

*Instant Gigabit Series*

# EtherFast® 10/100/1000 8+1 Workgroup GigaSwitch Starter Kit



*Use this guide to install :*

*EG0801SK*

**User Guide**

**LINKSYS®**

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#### FCC STATEMENT

The EtherFast® 10/100/1000 8+1 Workgroup GigaSwitch Starter Kit has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used 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

## Your EtherFast® 10/100/1000 8+1 Workgroup Gigaswitch

Congratulations on purchasing your new Linksys EtherFast® 10/100/1000 Workgroup GigaSwitch Starter Kit for your network's 10/100/1000 migration needs. The EtherFast® 10/100/1000 Workgroup GigaSwitch Starter Kit is the easiest, most versatile way to boost your network's performance while migrating to the speed and power of Gigabit. Unlike hubs that ration your network bandwidth and may slow down with high data traffic, your Linksys Switch fuels each of your computers with full duplex transfer mode on top of dedicated bandwidth to unleash your network speed.

In migrating your network to Fast Ethernet's 1000Mbps speed, your new Linksys 10/100/1000 GigaSwitch is ready to go to work for you immediately. Apply this switching power to your network, and your data traffic efficiency improves several times over. Connect your file server to the Gigabit port, and speed up access time for all your users in just one move. And when you're ready, switch your way to full duplex speeds of up to 2000Mbps--the speed is yours!

Every Switch packs a complete suite of advanced data error detection features for surefire communication every time. Auto partitioning and data collision control ensure that not a single bit is lost during even the heaviest moments of network traffic. Built to last, your new EtherFast® 10/100/1000 Workgroup GigaSwitch delivers optimal high-end video, gaming, multimedia, database, and other speed-intensive applications at blazing speeds.

## Features

- 8 Port 10/100 Mbps Auto-Detect Half/Full Duplex Switch Ports and 1 Gbps Full Duplex Switch Port
- Internal Built-In 256 KB SRAM for Buffer Memory (Switch)
- Capable of Storing Up to 4096 MAC Addresses with Address Learning
- Non-BLocking Shared Memory Architecture
- Supports Aging Function and 802.3x Flow Control for Full Duplex and Back-Pressure Function for Half-Duplex Operation (Switch)
- Easy to Use Plug-and-Play 10/100/1000 PCI Network Card
- Full Duplex Capability at Speeds Up To 2000Mbps (Adapter)
- Connects to 10Mbps, 100Mbps, and Gigabit Ethernet Networks (Adapter)
- Signal Regeneration Ensures Data Transfer Integrity
- Free Technical Support—24 Hours a Day, 7 Days a Week for North America Only
- One-Year Limited Warranty

## Package Contents



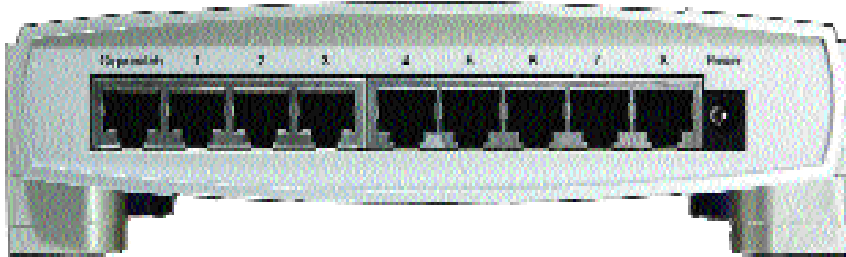
- One Instant Gigabit (32-Bit) Adapter
- One 10/100/1000 8+1 Workgroup Gigaswitch®
- One Category 5E Network Crossover Cable (10 ft.)
- One 3.5" Driver Disk
- One AC Power Adapter
- One Stacking/Wall Mounting Module
- One User Guide and Registration Card

## System Requirements (for the PCI Adapter)

- Pentium 90Mhz or Faster
- Minimum 16MB of RAM
- PCI Local Bus 2.1 or higher compliant
- Windows 95 (or higher) Operating System

# Getting to Know the EtherFast® 10/100/1000 Workgroup GigaSwitch

## The 10/100/1000 Workgroup GigaSwitch's Rear Panel



### The Workgroup GigaSwitch's Ports

#### GigaSwitch

The **GigaSwitch** port is used to connect to the PC into which you have installed your Instant Gigabit Network Adapter. Or, it can be used to expand your network by connecting to a 1000Mbps hub or switch, which is done by simply running the included Category 5e cable from the **GigaSwitch** port to the uplink port on the 1000Mbps hub or switch. When connecting to your Instant Gigabit Network Adapter, just plug one end of the included Category 5e cable into the RJ-45 port on the Adapter and the other end into the GigaSwitch port on the GigaSwitch.

#### Ports 1-8

These eight **LAN** (Local Area Network) ports connect to network devices, such as PCs, print servers, network attached storage, and remote hard drives at 10/100Mbps.

#### Power

The **Power** port is where you will connect the power adapter.

## The 10/100/1000 Workgroup GigaSwitch's Front Panel



### The LED Indicators

#### Power

*Amber.* The **Power** LED lights up when the Switch is powered on.

#### Link/Act

*Green.* The **Link/Act** LED serves two purposes. If the LED is continuously lit up, the Switch is successfully connected to a device through the corresponding port (**1** through **8**). If the LED is flickering, the GigaSwitch is actively sending or receiving data over that port.

#### FD/Col

*Green.* The **FD/Col** LED also serves two purposes. If this LED is lit up continuously, the connection made through the corresponding port is running in Full Duplex mode. If the LED flickers, the connection is experiencing collisions. Infrequent collisions are normal. If this LED flickers too often, there may be a problem with your network.

#### 10/100

*Amber.* The **10/100** LED lights up for any port when that port is operating at 100Mbps. If the LED is off while the network is operating, the port is operating at 10Mbps.

#### 1000

*Amber.* The **1000** LED lights up when the Gigaswitch port is operating at 1000Mbps. If the LED is flickering, data is being transmitted through the port.

#### 1000 Link/Act

*Green.* The **1000 Link/Act** LED lights up when the Gigabit port is operating at 1000Mbps.

#### 1000 FD/Col

*Green.* The **1000 FD/Col** LED lights up continuously when the switch is operating at 2000Mbps and flickers when experiencing data collisions.

# Getting to Know the Instant Gigabit Network Adapter



## The LEDs

**Link/Act** The Link LED will illuminate when the card has been successfully connected to a network and flicker when there is network activity.

**1000** The 1000 LED will illuminate when the card is operating at 1000Mbps. If the 1000 LED is not illuminated and the PC is powered on, the card will have automatically determined that your network is operating at a slower speed and compensate accordingly.

## The RJ-45 Port

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

# Planning Your Network

## Overview

Building a Gigabit network involves more topology rules in addition to the 10BaseT/100Base-TX network rules. These rules specify distance limitations and cabling specifications. Data loss, collisions, and other network problems causing down time are likely to occur if the rules below are not followed.

- Use UTP Category 5 (or better) Ethernet cabling with four pairs of wires and RJ-45 tips for all Fast Ethernet connections. Gigabit connections require Category 5e (or better).
- Use the chart below to position your switches, hubs and workstations.

From	To	Maximum Distance
Switch	Switch or Hub*	100 meters (328 feet)
Hub*	Hub*	5 meters (16.4 feet)
Switch or Hub	Workstation	100 meters (328 feet)

\*Hub refers to any type of 100Mbps hub, including regular hubs and stackable hubs. A 10Mbps hub connected to another 10Mbps hub can span up to 100 meters (328 feet).

- No more than two hubs should be uplinked in a row in a Fast Ethernet network. A set of stacked hubs, which must be stacked with a stacking cable, counts as one hub or node on the network.
- In Fast Ethernet networks, your 10/100 Switch acts as a repeater, regenerating data signals before passing them on to the next device. Passive hubs do not function as repeaters.

## Switches Versus Hubs

Your Workgroup GigaSwitch boosts your network performance several times over, conserving your time, money and resources. The scalability of your Switch, its full duplex data transfer and dedicated bandwidth all contribute to maximizing efficiency in your Fast Ethernet network.

Your Switch's **10/100** feature gives you a key advantage over other forms of networking by upgrading speed-critical network segments to 100Mbps while allowing existing 10BaseT networks to operate with the Switch. Allowing 10BaseT and 100BaseTX hardware speeds to run alongside each other elimi-

nates the need to purchase new hardware, rewire and reconfigure an entire site all at once. This **scalability** factor ensures that Fast Ethernet will not fall obsolete to upgrades in speed standards and maintains use of all your old equipment until you decide to buy speedier replacements.

Scalability allows you to budget for your networking needs over time. Now networks can run fast and slow segments at the same time for different users and departments.

Switches also feature **full-duplex data transfer**, meaning that all computers on the switch can “talk” to the switch at the same time. Plus, switches can send and receive data simultaneously to all connections, whereas a hub cannot. A hub simply works with one computer at a time and only sends or receives data, since it cannot handle two way communication.

In addition to full-duplex transfer, your Switch surges your network with **dedicated bandwidth** to each node. For instance, if you connect five computers to your EtherFast 10/100/1000 8+1 Workgroup GigaSwitch, then each computer will get a dedicated bandwidth of 100Mbps at full duplex transfer. If you run 5 computers from a 100Mbps hub, then each computer will only share a part of the 100Mbps bandwidth.

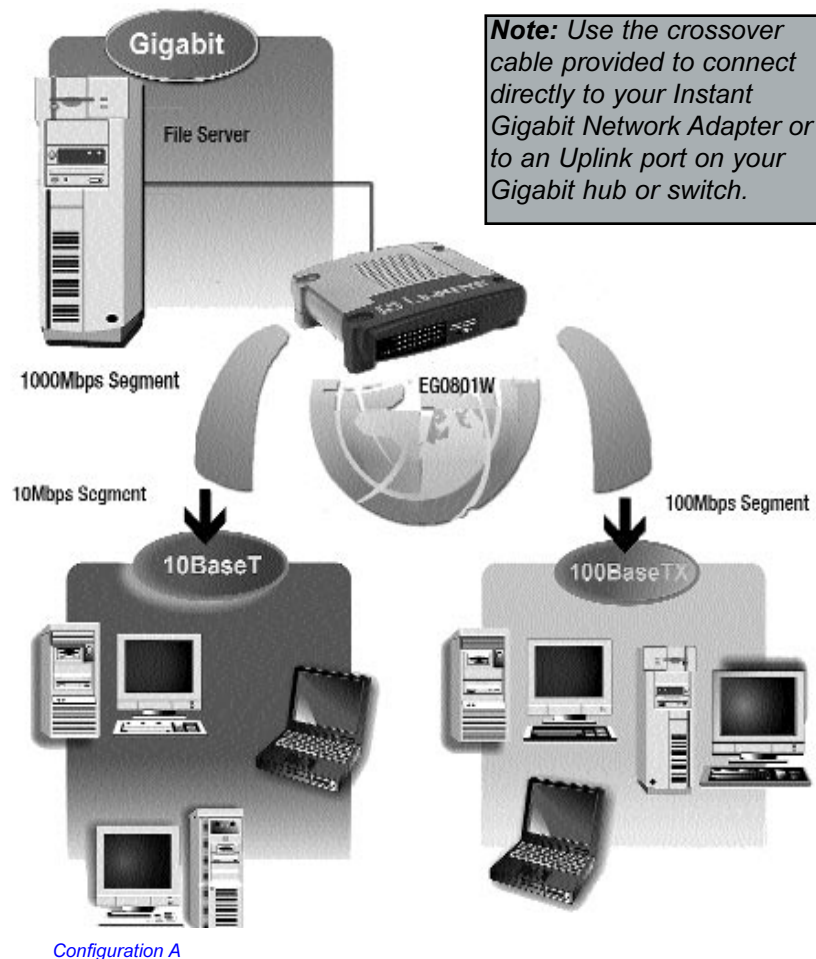
A network without a switch is called a **shared network** because every node on the network competes for a fraction of the total bandwidth. In a shared network, data packets are randomly broadcasted to all stations until they discover their intended destination. Consequently, considerable time and bandwidth is wasted on data packets swimming along network lines before they find their correct address. A switch, on the other hand, looks at the address for each data packet and delivers it directly to the correct destination.

Gigabit Ethernet is ideal for deployment as a backbone interconnect between 10/100BASE-T switches, and as a connection to high-performance servers. With the addition of Gigabit Ethernet, Ethernet delivers scalable solution (10/100/1000 Mbps) for the LAN from the desktop to the workgroup, and the backbone.

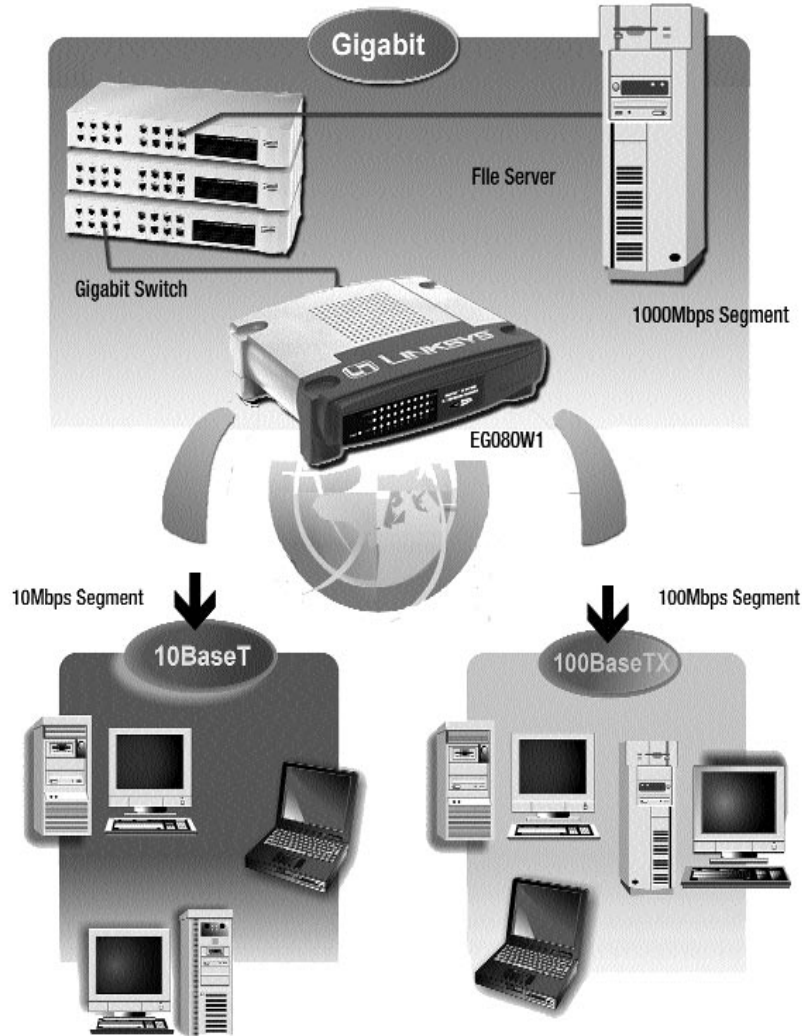
## Where to Install the Instant Gigabit Network Adapter

If you are setting up a network for the first time, or if you already have a 10/100 BaseT network without Gigabit capability, you may be wondering which PC should have the Instant Gigabit Network Adapter installed in it for best performance. In either of the above situations, we recommend that you set up your network in the configuration shown below (*Configuration A*).

