

# **D-Link*Air* DWL-520**

**11Mbps Wireless LAN  
PCI Adapter**

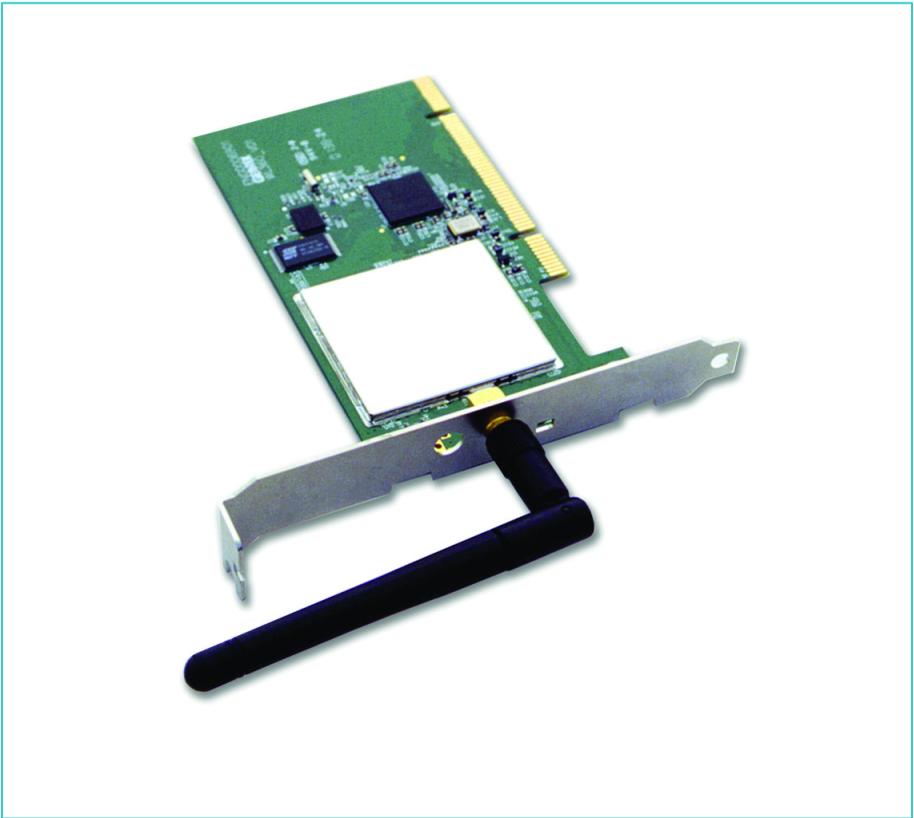
## **Manual**

*Please see the **Quick Install Guide**, included separately, for installation instructions.*

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## Contents of Package



### **Contents of Package:**

- DWL-520 Wireless PCI Adapter
- Manual
- Quick Installation Guides
- Driver CD

*If any of the above items are missing, please contact your reseller.*

## Introduction

The D-Link *Air* DWL-520 11Mbps Wireless PCI Adapter is an ideal way to connect your computer to a wireless network or as part of a wired LAN (Local Area Network) with a wireless segment. After completing the steps outlined in the Quick Install Guide (included separately) 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!

This DWL-520 comes with drivers for the most popular operating systems and can be integrated into a larger network, running Windows XP, Windows 2000, Windows ME, or Windows 98 in either Ad Hoc mode (without an Access Point) or Infrastructure mode (with an Access Point.) Yet the IEEE 802.11b standards compliance means this adapter gives you the flexibility to connect it to any 802.11b network. The IEEE 802.11b Ethernet standard allows you to connect computers and devices at speeds up to 11Mbps, dependent upon the distance between wireless adapters.

This manual provides a quick introduction to wireless technology and its application as it relates to networking. Take a moment to read through this manual and familiarize yourself with wireless technology. But you should also give yourself some time to become familiar with your new wireless network.

## Wireless Basics

D-Link *Air* wireless products are based on industry standards to provide easy to use and compatible high-speed wireless connectivity within your home or business. Strictly adhering to IEEE 802.11b, the D-Link *Air* wireless family of products will allow you to access the data you want, when and where you want it. No longer will you be tethered to a workstation or forced to run new wiring. You will be able to enjoy the freedom that wireless networking delivers.

### **Standards - Based Technology**

The IEEE 802.11b standard designates that devices operate at an optimal data rate of 11 Megabits per second. This means you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. This technology works by using multiple frequencies in the 2.4GHz range utilizing Direct Sequence Spread Spectrum (DSSS) technology. D-Link *Air* products will automatically sense the best possible connection speed to ensure the greatest speed and range possible with the technology.

### **Installation Considerations**

Designed to go up to 300 feet (100 meters) indoors and up to 900 feet (273 meters) outdoors, D-Link *Air* DWL-520 lets you access your network from virtually anywhere you want. Keep in mind, however, that the number and thickness of walls, ceilings or other objects that the wireless signals must pass thru may limit range. Typical ranges vary depending on the types of materials and background RF noise in your home or business. The key to maximizing range is to follow these basic principles:

## Wireless Basics *(continued)*

1. Keep the number of walls and ceilings between the access point and your receiving device to a minimum - Each wall or ceiling can reduce your D-Link *Air Wireless* product's range from 3-90 feet. For some business or large residential home deployment, it may be more beneficial to have more than one access point with overlapping coverage.
2. Be aware of the direct line between Access Points, Residential Gateways, and Computers - A wall that is 1.5 feet thick, at a 45 degree angle appears to be almost 3 feet thick. At a 2 degree angle it looks over 42 feet thick! Try to make sure that the AP and Adapters are positioned so that the signal will travel straight through a wall or ceiling for better reception.
3. Building Materials make a difference - A solid metal door or aluminum studs may have a negative effect on range. Again, try to position Access Points, Residential Gateways, and Computers so that the signal passes through drywall or open doorways and not other materials.
4. Make sure that the antenna is positioned for best reception by using the software signal strength tools included with your product.
5. Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

For the average residence, range should not be a problem. If you experience low or no signal strength in areas of your home that you wish to access, consider positioning the Access Point in a location directly between the Residential Gateways and/or Computers that will be connected. Additional Access Points can be connected to provide better coverage in rooms where the signal does not appear as strong as desired.

## Wireless Basics *(continued)*

Using radio frequency (RF) technology, WLANs transmit and receive data over the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs.

- **Installation Speed and Simplicity** - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.
- **Installation Flexibility** - Wireless technology allows the network to go where wires cannot go.
- **Reduced Cost-of-Ownership** - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.
- **Scalability** - Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users that allows roaming over a broad area.

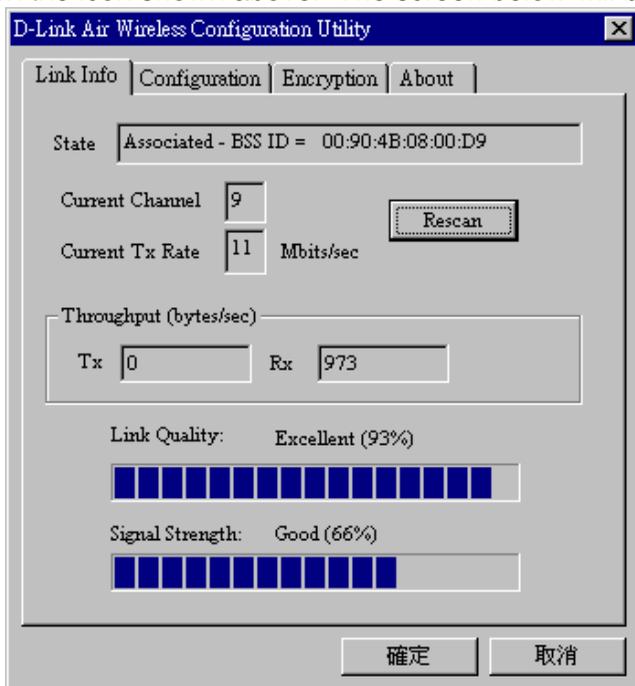
# Configuration Utility

D-Link Air DWL-520 uses the “Configuration Utility” as the management software. The utility provides the user an easy interface to change any settings related to the wireless adapter. When the computer is started, the “Configuration Utility” starts automatically and the system tray icon is loaded in the toolbar. Clicking on the utility icon will start the Configuration Utility. Another way to start the Configuration Utility is to click on Start>Programs>D-Link DWL-520.

A new icon -  will appear in your Icon tray.



If the icon is in red, it means that DWL-520 NIC configuration is invalid or incomplete. A “red” icon may indicate that the adapter is set to an incorrect channel or the communication mode is set incorrectly. Verify the settings for the DWL-520 and make sure that the computer is within wireless range. Double-click on the icon shown above. The screen below will be displayed.



