Chapter 4
Installing the EISA PC Adapter NetWare Driver

This chapter explains how to install the workgroup CDDI/FDDI EISA PC apapter NetWare driver in your PC. The installation instructions are separated into these sections:

- Installing the Driver on a NetWare 4.x Server
- Installing the Driver on a NetWare 3.12 Server
- Installing the Driver on a NetWare 3.11 Server
- Editing the autoexec.ncf to Load a Driver with Different Frame Formats
- Binding Protocol to Frame Format Examples
- Installing Client Drivers

Your workgroup CDDI/FDDI EISA PC Driver disk contains all the files you need to install the client and server drivers. The following NetWare loadable modules (NLMs) required by NetWare server Versions 4.x and 3.1x are located in the \novell\server \4.x or \novell\server \3.1x directories on the EISA PC Driver diskette and are shipped under license from Novell.

PATCHMAN.NLM
LSLENH.NLM
MSM31X.NLM
FDDITSM.NLM
MONITOR.NLM
ETHERTSM.NLM

Always use the latest version of these files. Novell is constantly updating these files, so the version shipped with your version of Novell NetWare may be more recent than the version included on the workgroup CDDI/FDDI EISA Driver disk. Before overwriting any files, compare the revision date to confirm that you are copying the most recent version to your server.

For the latest information the NetWare drivers, refer to the readme.txt file on the CDDI/FDDI EISA PC Adapter Driver disk.

The NetWare driver supports the following frame formats:

- FDDI 802.2 used with IPX and OSI protocols
- FDDI_SNAP used with IPX, TCP/IP, and AppleTalk protocols

Requirements

Before installing the NetWare driver, you must do the following:

- Have a basic knowledge of your PC operating system (DOS or NetWare).
- Know how to use a text editor on your PC.
- Install the EISA PC adapter hardware in your PC.
- Configure the adapter hardware using the EISA Configuration utility.
- Know the slot numbers in which the EISA PC adapters are installed.

The EISA PC adapter driver installation instructions vary depending on the version of NetWare software installed on your server. Proceed to the section describing the driver installation for the NetWare revision installed on your server:

- Installing the Driver on a NetWare 4.x Server
- Installing the Driver on a NetWare 3.12 Server
- Installing the Driver on a NetWare 3.11 Server

Installing the Driver on a NetWare 4.x Server

The NetWare 4.x instructions are separated into two parts:

- Driver Installation Instructions for Initial Installation of a NetWare 4.x Server—Use for an INITIAL NetWare 4.x server installation.
- Driver Installation Instructions for an Existing NetWare 4.x Server—Use to add a driver to an installed and configured NetWare 4.x server.

Go to the section describing your NetWare server installation.

Driver Installation Instructions for Initial Installation of a NetWare 4.x Server

Follow these steps to modify the NetWare 4.1x installation script to configure and install the EISA PC adapter driver.

Step 1 Run the NetWare 4.x installation script.

The following prompt appears.

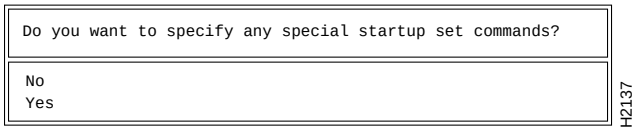


Figure 4-1 Special Startup Set Commands Prompt Screen

Step 2 Select **Yes**.

The Special Required Startup Set Commands window appears. (See Figure 4-2.)

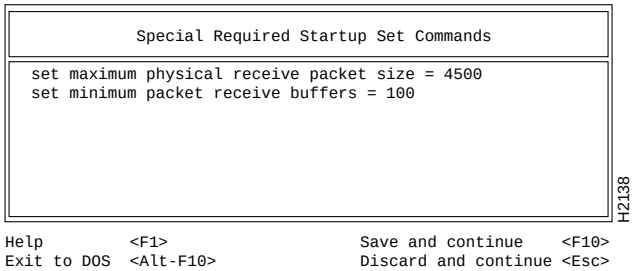


Figure 4-2 Startup Set Commands Entry Screen

Step 3 Enter the following lines in the window:

