

D-Link *AirPlusXtremeG*TM
DI-624
High-Speed 2.4 GHz
Wireless Router

Manual

D-Link

Building Networks for People

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Package Contents



Contents of Package:

- **D-Link AirPlusXTREME G DI-624**
High-Speed 2.4GHz Wireless Router
- Power Adapter-DC 5V, 3.0A
- Manual and Warranty on CD
- Quick Installation Guide
- Ethernet Cable

Note: Using a power supply with a different voltage rating than the one included with the DI-624 will cause damage and void the warranty for this product.

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

System Requirements for Configuration:

- Ethernet-Based Cable or DSL Modem
- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator Version 6.0 and Above

Introduction

The D-Link *AirPlusXtremeG* DI-624 High-Speed Wireless Router is a draft 802.11g high-performance, wireless router that supports high-speed wireless networking at home, at work or in public places.

Unlike most routers, the DI-624 provides data transfers at up to 54 Mbps (compared to the standard 11 Mbps) when used with other D-Link *AirPlusXtremeG* products. The 802.11g standard is backwards compatible with 802.11b products. This means that you do not need to change your entire network to maintain connectivity. You may sacrifice some of 802.11g's speed when you mix 802.11b and 802.11g devices, but you will not lose the ability to communicate when you incorporate the 802.11g standard into your 802.11b network. You may choose to slowly change your network by gradually replacing the 802.11b devices with 802.11g devices .

In addition to offering faster data transfer speeds when used with other 802.11g products, the DI-624 has the newest, strongest, most advanced security features available today. When used with other 802.11g WPA (WiFi Protected Access) and 802.1x compatible products in a network with a radius server, the security features include:

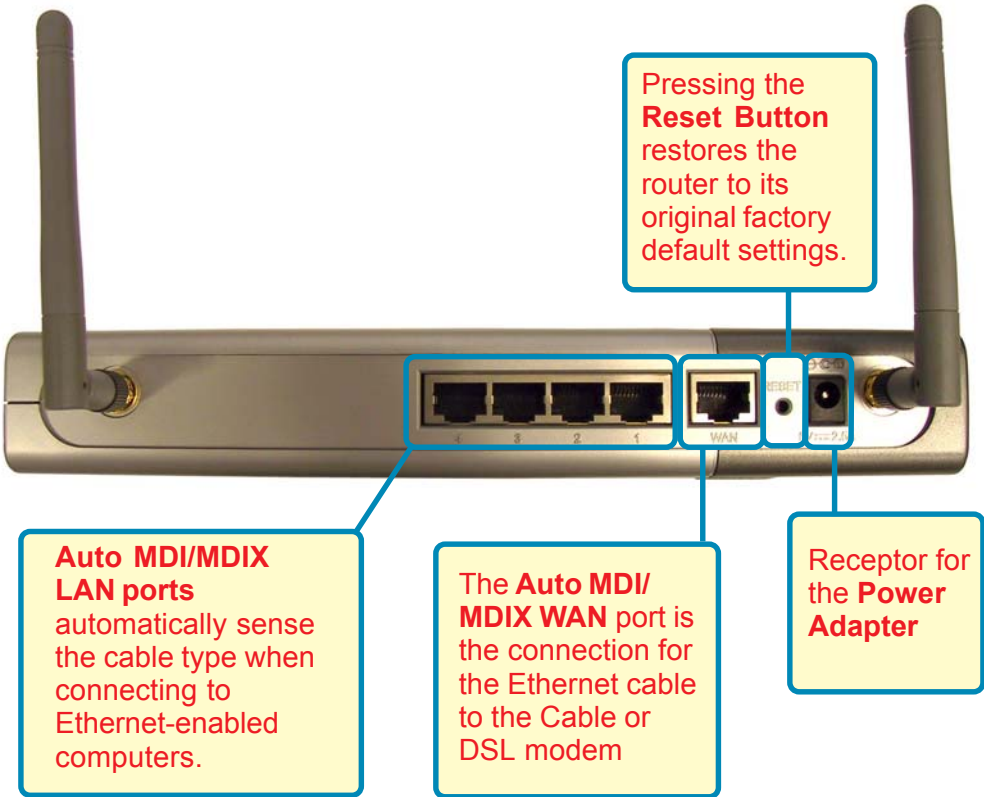
WPA*: A new security feature, **Wi-Fi Protected Access** authorizes and identifies users based on a secret key that changes automatically at a regular interval. **WPA** uses **TKIP (Temporal Key Integrity Protocol)** to change the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This insures much greater security than the standard WEP security. (By contrast, the older WEP encryption required the keys to be changed manually.)

802.1x: Authentication is a first line of defense against intrusion. In the Authentication process the server verifies the identity of the client attempting to connect to the network. Unfamiliar clients would be denied access.

For home users that will not incorporate a RADIUS server in their network, the security for the DI-624, used in conjunction with other 802.11g products, will still be much stronger than ever before. Utilizing the **Pre Shared Key mode** of WPA, the DI-624 will obtain a new security key every time it connects to the 802.11g network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security, with the DI-624, you will automatically receive a new key every time you connect, vastly increasing the safety of your communications.

**WPA will be available Spring 2003 as a free download*

Connections



LEDS

M1 LED -

A solid light indicates that the DI-624 is ready.

M2 LED -

A solid light indicates that the unit is defective.

WAN LED -

A solid light indicates connection on the WAN port. This LED blinks during data transmission.



POWER LED -

A solid light indicates a proper connection to the power supply.

WLAN LED -

A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission.

LOCAL NETWORK LED -

A solid light indicates a connection to an Ethernet-enabled computer on ports 1-4. This LED blinks during data transmission.

Features

- Fully compatible with the 802.11g standard to provide a wireless data rate of up to 54Mbps
- Backwards compatible with the 802.11b standard to provide a wireless data rate of up to 11Mbps
- **WPA*** (Wi Fi Protected Access) authorizes and identifies users based on a secret key that changes automatically at a regular interval, for example:
 - **TKIP** (Temporal Key Integrity Protocol), in conjunction with a RADIUS server, changes the temporal key every 10,000 packets, ensuring greater security
 - **Pre Shared Key** mode means that the home user, without a RADIUS server, will obtain a new security key every time the he or she connects to the network, vastly improving the safety of communications on the network.
- 802.1x **Authentication** in conjunction with the radius server verifies the identity of would be clients
- Utilizes **OFDM** technology (**O**rtogonal **F**requency **D**ivision **M**ultiplexing)
- User-friendly configuration and diagnostic utilities
- Operates in the 2.4GHz frequency range
- Connects multiple computers to a Broadband (Cable or DSL) modem to share the Internet connection
- Advanced Firewall features
 - Supports NAT with VPN pass-through, providing added security
 - MAC Filtering
 - IP Filtering
 - URL Filtering
 - Domain Blocking
 - Scheduling
- DHCP server supported enables all networked computers to automatically receive IP addresses
- Web-based interface for Managing and Configuring
- Access Control to manage users on the network
- Supports special applications that require multiple connections
- Equipped with 4 10/100 Ethernet ports, 1 WAN port, Auto MDI/MDIX

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or wherever a wireless network is available. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Router is a device that can be used to provide this link.

Wireless Basics (*continued*)

People use WLAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs – WLANs are easy to set up, manage, change and relocate. Networks that frequently change, both physically and logically, can benefit from a WLAN's ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go—even outside the home or office.

Scalability – WLANs can be configured in a variety of ways 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 larger infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Inexpensive solution– Wireless network devices are as competitively priced as conventional Ethernet network devices.

The DI-624 is compatible with the following wireless products:

- **D-Link Air DWL-650, D-Link AirPlus DWL-650+, D-Link AirPlus XtremeG DWL-G650**
Wireless Cardbus Adapters used with laptop computers
- **D-Link Air DWL-520 and D-Link AirPlus DWL-520+, D-Link AirPlus XtremeG DWL-G520**
Wireless PCI cards used with desktop computers
- **D-Link AirPlus DWL-900AP+ and DWL-2000AP+**
Enhanced 2.4GHz Wireless Access Points
- **D-Link AirPlus DWL-800AP+**
Enhanced 2.4GHz Wireless Range Extender
- **D-Link AirPlus DWL-810+**
Enhanced 2.4GHz Ethernet-to-Wireless Bridge

Wireless Basics (*continued*)

Standards-Based Technology

The DI-624 Wireless Broadband Router utilizes the new **802.11g** standard.¹

The IEEE **802.11g** standard is an extension of the 802.11b standard. It increases the data rate up to 54 Mbps within the 2.4GHz band, utilizing **OFDM technology**.

This means that in most environments, within the specified range of this device, 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 transmitting high-speed digital data over a radio wave utilizing **OFDM (Orthogonal Frequency Division Multiplexing)** technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions. The D-Link *DWL-G650* will automatically sense the best possible connection speed to ensure the greatest speed and range possible.

802.11g offers the most advanced network security features available today, including: *WPA*², *802.1x*, *TKIP*, *AES* and *Pre-Shared Key mode*. These security features are explained in more detail in the *Introduction* and the *Features* section of this manual.

The DI-624 is backwards compatible with 802.11b devices. This means that if you have an existing 802.11b network, the devices in that network will be compatible with 802.11g devices at speeds of up to 11Mbps in the 2.4GHz range. Also based on the IEEE **802.11b** standard, the DI-624 is interoperable with existing compatible 2.4GHz wireless technology with data transfer speeds of up to 11Mbps.

¹ 802.11g standard is scheduled for ratification by IEEE Q3 2003

² WPA will be available Spring 2003 as a free download

Wireless Basics (continued)

Installation Considerations

The D-Link *AirPlus XtremeG* DI-624 lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the DI-624 and your receiving device (e.g., the DWL-G650 or the DWL-650+) to a minimum - each wall or ceiling can reduce your D-Link *AirPlus* Wireless product's range from 3-90 feet (1-30 meters.) Position your receiving devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between routers and computers. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

Getting Started

There are basically two modes of networking:

- **Infrastructure** – using an Access Point, or Wireless Router, such as the DI-624.
- **Ad-Hoc** – directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more DWL-G650 wireless network Cardbus adapters.

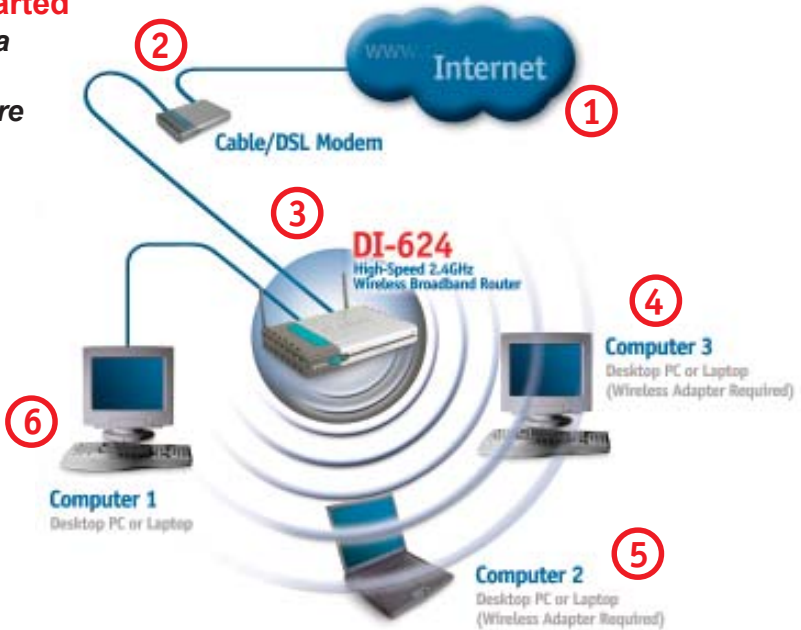
On the following pages we will show you an example of an **Infrastructure Network** and an **Ad-Hoc Network**.

An **Infrastructure** network contains an Access Point or a Wireless Router. The **Infrastructure Network** example shown on the following page contains the following D-Link network devices (your existing network may be comprised of other devices):

- A wireless Router - **D-Link AirPlus DI-624**
- A laptop computer with a wireless adapter - **D-Link AirPro DWL-G650**
- A desktop computer with a wireless adapter - **D-Link AirPlusXtremeG DWL-G520, D-Link Air DWL-520, or D-Link AirPlus DWL-520+**
(**D-Link Air** devices have speeds up to 11Mbps)
- A Cable modem - **D-Link DCM-200**

Getting Started

Setting up a Wireless Infrastructure Network



Please remember that **D-Link AirXtremeG** wireless devices are pre-configured to connect together, right out of the box, with their default settings.

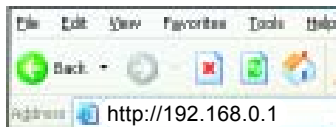
For a typical wireless setup at home (as shown above), please do the following:

- 1** You will need broadband Internet access (a Cable or DSL-subscriber line into your home or office)
- 2** Consult with your Cable or DSL provider for proper installation of the modem
- 3** Connect the Cable or DSL modem to the DI-624 Wireless Broadband Router (see the printed Quick Installation Guide included with your router.)
- 4** If you are connecting a desktop computer to your network, install the D-Link AirPlus XtremeG DWL-G520 wireless PCI adapter into an available PCI slot on your desktop computer. You may also install the DWL-520+, or the DWL-520. (See the printed Quick Installation Guide included with the network adapter.)
- 5** Install the drivers for the D-Link DWL-G650 wireless Cardbus adapter into a laptop computer. (See the printed Quick Installation Guide included with the DWL-G650.)
- 6** Install the drivers for the D-Link DFE-530TX wireless Cardbus adapter into a desktop computer. The four Ethernet LAN ports of the DI-624 are Auto MDI/MDIX and will work with both Straight-Through and Cross-Over cable. (See the printed Quick Installation Guide included with the DFE-530TX.)

Using the Configuration Menu

After you have completed the *Setup Wizard* (please see the *Quick Installation Guide* that came with the product) you can access the *Configuration* menu at any time by opening the web browser and typing in the IP Address of the DI-624. The DI-624 default IP Address is shown below:

- Open the web browser
- Type in the **IP Address** of the Router



Note: if you have changed the default IP Address assigned to the DI-624, make sure to enter the correct IP Address.

- Type **admin** in the **User Name** field
- Leave the **Password** blank
- Click **Next**



Home > Wizard

The **Home>Wizard** screen will appear. Please refer to the *Quick Installation Guide* for more information regarding the Setup Wizard.



Using the Configuration Menu

Home > Wireless



SSID-

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **default**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

Channel-

6 is the default channel. All devices on the network must share the same channel. *(Note: The wireless adapters will automatically scan and match the wireless setting.)*

WEP-

Wired Equivalent Privacy (WEP) is a wireless security protocol for Wireless Local Area Networks (WLAN). WEP provides security by encrypting the data that is sent over the WLAN. Select **Enabled** or **Disabled**. **Disabled** is the default setting. *(Note: If you enable encryption on the DI-624 make sure to also enable encryption on all the wireless clients or wireless connection will not be established.)*

WEP Encryption-

Select the level of encryption desired: 64-bit, or 128-bit

Key Type-

Select **HEX** or **ASCII**

Passphrase-

When you select Key Type: **ASCII**, you can enter a **Passphrase** for any or all of Keys 1-4

Keys 1-4-

Input up to 4 WEP keys; select the one you wish to use.

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Home > WAN > Dynamic IP Address



Dynamic IP Address-

Choose Dynamic IP Address to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for Cable modem services.

Host Name-

The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

MAC Address-

The default MAC Address is set to the WAN's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP.

Clone MAC Address-

The default MAC address is set to the WAN's physical interface MAC address on the Broadband Router. You can use the "Clone MAC Address" button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router. It is not recommended that you change the default MAC address unless required by your ISP.

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Home > WAN > Static IP Address



Static IP Address- Choose Static IP Address if all WAN IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

IP Address- Input the public IP Address provided by your ISP

Subnet Mask- Input your Subnet mask. (All devices in the network must have the same subnet mask.)

ISP Gateway Address- Input the public IP address of the ISP to which you are connecting

Primary DNS Address- Input the primary DNS (Domain Name Server) IP address provided by your ISP

Secondary DNS Address- This is optional

Apply- Click **Apply** to save the changes.

Using the Configuration Menu

Home > WAN > PPPoE



Please be sure to remove any existing PPPoE client software installed on your computers.

Choose *PPPoE* (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services. Select *Dynamic PPPoE* to obtain an IP address automatically for your PPPoE connection. Select *Static PPPoE* to use a static IP address for your PPPoE connection.



PPPoE-

Choose this option if your ISP uses PPPoE. (Most DSL users will select this option.)

Dynamic PPPoE- receive an IP Address automatically from your ISP.

Static PPPoE-you have an assigned (static) IP Address.

User Name-

Your PPPoE username provided by your ISP.

Retype Password-

Re-enter the PPPoE password

Service Name-

Enter the Service Name provided by your ISP (optional).

IP Address-

This option is only available for Static PPPoE. Enter the static IP Address for the PPPoE connection.

Primary DNS Address-

Primary DNS IP address provided by our ISP

Secondary DNS Address-

This option is only available for Static PPPoE. Enter the static IP Address for the PPPoE connection.