## Link Info Tab

The **Link Info** Tab displays the current state of your wireless adapter. The fields in this menu provide the following information:

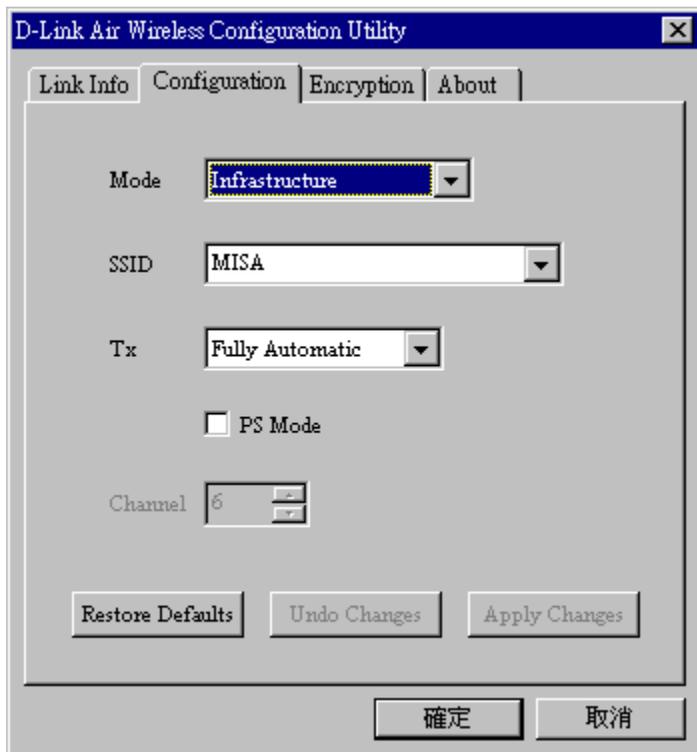
- **State:** shows the **association** state of your computer with the wireless LAN. When operating in Infrastructure mode, this field shows the MAC address of the Access Point with which you are communicating. When operating in Ad Hoc mode, this field shows the virtual MAC address used by computers participating in the Ad Hoc network. In both cases, the MAC address will be shown in hex format (BSSID.) If the word **scanning** appears in this field, it indicates that networking has not been achieved. The adapter is searching for an available Access Point, within range. (*Note: If there is a problem with driver installation, this field will display an error message.*)
- **Rescan:** Pressing the rescan button causes the driver to restart and begin its connection procedure. The connection procedure differs depending on the mode of the driver.
  - **Infrastructure Mode:** The driver will scan all available channels continuously until it finds one or more Access Points that matches its SS ID. It will then try to authenticate and associate with the Access Point.
  - **Ad Hoc Mode:** The driver will scan for 5 seconds looking for an existing Ad Hoc network using the same SSID. If one is not found, the driver will “start” its own Ad Hoc network.
- **Current Channel:** shows the channel on which the connection is made. In Infrastructure mode, this number changes as the radio scans the available channels.
- **Current Tx Rate:** shows the highest transmit rate of the current association.
- **Throughput:** shows the short term transmit and receive throughput in bytes/second, and is continuously updated.
- **Link Quality:** is only active when in **Infrastructure Mode**. The bar graph displays the quality of the link with the Access Point. If the Link quality becomes “poor” the driver will begin looking for a better Access Point. The graph will be labeled for quality as shown on the following page:

## Link Info Tab *continued*

- “Poor”
  - “Weak”
  - “Fair”
  - “Good”
  - “Excellent”
- **Signal Strength:** is active only when in **Infrastructure Mode**. The graph displays normalized signal strength averaged over all frames over 100 bytes long that are received by the Access Point.

## Configuration Tab

Select the **Configuration** tab to access the Configuration menu, as shown below. You can make changes to any of the fields shown below, without the need to restart your computer.



## Configuration Tab *(continued)*

### Mode

The D-Link *Air* DWL-520 Wireless PCI Adapter can operate in one of two modes, which are specified in the **Mode** field of the Configuration menu. Clicking the down arrow at the right of the Mode field displays the available modes. The two modes are **802.11 Ad Hoc** and **Infrastructure**.

- **802.11b Ad Hoc** – This is the 802.11b peer-to-peer mode of operation. In “Ad Hoc” mode, only one wireless “cell” is supported for each different SSID. All communication is done from client to client without the use of an Access Point. “802.11b Ad Hoc” networking uses the same SSID for the wireless adapters in establishing the network connection. When “Ad Hoc” mode is selected, the utility will provide a selection for setting the channel.
- **Infrastructure** - This mode of operation requires the presence of an 802.11b Access Point. All communication is done through the Access Point, which relays packets to other wireless clients as well as to nodes on a wired Ethernet network.

### Tx

The transmission rate at which the data packets are transmitted by the client of the Access Point. You can set this to the following fixed rates: 1 Mbps; 2Mbps; 5.5 Mbps or 11 Mbps.

### PS Mode

Power Saving mode.

### Restore Defaults

Pressing this button restores each field in the panel to its default value. You must also click on “Apply Changes” or “OK” in order for the default settings to take effect.

### Undo Changes

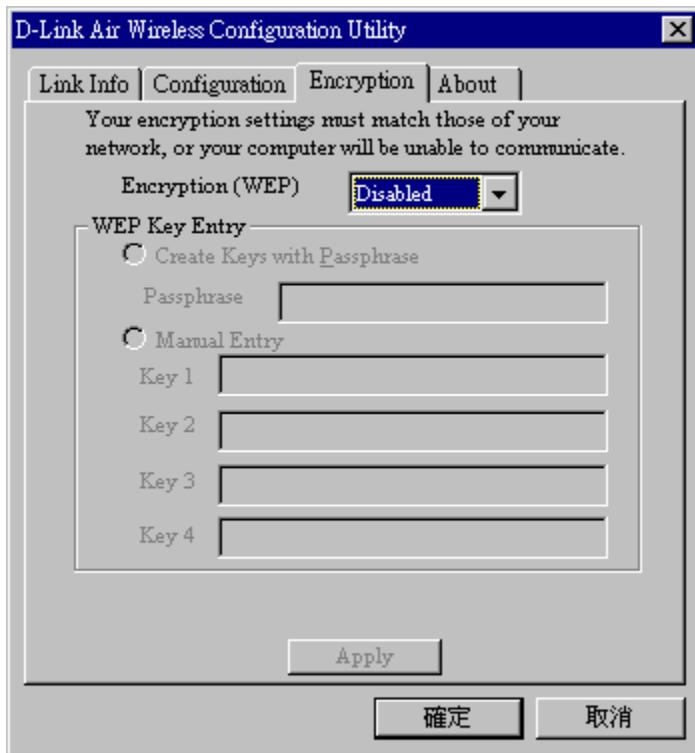
Pressing this button reverts all fields in the panel back to the original values that were present when the Configuration Utility was opened from the Task bar.

### Apply Changes

This button becomes active only when one of the fields has been modified. Click on this button for changes to take effect. The changes will then be saved and will be in effect when the computer is restarted.

## Encryption Tab

The **Encryption** menu allows you to enable encryption and to set the encryption keys. To see the available encryption methods, click the down arrow at the right of the **Encryption (WEP)** field.



There are two encryption methods available. The IEEE 802.11 specification defines **Wired Equivalent Privacy (WEP)** using a 64-bit key. This capability was extended by the industry to allow a 128-bit key.

If you specify an encryption method, you will only be able to communicate with Access Points and stations that use the same encryption method and keys.

### Disabling Encryption

To disable encryption, click the down arrow at the right of the Encryption field, select **Disabled**, and click the **Apply** button.

## Encryption Tab *(continued)*

### Enabling Encryption

To enable encryption, click the down arrow at the right of the Encryption field, select either **64 bit** or **128 bit**, and click the **Apply** button. After enabling an encryption method, you must then specify encryption keys, as described in the following sections.

### Creating Encryption Keys Using a Passphrase

To create encryption keys using a **Passphrase**, click the radio button next to **Create Key with Passphrase** and type a character string in the **Passphrase** field. As you type, the **Configuration Utility** uses an algorithm to generate four keys used for encryption.

When you finish typing your character string and click the **Apply** button, the **Configuration Utility** uses asterisks to mask both your **Passphrase** and the keys it generates.

Using a **Passphrase** to generate the four keys makes it easy to set the same keys for all members of your wireless LAN.

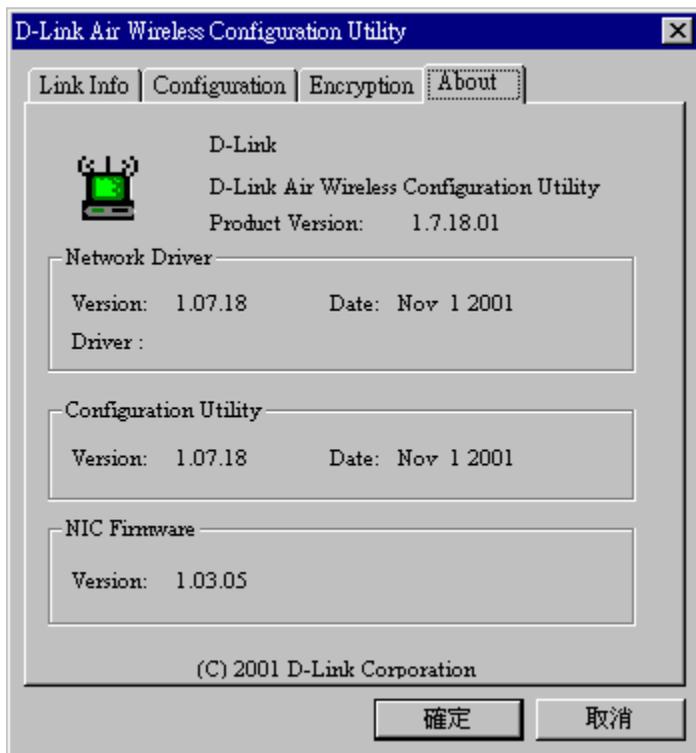
### Creating Encryption Keys Manually

If you wish, you can create encryption keys manually by selecting the **Encryption** tab. Click on the button next to **Manual Entry**.

