D-Link *Air* DI-514

2.4GHz Wireless Router

Manual

D-Link®
Building Networks for People

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1. Package Contents

Contents of Package:

- **D-Link *Air* DI-514** 2.4GHz Wireless Router
- Power Adapter – 5V DC, 2.5A
- Manual on CD
- Printed Quick Installation Guide

Note: Using a power supply with a different voltage rating than the one included with the DI-514 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:

- Computer with a Windows, Macintosh, or Linux-based operating system with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator version 6.0 and above, with JavaScript enabled

2. Introduction

The D-Link *Air* DI-514 Wireless Router is an 802.11b wireless router with the added benefits of myriad robust firewall features. It is ideal for those creating their first wireless network, as well as for more advanced users looking for additional management settings and policy-based content filtering. Filters can be set based on MAC address, IP address, URL and/or Domain Name.

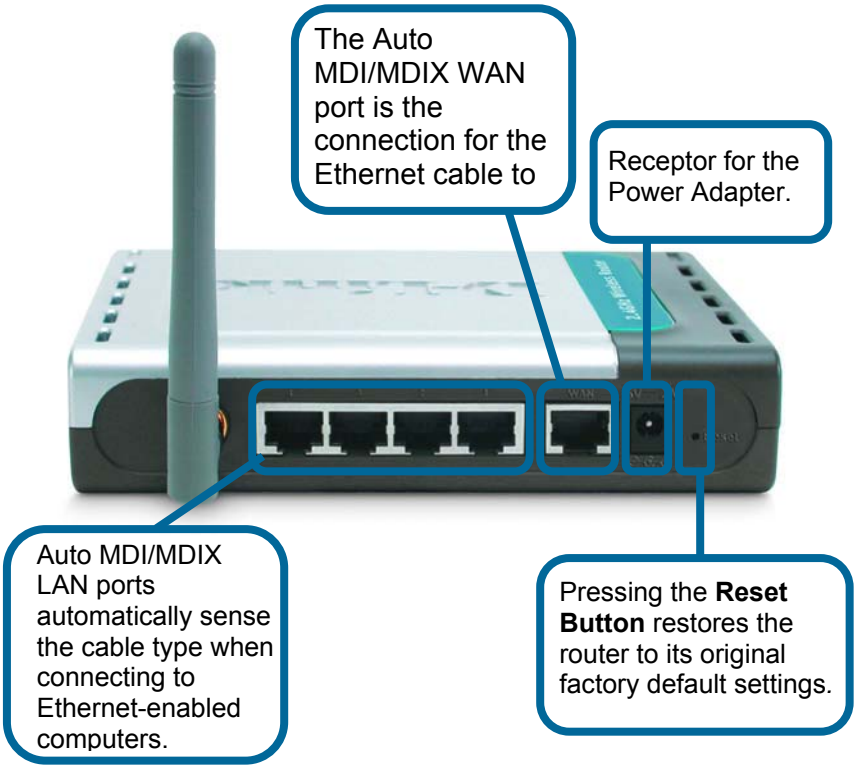
A simple, yet intelligent, web-based setup wizard makes the DI-514 easy for any user to quickly and securely connect computers to share a high-speed Internet connection, files, resources, games or just to communicate. An integrated 4-port switch allows direct connection of up to four computers. Several wireless clients can also securely connect to the network using 64 or 128-bit WEP encryption.

Additional advanced features include pass-through of multiple concurrent IPSec and PPTP VPN sessions for telecommuters or for anyone who needs to transmit sensitive information more securely.

The D-Link *Air* DI-514 is the ideal networking solution for small offices, home offices, schools, coffee shops and other small businesses that cater to the public.

This manual provides a quick introduction to wireless technology and its application as it relates to networking. Please take a moment to read through this manual if you need to get acquainted with wireless technology.