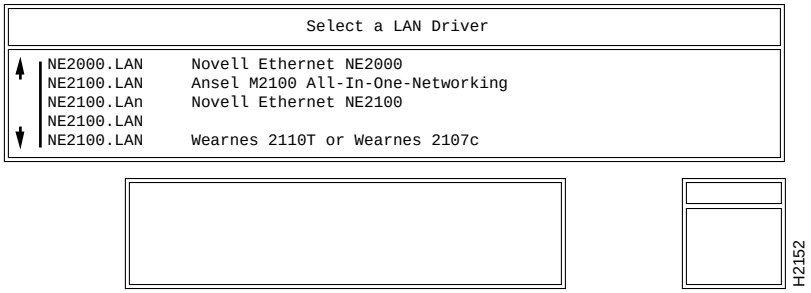
set maximum physical receive packet size = 4500
set minimum packet receive buffers = 100

Caution You must enter these parameters exactly, or the server will use the default values and ABEND (abnormal end). Your packet size and receive buffer values may be higher than these minimum values.

These additional lines allow the server to take advantage of the FDDI larger packet size and increases the number of receive buffers thus improving performance.

Step 4 Press the **F10** key to save and continue.

Step 5 Continue with the NetWare installation script until the Load LAN Driver window appears. (See Figure 4-3.)



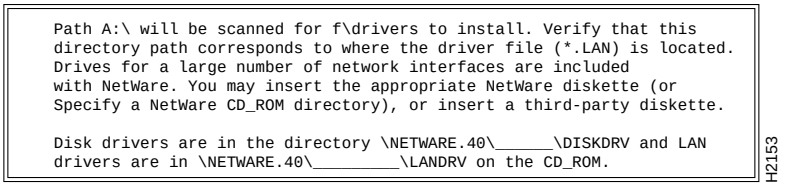

```
Load a LAN driver listed                    <Enter>
Load a LAN driver not listed                <Ins>
Unload a LAN driver                         <Del>
Scroll help window                          <F5> (up) <F6> (dn) Change List <F2>
Help <F1>              Previous Screen  <ESc>          Abort Install <Alt><F10>
```

Figure 4-3 Load LAN Driver Entry Screen

Step 6 Press **Ins** to Load a LAN driver not listed.

Step 7 Insert the workgroup CDDI/FDDI EISA PC Driver disk into the floppy disk drive.

A screen describing the default path to the drivers appears. (See Figure 4-4.)




```
Press <F3> to specify a different path;
Press <Enter> to Continue.
```

Figure 4-4 Default Driver Path Screen

Step 8 Press **F3** to specify a different path.

A dialog box appears. (See Figure 4-5.)

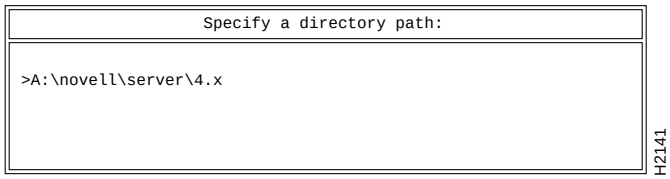


Figure 4-5 Driver Selection Path Screen

Step 9 At the prompt, enter the full path to the NetWare 4.x drivers:

[drive letter]:**novell\server\4.x.**

Step 10 The EISA adapter driver appears in the driver installation selection list. (See Figure 4-6.)

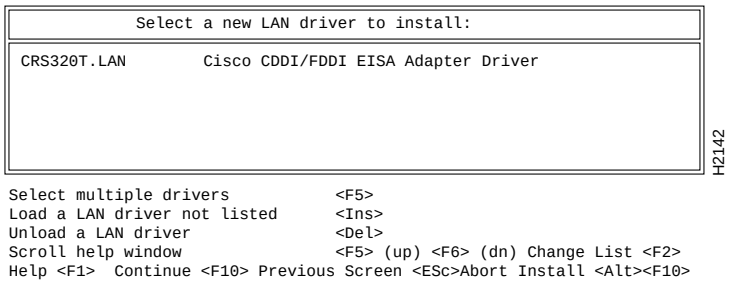


Figure 4-6 Driver Selection Screen

Step 11 Press **Enter** to select the Cisco CDDI/FDDI EISA Adapter Driver.

A driver installation confirmation screen appears. (See Figure 4-7.)

