

*Instant EtherFast® Series*

# Fast Ethernet Switched 10/100 Network In a Box



*Use this guide to install :*

*Model No.: FESWSK05 v3*

**User Guide**

**LINKSYS®**

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#### FCC STATEMENT

The Fast Ethernet Switched 10/100 Network In a Box has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These rules 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 according to 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 is found 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 or device
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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# Introduction

## The Linksys Fast Ethernet Switched 10/100 Network In a Box

The Linksys Fast Ethernet Switched 10/100 Network In a Box comes with everything you need to get a network up and running in minutes. Plug in the cards, attach the provided network cables, install the software drivers, and go!

Built to run with the fastest video, publishing, graphics, and database applications, the **EtherFast® 10/100 LAN Card** is a high performance LAN Card for desktop computers with 32-bit **PCI** expansion slots. Boasting a maximum data throughput of 200 megabits per second in full duplex mode (100Mbps in half duplex), the 10/100 LAN Card is ready to run with both 10BaseT and 100BaseTX networks. The card's 10/100 combo port automatically detects your network's maximum speed and adjusts itself accordingly.

The EtherFast® 10/100 LAN Card from Linksys also features **Wake-On-LAN** event management. If your PCI motherboard has built-in WOL support through PME, you'll be able to utilize this unique management feature. You can remotely turn on any computer with a WOL network card to perform after-hours tasks or to access files. If you don't have WOL support on your motherboard or you have no need for it, don't worry—your EtherFast® 10/100 Network Adapter will operate perfectly without it.

The Fast Ethernet Switched 10/100 Network In a Box also includes an **EtherFast® 10/100 5-Port Workgroup Switch**. The switch features five 10BaseT/ 100BaseTX RJ-45 ports that allow you to network up to five computers. Each port automatically detects and negotiates 10Mbps and 100Mbps connections. As your network grows, you can uplink the switch to other EtherFast® hubs, switches, routers or whatever Broadband peripherals your network requires.

## Package Contents

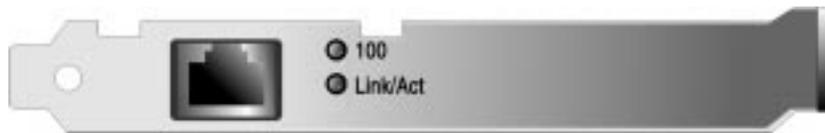


- Two EtherFast® 10/100 LAN Cards
- One EtherFast® 10/100 5-Port Workgroup Switch (version 2)
- Two Category 5 Network Cables
- One 3.5" Driver Disk
- One AC Adapter
- One User Guide
- Quick Installation Guides for all Windows Operating Systems

# Getting to Know the Fast Ethernet Switched 10/100 Network In a Box

## The EtherFast® 10/100 LAN Card

You will install one EtherFast® 10/100 LAN Card into each computer you wish to network.



### The LAN Card's LEDs

**Link/Act** The Link LED will illuminate when the LAN Card has been successfully connected to a network and flicker when data is being transmitted or received over the network.

**100** The 100 LED will illuminate when the LAN Card is operating at 100Mbps. If the 100 LED is not illuminated and the PC is powered on, the LAN Card is operating at 10Mbps.

### The LAN Card's RJ-45 Port

The RJ-45 Port is where you will connect your network cabling.

## The EtherFast® 10/100 5-Port Workgroup Switch

Your network revolves around your switch. You cannot connect your computers directly to one another. You *must* connect them through your switch. The Switch's LEDs

**PWR** The Power LED will illuminate when the the switch is receiving power.



**100 (per port)** The 100 LED will illuminate if the port is operating at 100Mbps. The LED will be off if the port is running at 10Mbps.

**LINK/ACT (per port)** The LINK/ACT LED will illuminate if the port has an active network connection. The LED will flicker if the port is receiving or sending data.

**FULL/COL (per port)** The FULL/COL LED will illuminate if the port is connected at 100Mbps. The LED will flicker if there are collisions on that port



### The Switch's Ports

**1-5** Ports 1-5 are where you will connect your PCs to the switch. It is through these ports that network information is exchanged.

**Uplink** You can expand your network by connecting your switch to another switch, hub, router or Broadband modem through the Uplink port. If the Uplink port is being used, the #5 port adjacent to it will become inactive, reducing the switch's operable ports from five to four.

# Installing the Fast Ethernet Switched 10/100 Network In a Box Onto Your Network

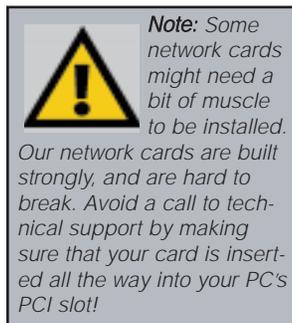
## Overview

Each EtherFast® 10/100 LAN Card is equipped with an RJ-45 port that automatically adjusts to either 10Mbps or 100Mbps speeds, allowing your PC to attach to either Fast Ethernet (also known as 100BaseTX) or regular 10BaseT Ethernet network segments without additional hardware or software.

The LAN Card should **only** be used with twisted-pair cabling. 10BaseT and 100BaseTX cabling is available in a number of different grades. For best results, we recommend using 8-wire, category 5 unshielded twisted-pair for both 10BaseT and 100BaseTX network segments, although category 3 can be used for 10BaseT segments. The cable that runs from your PC's EtherFast® LAN Card to your network should not exceed **100 meters** (328 feet). Both Category 3 and 5 twisted-pair cabling can be purchased at most computer stores.

## Installing the LAN Card

1. **Power off your PC** and any peripheral equipment attached to it. Unplug your PC's power cord.
2. **Remove your computer's outside cover.**
3. **Open your computer** and locate the PCI slot(s) on your motherboard. PCI slots are easily identified by their beige or white color, and by the fact that LAN Cards fit snugly into them. Remove the metal slot cover on the back of the PC, then insert the EtherFast® 10/100 LAN Card into a PCI card slot.
4. **Once your EtherFast® 10/100 LAN Card is firmly in place**, secure its fastening tab to your PC's chassis with a mounting screw.



5. **Replace your PC's cover.**
6. **Reconnect your PC's power**, then power on your computer. Your computer will automatically recognize the LAN Card and assign it a unique IRQ ("interrupt") and I/O address.

**The LAN Card installation is complete. Next, you must configure your PC's operating system to work with the EtherFast® LAN Card. Once you complete the driver installation, return to the section called *Installing the Workgroup Switch*.**

- For **Windows 95** installation instructions, turn to page 8.
- For **Windows 98** installation instructions, turn to page 12.
- For **Windows Millennium** installation instructions, turn to page 15.
- For **Windows NT** installation instructions, turn to page 18.
- For **Windows 2000** installation instructions, turn to page 26.
- For **Novell Server** installation instructions, turn to page 34.

**If you are using an operating system other than Windows 95, Windows 98, Windows Millennium, Windows NT or Windows 2000, you will find the network driver installation instructions on the Driver Disk's readme .exe file.**

## Installing the Workgroup Switch

### Connecting Computers To Your Switch

Your Switch's rear panel has five standard RJ-45 ports, plus an Uplink port. Each 10/100 port automatically detects the speed and duplex of the attached cabling to a network card, switch, hub, etc. The ports operate in either full or half duplex, which lets you run at speeds of 200Mbps, 100Mbps, 20Mbps or 10Mbps. **Note: If you use Port #5, the Uplink port will be disabled.**

Each 10/100 port on your Switch can connect to workstations, file servers, hubs, repeaters, bridges, routers or other switches. Connections to the Switch require **UTP Category 5 network cabling** with RJ-45 tips, not to exceed 100 meters (328 feet) in length.

To connect a computer directly to the Switch, plug one end of a standard network cable into an open port on the back of the Switch (not the Uplink port), then plug the other end of the cable into the computer's LAN Card.

### Uplinking to Other Switches and Hubs

Your Switch can be uplinked to other switches, hubs, and similar network devices. Attach a Category 5 cable to the Uplink port of the Switch, and plug the other end of the cable into one of the open ports on the network device you are uplinking to. **Note: If you use the Uplink port, Port #5 will be disabled.**

## Connecting Your Hardware Together and Booting Up

Plug in the Switch's AC power adapter. The Power LED will light up. As devices make connections to the Switch's ports, each port's corresponding Link/Act LED will light up. The remaining LEDs will also light up according to how your connection is made, e.g. full or half duplex, 10Mbps or 100Mbps.

If the Switch experiences excessive data collisions, verify that your network cabling is securely crimped and installed properly.

# Installing the Drivers for Windows

## 95

### Overview

After installing the EtherFast® hardware in your computer, follow these instructions for installing the network driver. The installation procedure for the network driver will vary slightly depending on the version of Windows 95 you are using and your current system configuration.

There are different versions of Windows 95:

- **Version A**
- **Version B (also known as OSR2)**

The installation procedure for the network driver will vary slightly depending on which version of Windows 95 you are using. To begin the driver installation, and to determine which version of Windows 95 you are using:

1. If you already haven't, **start up your PC.**
2. **Windows 95 will automatically detect** the EtherFast® 10/100 LAN Card in your computer. If an *Update Device Driver Wizard* window (as shown on next page) appears, you are using Windows 95 version B. If not, you are using version A. Skip to the section called *Installing the Driver in Windows95 Version A.*

*Note: During the installation, Windows 95 may ask you for a **computer or workgroup name**. If so, skip ahead to **Configuring the LAN Card**. Once you have established your computer and workgroup names, go back to where you left off and continue with the installation.*

*Note: Do not click **Cancel** or **Skip** at any time during the installation. Doing so will prevent the driver from being properly installed on your PC.*

## Installing the Driver in Windows 95 Version B

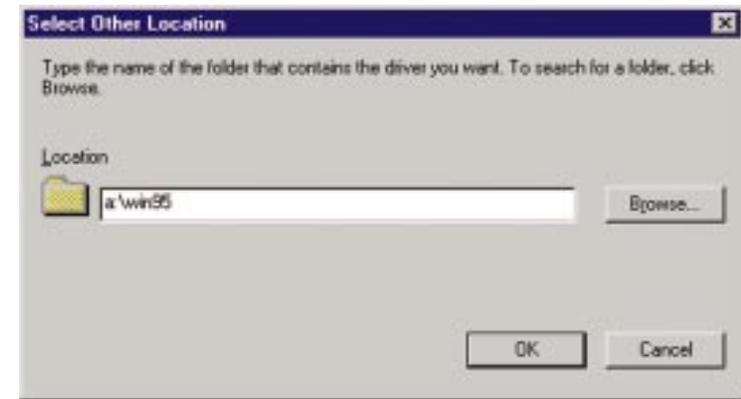
1. While the *Update Device Driver Wizard* window is visible, insert the **EtherFast® 10/100 LAN Card Driver Disk** into your floppy drive and click the **Next** button.



2. Windows 95 will fail to find the driver. Click the **Other Locations** button to browse for the driver.



3. If you clicked the **Other Locations** button, this window will appear. Enter **a:\win95**. Windows will begin copying the LAN Card's driver files to your PC.

