



# **DFE-528TX**

**Fast Ethernet Adapter**

**for PCI Bus**

**User's Guide**

Rev\_083001F

Printed in Taiwan

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# Introduction

The D-Link DFE-528TX is ideal for the small office or home office environment. After completing the steps in this manual, you will have the ability to share information and resources - such as files and printers - and take full advantage of a "connected" environment for work and play!

The DFE-528TX comes with drivers for the most popular operating systems and can be integrated into a larger network. However, this Guide is designed to help you network two computers running Windows 95/98, Windows Me and Windows 2000 in a peer-to-peer configuration. Yet, the standards compliant DFE-528TX gives you the flexibility to expand and customize your Ethernet / Fast Ethernet network at will.

The Ethernet standard allows you to connect computers and devices at speeds up to 10 Mbps. Fast Ethernet allows speeds up to 100 Mbps. A Dual-Speed 10/100 Mbps Ethernet / Fast Ethernet network combines both standards allowing computers and devices of different speeds to communicate with each other. The DFE-528TX is a Dual-Speed 10/100 Mbps Ethernet / Fast Ethernet network card.

# Contents of Package



## DFE-528TX Fast Ethernet Adapter Package Contents

<b>1</b>	DFE-528TX Fast Ethernet Adapter
<b>2</b>	Driver CD
<b>3</b>	User's Manual
<b>4</b>	Quick Install Guide

# Technology Basics

## About Fast Ethernet

Fast Ethernet is a network technology specified by IEEE Standard 802.3u. It extends the traditional 10Mbps Ethernet technology to achieve 100Mbps transmission and reception, while retaining the same CSMA/CD Ethernet protocol. Thus, while Fast Ethernet provides a tenfold increase in network capacity, it is wholly compatible with traditional 10Mbps Ethernet network facilities. This compatibility is the key to easy and efficient upgrades to 100Mbps in your network areas needing greater bandwidth. Upgrading selected areas to Fast Ethernet does not require hardware or software changes in network areas where traditional 10Mbps Ethernet is providing good service. For upgrading, Fast Ethernet is the clear choice in terms of cost-effectiveness, as well as convenience and smoothness in transition.

Category 5 cabling is required for 100Base-TX Fast Ethernet in order to provide full duplex operation. Full duplex 100Base-TX operation allows simultaneous transmission and reception, both at 100Mbps, thus providing service potentially equal to 200Mbps connection.

To provide compatibility in traditional 10Mbps Ethernet environments (where, for example, DFE-528TX adapters are installed anticipating upgrade of supporting hub equipment to Fast Ethernet,) the DFE-528TX also supports traditional 10Mbps Ethernet operation, in full-duplex as well as half-duplex modes. Selection of the best operation mode in any given installation is automatically governed by auto-negotiation.

# About Auto-Negotiation

You have probably had the experience of making a dialup connection through a modem, and have heard the exchanges between your modem and the modem at the other end of the telephone line. As irritating as those few seconds of noise may be, they do let you know that your modem and the remote modem are on the job, preparing for your intended communication with the remote computer.

When the two modems have tested the phone-line quality and settled on the combination of shared options and parameters which will provide the best data communication over the connecting phone line, then you are given the “connect” message which signals the end of the intermodem negotiation and the beginning of your intended communication with the remote computer.

Auto-negotiation between devices within an Ethernet LAN is similar in concept, but much briefer. The two devices involved in the auto-negotiation will be the DFE-528TX Adapter serving your station (installed in your computer), and the hub through which it is connected to the LAN. The options to be negotiated between the DFE-528TX and its supporting hub includes Ethernet type (100BASE-TX Fast Ethernet or 10BASE-T Ethernet) and duplex mode (half-duplex, being one-way-at-a-time, or full duplex, being simultaneous transmit-and receive.)

Startup communication between the two devices occurs when both devices are powered up. Once the cable connection and the Network Operating System software is satisfied, the preparatory process of auto-negotiation between the DFE-528TX and its supporting hub proceeds automatically. If the hub has auto-negotiation functionality, it and the DFE-528TX exchange a series of messages, each device signals its capabilities and listens for corresponding information about the other. The auto-negotiation process requires only a few milliseconds, and the two devices select the best communication parameters supported by both.

If the hub does not support auto-negotiation, the (single capability) message will be

recognized by the DFE-528TX auto-negotiation facility, which will switch to those settings of its own capabilities, which match that of the hub.

Auto-negotiation reoccurs any time the linkage is restored, making the line ready again for optimal data communications.

## **About PCI Bus**

Your DFE-528TX Adapter delivers outstanding performance by fully exploiting the advance features of your computer's PCI bus. DFE-528TX Adapters utilize the Bus Master Mode of the PCI bus, allowing direct transfers of Ethernet packet content between computer memory and the adapter's controller, thus minimizing network demands on the CPU. The adapter's controller function provides the additional benefit of reduced command processing overhead.

The working relationship between a DFE-528TX adapter and main memory, working in Bus Master mode, is powered by the Bridge/Memory Controller of the PCI bus. This reduces the CPU role in network operations, thus freeing the CPU to service other tasks, with resulting improvement in overall computing (multitasking) performance. At the same time, it produces superior network throughput by reducing latency (waiting for CPU service) during transmissions and receptions.

## **Feature**

### **Flow Control**

The DFE-528TX implements IEEE 802.3x compliant flow control for full duplex, which provides traffic management functions for full-duplex operation. Flow control allows for enhanced full duplex operation with switches. When operating at full duplex (requiring a direct connection to a switch) and the switch's data buffer is about to overflow, a Pause frame will be transmitted to the DFE-528TX. The ensuing idle time keeps the buffer from overflowing and prevents data from being lost. This enhancement can improve network throughput, avoid collisions and prevent lost data, helping the network achieve optimal performance.

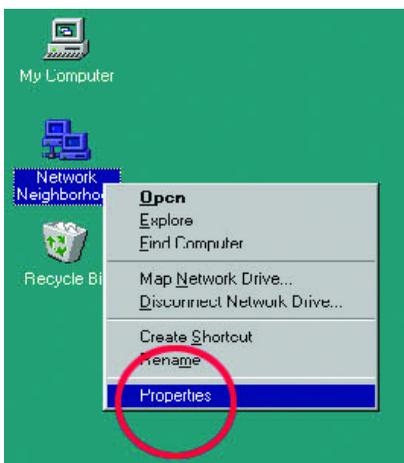
# Networking Basics

You may have had some ideas about how to use your new network prior to installing the DFE-528TX – sharing files, printing from any computer on the network, or accessing the Internet on multiple computers with one connection. This section will help you get started on those ideas or even give you some new ones. However, this section is not intended to be a comprehensive guide to networking, it is just an outline of a few networking basics.

If you installed your DFE-528TX on computers running Windows 95, you got an opportunity to give each computer a name during the installation of the network system software. If you had previously given your Windows 95 computers names or if you are using Windows 98, you may need to verify that each computer has a unique name and common workgroup name.

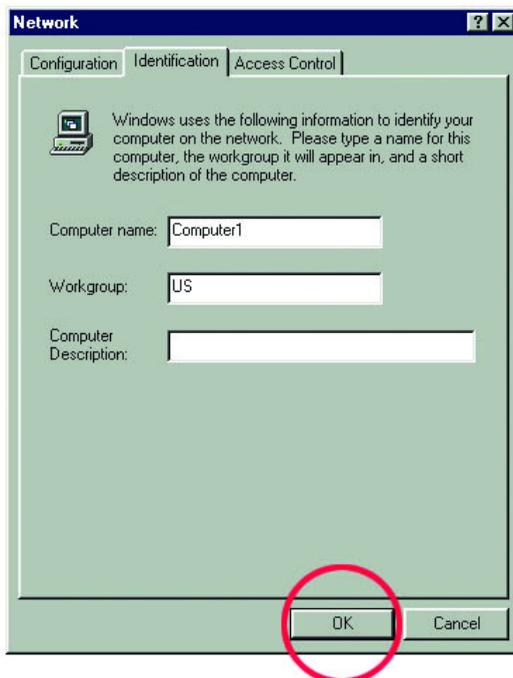
## Computer Identification

1. On your Desktop, **right-click** the icon "Network Neighborhood" and select "Properties" from the context menu.



Click the "Identification" tab on the top of the dialog box.

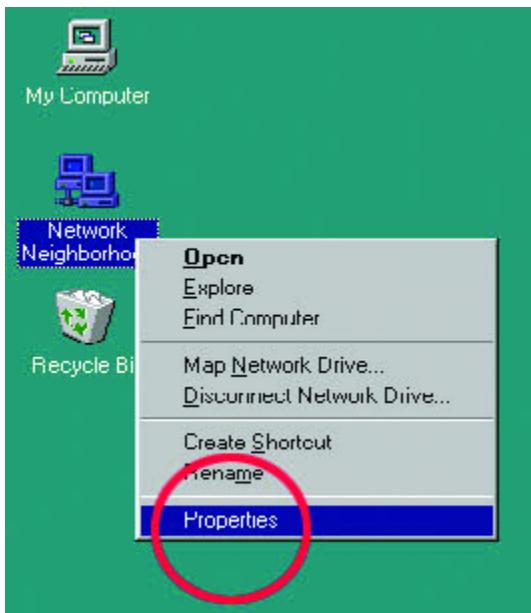
2. Type a unique, identifying name for this particular computer in the "Computer name:" box. This will be the name that other computers on your network will use to communicate with this computer. Each computer's name must be unique on a particular network or confusion will result. (The computer's name should be 15 or fewer characters with no spaces.)
3. Type the workgroup name this computer will be a part of in the "Workgroup:" box. All of the computers on your network should have an identical Workgroup name.
4. The "Computer Description:" box is optional. You may enter a description that will help you identify this computer on your network. Then **click OK**.
5. Repeat this process for each computer on your network to ensure that they all have a unique "Computer Name" and identical "Workgroup."



# Sharing Files

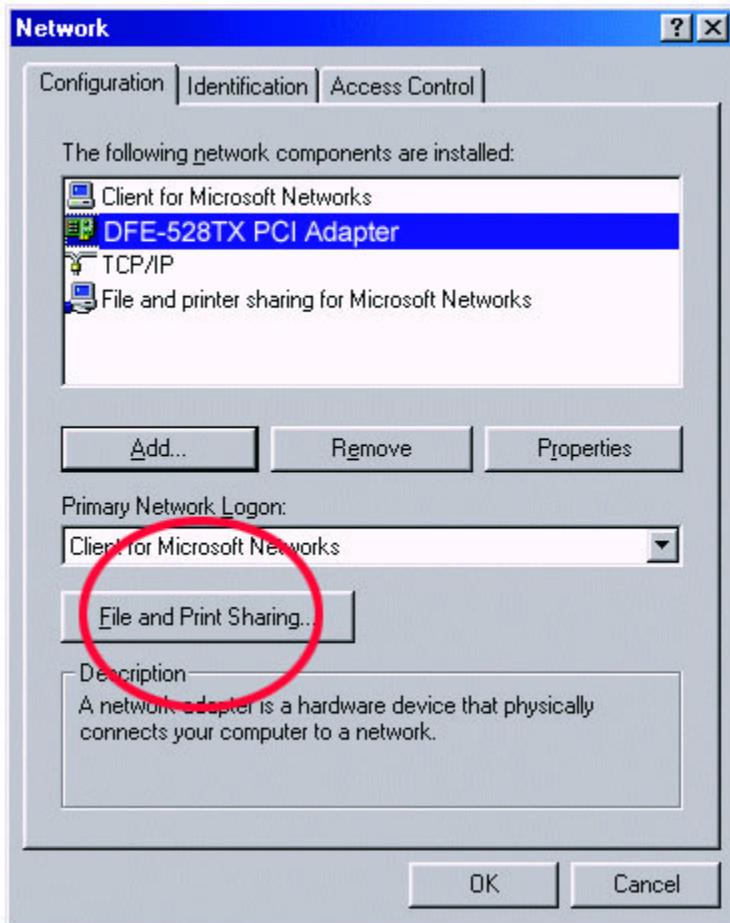
With your computers connected together on a network, you may now open and save files on another computer. You will be able to specify particular folders or disk drives to "share" and even password protect them. The steps below will enable you to share specific files and folders with other computers on your network.