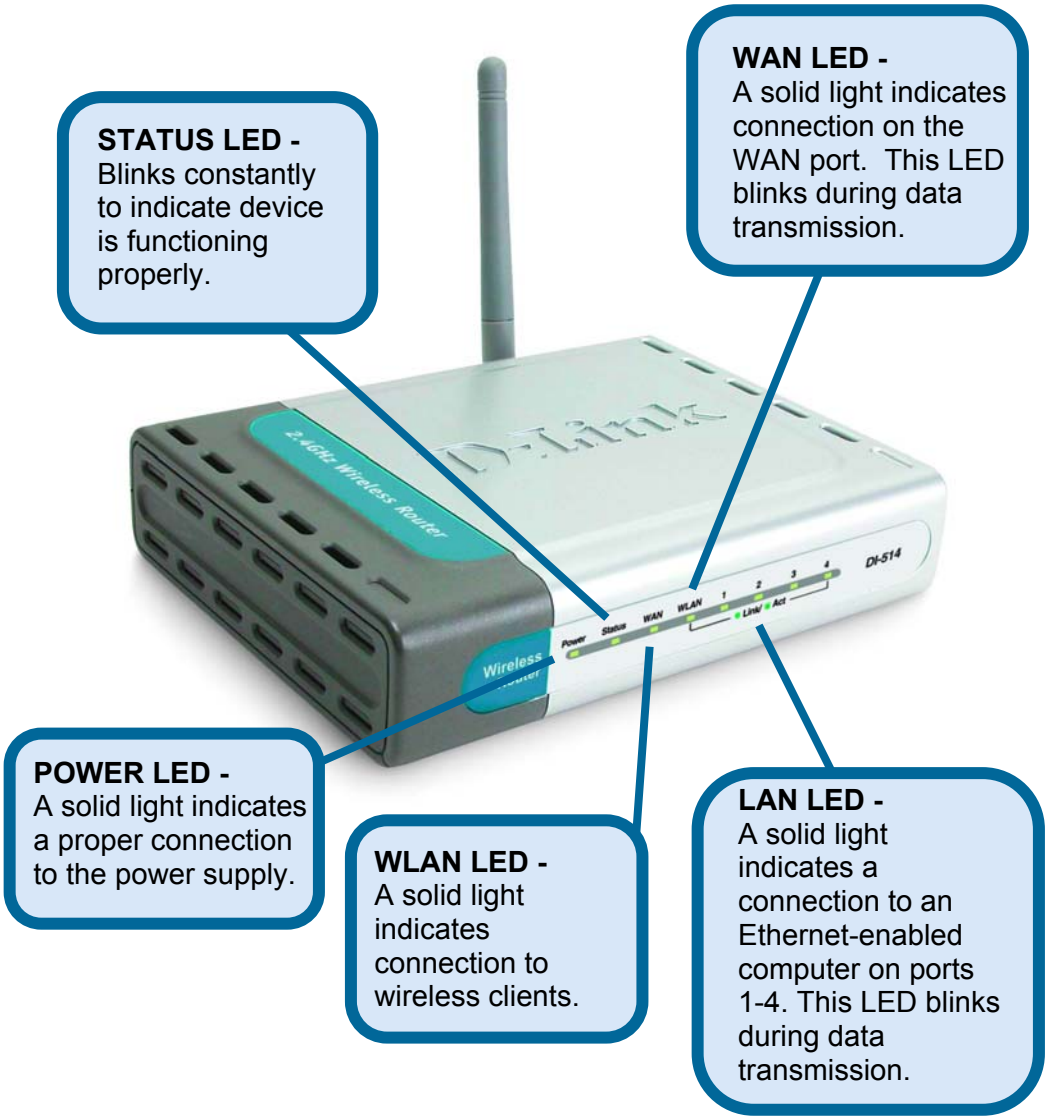
Connections



Features and Benefits

- **Built in 4-Port Switch** - Connects multiple Ethernet-enabled (Ethernet network adapters installed) computers and devices to a Broadband (Cable or DSL) modem to share the Internet connection
- **Wireless Connection** – Computers and devices with 802.11b compliant wireless network adapters installed can connect with the DI-514
- **Advanced Firewall and Parental Control features**, accessed through the simple and comprehensive Web-based user interface, include:
    - ***Content Filtering*** – Easily applied content filtering based on MAC Address, IP Address, URL and/or Domain Name
    - ***Filter Scheduling*** - Content filters can also be scheduled to be active on certain days or for a duration of hours or minutes
    - ***Network Address Translation*** – NAT allows you to share a single IP address and protects you from outside intruders gaining access to your private network
    - ***Multiple Concurrent VPN Sessions*** – Supports multiple and concurrent IPSEC and PPTP sessions, so multiple users behind the DI-514 can access corporate networks through various VPN clients more securely
- **Simple Setup Wizard for Easy Installation** – The D-Link setup wizard simplifies the installation process, getting you up and running in just a few clicks

LEDS


STATUS LED -
Blinks constantly to indicate device is functioning properly.
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 connection to wireless clients.
LAN LED -
A solid light indicates a connection to an Ethernet-enabled computer on ports 1-4. This LED blinks during data transmission.
D-Link
2.4GHz Wireless Router
DI-514
Power
Status
WAN
WLAN
1
2
3
4
Link/Act
Wireless

3. Wireless Basics

D-Link *Air* wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. 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 WLAN (wireless local area network) 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.

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 WLANs 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 – even outside the home or office.

Wireless Basics

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

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.

The DI-514 is compatible with the following *wireless products (the maximum data transfer speed for the DI-514 is 11mbps)*:

- **D-Link Air DWL-650, D-Link AirPlus™ DWL-650+, D-Link AirPlus Xtreme™ G DWL-G650**
  Wireless Cardbus Adapters used with laptop computers
- **D-Link Air DWL-520, D-Link AirPlus DWL-520+, D-Link AirPlus Xtreme G DWL-G520**
  Wireless PCI cards used with desktop computers
- **D-Link Air DWL 700AP, DWL-AirPlus DWL-900AP+, 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

Standards - Based Technology

The IEEE standard-based technology assures that the D-Link *Air* Products are interoperable with existing compatible 2.4GHz wireless technology. This means you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays.
The technology works by using multiple frequencies in the 2.4GHz range at speeds up to 11 Mbps. D-Link *Air* products will automatically sense the best possible connection speed to ensure the greatest speed and range possible with the technology.

Installation Considerations

D-Link *Air* DI-514 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 thru 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-514 and your receiving device (e.g., the DWL-650) to a minimum - each wall or ceiling can reduce your D-Link *Air* Wireless product's range from 3 to 90 feet (1 to 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 whenever possible.
4. Keep your product away (at least 3 to 6 feet or 1 to 2 meters) from electrical devices or appliances that generate RF noise.

4. Getting Started

There are basically two modes of networking.

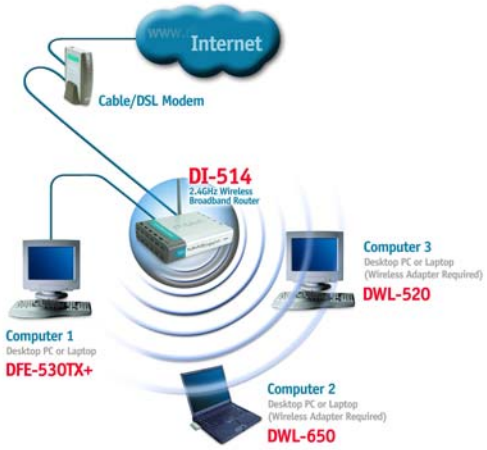
- **Infrastructure** – using a Wireless Router such as the DI-514, or an Access Point
- **Ad-Hoc** – directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more DWL-650 wireless Cardbus adapters.