The Instant Gigabit Network Adapter is installed in your File Server (or your Internet gateway) and connected to your Workgroup GigaSwitch using the provided cable, which is in turn connected to the rest of your network. If you do not have a File Server or Internet gateway, the Adapter should be installed in the PC that is most often accessed on the network.



If you are already operating in a Gigabit environment, we suggest a configuration like the one shown below (*Configuration B*). Your Instant Gigabit Network Adapter would be installed in your file server, which would be attached to your Gigabit hub or switch, maximizing your file server's bandwidth. The Workgroup GigaSwitch would be connected to one of the other Gigabit ports on your Gigabit switch or hub, acting like a bridge between the 1000Mbps section of your network and the 10/100 portion of your network.



Configuration B

# Installing the EtherFast® 10/100/1000 8+1 Workgroup GigaSwitch Starter Kit onto Your Network

## Overview

Installing your Starter Kit will involve installing both the Adapter and the GigaSwitch. If you are integrating these items into an existing network, some additional steps may be necessary involving settings for your existing equipment. Consult your Network Administrator for more information about how the Starter Kit will interface with your existing network components.

## Installing The Instant Gigabit Network Adapter

Each Instant Gigabit Network Adapter is equipped with an RJ-45 port that automatically adjusts to either 10Mbps, 100Mbps, or 1000Mbps speeds, allowing your PC to attach to either Gigabit Ethernet, Fast Ethernet, or regular Ethernet network segments without additional hardware or software.

The card should **only** be used with twisted-pair cabling, such as 10BaseT, 100BaseTX, or 1000BaseT cabling. For best results, we recommend using Category 5e or better unshielded twisted-pair cabling although category 3 can be used for 10BaseT segments. **Only Category 5e or better cable will work for Gigabit transfer.** If you use the cable included in your Starter Kit, both your Adapter and GigaSwitch will operate at the maximum speed of your network. In any case, the cable that runs from your PC's Instant Gigabit Network Adapter card to your network should not exceed **100 meters** (328 feet).

1. **Power off your PC** and any peripheral equipment attached to it. Unplug your PC's power cord. For suggestions on choosing the PC in which to install the Adapter, see the section called *Planning Your Network*.
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 network cards fit snugly into them. Remove the metal slot cover on the back of the PC, then insert the Instant Gigabit Network Adapter into any available PCI card slot.
4. **If you are interested in Wake-On-LAN**, refer to the Appendix for instructions on Wake-on-Lan installation. Wake-On-LAN can be installed at any time, so there is no need to do it now.
5. **Once your Instant Gigabit Network Adapter is firmly in place**, secure its fastening tab to your PC's chassis with a mounting screw.
6. **Replace your PC's cover.**
7. **Connect one end of the twisted-pair cable** to your PC at the Instant Gigabit Network Adapter's RJ-45 port.
8. **Plug the other end of the cable** into your network's Gigabit hub or switch port.
9. **Reconnect your PC's power**, then power on your computer. Your computer will automatically recognize the card and assign it a unique IRQ ("interrupt") and I/O address.

**The card installation is complete. Next, you must configure your PC's operating system to work with the Instant Gigabit Network Adapter.**

**Turn to the appropriate section for your PC's operating system for driver installation instructions.**

## Installing The Workgroup Gigaswitch

### Connecting Computers To Your Switch

Your Switch's rear panel has eight standard RJ-45 ports, plus a Gigabit 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. The Gigabit port operates at 2000 Mbps.

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 the switch, then plug the other end of the cable into the computer's network adapter.

To connect the Instant Gigabit Network Adapter to the Workgroup GigaSwitch, plug one end of the cable provided in the package into the RJ-45 port on the Instant Gigabit Network Adapter and the other into the GigaSwitch port on the back of the Workgroup GigaSwitch.

### Uplinking to Other Switches and Hubs

Your GigaSwitch can be uplinked to other switches, hubs, and similar network devices, provided that those devices have an uplink port. Attach the Category 5e cabling to the uplink port of the network device that you are uplinking to, and plug the other end of the cable into one of the open ports (not the Gigabit port) on your GigaSwitch.

## Connecting Your Hardware Together and Booting Up

Plug in the GigaSwitch'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.

## Tips on Switching Your Network

Here are some of the ways your new EtherFast® 10/100/1000 8+1 Workgroup GigaSwitch can help you optimize your network speed.

- Speed up Nodes From Your 10BaseT Network

In a 10BaseT network, connect your hubs, file servers, and key users, such as network administrators, directly to your Switch to channel dedicated bandwidth in full-duplex mode (if operating in full-duplex) to each station. The Switch will have dedicated communication with all its connections simultaneously, whereas a hub will only communicate in half-duplex transfer mode and broadcasts information to all ports.

- Conserving Bandwidth with 10Mbps & 100Mbps Segments

10BaseT and 100BaseTX hardware are not readily compatible, but your 10/100 Switch can designate network segments of different speeds. This allows you to run one 10Mbps segment to serve users without a need for considerable speed, and a faster 100Mbps segment devoted to users who depend heavily on graphics, multimedia, database, or other speed-intensive applications. With switched segmentation, your 100Mbps users will not be slowed down by the users on the 10Mbps segment.

- Run 10Mbps Peripherals in Your Fast Ethernet Network

Most of the network peripherals in place today run at 10Mbps, since 10BaseT has been the standard network speed to date. These peripherals, designed to operate at 10Mbps, cannot readily communicate with 100BaseTX equipment. A 10Mbps interface is also required for cable and DSL connections, which are quickly becoming very popular ways to access the Internet. Your 10/100 Switch provides your 10BaseT equipment and cable and DSL lines with a 10Mbps interface while still running your Fast Ethernet devices at 100Mbps.

- Strengthen Data Transfers Through Signal Regeneration

Your Switch functions as a repeater, which regenerates data signals as they pass through it. This feature acts as a safeguard to deter data loss and ensure that transmissions arrive at their destination intact. Switches positioned between hubs can preserve your data's integrity and eliminate your need to buy and use repeaters in your Fast Ethernet network.

# Installing the Drivers for Windows 95

## Overview

After installing the Instant Gigabit Network Adapter 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. For troubleshooting tips during setup, refer to the Troubleshooting section.

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. **Start up your PC.**
2. **Windows 95 will automatically detect** the Network Adapter in your computer. If the *Update Device Driver Wizard* window appears (see next page), you are using Windows 95 version B. If a window other than this appears, you are using Windows 95 version A. For Windows 95 version A driver installation, refer to the Appendix.

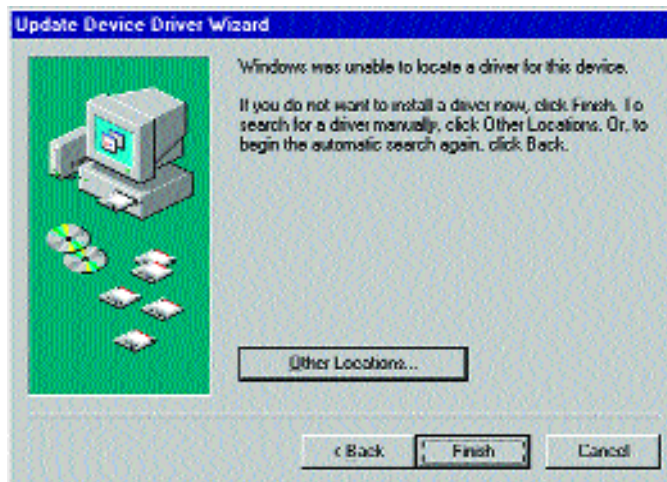
*Note: During the installation, Windows 95 may ask you for a **computer or workgroup name**. If so, turn to step eight in **Network Component Configuration**. Once you have established your computer and workgroup names, go back to where you left off and continue with the installation.*

## Installing the Driver in Windows 95 Version B

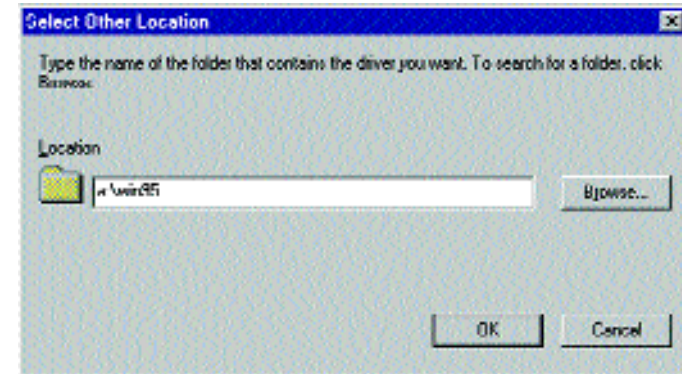
1. While the *Update Device Driver Wizard* window is visible, insert the **Instant Gigabit Network Adapter Driver Disk** into your floppy drive and click the **Next** button.



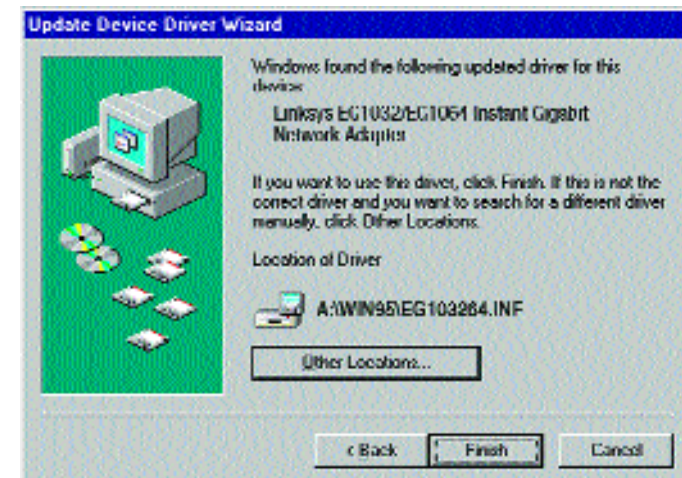
2. Windows 95 will find the *Linksys EG1032/EG1064 Instant Gigabit Network Adapter* driver on the disk. Click the **Finish** button to continue. If Windows fails to find the driver, click the **Other Locations** button to browse for the driver.



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

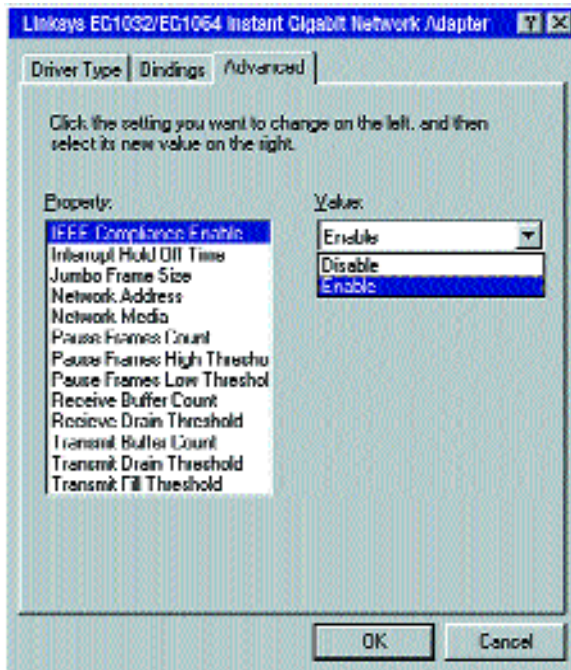


4. Once Windows has located the drivers, the following window will appear. To use this driver, click the **Finish** button.



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.

5. Once the driver is installed, the following screen will appear. The default settings should allow the Adapter to function properly. Click the **OK** button to continue. For more information about these settings, refer to the **Advanced Settings** section of this manual.



6. 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 Instant Gigabit Network Adapter for Windows 95, 98, and Millennium* for more information about the setup of the Adapter.**



**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.

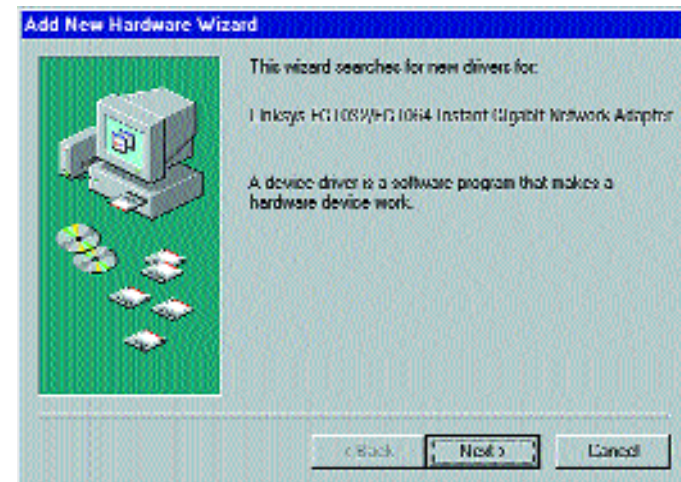
## Installing the Drivers for Windows 98

### Overview

After physically installing the Instant Gigabit Network Adapter 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 Network Adapter's Driver

1. If you haven't already, **start up your computer**.
2. **Windows 98 will automatically detect** the presence of the PCI Ethernet Controller hardware in your computer.
3. Insert the *Instant Gigabit Network Adapter 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**.