When you click this button, the cursor appears in the field for **Key 1**. For 64-bit encryption, you must type *exactly* 10 hexadecimal digits in each of the four key fields; for 128-bit encryption, you must type *exactly* 26 hexadecimal digits. You then click the **Apply** button to create your encryption keys. After you click the **Apply** button, the **Configuration Utility** uses asterisks to mask your keys.

## About Tab

The **About** tab provides information on the version of the **Network Driver**, the **Configuration Utility**, and the firmware in the D-Link Air DWL-520 Wireless PCI Adapter. You will need the firmware version number when reporting problems to tech support.



# Troubleshooting

If you encounter any problems during the installation, or to confirm that the DWL-520 is installed properly, please read the following troubleshooting section.

## Checking the installation of the DWL-520

### In Windows 98:

To check that the **DWL-520** is installed properly, please do the following:

1. Go to **START>RUN>SETTINGS>CONTROL PANEL>NETWORK**. Choose the **Configuration Tab**. If you find the **D-Link DWL-520 PCI Adapter**, it means the card is installed properly. If you see the **Yellow Question-mark (?)**, the resources are conflicting. *(Please read further in this section for solutions.)*

-or-

2. Right click on **My Computer** and select **Properties**. Select the **Device Manager** and click on the **Network Adapter**. You will find the **D-Link DWL-520 PCI Adapter** if it is installed successfully. If you see the **Yellow** sign, the resources are conflicting. Click on the PCI Card and then on the PCI Card Service; you can see the status of the PCI card. If there is a yellow sign either on the adapter or the PCI card, please check the following.
  1. Check to see if your computer supports **3.3V** Card.
  2. Check to see if your computer has a free **IRQ**. If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1, COM 2 can be assigned the same IRQ values.
  3. Check that you have inserted the right card and have installed the proper driver.

# Troubleshooting *(continued)*

## Checking the installation of the DWL-520

### In Windows 2000:

To check that the DWL-520 is installed properly, please do the following:

1. Check the **Windows 2000 Diagnostics**. See if there is any conflict in the **resource** allocation or the **I/O Address, IRQ** allocations. If you find that the **IRQ** or **I/O Addresses** are already assigned to some other devices, you must change that value. **I/O Address** needs 40h byte length.
2. Go to the **Control panel**. Double click on the **PCI Card**, you will see **D-Link DWL-520 PCI Adapter**. Double clicking on that will show you the **Card Information**, driver name and the driver **file**. You must confirm the name of the driver and the driver file as "**prismnic.inf**" and "**prismnds.sys**". If you do not find the names listed above, there are some problems and the driver is not installed properly. Reinstall the driver.

**Note:** Check the PnP BIOS setup menu and select **no** in case of the **D-Link DWL-520 PCI Adapter** installation.

## Networking Basics

You may have had some ideas about how to use your new network prior to installing this product - sharing files, printing from a 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 are interested in learning more about networking please visit our website:

D-Link Systems, Inc. <http://www.dlink.com>

D-Link is one of the largest manufacturers of Ethernet products in the world. D-Link's technological expertise and dedication to providing quality products at a low price makes D-Link a good place to watch for the newest in networking innovations. Or, you can get the newest drivers available for your Network Adapters.

# Networking Basics

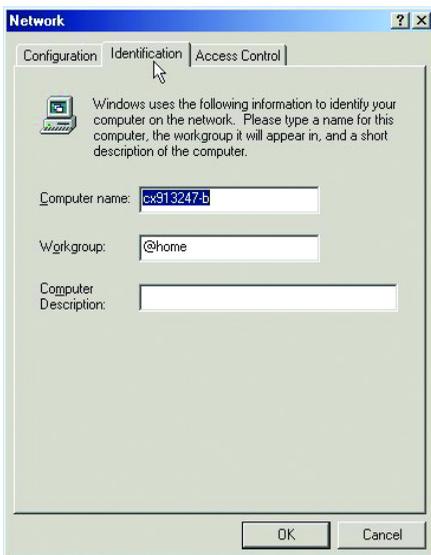
## Computer Identification

If you had previously given your Windows 98 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.

- A. On your Desktop, right-click the icon **Network Places** and select **Properties** from the context menu.



- B. Click the **Identification** tab on the top of the dialog box.



# Networking Basics

## Computer Identification *(continued)*

- C. 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.)
- D. 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.
- E. The **Computer Description:** box is optional. You may enter a description that will help you identify this computer on your network. Then click **OK**.
- F. Repeat this process for each computer on your network to ensure that they all have a unique **Computer Name** and identical **Workgroup**.

# Networking Basics

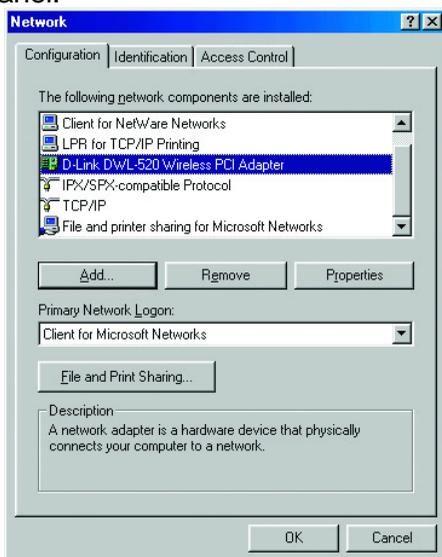
## Sharing Files

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.

- A. On your Desktop, right-click the icon **Network Places** and select **Properties** from the context menu.



- B. This dialog box is where you will come to configure most of your computer network settings. It is also available through the **Network** icon in the Control Panel.



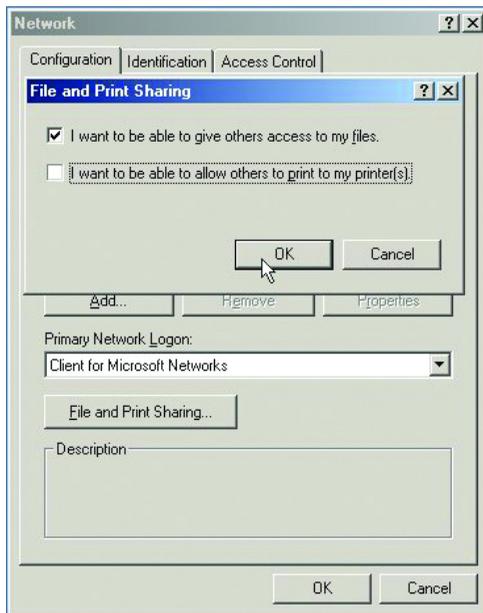
- C. Click the **File and Print Sharing** button.

# Networking Basics

## Sharing Files *(continued)*

D. Click to place a check mark next to **I want to be able to give others access to my files.**

E. Click **OK** on the **File and Print Sharing** dialog box.



F. Click **OK** on the **Network** dialog box.

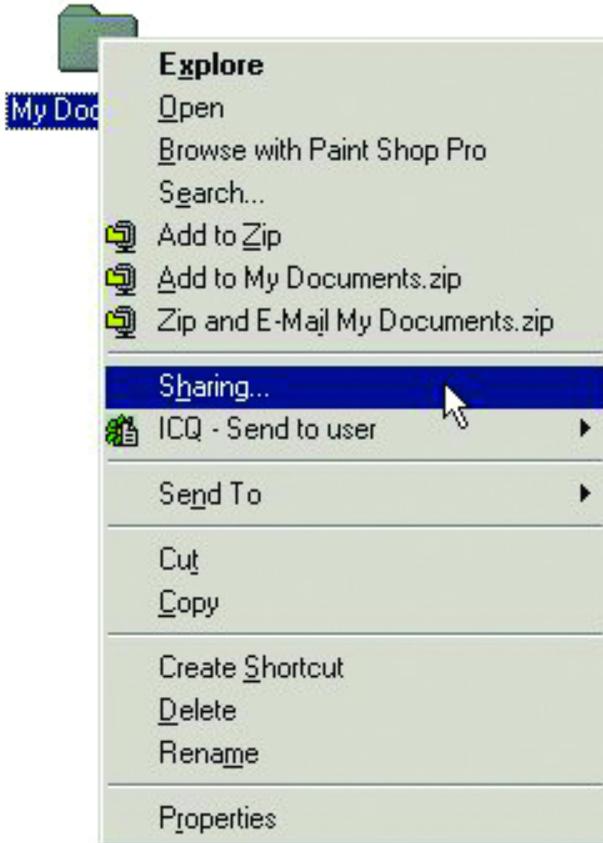
G. Provide the Windows 98 installation CD or diskette(s) if prompted or direct Windows to the proper location of the installation files. Reboot if prompted.