On the following page we will show you an example of an **Infrastructure Network** using the DI-514.

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 *Air* DI-514**
- A laptop computer with a wireless adapter - **D-Link *Air* DWL-650**
- A desktop computer with a wireless adapter - **D-Link *Air* DWL-520**
- A desktop computer with an Ethernet adapter – **D-Link DFE-530TX+**
- A Cable modem - **D-Link DCM-201**

Setting Up an Infrastructure Network



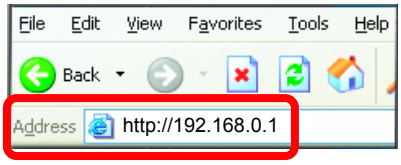
*Please remember that **D-Link Air** wireless devices are pre-configured to connect together, right out of the box, with the default settings.*

1. You will need a broadband Internet access (Cable/DSL) subscription.
2. Consult with your Cable/DSL provider for proper installation of the modem.
3. Connect the modem to the DI-514 Wireless Broadband Router. *See the **Quick Installation Guide** included with the router.*
4. If you are including a desktop computer (*Computer 1*) in your network, you can install the **D-Link DFE-*530TX+*** Ethernet NIC adapter into the desktop computer. *See the **Quick Installation Guide** included with the DFE-530TX+.*
5. Install the drivers for the wireless network adapter (such as the **D-Link *Air* DWL-650**) into the laptop computer. *See the **Quick Installation Guide** included with the DWL-650.*
6. If you are including a desktop computer wirelessly *(Computer 2),* install **the D-Link *Air* DWL-520** wireless adapter into the desktop computer. *See the **Quick Installation Guide** included with the DWL-520*

5. Using the Configuration Menu

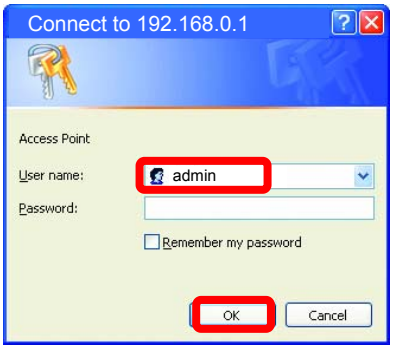
Whenever you want to configure your network or the DI-514, you can access the Configuration Utility by opening the web-browser and typing in the IP Address of the DI-514. The DI-514 default IP Address is shown below:

- Open the web browser
- Type in the **IP Address** of the Access Point



(The IP Address shown in the example above is the default setting. If you have changed the IP Address of the DI-514 to conform to a network, then input that IP Address in the web browser, instead of the default IP Address shown.)

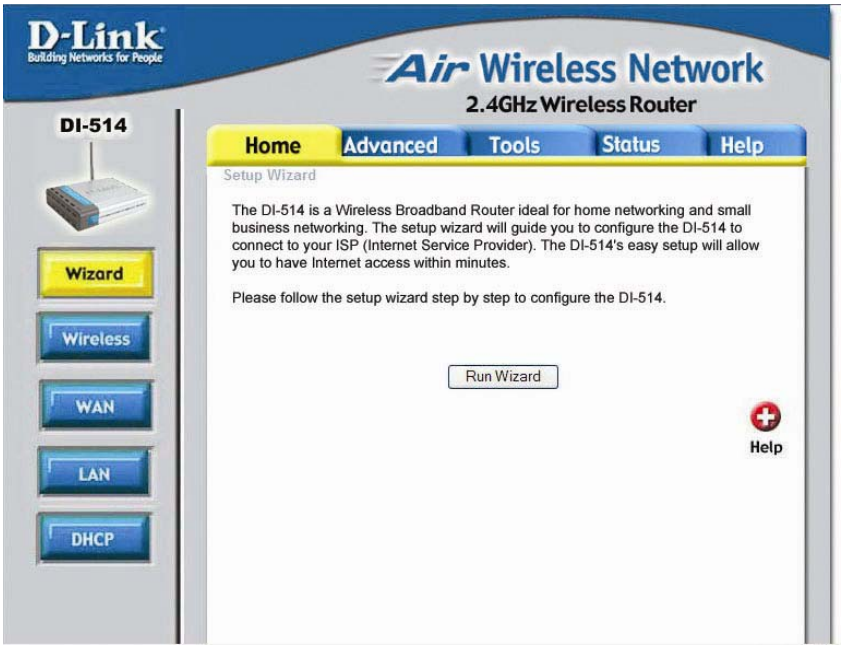
- Type **admin** in the **User Name** field (lower case)
- Leave the **Password** blank
- Click **OK**



Setup Wizard

The Setup Wizard page is the first page that appears when logging into the web-based management interface. The Setup Wizard is a utility used to quickly configure the DI-514. It will guide you through four quick and basic steps to help you connect to your ISP. You will be connected to your ISP (Internet Service Provider) and have Internet access within minutes.