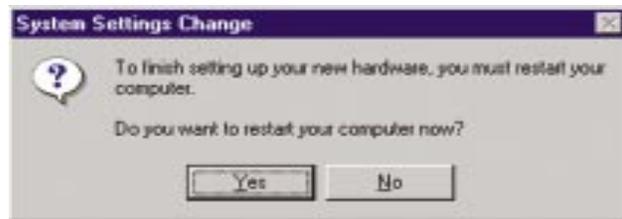


4. Once Windows has located the drivers, the following window will appear. To use this driver, click the **Finish** button.



At this point, the installation may require files from your Windows 95 CD-ROM. If prompted, insert your Windows 95 CD-ROM into your CD-ROM drive and enter **d:\win95** in the box that appears (where “d” is the letter of your CD-ROM drive). If you were not supplied with a Windows 95 CD-ROM, your Windows files may have been placed on your hard drive by your computer manufacturer. While the location of these files may vary, many manufacturers use **c:\windows\options\cabs** as the path. Try entering this path into the box. If no files are found, check your computer’s documentation or contact your computer manufacturer for more information.

- When asked if you want to restart your PC, remove all disks from your computer’s drives and click the **Yes** button. If Windows does not ask you to restart your PC, click the **Start** button, choose **Shut Down**, choose **Restart**, then click **Yes**.



The Windows 95 Version B driver installation is complete. Refer to the section on *Configuring the LAN Card for Windows 95, 98, and Millennium* for more information about the setup of the LAN Card.



**Note:** From this point on, you must provide Windows with a User name and Password every time you are prompted to do so. Remember to click **OK** to properly log into Windows. If you click **Cancel** or hit the **Escape (ESC)** key, you will not log into the network.

## Installing the Drivers for Windows 98

### Overview

After physically installing the LAN Card in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will vary slightly depending on which version of Windows 98 you are using, and on your current system configuration. If at any time during the installation you encounter problems, consult the Troubleshooting section.

### Installing the LAN Card’s Driver

- If you haven’t already, **start up your computer**.
- Windows 98 will automatically detect** the presence of the PCI Ethernet Controller hardware in your computer.
- Insert the **EtherFast® 10/100 LAN Card Driver Disk** into your floppy drive while the *Add New Hardware Wizard* window is visible. Click **Next**.



4. Select **Search for the best driver for your device (Recommended)**. Click **Next**.



5. Select **Specify a location** and enter **a:\win98** in the drop down box. Click **Next** to continue.



**Note:** Windows 98 may ask you for a **computer or workgroup name**. If so, skip ahead to the section **Configuring the LAN Card**. Once you have established your computer and workgroup names, return to where you left off and continue with the installation.

6. A window will open saying that Windows is now ready to install the *EtherFast 10/100 LAN Card* driver. Click **Next**.



7. Windows will begin copying the LAN Card's driver files to your PC. At this point, the installation may require files from your Windows 98 CD-ROM. If prompted, insert your Windows 98 CD-ROM into your CD-ROM drive and enter **d:\win98** in the box that appears (where "d" is the letter of your CD-ROM drive). If you were not supplied with a Windows 98 CD-ROM, your Windows files may have been placed on your hard drive by your computer manufacturer. While the location of these files may vary, many manufacturers use **c:\windows\options\cabs** as the path. Try entering this path into the box. If no files are found, check your computer's documentation or contact your computer manufacturer for more information.
8. When asked if you want to restart your PC, remove all disks and click **Yes**. If Windows does not ask you to restart your PC, click the **Start** button, choose **Shut Down**, choose **Restart**, then click **Yes**.

**The Windows 98 driver installation is complete. Refer to the section on *Configuring the LAN Card for Windows 95, 98, and Millennium* for more information about the setup of the LAN Card.**



**Note:** From this point on, you must provide Windows with a **User name** and **Password** every time you are prompted to do so. Remember to click **OK** to properly log into Windows. If you click **Cancel** or hit the **Escape (ESC)** key, you will not log into the network.

# Installing the Drivers for Windows Millennium

## Overview

After physically installing the LAN Card in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will depend on your current system configuration. If at any time during the installation you encounter problems, consult the Troubleshooting section.

## Installing the LAN Card's Drivers

1. If you haven't already, **start up your computer**.
2. **Windows Millennium will automatically detect** the presence of the PCI Ethernet Controller hardware in your computer.
3. Insert the **EtherFast® 10/100 LAN Card Driver Disk** into your floppy drive while the *Add New Hardware Wizard* window is visible. Select **Specify the location of the driver (Advanced)** option. Click **Next**.



4. Select **Search for the best driver for your device (Recommended)** and select **Specify a location**. Then, type "A:\WINME" in the drop-down box and click **Next**.



5. A window will open, notifying you that Windows is searching for the *Linksys LNE100TX Fast Ethernet Adapter* driver. When the window notifies you that it is ready to install the driver, click **Next**.



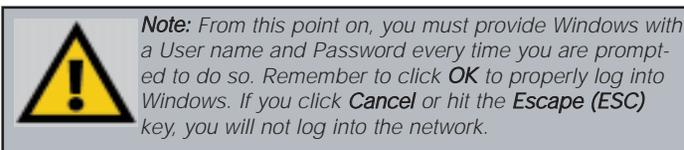
5. Windows will begin installing the driver. At this point, the installation may require files from your Windows Millennium CD-ROM. If prompted, insert your Windows Millennium CD-ROM into your CD-ROM drive and enter

**d:\win9x** in the box that appears (where “d” is the letter of your CD-ROM drive). If you were not supplied with a Windows Millennium CD-ROM, your Windows files may have been placed on your hard drive by your computer manufacturer. While the location of these files may vary, many manufacturers use **c:\windows\options\install** as the path. Try entering this path into the box. If no files are found, check your computer’s documentation or contact your computer manufacturer for more information.

6. The following screen will appear next, indicating that the drivers have been installed successfully. Click the **Finish** button.



7. When asked if you want to restart your PC, remove all disks and click **Yes**. If Windows does not ask you to restart your PC, click the **Start** button, choose **Shut Down**, choose **Restart**, then click **Yes**.



**The Windows Millennium driver installation is complete. Refer to the section on *Configuring the LAN Card for Windows 95, 98, and Millennium* for more information about the setup of the LAN Card.**

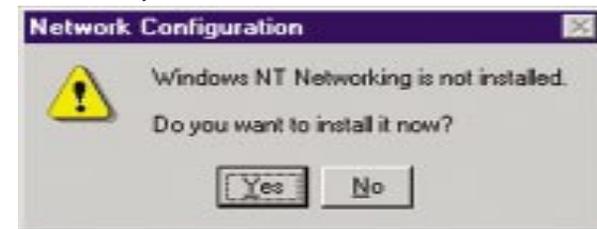
## Windows NT 4.0 Installation & Setup

### Overview

The following instructions will set up the EtherFast® 10/100 LAN Card in a computer running Windows NT 4.0 server/workstation. You should have your original Windows NT CD-ROM handy during the installation, as you might be asked to supply it. Always contact your network administrator or consult your NT documentation if you have questions.

To install the network driver for an NT 4.0 Server or Workstation

1. **Log into Windows NT** as an administrator.
2. Click on **Start, Settings, Control Panel**, and then double-click on the **Network** icon.
3. If you have not previously installed Windows NT networking on your computer, a message will appear that reads: *Windows NT Networking is not installed. Do you want to install it now?*

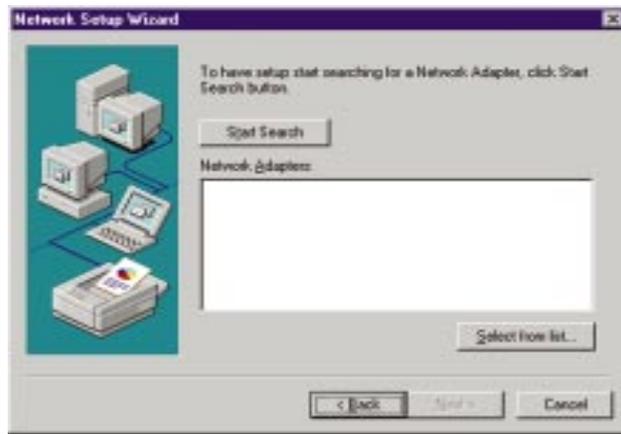


- If you see this message, click **Yes** to install NT networking along with the EtherFast® LAN Card’s network driver, and continue with step 1 below.
- If you don’t see this message, NT networking is already installed. Skip to the section *Installing the EtherFast® Network LAN Card Driver if Networking is Already Installed*

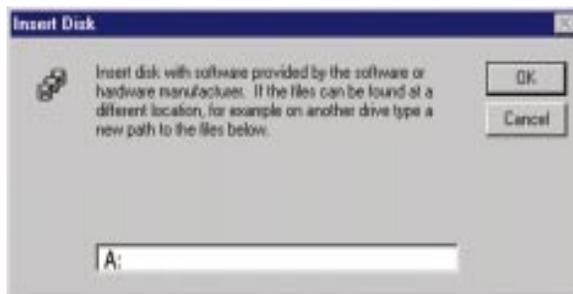
### Installing NT Networking & the LAN Card Driver

1. After clicking on **Yes**, the *Network Setup Wizard* window will appear.
2. Put a checkmark next to the *Wired to the network* option. Click **Next**.

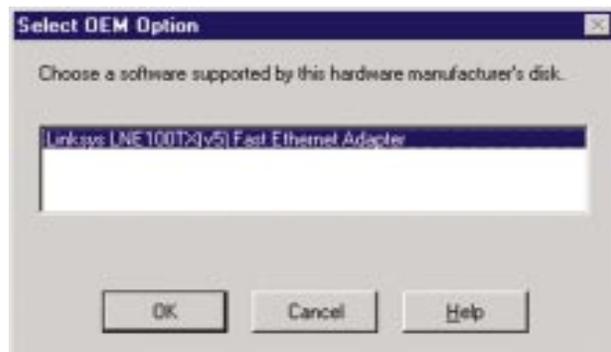
3. Click on the **Select from list...** button to select a LAN Card.



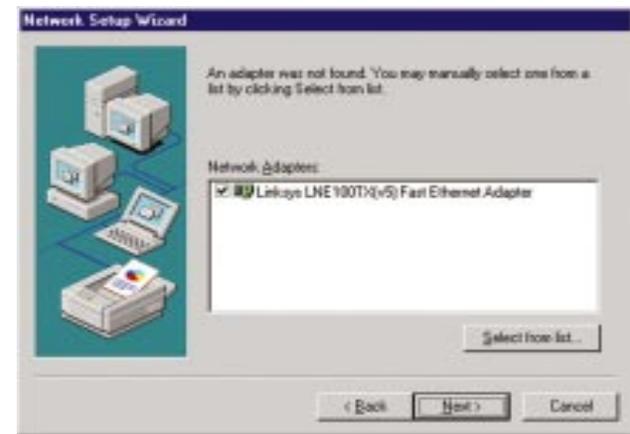
4. Click on the **Have Disk** button. Insert the *EtherFast® 10/100 LAN Card Driver Disk* into drive A. Type **a:\** into the box on your screen and hit **OK**.