Maximum Idle Time-

The amount of time of inactivity before disconnecting your PPPoE session. Enter a Maximum Idle Time (in minutes) to define a maximum period of time for which the Internet connection is maintained during inactivity. If the connection is inactive for longer than the defined Maximum Idle Time, then the connection will be dropped. Either set this to zero or enable Auto-reconnect to disable this feature. (Continued on the next page)

Using the Configuration Menu

Home > WAN > PPPoE *continued*

MTU-

Maximum Transmission Unit-1492 is the default setting-you may need to change the MTU for optimal performance with your specific ISP.

Auto-reconnect-

If enabled, the DI-754 will automatically connect to your ISP after your system is restarted or if the PPPoE connection is dropped.

Apply-

Click **Apply** to save the changes.

Home > LAN



LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DI-624. These settings may be referred to as Private settings. You may change the LAN IP address if needed. The LAN IP address is private to your internal network and cannot be seen on the Internet.

IP Address-

The IP address of the LAN interface. The default IP address is: **192.168.0.1**

Subnet Mask-

The subnet mask of the LAN interface.
The default subnet mask is **255.255.255.0**

Local Domain Name-

This field is optional. Enter in the local domain name.

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Home > DHCP



DHCP stands for *Dynamic Host Control Protocol*. The DI-624 has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to “Obtain an IP Address Automatically.” When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DI-624. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

- DHCP Server-** Select **Enabled** or **Disabled**. The **default** setting is **Enabled**.
- Starting IP Address-** The starting IP address for the DHCP server’s IP assignment
- Ending IP Address-** The ending IP address for the DHCP server’s IP assignment
- Lease Time-** The length of time for the IP lease. Enter the Lease time. The default setting is one hour
- Apply-** click **Apply** to save the changes

Using the Configuration Menu

Advanced > Virtual Server

The screenshot shows the configuration interface for the Virtual Server feature on a D-Link DI-624 router. The page is titled "Virtual Server" and includes a navigation menu with "Home", "Advanced", "Tools", "Status", and "Help". The "Advanced" tab is selected. The main content area is titled "Virtual Server" and contains the following fields and options:

- Enabled Disabled
- Name: Clear
- Private IP:
- Protocol Type:
- Private Port:
- Public Port:
- Schedule: Always; From time : : to : : day to

At the bottom right, there are three icons: a green checkmark, a red X, and a red plus sign. Below the configuration fields is a "Virtual Servers List" table with columns for Name, Private IP, Protocol, and Schedule. The table contains four entries:

Name	Private IP	Protocol	Schedule
<input type="checkbox"/> Virtual Server FTP	0.0.0.0	TCP 21/21	always
<input type="checkbox"/> Virtual Server HTTP	0.0.0.0	TCP 80/80	always
<input type="checkbox"/> Virtual Server HTTPS	0.0.0.0	TCP 443/443	always
<input type="checkbox"/> Virtual Server DNS	0.0.0.0	UDP 53/53	always

At the bottom right of the table, there are three icons: a green checkmark, a red X, and a red plus sign, labeled "Apply", "Cancel", and "Help".

The DI-624 can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP address can be automatically redirected to local servers in the LAN (Local Area Network).

The DI-624 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DI-624 are invisible to the outside world. If you wish, you can make some of the LAN computers accessible from the Internet by enabling *Virtual Server*. Depending on the requested service, the DI-624 redirects the external service request to the appropriate server within the LAN network.

Using the Configuration Menu

Advanced > Virtual Server *continued*

The DI-624 is also capable of port-redirection meaning incoming traffic to a particular port may be redirected to a different port on the server computer.

Each virtual service that is created will be listed at the bottom of the screen in the Virtual Servers List. There are pre-defined virtual services already in the table. You may use them by enabling them and assigning the server IP to use that particular virtual service.

Virtual Server-	Select Enabled or Disabled
Name-	Enter the name referencing the virtual service
Private IP-	The server computer in the LAN (Local Area Network) that will be providing the virtual services.
Protocol Type-	The protocol used for the virtual service
Private Port-	The port number of the service used by the Private IP computer
Public Port-	The port number on the WAN (Wide Area Network) side that will be used to access the virtual service.
Schedule-	The schedule of time when the virtual service will be enabled. The schedule may be set to Always , which will allow the particular service to always be enabled. If it is set to Time , select the time frame for the service to be enabled. If the system time is outside of the scheduled time, the service will be disabled.
Apply-	Click Apply to save the changes.

Example #1:

If you have a Web server that you wanted Internet users to access at all times, you would need to enable it. Web (HTTP) server is on LAN (Local Area Network) computer 192.168.0.25. HTTP uses port 80, TCP.

Name: Web Server

Private IP: 192.168.0.25

Protocol Type: TCP

Private Port: 80

Public Port: 80

Schedule: always

Using the Configuration Menu

Advanced > Virtual Server *continued*

Virtual Servers List

Name	Private IP	Protocol	Schedule	
<input checked="" type="checkbox"/> Virtual Server HTTP	192.168.0.25	TCP 80/80	always	 



Click on this icon to edit the virtual service



Click on this icon to delete the virtual service

Example #2:

If you have an FTP server that you wanted Internet users to access by WAN port 2100 and only during the weekends, you would need to enable it as such. FTP server is on LAN computer 192.168.0.30. FTP uses port 21, TCP.

Name: FTP Server
Private IP: 192.168.0.30
Protocol Type: TCP
Private Port: 21
Public Port: 2100

Schedule: From: 01:00AM to 01:00AM, Sat to Sun

All Internet users who want to access this FTP Server must connect to it from port 2100. This is an example of port redirection and can be useful in cases where there are many of the same servers on the LAN network.

Using the Configuration Menu

Advanced > Applications



Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DI-624. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic.

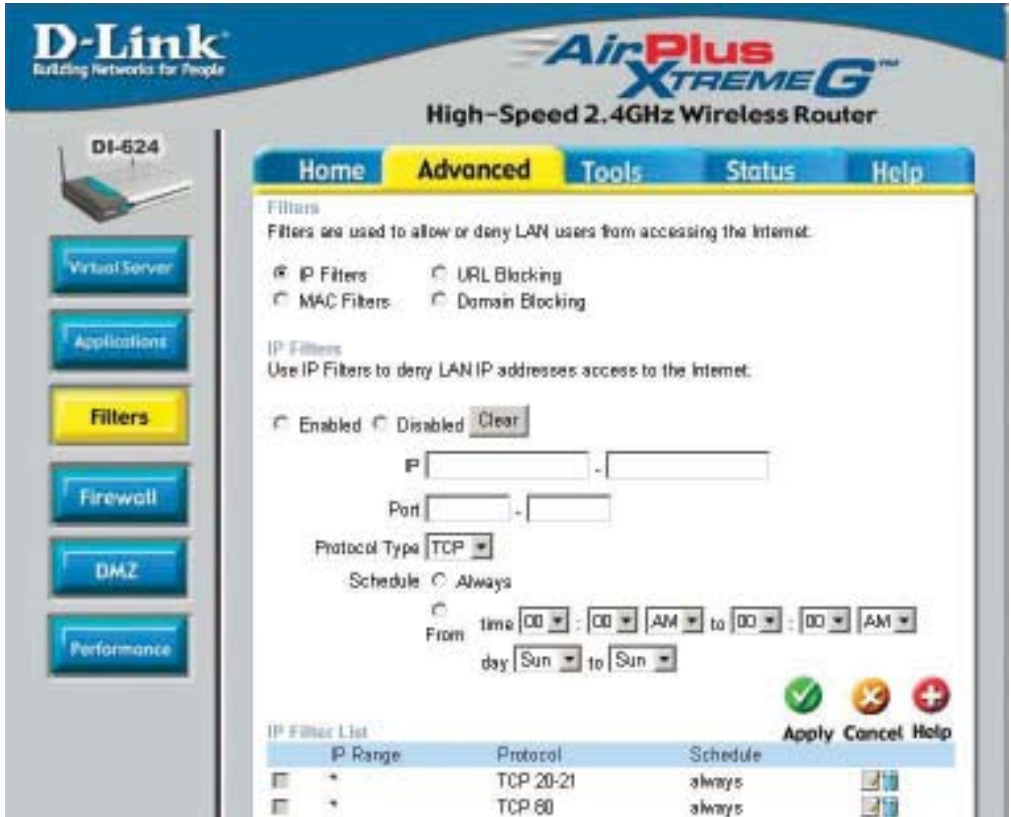
The DI-624 provides some predefined applications in the table on the bottom of the web page. Select the application you want to use and enable it.

Note! Only one PC can use each Special Application tunnel.

- Name:** This is the name referencing the special application.
- Trigger Port:** This is the port used to trigger the application. It can be either a single port or a range of ports.
- Trigger Type:** This is the protocol used to trigger the special application.
- Public Port:** This is the port number on the WAN side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.
- Public Type:** This is the protocol used for the special application.
- Apply:** Click **Apply** to save the changes

Using the Configuration Menu

Advanced > Filters > IP Filters



Filters are used to deny or allow LAN (Local Area Network) computers from accessing the Internet. The DI-624 can be setup to deny internal computers by their IP or MAC addresses. The DI-624 can also block users from accessing restricted web sites.

IP Filters

Use IP Filters to deny LAN IP addresses from accessing the Internet. You can deny specific port numbers or all ports for the specific IP address.

IP:

The IP address of the LAN computer that will be denied access to the Internet.

Port:

The single port or port range that will be denied access to the Internet.

Protocol Type:

Select the protocol type

Schedule:

This is the schedule of time when the IP Filter will be enabled.

Apply:

Click **Apply** to save changes.

Using the Configuration Menu

Advanced > Filters > URL Blocking



URL Blocking is used to deny LAN computers from accessing specific web sites by the URL. A URL is a specially formatted text string that defines a location on the Internet. If any part of the URL contains the blocked word, the site will not be accessible and the web page will not display. To use this feature, enter the text string to be blocked and click **Apply**. The text to be blocked will appear in the list. To delete the text, just highlight it and click **Delete**.

Filters- Select the filter you wish to use; in this case, **URL Blocking** was chosen.

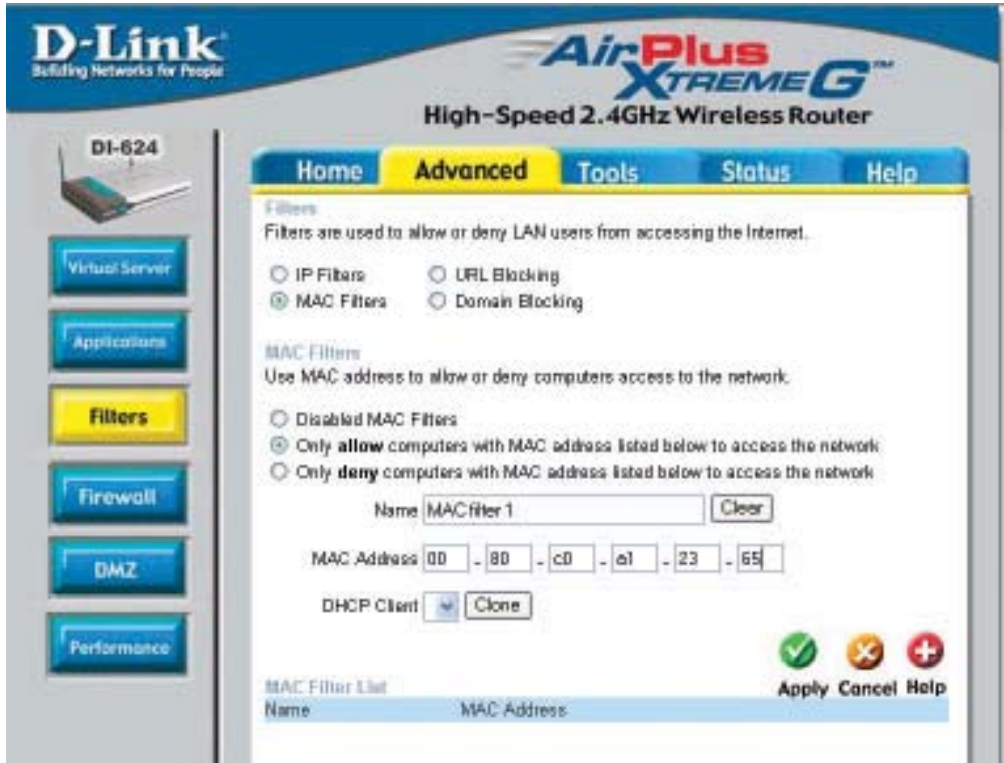
URL Blocking- Select **Enabled** or **Disabled**.

Keywords- Block URLs which contain keywords listed below. Enter the keywords in this space.

Apply- Click **Apply** to save the changes.

Using the Configuration Menu

Advanced > Filters > MAC Filters



Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Network. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

Filters-

Select the filter you wish to use; in this case, **MAC filters** was chosen.

MAC Filters-

Choose **Disable** MAC filters; **allow** MAC addresses listed below; or **deny** MAC addresses listed below.

Name-

Enter the name here.

MAC Address-

Enter the MAC Address.

DHCP Client-

Select a DHCP client from the pull-down list; click **Clone** to copy that MAC Address

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Advanced > Filters > Domain Blocking



Domain Blocking is used to allow or deny LAN (Local Area Network) computers from accessing specific domains on the Internet. Domain blocking will deny all requests to a specific domain such as http and ftp. It can also allow computers to access specific sites and deny all other sites.

Filters-

Select the filter you wish to use; in this case, **Domain Blocking** was chosen.

Domain Blocking:

Disabled-

Select **Disabled** to disable **Domain Blocking**

Allow-

Allows users to access all domains except **Blocked Domains**

Deny-

Denies users access to all domains except **Permitted Domains**

Permitted Domains-

Enter the **Permitted Domains** in this field

Blocked Domains-

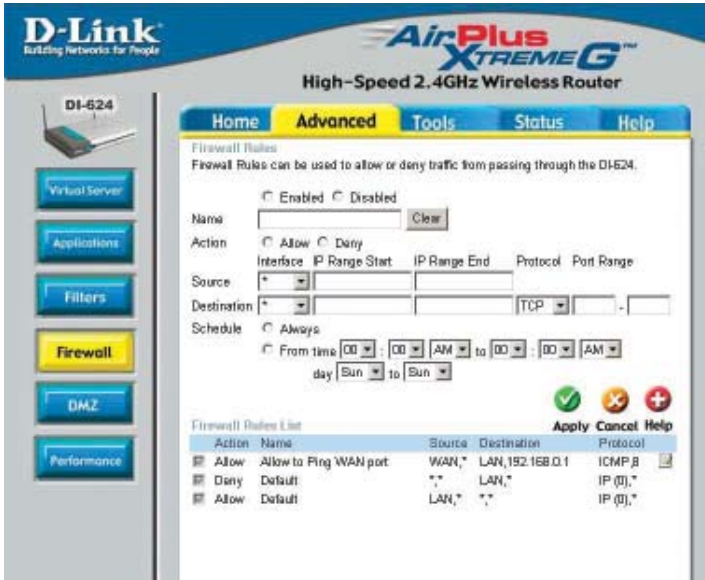
Enter the **Blocked Domains** in this field

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Advanced > Firewall



Firewall Rules is an advanced feature used to deny or allow traffic from passing through the DI-624. It works in the same way as IP Filters with additional settings. You can create more detailed access rules for the DI-624. When virtual services are created and enabled, it will also display in Firewall Rules. Firewall Rules contain all network firewall rules pertaining to IP (Internet Protocol).

In the Firewall Rules List at the bottom of the screen, the priorities of the rules are from top (highest priority) to bottom (lowest priority.)

Note: The DI-624 MAC Address filtering rules have precedence over the Firewall Rules.

Firewall Rules- **Enable** or **disable** the Firewall

Name- Enter the name

Action- **Allow** or **Deny**

Source- Enter the **IP Address range**

Destination- Enter the **IP Address range**; the **Protocol**; and the **Port Range**

Schedule- Select **Always** or enter the **Time Range**.

Apply- Click **Apply** to save the changes.

Using the Configuration Menu

Advanced > DMZ



If you have a client PC that cannot run Internet applications properly from behind the DI-624, then you can set the client up for unrestricted Internet access. It allows a computer to be exposed to the Internet. This feature is useful for gaming purposes. Enter the IP address of the internal computer that will be the DMZ host. Adding a client to the DMZ (Demilitarized Zone) may expose your local network to a variety of security risks, so only use this option as a last resort.

DMZ- **Enable** or **Disable** the DMZ. The DMZ (Demilitarized Zone) allows a single computer to be exposed to the internet. By **default** the DMZ is **disabled**.

IP Address- Enter the **IP Address** of the computer to be in the **DMZ**

Apply- Click **Apply** to save the changes.

Using the Configuration Menu

Advanced > Performance



Wireless Performance-

Displayed in this window are the Wireless Performance features for the Access Point portion of the DI-624.

Beacon Interval-

Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. 100 is the default setting and is recommended.

RTS Threshold-

This value should remain at its default setting of 2432. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation-

The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting.