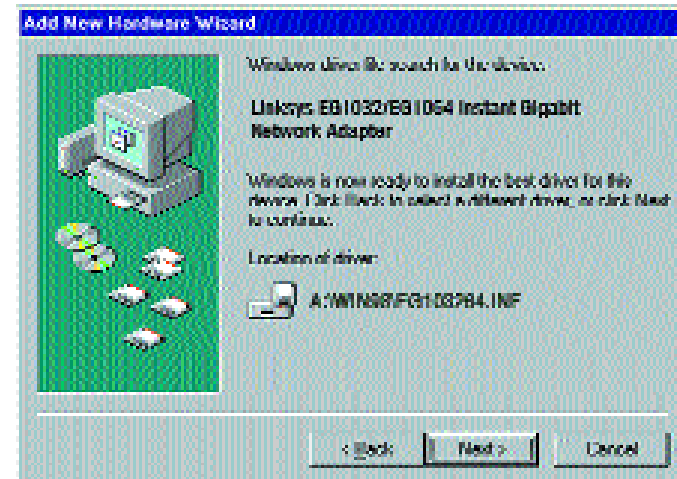


5. Select **Specify a location** and enter **a:\win98** in the drop down box. Click **Next** to continue.



*Note: Windows 98 may ask you for a computer or workgroup name. If so, see the next section, **Network Component Configuration**. Once you have established your computer and workgroup names, return to where you left off and continue with the installation.*

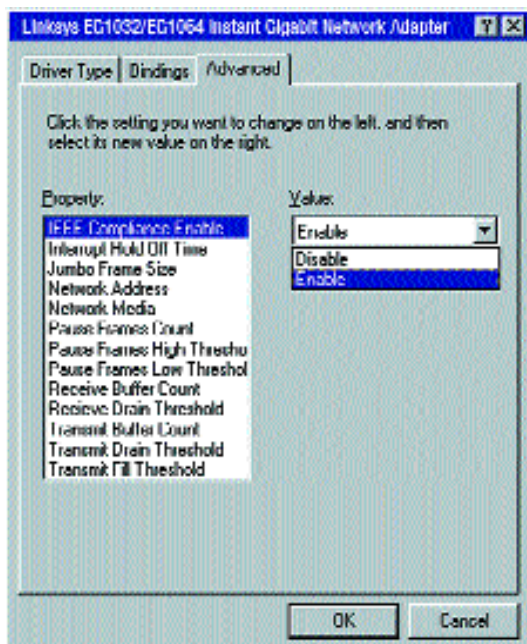
6. A window will open saying that Windows is now ready to install the *Linksys EG1032/EG1064 Instant Gigabit Network Adapter* driver. Click **Next**.



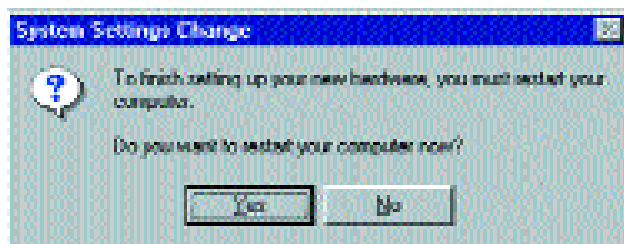
7. Windows will begin copying the Instant Gigabit Network Adapter's driver files to your PC.

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. Once the driver is installed, the following screen will appear. The default settings should allow the Adapter to function properly. Click the **OK** button to continue. For more information about these settings, refer to the **Advanced Settings** section of this manual.



9. 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 Instant Gigabit Network Adapter for Windows 95, 98, and Millennium* for more information about the setup of the Adapter.



**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

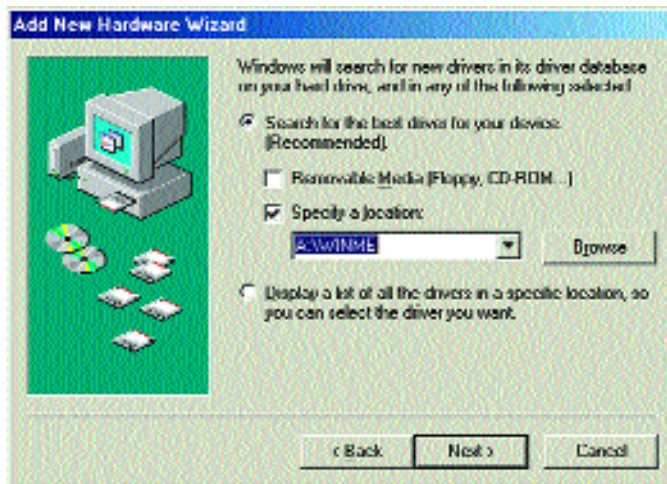
After physically installing the Instant Gigabit Network Adapter in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will depend on your current system configuration. If at any time during the installation you encounter problems,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

### Installing the Network Adapter'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 *Instant Gigabit Network Adapter 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. Make sure that **Search for the best driver for your device (Recommended)** is selected. Check the **Specify a location** option and enter **A:\WINME** in the drop down box. Click **Next**.

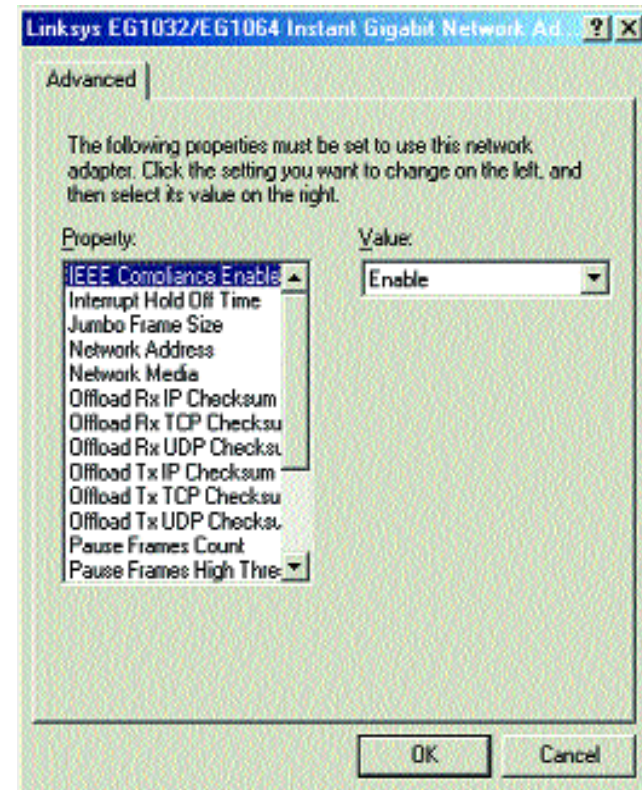


5. Once the driver has been located, the following screen will appear. Click the **Next** button.

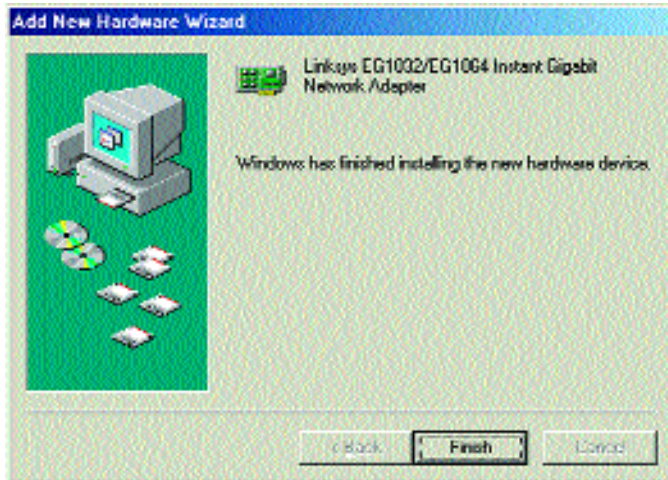


6. At this point, the installation may require files from your Windows Millennium CD-ROM. If prompted, insert your Windows Millennium CD-ROM into your CD-ROM drive and enter **d:\win9x** in the box that appears (where "d" is the letter of your CD-ROM drive). If you were not supplied with a Windows Millennium 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\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.

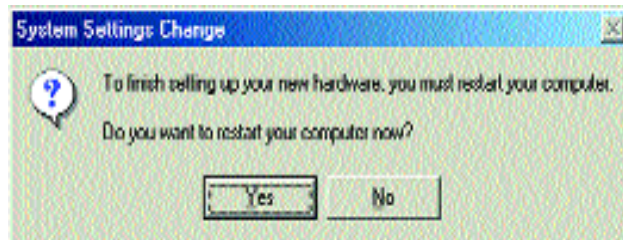
7. Once the driver is installed, the following screen will appear. The default settings should allow the Adapter to function properly. Click the **OK** button to continue. For more information about these settings, refer to the **Advanced Settings** section of this manual.



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



9. 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 Instant Gigabit Network Adapter for Windows 95, 98, and Millennium* for more information about the setup of the Adapter.



**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.

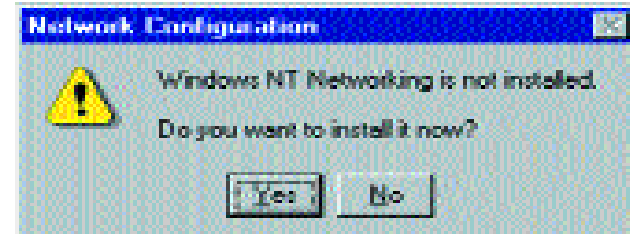
# Windows NT 4.0 Installation & Setup

## Overview

The following instructions will set up the Instant Gigabit Network Adapter in a computer running NT 4.0 server/workstation. You should have your original Windows NT CD-ROM available 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 (or as a user with administrative rights).
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 Instant Gigabit Network Adapter's network driver, and continue to the next section.

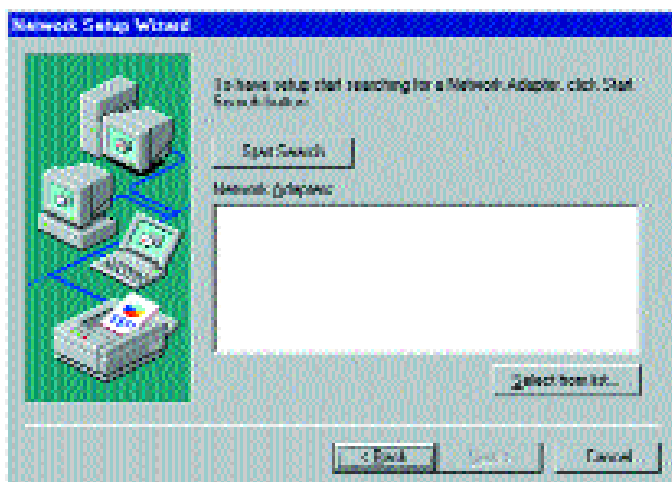


- If you don't see this message, NT networking is already installed and you should turn to the **Installing the Instant Gigabit Network Adapter Driver if Networking is Already Installed** section.

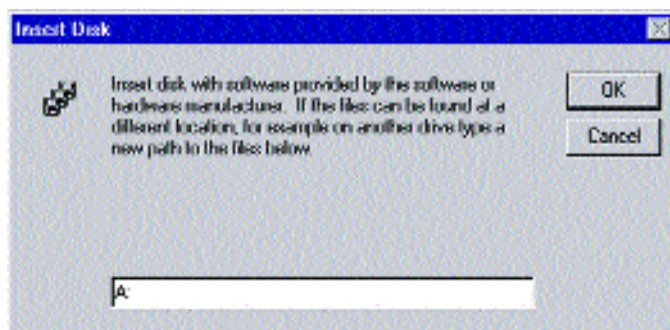


## Installing NT Networking and the Network Adapter Driver

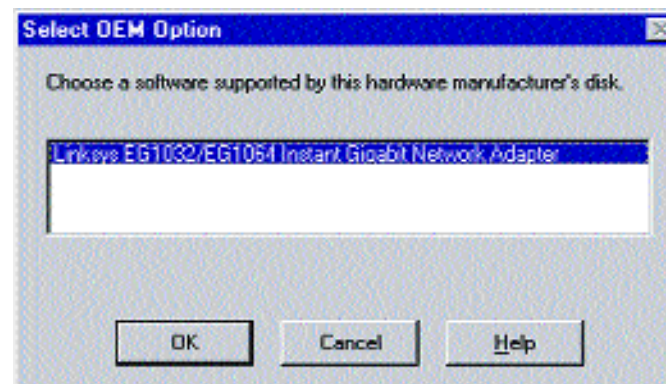
1. After clicking on **Yes**, the *Network Setup Wizard* window will appear.
2. Put a checkmark next to the *Wired to the network* option. Click **Next**.
3. Click on the **Select from list...** button to select a network adapter.