5. Highlight the **EtherFast 10/100 LAN Card** entry in the window that appears. Click **OK**.



6. The LAN Card will be added to the list of installed adapters. Click **Next**.

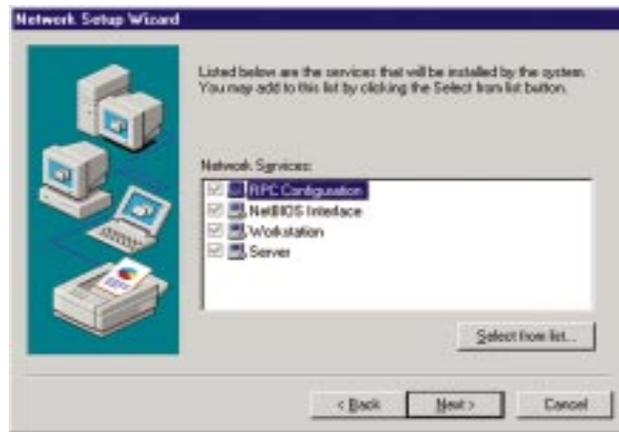


7. Place **check marks** beside each listed network protocol that you wish to install. See your Microsoft Windows NT user guide or talk to your network administrator for more information about network protocols. When you're finished, click **Next**.

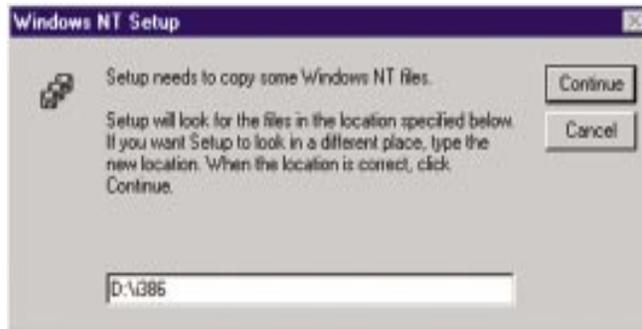
*Note: If you install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.*



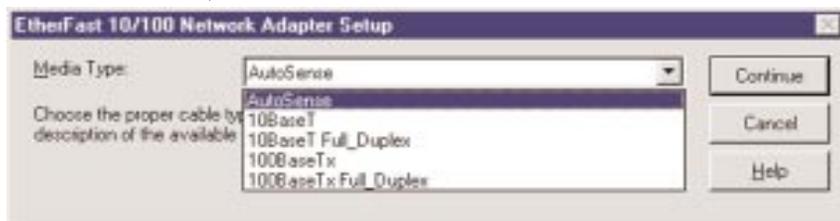
8. A list of services will appear. Click **Next** to approve these services, followed by **Next** again.



9. Windows NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. If so, place your Windows NT CD-ROM in your CD drive. If the CD-ROM loads a pop-up window, close it. Type D:\i386 (or the appropriate CD-ROM drive letter) in the box and click **Continue**.

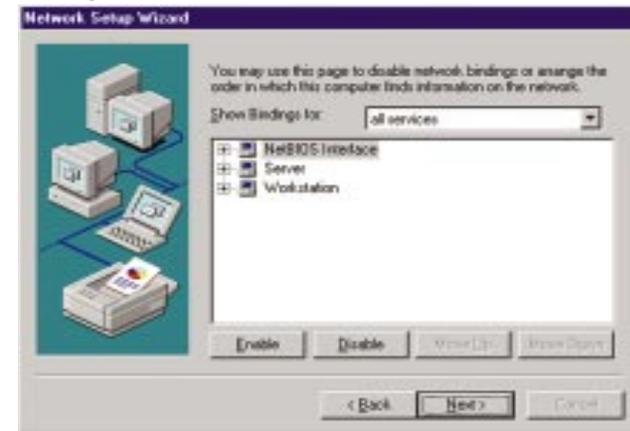


10. Windows NT will ask you to choose a media type for the EtherFast® card. Choose **AutoSense**. You can change these settings later if necessary. When finished, click **OK**.

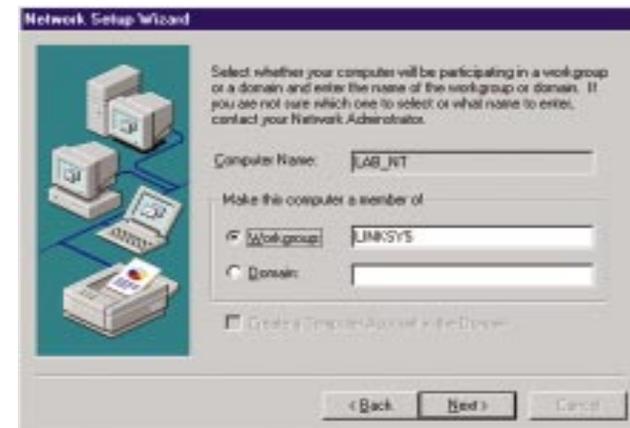


11. Windows NT will copy the necessary network drivers to your PC. When the copying is complete, you will see a list of installed bindings. Change the bindings settings if needed and click **Next**. Click **Next** again.

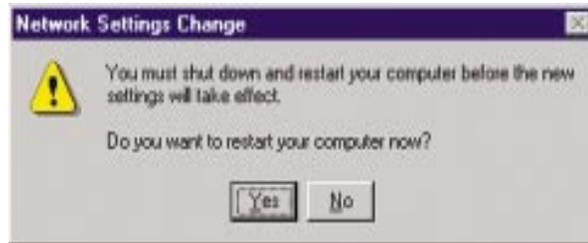
**Note:** For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.



12. Choose either **Workgroup** or **Domain**, depending on the type of network you're setting up. (Your Microsoft documentation explains the difference between Workgroups and Domains.) Click **Next**.



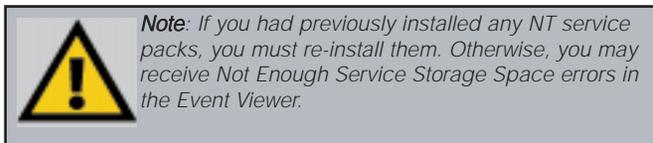
13. Click **Finish**. When asked if you want to restart your computer, remove the Driver Disk and click **Yes**.



14. Once your PC has rebooted and you are logged in, double-click the **Network Neighborhood** icon on your desktop. Ensure that you have access to the network. If you do, your card has been properly installed.

- *If you had previously installed any NT service packs, you must go back and re-install those service packs now.*
- *If you need to install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol*

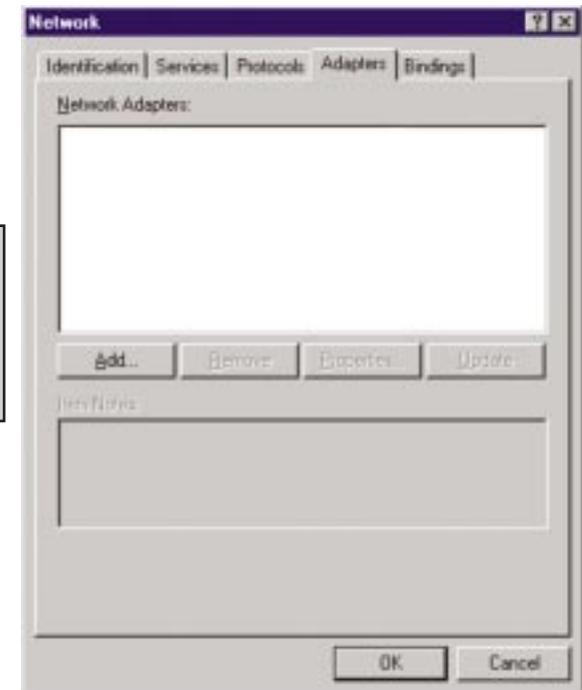
**The Windows NT Installation and Setup of the EtherFast® 10/100 LAN Card is complete. Do not continue on with the next set of instructions. They are for Windows NT users who already had their networking configured. Return now to the section called *Installing the Workgroup Switch* to complete the installation of your Network In A Box.**



## Installing the LAN Card Driver if Networking is Already Installed

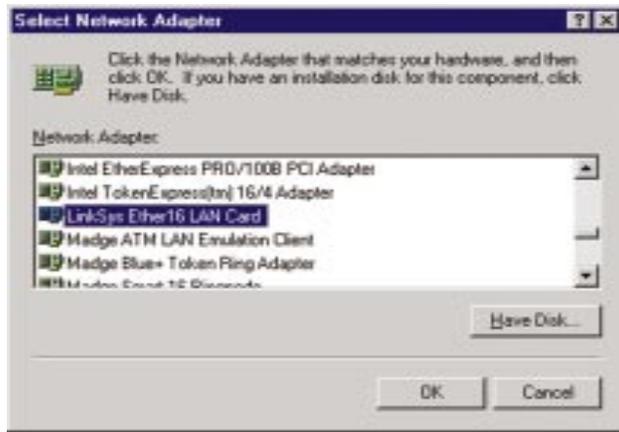
The following steps will install the EtherFast® 10/100 LAN Card's driver software on your PC, enabling your PC to properly communicate with the card. Remember that **you must be logged on as a network administrator (or as a user with administrative rights) to continue.**

1. Click on **Start, Settings, Control Panel**, then double-click on the **Network** icon.
2. When the networking window appears, choose the **Adapters** tab. Click the **Add** button.

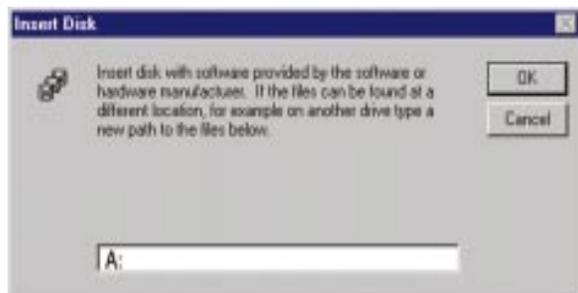


**Note:** For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.

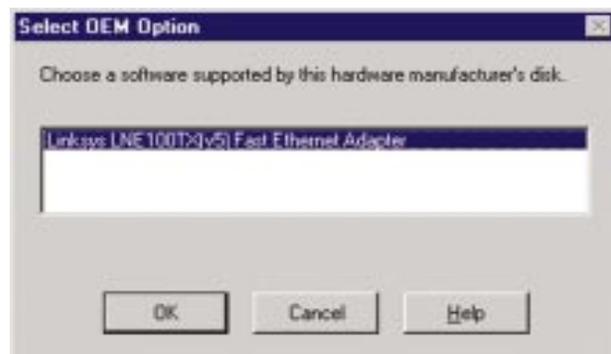
3. When the list of available LAN Cards appears, click the **Have Disk** button.



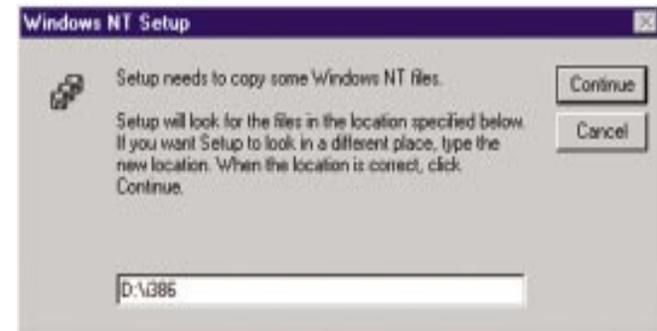
4. Put the EtherFast Card disk into drive A. Type **a:\** into the box on your screen and click **OK**.