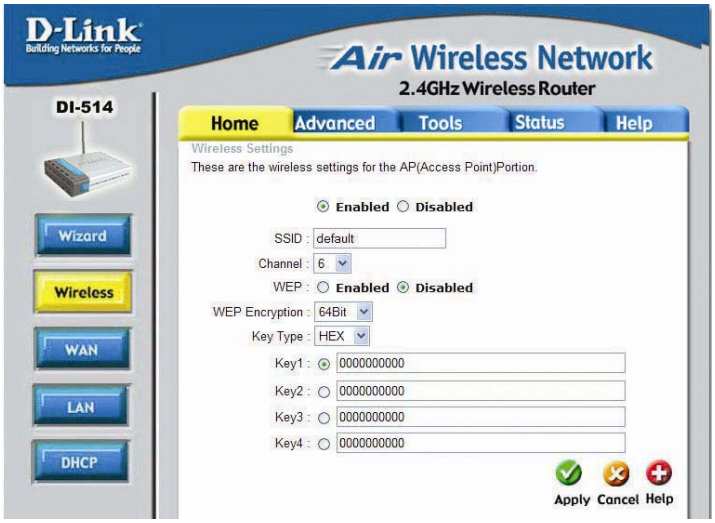
Home > Wizard



Wireless

Wireless Settings are settings for the (Access Point) Portion of the Wireless Router. Here you can change the wireless settings to fit an existing wireless network or to customize your wireless network.

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
Indicates the channel setting for the DI-514. By default the channel is set to **6**. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network.

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. The DI-514 supports 2 levels of WEP Encryption: 64-bit encryption and 128-bit encryption. WEP is **disabled** by default. The WEP setting can be changed to fit an existing wireless network or to customize your wireless network.

Key Type
The Key Types that are supported by the DI-514 are HEX (Hexadecimal) and ASCII (American Standard Code for Information Interchange.) The Key Type can be changed to fit an existing wireless network or to customize your wireless network.

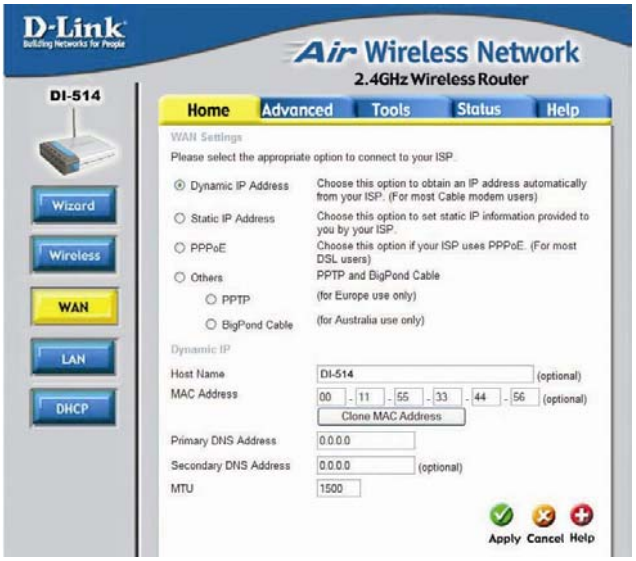
KEYS
Keys 1-4 allow you to easily change wireless encryption settings to maintain a secure network. Simply select the specific key to be used for encrypting wireless data on the network.

WAN

WAN is short for Wide Area Network. The WAN settings can be referred to as the Public settings. All IP information in the WAN settings are public IP addresses which are accessible on the Internet.

The WAN settings consist of three main options: ***Dynamic IP Address***, ***Static IP Address***, and ***PPPoE***. Select the appropriate option and fill in the information needed to connect to your ISP.

Home > WAN



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

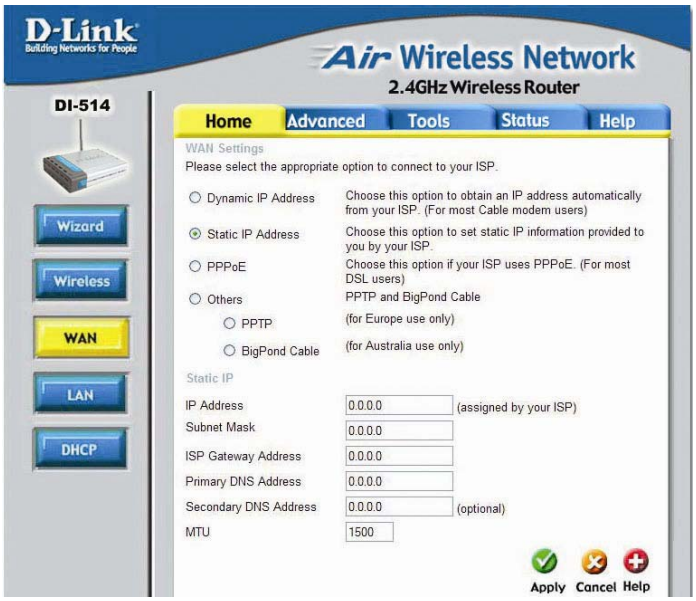
Dynamic IP Address

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 field is optional but may be required by some ISPs. The host name is the device name of the Router.

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 this MAC address. It is not recommended that you change the default MAC address unless required by your ISP.

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 IP 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: Public IP address provided by your ISP.