H. 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 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.

# Networking Basics

## Sharing Files *(continued)*

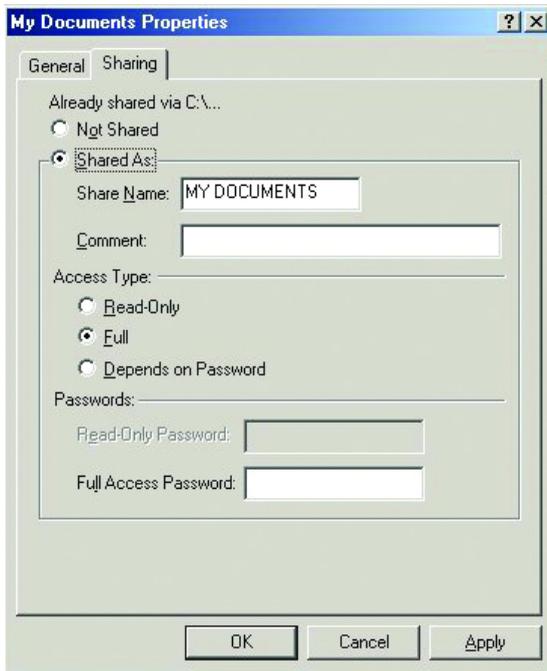
- I. Find the disk drive or folder you want to share using Windows Explorer or the **My Computer** icon on your desktop.
- J. Right-click on the disk drive or folder icon and select **Sharing**.



# Networking Basics

## Sharing Files *(continued)*

K. Select **Shared As:** to set the parameters for sharing this particular disk drive or folder.



L. 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.

M. The **Comment:** box is optional. You can use this box to further describe the disk drive or folder for others on the network.

N. **Access Type:** allows you to designate how much others on the network can do with this disk drive or folder. **Read-Only** allows others only to 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.

# Networking Basics

## Sharing Files *(continued)*

- O. **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.
- P. Click **OK** to continue. You will be prompted to enter the password(s) you provided for verification. Retype the password(s) just as you entered them the first time.
- Q. You may now access this disk drive or folder from another computer on your network. Do so by double-clicking the **My Network Places** icon on your desktop or inside Windows Explorer.
- R. Navigate to the computer with the shared disk drive or folder (recognized by the **Computer Name** you provided), 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.
- S. You can access a disk drive or folder shared over the network from most Windows 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.

# Networking Basics

## 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.

A. On your Desktop, right-click the icon **Network Places** and select **Properties** from the context menu.

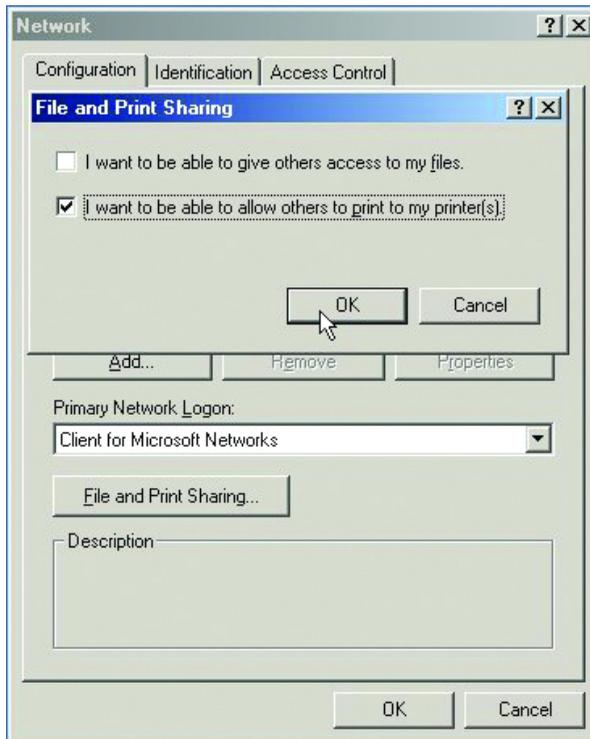


# Networking Basics

## Sharing Printers *(continued)*

B. Click the **File and Print Sharing** button.

C. Click to place a check mark next to **I want to be able to allow others to print to my printer(s)**.



D. Click **OK** on the **File and Print Sharing** dialog box.

E. Click **OK** on the **Network** dialog box.

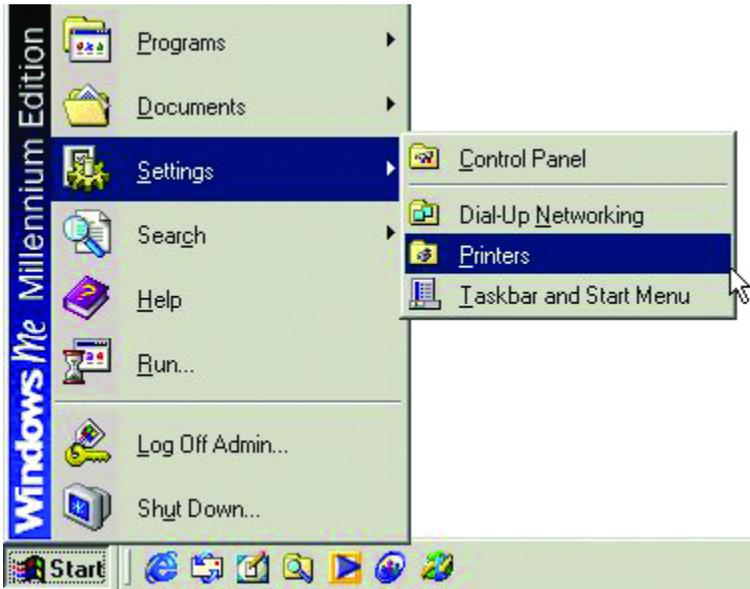
F. You may now share any installed printers connected to this computer with other computers on your network.

# Networking Basics

## Sharing Printers *(continued)*

Go to **START>SETTINGS>PRINTERS**

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



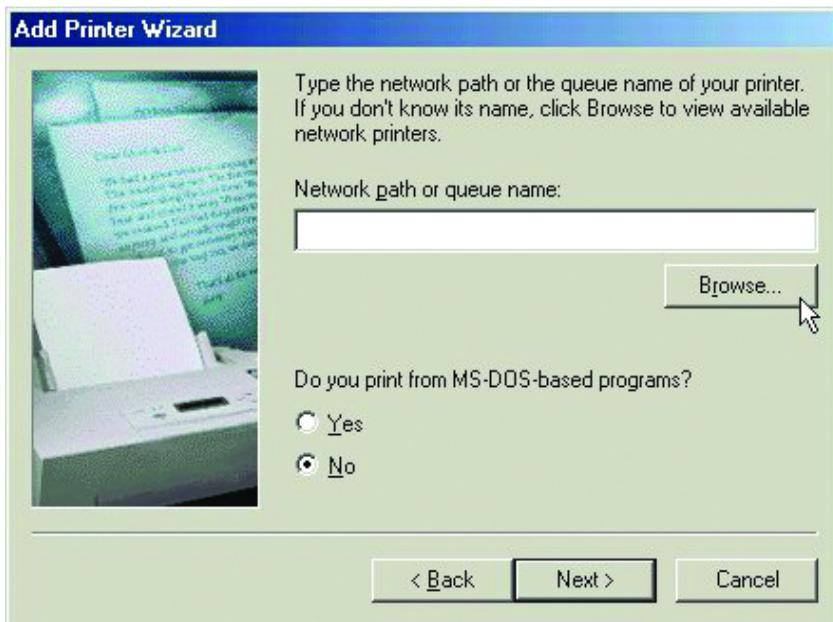
- G. Click **Share As:** and provide a **Share Name:** to identify the printer to other computers on the network.  
**Comment:** and **Password:** are optional. Then click **OK.**  
For a computer to access a Network Printer, the device driver or software for that printer must be installed and pointed 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.
- H. Go to a computer that does not have the printer connected to it. From the **Start** button on the Task Bar select **Settings** and then **Printers.**
- I. Double click the **Add Printer** icon.
- J. The **Add Printer Wizard** will appear. Click **Next.**
- K. Choose **Network printer** and click **Next.**

## Networking Basics

### Sharing Printers *(continued)*

L. 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 the **Browse** button and navigate to the location of the printer. Click **OK** when you have selected the desired printer. Finish the installation by continuing the **Add Printer Wizard** normally.