1. On your Desktop, **right-click** the icon "Network Neighborhood" and select "Properties" from the context menu.

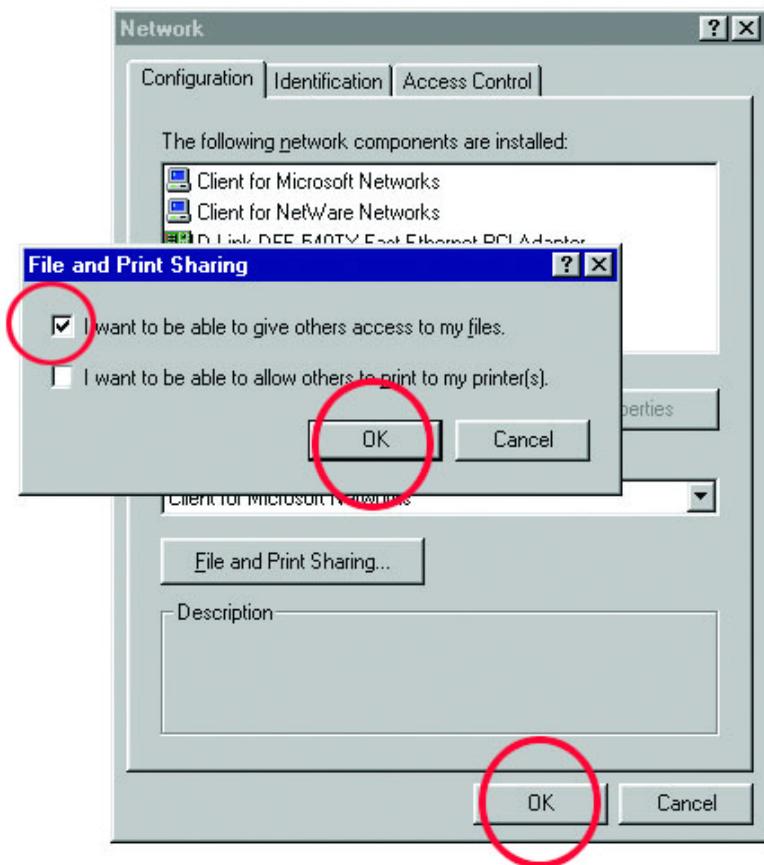


This dialog box is where you will configure most of your computers' network settings. It is also available through the "Network" icon in the Control Panel.

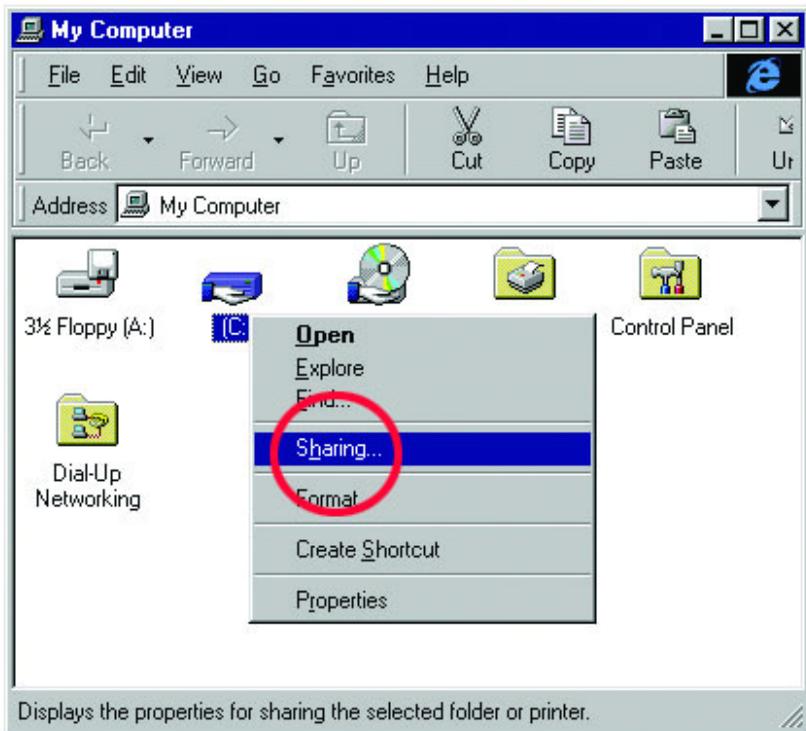
2. **Click** the "File and Print Sharing..." button.



3. Select "I want to be able to give others access to my files."
4. **Click OK** on the "File and Print Sharing" dialog box.
5. **Click OK** on the "Network" dialog box.
6. Provide the Windows 95/98 installation CD or diskette(s) if prompted or direct Windows to the proper location of the installation files. Reboot if prompted.



7. You will now be able to identify a particular folder or disk drive to share. You may want to share a folder that both you and a colleague/family member need to access occasionally. Or, maybe you want to share a CD-ROM drive so your other computer that does not have one can read CD's. Both of these processes are the same. Only the disk drives and folders that you specifically identify as shared will be accessible to other computers on your network.
8. Find the disk drive or folder you want to share with Windows Explorer or the "My Computer" icon on your desktop.
9. **Right-click** on the disk drive or folder icon and select "Sharing..."



10. Select "Share As:" to set the parameters for sharing this particular disk drive or folder.

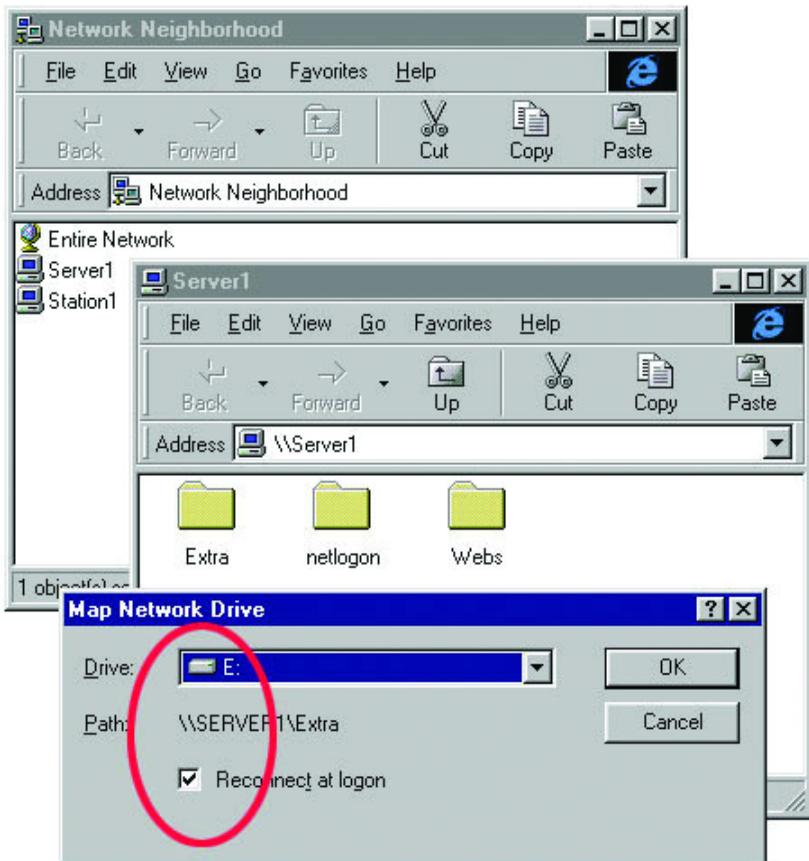
The "Share Name:" box is used to identify the disk drive or folder you are sharing to other computers on the network. You can give it any name you wish. However, a specific identification may help as more resources on your network are shared. The "Comment:" box is optional. You can use this box to further describe the disk drive or folder for others on the network.

"Access Type:" allows you to designate how much someone else on the network can do with this disk drive or folder. "Read-Only" allows others to only look at or open the files on the disk drive or in the folder. "Full" allows others to read, write, open, save, copy, move, and delete files on the disk or in the folder. "Depends on Password" gives other computers access conditional upon the password they provide.

"Passwords:" allow you to apply a level of security to your shared disk drives and folders. Another computer (user) will be required to enter the password you designate here before accessing the disk drive or folder. Two passwords are used to give two levels of security (or access) to others on the network using the "Depends on Password" setting. Leaving the "Password" boxes empty gives everyone on the network access to the disk drive or folder.

11. Navigate to the computer with the shared disk drive or folder (recognized by the "Computer Name" you provided), and **double-click**. You should now see the disk drive or folder. **Double-click**. If you specified a password when sharing this disk drive or folder, you will be prompted for the password.

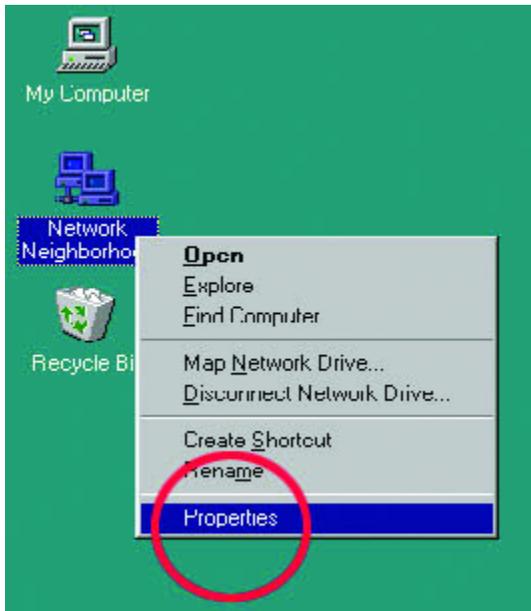
12. You can access a disk drive or folder shared over the network from most Windows 95/98 applications. To make this process easier, Windows allows you to map these disk drives and folders to a drive letter on another computer. For example, on a computer where you are accessing a shared folder from another computer, inside Windows Explorer right-click and select "Map Network Drive..." You will then be able to assign an available drive letter. Checking "Reconnect at logon" allows Windows to map this network drive each time you start your computer.



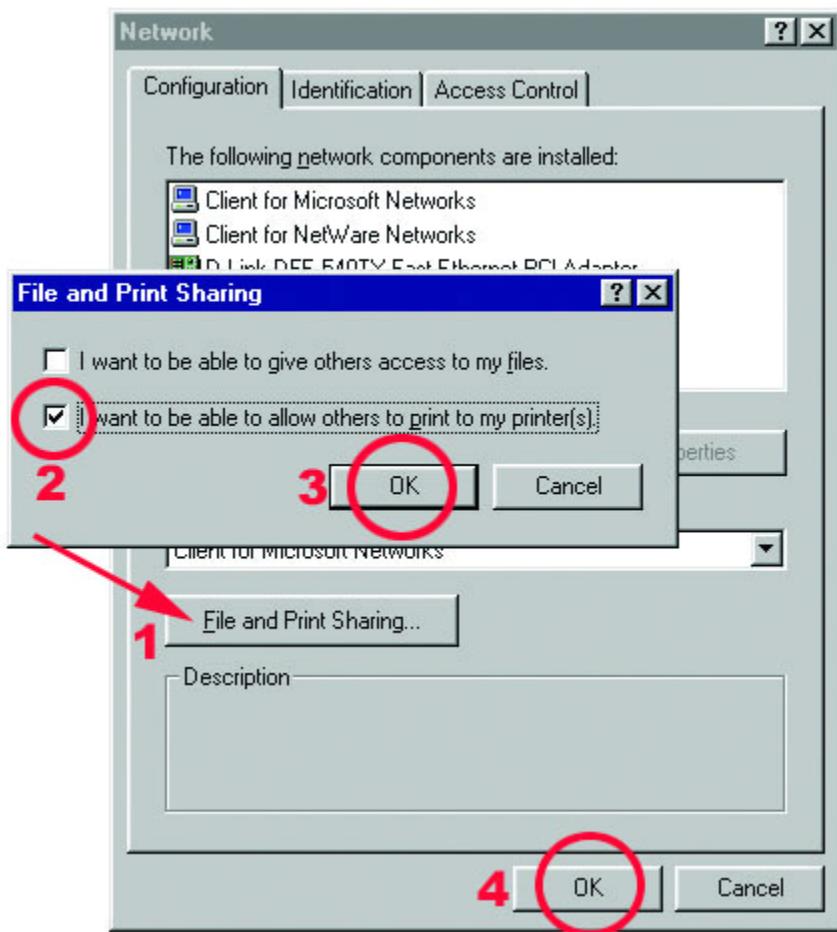
# Sharing Printers

"Sharing" a printer connected to one computer with other computers on your network can be very convenient - allowing you to print from any computer on the network. The steps below will enable you to print with other computers on your network.