DTIM interval-

(Delivery Traffic Indication Message) 3 is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Preamble Type-

Select **Short** or **Long Preamble**. The Preamble defines the length of the CRC block (Cyclic Redundancy Check is a common technique for detecting data transmission errors) for communication between the wireless router and the roaming wireless network adapters. **Auto** is the default setting. *Note: High network traffic areas should use the shorter preamble type.*

Apply-

Click **Apply** to save changes

Using the Configuration Menu

Tools> Admin



At this page, the DI-624 administrator can change the system password. There are two accounts that can access the Broadband Router's Web-Management interface. They are admin and user. Admin has read/write access while user has read-only access. User can only view the settings but cannot make any changes.

Administrator- **admin** is the **Administrator login name**

Password- Enter the password and enter again to confirm

User- **user** is the **User login name**

Password- Enter the password and enter again to confirm

Remote Management- Remote management allows the DI-624 to be configured from the Internet by a web browser. A username and password is still required to access the Web-Management interface. In general, only a member of your network can browse the built-in web pages to perform **Administrator** tasks. This feature enables you to perform Administrator tasks from the remote (Internet) host.

IP Address- The Internet IP address of the computer that has access to the Broadband Router. If you input an asterisk (*) into this field, then any computer will be able to access the Router. Putting an asterisk (*) into this field would present a security risk and is not recommended.

Port- The port number used to access the Broadband Router.

Example- <http://x.x.x.x:8080> where x.x.x.x is the WAN IP address of the Broadband Router and 8080 is the port used for the Web-Mangement interface.

Apply- Click **Apply** to save the changes

Using the Configuration Menu

Tools > Time



Time Zone-

Select the Time Zone from the pull-down menu.

Default NTP Server-

NTP is short for *Network Time Protocol*. NTP synchronizes computer clock times in a network of computers. This field is optional.

Set the Time-

To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second. Click **Set Time**.

Daylight Saving-

To select Daylight Saving time manually, select **enabled** or **disabled**, and enter a start date and an end date for daylight saving time.

Apply-

Click **Apply** to save the changes.

Using the Configuration Menu

Tools > System



The current system settings can be saved as a file onto the local hard drive. The saved file or any other saved setting file can be loaded back on the Broadband Router. To reload a system settings file, click on **Browser** to browse the local hard drive and locate the system file to be used. You may also reset the Broadband Router back to factory settings by clicking on **Restore**.

Save Settings to Local Hard Drive-

Click **Save** to save the current settings to the local Hard Drive

Load Settings from Local Hard Drive-

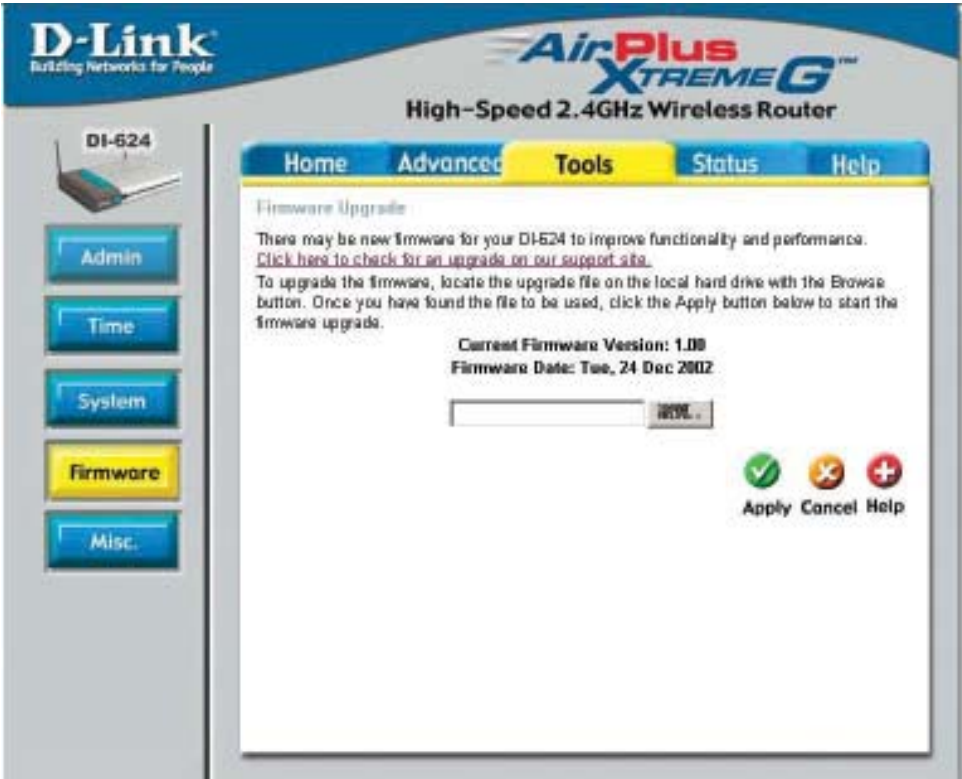
Click **Browser** to find the settings, then click **Load**

Restore to Factory Default Settings-

Click **Restore** to restore the factory default settings

Using the Configuration Menu

Tools > Firmware



You can upgrade the firmware of the Router here. Make sure the firmware you want to use is on the local hard drive of the computer. Click on **Browse** to browse the local hard drive and locate the firmware to be used for the update. Please check the D-Link support site for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your hard drive from the D-Link support site.

Firmware Upgrade- Click on the link in this screen to find out if there is an updated firmware; if so, download the new firmware to your hard drive.

Browse- After you have downloaded the new firmware, click **Browse** in this window to locate the firmware update on your hard drive. Click **Apply** to complete the firmware upgrade.

Using the Configuration Menu

Tools > Misc

Ping Test- The Ping Test is used to send Ping packets to test if a computer is on the Internet. Enter the IP Address that you wish to Ping, and click **Ping**

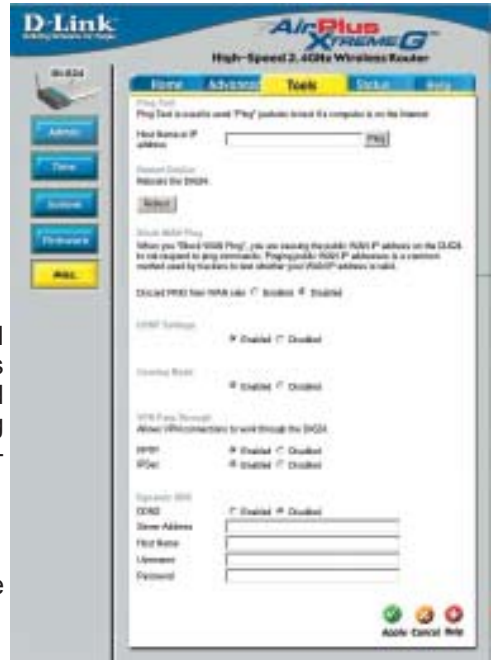
Restart Device- Click **Reboot** to restart the DI-624

Block WAN Ping-

If you choose to block WAN Ping, the WAN IP Address of the DI-624 will not respond to pings. Blocking the Ping may provide some extra security from hackers.

Discard Ping from WAN side-

Click **Enabled** to block the WAN ping



UPNP- To use the *Universal Plug and Play* feature click on **Enabled**. UPNP provides compatibility with networking equipment, software and peripherals of the over 400 vendors that cooperate in the Plug and Play forum.

Gaming Mode-

Gaming mode allows a form of pass-through for certain Internet Games. If you are using XBOX, Playstation2 or a PC, make sure you are using the latest firmware and Gaming Mode is enabled. To utilize Gaming Mode, click **Enabled**. If you are not using a Gaming application, it is recommended that you **Disable** Gaming Mode.

Dynamic DNS-

Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP Address. This is a useful feature since many computers do not use a static IP address.

VPN

Pass Through- The DI-624 supports VPN (Virtual Private Network) pass-through for both PPTP (Point-to-Point Tunneling Protocol) and IPSec (IP Security). Once VPN pass-through is enabled, there is no need to open up virtual services. Multiple VPN connections can be made through the DI-624. This is useful when you have many VPN clients on the LAN network.

PPTP- select **Enabled** or **Disabled**

IPSec- select **Enabled** or **Disabled**

Apply- Click **Apply** to save changes

Using the Configuration Menu

Status > Device Info



This page displays the current information for the DI-624. It will display the LAN, WAN and MAC address information.

If your WAN connection is set up for a **Dynamic IP address** then a **Release** button and a **Renew** button will be displayed. Use *Release* to disconnect from your ISP and use *Renew* to connect to your ISP.

If your WAN connection is set up for **PPPoE**, a **Connect** button and a **Disconnect** button will be displayed. Use *Disconnect* to drop the PPPoE connection and use *Connect* to establish the PPPoE connection.

This window will show the DI-624's working status:

WAN

IP Address: WAN/Public IP Address
Subnet Mask: WAN/Public Subnet Mask
Gateway: WAN/Public Gateway IP Address
Domain Name Server: WAN/Public DNS IP Address
WAN Status: WAN Connection Status

LAN

IP Address: LAN/Private IP Address of the DI-624
Subnet Mask: LAN/Private Subnet Mask of the DI-624

Wireless

MAC Address: Displays the MAC address
SSID: Displays the current SSID
Channel: Displays the current channel
WEP: indicates whether WEP is enabled or disabled

Using the Configuration Menu

Status > Log

D-Link
Building Networks for People

AirPlus Xtreme G™
High-Speed 2.4GHz Wireless Router

DI-524

Device Info
Log
Stats
Wireless

Home Advanced Tools **Status** Help

View Log
View Log displays the activities occurring on the DI-524. Click on Log Settings for advance features.

First Page Last Page Previous Next Clear Log Settings Help

page 1 of 1

Time	Message	Source	Destination	Note
Dec/27/2002 17:09:11	DHCP Request success			10.80.1.94
Dec/27/2002 17:09:11	DHCP Request			10.80.1.94
Dec/27/2002 17:09:11	DHCP Discover			
Dec/27/2002 17:09:07	System started			
Dec/27/2002 17:09:07	DHCP Discover			

The Broadband Router keeps a running log of events and activities occurring on the Router. If the device is rebooted, the logs are automatically cleared. You may save the log files under Log Settings.

View Log-

First Page - The first page of the log

Last Page - The last page of the log

Previous - Moves back one log page

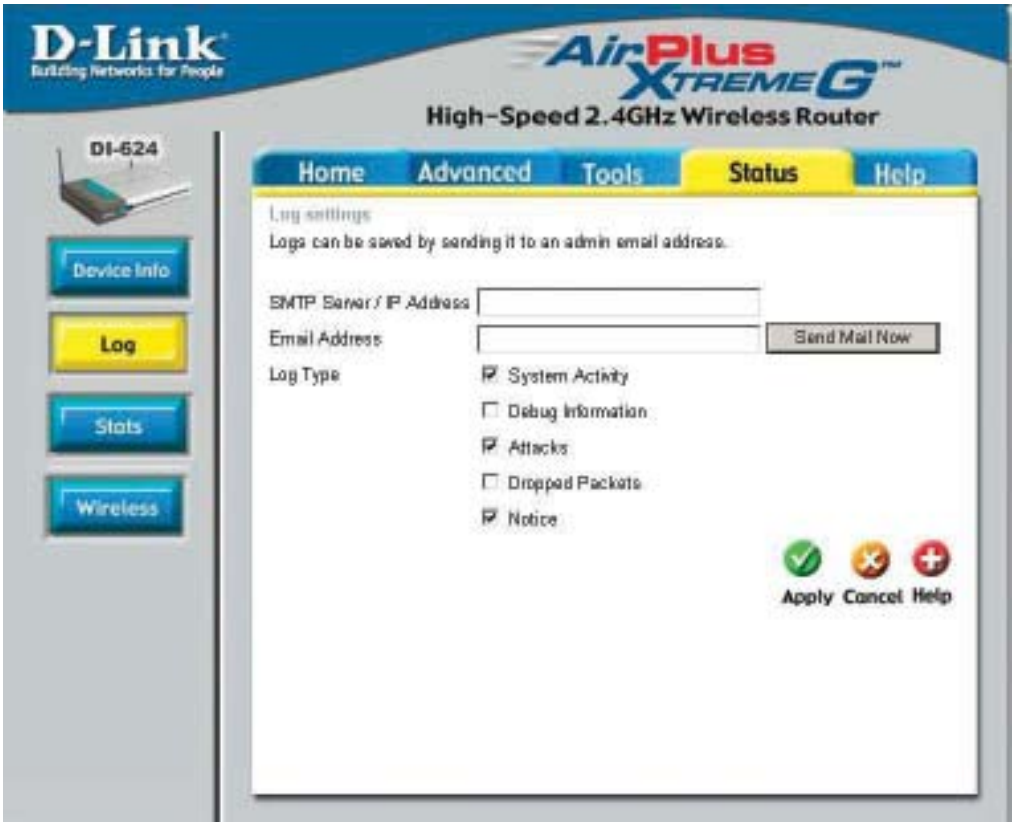
Next - Moves forward one log page

Clear - Clears the logs completely

Log Settings - Brings up the page to configure the log

Using the Configuration Menu

Status > Log > Log Settings



Log Settings-

Not only does the Broadband Router display the logs of activities and events, it can setup to send these logs to another location.

SMTP Server/IP Address - The address of the SMTP server that will be used to send the logs

Email Address - The email address to which the logs will be sent.
Click on **Send Mail Now** to send the email.

Click **Apply** to save the changes.

Using the Configuration Menu

Status > Stats

The screenshot shows the configuration page for a D-Link AirPlus Xtreme G High-Speed 2.4GHz Wireless Router. The 'Status' tab is selected, and the 'Stats' sub-tab is active. The page displays traffic statistics for the DI-624 router. The statistics are as follows:

	Receive	Transmit
WAN	3964 Packets	277 Packets
LAN	1317 Packets	2321 Packets
WIRELESS 11g	963 Packets	0 Packets

The screen above displays the Traffic Statistics. Here you can view the amount of packets that pass through the DI-624 on both the WAN and the LAN ports. The traffic counter will reset if the device is rebooted.

Status > Wireless

The screenshot shows the configuration page for a D-Link AirPlus Xtreme G High-Speed 2.4GHz Wireless Router. The 'Status' tab is selected, and the 'Wireless' sub-tab is active. The page displays the 'Connected Wireless Client List'. The table below shows the list of wireless clients connected to the AP (Access Point).

Connected Time	MAC Address	Mode
----------------	-------------	------

The wireless client table displays a list of current connected wireless clients. This table also displays the connection time and MAC address of the connected wireless client.

Click on **Help** at any time, for more information.

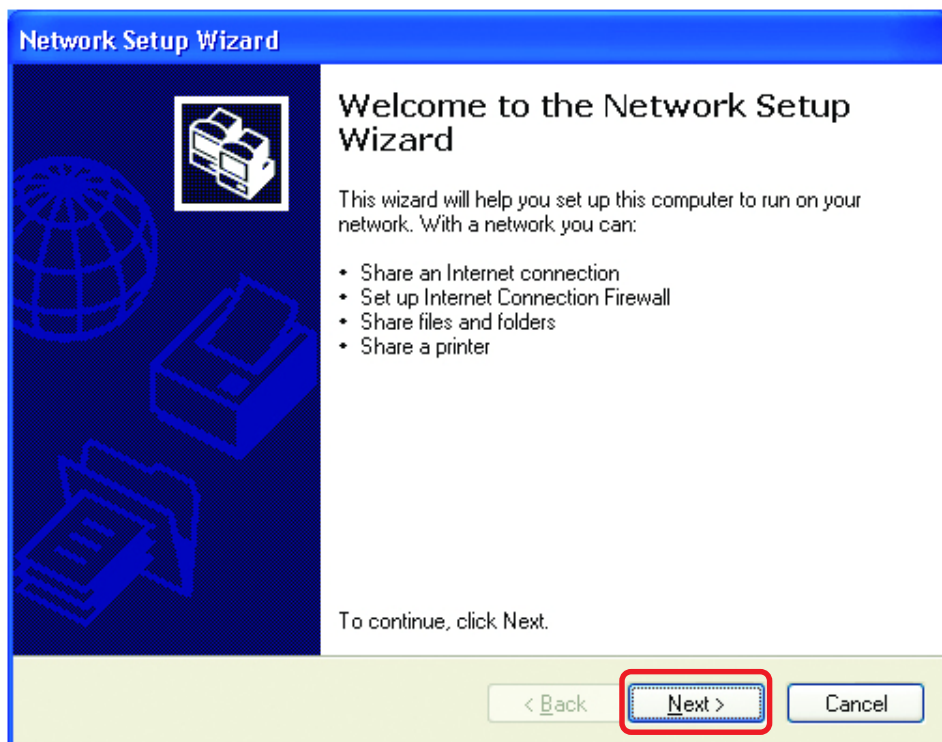
Networking Basics

Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP**.

Note: Please refer to websites such as <http://www.homenethelp.com> and <http://www.microsoft.com/windows2000> for information about networking computers using Windows 2000, ME or 98.