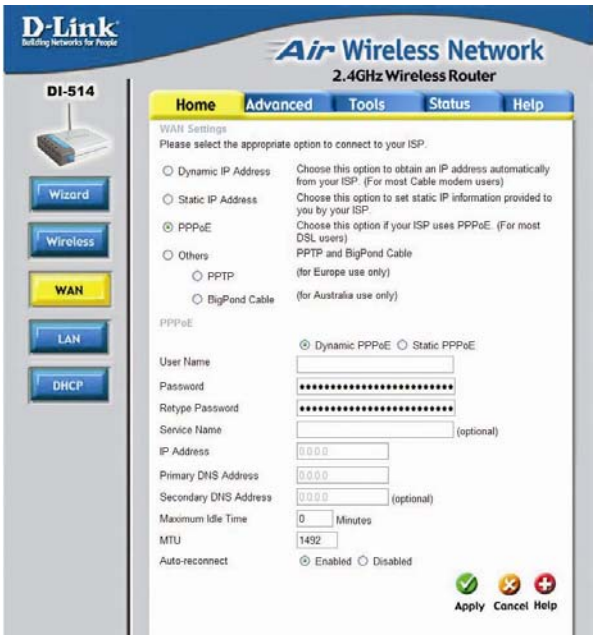
Subnet Mask: Subnet mask provided by your ISP.

ISP Gateway Address: Public IP address of your ISP that you are connecting to.

Primary DNS Address: Primary DNS (Domain Name Server) IP provided by your ISP

Secondary DNS Address: optional

PPPoE



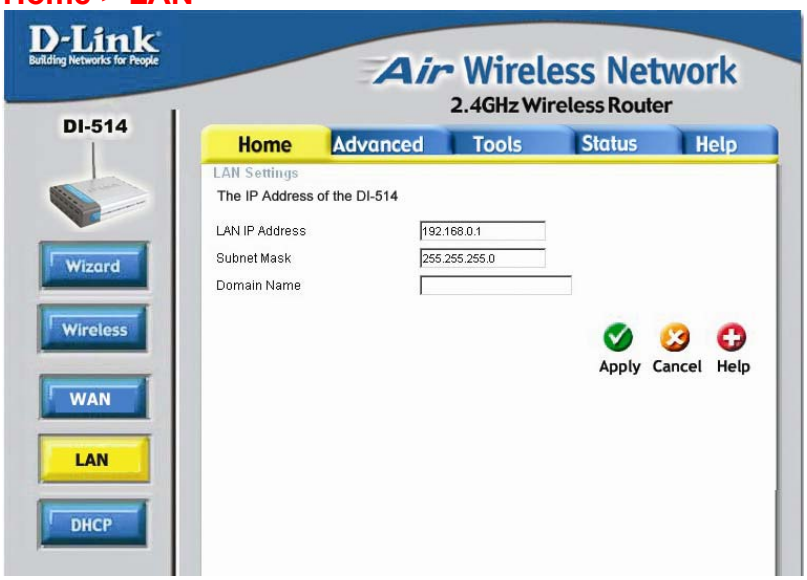
Please be sure to remove any Client Software program on your computer before you start your configuration of the DI-514 Router.

Choose PPPoE (Point to Point Protocol over Ethernet) if your ISP uses 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.

Dynamic PPPoE: PPPoE connection where you will receive an IP address automatically from your ISP
Static PPPoE: PPPoE connection where you have an assigned (static) IP address
User Name: Your PPPoE username provided by your ISP
Password: Your PPPoE password provided by your ISP
Retype Password: Re-enter PPPoE password
Service Name: Enter the service name provided by your ISP. (optional)
IP Address: This option is only available for Static PPPoE. Enter in the static IP address for the PPPoE connection.
Primary DNS Address: Primary DNS IP provided by your ISP
Secondary DNS Address: optional
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.
MTU: MTU stands for Maximum Transmission Unit. For PPPoE connections, you may need to change the MTU settings in order to work correctly with

your ISP.
Auto-reconnect: If enabled, the Broadband Router will automatically connect to your ISP after your system is restarted or if the connection is dropped.

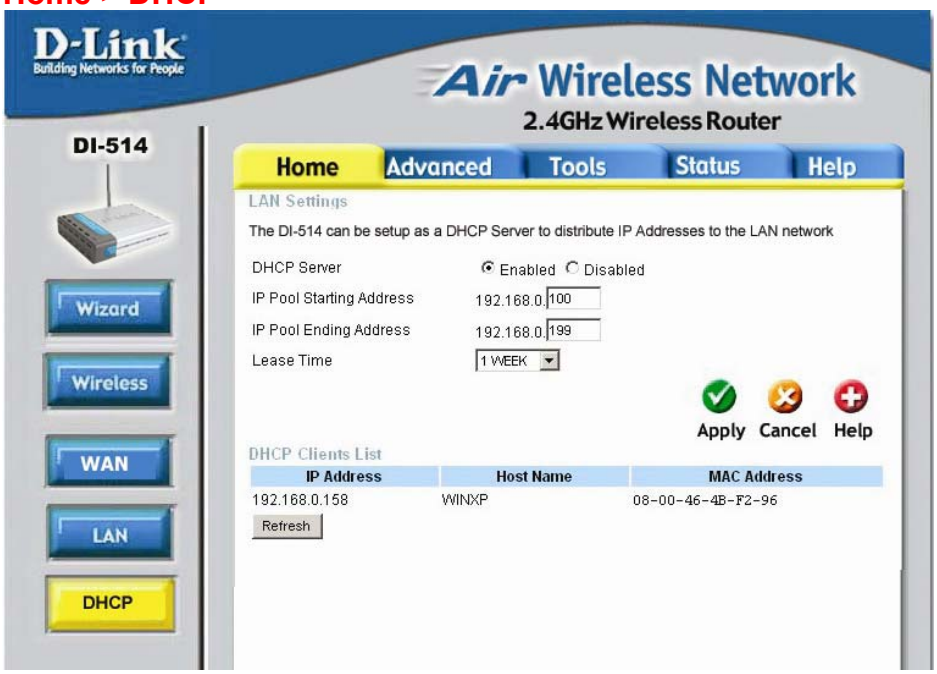
Home > LAN



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-514. 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 your local domain name.