1. On your Desktop, **right-click** the icon "Network Neighborhood" and select "Properties" from the context menu.

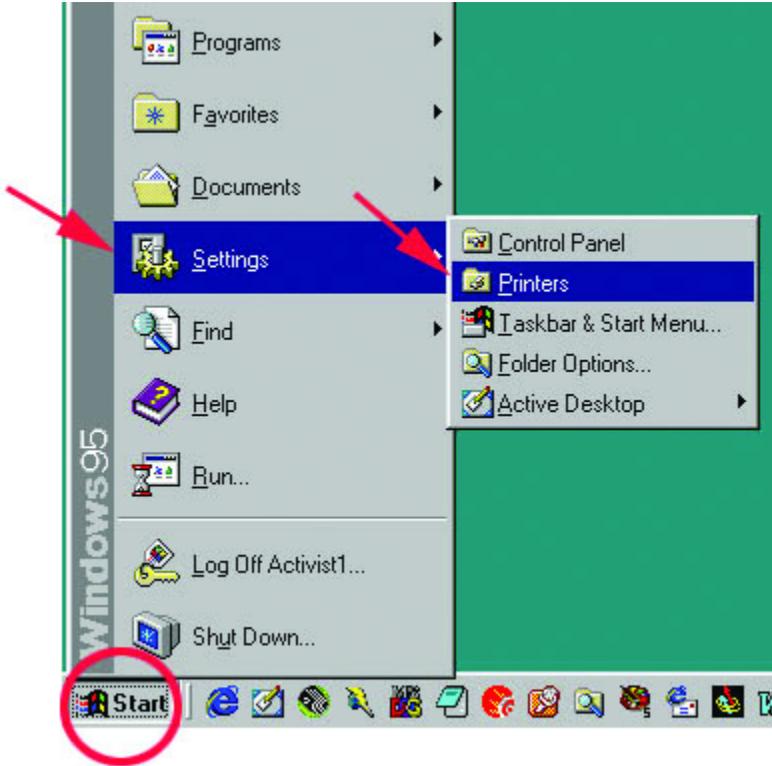


1. Click "File and Print Sharing..."
2. Select "I want to be able to allow others to print to my printer(s)."
3. Click OK on the "File and Print Sharing" dialog box.
4. Click OK on the "Network" dialog box.
5. Provide the Windows 95/98 installation CD or diskette(s) if prompted or direct Windows to the proper location of the installation files. Reboot if prompted.



6. You may now share any installed printers connected to this computer with other computers on your network.

**Go to START>SETTINGS>PRINTERS**



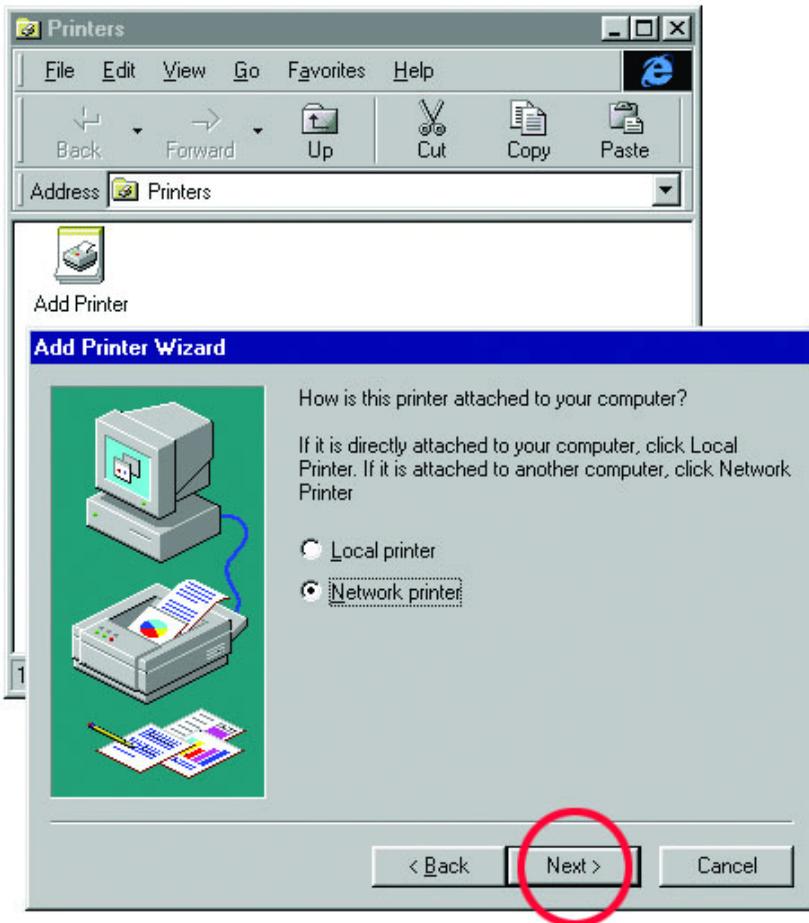
7. **Right-click** on the printer you want to share with others on the network and select "Sharing..."

8. **Click** "Share As:" and provide a "Share Name:" to identify the printer to other computers on the network. "Comment:" and "Password:" are optional.  
**Click OK.**

9. Shared printers become Network Printers for other computers on the network. For a computer to access a Network Printer, the device driver or software for that printer must be installed and pointed to the proper location of the printer.

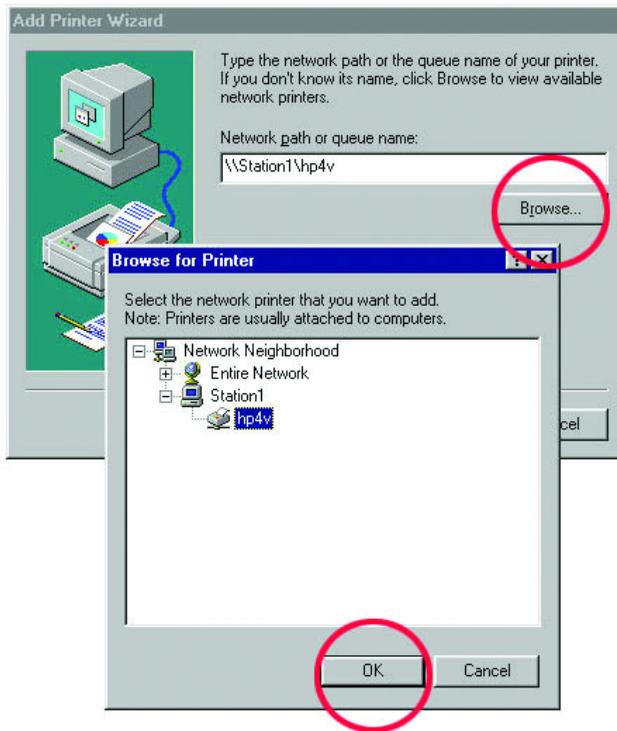
This is done much the same way you installed the printer on the computer it is connected to.

10. Go to a computer that does not have the printer connected to it. Go to **START>SETTINGS>PRINTERS**
11. **Double click** the "Add Printer" icon.
12. The "Add Printer Wizard" will appear.
13. Choose "Network printer." **Click Next.**



14. Now you will identify the location of the Network Printer. If you know the name of the computer and the share name of the printer, you can type it into the "Network path or queue name:" box. However, it is easier to **click "Browse..."** and navigate to the location of the printer.

**Click OK** after you have selected the desired printer. Finish the installation by continuing the "Add Printer Wizard" normally.



15. You may now use the Network Printer as if it was connected directly.

*Note: the computer that the printer is connected to must be "ON" to use the printer. If you find this inconvenient, devices known as Network Print Servers are available from multiple vendors, including D-Link. A Network Print Server would allow you to directly connect your printer to your network.*

# Networking with Windows 2000

## Configuring Your Network Settings

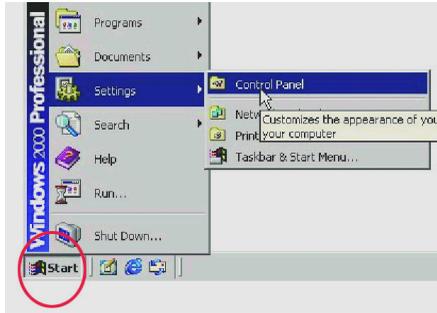
When computers are placed on a network they need a way to communicate with each other in order to share files, printers and other network resources. Computers communicate using protocols. This section assumes that you have installed the protocols listed in the “Installing Software” section of the Quick Install Guide. If you have not installed the protocols, return to “Installing Software,” select the Windows 2000 icon and follow the instructions for installing and configuring protocols. You cannot network your computers until the protocols are installed and properly configured.

Your network Identification is the unique name given to each computer on your network. The names shown in the screen shots are only examples. The names you choose must be unique to each computer. The names assigned in this step are the names that will appear in your “Network Places” after the network is up and running. For example, you could name the computer after the person it belongs to. Jane's computer is named Jane and John's computer is named John. As long as no other computer on the network has the same name it will be fine.

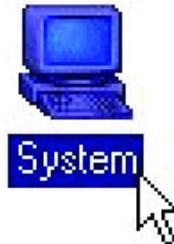
# Configuring your Network Identification

Follow these steps to configure your DFE-528TX card for networking:

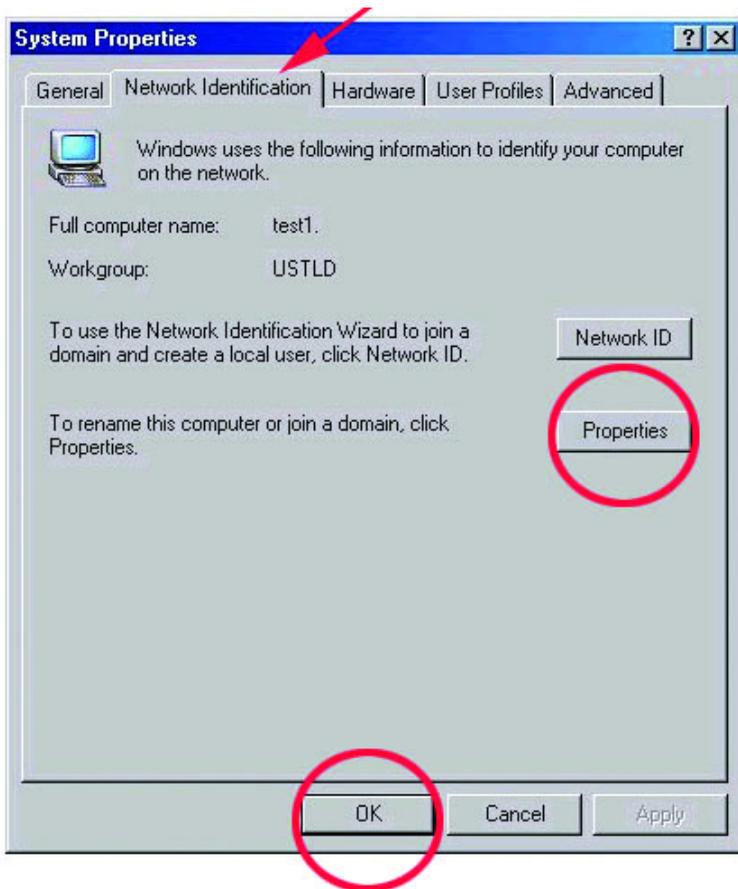
1. Go to **Start > Settings > Control Panel**



2. **Double click** on the System icon.