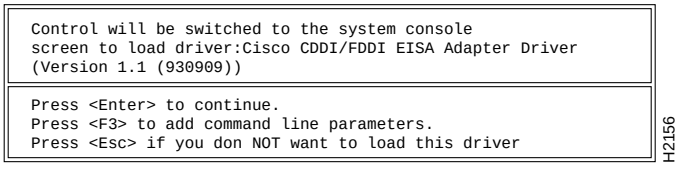


Figure 4-7 Installation Confirmation Screen

Step 12 Press **Enter** to continue.

Step 13 Continue with the installation through completion by answering the prompts.

Step 14 Proceed to the section “Editing the autoexec.ncf to Load a Driver with Different Frame Formats.”

Driver Installation Instructions for an Existing NetWare 4.x Server

To install the EISA adapter driver on an existing NetWare 4.x server, perform the following steps:

Step 1 Run the NetWare 4.x upgrade installation script using the **load install** command.

The Select an Installation Method screen appears. (See Figure 4-8.)

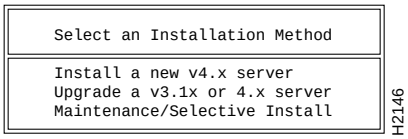


Figure 4-8 Select an Installation Method Screen

Step 2 Select **Maintenance/Selective Install** and press **Enter**.

The Installation Options screen appears. (See Figure 4-9.)

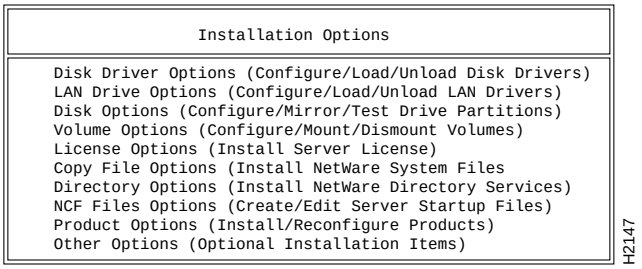


Figure 4-9 Installation Options Screen

Step 3 Select **NCF File Options** and press **Enter**.

The Available NCF File Options screen appears. (See Figure 4-10.)

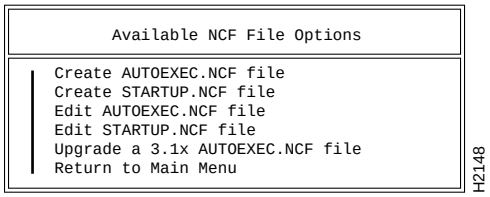


Figure 4-10Available NCF File Options Screen

Step 4 Select **Edit STARTUP.NCF** file and press **Enter**.

The Boot Path Dialog screen appears. (See Figure 4-11.)

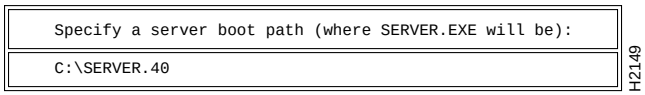


Figure 4-11Server Boot Path Dialog Screen

Step 5 Enter the path for the SERVER.EXE file and press **Enter** (For example: C:\SERVER.40).

The STARTUP.NCF file window appears. (See Figure 4-12.)

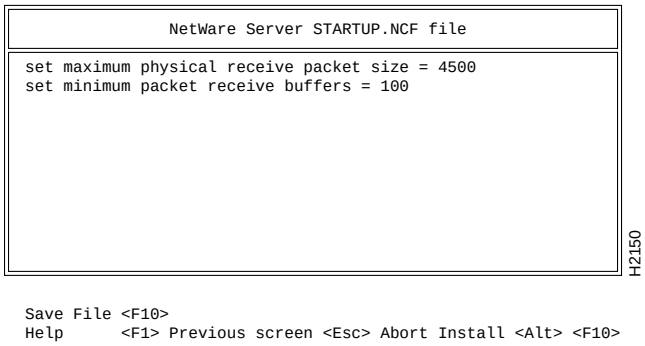


Figure 4-12NetWare Server STARTUP.NCF File Editing Screen

Step 6 Enter the following lines on the STARTUP.NCF file window.

set maximum physical receive packet size = 4500
set minimum packet receive buffers = 100

Caution You must enter these parameters exactly, or the server will use the default values and ABEND (abnormal end). Your packet size and receive buffer values may be higher than these minimum values.

These additional lines allow the server to take advantage of FDDI larger packet size and increases the number of receive buffers, thus improving performance.

Step 7 Press **F10** to save the file.

Step 8 Press **Esc** to return to the Installation Options screen. (See Figure 4-13.)