Home > DHCP



DHCP

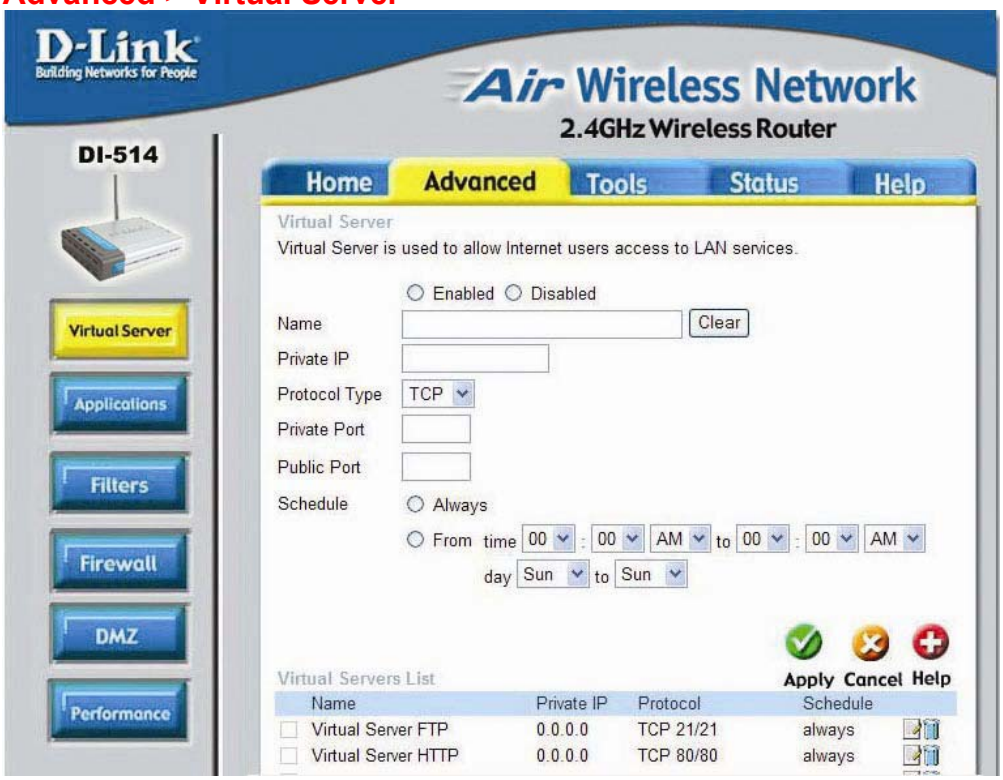
DHCP stands for Dynamic Host Control Protocol. The DI-514 has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to “Obtain an IP Address Automatically.” When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DI-514. 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.

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.

Advanced > Virtual Server



Virtual Server

The DI-514 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-514 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DI-514 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-514 redirects the external service request to the appropriate server within the LAN network.
The DI-514 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 services that are created will be listed at the bottom of the screen in the Virtual Servers List. There are already 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.

Name: 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 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.

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

Virtual Servers List

	Name	Private IP	Protocol	Schedule	
☒	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.

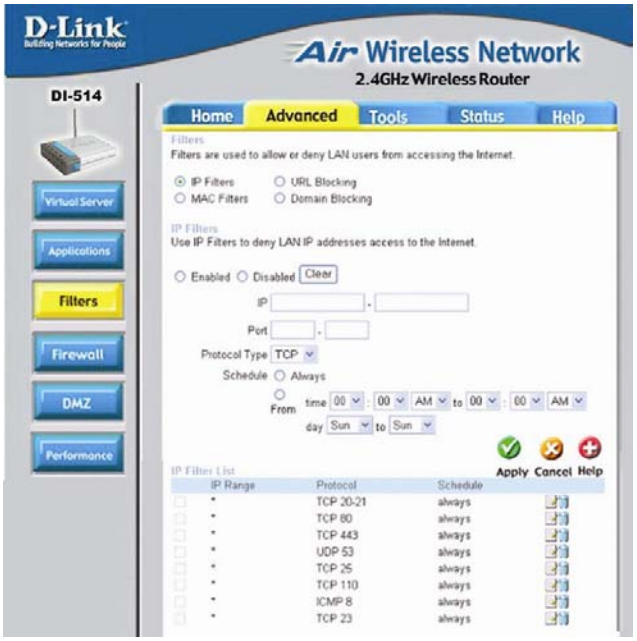
Advanced > Applications

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-514. 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-514 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.*

Trigger 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.
Schedule: This is the schedule of time when the special application will be enabled.

Advanced > Filters

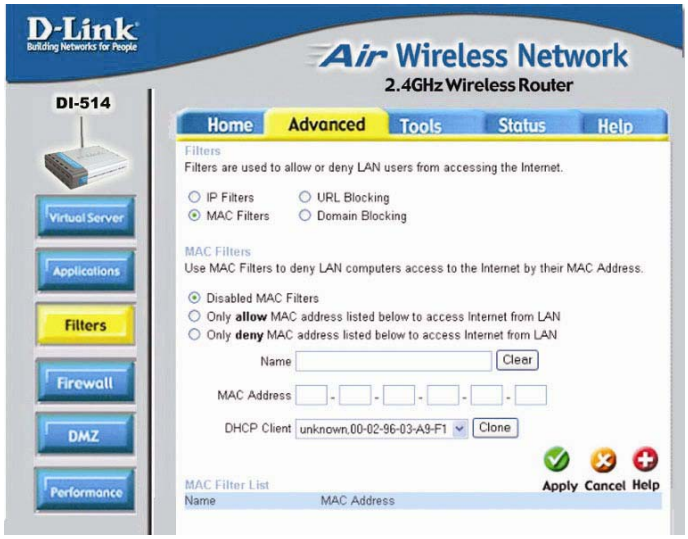


Filters
Filters are used to deny or allow LAN (Local Area Network) computers from accessing the Internet. The DI-514 can be setup to deny internal computers by their IP or MAC addresses. The DI-514 can also block users from accessing restricted web sites.