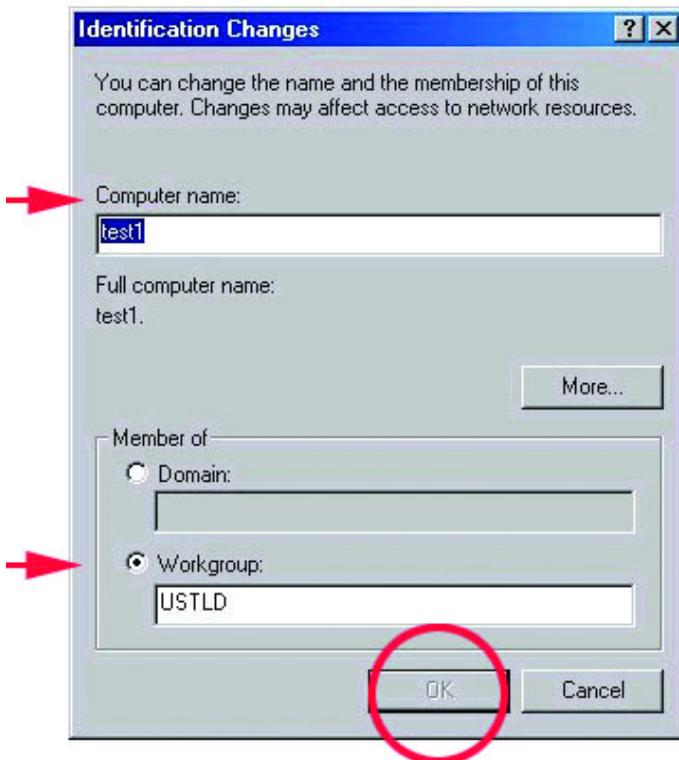


3. Select the “Network Identification” tab and then **click** “Properties.”



4. Specify the Computer name you want for the computer, and the membership of the Workgroup you are configuring. The Computer name can be any name you wish to call your PC. Each PC will need to have a unique computer name. The Workgroup name will need to be the same for all PCs on the same network.  
**Click OK.**

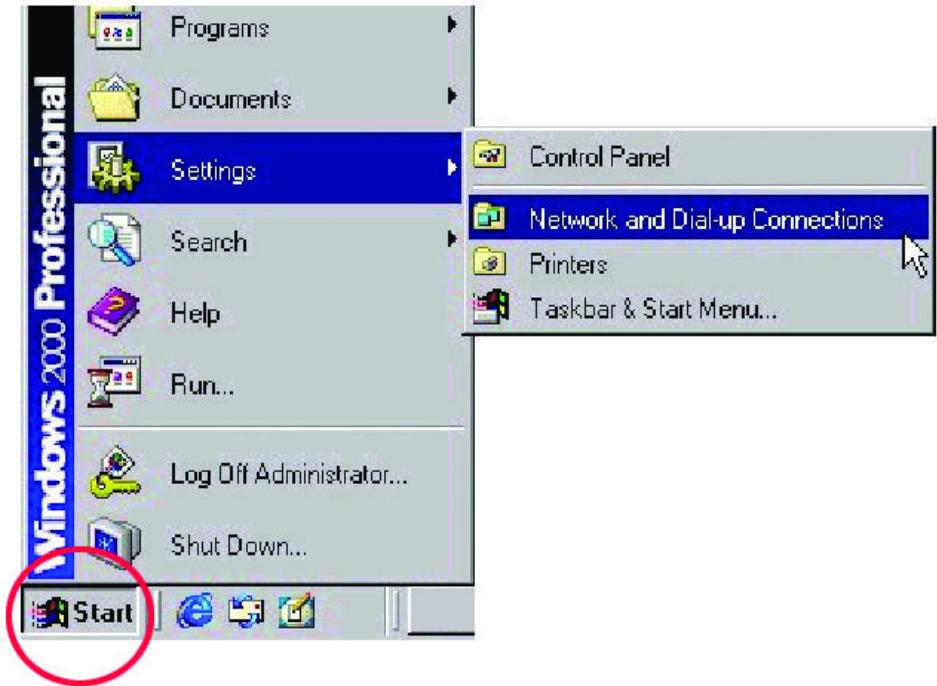
**Click OK** in the “System Properties” window.



# Configuring the IP Address for TCP/IP

Follow these steps to configure your DFE-528TX card for networking:

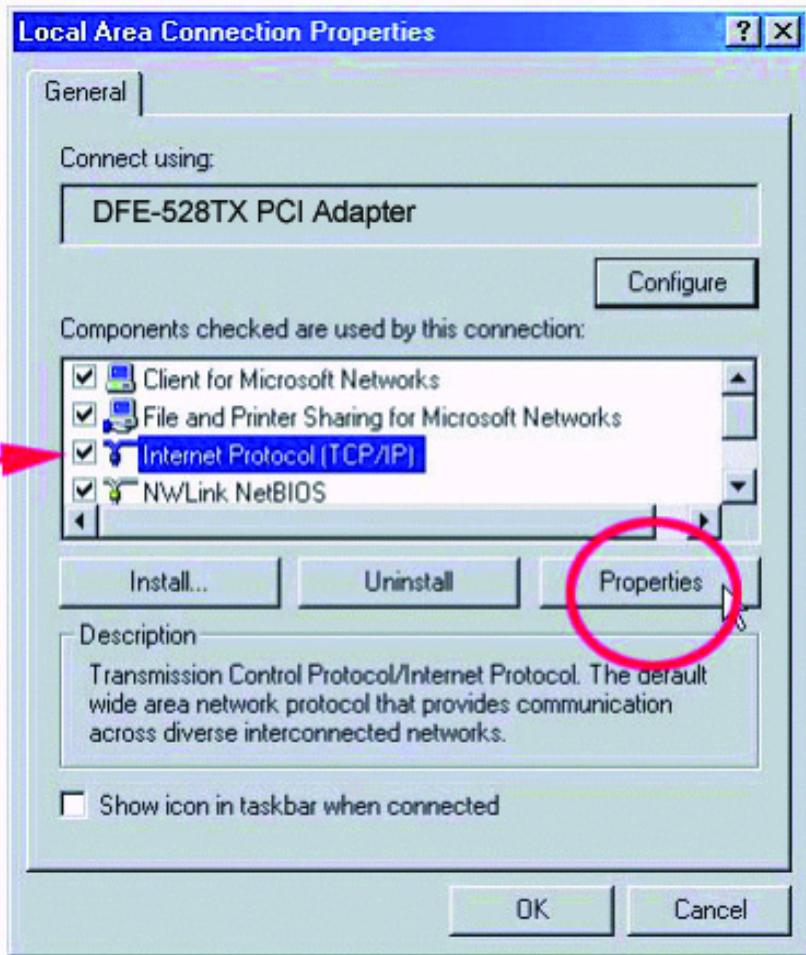
1. Go to **Start> Settings> Network and Dial-up Connections**



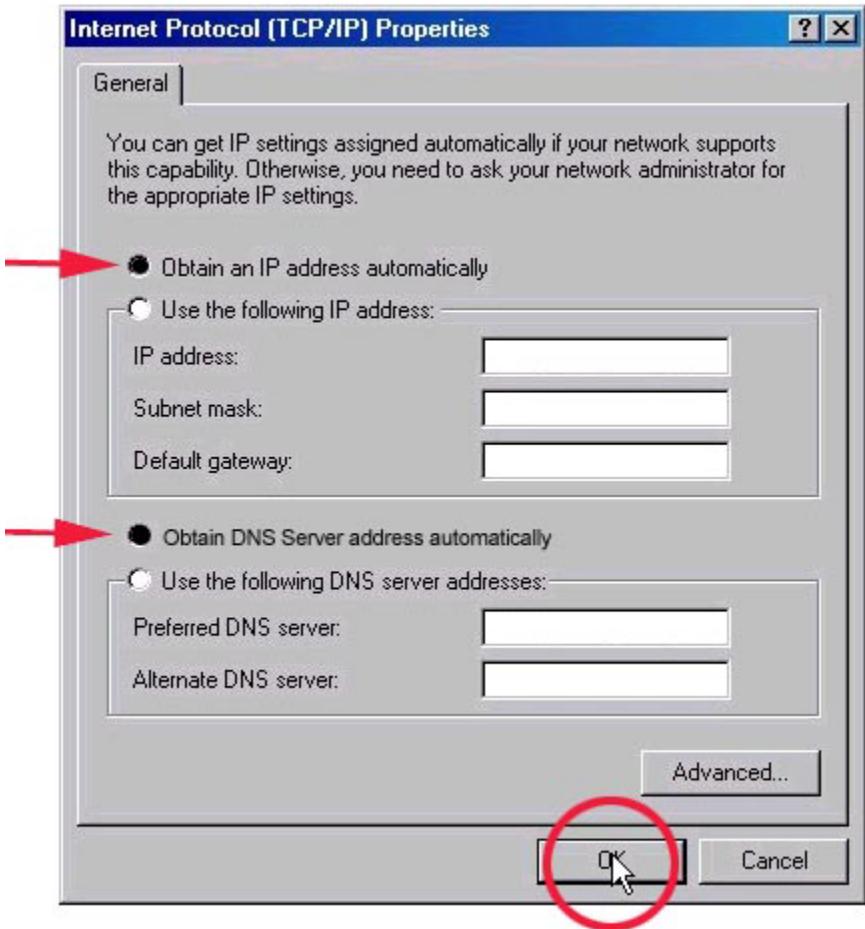
2. **Right-click** on Local Area Connection then click on Properties.



3. Highlight Internet Protocol (TCP/IP) and then **click Properties**.



4. The “Internet Protocol (TCP/IP) Properties” window appears. Make sure that “Obtain an IP address automatically” is selected.

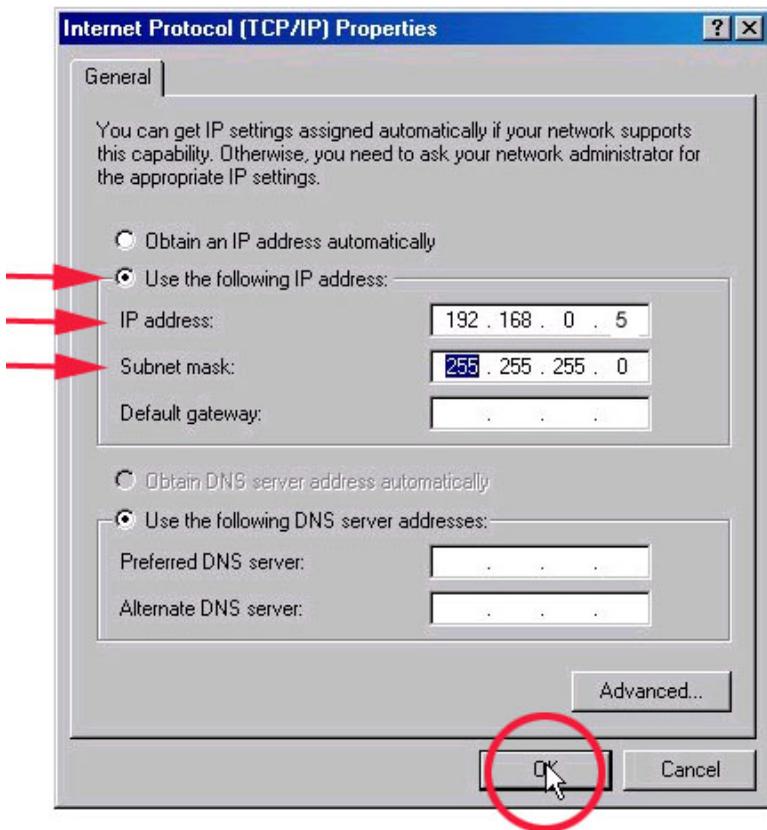


**Click OK.**

*Note: Repeat this step for each computer that will be added to this network.*

**If you are unable to obtain an IP address automatically, you will need to assign an IP address manually. Please follow these steps to assign an IP address manually:**

1. When the “Internet Protocol (TCP/IP) Properties” window appears. Make sure that “**Use the following IP address**” is selected.
2. Specify your **IP address** (e.g., 192.168.0.1) and your **Subnet mask** as 255.255.255.0 and **click OK**. The IP address shown is an example. You can substitute another IP address as long as it is unique, follows the same format as the one shown in the example, and the IP address is in the same subnet as your local network.