5. Highlight the **EtherFast 10/100 LAN Card** entry in the window that appears. Click **OK**.

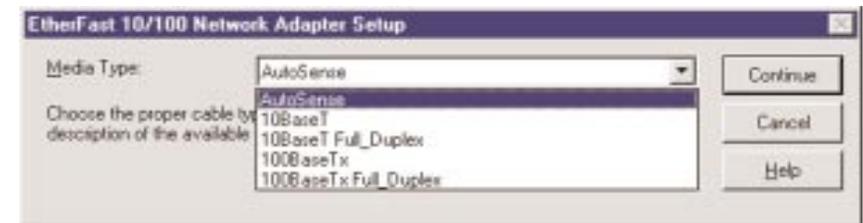


6. Windows NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. Direct Windows NT to the proper location (most likely D:\i386).



7. When Windows NT asks you for the media type. Choose the **AutoSense** option. When finished, click on **OK**. Click **Close**.

*Note: If you install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.*



8. Click on the **Protocols** tab. Add any protocols you require by clicking the **Add** button. (Refer to your Microsoft documentation if you have any questions on adding protocols.)
9. After your bindings, settings, and services are set, click the **Close** button.

10. Remove your Driver Disk and CD-ROM and click **Yes** to restart your PC.



11. Once your PC has rebooted, double-click the **Network Neighborhood** icon on your desktop. Ensure that you have access to the network. If you do, your card has been properly installed.

- *If you need to install the TCP/IP protocol, refer to your system administrator or your Windows NT documentation. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol*

**The Windows NT Installation and setup of the EtherFast® 10/100 LAN Card is complete. Return now to the section called *Installing the Workgroup Switch* to complete the installation of your Network In A Box.**

**Note:** If you had previously installed any NT service packs, you must re-install them. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.

## Windows 2000 Installation & Setup

### Overview

After physically installing the EtherFast® 10/100 LAN Card in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will depend on your current system configuration. If at any time during the installation you encounter problems, consult the Troubleshooting section.

**Note:** Prior to proceeding, ensure that you are operating Windows 2000 with administrative rights. If you log into Windows 2000 without administrative rights, you may run into problems during the installation.

### Installing the LAN Card's Driver

After physically installing the EtherFast® 10/100 LAN Card in your computer, follow these instructions to install the network driver.

1. **Start your computer if you haven't already done so.** Log in with administrative rights if you are asked to.
2. **Windows will display the *Found New Hardware Wizard* box. Click **Next**.**



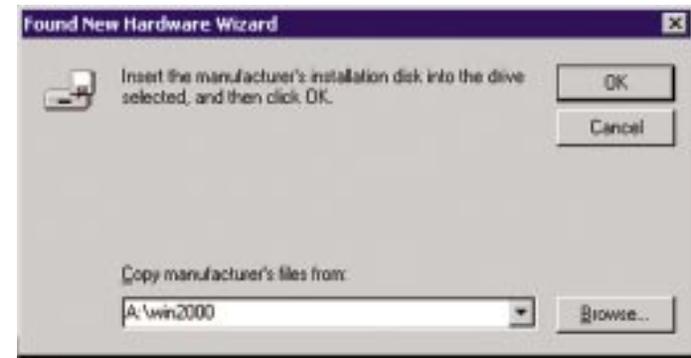
3. The **Install Hardware Device Drivers** dialog box will appear. When *Ethernet Controller* is displayed, select “*Search for a suitable driver for your device (Recommended)*”. Click **Next**.



4. The **Locate Driver Files** dialog box will appear. Select “*Specify a location*”. Click **Next**.



5. When the **Found New Hardware Wizard** box appears, insert the *Linksys EtherFast® 10/100 Driver Disk* into your floppy drive. In the “*Copy manufacturer’s files from*” field, type “*A:\Win2000*”. Click **OK**.



6. The **Driver File Search Results** dialog box will appear. Click **Next**.



7. The **Completing the Found New Hardware Wizard** dialog box will appear, indicating that the driver has been successfully installed. Click **Finish**.



8. **Remove the driver disk** from the floppy drive.

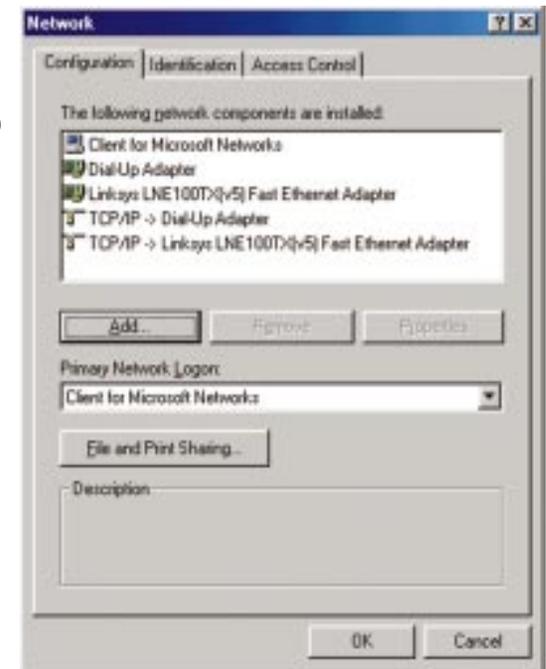
The Windows 2000 driver installation is complete. If you want to share files or printers, refer to your Windows 2000 documentation or check with your system administrator. Return now to the section called *Installing the Workgroup Switch* to complete the installation of your Network In A Box.

## Configuring the LAN Card

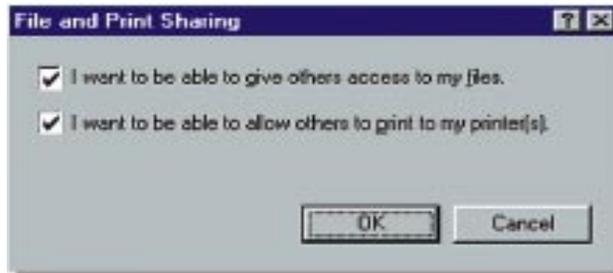
Configuring the LAN Card for Windows 95, 98, and Millennium

1. Once you are back at the Windows desktop, click on your taskbar's **Start** button, then **Settings**, then **Control Panel**, and then double-click the **Network** icon.
2. The Network window will appear. Click on the **Configuration** tab. A window similar to the one below will appear. There may be other components listed in addition to the ones shown below (for example, a *Dial-up Adapter*), which is normal. If any of the components shown below are missing, however, you'll need to manually install them. Refer to *Manually Installing the Network Components* for more information.

- *Client for Microsoft Networks*
- *Linksys LNE100TX(v5) Fast Ethernet Adapter*
- *IPX/SPX-compatible Protocol*
- *NetBEUI*
- *TCP/IP*



3. Click the **File and Print Sharing** button. The File and Print Sharing window will appear.



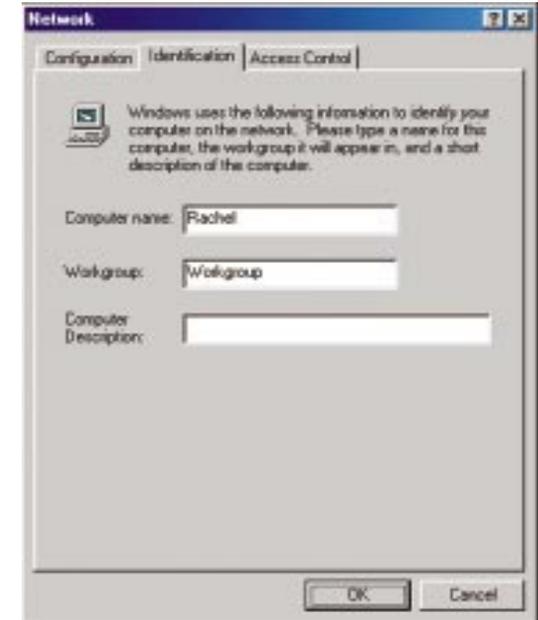
4. If you'd like others to be able to access the files on your PC's hard drive, select **I want to be able to give others access to my files**.
5. If you'd like to share your printer with other users on the network, select **I want to be able to allow others to print to my printer**.
6. Click the **OK** button. *File and Printer Sharing for Microsoft Networks* should now appear in the list of installed components.

7. After making sure that all of the listed network components are installed on your system, in the *Primary Network Logon* box select **Client for Microsoft Networks**.



8. Click on the **Identification** tab. Type the **name of your computer** in the *Computer Name* box. Choose a name that is unique from the other computer names on the network.

9. Type the **name of your workgroup** in the *Workgroup* box. The Workgroup name should be the same Workgroup Name in use by all of the other PCs on the network. Use the same Workgroup Name that is in use on your other computers for ease of use. Do **NOT** click **OK** when you are done.



10. Enter a **description of your computer** in the *Computer Description* box. *This box is optional, and can be left blank*.

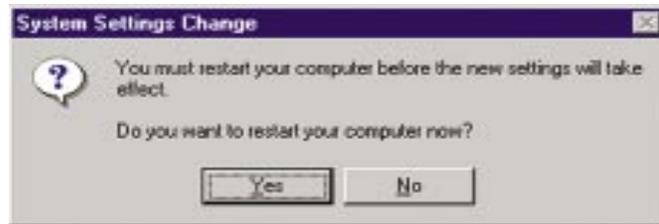
11. *Optional:* Choose the **Access Control** tab. Ensure that **Shared-level access control** is selected. If the setting is on **User-Level access control** and you can't change it, refer to the Troubleshooting section.



12. Click the **Configuration** tab. Click the **OK** button. Your system may or may not ask you for your Windows CD-ROM or the location of the Windows

installation files. If it does, direct Windows to the appropriate location, (e.g., D:\win98 if you have the Windows 98 CD-ROM, or C:\windows\options\cabs).

- Once Windows has copied the necessary files, the System Settings Change window appears. Remove all disks from your PC and click **Yes** to restart your PC. If you don't see this window, simply shut down Windows 98 and restart your PC. Remember to remove any installation disks or CD-ROMs prior to rebooting.



- A Logon window will appear, requiring you to enter a **User name** and **Password**. Make up a user name and password (if you haven't already) and click **OK**. Do not click the **Cancel** button or **Escape** key. Clicking either of these buttons will prevent you from logging into the network. If the logon does not appear or if it does not allow you to log on, refer to the Troubleshooting section.
- Once you are at the Windows 98 desktop, double-click on the **Network Neighborhood** icon. You should see one icon for the entire network and the names of the other PCs on the network.
  - If you can see your computer along with all the other computers on the network in Network Neighborhood, then the Windows 98 network configuration is complete. Return now to the section called *Installing the Workgroup Switch* to complete the installation of your Network In A Box.**
  - Continue with *Sharing Your Files and Printers* in the Appendix if you want your PC's data or printer to be available to others on the network.**
  - If you don't see all the computers in your network (including your own) in Network Neighborhood, press the **F5** key on your keyboard a few times to refresh the screen. If that doesn't work, refer to the Troubleshooting section.

## Novell NetWare Server Setup

### Overview

The EtherFast® 10/100 LAN Card driver will be automatically installed during all of the following NetWare installation procedures. During the setup you may want to refer to your NetWare Installation Manual for help.