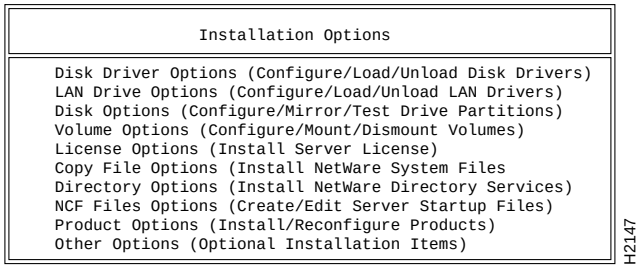


Figure 4-13Installation Options Screen

Step 9 Select **LAN Driver Options** and press **Enter**.

The Select a LAN Driver screen appears. (See Figure 4-14.)

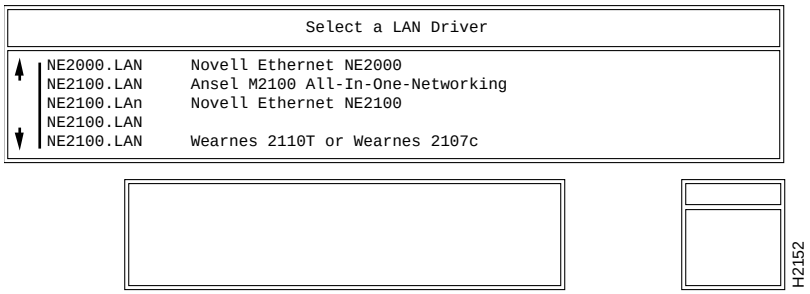


Figure 4-14Select a LAN Driver Screen

Step 10 Press **Ins** to load a LAN driver that is not listed.

Step 11 Insert the workgroup CDDI/FDDI EISA PC Driver disk into the floppy disk drive.

A screen describing the default path to the drivers appears. (See Figure 4-15.)

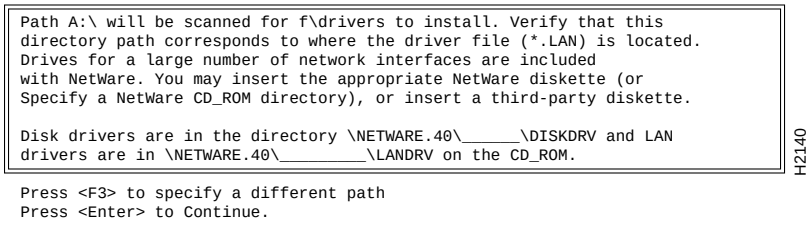


Figure 4-15Default Driver Path Screen

Step 12 Press **F3** to specify a different path and a dialog screen appears. (See Figure 4-16.)

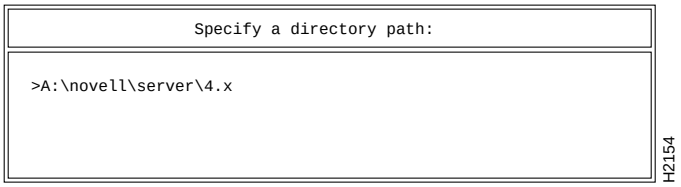


Figure 4-16Driver Selection Path Dialog Screen

Step 13 Enter the full path to the EISA drivers and press **Enter**:

[drive letter]:\novell\server\4.x

The Cisco CDDI/FDDI EISA adapter driver appears in the driver installation selection list. (See Figure 4-17.)

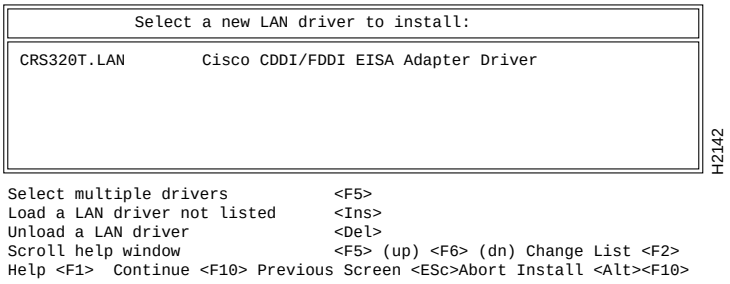


Figure 4-17Driver Selection Screen

Step 14 Select **Cisco CDDI/FDDI EISA Adapter Driver**.

Step 15 Press **Enter** to load.