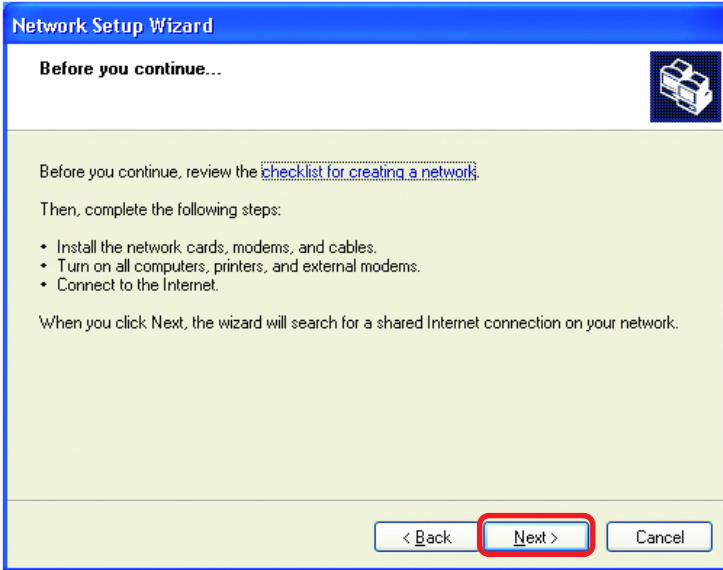
Go to **Start>Control Panel>Network Connections**
Select **Set up a home or small office network**



When this screen appears, **Click Next**.

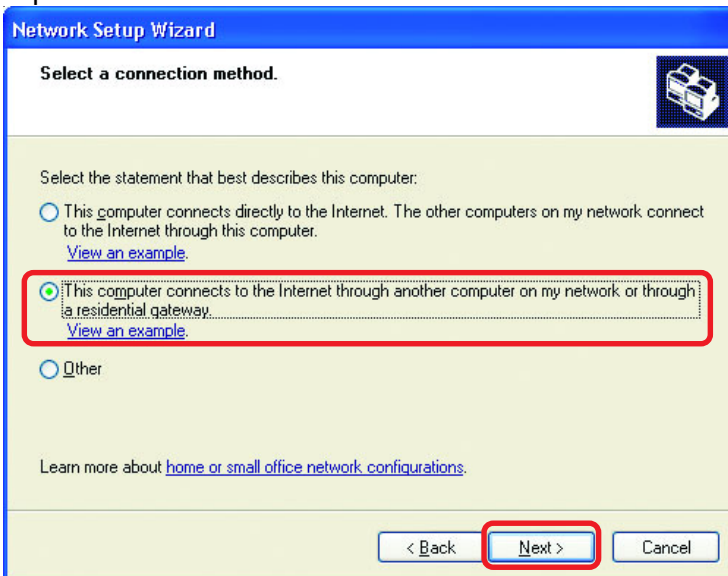
Networking Basics

Please follow all the instructions in this window:



Click **Next**

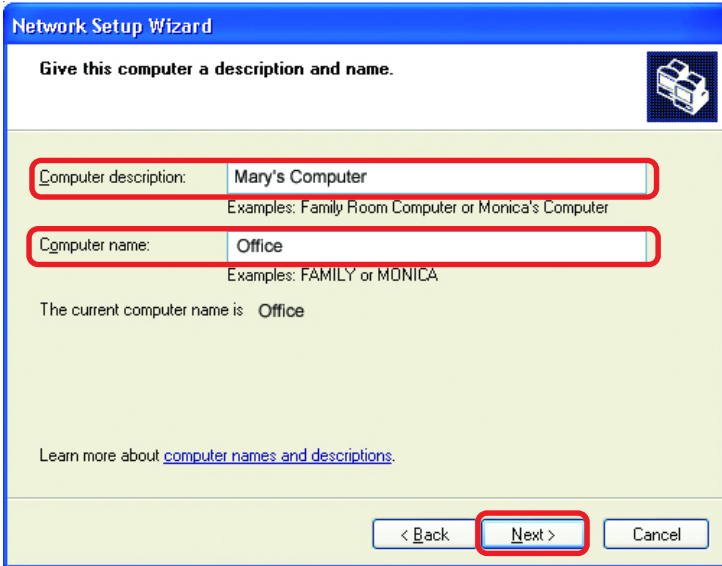
In the following window, select the best description of your computer. If your computer connects to the internet through a gateway/router, select the second option as shown.



Click **Next**

Networking Basics

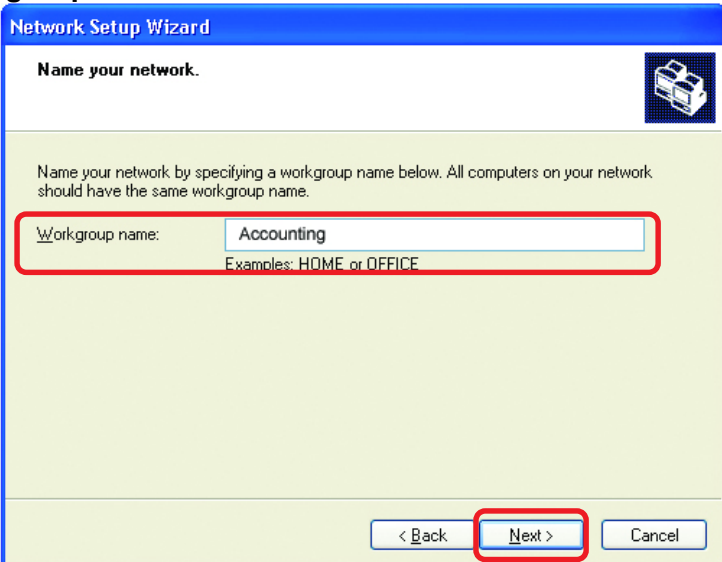
Enter a **Computer description** and a **Computer name** (optional.)



The screenshot shows the 'Network Setup Wizard' dialog box. The title bar reads 'Network Setup Wizard'. The main heading is 'Give this computer a description and name.' Below this, there are two text input fields. The first is labeled 'Computer description:' and contains the text 'Mary's Computer'. Below it, examples are listed: 'Examples: Family Room Computer or Monica's Computer'. The second field is labeled 'Computer name:' and contains the text 'Office'. Below it, examples are listed: 'Examples: FAMILY or MONICA'. A line of text below the fields states 'The current computer name is Office'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

Click **Next**

Enter a **Workgroup** name. All computers on your network should have the same **Workgroup name**.

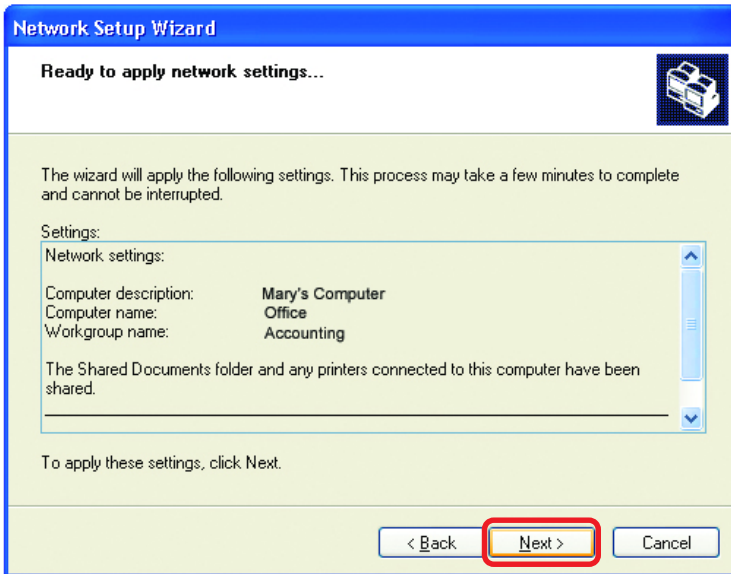


The screenshot shows the 'Network Setup Wizard' dialog box. The title bar reads 'Network Setup Wizard'. The main heading is 'Name your network.' Below this, there is a text input field labeled 'Workgroup name:' containing the text 'Accounting'. Below the field, examples are listed: 'Examples: HOME or OFFICE'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

Click **Next**

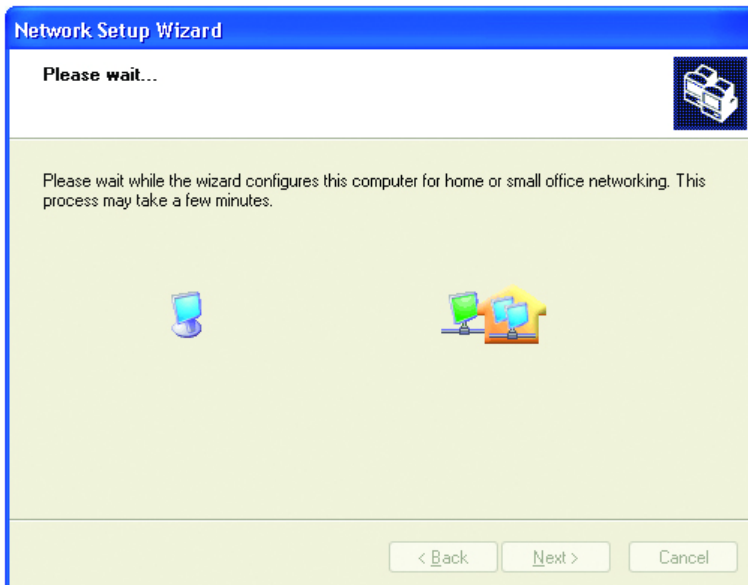
Networking Basics

Please wait while the **Network Setup Wizard** applies the changes.



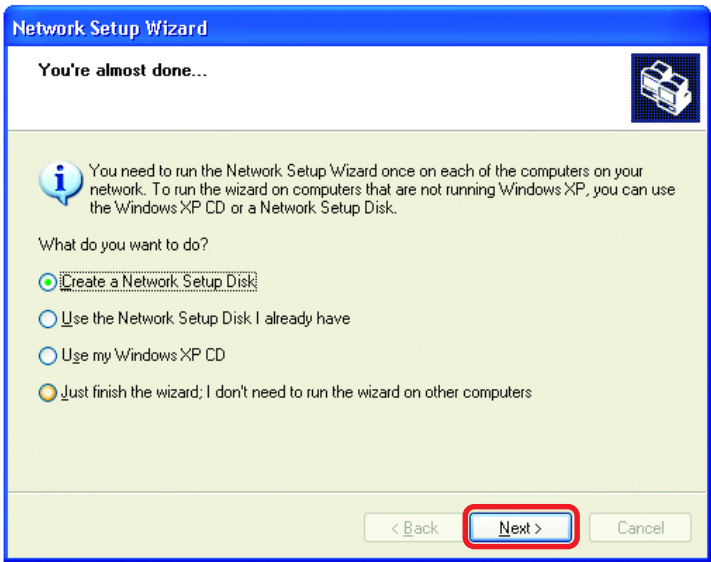
When the changes are complete, click **Next**.

Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.

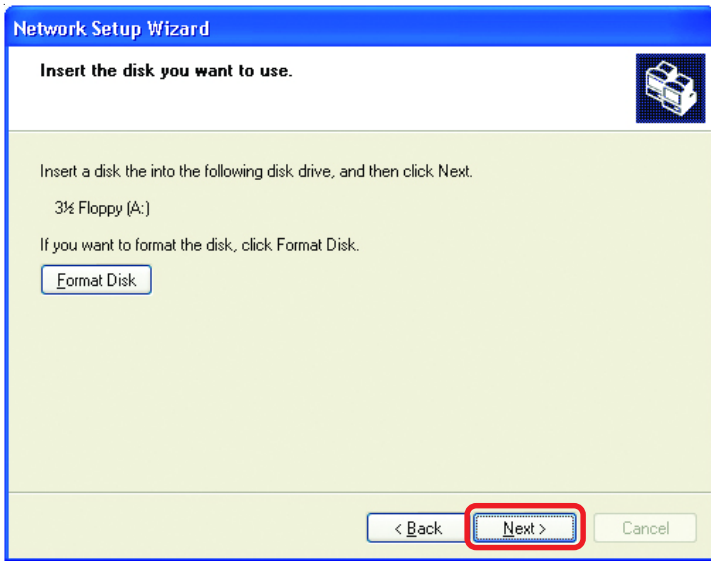


Networking Basics

In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network. Click **Next**.



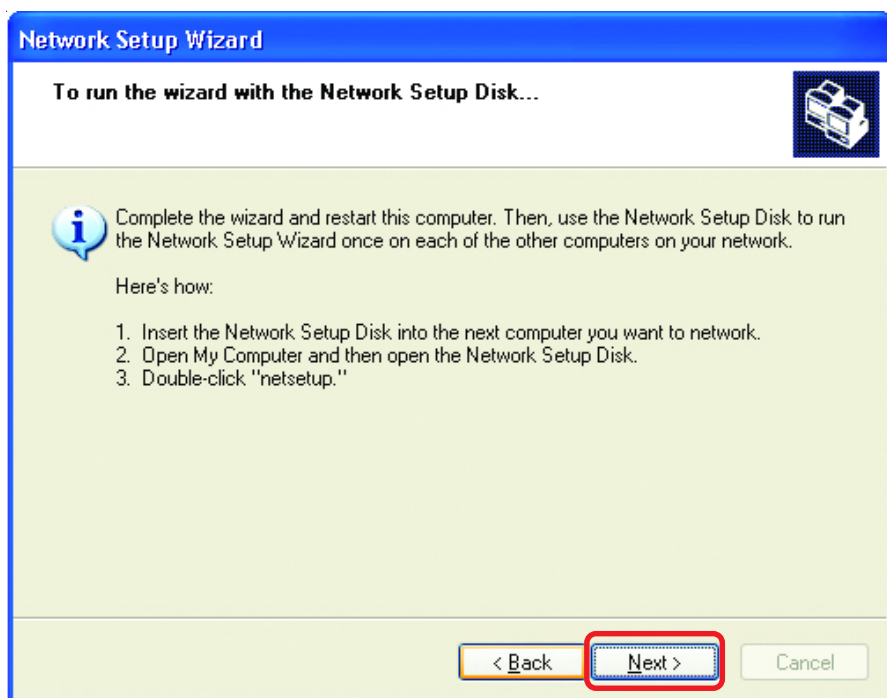
Insert a disk into the Floppy Disk Drive, in this case drive **A**.



Networking Basics

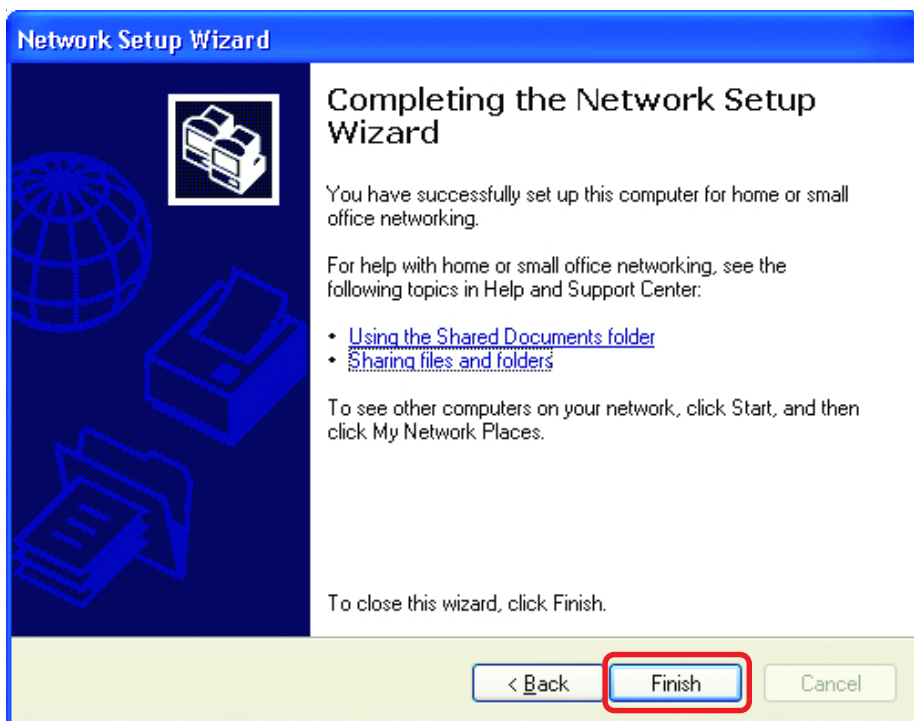


Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. To continue click **Next**.