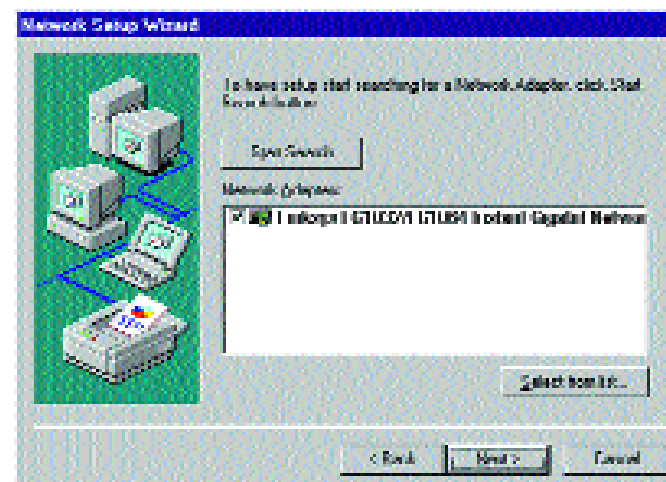
4. Click on the **Have Disk** button. Insert the *Instant Gigabit Network Adapter Driver Disk* into drive A. Type **a:\** into the box on your screen and click **OK**.



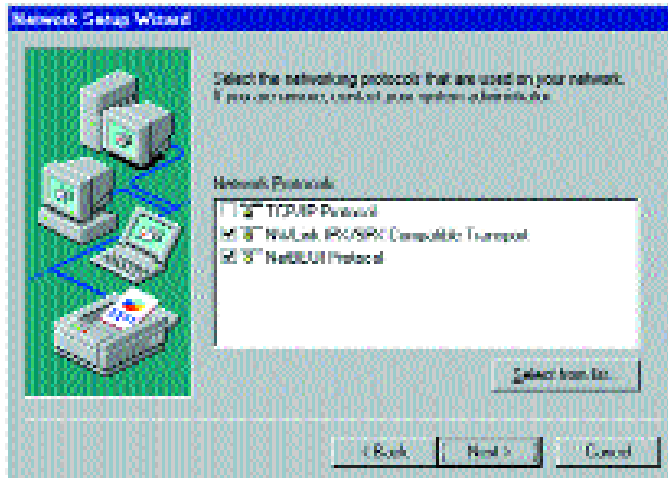
5. Highlight the **Linksys EG1032/EG1064 Instant Gigabit Network Adapter** entry in the window that appears. Click **OK**.



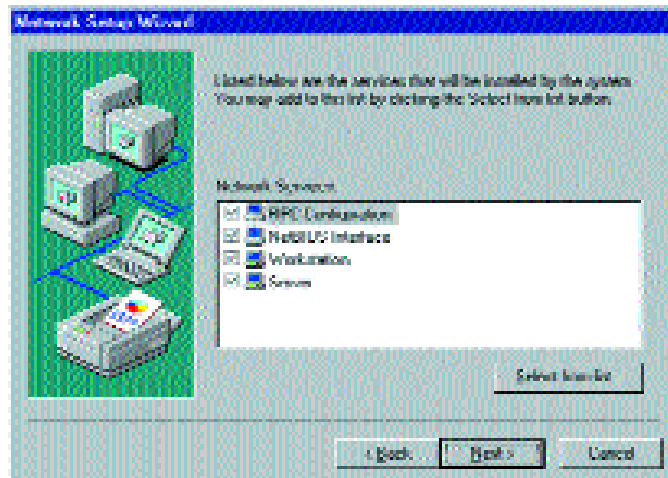
6. The adapter will be added to the list of installed Network Adapters. Click **Next**.



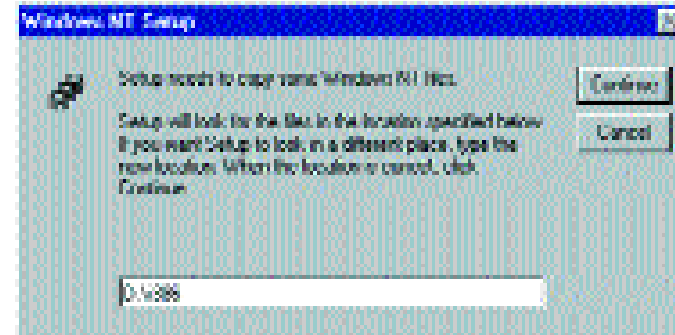
7. Place **check marks** beside each listed network protocol that you wish to install. See your Microsoft Windows NT user guide or talk to your network administrator for more information about network protocols. When you're finished, click **Next**.



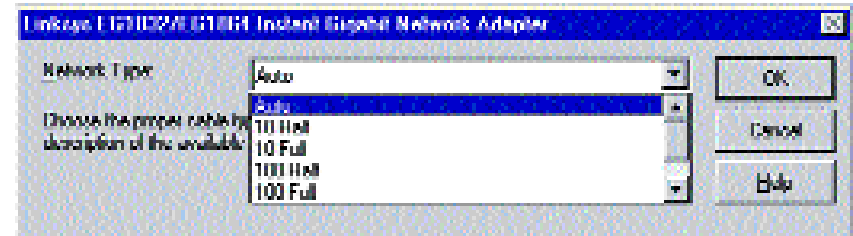
8. A list of services will appear. Click **Next** to approve these services, followed by **Next** again.



9. 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**.



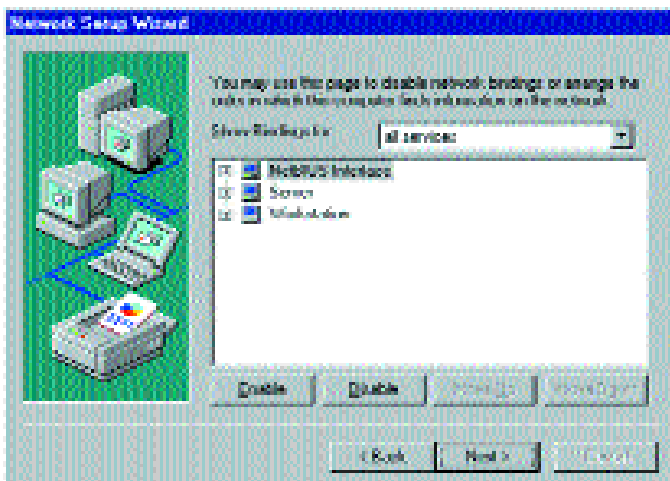
10. NT will ask you to choose a media type for the Instant Gigabit Network Adapter. Choose **AutoSense**. You can change these settings later if needed. When finished, click **OK**.



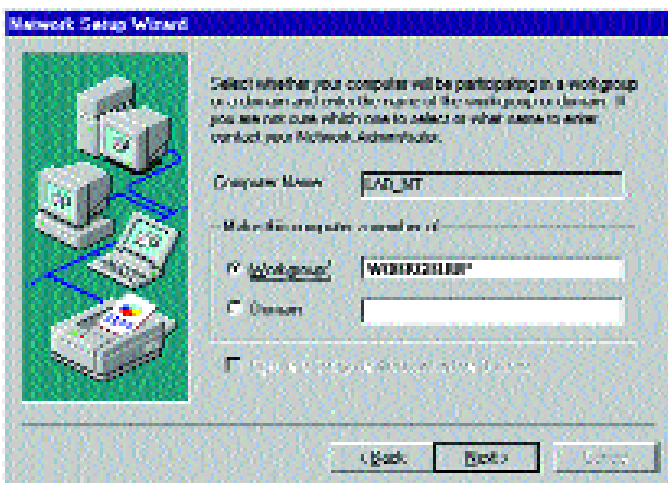
**Note:** If you install the *TCP/IP protocol*, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.

11. 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.

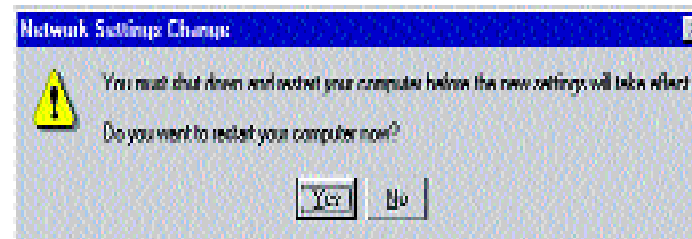
*Note: For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.*



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 a NT service pack, you must re-install that 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 Instant Gigabit Network Adapter is complete. Do not continue on with the next set of instructions. They are for NT users who already have their networking configured.**

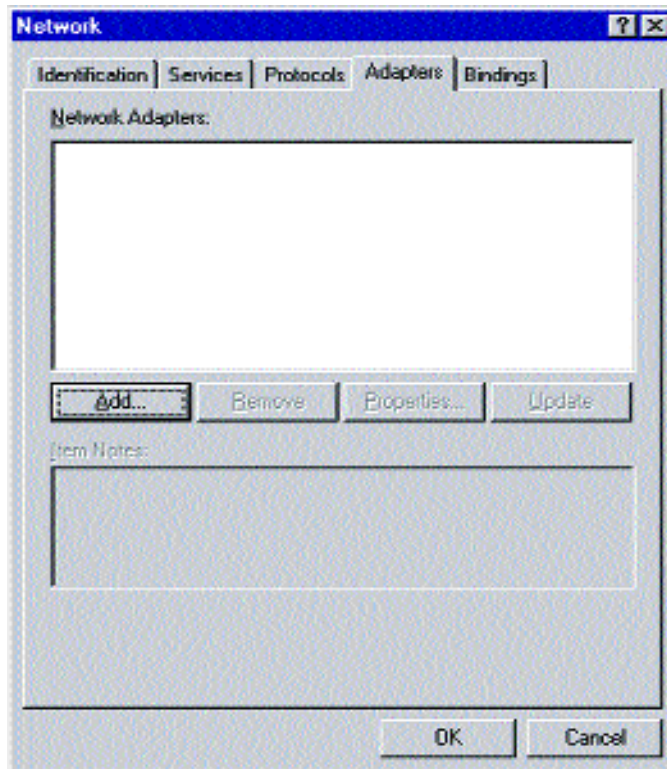
*Note: For information and help on choosing your bindings, services and protocols, ask your network administrator, or check your Windows NT documentation.*

 *Note: If you had previously installed an NT service pack, you must reinstall it now. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.*

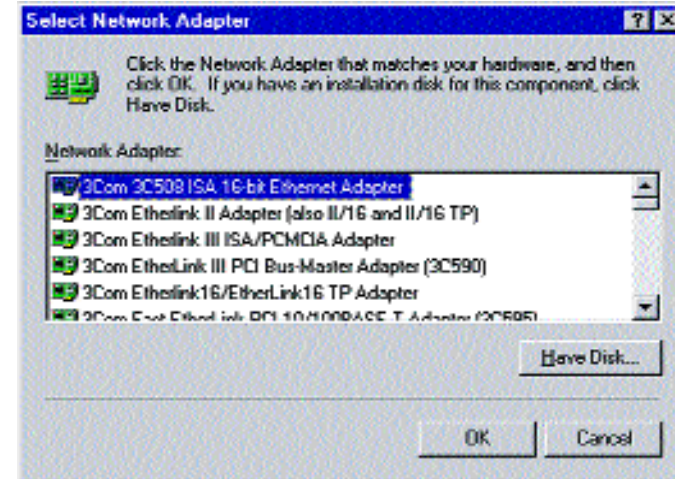
## Installing the Instant Gigabit Network Adapter if Networking is Already Installed

The following steps will install the Instant Gigabit Network Adapter'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.

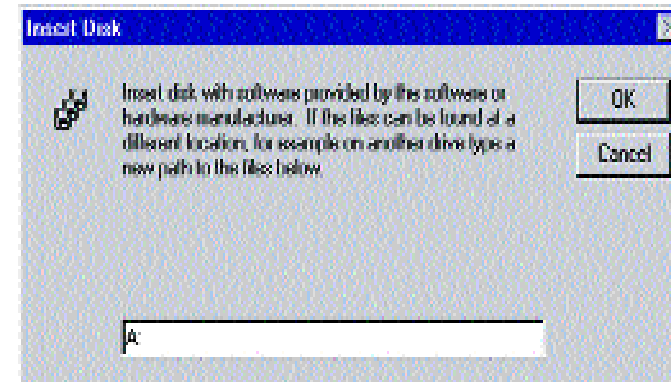


3. When the list of available network adapters appears, click the **Have Disk** button.

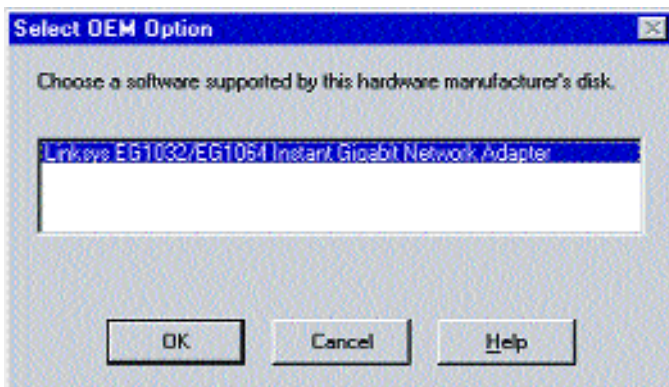


**Note:** If you install the **TCP/IP protocol**, refer to your system administrator or your Windows NT documentation when installation steps that aren't listed in this User Guide appear. Linksys does not provide technical support for the configuration or troubleshooting of the TCP/IP protocol.

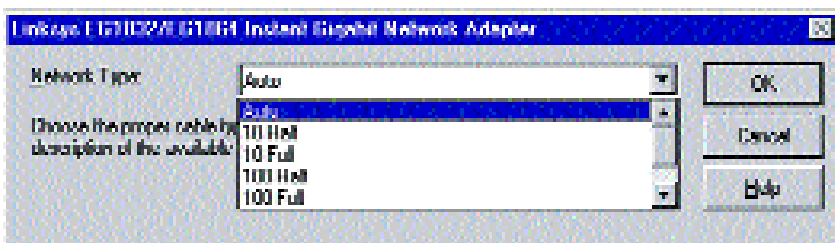
4. Put the Instant Gigabit Network Adapter disk into drive A. Type **a:\** into the box on your screen and click **OK**.