*Note: If, after any of these installations, the operating system asks you for a slot number, NetWare needs to know which PCI slot your card has been installed to. The slot variable can be added to the driver line as shown in the example below:*

```
load c:\lne100TX\LNE100TX.lan slot = 3
frame = ethernet_802.2 name = nserv
bind ipx to nserv net = 15
```

*In this example, the card is in slot 3, the frame is Ethernet\_802.2, the net value is 15 (arbitrary) and the name is nserv (arbitrary name).*

### Installing a 3.12 Server

- Create a directory in the DOS partition of your file server called LNE100TX.
- Copy the following files from the EtherFast Card Driver Disk to your file server's new LNE100TX directory:
 

```
a:\netware\server\nw31x\NBI31X.NLM
a:\netware\server\nw31x\MSM31X.NLM
a:\netware\server\nw31x\ETHERTSM.NLM
a:\netware\server\nw31x\LNE100TX.LAN
```
- Following the Load LAN Driver Module instructions in your Novell NetWare 386 v3.12 manual, start NetWare and configure the server (if you haven't already).
- Load the above LAN drivers using the **LOAD** command.
- If the LAN driver is not located in the default directory, specify the file's path on the command line. The LOAD command prompts you for the configuration parameters if they are not supplied on the command line.

6. At the server command line, type (for example):

```
LOAD c:\LNE100TX\NBI31X.NLM
LOAD c:\LNE100TX\MSM31X.NLM
LOAD c:\LNE100TX\ETHERTSM.NLM
LOAD c:\LNE100TX\LNE100.LAN FRAME = <frame type
in use>
```

7. Bind a protocol to the driver. For example:

```
BIND IPX TO LNE100TX NET=XX
```

where XX is the logical network address for your network. It can be any logical number.

**Note:** You can save the LOAD command line parameters in a file with the name AUTOEXEC.NCF so they execute automatically when the server starts. See the Novell NetWare 386 v3.12 Installation Manual for details on how to create the AUTOEXEC.NCF file.

**The loading and binding are complete. The server is ready.**

## Installing a 4.x Server

1. At the NetWare prompt (indicated by the server name), run the INSTALL.NLM program by typing **load install**.
2. Select *Maintenance/Selective Install* and press **Enter**.
3. Select *LAN Driver Options* and press **Enter**.
4. Press the **Insert** or **Ins** key on your keyboard to insert a new driver. Put the EtherFast® 10/100 LAN Card Disk into drive A.
5. Press **F3** and specify the driver path. If the EtherFast Card disk is in drive A, for example, type **a:\netware\server\nw411** and press **Enter**. The program will locate the EtherFast Card's LNE100TX.LAN and LNE100TX.LDI files on the disk.
6. The LNE100TX.LAN driver will appear as an option in the *Select a LAN Driver* field. Choose this driver to start the loading and binding procedure.
7. Add the LOAD and BIND statements to your server's AUTOEXEC.NCF file so that the LAN driver loads automatically each time your server is started up.

**The loading and binding are complete. The server is ready.**

## Installing a 5.x Server

1. On the PC in which you installed the EtherFast card, simultaneously press **CTRL** and **ESC**.
2. When the next screen pops up, select the number for **System Console** and press **Enter**.
3. In the System Console prompt, load NWCONFIG by typing **nwconfig** and hitting **Enter**.
4. Highlight **Driver Options**. Press **Enter**.
5. Highlight **Configure network drivers**. Press **Enter**.
6. Highlight **Select a driver**. Press **Enter**.
7. Press **INS** to Install an unlisted driver.
8. Press **F3** to Specify a different path.
9. In the *Specify a directory path* box, type **A:\NETWARE\SERVER\NW50** and press **Enter**.
10. In the next box, ensure that *LNE100TX.LAN | EtherFast® 10/100 LAN Card* is highlighted. Press **Enter**.
11. You will be asked *Do you want to copy driver LNE100TX.LAN*. Highlight **Yes**, then press **Enter**.
12. Files will begin copying to your hard drive. Afterwards, a *Protocol and Parameter* screen will pop up. Highlight **Select/Modify driver parameters and protocol**. Press **Enter**.
13. Arrow down the list that appears and choose which protocols you want to install. Press **F10** to save.
14. Highlight **Save Parameters and Load Driver**. Press **Enter**.

15. Your PC will examine the network. This may take a few minutes.
16. You may be prompted several times for a network on which to bind IPX to LNE100\_1. Accept the default numbers if you are not sure which values to assign.
17. When asked *Do you want to select an additional Network driver?*, highlight **No** and press **Enter**.
18. Press **ESC** a few times to exit the program.

**The loading and binding are complete. The server is ready.**

## Troubleshooting

Troubleshooting hints for Windows can be found below. If you are using Windows NT, NetWare, or another network operating system, skip to the LAN Card's Diagnostics section.

### Troubleshooting for Windows 95, 98 and Millennium

1. Windows doesn't detect new hardware with the EtherFast® 10/100 LAN Card hardware installed, or it continues to detect the card each time you restart your PC.
  - You might not have inserted the PCI card correctly or securely into the appropriate slot of your computer. Check that the card is securely inserted into the appropriate slot.
  - Try inserting your card into an alternate PCI slot.
  - You may have previously aborted a new hardware setup. Refer to the section *Starting Over in Windows 95, 98, Millennium, and 2000*.
  - The motherboard in your system might not be Plug-and-Play compatible, your PC's Plug-and-Play settings may not be enabled, or the motherboard may have Plug-and-Play options not supported by Windows 95/98. If you are not sure, contact your PC's manufacturer.
2. Windows can't locate the driver for the EtherFast® 10/100 LAN Card.
  - You may have inserted the wrong diskette into your PC's drive.
  - The diskette may be defective or files may be missing. Make sure the disk has a few files in a:\ starting with LNE100 or a folder called Win95 for Window 95 or Win98 for Windows 98
3. The Windows Logon screen doesn't appear after you restart your computer.
  - Click on Start, Shut Down, then Close All Programs and Logon as a Different User, (in Windows 98, select Log Off). If this doesn't solve the problem, your PC's manufacturer may have disabled Windows' networking. Contact your computer's manufacturer for help.
4. After entering a username and password, a window appears that reads, "No Domain Server could be found to validate your Username and Password."
  - Click on Start, Settings, Control Panel. Double-click on Network. Click on the Configuration tab. Under The Following Network Components are Installed box, highlight Client for Microsoft Networks and click on the Properties button. Once you are in the Client For Microsoft Networks Properties window, make sure that Log on to Windows NT Domain is unchecked. Once you have made sure that it is unchecked click on the OK button and restart your computer.

5. On the Access Control Tab, User Level Access is selected, but Shared Level Access is grayed out and not accessible.

- You previously had your primary network logon set to *Client for NetWare Networks*. On the **Configuration** tab of the *Network Properties* window, ensure that your primary network logon is set to *Client for Microsoft Networks*.
- Your personal web server PC or Microsoft Front Page may require you to choose a user level for security reasons.

6. In Network Neighborhood you can only see yourself and no other computers on the network.

- Make sure that the cables are connected correctly. Make sure you are getting Link or Activity lights on both the EtherFast Card and your switch. Try changing to a new cable that you know is working.
- Your workgroup name may be different from other computers on your network. Make sure each PC on the network is using the same workgroup name and protocol.
- Try using the Find Computer function.

7. In Network Neighborhood, you can see all other computers on the network but not yourself, and all other computers can see each other and not your computer.

- You may have not have enabled File and Printer Sharing. To do so, go to the Appendix and refer to the section called *Sharing Your Files and Printers*.
- The network card might not be setup properly. Try reinstalling the card's drivers. Clean your system of the old installation, and then re-install.

8. Network Neighborhood is Empty.

- Verify that your Microsoft Client is installed. See the Windows 95 or 98 setup instructions in this guide for directions. Verify that you have logged in correctly. Refresh the screen by pressing **F5** several times.

9. You receive DHCP Errors in Windows.

- If you are connecting to a DHCP server, check your cabling and connection. If you require TCP/IP to be configured, check with your network administrator or your Windows documentation for proper settings.
- If you don't have a DHCP server on your network and your network setup doesn't require TCP/IP, you may remove the TCP/IP component from Windows' networking. To do this, click on **Start, Settings, Control Panel**, then double-click on **Network**. Click once on the **component entry** with the words TCP/IP and Linksys or TCP/IP on its own, then click on the Remove button. Click **OK** when finished and restart your PC. If the problem persists, try running the diagnostics.

10. In Network Neighborhood you can only see computers running the same operating system as your computer (i.e., your PC is running Windows 95 and it can only see other Windows 95 computers and not any computer running Windows 98 or Windows Millennium).

- Choose **Start, Find, Computer** and type the name of the computer in the window that comes up and click **Find Now**.
- Now make sure that you are using the same protocol(s) and workgroup name on the 95, 98 or Millennium computers. To do this, click **Start, Settings, Control Panel** on two computers running different Windows operating systems. Click on the **Network** icon, choose the **Configuration** tab, then click on the **Identification** tab for Workgroup name. Compare the protocols on both computers and make sure that they are the same. If any protocols are missing, refer to page 59 to install any needed protocol(s).
- If all computers are using the same protocol(s) and Workgroup name, and Windows 95 computers can't see Windows 98 computers, enable NetBIOS on all the computers using Windows 95, 98 and Millennium. Follow these instructions:
- The IPX/SPX-compatible protocol should be installed on all Windows computers (consult your Windows documentation if you need to add this protocol). Bring up the properties of the IPX/SPX-compatible protocol by clicking on Start, Settings, Control Panel, then double-click the Network icon. Choose the Configuration tab and highlight IPX/SPX-compatible Protocol. Click on Properties. Now, to install NetBIOS, click on the NetBIOS tab. Put a check next to I want to enable NetBIOS over IPX/SPX. Click OK, then OK again. Windows will copy the appropriate files to your computer. When asked to restart your PC, remove any floppy disks and click **OK**. Be sure to do this on all of your computers that are having trouble seeing your entire network.

11. The workgroup, protocols, cabling and driver are all working properly, but the PC uses an AMD processor and it can only see itself in network neighborhood.

- In some instances with PCs using AMD processors, the IRQ assigned to the card by the BIOS (as it gets listed on the bootup screens of most PCs) doesn't correspond to the IRQ assigned by Windows. This can be fixed by disabling the IRQ holder for PCI Steering in the Windows Device Manager. Refer to your PC's documentation for instructions or you can follow the suggested instructions below. Keep in mind that this procedure will vary depending on your computer's configuration.
- Click on Start, Settings, Control Panel, then double click the System icon. Click on the Device Manager tab. Open System Devices, then open PCI Bus.

- Click on the IRQ Steering tab. Remove the check from **Use IRQ Holder** and click **OK**. Windows will ask you to restart the PC (if it doesn't ask you, then reboot the PC manually).
- After the computer boots up, Windows will try to re-detect the PCI Steering. Continue rebooting the PC until Windows stops detecting new hardware and settings for PCI Steering. This normally takes a total of four reboots.

## Running the LAN Card's Diagnostics

If you suspect that there may be a problem with the EtherFast® LAN Card, or if you need to identify the LAN Card's MAC address, you can use the DIAG diagnostic program on the EtherFast® 10/100 LAN Card Driver Disk.

