the \NOVELL subdirectory (or, if you are installing Wollongong's WIN/TCP, P2WSHELL.OBJ and XIRCPE2W.LAN from the WIN_TCP subdirectory) onto your LAN_DRV_002 diskette or LAN_DRV_.002 subdirectory. If you are using diskettes instead of a hard drive or network drive, make sure you are using working copies of the NetWare diskettes.

3. Run SHGEN or WSGEN using the instructions in your NetWare Installation manuals. Choose the Xircom Pocket Ethernet II option from the list of LAN drivers. Some Personal Computers have multiple parallel ports (LPT1, LPT2 etc.). If you have more than one port, Xircom recommends that you select the highest numbered port to be the network port, leaving the lower ports free for printing. Also, choose interrupt 5 or interrupt 7. The usual industry standard is that LPT1 and LPT3 use interrupt 7 while LPT2 uses interrupt 5.

4. Confirm that IPX.COM has been generated by typing DIR IPX.COM. Run IPX and NET3, NET4, or NET5 (or their EMS or XMS counterparts) depending on your version of DOS. NET3, NET4, and NET5 correspond to DOS 3.x, DOS 4.x, and DOS 5.x, respectively. The EMS and XMS prefixes indicate that the drivers load into and run from expanded memory or extended memory. Refer to your NetWare Installation manuals for additional information.

   IPXPE2W.COM (or IPXPE2W.COM for WIN/TCP) is a self-configuring IPX driver that searches for and uses an appropriate LPT and interrupt. If you wish to override thew automatic selection, type the following instruction:

   ```
   IPXPE2 Ox
   ```

   where

   O is the letter *O* and *x* is a number from 1 through 6. For example:

   O1 selects LPT1 and IRQ 7
   O2 selects LPT2 and IRQ 5
   O3 selects LPT3 and IRQ 7
   O4 selects LPT1 and IRQ 5
   O5 selects LPT2 and IRQ 7
   O6 selects LPT3 and IRQ 5

5. Run NET*n* , where *n* is 3, 4, or 5 depending on your version of DOS.

6. Change to network drive (usually F:\LOGIN>)

7. Log in to the network.

## ECONFIG: ETHERNET VERSUS IEEE 802.3

If your NetWare configuration shares the same Ethernet cabling with other network operating systems (such as DECnet or TCP/IP running on a DEC VAX), you may need to run the Novell ECONFIG utility.

There are two standard packet formats used on Ethernet networks: Ethernet II or IEEE 802.3 standard packet formats. Consequently, there are two types of headers that can preface network data packets. The 12th and 13th bytes of an Ethernet II header contain the packet type in these two bytes while an 802.3 header contains the packet length. To communicate with each other, both network computers must use the same header format.

The Novell ECONFIG utility is used to specify whether the driver uses the IEEE 802.3 or the Ethernet II standard packet format. ECONFIG is on Novell's DIAGNOSTICS disk in v2.15 of NetWare and on the WSGEN diskette in NetWare version 3.x.The preconfigured IPXPE2.COM and IPXPE2W.COM drivers confirm to the IEEE 802.3 standard packet format, but may be converted to Ethernet II as follows:

```
ECONFIG IPXPE2.COM SHELL:E
```

To reinstate the standard packet format, type:

```
ECONFIG IPXPE2.COM SHELL:N
```

See the NetWare Utilities Reference Manual for additional information.

# INDEX

## N



## O



## P



## R

## S



## T



## U



## V



## W



## X