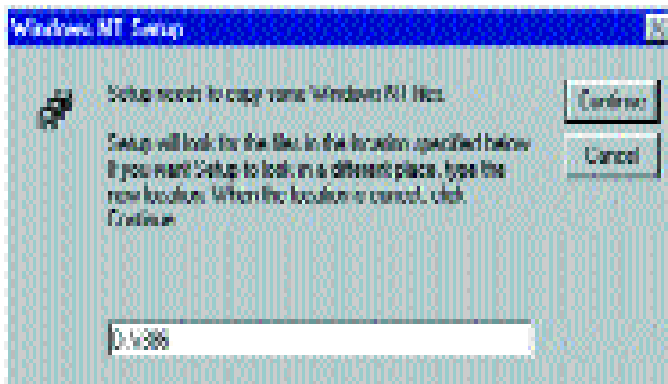
5. Highlight the **Linksys EG1032/EG1064 Instant Gigabit Network Adapter** entry in the window that appears. Click **OK**.



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



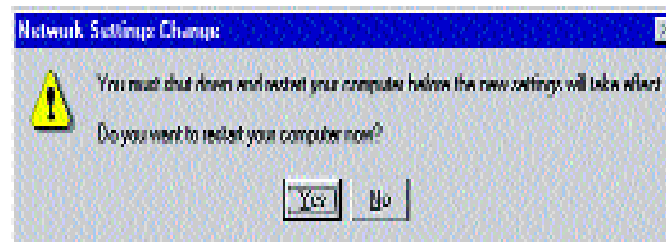
7. NT will probably ask you to supply your original Windows NT CD-ROM or setup disks. Direct Windows NT to the proper location (most likely D:\i386).



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.

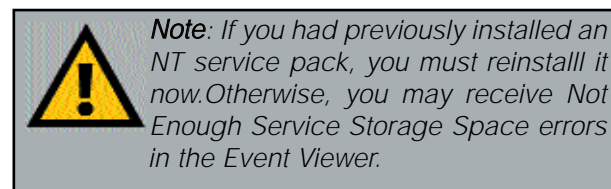
10. Remove your Driver Disk and CD-ROM and click **Yes** to restart your PC.



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 had previously installed a NT service pack, you must re-install that now. Otherwise, you may receive Not Enough Service Storage Space errors in the Event Viewer.
- 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 Instant Gigabit Network Adapter is complete



# Installing the Drivers for Windows 2000

## Overview

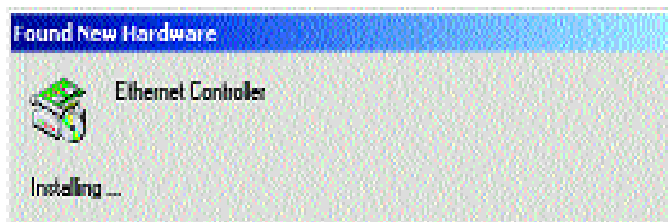
After physically installing the Instant Gigabit Network Adapter in your computer, follow these instructions to install the network driver. The installation procedure for the network driver will vary slightly depending on which version of Windows 2000 you are using, and on your current system configuration. 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 Network Adapter's Drivers

After physically installing the Instant Gigabit Network Adapter in your computer, follow these instructions to install the network driver.

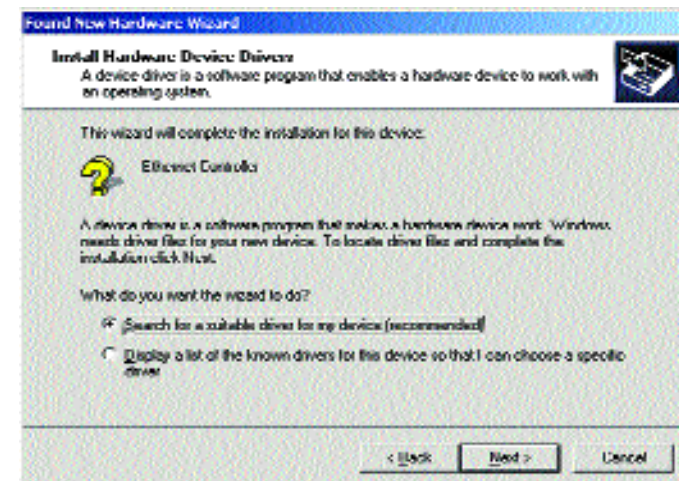
1. **Start your computer if you haven't already done so**, and boot Windows 2000. Log in if you are asked to. **You must have administrative rights to complete this installation.**
2. The *Found New Hardware* window will appear, indicating that Windows has found the Adapter.



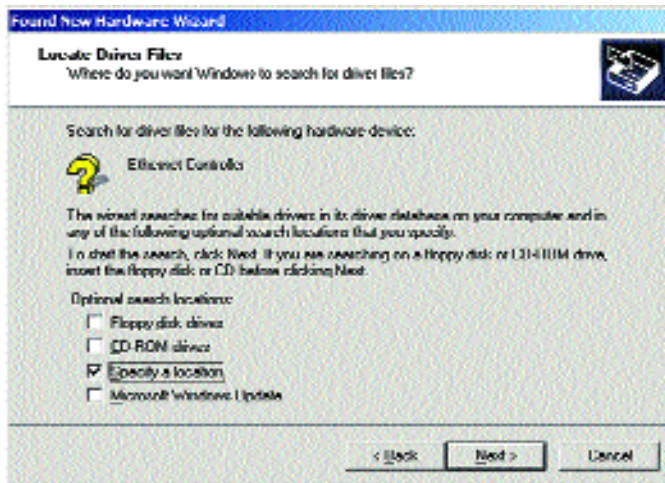
3. **Windows will display the *Welcome to the Found New Hardware Wizard* box.** Click **Next**.



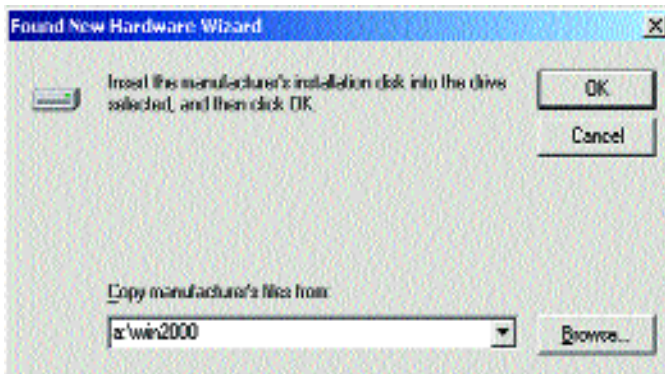
4. **The *Install Hardware Device Drivers* dialog box will appear.** When *Ethernet Controller* is displayed, select “*Search for a suitable driver for my device (Recommended)*”. Click **Next**.



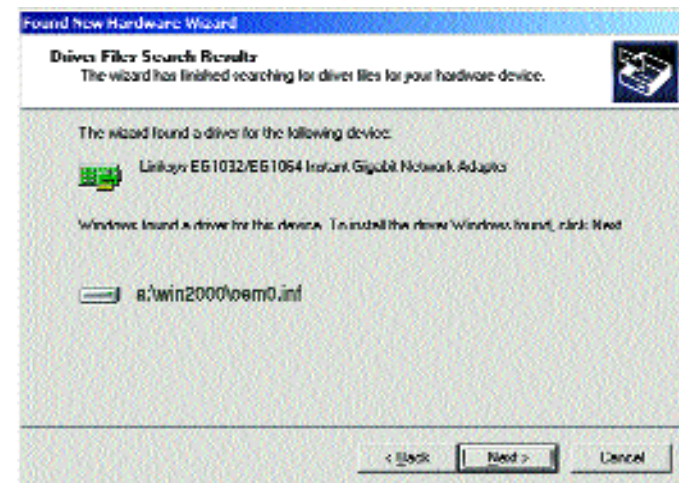
5. The **Locate Driver Files** dialog box will appear. Select “Specify a location”. Click **Next**.



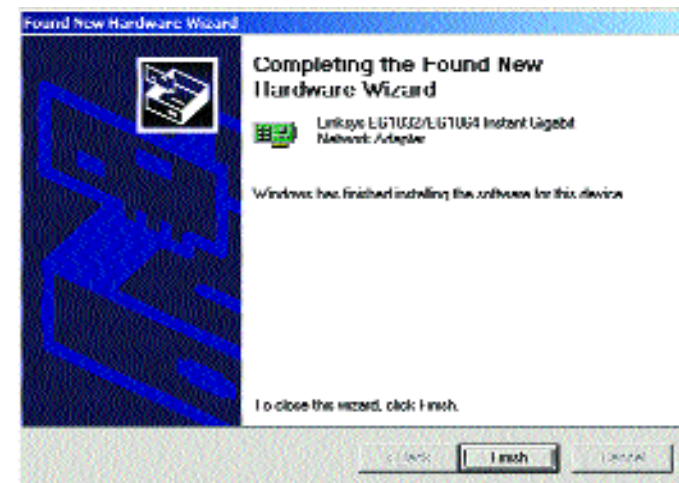
6. When the **Found New Hardware Wizard** box appears, insert the *Linksys Instant Gigabit Network Adapter Driver Disk* into your floppy drive. In the “Copy manufacturer’s files from” field, type “A:\Win2000”. Click **OK**.



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



7. The **Completing the Found New Hardware Wizard** dialog box will appear. The following adapter name will be shown: *Linksys EG1032/EG1064 Instant Gigabit Network Adapter*. 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.

# Advanced Properties

## Overview

These settings are provided to help troubleshoot the Adapter and to help configure the Adapter if your situation involves unusual circumstances. *The default settings of the Adapter should work in most cases. These settings should not be altered without a thorough understanding of the specifics of your network. If you change ANY of these settings, there is a good possibility that the Adapter will not function properly and/or not be recognized by the network.*

### Auto Negotiate

**Capabilities:** (Enable or Disable)  
Auto negotiates LAN speed and duplex.

### IEEE Compliance

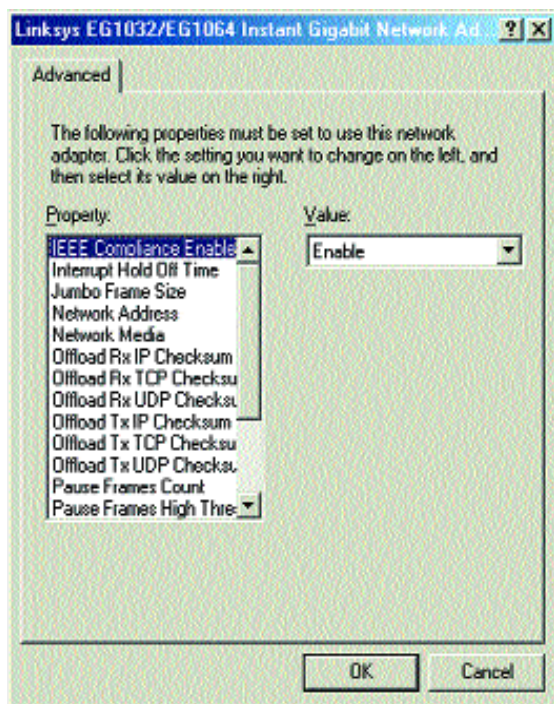
**Enable:** (Enable or Disable)  
Choosing Disable may prevent the device from communicating with other devices set to operate on the IEEE Standard.

### Interrupt Hold Off

**Time:** 1 (0-255)  
Specifies the time the adapter will wait for a busy interrupt request. Higher values indicate a longer wait time for the IRQ to be free before repeating a request.

### Jumbo Frame Size:

0 (0 - 65,535)  
The IEEE 802.3 standard specifies the maximum size of Ethernet frames at 1,518 bytes. A jumbo frame is simply one having up to 65,535 bytes. In a case where a server has to receive a massive amount of data, the required overhead of processing the individual frames could have negative effects on the server's CPU, and ultimately on overall server performance.



### Network Address:

Allows the user to configure the network address of the adapter, rather than using the one in ROM. If not specified, the address on the adapter will be used.

### Network Media:

Specifies the maximum speed at which the adapter will try to negotiate a connection.

**Offload Rx IP Checksum:** Enabled

**Offload Rx TCP Checksum:** Enabled

**Offload Rx UDP Checksum:** Enabled

**Offload Tx IP Checksum:** Enabled

**Offload Tx TCP Checksum:** Enabled

**Offload Tx UDP Checksum:** Enabled

The above commands allow offloading various Tx and Rx processes to the Instant Gigabit Network Adapter, freeing up system resources.

### Pause Frames Count:

Flow control uses pause frames to communicate buffer status between linked transmitting and receiving devices (transmitters and receivers). A receiver sends a pause frame to tell a transmitter to stop transmitting data frames for a specified period, allowing the receiver's input port buffers to empty.

### Pause Frames High Threshold:

When a transmitter receives pause frames, it suspends transmission for the specified period or until the High Threshold is reached.

### Receive Drain Threshold:

Number of bytes in the current packet being drained from the rxDataFIFO that are in fact currently in the rxDataFIFO (Note: packets larger than FIFO size, this number will never be greater than the FIFO size).

### Transmit Buffer Count:

1024 (64 - 4096)  
This specifies number of transmit buffers to configure.

### Transmit Drain Threshold:

This sets the maximum packet size that can be handled by the adapter since transmit packets cannot span buffers. If not specified, this will default depending on the amount of SRAM available and the maximum packet size supported by the adapter.

### Transmit Fill Threshold:

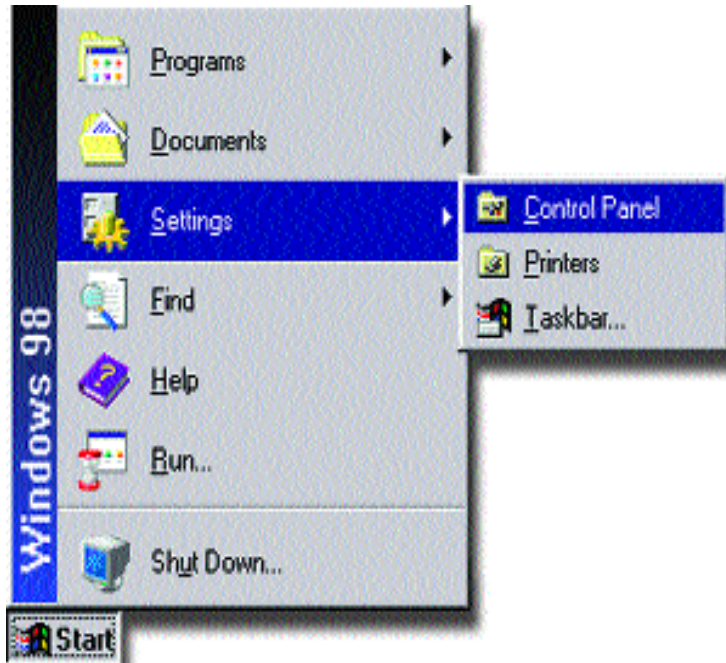
This setting determines the maximum number of transmits which may be queued.