To run the program, start up your computer in DOS. The program only works in standard "real DOS mode" DOS – it will not work in a Windows DOS window. To get into "real DOS mode," do the following:

- In Windows 95, start your computer. *When the Starting Windows...* message appears, press the **F8** key. You will then get to the *Microsoft Window Startup Menu*.
  - In Windows 98 and Millennium, start your computer (No *Starting Windows...* message will appear). Immediately and rapidly press the **F8** key until you get the *Microsoft Window Startup Menu*.
1. Choose the **Safe mode command prompt only** option. Press **Enter** on the keyboard.
  2. Insert the *EtherFast® 10/100 LAN Card Driver Disk* into drive A. Enter the appropriate commands after the following prompts:
    - When "C:\>" appears, type "a:" then press **Enter**.
    - When "A:\>" appears, type "cd diag" then press **Enter**.
    - When "A:\diag>" appears, type "diag" then press **Enter**.

You can also copy the software to your local (c:) drive and run DIAG from your hard disk.

3. The *Fast Ethernet Diagnostics Program* will appear, providing a display of the card's basic information (Ethernet Address, IRQ, I/O Port and Media Type). Press **Enter** to begin the testing cycle. If the card isn't found, power off the PC and ensure that the card is properly seated in the PCI slot.
4. The word "pass" will appear next to each successful test. If the card fails the Link Status Test check your cabling and switch connections. If the card fails the Loopback test, check your computer's settings, then contact Linksys Customer Support for help.

# Appendix

## Sharing Your Files and Printers

### Overview

By sharing your files and printers, other PCs on your network will be able to access the resources on your PC.

Before sharing your files and printers, you should prepare your computer to be used with any file servers that may be on the network. If you are **not** using Windows 95 or Windows 98 with an NT or NetWare file server, or if you are not sure if you have a file server, continue below.

If you are using a NetWare or NT file server, refer to those sections in the manual for client setup.

### Enabling File Sharing

1. Double-click your **My Computer** icon. A window of available disk drives will appear.
2. Using your right mouse button, click once on the drive or folder that you want to make available to other users.
3. Click on **Sharing**, followed by the **Sharing** tab. Click on **Share As**.
4. In the Share Name box, enter a name for the drive or folder you are sharing. This can be any drive on your PC—floppy drive, hard drive, CD drive, zip drive, etc.
5. Decide on the type of access that you want to give other users.

*Note: If you are only using your PC to access the Internet, it is highly recommended that you use passwords for your shares.*

- **Read-Only access** lets other users view the files on the selected drive.
- **Full access** lets users create, change, or delete files on the selected drive.
- **Depends on Password** lets users have Read-Only and/or Full access to the selected drive, depending on the password that you decide to give them.

6. If you want to assign access passwords, type the passwords into the Password boxes.
7. When you're done, click on the **Apply** button, followed by **OK**. Repeat steps 1-7 for any drive or folder you desire to share on the network.

**You have successfully enabled File Sharing on your PC. Your selected drives or folders can now be accessed by other network users. If a user tries to access one of your password-protected drives or folders, he or she will be asked for the appropriate Read-Only or Full-Access password. Continue on if you wish to share your PC's printer over the network.**

### Enabling Printer Sharing

1. Double-click on the **My Computer** icon.
2. Double-click the **Printers** folder. A window of available printers will appear.
3. Using your right mouse button, click once on the printer that you want to share with other users. Click on **Sharing**, followed by the **Sharing** tab.
4. Click on **Share As**. In the Share Name box, give a name to the printer you want to share. If you want to assign a password to the printer so that only certain users can access it, type a password in the Password box.
5. Click on the **Apply** button, followed by **OK**. Your printer(s) are now shared.

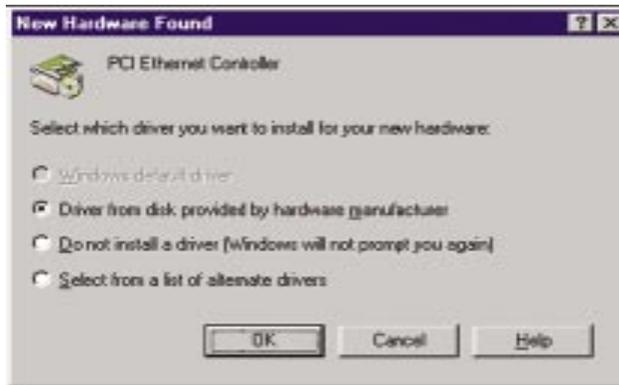
*Note: Any printer you wish to share from your PC must be physically connected to your PC.*

*Note: Not all printers may be shared on the network. Others may require special instructions. Refer to your printer's user guide or contact your printer manufacturer if you think this may be the case with your printer.*

**The Printer Sharing setup and installation is complete. Your printer can now be accessed by other network users. The printer's driver may have to be installed on other PCs. Consult your printer's documentation.**

## Installing the Driver in Windows 95 Version A

1. Windows 95 will detect the EtherFast® 10/100 LAN Card and display a *New Hardware Found* window.



2. Insert the **EtherFast® 10/100 LAN Card Driver Disk** into drive A.
3. Select *Driver from disk provided by hardware manufacturer*, then click **OK**.
4. When asked for the location of the files, type **a:\** and click **OK**. If Windows 95 goes straight to the desktop, refer to the Troubleshooting section.
5. Windows 95 will copy the appropriate network drivers to your PC. If Windows 95 asks you to supply your original Windows 95 installation CD-ROM or setup files, enter the appropriate path for those files (e.g.: A:\, D:\WIN95, C:\WINDOWS\OPTIONS\CABS).
6. During the installation, windows may ask you for a computer and workgroup name. If so, refer to the Troubleshooting section. Once you have established computer and workgroup names, return here to continue with the installation.
7. After Windows 95 has completed copying the necessary files to your PC, it may ask you to restart your computer. Remove the Driver Disk and click **OK**.

**The Windows 95 Version A driver installation is complete. Please continue on to *Configuring the LAN Card for Windows 95, 98, and Millennium* for more information about the setup of the LAN Card. Consult your network administrator for network configuration information if necessary.**

## Novell NetWare 3.x Client Setup for Windows 95, 98 or

These instructions explain how to set up the regular Novell NetWare 3.x client for use on a Windows 95, 98 or Millennium PC.

1. Follow the Windows 95 setup instructions or the Windows 98 setup instructions.
2. Start up Windows 95 or 98. Click on **Start, Settings**, then **Control Panel**. Double-click on **Network**. The Network window appears. Click on the **Configuration** tab.
3. In the Primary Logon Box, choose *Client for NetWare Networks*.
4. Under the *The following network components are installed* box, highlight *Client for NetWare Networks* and click on the **Properties** button.
5. The *Client for NetWare Networks Properties* window appears. Under the **General** tab, enter the name of your network's Preferred Server. *Assign the First Network Drive Letter*; the default is F. Make sure the **Enable** logon script processing is checked.
6. Click **OK**. Click on the **Access Control** tab. Make sure the *Share-level access control* option is selected; do not select *User-level access control*.
7. When you're done, click **OK** to restart your computer.

**The NetWare portion of your Windows Networking setup is complete.**

## Windows 95, 98 or Millennium Client for Windows NT

If you are installing the EtherFast® 10/100 Network LAN Card in a Windows 95, 98 or Millennium PC that you plan on logging into a Windows NT domain server, follow the directions below.

1. Follow the Windows 95, 98 or Millennium setup instructions.
2. Start up Windows. Click on **Start, Settings**, then **Control Panel**. Double-click on **Network**. The Network window appears. Click on the **Configuration** tab.
3. In the Primary Logon Box, you have two choices. Choose one **Client for Microsoft Networks**, which instructs your PC to log into a Windows NT 4.0 server where you already have a username and password set up.
4. Under the the following network components are installed box, highlight Client for Microsoft Networks and click on the **Properties** button.
5. The *Client for Networks Properties* window will appear. Under the *Logon Validation* box, make sure that *Log on to Windows NT domain* is checked. Enter the name of your domain into the *Windows NT Domain* box
6. *Optional*: Click on the **Access Control** tab. Make sure that *Share-level access control* is selected; do not choose *User-level access control*. If Access Control is grayed out and cannot be selected, refer to the Troubleshooting section.
7. When you're done, click **OK**. When asked if you want to restart your PC, choose to do so.

**The Windows NT client portion of the Windows Networking setup is complete.**

## Starting Over in Windows 95, 98, Millennium or 2000

If you experience installation difficulties, you may need to re-install all of the Windows networking components from scratch. The instructions below explain how to give your PC a clean sweep so that you can start the EtherFast Card's software installation over.

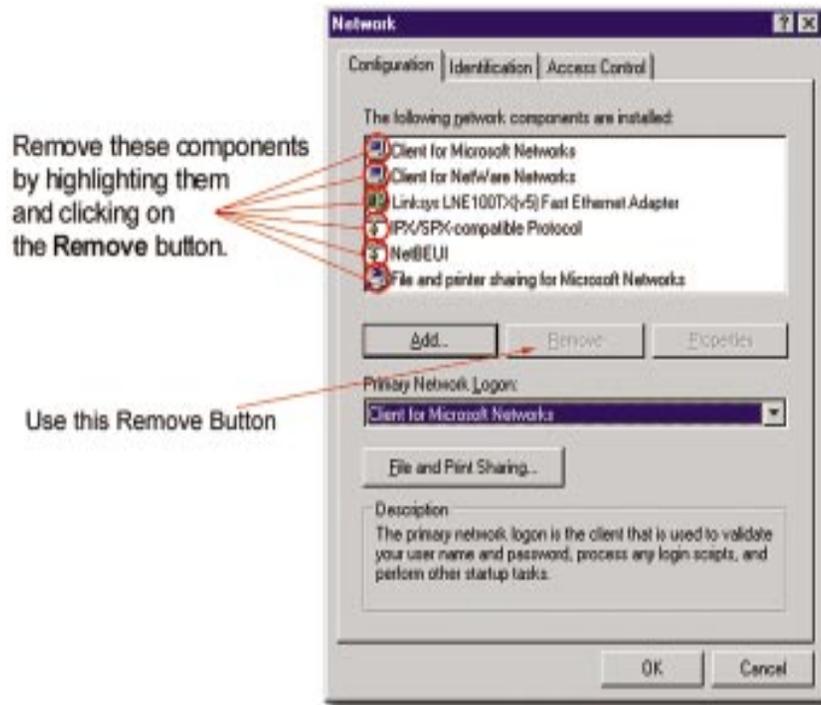
## Starting Over in Windows 95 , 98, and Millennium

1. At the desktop click on the **Start** Button, highlight **Settings**, click on **Control Panel**.
2. Double-click on the **Network** Icon.
3. If the Configuration box has a component called Dial-Up Adapter, skip forward to step 5. If it doesn't, continue with step 4.