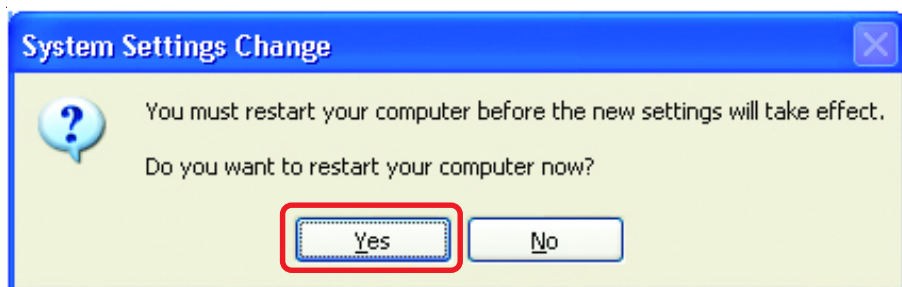


Networking Basics

Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



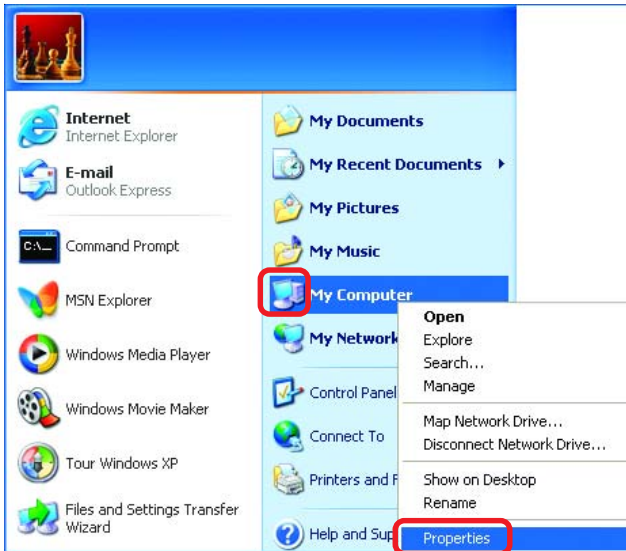
You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

Networking Basics

Naming your Computer

To name your computer, please follow these directions: In **Windows XP**:

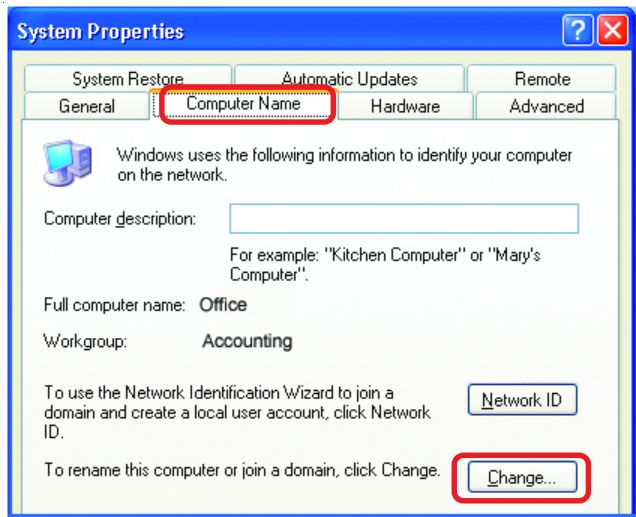
- Click **Start** (in the lower left corner of the screen)
- **Right-click** on **My Computer**
- Select **Properties** and click



- Select the **Computer Name Tab** in the System Properties window.

- You may enter a **Computer Description** if you wish; this field is optional.

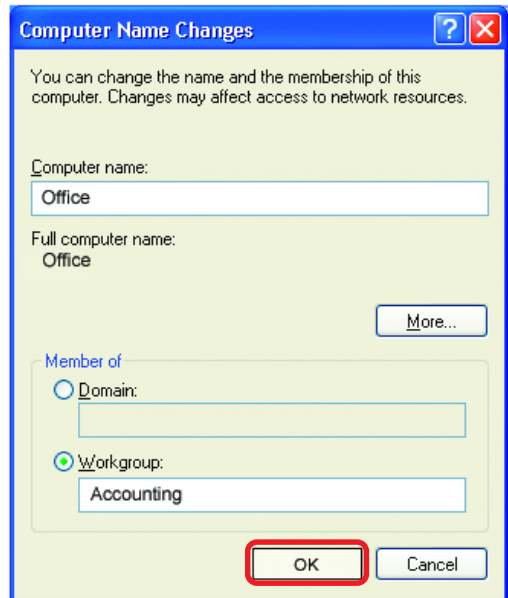
- To rename the computer and join a domain, Click **Change**.



Networking Basics

Naming your Computer

- In this window, enter the **Computer name**
- Select **Workgroup** and enter the name of the **Workgroup**
- All computers on your network must have the same **Workgroup** name.
- Click **OK**



Checking the IP Address in Windows XP

The wireless adapter-equipped computers in your network must be in the same IP Address range (see Getting Started in this manual for a definition of IP Address Range.) To check on the IP Address of the adapter, please do the following:

- Right-click on the **Local Area Connection icon** in the task bar
- Click on **Status**



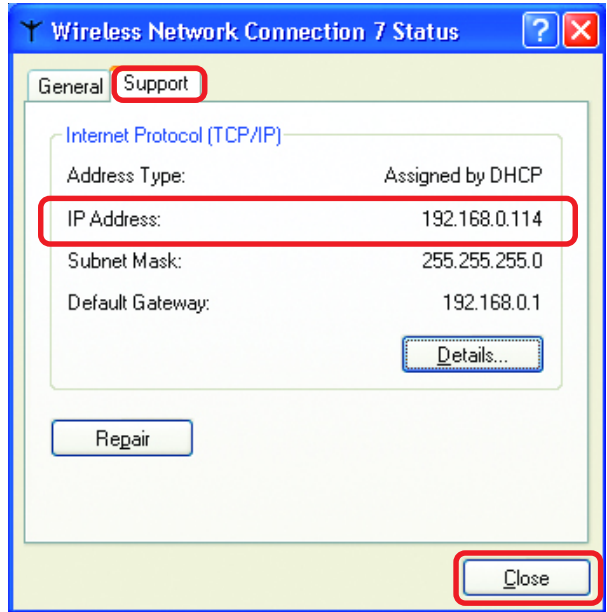
Networking Basics

Checking the IP Address in Windows XP

This window will appear.

- Click the **Support** tab

- Click **Close**

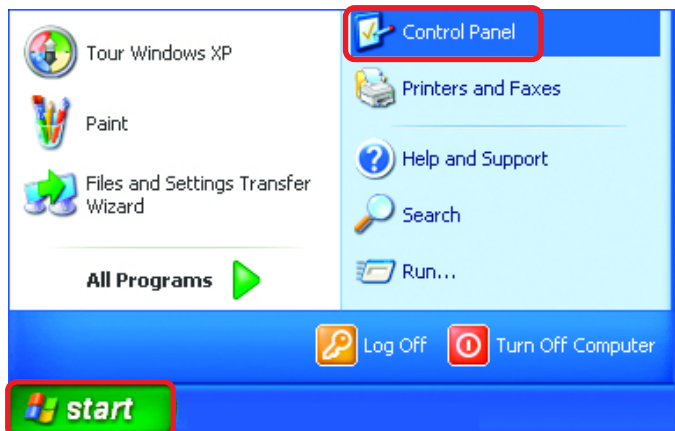


Assigning a Static IP Address in Windows XP/2000

Note: Residential Gateways/Broadband Routers will automatically assign IP Addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable Gateway/Router you will not need to assign Static IP Addresses.

If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP Address, please follow these instructions:

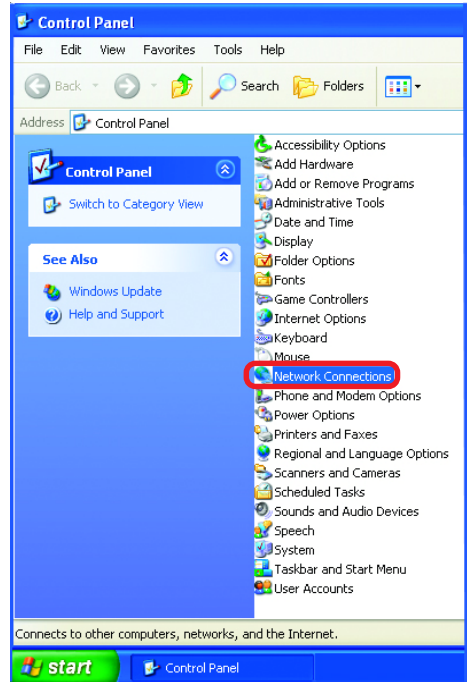
- Go to **Start**
- Double-click on **Control Panel**



Networking Basics

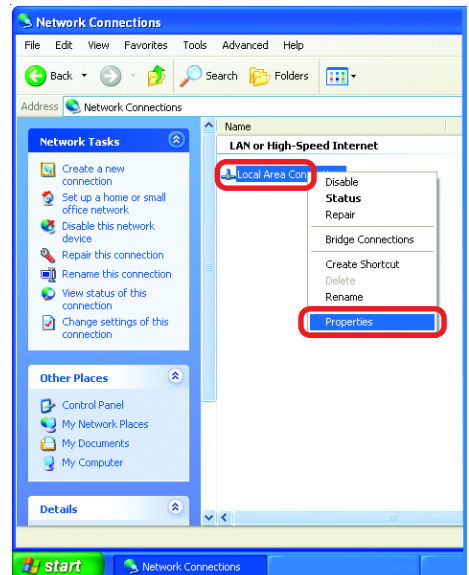
Assigning a Static IP Address in Windows XP/2000

- Double-click on **Network Connections**



- Right-click on **Local Area Connections**

- Double-click on **Properties**



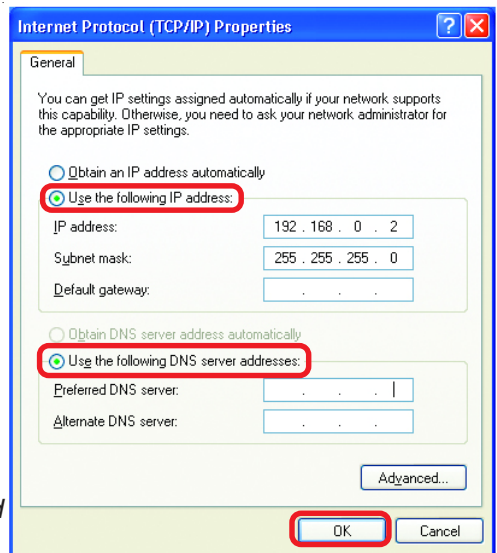
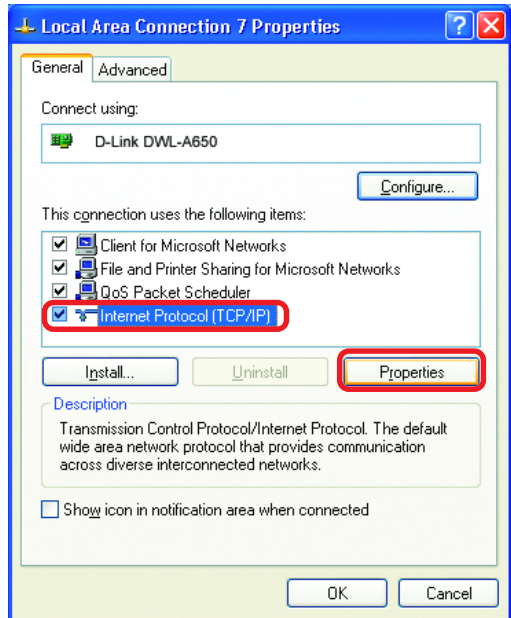
Networking Basics

Assigning a Static IP Address in Windows XP/2000

- Click on **Internet Protocol (TCP/IP)**
- Click **Properties**
- Input your **IP address and subnet mask**. (The IP Addresses on your network must be within the same range. For example, if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)
- Input your **DNS server addresses**. (Note: If you are entering a DNS server, you must enter the IP Address of the Default Gateway.)

The DNS server information will be supplied by your ISP (Internet Service Provider.)

- Click **OK**



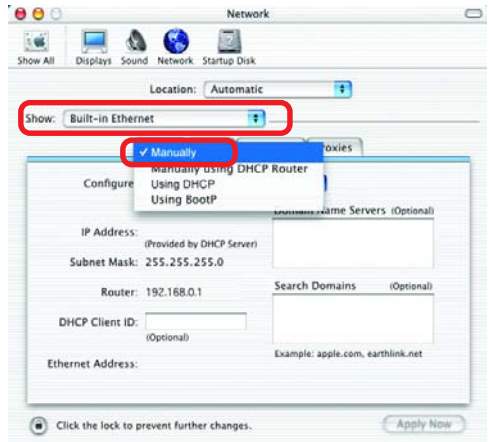
Networking Basics

Assigning a Static IP Address with Macintosh OS X

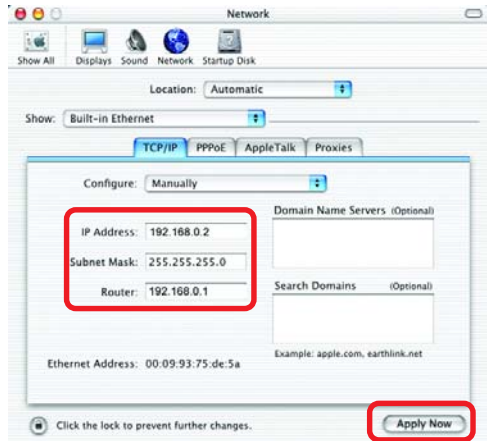
- Go to the **Apple Menu** and select **System Preferences**
- Click on **Network**



- Select **Built-in Ethernet** in the **Show** pull-down menu
- Select **Manually** in the **Configure** pull-down menu



- Input the **Static IP Address**, the **Subnet Mask** and the **Router IP Address** in the appropriate fields



- Click **Apply Now**

Networking Basics

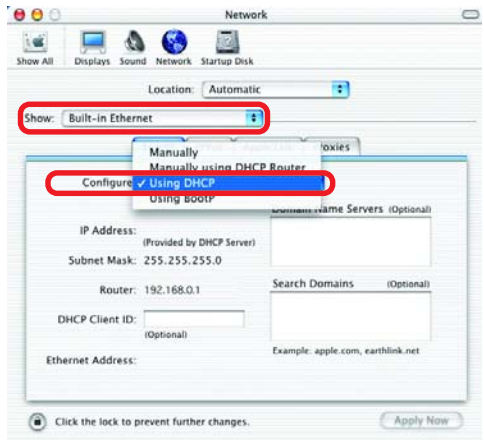
Selecting a Dynamic IP Address with Macintosh OS X

- Go to the **Apple Menu** and select **System Preferences**



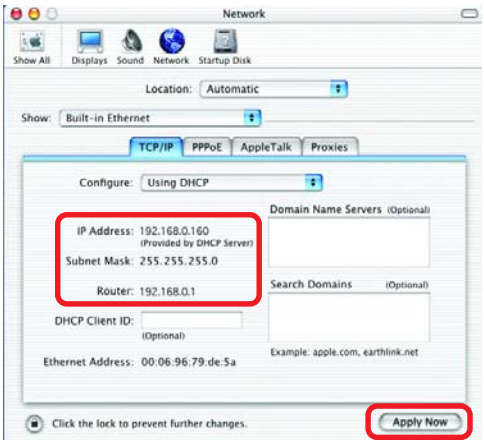
- Click on **Network**

- Select **Built-in Ethernet** in the **Show** pull-down menu



- Select **Using DHCP** in the **Configure** pull-down menu

- Click **Apply Now**

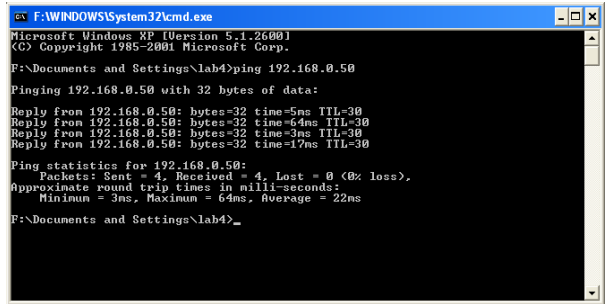


- The **IP Address**, **Subnet mask**, and the **Router's IP Address** will appear in a few seconds

Networking Basics

Checking the Wireless Connection by Pinging in Windows XP and 2000

- Go to **Start > Run > type cmd**. A window similar to this one will appear. Type **ping xxx.xxx.xxx.xxx**, where **xxx** is the **IP Address** of the **Wireless Router** or **Access Point**. A good wireless connection will show four replies from the **Wireless Router** or **Access Point**, as shown.



```
F:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

F:\Documents and Settings\lab4>ping 192.168.0.50

Pinging 192.168.0.50 with 32 bytes of data:

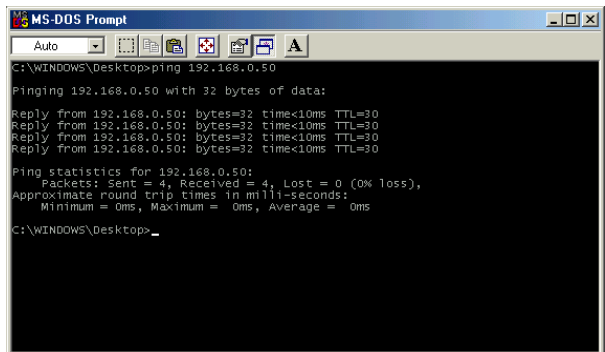
Reply from 192.168.0.50: bytes=32 time=5ms TTL=30
Reply from 192.168.0.50: bytes=32 time=64ms TTL=30
Reply from 192.168.0.50: bytes=32 time=3ms TTL=30
Reply from 192.168.0.50: bytes=32 time=17ms TTL=30

Ping statistics for 192.168.0.50:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 64ms, Average = 22ms

F:\Documents and Settings\lab4>_
```

Checking the Wireless Connection by Pinging in Windows Me and 98

- Go to **Start > Run > type command**. A window similar to this will appear. Type **ping xxx.xxx.xxx.xxx** where **xxx** is the **IP Address** of the **Wireless Router** or **Access Point**. A good wireless connection will show four replies from the **wireless router** or **access point**, as shown.



```
MS-DOS Prompt
Auto
C:\WINDOWS\Desktop>ping 192.168.0.50

Pinging 192.168.0.50 with 32 bytes of data:

Reply from 192.168.0.50: bytes=32 time<10ms TTL=30
Reply from 192.168.0.50: bytes=32 time<10ms TTL=30
Reply from 192.168.0.50: bytes=32 time<10ms TTL=30
Reply from 192.168.0.50: bytes=32 time<10ms TTL=30

Ping statistics for 192.168.0.50:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\WINDOWS\Desktop>_
```

Networking Basics

Adding and Sharing Printers in Windows XP

After you have run the **Network Setup Wizard** on all the computers in your network (please see the **Network Setup Wizard** section at the beginning of **Networking Basics**,) you can use the **Add Printer Wizard** to add or share a printer on your network.