*Note: Repeat this step for each computer that will be added to this network. Make sure that the IP address is unique for each computer. The first computer is computer A and uses the IP address of 192.168.0.1 with Subnet mask of 255.255.255.0. The **last number** in Computer B's address will be different. No two devices on the network can have the same IP address.*

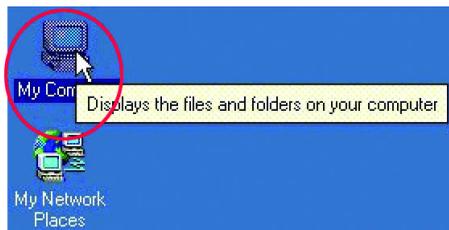
3. Assign a different IP Address to computer B: 192.168.0.2 (the last number changed from number 1 to number 2.) The Subnet mask for computer B will have to be the same as computer A with 255.255.255.0.
4. After entering the IP address and Subnet mask, **click OK** and close the “TCP/IP Properties” Box.

*Note: Windows 2000 does not have to reboot to activate the changes in IP addresses. However, it is always a good idea to reboot after making changes to Network Settings.*

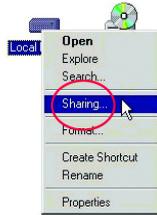
## Sharing Drives

Follow these steps to share a hard drive:

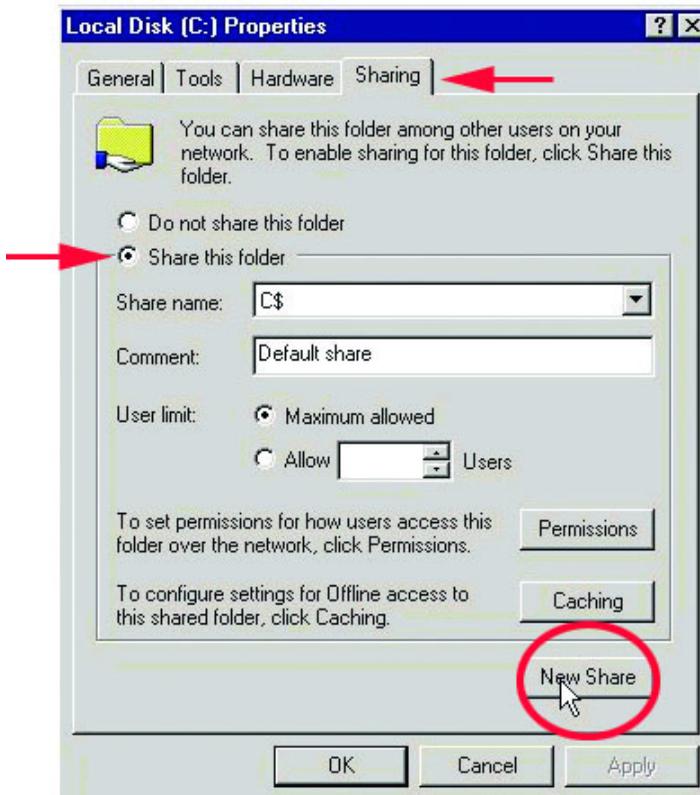
1. Log in as a member of the Administrators, Server Operators, or Power Users groups. You cannot make the necessary changes and configurations unless you are logged in as a member of one of those groups.
2. **Double click** on “My Computer.”



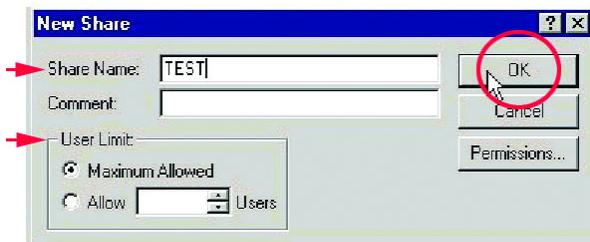
3. **Right click** on the drive you want to share and select “Sharing.”



4. Select the “Sharing” tab on the “Local Disk Properties” Window. Select “Share this folder,” and **click** “New Share.”

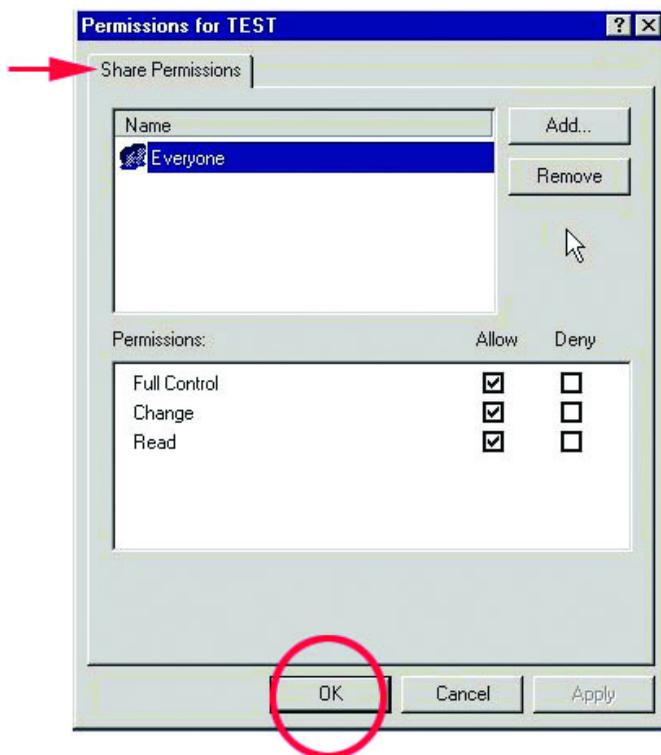


5. In the “New Share” box, name the share as you would like it to appear in “My Computer” and “Network Neighborhood,” set the maximum number of users and make a comment, then **click OK**.



6. Choose the “Share Permissions” tab and set limits on the share as needed. The default settings allow all users to read and write to the hard drive.

**Click OK.**



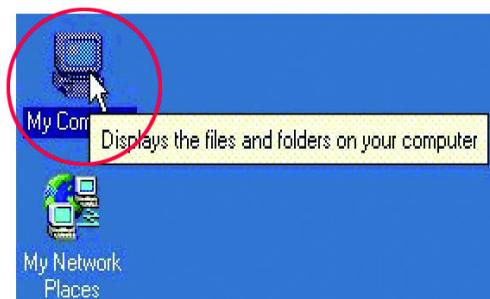
7. The shared drive should now have a hand underneath it, indicating that it is a shared drive.



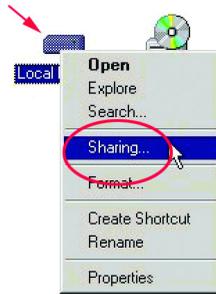
## Sharing Folders

Follow these steps to share a folder:

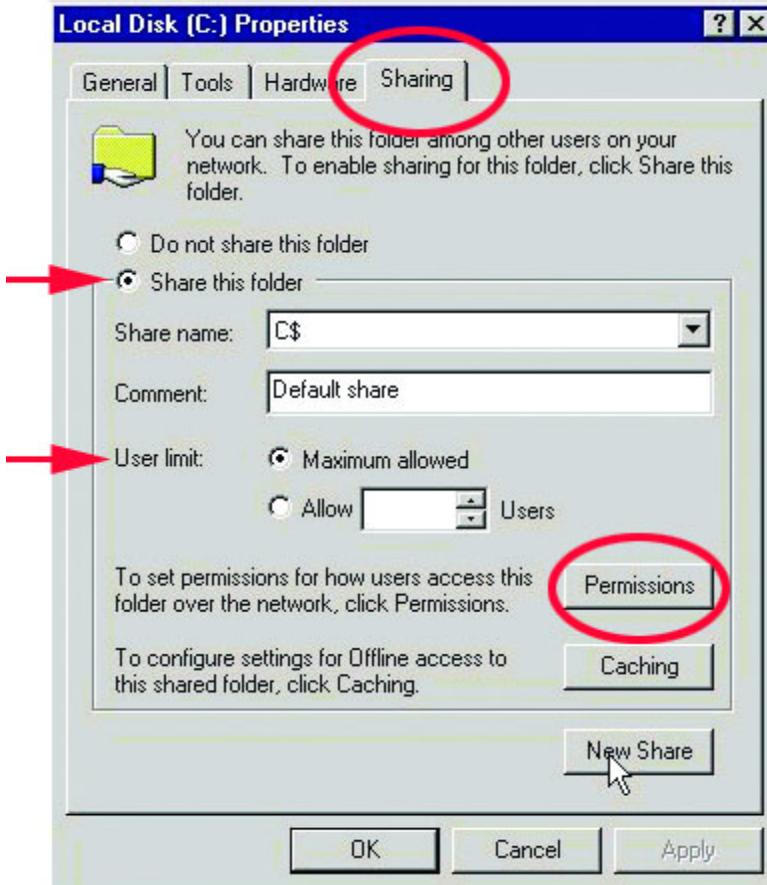
1. You must be logged in as a member of the Administrators, Server Operators, or Power Users groups to perform these operations.
2. **Double click** the “My Computer” icon to open it.



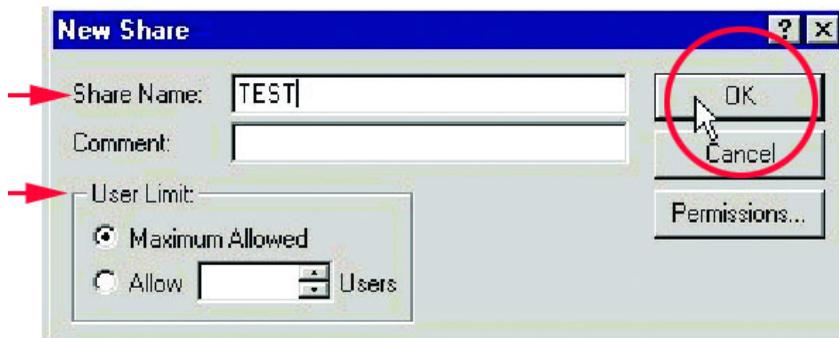
3. **Double click** on the **Local Drive** that contains the files to be shared.  
**Click** “Sharing.”



4. Navigate to the folder you want to share and **right click** on it. Choose “Sharing.” Change the settings under the “Sharing” tab to “Share this folder.” Set the “Permissions” on the folder and the number of users who can access the file.