# Configuring The Instant Gigabit Network Adapter

Configuring the Adapter 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.



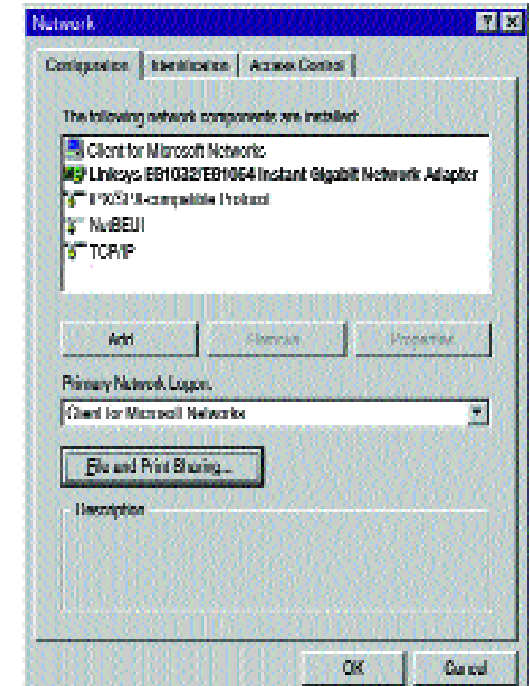
2. The Network window will appear (below). Click on the **Configuration** tab. A window similar to the one below will appear. There may be other components listed in addition to the ones shown below (for example, *Dial-up Adapter*), which is normal. If any of the components shown below are missing, however, you'll need to manually install them. If that's the case, refer to the *Manually Installing the Network Components* section.

**Note:** If you need to install the TCP/IP Protocol, refer to the section on *Installing TCP/IP* of this manual.

- Client for Microsoft Networks
- Linksys EG1032/EG1064 Instant Gigabit Network Adapter
- IPX/SPX-compatible Protocol
- NetBEUI
- TCP/IP

3. Click on the **Configuration** tab, followed by the **File and Print Sharing** button. The *File and Print Sharing* window will appear.

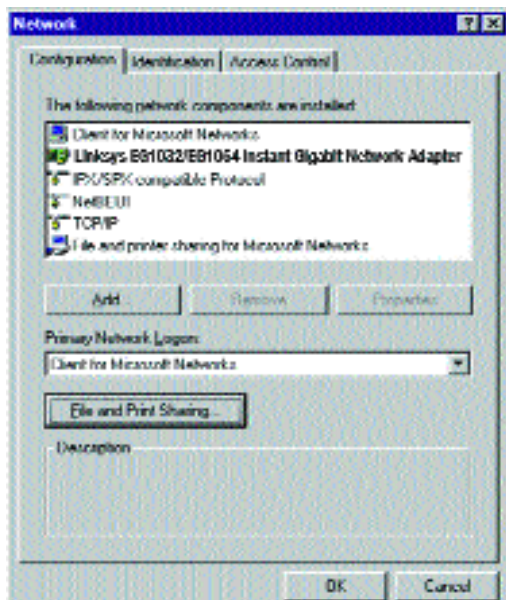
4. If you would like others to be able to access the files on your PC's hard drive, select **I want to be able to give others access to my files**.



**Note:** If you do not enable File and Print Sharing, your PC will be invisible on the network and inaccessible to other users.

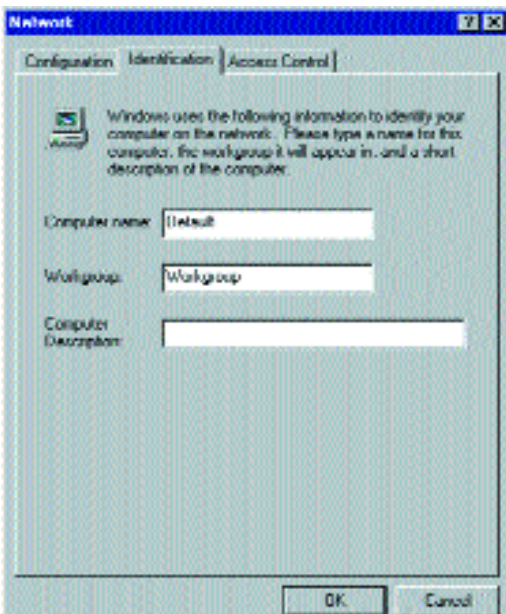
5. If you would like to share your printer with other users on the network, select **I want to be able to allow others to print to my printer**.
6. Click the **OK** button. File and Printer Sharing for Microsoft Networks should now appear in the list of installed components.

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



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.

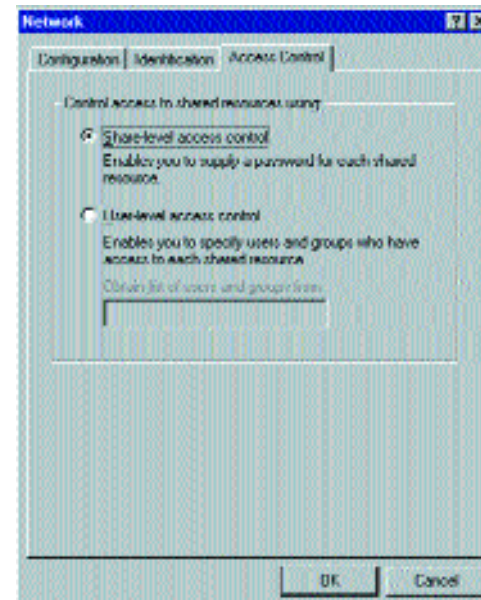
9. Type the **name of your workgroup** in the *Workgroup* box. The Workgroup name should be the same Workgroup Name in use by all of the other PCs on the network. Use the same Workgroup Name that is in use on your other computers. Do not click **OK** when you have completed these fields.



10. Enter a **description of your computer** in the *Computer Description* box. *This box is optional.* Do not click **OK** when you have completed these fields.

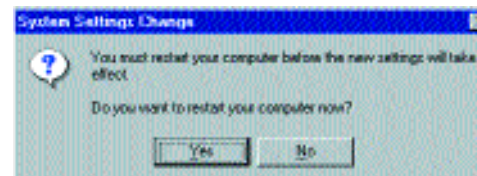
11. *Optional:* Choose the **Access Control** tab. Ensure that *Shared-level access control* is selected. If the setting is on User-Level access control and you can't change it, skip to the Troubleshooting section

*Note: Your Computer and Workgroup Names must be fewer than 15 alphanumeric characters.*



12. 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. Direct Windows to D:\win95 (win98 for Windows 98, win9x for Windows Millennium where D: is your CD-ROM Drive) if you have your Windows CD-ROM, or to C:\windows\options\cabs if you don't.

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



14. A Logon window will appear, requiring you to enter a username and password. Make up a username and password and click **OK**. Do not click the **ESC** or **Cancel** buttons, or you won't be able to log onto the network. If the logon does not appear or if it does not allow you to log on, refer to the Troubleshooting section.

15. Once you are at the Windows desktop, double-click on the **Network Neighborhood** icon. You should see an icon for the entire network and the names of the other PCs on the network. Open the **Entire Network** icon.

- **If you can see your computer along with all the other computers on the network in Network Neighborhood, then the Windows 95 network configuration is complete. Continue on the *Sharing Your Files and Printers* section if you want data from your PC to be available to others on the network. You may stop here, however, if you wish to configure File and Printer Sharing at a later time.**
- If you don't see anything at all in Network Neighborhood, press the **F5** key on your keyboard a few times to refresh the screen. If that doesn't work, go to the Troubleshooting section.
- If you only see your own computer in Network Neighborhood, skip to the Troubleshooting section.
- If you see all computers on the network except yours, press the **F5** key a few times. If, after a minute or so, you still can't see your own PC, see the Troubleshooting section.
- If you only see computers that are running the same operating system as you and you don't see any others, go to the Troubleshooting section.

## 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 the **Novell NetWare 3.x Client Setup for Windows 95 or 98** or **Windows 95 or 98 Client for Windows NT** section, 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.
  - **Read-Only access** allows other users to view the files on the selected drive.
  - **Full access** allows other users to create, change, or delete files on the selected drive.
  - **Depends on Password** allows other users to have Read-Only and/or Full access to the selected drive, depending on the password that you decide to give them.

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

- If you want to assign access passwords, type the passwords into the Password boxes.
- 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

- Double-click on the **My Computer** icon.
- Double-click the **Printers** folder. A window of available printers will appear.
- 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.
- 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.
- Click on the **Apply** button, followed by **OK**. Your printer(s) are now shared.

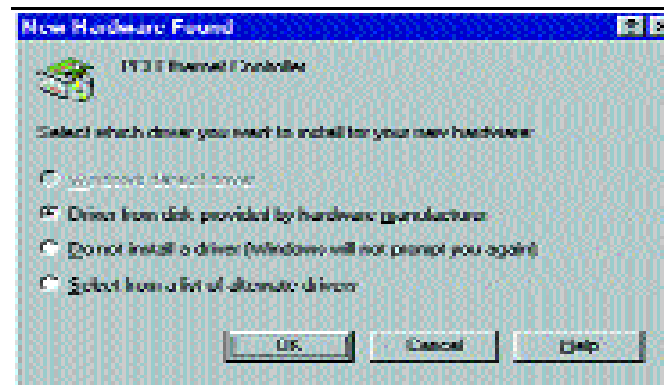
*Note: Any printer you wish to share from your PC must be physically connected to your PC.*

*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

- Windows 95 will detect the Instant Gigabit Network Adapter and display a *New Hardware Found* window.



- Insert the **Instant Gigabit Network Adapter Driver Disk** into drive A.
- Select *Driver from disk provided by hardware manufacturer*, then click **OK**.
- When asked for the location of the files, type **a:\Win95** and click **OK**. If Windows 95 goes straight to the desktop, refer to the Troubleshooting section.
- 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).
- During the installation, windows may ask you for a computer and workgroup name. Once you have established computer and workgroup names, return here to continue with the installation.
- After Windows 95 has completed copying the necessary files to your PC, it may ask you to restart your computer. Remove the floppy disk and click **OK**.

**The Windows 95 Version A driver installation is complete. Please continue on to Windows 95 Network Component Configuration section. Consult your network administrator for network configuration information if necessary.**

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

The instructions below explain how to set up the regular Novell NetWare 3.x client for use on a Windows 95, 98, or Millennium PC. If you are installing NetWare's Client32 software instead, follow the instructions on page 38.

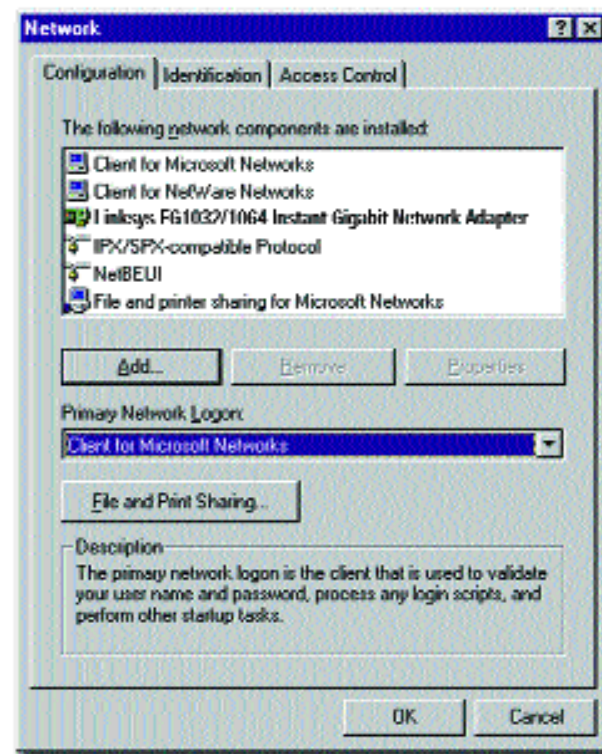
1. Follow the Windows 95 setup instructions or the Windows 98 setup instructions.
2. Start up Windows. Click on **Start**, **Settings**, then **Control Panel**. Double-click on **Network**. The Network window appears. Click on the **Configuration** tab.
3. In the Primary Logon Box, choose *Client for 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 setup is complete.**

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

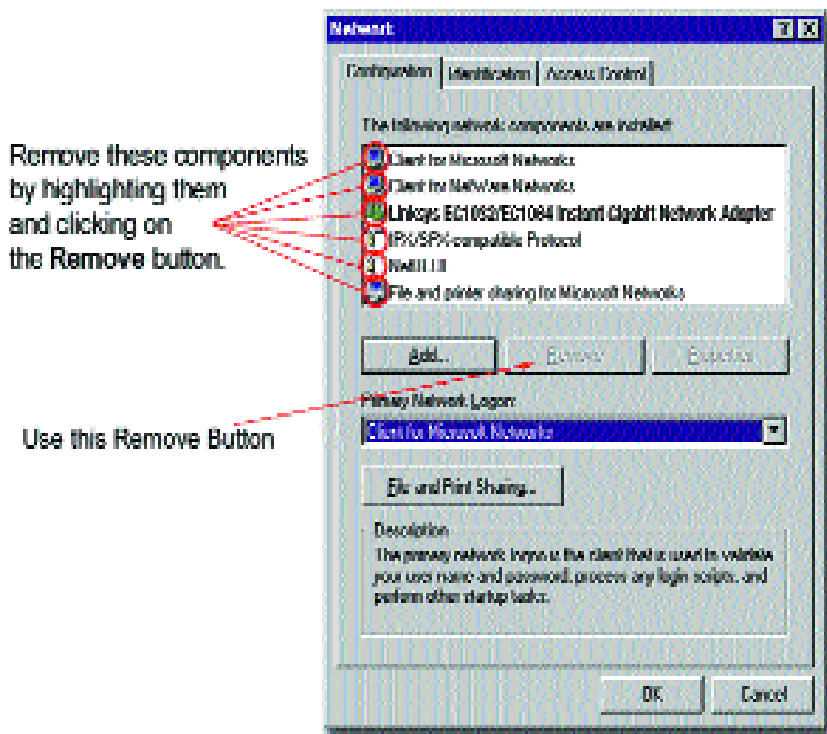
If you experience installation difficulties, you may need to re-install all of the Windows networking components from scratch. The instructions below explain how to give your PC a clean sweep so that you can retry the Instant Gigabit Network Adapter software installation.