Step 16 A driver installation confirmation screen appears. (See Figure 4-18.)

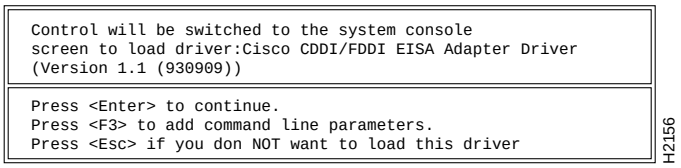


Figure 4-18Installation Confirmation Screen

Step 17 Press **Enter** to continue.

Step 18 Proceed to the section "Editing the autoexec.ncf to Load a Driver with Different Frame Formats."

Installing the Driver on a NetWare 3.12 Server

To install the CDDI/FDDI EISA adapter driver on an installed and configured NetWare 3.12 server, perform the following steps:

Step 1 From the DOS prompt, copy the following files from the EISA PC Driver diskette to the DOS partition of the NetWare server:

CRS320T.LAN
MSM31X.NLM
FDDITSM.NLM

Typically the DOS partition of the of the NetWare server is *C:\NETWARE*. Yours may be different.

Step 2 Add the following lines to the startup.ncf file. (See the example of a startup.ncf file in the \novell\server\3.1x\samples directory of the EISA PC adapter driver disk.)

set maximum physical receive packet size = 4500
set minimum packet receive buffers = 100

Caution You must enter these parameters exactly, or the server will use the default values and ABEND (abnormal end). Your packet size and receive buffer values may be higher than these minimum values.

These additional lines allow the server to take advantage of the FDDI larger packet size and increases the number of receive buffers, thus improving performance.

Step 3 Add the following load commands to the autoexec.ncf file:

load c:\netware\msm31x
load c:\netware\fdditsm

Step 4 Proceed to the section "Editing the autoexec.ncf to Load a Driver with Different Frame Formats."

Installing the Driver on a NetWare 3.11 Server

To install the CDDI/FDDI EISA adapter driver on an installed and configured NetWare 3.11 server, perform the following steps:

Step 1 From the DOS prompt, copy the following files from the EISA PC Driver diskette to the DOS partition of the NetWare server:

CRS320T.LAN
PATCHMAN.NLM
LSLENH.NLM
MSM31X.NLM
FDDITSM.NLM
ETHERTSM.NLM
MONITOR.NLM

Always use the latest version of these files. Novell is constantly updating these files, so the version shipped with your version of Novell NetWare may be more recent than the version included on the workgroup CDDI/FDDI EISA Driver disk. Before overwriting any files, compare the revision date to confirm that you are copying the most recent version to your server.

Typically the DOS partition of the of the NetWare server is *C:\NETWARE*. Yours may be different.

Step 2 Add the following lines to the startup.ncf file. (See the example of a startup.ncf file in the *\novell\server\3.1x\samples* directory of the EISA PC adapter driver disk.)

set maximum physical receive packet size = 4202
set minimum packet receive buffers = 100

Caution You must enter these parameters exactly, or the server will use the default values and ABEND (abnormal end). Your packet size and receive buffer values may be higher than these minimum values.

These additional lines allow the server to take advantage of the FDDI larger packet size and increases the number of receive buffers, thus improving performance.

Step 3 Add the following load commands to the *autoexec.ncf* file:

load c:\netware\patchman
load c:\netware\lslenh
load c:\netware\msm31x
load c:\netware\fdditsm

Step 4 Proceed to the section “Editing the autoexec.ncf to Load a Driver with Different Frame Formats.”

Editing the autoexec.ncf to Load a Driver with Different Frame Formats

The autoexec.ncf file must be modified to load the following:

- **adapter driver—**Adapter driver is the same for all CDDI/FDDI EISA adapter: *CRS320T.*
- **slot number**—Adapter card physical slot.
- **logical adapter name variable**—Used with bind command.
- **load frame format—**Two different frame formats may be used, each with different network protocols supported:
  - FDDI_802.2 frame format used with IPX and OSI protocols
  - FDDI_SNAP frame format used with IPX, TCP/IP, AppleTalk protocols

The load command format follows:

load crs320T slot=[physical slot number] name=[variable] frame=[frame format]

See examples of load and bind commands for four different protocol types in the section “Binding Protocol to Frame Format Examples.”