*Note: The screen shot here, and the ones on the next three pages, are examples only. They may differ from system to system.*

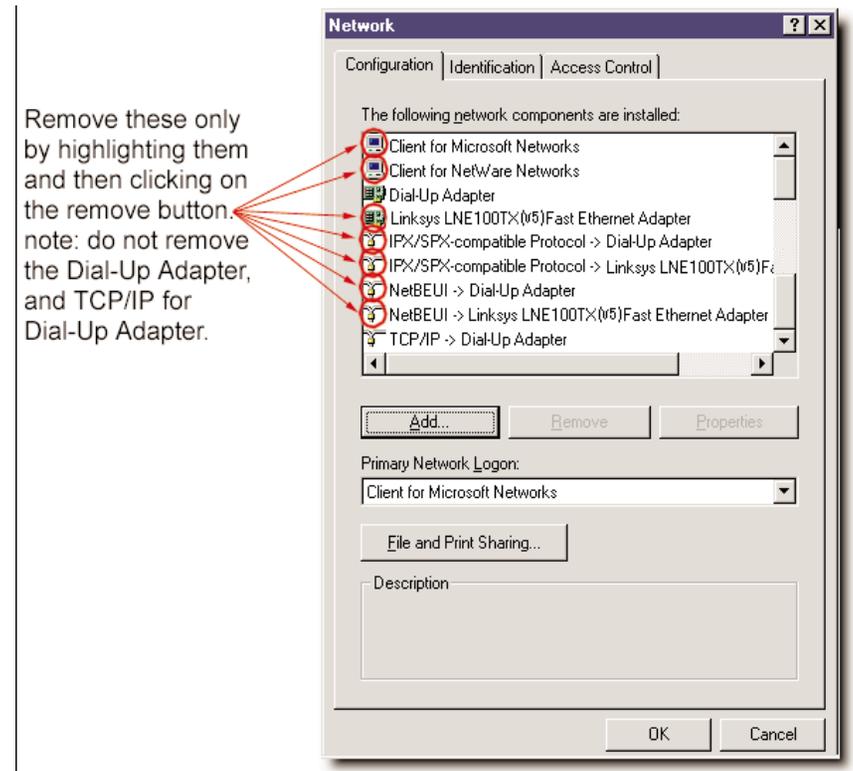


4. Remove any instance of the name Linksys in the box. This includes *IPX/SPX...Linksys*, *NetBEUI...Linksys*, and *TCP/IP...Linksys*. Also remove *Client for Microsoft Networks*, *Client for NetWare Networks*, and *File and Printer Sharing for Microsoft Networks*.



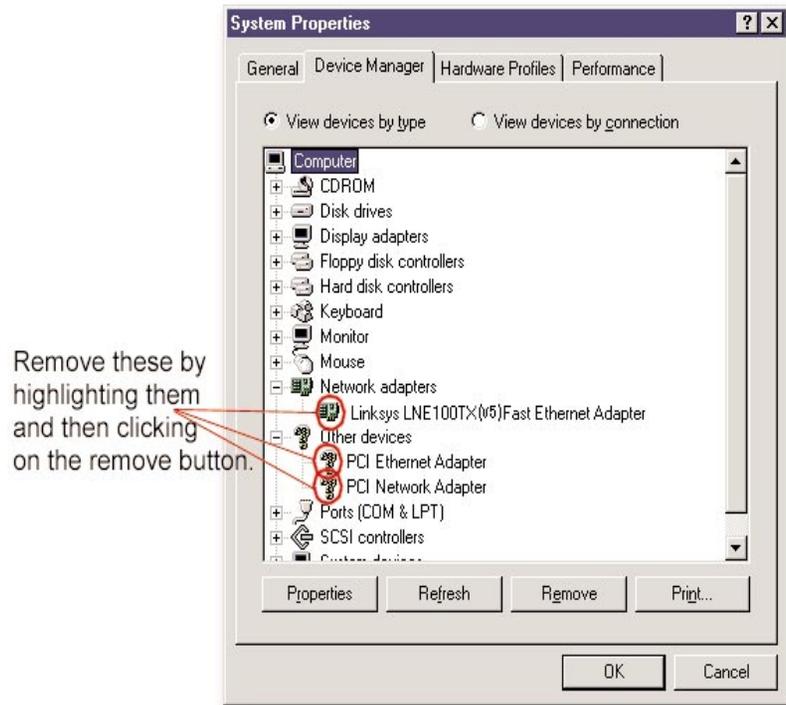
In some cases, removing one of these components may in turn automatically remove other components as well. If this happens, skip ahead to step 6.

5. For PCs with Dial-Up Networking and/or an AOL adapter, remove any instance of the name Linksys, all IPX/SPX protocols, all NetBEUI, all Clients, and File and Printer Sharing for Microsoft Networks. Do **not** remove *Dial-Up Adapter*, *AOL Adapter*, *TCP/IP-Compatible Protocol-AOL Adapter* or *TCP/IP-Compatible Protocol-Dial-Up Adapter*.



6. When you are done removing all the unnecessary components, click **OK**. When asked to restart, click **No**.
7. Return to the Windows Control Panel. Double-click on the **System** Icon. The System Properties window will appear. Click on the **Device Manager** Tab.

- Scroll down to the LAN Cards item and expand it by clicking on the **open** [+] sign.



- Remove all devices with the name Linksys in its description. (If at any point you are asked to restart the computer, Click **No**).
- Scroll down to the Other Devices section. Remove *PCI Ethernet Controller* or *PCI Ethernet Adapter*. (If Other Devices is not listed, proceed to the next step.)
- When you're finished, click on the **Close** button, shut down Windows, and restart your computer.
- After your computer has restarted, turn to the appropriate section for your operating system (e.g. Windows 95, Windows 98, etc.) and follow the setup instructions.

## Starting Over in Windows 2000

- Click the Start button, choose Settings, choose Control Panel, then double-click the System icon. The System Properties window will open.
- Choose the Hardware tab.



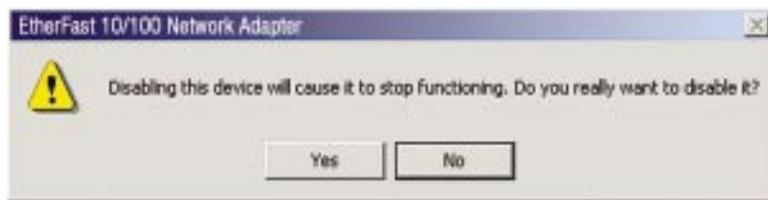
- Click the Device Manager button. The Device Manager window will open.
- Click the plus sign (+) beside LAN Cards. The **EtherFast 10/100 LAN Card** listing should appear.

- Right-click on **EtherFast 10/100 LAN Card**. A context menu should open (below).

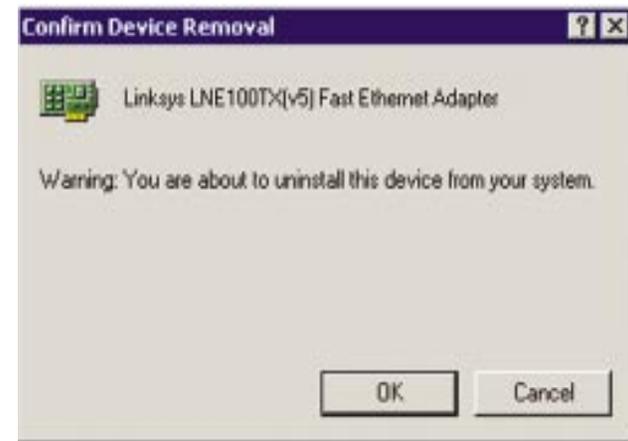


- First, choose **Disable**.

- When asked if you want to Disable the device, click **Yes**.



- Right-click on the **EtherFast 10/100 LAN Card** again. This time, select **Uninstall....** Click **OK**.



- The LAN Cards category should be removed from the Device Manager listing.
- Close the Device Manager, click the System Properties window's OK button, and restart your computer.

## Manually Installing the Network Components in Windows 95, 98, and Millennium

There may be times when you need to manually install missing Windows networking components.

1. Click on **Start, Settings, then Control Panel.**
2. Double-click the **Network** icon. The Network window appears.
3. Click on the **Configuration** tab. Make sure that the following network components are installed.

- *Client for Microsoft Networks*
- *Linksys LNE100TX(v5) Fast Ethernet Adapter*
- *IPX/SPX-compatible Protocol*
- *NetBEUI*
- *TCP/IP*



There may be other components listed in addition to the ones shown above. If any of the above components are missing, add them as follows.

### Client for Microsoft Networks

If you plan on connecting to a Windows NT file server or peer-to-peer network, click on the **Add** button. Highlight *Client* and click on **Add**. Choose Microsoft as the manufacturer in the Network Client box. Highlight *Client for Microsoft Networks* and click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### Client for NetWare Networks

If you plan on connecting to a Novell NetWare server (3.x), click on the **Add** button. Highlight *Client* and click on **Add**. In the Network Client window, select *Manufacturer* and choose **Microsoft**. Highlight *Client for Microsoft Networks*. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### IPX/SPX-compatible Protocol

Click on the **Add** button. Choose *Protocol* and click on the **Add** button. Select *Manufacturer* and choose **Microsoft**. Under the Network Protocol box, highlight *IPX/SPX-compatible protocol*. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### NetBEUI

Click on the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **NetBEUI**. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

### TCP/IP

Click on the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **TCP/IP**. Click **OK**. The computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **OK**.

## About Wake-on-LAN Compatibility

Wake-On-LAN functions can be accessed in two different ways. Some motherboards support Wake-On-LAN features through a 3-pin connection found on the motherboard. These motherboards REQUIRE an adapter with this 3-pin connection to use the Wake-On-LAN features.

Other motherboards support Wake-On-LAN functions through the PCI slot where the LAN Card is located. Both motherboard and adapter must support this management in order to use Wake-On-LAN features.

Some mother boards support both of these types. *You should refer to your computer's (or motherboard's) documentation to see which type, if any, your computer supports.*

The EtherFast® 10/100 LAN Card (LNE100TX v5) manages Wake-On-LAN through the PCI slot where it is inserted. So, if your motherboard supports Wake-On-LAN using the 3-pin connection, it will not be able to access Wake-On-LAN features through the LAN Card. *If you have an earlier release of this product, the adapter may be the LNE100TX v4, which has the 3-pin connection. Go to [www.linksys.com](http://www.linksys.com) for more information on the LNE100TX v4.*

## Installing and Configuring Wake-On-LAN

### Overview

In order to use the Wake-On-LAN (WOL) features, the LAN Card must be properly inserted into a PCI slot on a motherboard that supports WOL Event Management for that slot. If your computer does not support WOL, the LAN Card will operate as an ordinary 10/100 LAN Card. Refer to your computer's documentation to find out if your computer supports WOL features through the PCI slots. See *About Wake-On-LAN Compatibility* for more information.

### Sending a Magic Packet

In order to use WOL you need to know the MAC address of the card you wish to “wake”. If you don't know the MAC address of the PC you are on, turn to the section on *Running the LAN Card's Diagnostics*.

1. Turn off the PC on which you want to test the WOL feature. Go to another PC on the network and log in.
2. Go to an MS-DOS prompt. Run the diagnostics program (refer to the section on *Running the LAN Card's Diagnostics*). Press **Enter** to begin the test.
3. When the test is complete, press **F3** and select **Send an ACPI Packet**.
4. Press the **M** key. You will be asked for the destination of the magic packet. Enter the MAC address of the PC you want to “wake up” and press **Enter**.
5. Check to ensure that the PC has woken up.

*Note: The Diag program works only if both the PC sending the magic packet and the PC receiving the magic packet are installed with EtherFast® 10/100 LAN Cards.*

### Testing a Link Change WOL PC

This test will see if your PC responds to a change in the network link state by waking up. Use a configured PC that is on an active network link.