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

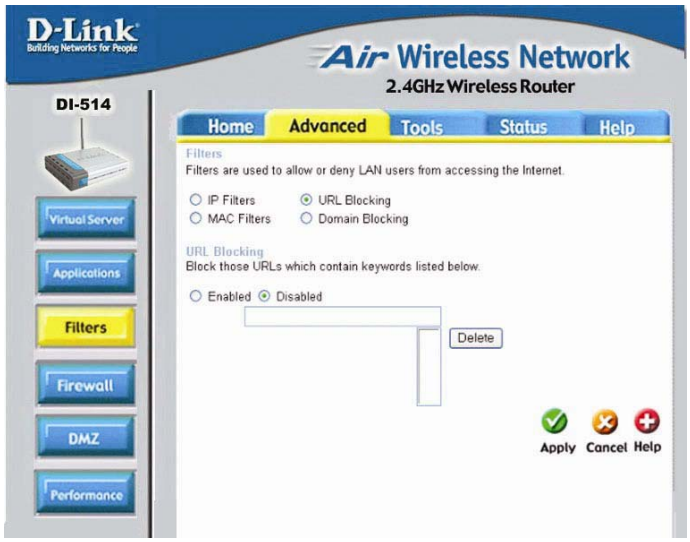
MAC Filters

Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Internet. 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.



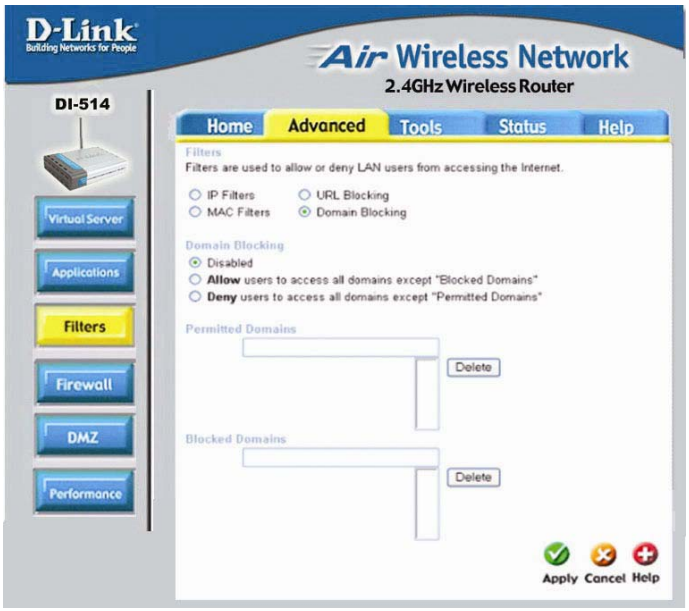
URL Blocking

URL Blocking is used to deny LAN computers from accessing specific web sites by its 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.

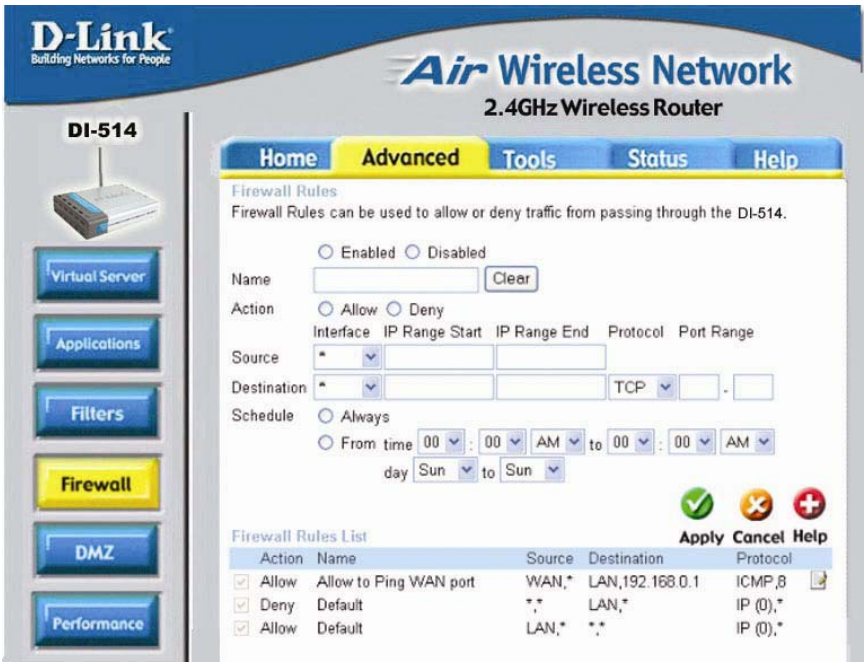


Domain Blocking

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.