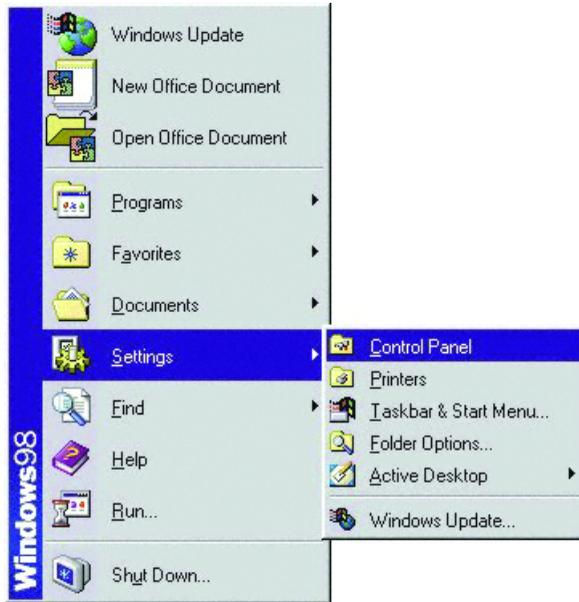


M. You may now use the Network Printer as if it was connected directly. Note: the computer that the printer is connected to must be **“on”** to use the printer. If you find this inconvenient, devices known as Network Print Servers are available from D-Link including the DP-301 and DP-101P+. A Network Print Server would allow you to directly connect your printer to your network without worrying about which computer is **“on.”**

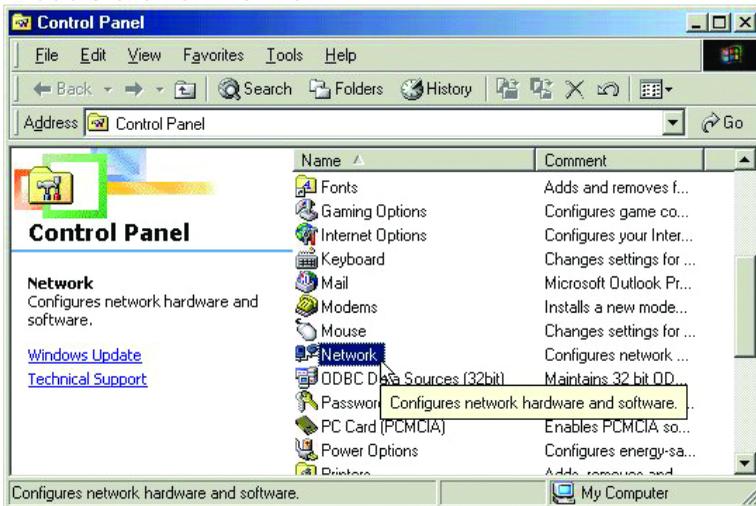
# Networking Basics

## How to Install TCP/IP

Go to **START > SETTINGS> CONTROL PANEL**



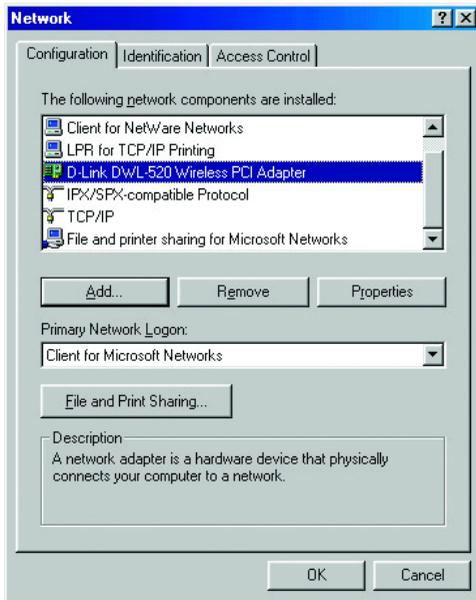
Double click on **Network**.



# Networking Basics

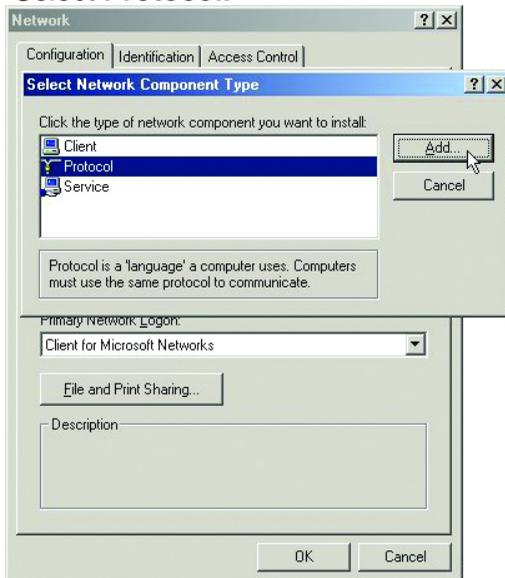
## How to Install TCP/IP *(continued)*

Select the line that refers to the DWL-520 Wireless PCI card



Click on **Add**.

Select **Protocol**.

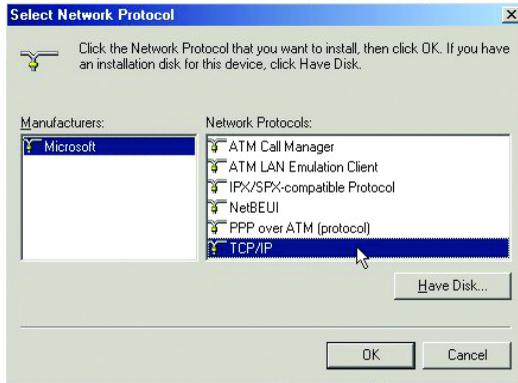


Click **Add**.

# Networking Basics

## How to Install TCP/IP (continued)

Select **Microsoft** under **Manufacturers**.  
Scroll down and select **TCP/IP** under **Network Protocols**.



Click **OK**.

Now the **TCP/IP** for the D-LinkAir DWL-520 is available.  
The TCP/IP Installation is complete.

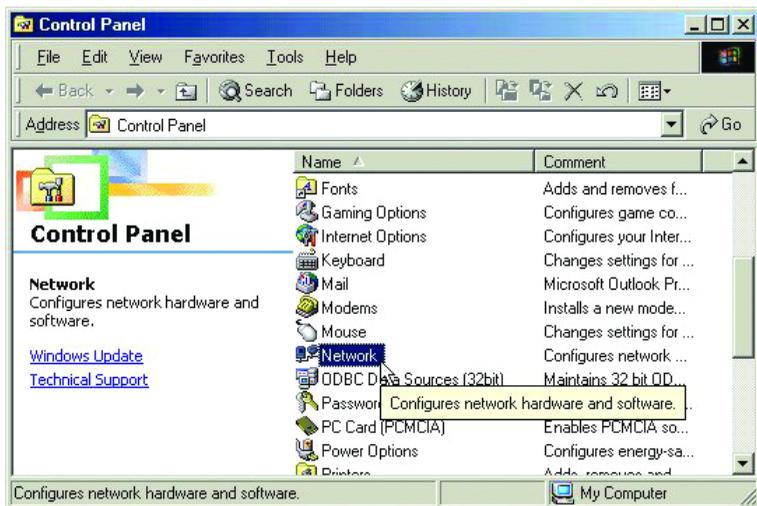
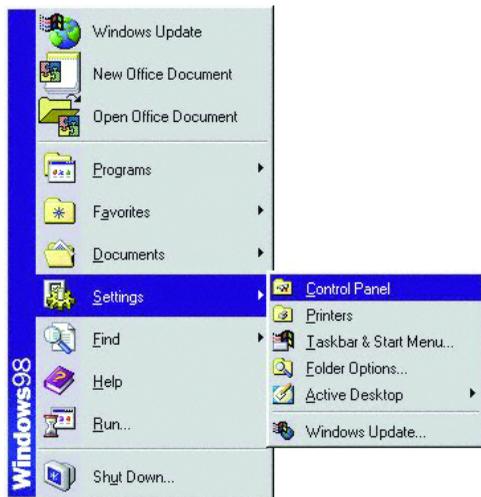
# Networking Basics

## Configuring a Dynamic IP Address

*When the drivers are installed, the default setting is set to obtain an IP dynamically through a DHCP server.*

If you need to check or change the settings, then do the following:

Go to **START > SETTINGS > CONTROL PANEL**



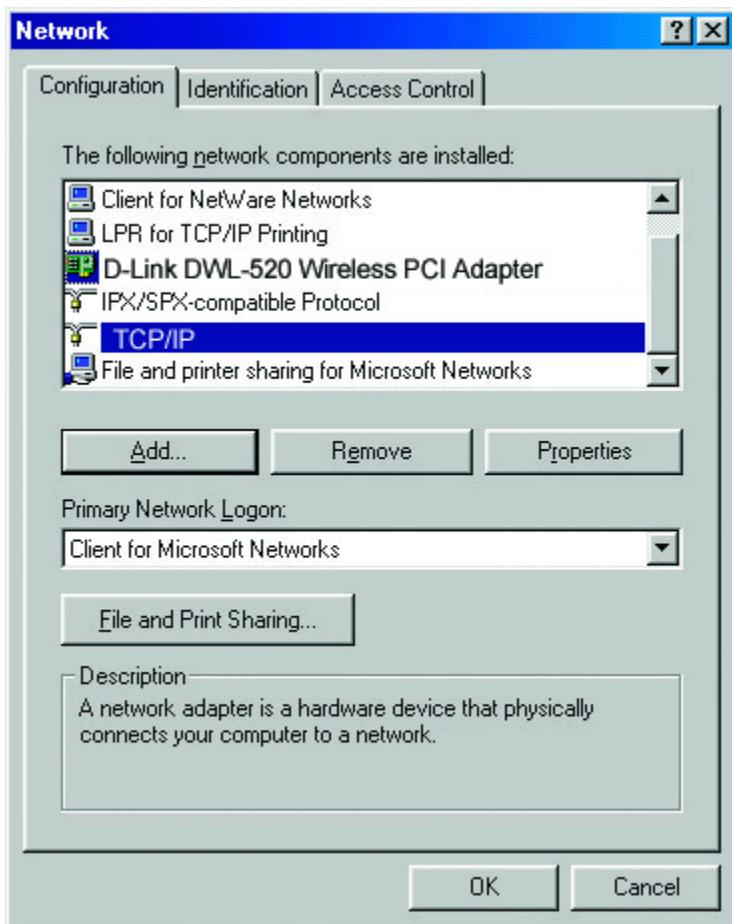
Double Click on **Network**.