1. Turn your PC off and disconnect it from the network either by turning off the switch or hub.
2. Wait about ten seconds, then turn on the switch. The PC should wake up.

## About Plug-and-Play PCI Technology

The EtherFast® 10/100 LAN Card is designed to run in a 32-bit desktop computer equipped with PCI expansion slots. The card is built to the PCI 2.1 standard.

Short for **Peripheral Components Interconnect**, PCI is a technology that allows special Plug-and-Play expansion cards to be automatically configured by a computer's **BIOS** (Basic Input/Output System) once they have been installed. (Refer to your computer's user guide for more information about its BIOS.)

When a PCI card is used in a computer that supports Plug-and-Play, the card is automatically configured each time the computer is booted. The card's IRQ, I/O address, and other operating parameters are automatically assigned.

There is no easy way to change a Plug-and-Play card's IRQ and other settings outside of the BIOS menu(s) that your computer provides. If the resources that are assigned to your EtherFast card seem to conflict with other devices in your computer, you will need to use your system's BIOS to resolve the conflicts. If you have problems configuring your BIOS or resolving IRQ or other hardware conflicts, consult your computer's manual or contact your PC's manufacturer for BIOS setup and configuration directions.

Here are some general guidelines to follow when installing a PCI card (such as the EtherFast® 10/100 LAN Card) into your computer:

1. The EtherFast® 10/100 LAN Card should be used in a 32-bit PCI slot that supports PCI Bus Mastering. It cannot be plugged into a PCI Bus Slave slot. Consult your motherboard's documentation for more information on master and slave slots.
2. If loading the EMM386.EXE program in your PC's CONFIG.SYS, you must use version MS-DOS 6.22 or above. If you load an older EMM386.EXE program (below DOS 6.22), your PC will hang up while loading the network driver.

3. When using Windows NT, set your system's PNP OS option in the BIOS settings to MANUAL or DISABLE. NT is not a Plug-and-Play OS, and will not usually recognize LAN Cards if they are set to be automatically detected and configured. If you need to configure your PC's BIOS in order to resolve an IRQ or other conflict with the EtherFast card, there are a few possibilities:

**No Changes Allowed** Your PC may not allow you to change the IRQ value(s) of the PCI slot(s). In this case, you will ONLY be able to use the IRQ and I/O values that have been pre-assigned to each slot. The popular BIOS from Phoenix, for example, does not generally allow you to modify BIOS-assigned IRQ settings.

**Jumper Changes** You may be able to change the IRQ & I/O values for a given PCI slot by setting jumpers on your PC motherboard. Please refer to your PC's motherboard user guide for specific instructions.

**Menu Changes** Your PC may allow you to change the IRQ & I/O values for a given PCI slot by accessing the PC's BIOS setup menu. Please refer to your PC's user guide for specific details. The BIOS from companies like AMI and Award are fully customizable from their BIOS menus, for example.

## Linux, Open Source, and Beta Operating Systems

Linksys does not provide technical support for **Linux**, **BSD**, or other free-ware, Beta, or open source operating systems. Although many Linksys products have been proven to perform well under Linux and other freeware OSes, technical support for setup and troubleshooting is not provided. For information on where to find device drivers and setup instructions for Linux and other freeware OSes, visit the support pages and FAQ files on the Linksys website at [www.linksys.com](http://www.linksys.com).

## Glossary

**10BaseT** - An Ethernet standard that uses twisted wire pairs.

**100BaseTX** - IEEE physical layer specification for 100 Mbps over two pairs of Category 5 UTP or STP wire.

**Adapter** - Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card (NIC) is the typical adapter that allows the PC or server to connect to the intranet and/or Internet.

**Bit** - A binary digit. The value - 0 or 1-used in the binary numbering system. Also, the smallest form of data.

**Boot** - To cause the computer to start executing instructions. Personal computers contain built-in instructions in a ROM chip that are automatically executed on startup. These instructions search for the operating system, load it and pass control to it.

**CAT 3** - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 3 cable has a maximum throughput of 16 Mbps and is usually utilized for 10BaseT networks.

**CAT 5** - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

**CPU** (Central Processing Unit) - The computing part of the computer. Also called the "processor," it is made up of the control unit and ALU.

**Ethernet** - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

**Fast Ethernet** - A 100 Mbps technology based on the 10Base-T Ethernet CSMA/CD network access method.

**Full Duplex** - The ability of a device or line to transmit data simultaneously in both directions.

**Half Duplex** - Data transmission that can occur in two directions over a single line, but only one direction at a time.

**Hardware** - Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the "box" and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

**Hub** - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

**IEEE** - The Institute of Electrical and Electronics Engineers. The IEEE describes itself as "the world's largest technical professional society -- promoting the development and application of electrotechnology and allied sciences for the benefit of humanity, the advancement of the profession, and the well-being of our members."

The IEEE fosters the development of standards that often become national and international standards. The organization publishes a number of journals, has many local chapters, and several large societies in special areas, such as the IEEE Computer Society.

**LAN** - A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building).

**MAC Address** - The MAC (Media Access Control) address is your computer's unique hardware number.

**Mbps** (MegaBits Per Second) - One million bits per second; unit of measurement for data transmission.

**Motherboard** - A motherboard is the physical arrangement in a computer that contains the computer's basic circuitry and components.

**Network** - A system that transmits any combination of voice, video and/or data between users.

**NIC** (Network Interface Card) - A board installed in a computer system, usually a PC, to provide network communication capabilities to and from that computer system. Also called an adapter.

**PCI** (Peripheral Component Interconnect) - A peripheral bus commonly used in PCs, Macintoshes and workstations. It was designed primarily by Intel and first appeared on PCs in late 1993. PCI provides a high-speed data path between the CPU and peripheral devices (video, disk, network, etc.). There are typically three or four PCI slots on the motherboard. In a Pentium PC, there is generally a mix of PCI and ISA slots or PCI and EISA slots. Early on, the PCI bus was known as a "local bus."

PCI provides "plug and play" capability, automatically configuring the PCI cards at startup. When PCI is used with the ISA bus, the only thing that is generally required is to indicate in the CMOS memory which IRQs are already in use by ISA cards. PCI takes care of the rest.

PCI allows IRQs to be shared, which helps to solve the problem of limited IRQs available on a PC. For example, if there were only one IRQ left over after ISA devices were given their required IRQs, all PCI devices could share it. In a PCI-only machine, there cannot be insufficient IRQs, as all can be shared.

**Port** - A pathway into and out of the computer or a network device such as a switch or router. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems and printers.

**RJ-45** (Registered Jack-45) - A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

**Storage** - The semi-permanent or permanent holding place for digital data.

**STP** (Shielded Twisted Pair) - Telephone wire that is wrapped in a metal sheath to eliminate external interference.

**TCP/IP** - Transmission Control Protocol/Internet Protocol (TCP/IP) is the basic communication language or protocol of the Internet. It can also be used as a communications protocol in a private network (either an intranet or an extranet). When you are set up with direct access to the Internet, your computer is provided with a copy of the TCP/IP program just as every other computer that you may send messages to or get information from also has a copy of TCP/IP.

**Throughput** - The amount of data moved successfully from one place to another in a given time period.

**UTP** - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

**Wake-on-LAN** - Wake on LAN is a technology that allows a network professional to remotely power on a computer or to wake it up from sleep mode.

## Specifications

### Specifications for LNE100 ver. 5

<b>Model No:</b>	LNE100TX ver.5
<b>Standards:</b>	IEEE 802.3, IEEE 802.3u, PCI 2.1, ACPI, PC99
<b>Protocol:</b>	CSMA/CD
<b>Ports:</b>	One 10BaseT/100BaseTX RJ-45 Port
<b>Cabling Type:</b>	UT Category 5 or better
<b>Speed (Mbps):</b>	Full Duplex: 20Mbps or 200Mbps Half-Duplex: 10Mbps or 100Mbps
<b>WOL Support</b>	Power Management Event (PME)
<b>Bus Type:</b>	32-Bit PCI
<b>LEDs</b>	Link/Activity, 100Mbps

### Specifications for EZXS55W ver. 2

<b>Model</b>	EZXS55W ver. 2
<b>Standards</b>	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX)
<b>Protocol</b>	CSMA/CD
<b>Ports</b>	Five 10BaseT/100BaseTX RJ-45 Ports, One Shared RJ-45 Uplink Port
<b>Speed Per Port (Mbps)</b>	10Mbps (10BaseT) 100Mbps (100BaseTX)
<b>Cabling Type</b>	<b>10BaseT:</b> Category 3 UTP (or better) <b>100BaseTX:</b> Category 5 UTP (or better)
<b>Topology</b>	Star
<b>LEDs</b>	Power, 100Mbps*, Link/Activity* Full/Col* (*per port)

## Environmental

**LNE100TX ver. 5**

<b>Dimensions:</b>	4.8 x 4.75 X .75 inches (122 mm x 121 mm x 19 mm)
<b>Unit Weight:</b>	1.6 oz. (0.045 kg)
<b>Power:</b>	5W Maximum
<b>Certifications:</b>	FCC Class B, CE Mark Commercial
<b>Operating Temp:</b>	32°F to 122°F (0°C to 50°C)
<b>Storage Temp :</b>	-4°F to 158°F (-20°C to 70°C)
<b>Operating Humidity:</b>	10% to 90%, Non-Condensing
<b>Storage Humidity:</b>	5% to 95%, Non-Condensing

**EZXS55W ver. 2**

<b>Dimensions</b>	4.5" x 3.5" x 1.3" (114mm x 154mm x 48mm)
<b>Unit Weight</b>	4.7 oz. (.39Kg)
<b>Power</b>	3.3V DC, 5A
<b>Certifications</b>	FCC Class B, CE Mark Commercial, UL and CSA Listed
<b>Operating Temp.</b>	0°C to 50°C (32°F to 122°F)
<b>Storage Temp.</b>	-4°F to 158°F (-20°C to 70°C)
<b>Operating Humidity</b>	-20°C to 70°C (-4°F to 158°F)
<b>Storage Humidity</b>	5% to 90% Non-Condensing

## Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS DOES NOT OFFER REFUNDS FOR ANY PRODUCT.

LINKSYS OFFERS CROSS SHIPMENTS, A FASTER PROCESS FOR PROCESSING AND RECEIVING YOUR REPLACEMENT. LINKSYS PAYS FOR UPS GROUND ONLY. ALL CUSTOMERS LOCATED OUTSIDE OF THE UNITED STATES OF AMERICA AND CANADA SHALL BE HELD RESPONSIBLE FOR SHIPPING AND HANDLING CHARGES. PLEASE CALL LINKSYS FOR MORE DETAILS.

## Contact Information

For help with the installation or operation of this product, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

<b>Sales Information</b>	800-546-5797 (LINKSYS)
<b>Tech Support</b>	888-793-4632
<b>RMA Issues</b>	949-261-1288
<b>Fax</b>	949-261-8868
<b>Email</b>	support@linksys.com
<b>Web</b>	<a href="http://www.linksys.com">http://www.linksys.com</a>
<b>FTP Site</b>	<a href="ftp.linksys.com">ftp.linksys.com</a>



<http://www.linksys.com>

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