1. At the desktop click on the **Start** Button, highlight **Settings**, click on **Control Panel**.
2. Double-click on the **Network** Icon.



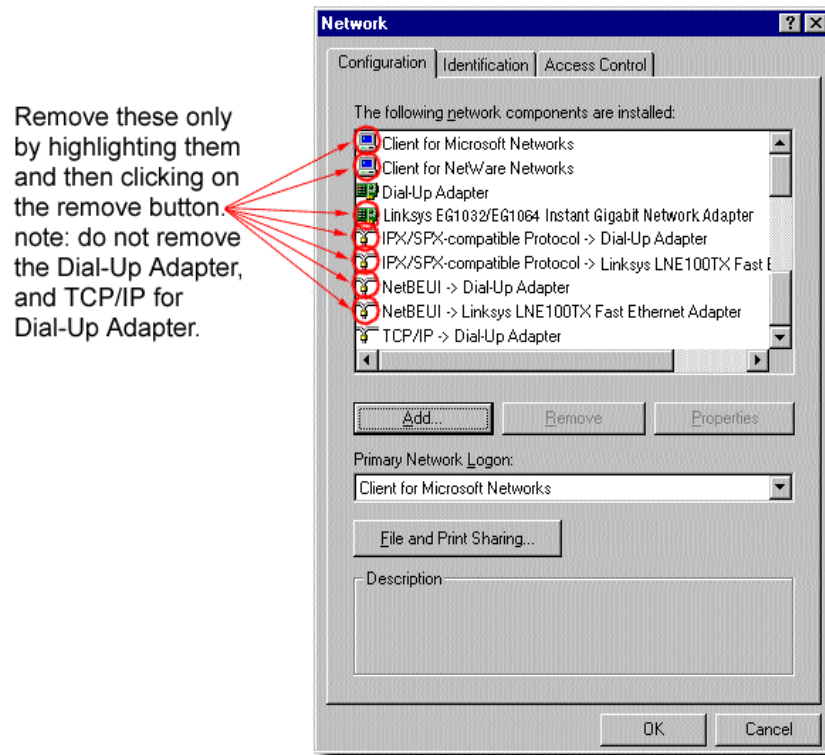
**Note:** The screen shot above, and the ones on the next three pages, are examples only. They may differ from system to system.

- If the Configuration box has a component called Dial-Up Adapter, skip forward to step 5. If it doesn't, continue with step 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*.



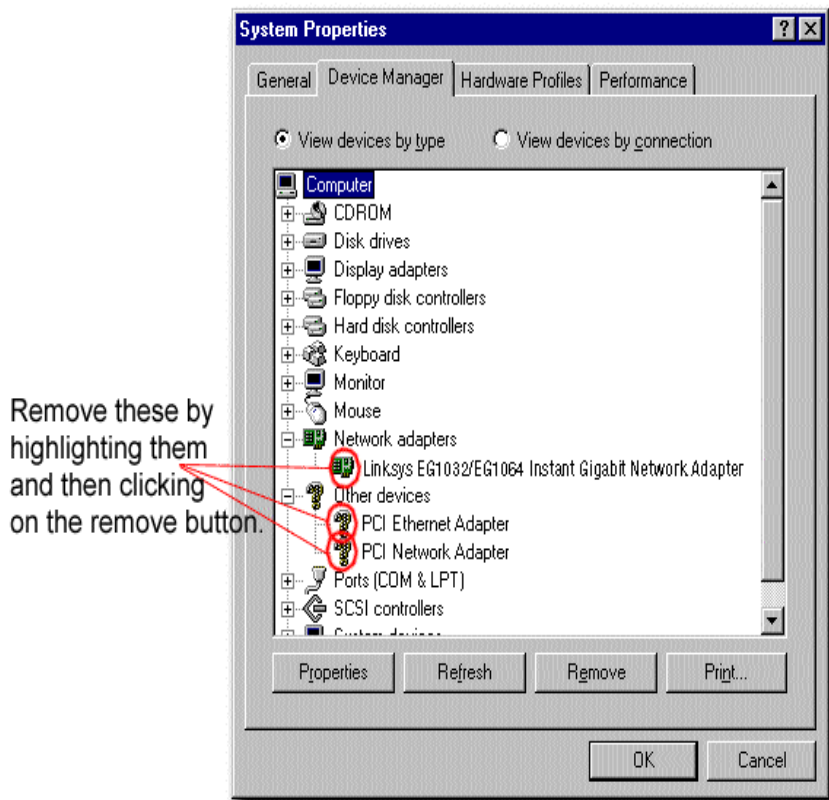
In some cases, removing one of these components may in turn automatically remove other components as well. If this happens, skip ahead to step 6.

- 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*.



- When you have completed the removal of all unnecessary components, click **OK**. When asked to restart, click **No**.
- Return to the Windows Control Panel. Double-click on the **System** Icon. The System Properties window will appear. Click on the **Device Manager** Tab.

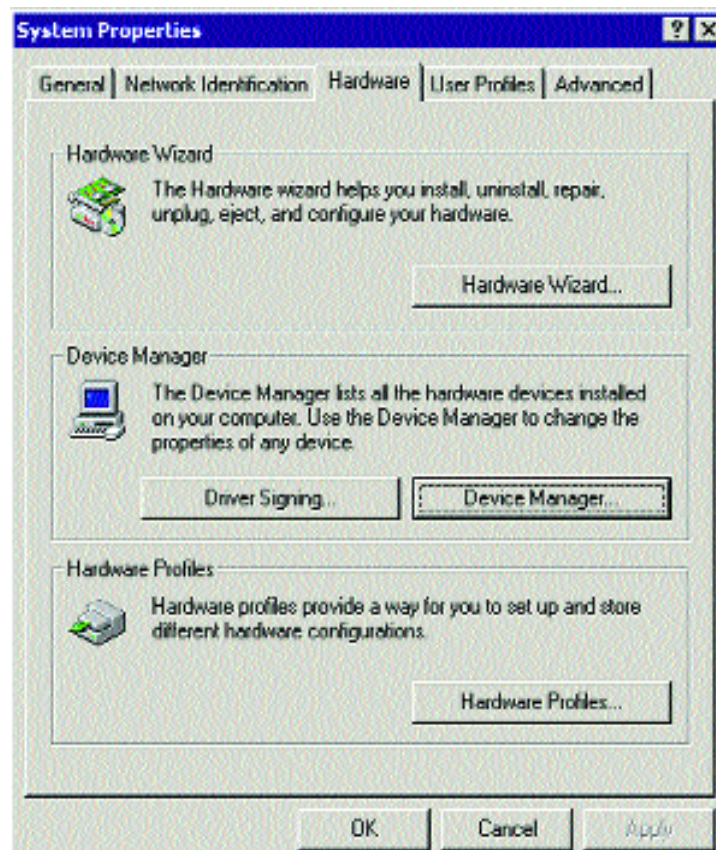
8. Scroll down to the **Network Adapters** listing and expand it by clicking on the **plus [+]** sign.



9. Remove all devices with the name Linksys in its description. (If at any point you are asked to restart the computer, Click **No**).
10. Scroll down to the **Other Devices** listing. Click the **plus [+]** sign. Remove *PCI Ethernet Controller* or *PCI Ethernet Adapter*. (If Other Devices is not listed, proceed to the next step.)
11. Click the **Close** button, shut down Windows, and restart your computer.
12. After your computer has restarted, follow the setup instructions for Windows 95, 98, or Millennium.

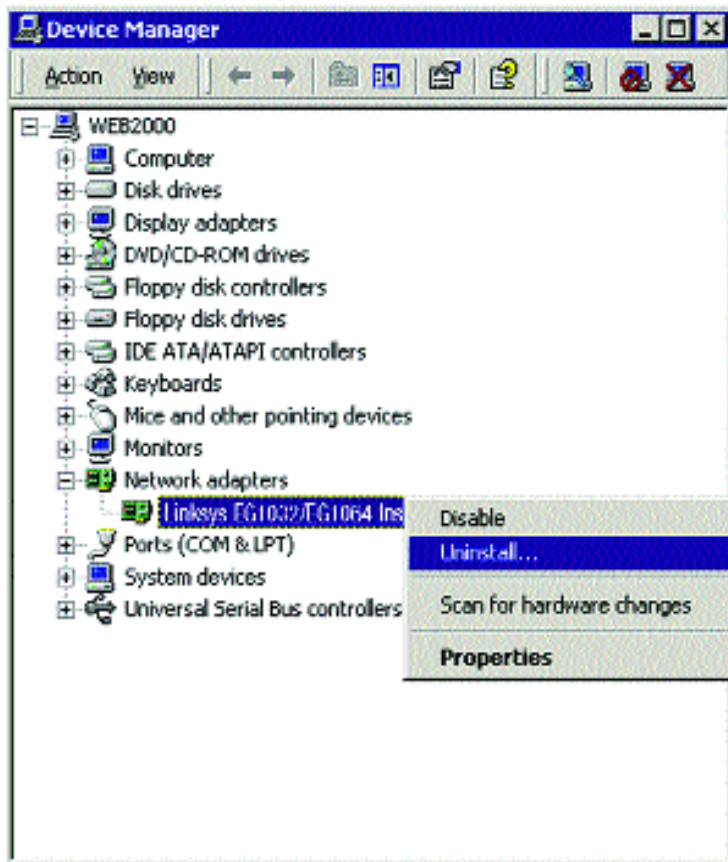
## Starting Over in Windows 2000

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

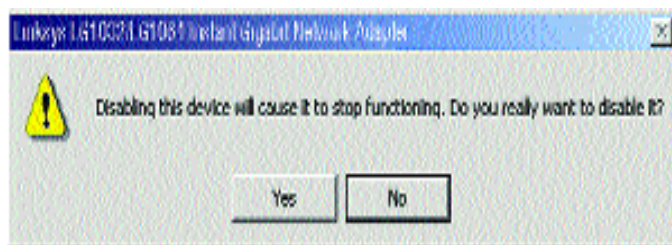


3. Click the Device Manager button. The Device Manager window will open.
4. Click the plus sign (+) beside Network Adapters. The EG1032 or EG1064 Instant Gigabit Network Adapter listing should appear.

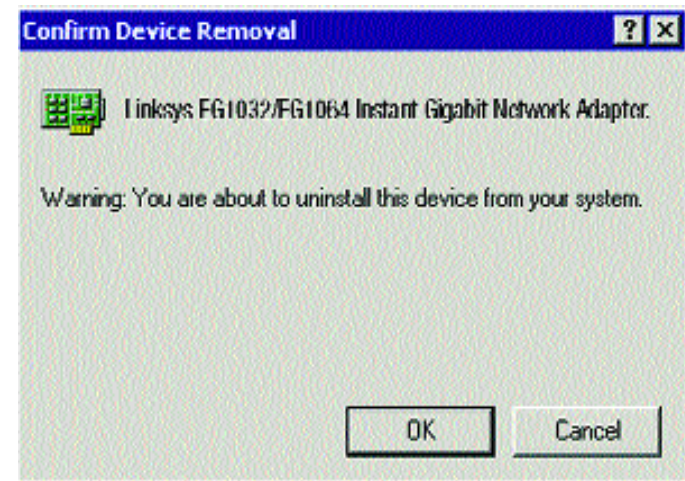
5. Right-click on **Linksys EG1032/EG1064 Instant Gigabit Network Adapter**. A menu box should open (below).



6. First, choose **Disable**.
7. When asked if you want to **Disable** the device, click **Yes**.



8. Right-click on **Linksys EG1032/EG1064 Instant Gigabit Network Adapter** again. This time, select **Uninstall**. Click **OK**.



9. The **Network Adapters** category should be removed from the **Device Manager** listing.
10. Click the **OK** button, and restart your computer.

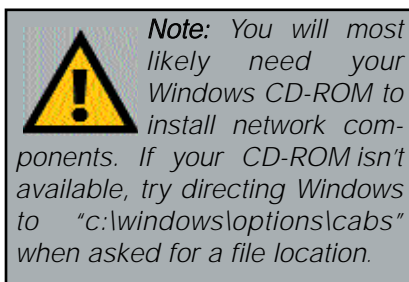


## Manually Installing the Network Components in Windows 95, 98, and Millennium

There may be times when you will 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 the **Configuration** tab. Make sure that the following network components are installed.

- *Client for Microsoft Networks*
- *Linksys EG1032/EG1064 Instant Gigabit™ Network 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 an NT file server or peer-to-peer network, click the **Add** button. Highlight *Client* and click **Add**. Choose **Microsoft** as the manufacturer in the *Network Client* box. Highlight *Client for Microsoft Networks*. If you are done installing components, click **OK**. Otherwise, choose the next component you want to install. When you have chosen all the components you wish to install, click **OK** and the computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **Yes**.

### Client for NetWare Networks

If you plan on connecting to a Novell NetWare server (3.x), click the **Add** button. Highlight *Client* and click **Add**. In the *Network Client* window, select *Manufacturer* and choose **Microsoft**. Highlight *Client for Microsoft Networks*. If you are done installing components, click **OK**. Otherwise, choose the next component you want to install. When you have chosen all the components you wish to install, click **OK** and the computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **Yes**.