# Networking Basics

## Configuring a Dynamic IP Address *(continued)*

Highlight **TCP/IP**.

Click on **Properties**.

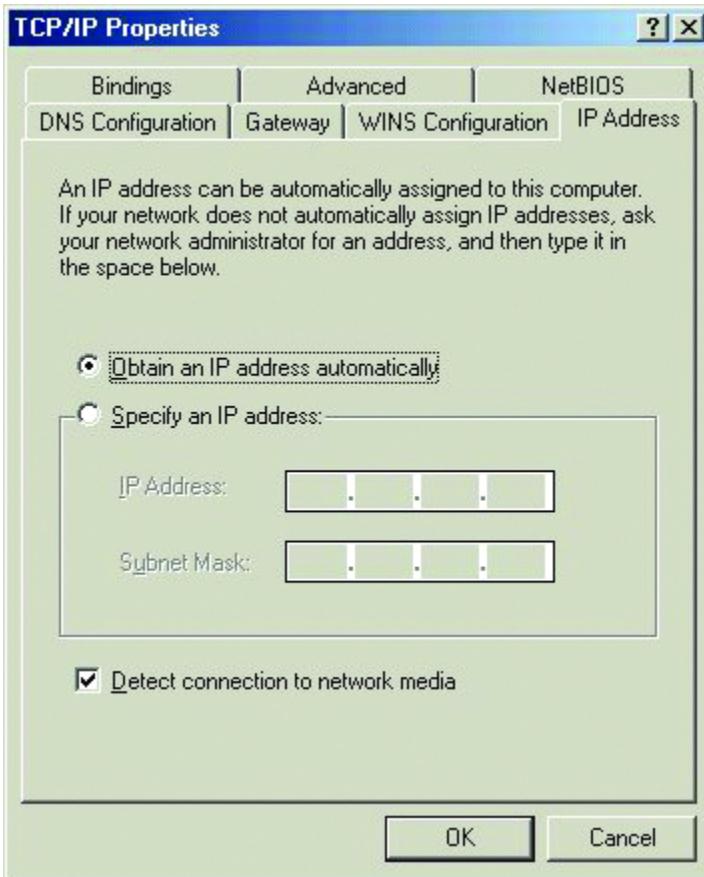


**NOTE:** If TCP/IP is not present, see the previous section: **How to Install TCP/IP.**

# Networking Basics

## Configuring a Dynamic IP Address *(continued)*

When the TCP/IP window opens, choose the **IP Address** tab. Select **Obtain an IP Address Automatically**.



Click **OK**.

When the network properties window comes back up, Click **OK**.

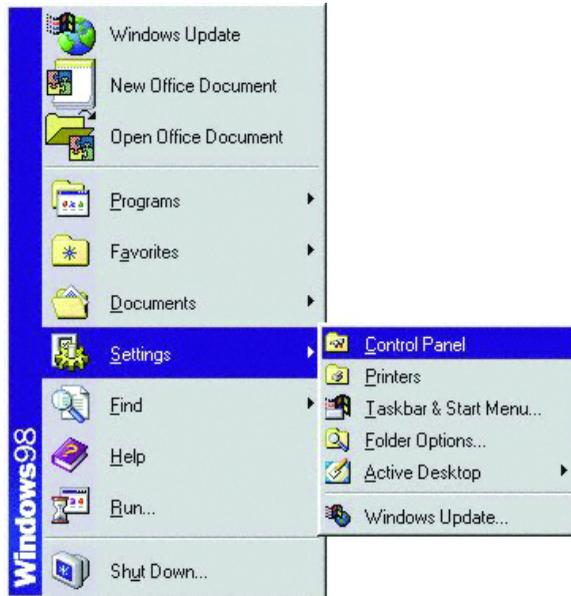
Windows will ask you to reboot. Click **Yes**.

You have completed the configuration of the Dynamic IP Address.

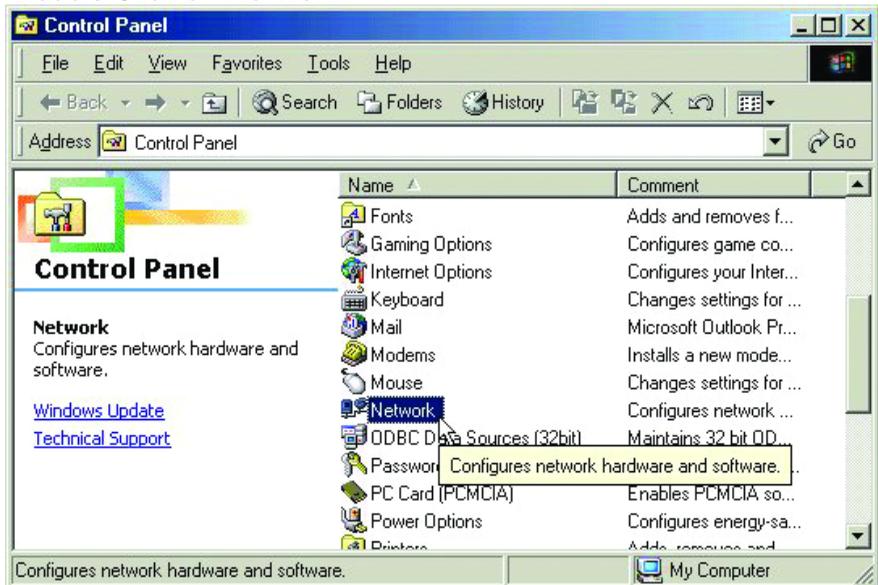
# Networking Basics

## Configuring a Static IP Address

Go to **START > SETTINGS > CONTROL PANEL**



Double Click on **Network**.

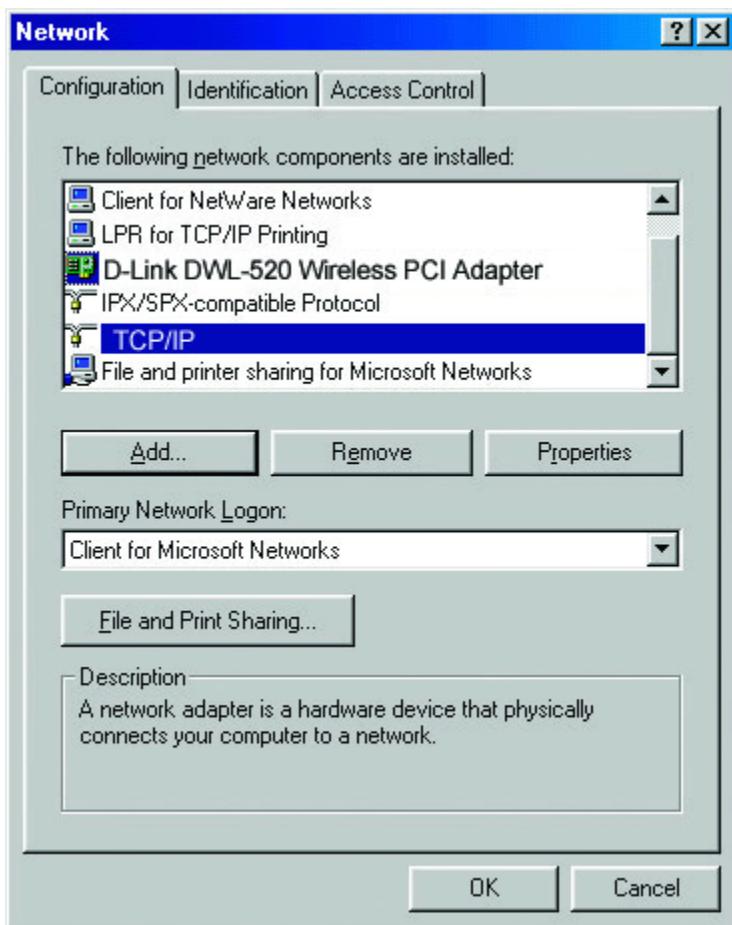


## Networking Basics

### Configuring a Static IP Address *(continued)*

Highlight **TCP/IP**.