Binding Protocol to Frame Format Examples

The **bind** command is used to logically associate the driver to the protocol stack. In each protocol bind that follows, the adapter is assumed to be in slot 5:

- IPX Bind Example

  load crs320T slot=5 name=cisco frame=FDDI_802.2
  bind ipx to cisco net=12

- OSI Bind Example

  load osill
  load isis
  load crs320T slot=5 name=cisco frame=FDDI_802.2
  bind CLNP to cisco

- TCP/IP Bind Example

  load tcpip
  load crs320T slot=5 name=cisco frame=FDDI_SNAP
  bind IP to cisco addr=[IP address of this server interface]

- AppleTalk Bind Example

  load appletlk net=3 zone={"admin"}
  load crs320T slot=5 name=cisco frame=FDDI_SNAP
  bind appletlk to cisco net=12-12

Note Multiple frame formats may be bound to the same adapter, and multiple adapters may be configured in the same PC.

Reboot Server Steps

Before the changes made to the files can take effect you must restart the server using the NetWare **down** and **exit** commands, as follows:

Step 1 Remove the EISA PC Driver Disk from the floppy drive.

Step 2 Enter **down** and **exit** to restart the server.

Step 3 Verify the installation by logging into the server from a client station.

Installing Client Drivers

Each client PC attached to the NetWare network server using the workgroup CDDI/FDDI EISA PC adapter must have the client drivers installed.

Installing the client drivers involves the following tasks:

- Installing Files
- Editing Client autoexec.bat to Load the Drivers
- Editing Client net.cfg to Link a Driver to a Frame Format
- Reboot Server Steps

Installing Files

To install the client driver files on your EISA PC, use the DOS **copy** command to copy the following files to the server root directory from the \novell\client directory of the workgroup CDDI/FDDI EISA Driver disk.

CRS320T.COM
LSL.COM
IPXODI.COM
NETX.EXE

(For example: *COPY A:\NOVELL\CLIENT\CRS320T.COM C:\)*

Editing Client autoexec.bat to Load the Drivers

Modify the autoexec.bat to include the following lines to execute the Novell drivers and the CDDI/FDDI EISA adapter drivers when the client reboots:

C:\LSL.COM
C:\CRS320T.COM
C:\IPXODI.COM
C:\NETX.EXE

Note The previous lines assume the files are copied into the root directory.

Make sure there are no shared-memory conflicts with other boards or programs, such as TSR (terminate-stay-resident) programs.

When loading EMM386.EXE in the config.sys, add x=c800-c9ff if the EISA PC adapter was assigned address c800 by the EISA configuration utility.

The client driver can be loaded high by using the DOS **loadhigh** command. This allocates more space for application programs. You will need to use a memory manager, such as EMM386.EXE or QEMM.EXE, to use the upper memory.

Note Remember to exclude the adapter shared memory area (x=c800-c9ff) in these programs.

Editing Client net.cfg to Link a Driver to a Frame Format

Modify the net.cfg file to link Novell drivers and EISA NetWare driver and the proper frame format for the network protocol type supported.

The net.cfg file must be modified as follows:

- **link**—The CDDI/FDDI EISA adapter driver
- **load frame format**—Two different frame formats can be used, each with different network protocols supported:
  - FDDI_802.2 frame format used with IPX, OSI, and IP protocols
  - FDDI_SNAP frame format used with TCP/IP, AppleTalk, and IPX protocols

    Edit the net.cfg file to match the network protocol being supported.

FDDI_802.2 Used with IPX and OSI

If you are using the FDDI_802.2 frame format, add the following lines to the net.cfg:

```
link driver crs320T
  frame FDDI_802.2
```

The space before the word *frame* in the second line of the previous example is required to properly format the command. The client driver default frame format is FDDI_802.2. A net.cfg file is not needed if the frame format is FDDI_802.2.

FDDI SNAP Used with TCP/IP and AppleTalk

If you are using the FDDI_SNAP frame format, add the following lines to the net.cfg:

```
link driver crs320T
  frame FDDI_SNAP
```

The space before the word *frame* in the second line of the previous example is required to properly format the command.

Rebooting Client

Before the changes made to the autoexec.bat and net.cfg files can take effect, you must reboot the client workstation as follows:

Step 1 Remove the EISA PC Driver disk from the floppy drive.

Step 2 Reboot the PC to load the drivers.

Step 3 Verify the installation by logging into a server.