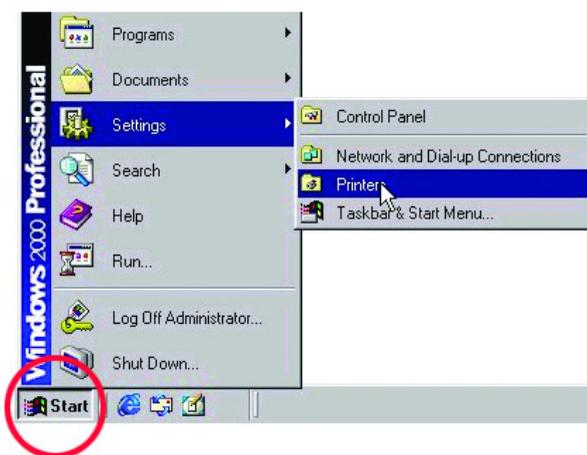
5. You must enter the “Share Name” in order for it to be seen on the network.  
Click **OK** when you have finished entering the information.



## Sharing a Printer

Follow these steps to share a printer:

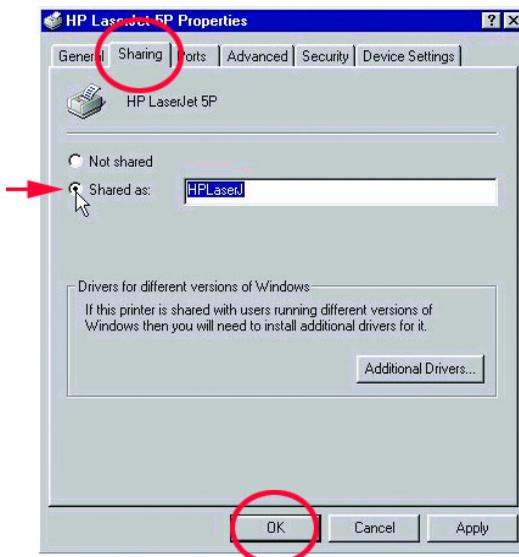
1. All printer-sharing instructions assume that you have a printer on one machine that is connected to the Local Area Network. Go through this procedure on the computer the printer is connected to.
2. Go to **Start> Settings> Printers**



3. **Right click** on the printer you want to share and select “Sharing.”



4. Under the “Sharing” tab change the value from “Not Shared” to “Shared As” and **click OK**.

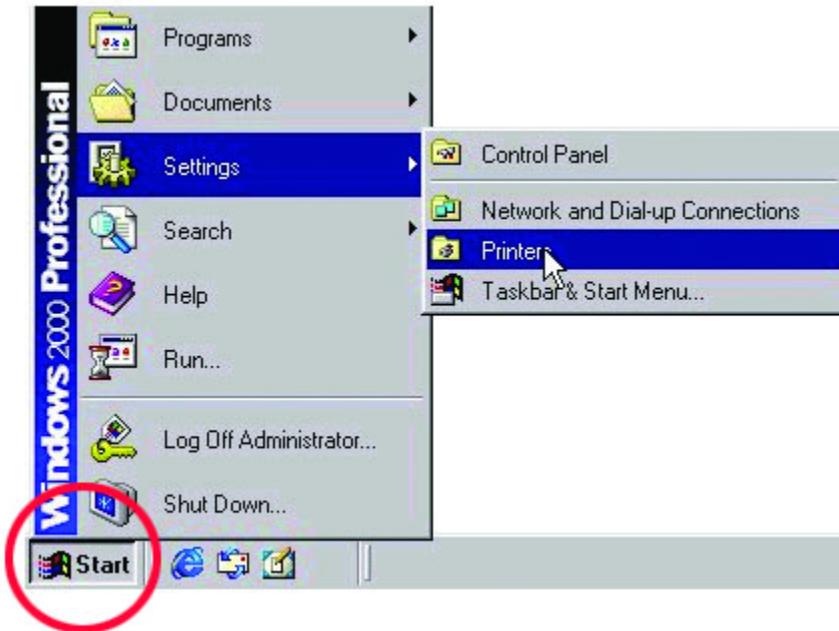




The printer should now have a hand underneath it, indicating that it is now shared.

Follow these steps to access the printer from all other computers on the network, repeat as needed for each computer:

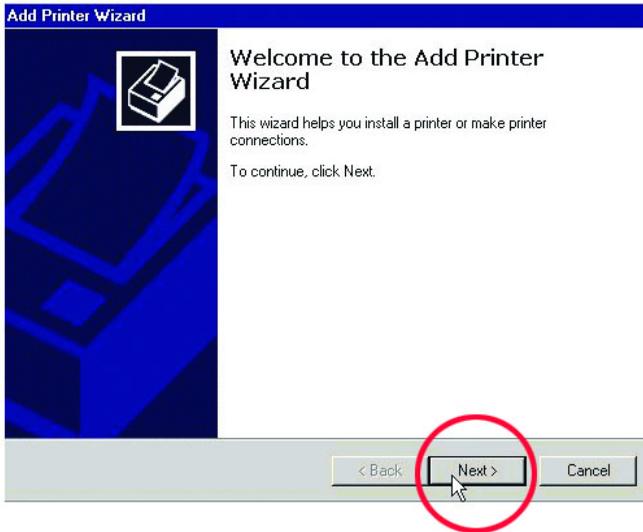
5. Go to **Start > Settings > Printers**



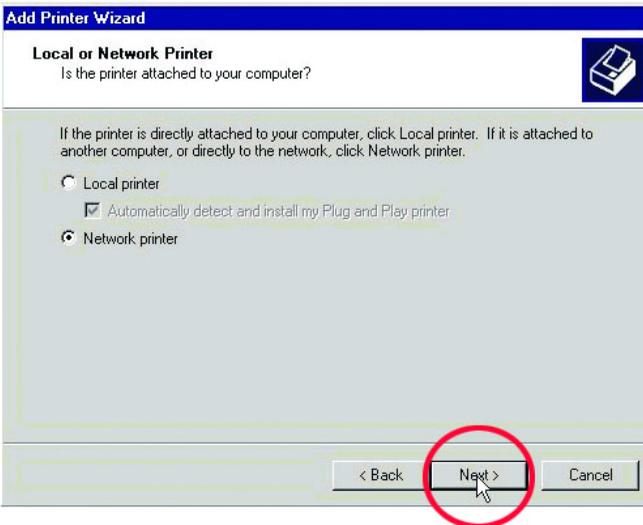
6. **Double click** on the “Add Printer” icon.



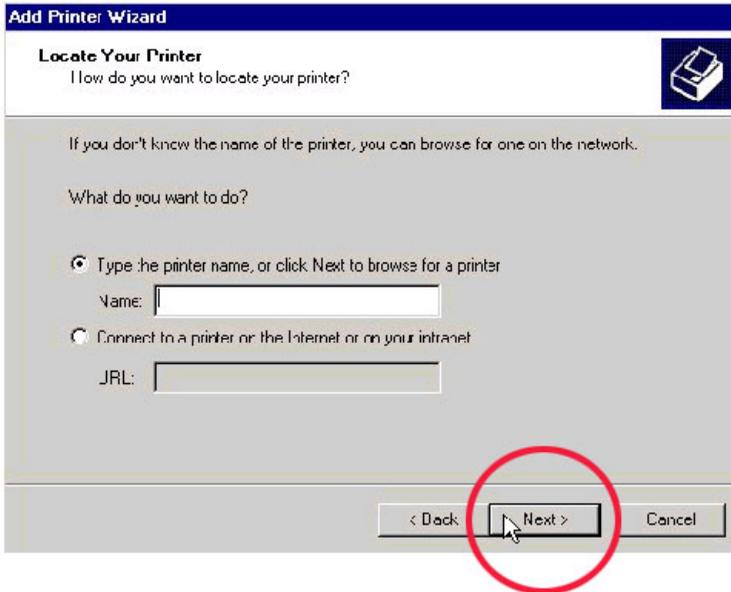
7. Click **Next** at the “Add Printer Wizard” screen.



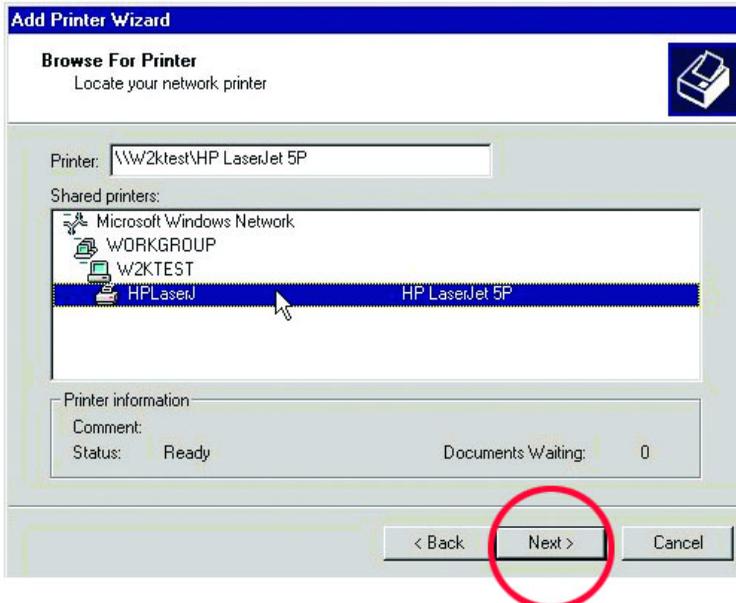
8. Select “Network printer” to make the printer available as a resource on the network.



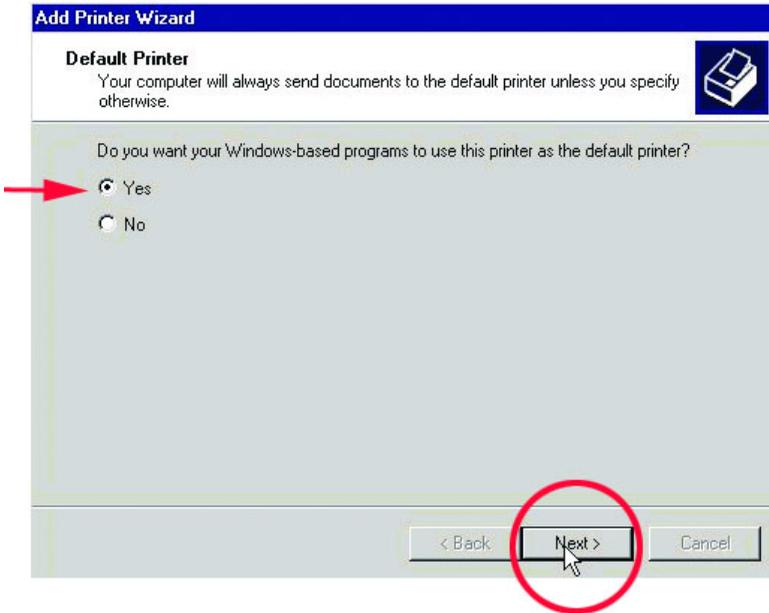
9. At this screen, **click Next** to “Browse” for a printer.



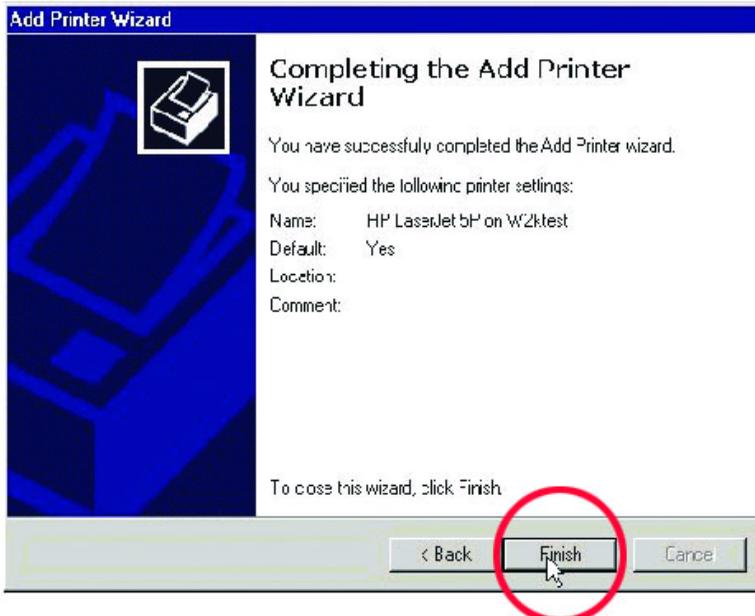
10. Select the printer and **click Next** to continue.