Scroll down if you cannot see it.



Click on **Properties**.

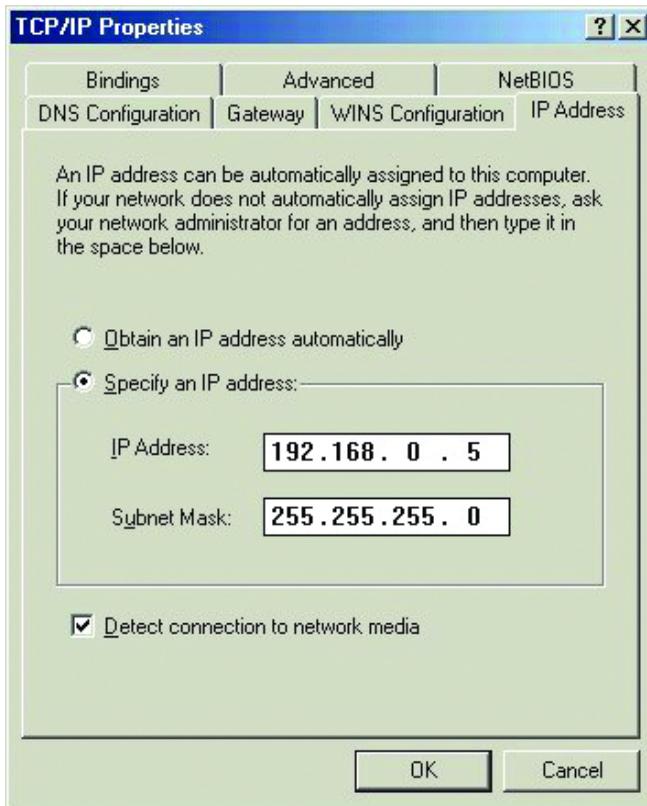
*NOTE: If TCP/IP is not present, please see: **How to Install TCP/IP**.*

# Networking Basics

## Configuring a Static IP Address *(continued)*

When the **TCP/IP Properties** window opens, choose the **IP Address** tab.

Select **Specify an IP address**.



Enter an IP address into the empty field.  
(Suggested IP Range is 192.168.0.2 to 192.168.0.254)

*NOTE: IP Addresses must be signed sequentially to each computer.*

(Suggested Subnet Mask is 255.255.255.0)

**Click OK.**

When the **Network Properties** window comes back up **Click OK.**

Insert Windows CD if prompted.

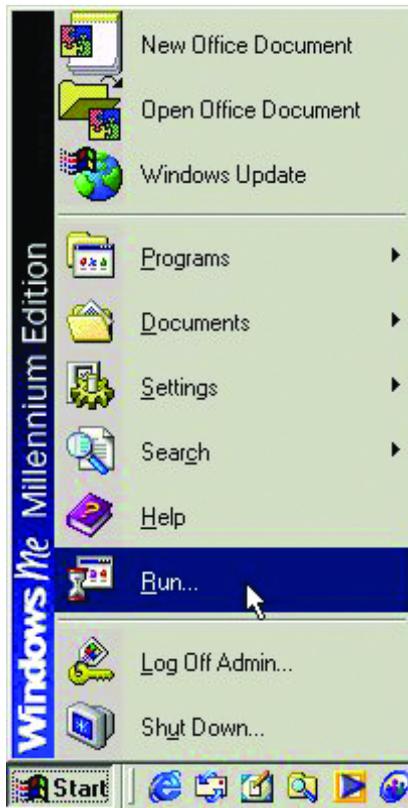
Windows will ask you to reboot.

**Click Yes.**

# Networking Basics

## Checking the TCP/IP Address

Go to **START > RUN**



Type **wini**pcfg in the **Open** box.

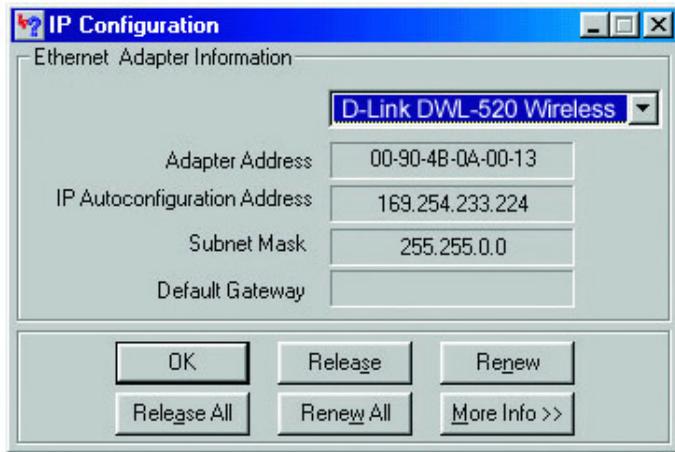


Click **OK**.

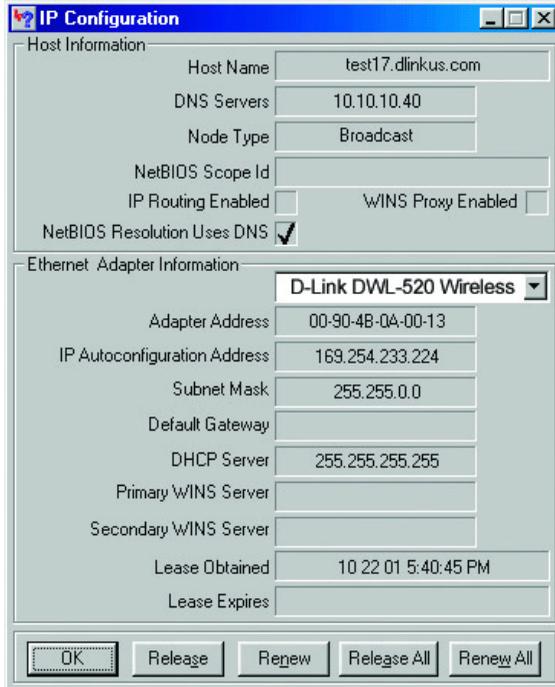
# Networking Basics

## Checking the TCP/IP Address *(continued)*

The IP Configuration screen will be displayed. The IP address will be displayed in the IP Address box.



Click on **More Info** to display additional IP information.



# Networking Basics

## Checking the Connection by Pinging

Go to **START > RUN**



Type **command** in the **Open** box.

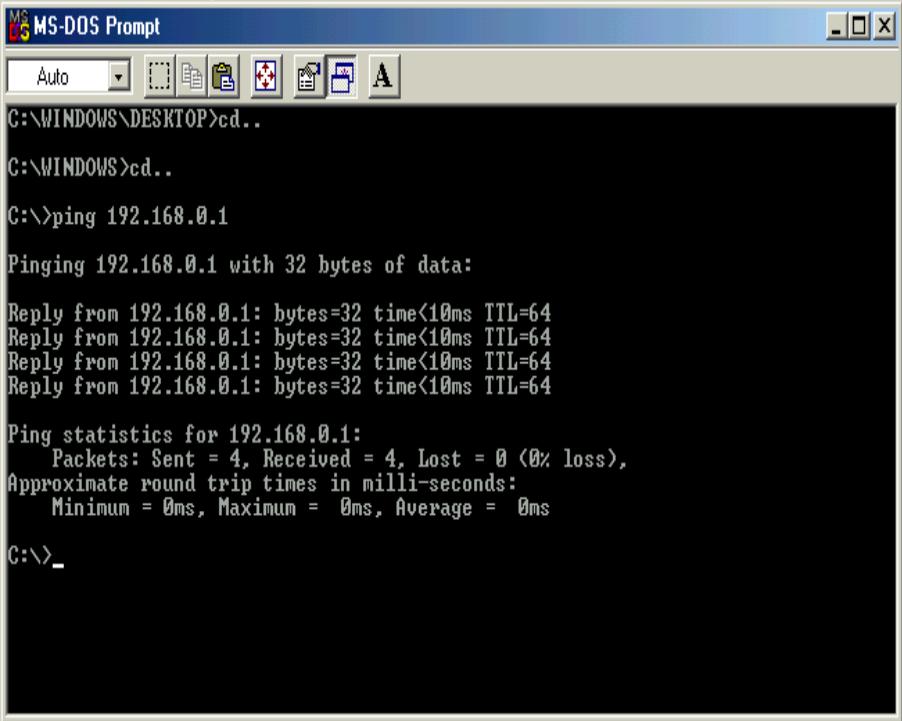


Click **OK** to get to a DOS prompt.

# Networking Basics

## Checking the Connection by Pinging *(continued)*

Type **ping 192.168.0.1**, which is the IP address of the Gateway in this case, and hit the **Enter** key.