### IPX/SPX-compatible Protocol

Click the **Add** button. Choose *Protocol* and click the **Add** button. Select *Manufacturer* and choose **Microsoft**. Under the *Network Protocol* box, highlight *IPX/SPX-compatible protocol*. If you are done installing components, click **OK**. Otherwise, choose the next component you want to install. When you have chosen all the components you wish to install, click **OK** and the computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **Yes**.

### NetBEUI

Click the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **NetBEUI**. If you are done installing components, click **OK**. Otherwise, choose the next component you want to install. When you have chosen all the components you wish to install, click **OK** and the computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **Yes**.

### TCP/IP

Click the **Add** button. Select *Protocol*, then click **Add**. Under *Manufacturer*, highlight **Microsoft**. Under *Network Protocol*, highlight **TCP/IP**. If you are done installing components, click **OK**. Otherwise, choose the next component you want to install. When you have chosen all the components you wish to install, click **OK** and the computer will begin copying files to your system. When the installation is complete, you will be asked if you want to reboot. Click **Yes**.

## Installing and Configuring Wake-On-LAN

### Overview

The Instant Gigabit Network Adapter supports both *Magic Packet* and *Link Change* remote wake-up events.

**Magic Packet** An administrator can send a “wake-up” packet to a specific PC on the network. That computer then boots up, allowing the administrator to access the PC’s drives. After the work is done, the PC goes into a sleep mode (using about 10% of the normal amount of power) or shuts off completely, depending on the management software being used.

**Link Change** is a remote wake up event that is triggered by any change in the Network Adapter’s link state. If you have Wake-On-LAN networking set up on the PC, plugging an active network cable into the LAN Card will cause the PC to automatically turn itself on.

### Motherboard Support

WOL-compatible motherboards can offer support for a number of different Wake-On-LAN interfaces. The Instant Gigabit Network Adapter is compatible with PME and RWU-high. Consult the motherboard documentation that came with your PC to find out which type of WOL interface your computer will use to communicate with the network card. In some cases, you may need to enable the WOL support in your PC’s BIOS.

*Note: Some PME-supporting motherboards may not require the WOL wire to be connected. Check your PC’s documentation for more information.*

## About Plug-and-Play PCI Technology

The Instant Gigabit Network Adapter is designed to run in a 32-bit desktop computer equipped with PCI expansion slots. The EG1032 is built to the PCI 2.2 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 Network Adapter 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 Network Adapter) into your computer:

1. The Instant Gigabit Network Adapter 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. When using 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 BIOSs 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 freeware and 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).

Linksys does not provide technical support for Beta operating systems.

## Twisted-Pair Cabling

There are different grades, or categories, of twisted-pair cabling. Category 5e is the most reliable and is highly recommended (and is required for Gigabit connections). Category 3 is a good second choice. Straight-through cables are used for connecting computers to a hub. Crossover cables are used for connecting a hub to another hub (there is an exception: some hubs have a built-in uplink port that is crossed internally, which allows you to link or connect hubs together with a straight-through cable instead).

# Troubleshooting

This section provides possible solutions to problems regarding the installation and operation of the Instant Gigabit Network Adapter. If you can't find an answer here, check the Linksys website at [www.linksys.com](http://www.linksys.com).

1. Windows does not detect the Instant Gigabit Network Adapter installed, or it attempts to reinstall the Network Adapter each time you restart your PC.
  - You might not have inserted the PCI card correctly or securely into the appropriate slot of your computer. Make sure that the card is securely inserted in the appropriate slot.
  - Insert your card into an alternate PCI slot.
  - You may have previously aborted a new hardware setup. Go to the **Starting Over in Windows 95, 98, Millennium or 2000** section.
  - The motherboard in your system might not be Plug-and-Play compatible, or 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 Instant Gigabit Network Adapter.
  - 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 EG10 or a folder called Win95 or Win98.
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 hub. 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 not have enabled File and Printer Sharing.
  - The network card might not be setup properly. Try reinstalling the card's drivers. To clean your system of the old installation, follow the procedure in the **Starting Over in Windows 95, 98, Millennium or 2000** section 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 connection. If your network requires TCP/IP, 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 does not require TCP/IP, you may remove the TCP/IP Protocol 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, then click on the Remove button. Click **OK** when finished and restart your PC.

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).
  - Choose **Start, Find, Computer** and type the name of the computer in the Network Neighborhood window that appears and click **Find Now**.
  - Next, make sure that you are using the same protocol(s) and workgroup name on the 95 and 98 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 60 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 and 98. Follow these instructions:
  - The IPX/SPX-compatible protocol should be installed on all Windows computers (see the **Manually Installing the Network Components in Windows 95, 98, and Millennium** section 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.

## 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.

**1000BASE-T** - provides half-duplex (CSMA/CD) and full-duplex 1000Mbps Ethernet service over Category 5 links as defined by ANSI/TIA/EIA-568-A. Topology rules for 1000BASE-T are the same as those used for 100BASE-TX. Category 5 link lengths are limited to 100 meters by the ANSI/TIA/EIA-568-A cabling standard. Only one CSMA/CD repeater will be allowed in a collision domain.

**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.

**Auto-negotiate** - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

**Backbone** - The part of a network that connects most of the systems and networks together and handles the most data.

**Bandwidth** - The transmission capacity of a given facility, in terms of how much data the facility can transmit in a fixed amount of time; expressed in bits per second (bps).

**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.

**CAT 5e** - The additional cabling performance parameters of return loss and far-end crosstalk (FEXT) specified for 1000BASE-T and not specified for 10BASE-T and 100BASE-TX are related to differences in the signaling implementation. 10BASE-T and 100BASE-TX signaling is unidirectional-signals are transmitted in one direction on a single wire pair. In contrast, Gigabit Ethernet is bi-directional-signals are transmitted simultaneously in both directions on the same wire pair; that is, both the transmit and receive pair occupy the same wire pair .

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

**Data Packet** - One frame in a packet-switched message. Most data communications is based on dividing the transmitted message into packets. For example, an Ethernet packet can be from 64 to 1518 bytes in length.

**Default Gateway** - The routing device used to forward all traffic that is not addressed to a station within the local subnet.

**DHCP** (Dynamic Host Configuration Protocol) - A protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet's set of protocol (TCP/IP), each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. It's especially useful in education and other environments where users change frequently. Using very short leases, DHCP can dynamically reconfigure networks in which there are more computers than there are available IP addresses.

DHCP supports static addresses for computers containing Web servers that need a permanent IP address.

**Dynamic IP Address** - An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.

**Dynamic Routing** - The ability for a router to forward data via a different route based on the current conditions of the communications circuits. For example, it can adjust for overloaded traffic or failing lines and is much more flexible than static routing, which uses a fixed forwarding path.

**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.

**FTP** (File Transfer Protocol) - A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a Web site on a local machine, they are typically uploaded to the Web server using FTP.

FTP includes functions to log onto the network, list directories and copy files. It can also convert between the ASCII and EBCDIC character codes. FTP operations can be performed by typing commands at a command prompt or via an FTP utility running under a graphical interface such as Windows. FTP transfers can also be initiated from within a Web browser by entering the URL preceded with ftp://.

Unlike e-mail programs in which graphics and program files have to be "attached," FTP is designed to handle binary files directly and does not add the overhead of encoding and decoding the data.

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

**Gateway** - A device that interconnects networks with different, incompatible communications protocols.

**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.

**IP Address** - In the most widely installed level of the Internet Protocol (Internet Protocol) today, an IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packet across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received.

**IPCONFIG** - A Windows NT or 2000 utility that provides for querying, defining and managing IP addresses within a network. A commonly used utility for configuring networks with static IP addresses.

**IPSec** - IPSec (Internet Protocol Security) is a developing standard for security at the network or packet processing layer of network communication. A big advantage of IPSec is that security arrangements can be handled without requiring changes to individual user computers.

**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).

**Latency** - The time delay between when the first bit of a packet is received and the last bit is forwarded.

**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.

**mIRC** - mIRC runs under Windows and provides a graphical interface for logging onto IRC servers and listing, joining and leaving channels.

**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.

**Network Mask** - Also known as the "Subnet Mask".

**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.

**PPPoE** (Point to Point Protocol over Ethernet) - A method used mostly by DSL providers for connecting personal computers to a broadband modem for Internet access. It is similar to how a dial-up connection works but at higher speeds and quicker access.

**RJ-11** (Registered Jack-11) - A telephone connector that holds up to six wires. The RJ-11 the common connector used to plug a telephone into a wall.

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

**Static IP Address** - A permanent IP address that is assigned to a node in an IP or a TCP/IP network.

**Static Routing** - Forwarding data in a network via a fixed path. Static routing cannot adjust to changing line conditions as can dynamic routing.

**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.

**Subnet Mask** - The method used for splitting IP networks into a series of sub-groups, or subnets. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets.

**TCP** (Transmission Control Protocol) - A method (protocol) used along with the Internet Protocol (Internet Protocol) to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the individual units of data (called packet) that a message is divided into for efficient routing through the Internet.

**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.

**TFTP** (Trivial File Transfer Protocol) - A version of the TCP/IP FTP protocol that has no directory or password capability.

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

**TX Rate** - Transmission Rate.

**UDP** (User Datagram Protocol) - A communications method (protocol) that offers a limited amount of service when messages are exchanged between computers in a network that uses the Internet Protocol (IP). UDP is an alternative to the Transmission Control Protocol (TCP) and, together with IP, is sometimes referred to as UDP/IP. Like the Transmission Control Protocol, UDP uses the Internet Protocol to actually get a data unit (called a datagram) from one computer to another. Unlike TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end. Specifically, UDP doesn't provide sequencing of the packets that the data arrives in. This means that the application program that uses UDP must be able to make sure that the entire message has arrived and is in the right order.



Network applications that want to save processing time because they have very small data units to exchange (and therefore very little message reassembling to do) may prefer UDP to TCP.

**Upgrade** - To replace existing software or firmware with a newer version.

**Upload** - To receive a file transmitted over a network. In a communications session, upload means transmit, download means receive.

**URL** (Uniform Resource Locator) - The address that defines the route to a file on the Web or any other Internet facility. URLs are typed into the browser to access Web pages, and URLs are embedded within the pages themselves to provide the hypertext links to other pages.

**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.

**VLAN** (Virtual LAN) - A logical association that allows users to communicate as if they were physically connected to a single LAN, independent of the actual physical configuration of the network.

**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.

**WAN** - A communications network that covers a wide geographic area, such as state or country.

**WINIPCFG** - Configuration utility based on the Win32 API for querying, defining and managing IP addresses within a network. A commonly used utility for configuring networks with static IP addresses.

**Workgroup** - Two or more individuals that share files and databases.

# Specifications

## Specifications for EG1032

<b>Model</b>	EG1032
<b>Standards</b>	IEEE 802.3, IEEE 802.3ab, IEEE 802.3x PCI 2.1, PCI 2.2, ACPI
<b>Protocol</b>	CSMA/CD
<b>Ports:</b>	1 Straight-Through 10BaseT/100BaseTX/ 1000BaseT RJ-45 Port
<b>Interface:</b>	PCI Local Bus Version 2.1 or better
<b>Cabling Type:</b>	<b>10BaseT:</b> UTP/STP Category 3 or better <b>100BaseTX:</b> UTP/STP Category 5 or better <b>1000BaseT:</b> UTP/STP Category 5e or better
<b>Topology:</b>	Star
<b>Speed:</b>	Full Duplex: 20Mbps, 200Mbps or 2000Mbps Half Duplex: 10Mbps, 100Mbps or 1000Mbps
<b>WOL Support:</b>	Remote Wake-Up Power Management Event (PME)
<b>Bus Type:</b>	32-Bit PCI
<b>LEDs:</b>	Link/Activity, 1000Mbps

## Specifications for EG0801W

<b>Model Number</b>	EG0801W
<b>Standards</b>	IEEE 802.3, IEEE 802.3ab, IEEE 802.3u, IEEE 802.3x
<b>Protocol</b>	CSMA/CD
<b>Ports</b>	Eight 10/100 RJ-45 Ports, One Gbps Full-Duplex Switch Port
<b>Cabling Type</b>	<b>10BaseT:</b> UTP/STP Category 3 or better <b>100BaseTX:</b> UTP/STP Category 5 or better <b>1000BaseT:</b> UTP/STP Category 5e or better
<b>Topology</b>	Star
<b>Speed Per Port</b>	10Mbps or 100Mbps (Half Duplex) 20Mbps or 200Mbps (Full Duplex) 1000Mbps or 2000Mbps (Gigabit Port)
<b>LEDs</b>	Power, 1000, 10/100, FD/Col, Link/Act, Full/Half Duplex, 1000 Link/Act, 1000 FD/Col

## Environmental

## EG1032

<b>Dimensions</b>	6.3" x 4.3" x 1.4" (160mm x 110mm x 35mm)
<b>Unit Weight</b>	9 oz. (.25kg)
<b>Power</b>	3.3VDC, 3A
<b>Certifications</b>	FCC Class B, CE Mark Commercial
<b>Operating Temp</b>	32°F to 131°F (0°C to 55°C)
<b>Storage Temp</b>	-4°F to 158°F (-40°C to 70°C)
<b>Operating Humidity</b>	10% to 85% Non-Condensing
<b>Storage Humidity</b>	5% to 90% Non-Condensing

## EG0801W

<b>Dimensions</b>	7.31" x 6.06" x 1.88" (186mm x 154mm x 48mm)
<b>Unit Weight</b>	13.6 oz. (.39Kg)
<b>Power</b>	3.3V DC, 5A
<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 85% Non-Condensing
<b>Storage Humidity</b>	5% to 90% Non-Condensing

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## 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.

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## 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>Information</b>	800-546-5797 (LINKSYS)
<b>Tech Support and RMA Issues</b>	800-326-7114 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>
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