Whether you want to add a **local printer** (a printer connected directly to one computer,) share an **LPR printer** (a printer connected to a print server) or share a **network printer** (a printer connected to your network through a Gateway/Router,) use the **Add Printer Wizard**. Please follow the directions below:

First, make sure that you have run the Network Setup Wizard on all of the computers on your network.

On the following pages, we will show you these 3 ways to use the **Add Printer Wizard**:

- 1. Adding a local printer**
- 2. Sharing an network printer**
- 3. Sharing an LPR printer**

(Other Networking Tasks)

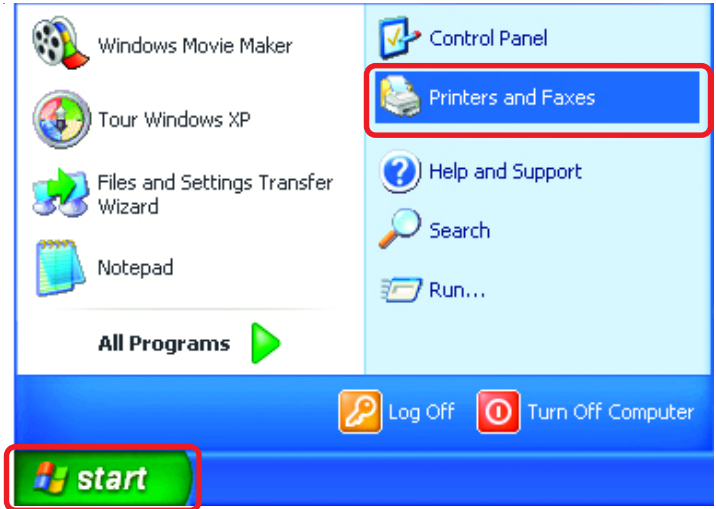
For help with other tasks, that we have not covered here, in home or small office networking, see **Using the Shared Documents** folder and **Sharing files and folders** in the **Help and Support Center** in Microsoft **Windows XP**.

Networking Basics

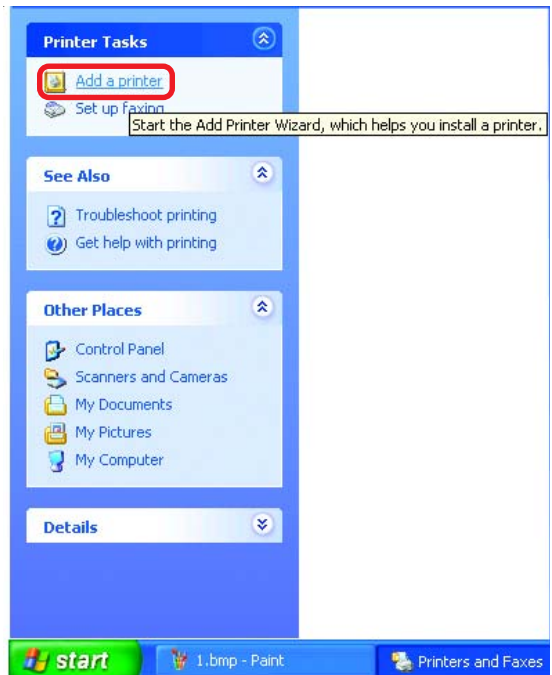
Adding a local printer (a printer connected directly to a computer)

A printer that is not shared on the network and is connected directly to one computer is called a **local printer**. If you do not need to share your printer on a network, follow these directions to add the printer to one computer.

- Go to **Start> Printers and Faxes**

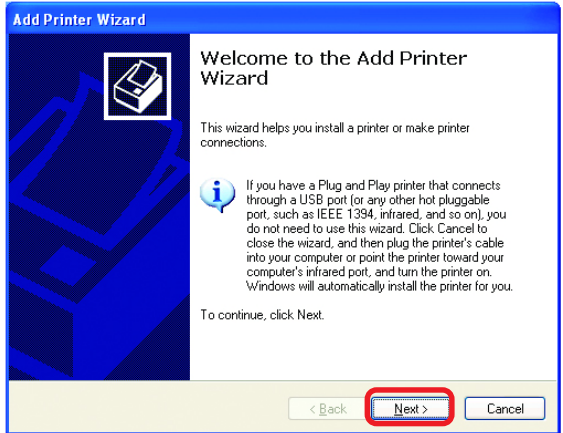


- Click on **Add a printer**

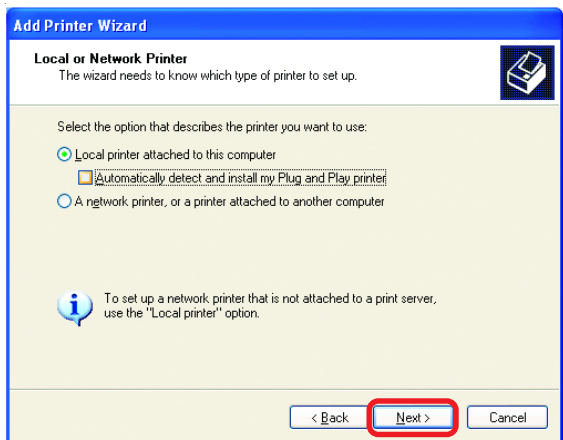


Networking Basics

Adding a local printer



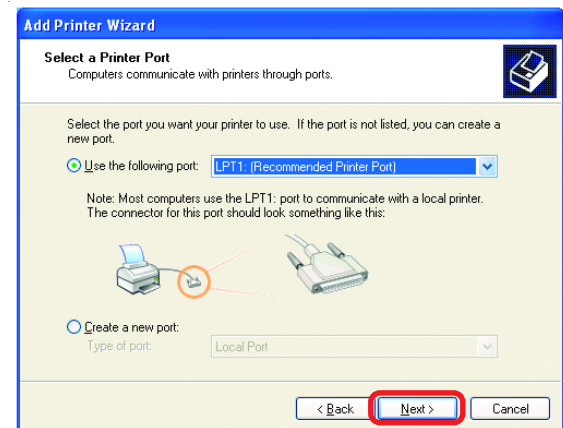
- Click **Next**



- Select **Local printer attached to this computer**

- *(Deselect **Automatically detect and install my Plug and Play printer** if it has been selected.)*

- Click **Next**



- Select **Use the following port:**

- From the pull-down menu **select the correct port** for your printer

*(Most computers use the **LPT1:** port, as shown in the illustration.)*

- Click **Next**

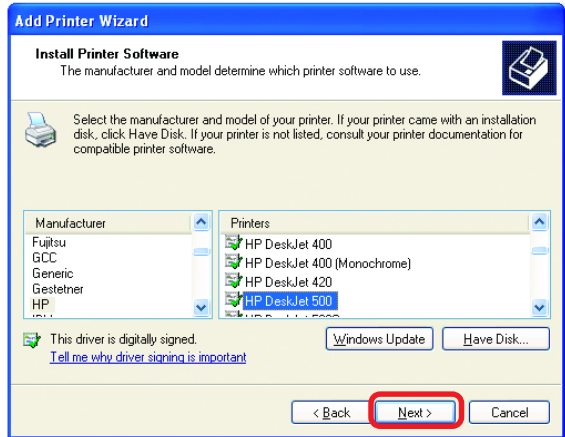
Networking Basics

Adding a local printer

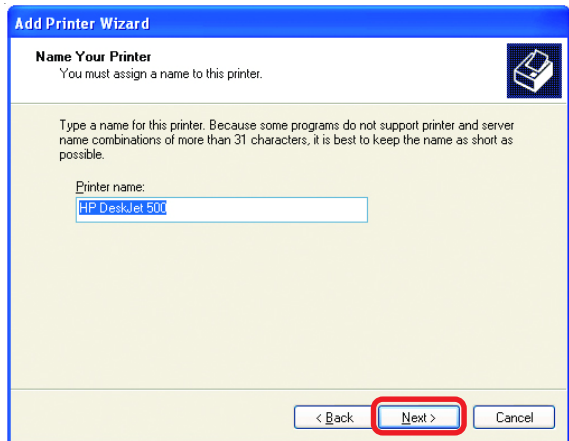
- Select and highlight the **correct driver** for your printer.

- Click **Next**

*(If the correct driver is not displayed, insert the CD or floppy disk that came with your printer and click **Have Disk.**)*

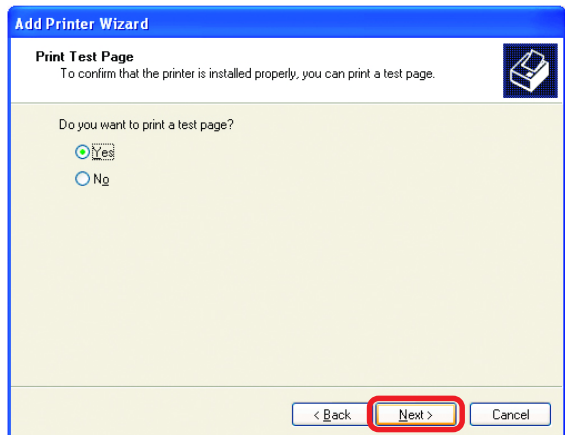


- At this screen, you can change the name of the printer (optional.)



- Click **Next**

- Select **Yes**, to print a test page. A successful printing will confirm that you have chosen the correct driver.

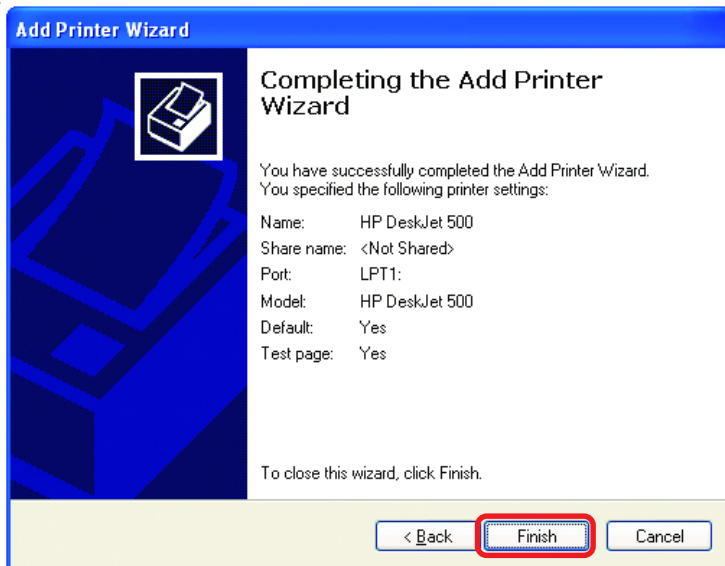


- Click **Next**

Networking Basics

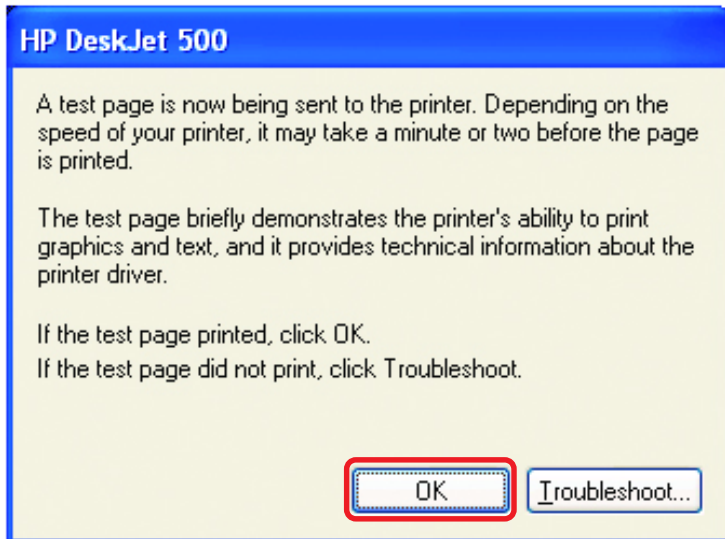
Adding a local printer

This screen gives you information about your printer.



Click **Finish**

When the test page has printed,



Click **OK**

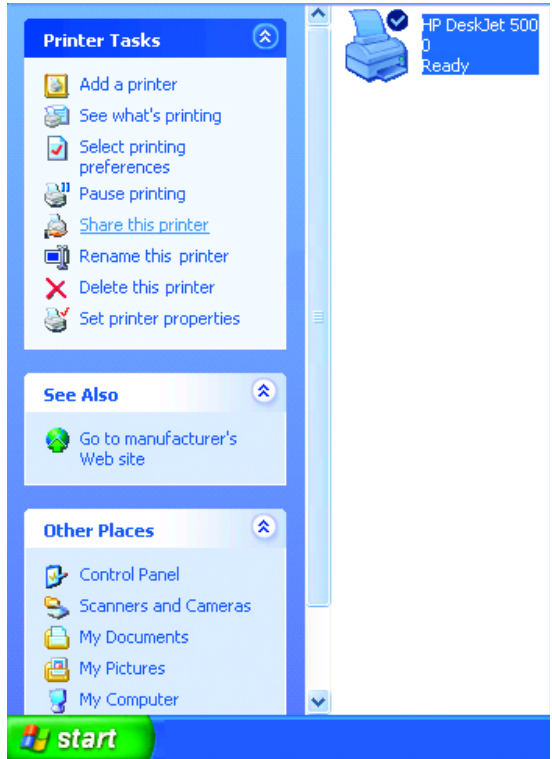
Networking Basics

Adding a local printer

- Go to **Start> Printers and Faxes**

A successful installation will display the printer icon as shown at right.

You have successfully added a local printer.



Sharing a network printer

After you have run the **Network Setup Wizard** on all the computers on your network, you can run the **Add Printer Wizard** on all the computers on your network. Please follow these directions to use the **Add Printer Wizard** to share a printer on your network:

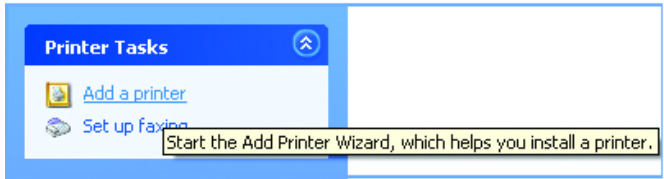
- Go to **Start> Printers and Faxes**



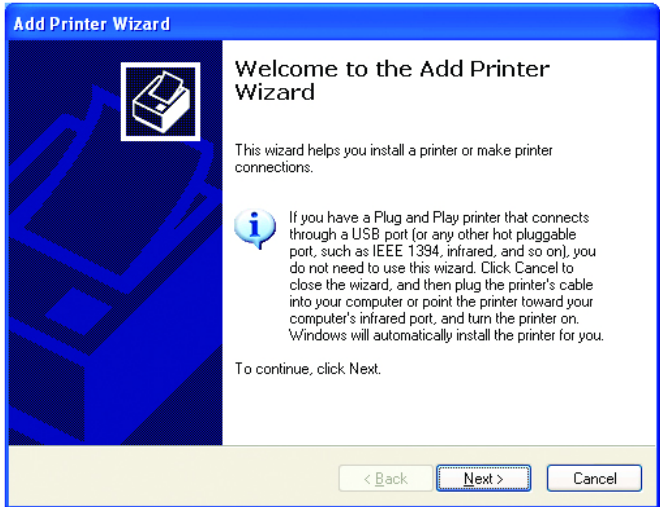
Networking Basics

Sharing a network printer

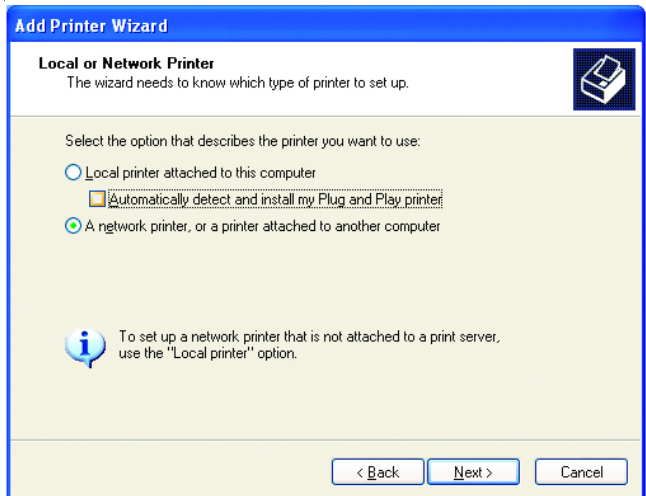
- Click on **Add a printer**



- Click **Next**



- Select **Network Printer**

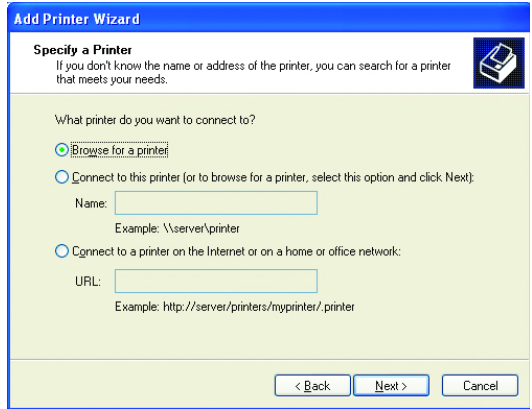


- Click **Next**

Networking Basics

Sharing a network printer

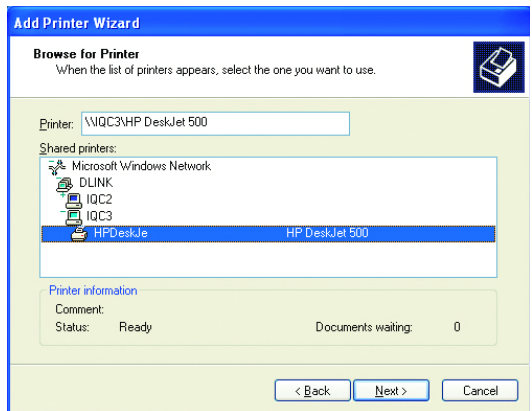
- Select **Browse** for a printer



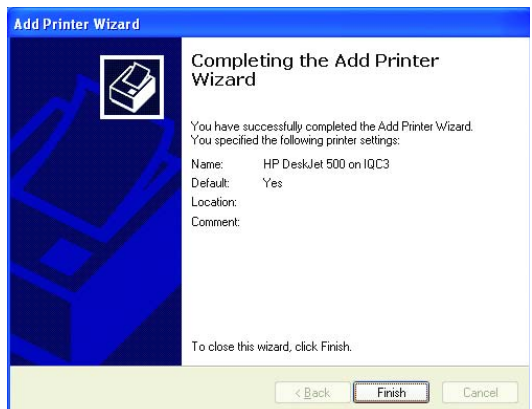
- Click **Next**

Select the **printer** you would like to share

- Click **Next**



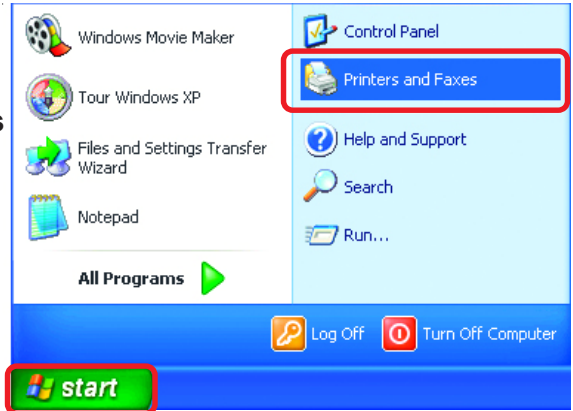
- Click **Finish**



Networking Basics

Sharing a network printer

- To check for proper installation:
- Go to **Start > Printers and Faxes**

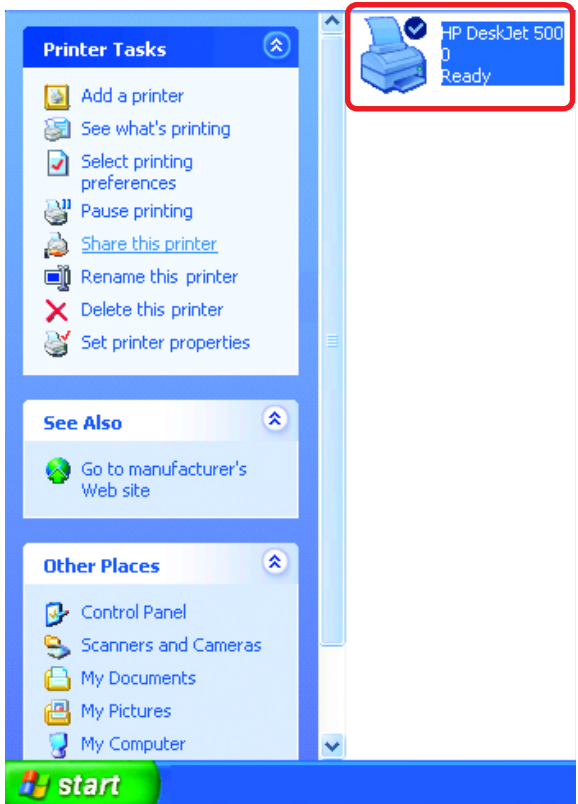


The printer icon will appear at right, indicating proper installation.

You have completed adding the printer.

To share this printer on your network:

- Remember the **printer name**
- Run the **Add Printer Wizard** on all the computers on your network
- Make sure you have already run the **Network Setup Wizard** on all the network computers



After you run the **Add Printer Wizard** on all the computers in the network, you can share the printer.

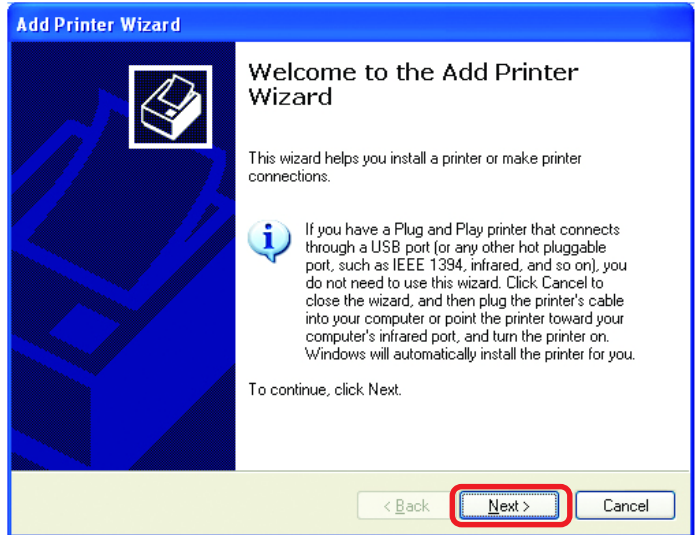
Networking Basics

Sharing an LPR printer

To share an **LPR printer** (using a print server,) you will need a Print Server such as the **DP-101P+**. Please make sure that you have run the **Network Setup Wizard** on all the computers on your network. To share an **LPR printer**, please follow these directions:

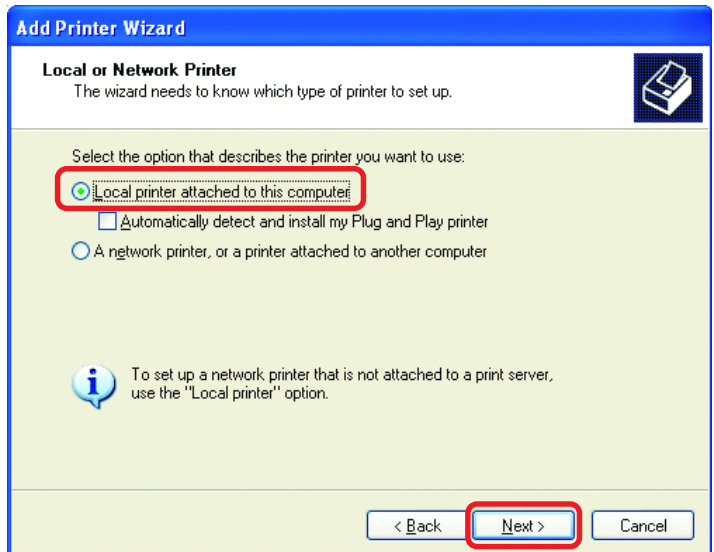
- Go to **Start > Printers and Faxes**
- Click on **Add a Printer**

The screen to the right will appear



- Click **Next**

- Select **Local Printer...**

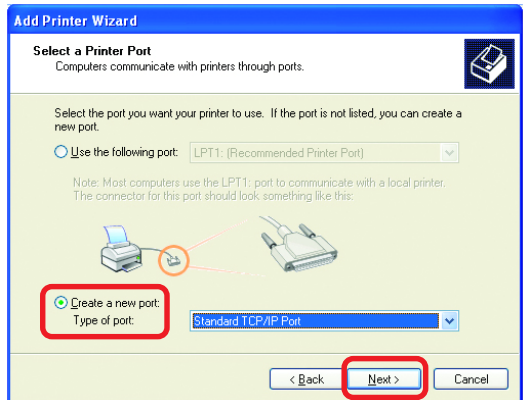


- Click **Next**

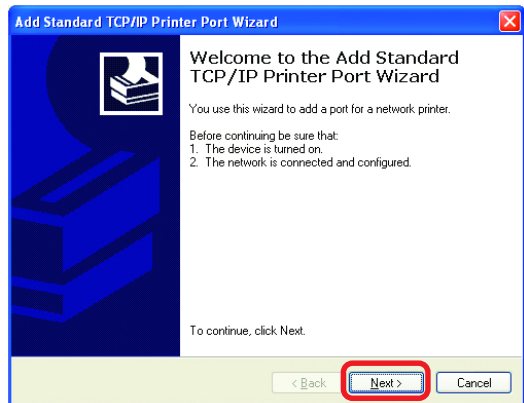
Networking Basics

Sharing an LPR printer

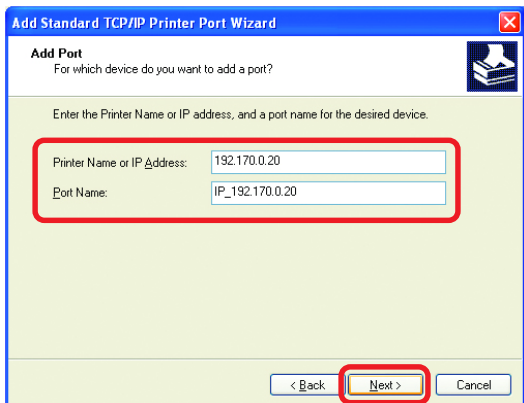
- Select **Create a new port**
- From the pull-down menu, select **Standard TCP/IP Port**, as shown.
- Click **Next**



- Please read the instructions on this screen
- Click **Next**



- Enter the **Printer IP Address** and the **Port Name**, as shown.
- Click **Next**



Networking Basics

Sharing an LPR printer

- In this screen, select **Custom**

- Click **Settings**

- Enter the **Port Name** and the **Printer Name or IP Address**.

- Select **LPR**

- Enter a **Queue Name** (if your Print-Server/Gateway has more than one port, you will need a **Queue name**.)

- Click **OK**

Add Standard TCP/IP Printer Port Wizard

Additional Port Information Required
The device could not be identified.

The detected device is of unknown type. Be sure that:

1. The device is properly configured.
2. The address on the previous page is correct.

Either correct the address and perform another search on the network by returning to the previous wizard page or select the device type if you are sure the address is correct.

Device Type

Standard Generic Network Card

Custom **Settings...**

< Back Next > Cancel

Configure Standard TCP/IP Port Monitor

Port Settings

Port Name: IP_192.170.0.20

Printer Name or IP Address: 192.170.0.20

Protocol

Raw **LPR**

Raw Settings

Port Number: 9100

LPR Settings

Queue Name: lp

LPR Byte Counting Enabled

SNMP Status Enabled

Community Name: public

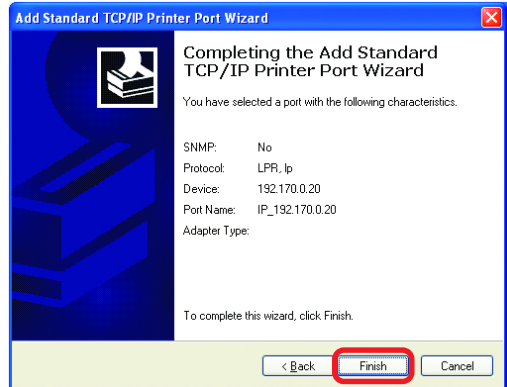
SNMP Device Index: 1

OK Cancel

Networking Basics

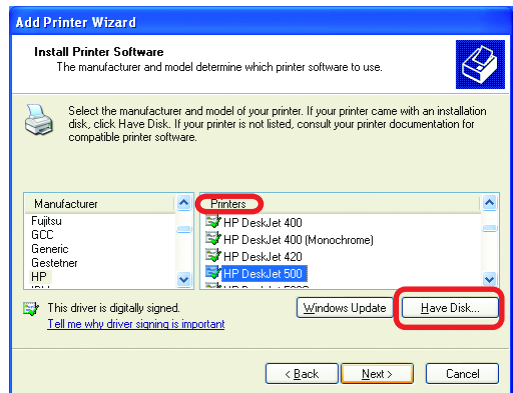
Sharing an LPR printer

- This screen will show you information about your printer.



- Click **Finish**

- Select the **printer** you are adding from the list of **Printers**.

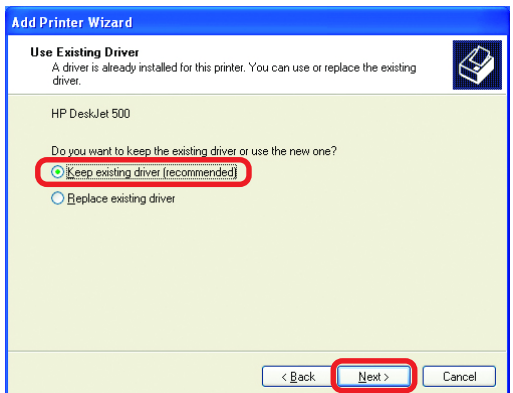


- Insert the printer driver disk that came with your printer.

- Click **Have Disk**

If the printer driver is already installed, do the following:

- Select **Keep existing driver**

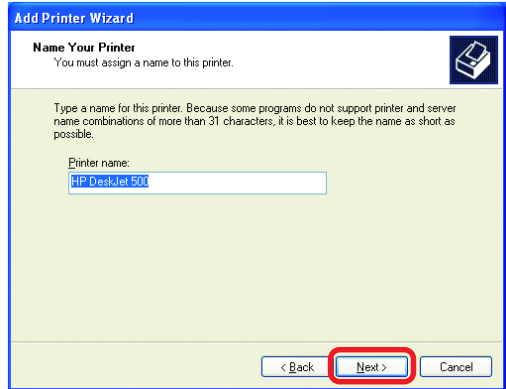


- Click **Next**

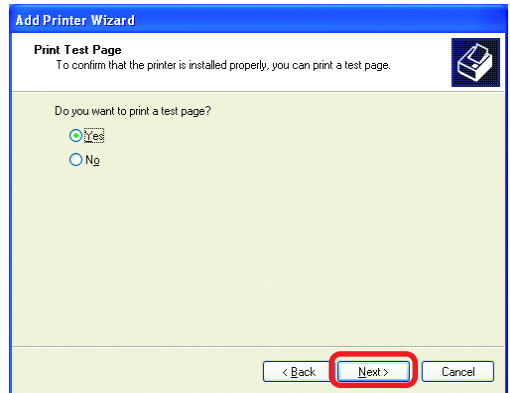
Networking Basics

Sharing an LPR printer

- You can rename your printer if you choose. It is optional.
- *Please remember the name of your printer. You will need this information when you use the **Add Printer Wizard** on the other computers on your network.*
- Click **Next**

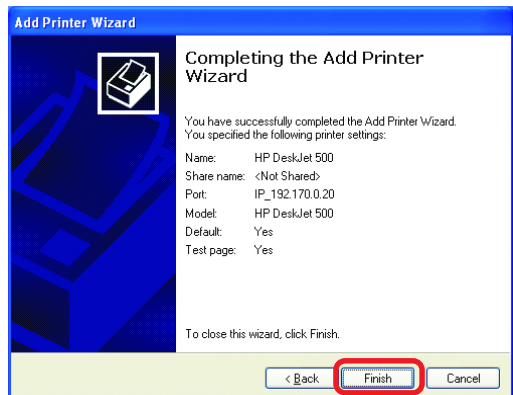


- Select **Yes**, to print a test page.
- Click **Next**



This screen will display information about your printer.

- Click **Finish** to complete the addition of the printer.
- Please run the **Add Printer Wizard** on all the computers on your network in order to share the printer.