A screenshot of a Windows MS-DOS Prompt window. The title bar reads "MS-DOS Prompt". The window contains the following text:

```
C:\WINDOWS\DESKTOP>cd ..
C:\WINDOWS>cd ..
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<10ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>_
```

A successful ping will show four replies.  
Type "Exit" at the prompt to close the screen.

# Technical Specifications

## Chipset

- Intersil Prism 2.5

## Standards

- IEEE 802.11b
- Wi-Fi compliant
- PCI power bus management interface specification - 1.0 compliant
- ACPI 1.0 compliant

## Local Bus Architecture

- PCI 2.2 compliant

## Management Utility

- Diagnostics
- Link Configuration for joining wireless networks

## Protocols

- TCP/IP
- IPX/SPX
- NetBEUI
- NDIS5.1
- DHCP

## System Requirements

- Desktop with an available PCI 2.2 compliant slot

## Supported OS

- Windows 98
- Windows ME
- Windows 2000

- Windows XP

## **Data Security**

- 64/128-bit WEP (Wired Equivalent Privacy) Encryption

## **Data Rate & Modulation**

- 11 Mbps: CCK
- 5.5 Mbps: CCK
- 2 Mbps: DQPSK
- 1 Mbps: DBPSK

## **Range**

- Indoors – per cell, up to 230 feet
- Outdoors – per cell, up to 984 feet

## **Diagnostic LED**

- Power

## **Media Access Control**

- CSMA/CA with ACK

## **Current Consumption**

- 350mA

## **Operating Voltage**

- 3.3V  $\pm$  5%

## **Transmit Power**

- 15dBm @ Nominal Temp Range

## **Receive Sensitivity**

### **Nominal Temp Range**

- 11 Mbps 10-5 BER @ -80 dBm, minimum

## **Network Architecture**

- Supports Ad-Hoc Mode (Peer-to-Peer without Access Point) or Infrastructure Mode (Communications to wired networks via Access Points with Roaming)

## **Antenna**

- Reverse SMA connector with a detachable antenna

## **Frequency Range**

- 2.400-2.4835 GHz, Direct Sequence Spread Spectrum (DSSS)

## **Operating Channels**

- 1-11 United States (FCC)
- 1-11 Canada (DOC)
- 1-14 Japan (MKK)
- 1-13 Europe (Except Spain and France) (ETSI)

## **Physical Dimensions**

- L = 4.75 inches
- W = 2.50 inches
- H = 0.01 inches
- Weight = 0.17 lbs.

## **Temperature**

- Operating: 32°F to 131°F
- Storing: -4°F to 140°F

## **Humidity**

- Max. 95%, non-condensing

## **Emissions**

- FCC part 15B, 15C; R&TTE; TELEC/JATE

## **Warranty**

- One Year

# D-Link locations

D-Link Australia  
Unit 16, 390 Eastern Valley Way  
Roseville, NSW 2069,  
Australia  
TEL: 61-2-94177100  
FAX: 61-2-94177107  
URL: [www.dlink.com.au](http://www.dlink.com.au)

D-Link Benelux  
Fellenoord 1305611 ZB  
EindhovenThe Netherlands  
TEL: 31-40-2668713  
FAX: 31-40-2668666  
URL: [www.dlink-benelux.nl/](http://www.dlink-benelux.nl/)

D-Link Canada  
#2180 Winston Park Drive  
Oakville, Ontario, L6H 5W1  
Canada  
TEL: 1-905-8295033  
FAX: 1-905-8295095  
URL: [www.dlink.ca](http://www.dlink.ca)

D-Link China  
2/F., Sigma Building, 49 Zhichun Road,  
Haidian District, 100080 Beijing,  
China  
TEL: 86-10-88097777  
FAX: 86-10-88096789

D-Link South America  
Isidora Goyechea 2934 of 702,  
Las Condes  
Santiago iV Chile S.A.  
TEL: 56-2-232-3185  
FAX: 56-2-232-0923  
URL: [www.dlink.cl](http://www.dlink.cl)

D-Link Denmark  
Naverland 2, DK-2600  
Glostrup, Copenhagen,  
Denmark  
TEL: 45-43-969040  
FAX: 45-43-424347  
URL: [www.dlink.dk](http://www.dlink.dk)

D-Link Middle East  
7 Assem Ebn Sabet Street Heliopolis Cairo  
Egypt  
TEL: 20-2-6356176  
FAX: 20-2-6356192  
URL: [www.dlink-me.com](http://www.dlink-me.com)

D-Link Finland  
Thlilijä Pakkahuone Katajanokanlaituri 5  
FIN-00160 Helsinki  
Finland  
TEL: 358-9-622-91660  
FAX: 358-9-622-91661  
URL: [www.dlink-fi.com](http://www.dlink-fi.com)

D-Link France  
Le Florilage #.2, Allée de la Fresnerie  
78330 Fontenay le Fleury  
France  
TEL: 33-1-30238688  
FAX: 33-1-30238689  
URL: [www.dlink-france.fr](http://www.dlink-france.fr)

D-Link Germany  
Schwalbacher Strasse 74  
D-65760 Eschborn  
Germany  
TEL: 49-6196-77990  
FAX: 49-6196-7799300  
URL: [www.dlink.de](http://www.dlink.de)

D-Link India  
Plot No.5, Kurla-Bandra Complex Rd.  
Off Cst Rd. Santacruz (E), Bombay - 400 098  
India  
TEL: 91-22-652-6696  
FAX: 91-22-652-8914  
URL: [www.dlink-india.com](http://www.dlink-india.com)

D-Link Italia  
via Nino Bonnet n. 6/b  
20154 iV Milano,  
Italy  
TEL: 39-02-2900-0676  
FAX: 39-02-2900-1723  
URL: [www.dlink.it](http://www.dlink.it)

D-Link Japan  
10F, 8-8-15 Nishi -Gotanda  
Shinagawa-ku, Tokyo 141,  
Japan  
TEL: 81-3-5434-9678  
FAX: 81-3-5434-9868  
URL: [www.d-link.co.jp](http://www.d-link.co.jp)

D-Link Norway  
Waldemar Thranesgt. 77,  
0175 OsloNorway  
TEL: 47-22-991890  
FAX: 47-22-207039

D-Link Russia  
Michurinski Prospekt 49,  
117607 Moscow,  
Russia  
TEL: 7-095-737-3389, 7-095-737-3492  
FAX: 7-095-737-3390

D-Link International (Singapore)  
1 International Bussiness Park  
#03-12 The Synergy  
Singapore 609917  
TEL: 65-774-6233  
FAX: 65-774-6322  
URL: [www.dlink-intl.com](http://www.dlink-intl.com)

D-Link South Africa  
102 - 106 Witchazel Avenue  
Einstein Park 2  
Block B  
Highveld Technopark  
Centurion  
South Africa  
TEL: 27(0)126652165  
FAX: 27(0)126652186

D-Link Spain  
Gran Via de Carlos III,  
843ø Edificio Trade08028 BARCELONA  
TEL: 34 93 4965751  
FAX: 34 93 4965701  
URL: [www.dlinkiberia.es](http://www.dlinkiberia.es)

D-Link Sweden  
P.O. Box 15036, S-167 15 Bromma  
Sweden  
TEL: 46-(0)8564-61900  
FAX: 46-(0)8564-61901  
URL: [www.dlink.se](http://www.dlink.se)

D-Link Taiwan  
2F, No. 119 Pao-Chung Rd.  
Hsin-Tien, Taipei  
Taiwan  
TEL: 886-2-2910-2626  
FAX: 886-2-2910-1515  
URL: [www.dlinktw.com.tw](http://www.dlinktw.com.tw)

D-Link U.K.(Europe)  
4th Floor, Merit House  
Edgware Road, Colindale  
London NW9 5AB  
U.K.  
TEL: 44-20-8731-5555  
FAX: 44-20-8731-5511  
BBS: 44-181-235-5511  
URL: [www.dlink.co.uk](http://www.dlink.co.uk)

D-Link U.S.A  
53 Discovery Drive  
Irvine, CA 92618  
U.S.A.  
TEL: 1-949-788-0805  
FAX: 1-949-753-7033  
URL: [www.dlink.com](http://www.dlink.com)

## 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).

Technical Support Website:

<http://www.support.dlink.com>

Email:

[support@dlink.com](mailto:support@dlink.com)

Phone:

949-790-5290

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.

# 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.
- Products purchased and delivered with the fifty United States, the District of Columbia, US Possessions or Protectorates, US Military Installations, addresses with an APO or FPO.

**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) day period, then the Warranty Period shall be ninety (90) days from the date of purchase.

## Product Type Warranty Period

- Product (excluding power supplies and fans) purchased and delivered within One (1) Year of purchase.
- 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 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 customer must submit as part of the claim 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 customer is responsible for all shipping charges to and from D-Link (No CODs allowed). Products sent COD will become the property of D-Link Systems, Inc. Products should be fully insured by the customer and shipped to **D-Link Systems Inc., 53 Discovery Drive, Irvine CA 92618.**

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.

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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

# Registration

**Register your D-Link *Air* DWL-520 online at <http://www.dlink.com/sales/reg>**