11. Click Yes and then click Next.



12. Click Finish to complete the printer installation.



# Troubleshooting

A network can be simple to install and maintain. However, occasionally something might go wrong. The best approach to troubleshooting network problems is to start at the very simplest level and work your way up.

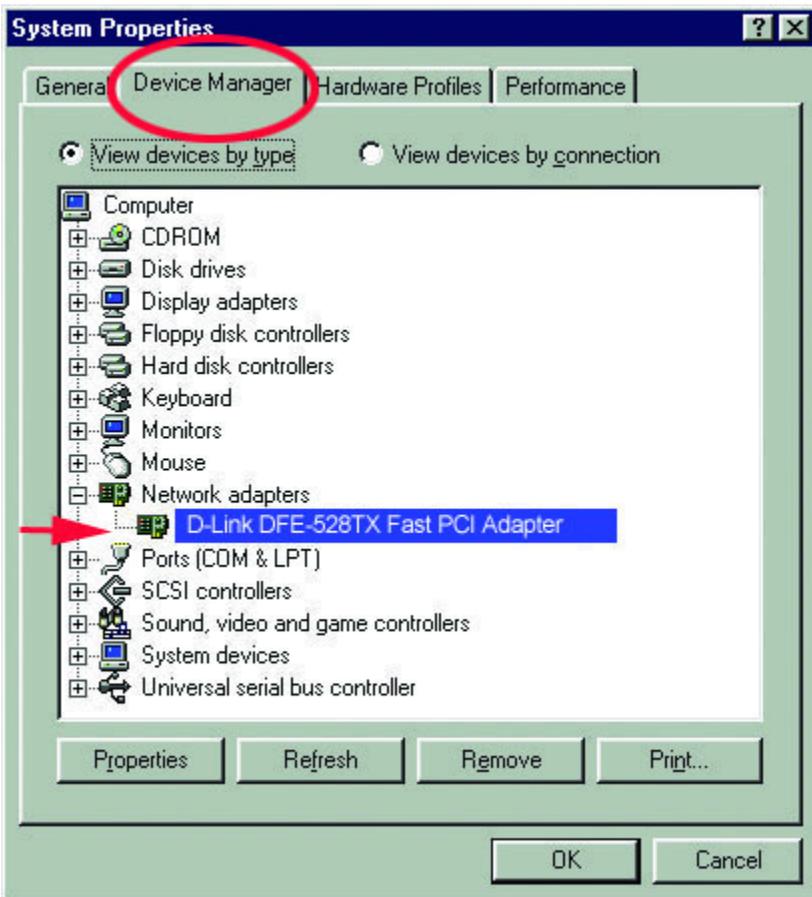
## Verify Each Computers Identification

If more than one computer on your network has the same "Computer Name," communications may be negatively affected. Also, each computer must have the same "Workgroup" name to communicate properly. Use the steps in Networking Basics to ensure that each computer on your network has a unique "Computer Name" and identical "Workgroup."

## Verify Network Adapter Installation

If your Network Adapters were not properly installed, including the Network System Software or device drivers, your network will not function properly. Use these steps to verify that your Network Adapters are properly installed:

1. **Double-click** the "System" icon in the Control Panel.
2. Select the "Device manager" tab on top of the "System Properties" dialog box.
3. **Double-click** "Network adapters." You should see "D-Link DFE-528TX Fast Ethernet PCI Adapter" or "Realtek RTL8139C(A)" branching out after double-clicking "Network adapters."



If you do not see any items branching out after double-clicking "Network adapters," your Network Adapter has not been properly installed. Start at the beginning of the guide and follow all the steps for this computer.

If you see symbols such as a yellow exclamation point or red "X" over the icon adjacent to "D-Link DFE-528TX Fast Ethernet PCI Adapter," your adapter is not installed properly or may have a problem. Double-click the "D-Link DFE-528TX Fast PCI Adapter" to read the explanation of the problem. This information will be helpful if you require technical support from D-Link.

## Verify Cable Connections

Check to see that the computer(s) you are troubleshooting are properly connected. Each computer must be connected from its DFE-528TX with Category 5 UTP cables. Examine the Network cables and ensure that they have not been damaged by walking-on, rolling over with chairs, or closed in doors. Additionally, make note of and alleviate any possible electromagnetic interference that may be affecting your network.

Your network cables can be plugged into any port on your hub except the "Uplink" port. The "Uplink" port is only used when connecting your hub to another hub or switch.

## Understanding Indicators

Your DFE-528TX has indicators or lights that can give you information about your network traffic and help you determine problems when troubleshooting.

Your DFE-528TX's have two indicators labeled "ACT" and "LINK" on their back panels. A steady green "LINK" light indicates a good connection with the Hub. A flashing green "ACT" light indicates that the Network Adapter is sending or receiving data.

## Diagnostics and Checking Communications

Included on the CD labeled "DFE-528TX PCI Ethernet Adapter Driver Program" is a diagnostic program that will help you determine if any faults exist in your DFE-528TX Network Adapters or connections.

1. Restart your computer in MS-DOS mode. (Click "Start", then "Shut Down..." and finally select "Restart the computer in MS-DOS mode?")
2. Insert the CD labeled "DFE-528TX PCI Ethernet Adapter Driver Program" into your CD-ROM drive (D:).
3. Type **D:\DIAG** at the MS-DOS prompt, (where "D" is your CD-ROM drive)

and press "ENTER" to start the "D-Link PCI Fast Ethernet Adapter Diagnostic Program."

4. Read and follow the instructions on the screen. (Press the F1 key anytime for additional help.)
5. "Adapter Basic Diagnostic" will determine if any problems exist with a DFE-528TX.
6. "Network Diagnostic" will determine if any problems exist with your network or connections. To use "Network Diagnostic" please run the diagnostic program on both computers in MS-DOS mode. One computer must be designated the "Master" and the other designated the "Slave".

## Running Diagnostics on the Network Adapter

Follow these steps to run Diagnostics:

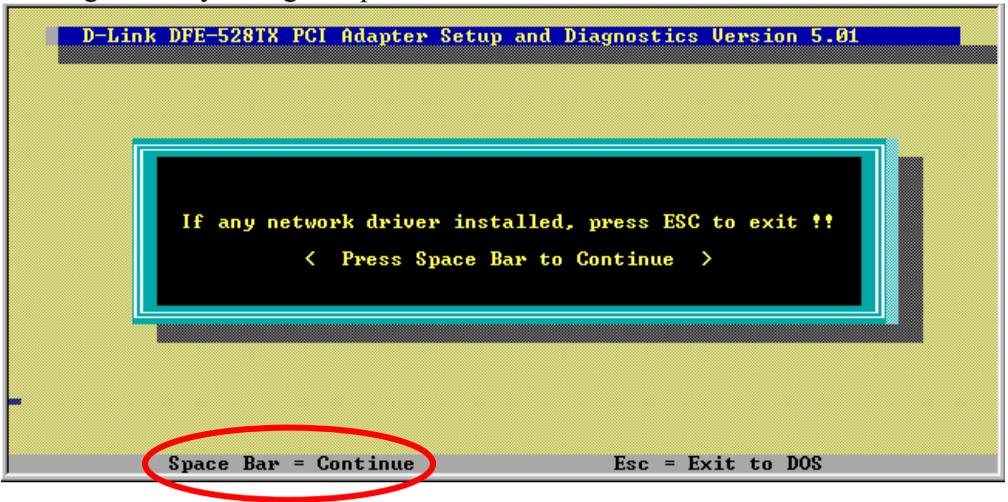
1. Restart your computer in MS-DOS mode. (Click "Start", then "Shut Down..." and finally select "Restart the computer in MS-DOS mode?")
2. Insert the CD-ROM labeled "DFE-528TX PCI Ethernet Adapter Driver Program" into the "D" drive. The "D" drive represents the CD-ROM drive.
3. Type in "**D:**" to specify the CD-ROM drive. Then type "**diag**" and hit enter.



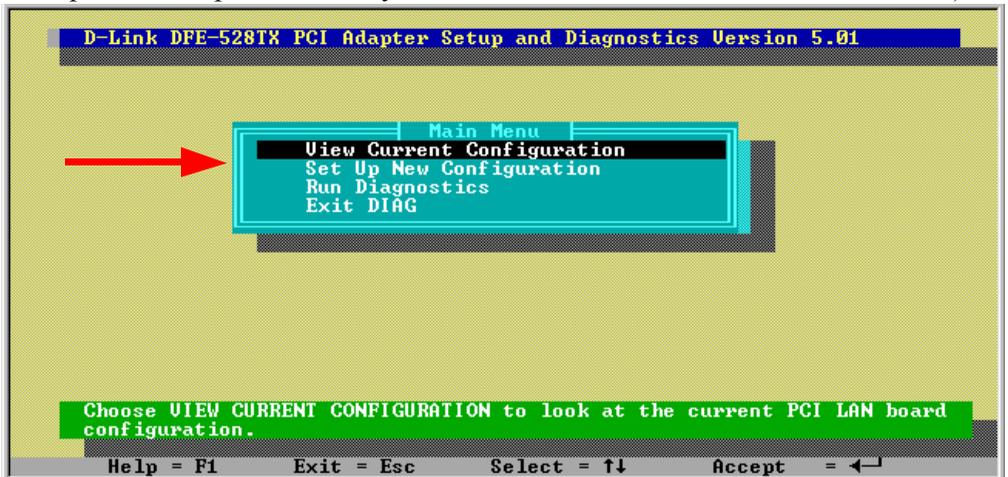
```
D:\>diag_
```

The screen on the following page will appear.

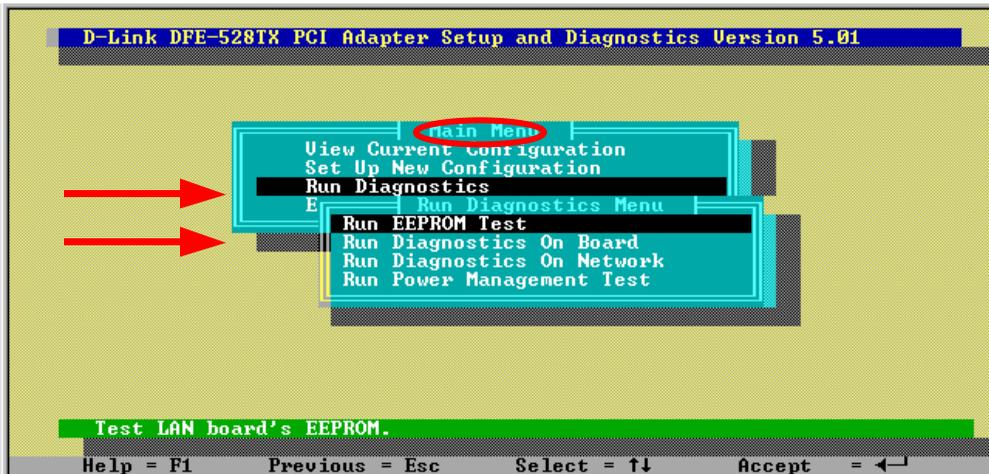
4. Go down to the bottom of the screen and follow the instruction to enter the diagnostics by hitting the space bar.