*Note: You must run the **Network Setup Wizard** on all the computers on your network before you run the **Add Printer Wizard**.*

Troubleshooting

This Chapter provides solutions to problems that can occur during the installation and operation of the DI-624 Wireless Broadband Router. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

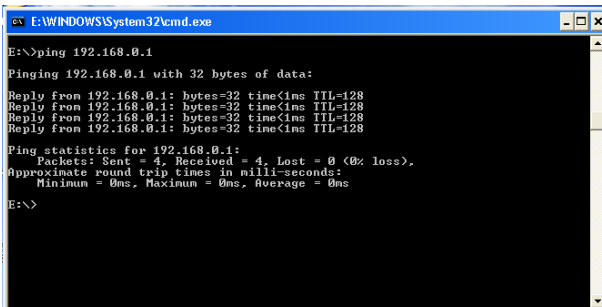
Note: It is recommended that you use an Ethernet connection to configure the DI-624 Wireless Broadband Router.

1. The computer used to configure the DI-624 cannot access the Configuration menu.

- Check that the **Ethernet LED** on the DI-624 is **ON**. If the **LED** is not **ON**, check that the cable for the Ethernet connection is securely inserted.
- Check that the Ethernet Adapter is working properly. Please see item 3 (**Check that the drivers for the network adapters are installed properly**) in this **Troubleshooting** section to check that the drivers are loaded properly.
- Check that the **IP Address** is in the same range and subnet as the DI-624. Please see **Checking the IP Address in Windows XP** in the **Networking Basics** section of this manual.

Note: The IP Address of the DI-624 is 192.168.0.1. All the computers on the network must have a unique IP Address in the same range, e.g., 192.168.0.x. Any computers that have identical IP Addresses will not be visible on the network. They must all have the same subnet mask, e.g., 255.255.255.0

- Do a **Ping test** to make sure that the DI-624 is responding. Go to **Start>Run>Type Command>Type ping 192.168.0.1**. A successful ping will show four replies.



```
E:\>ping 192.168.0.1
Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

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

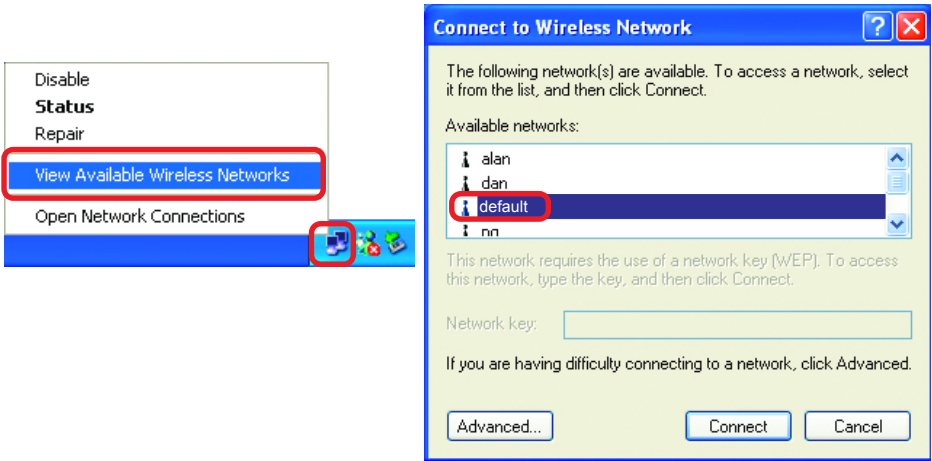
E:\>
```

Note: If you have changed the default IP Address, make sure to ping the correct IP Address assigned to the DI-624.

Troubleshooting

2. The wireless client cannot access the Internet in the Infrastructure mode.

Make sure the wireless client is associated and joined with the correct Access Point. To check this connection: **Right-click** on the **Local Area Connection icon** in the taskbar > select **View Available Wireless Networks**. The **Connect to Wireless Network** screen will appear. Please make sure you have selected the correct available network, as shown in the illustrations below.



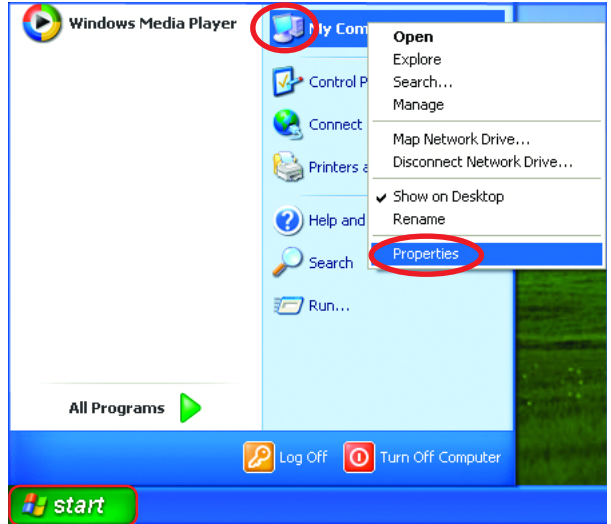
- Check that the **IP Address** assigned to the wireless adapter is within the same **IP Address range** as the access point and gateway. *(Since the DI-624 has an IP Address of 192.168.0.1, wireless adapters must have an IP Address in the same range, e.g., 192.168.0.x. Each device must have a unique IP Address; no two devices may have the same IP Address. The subnet mask must be the same for all the computers on the network.)* To check the **IP Address** assigned to the wireless adapter, **double-click** on the **Local Area Connection icon** in the taskbar > select the **Support** tab and the **IP Address** will be displayed. *(Please refer to **Checking the IP Address in the Networking Basics** section of this manual.)*
- If it is necessary to assign a **Static IP Address** to the wireless adapter, please refer to the appropriate section in **Networking Basics**. If you are entering a **DNS Server address** you must also enter the **Default Gateway Address**. *(Remember that if you have a DHCP-capable router, you will not need to assign a Static IP Address. See **Networking Basics: Assigning a Static IP Address**.)*

Troubleshooting

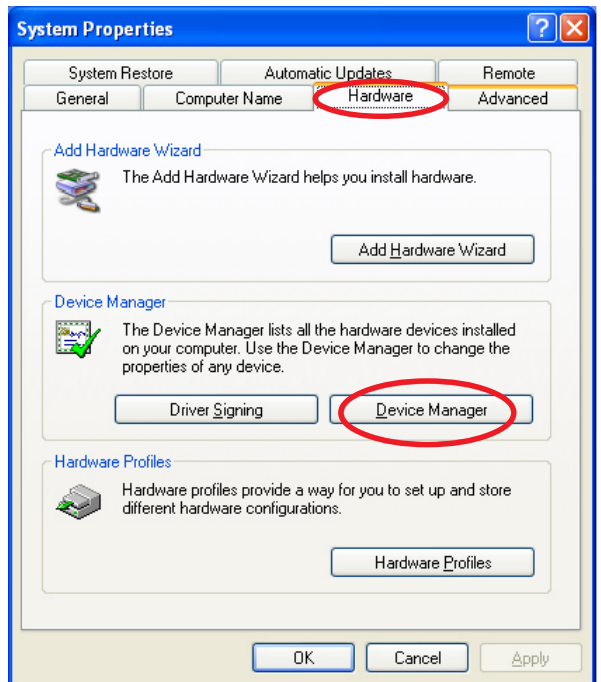
3. Check that the drivers for the network adapters are installed properly.

You may be using different network adapters than those illustrated here, but this procedure will remain the same, regardless of the type of network adapters you are using.

- Go to **Start > My Computer > Properties**



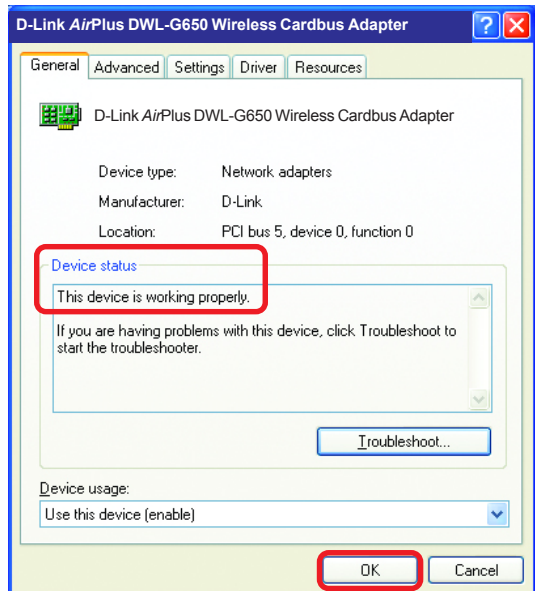
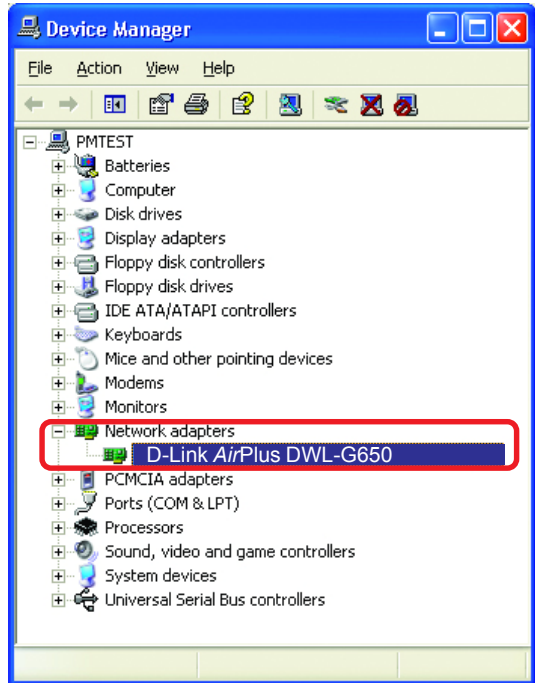
- Select the **Hardware Tab**



- Click **Device Manager**

Troubleshooting

- Double-click on **Network Adapters**
- Right-click on **D-Link AirPlus DWL-G650 Wireless Cardbus Adapter** (In this example we use the DWL-G650; you may be using other network adapters, but the procedure will remain the same.)
- Select **Properties** to check that the drivers are installed properly
- Look under **Device Status** to check that the device is working properly
- Click **OK**



Troubleshooting

4. What variables may cause my wireless products to lose reception?

D-Link products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advantageous placement of your D-Link wireless products.

5. Why does my wireless connection keep dropping?

- Antenna Orientation- Try different antenna orientations for the DI-624. Try to keep the antenna at least 6 inches away from the wall or other objects.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the Channel on your Router, Access Point and Wireless adapter to a different Channel to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, Monitors, electric motors, etc.

6. Why can't I get a wireless connection?

If you have enabled Encryption on the DI-624, you must also enable encryption on all wireless clients in order to establish a wireless connection.

- For 802.11b, the Encryption settings are: 64, 128, or 256 bit. Make sure that the encryption bit level is the same on the Router and the Wireless Client.
- Make sure that the SSID on the Router and the Wireless Client are exactly the same. If they are not, wireless connection will not be established.
- Move the DI-624 and the wireless client into the same room and then test the wireless connection.
- Disable all security settings. (WEP, MAC Address Control)

Troubleshooting

6. Why can't I get a wireless connection? (continued)

- Turn off your DI-624 and the client. Turn the DI-624 back on again, and then turn on the client.
- Make sure that all devices are set to **Infrastructure** mode.
- Check that the LED indicators are indicating normal activity. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP Address, subnet mask, gateway and DNS settings are correctly entered for the network.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the Channel on your DI-624, and on all the devices in your network to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, Monitors, electric motors, etc.

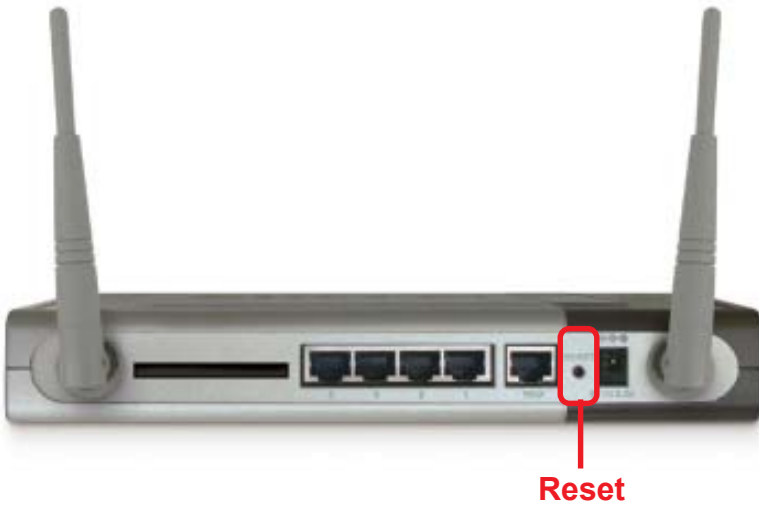
7. I forgot my encryption key.

- Reset the DI-624 to its factory default settings and restore the other devices on your network to their default settings. You may do this by pressing the Reset button on the back of the unit. You will lose the current configuration settings.

Troubleshooting

8. Resetting the DI-624 to Factory Default Settings

After you have tried other methods for troubleshooting your network, you may choose to **Reset** the DI-624 to the factory default settings. Remember that D-Link *AirPro* products network together, out of the box, at the factory default settings.



To hard-reset the D-Link *AirPro* DI-624 to Factory Default Settings, please do the following:

- Locate the **Reset** button on the back of the DI-624
- Use a paper clip to press the **Reset** button
- Hold for about 10 seconds and then release
- After the DI-624 reboots (this may take a few minutes) it will be reset to the factory **Default** settings

Technical Specifications

Standards

- Draft IEEE 802.11g
- IEEE 802.11b
- IEEE 802.3
- IEEE 802.3u

VPN Pass Through/ Multi-Sessions

- PPTP
- L2TP
- IPSec

Device Management

- Web-Based- Internet Explorer v6 or later; Netscape Navigator v6 or later; or other Java-enabled browsers
- DHCP Server and Client

Advanced Firewall Features

- NAT with VPN Passthrough (Network Address Translation)
- MAC Filtering
- IP Filtering
- URL Filtering
- Domain Blocking
- Scheduling

Wireless Operating Range

- Indoors – up to 328 feet (100 meters)
- Outdoors – up to 1312 feet (400 meters)

Operating Temperature

- 32°F to 131°F (0°C to 55°C)

Humidity:

- 95% maximum (non-condensing)

Safety and Emissions:

- FCC
- UL

Wireless Frequency Range:

- 2.4GHz to 2.462GHz

Technical Specifications

LEDs:

- Power
- WAN
- LAN (10/100)
- WLAN (Wireless Connection)

Physical Dimensions:

- L = 9.25 inches (233mm)
- W = 6.5 inches (165mm)
- H = 1.375inches (35mm)

Wireless Transmit Power:

- 15dBm \pm 2dB

Security:

- 802.1x
- WPA*-WiFi Protected Access
(64-, 128-WEP with TKIP, MIC, IV Expansion, Shared Key Authentication)

External Antenna Type:

- Dual detachable reverse SMA

Modulation Technology:

- Orthogonal Frequency Division Multiplexing (OFDM)

Power Input:

- Ext. Power Supply DC 5V, 2.4A

Weight:

- 2.0 lbs. (907 g)

Warranty:

- 3 year

**WPA will be available Spring 2003*

Technical Specifications

Wireless Data Rates with Automatic Fallback:

- 54 Mbps
- 48 Mbps
- 36 Mbps
- 24 Mbps
- 18 Mbps
- 12 Mbps
- 11 Mbps
- 9 Mbps
- 6 Mbps
- 5.5 Mbps
- 2 Mbps
- 1 Mbps

Receiver Sensitivity:

- 54Mbps OFDM, 10% PER, -68dBm
- 48Mbps OFDM, 10% PER, -68dBm
- 36Mbps OFDM, 10% PER, -75dBm
- 24Mbps OFDM, 10% PER, -79dBm
- 18Mbps OFDM, 10% PER, -82dBm
- 12Mbps OFDM, 10% PER, -84dBm
- 11Mbps CCK, 8% PER, -82dBm
- 9Mbps OFDM, 10% PER, -87dBm
- 6Mbps OFDM, 10% PER, -88dBm
- 5.5Mbps CCK, 8% PER, -85dBm
- 2Mbps QPSK, 8% PER, -86dBm
- 1Mbps BPSK, 8% PER, -89dBm

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, or by phone.

D-Link Technical Support over the Telephone:

(877) 453-5465

24 hours a day, seven days a week.

D-Link Technical Support over the Internet:

<http://support.dlink.com>

When contacting technical support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

Warranty and Registration

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. (“D-Link”) provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type (“Warranty Period”), except as otherwise stated herein.

3-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) Three (3) Years
- 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 during the Warranty Period at no charge to the original owner or to refund at D-Link’s sole discretion. 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 have an identical make, model or part. D-Link may in its sole 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. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. 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 retail purchase of the Software for a period of ninety (90) days (“Warranty Period”), provided that 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 or to refund at D-Link’s sole discretion. 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. Software will be warranted for the remainder of the original Warranty Period from the date or original retail purchase. 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.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link’s products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold “As-Is” without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product 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. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery (“COD”) is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products sent by the customer and shipped to **D-Link Systems, Inc., 53 Discovery Drive, Irvine, CA 92618**. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.

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, if in D-Link’s judgment, 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; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED “AS-IS” WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER 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, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK’S PRODUCT IS CONNECTED WITH, 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. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

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.

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 communication. 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about 8 inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Register your D-Link product online at <http://support.dlink.com/register/>