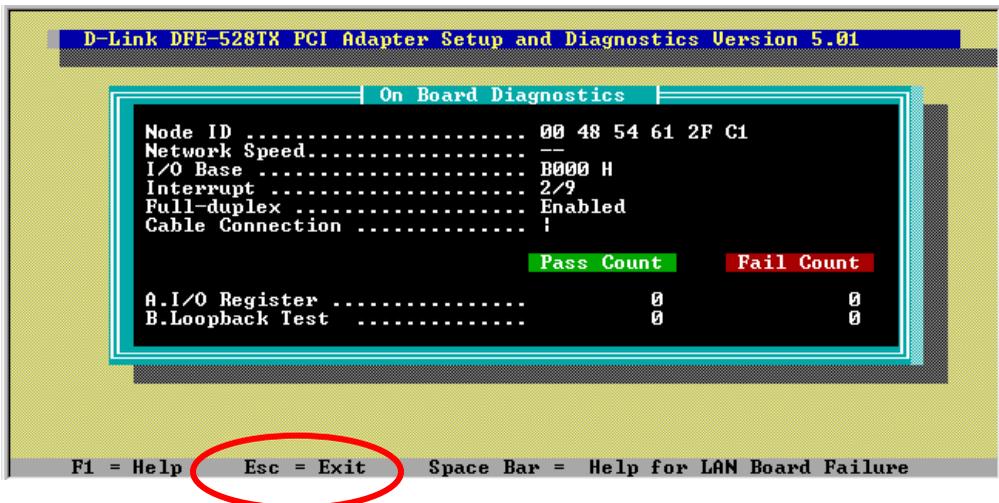
5. Go to View Current Configuration, hit enter and check the Ethernet Address for the card. (If the address is A5-A5-A5-A5-A5, FF-FF-FF-FF-FF, or any single alphanumeric pair all the way across, that is an indication of a defective card.)



- Go back to the main menu to run on-board diagnostics on the card.



- Once the diagnostics has run for a while, hit the Esc key to back out of the diagnostic program (Note: The Diagnostic Program will run continuously until you ESC out). Remove the CD-ROM and reboot the computer.



## Pinging your DFE-528TX Card

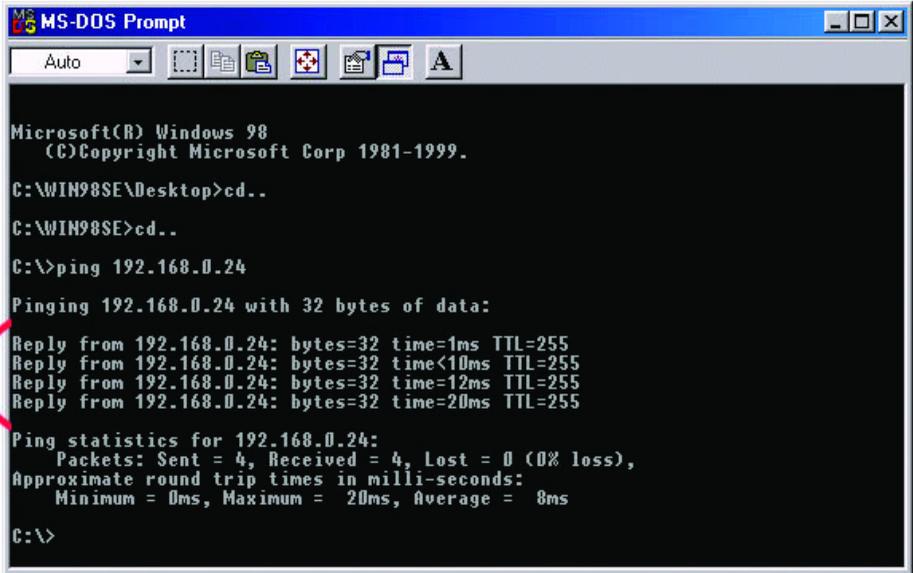
Follow these steps to Ping a device:

Ping is the acronym for Packet Internet Groper (PING), a utility to determine if a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. Ping is primarily used to troubleshoot Internet connections. By sending out a ping, you are verifying that a specific computer is available. Since all computers on the network must have a unique IP address, getting a reply means that a computer is on the network and that they can communicate. If they can communicate, then the hardware and cabling is fine. If you cannot ping another computer, then there is a problem with the hardware. Check the cabling and adapter installation. If you are unable to network, even when you receive a reply to your ping, it is probably a software configuration issue. Verify that all the settings are correct.

Go to **Start> Programs> MS-Dos Prompt**.



Type in the following: **ping xxx.xxx.xxx.xxx**, where xxx.xxx.xxx.xxx is the IP address to be pinged (i.e. 192.168.0.24). In this case, computer B with the IP address=192.168.0.24 is being pinged from computer A. Press Enter to begin pinging.

A screenshot of a Windows 98 MS-DOS Prompt window. The window title is "MS-DOS Prompt" and it has standard Windows 98 window controls (minimize, maximize, close). The command prompt shows the following text:

```
Microsoft(R) Windows 98
(C) Copyright Microsoft Corp 1981-1999.
C:\WIN98SE\Desktop>cd..
C:\WIN98SE>cd..
C:\>ping 192.168.0.24
Pinging 192.168.0.24 with 32 bytes of data:
Reply from 192.168.0.24: bytes=32 time=1ms TTL=255
Reply from 192.168.0.24: bytes=32 time<10ms TTL=255
Reply from 192.168.0.24: bytes=32 time=12ms TTL=255
Reply from 192.168.0.24: bytes=32 time=20ms TTL=255
Ping statistics for 192.168.0.24:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 20ms, Average = 8ms
C:\>
```

A red circle highlights the first "Reply from" line.

If the connection is good, you will receive four "Reply from" messages. Type **exit** at the prompt to return to Windows.

# Contacting Technical Support

You can find the most recent software and user documentation on the D-Link website.

**D-Link** provides free technical support for customers within the United States for the duration of the warranty period on this product.

U.S. customers can contact **D-Link** technical support through our web site, by e-mail, or by phone.

United States technical support is available Monday through Friday from 6:00 a.m. to 6:00 p.m. (PST).

**Web:** <http://www.dlink.com>

**E-mail:** [support@dlink.com](mailto:support@dlink.com)

**Phone:** 949-788-0805 (option #4)

If you are a customer residing outside of the United States, please refer to the list of **D-Link** locations that is included in this manual.

*Thank you for purchasing this product. We like to receive feedback from our customers concerning our products. Please take a moment to visit our web site. **You can register your purchase on-line**, learn more about the newest networking products, and let us know the things your new network has empowered you to do.*

# Specifications

## Standards:

- IEEE 802.3 10BASE-T
- IEEE 802.3u 100BASE-TX
- IEEE 802.3x Flow Control
- NWay Auto-Negotiation
- PC99 Standard

**Data Bus:** 32-bit, 33-Mhz Bus Mastering

**Host Interface:** PCI 2.2 compliant

**Ports:** One RJ-45

**Diagnostic LEDs:** Link  
Activity

**Available Drivers:** NDIS3/4/5 (Windows 95/98/NT4.0/2000)  
32-bit ODI (Netware 2.x/4.x/5.0 Server)  
Packet Driver  
Linux

**Temperature:** Operating: 0°C to 55°C  
Storage: -25°C to 55°C

**Humidity:** 10% to 90%, non-condensing

**Compliances:** CE – Class B, FCC Class B, VCCI Class B, C-Tick

**Safety:** UL

**Power Consumption:** 0.8W (240mA@3.3V) max

# D-Link Offices

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URL: www.dlink.com.au E-MAIL: support@dlink.com.au info@dlink.com.au
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**D-LINK CANADA**  
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TEL: 56-2-232-3185 FAX: 56-2-2320923 URL: www.dlink.cl
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URL: www.dlink.de BBS: 49-(0)6192-971199 (Analog) 49-(0)6192-971198 (ISDN)  
INFO LINE: 00800-7250-0000 (toll free) HELP LINE: 00800-7250-4000 (toll free)  
REPAIR LINE: 00800-7250-8000
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TEL: 886-2-2910-2626 FAX: 886-2-2910-1515 URL: www.dlinktw.com.tw
- U.K.**  
**D-LINK EUROPE**  
4<sup>th</sup> Floor, Merit House, Edgware Road, Colindale, London, NW9 5AB, U.K.  
TEL: 44-20-8731-5555 FAX: 44-20-8731-5511  
URL: www.dlink.co.uk E-MAIL: info@dlink.co.uk
- U.S.A.**  
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53 Discovery Drive, Irvine, CA 92618 USA  
TEL: 1-949-788-0805 FAX: 1-949-753-7033 INFO LINE: 1-800-326-1688  
BBS: 1-949-455-1779, 1-949-455-9616  
URL: www.dlink.com E-MAIL: tech@dlink.com, support@dlink.com  
Tech Support Hours: 6 A.M. to 6 P.M. Pacific Standard Time, Monday through Friday

# Limited Warranty

D-Link Systems, Inc. (“D-Link”) provides this limited warranty for its product only to the person or entity who originally purchased the product from D-Link or its authorized reseller or distributor.

**Limited Hardware Warranty:** D-Link warrants that the hardware portion of the D-Link products described below (“Hardware”) will be free from material defects in workmanship and materials from the date of original retail purchase of the Hardware, for the period set forth below applicable to the product type (“Warranty Period”) if the Hardware is used and serviced in accordance with applicable documentation; provided that a completed Registration Card is returned to an Authorized D-Link Service Office within ninety (90) days after the date of original retail purchase of the Hardware. If a completed Registration Card is not received by an authorized D-Link Service Office within such ninety (90) period, then the Warranty Period shall be ninety (90) days from the date of purchase.

<i><b>Product Type</b></i>	<i><b>Warranty Period</b></i>
Product (excluding power supplies and fans), if purchased and delivered in the fifty (50) United States, or the District of Columbia (“USA”)	Limited Lifetime
Product purchased or delivered outside the USA	One (1) Year
Power Supplies and Fans	One (1) Year
Spare parts and spare kits	Ninety (90) days

D-Link’s sole obligation shall be to repair or replace the defective Hardware at no charge to the original owner. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or of an identical make, model or part; D-Link may in its discretion may replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. The Warranty Period shall extend for an additional ninety (90) days after any repaired or replaced Hardware is delivered. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

**Limited Software Warranty:** D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original delivery of the Software for a period of ninety (90) days (“Warranty Period”), if the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty

Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. The Warranty Period shall extend for an additional ninety (90) days after any replacement Software is delivered. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

### **What You Must Do For Warranty Service:**

Registration Card. The Registration Card provided at the back of this manual must be completed and returned to an Authorized D-Link Service Office for each D-Link product within ninety (90) days after the product is purchased and/or licensed. The addresses/telephone/fax list of the nearest Authorized D-Link Service Office is provided in the back of this manual. FAILURE TO PROPERLY COMPLETE AND TIMELY RETURN THE REGISTRATION CARD MAY AFFECT THE WARRANTY FOR THIS PRODUCT.

Submitting A Claim. Any claim under this limited warranty must be submitted in writing before the end of the Warranty Period to an Authorized D-Link Service Office. The claim must include a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same. The original product owner must obtain a Return Material Authorization (RMA) number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided. After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. The packaged product shall be insured and shipped to D-Link, 53 Discovery Drive, Irvine CA 92618, with all shipping costs prepaid. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

### **What Is Not Covered:**

This limited warranty provided by D-Link does not cover:

Products that have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; initial installation, installation and removal of the product for repair, and shipping costs; operational adjustments covered in the operating manual for the product, and normal maintenance; damage that occurs in shipment, due to act of God, failures due to power

surge, and cosmetic damage; and any hardware, software, firmware or other products or services provided by anyone other than D-Link.

**Disclaimer of Other Warranties:** EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED “AS-IS” WITHOUT ANY WARRANTY OF ANY KIND INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

**Limitation of Liability:** TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT.

**GOVERNING LAW:** This Limited Warranty shall be governed by the laws of the state of California.

Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

## **Trademarks**

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## **CE Mark Warning**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

## FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

# Registration

Register online at <http://www.dlink.com/sales/reg/>