Advanced > Firewall



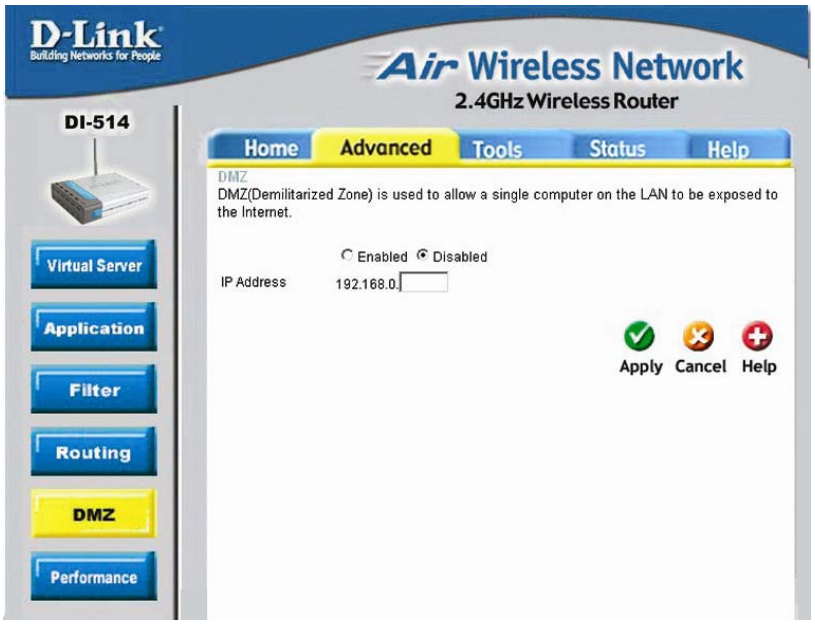
Firewall Rules is an advance feature used to deny or allow traffic from passing through the Broadband Router. It works in the same way as IP

Filters with additional settings. You can create more detailed access rules for the DI-514. When virtual services are created and enabled, it will also display in Firewall Rules. Firewall Rules contains 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.)

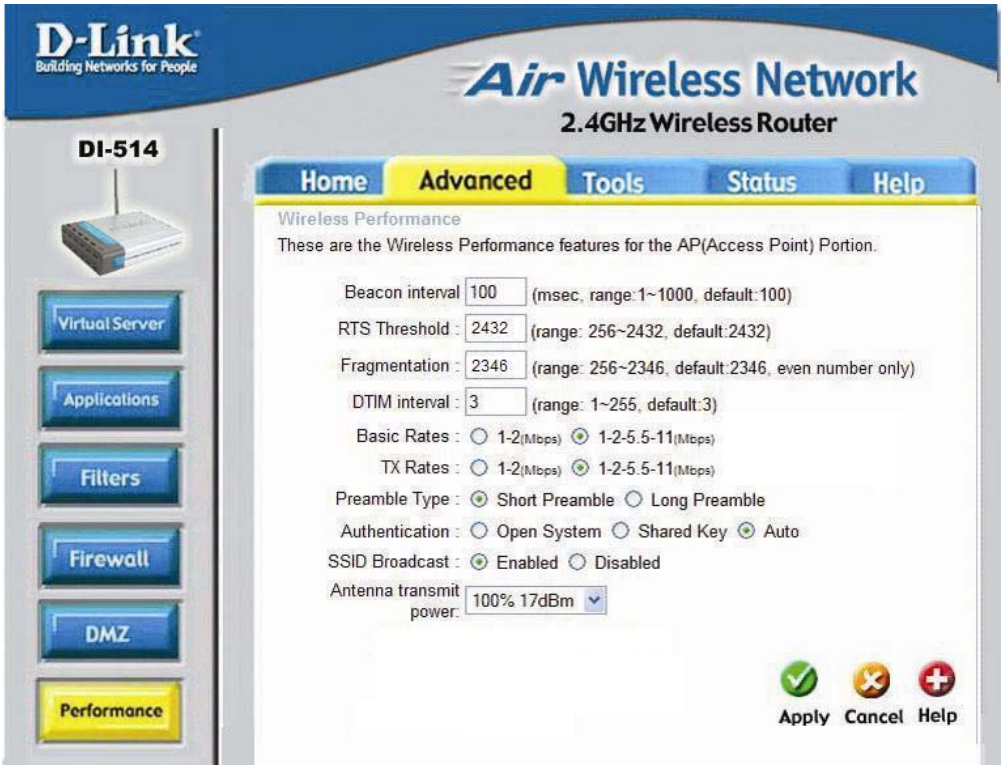
Note: The DI-514 MAC Address filtering rules have precedence over the Firewall Rules.

Advanced > DMZ



If you have a client PC that cannot run Internet applications properly from behind the DI-514, then you can set the client up to 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.

Advanced > Performance



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 - This value should also remain at its default setting of **2346.** If you experience a high packet error rate, you may slightly increase your Fragmentation Threshold within the value range of 256 to 2,346. Setting the Fragmentation Threshold too low may result in poor performance.

DTIM - (**D**elivery **T**raffic **I**ndication **M**essage) **3** is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Basic Rates – Select the data rate. Default is **1-2-5.5-11Mbps**.

TX Rates – Select the data rate. Default is **1-2-5.5-11Mbps**.

Preamble Type - Short preamble is the default setting. (High traffic networks should use the shorter preamble type.) The preamble defines the length of the CRC block used in communication between the Access Point and the roaming wireless Network adapters. (Cyclic Redundancy Check is a common technique for detecting data transmission errors)

Authentication - Select **Open system**, **Shared Key** or **Auto**
Open System - The DI-514 will be visible to all devices on the network. This is the default setting.
Shared Key - In this mode, in order to access the DI-514 on the network, the device must be listed in the MAC Address Control List.
Auto - In this mode, all devices on the network can access the DI-514.

SSID Broadcast - **Enable** is the default setting. Choose **Enable** to broadcast the SSID across the network. All devices on a network must share the same SSID (Service Set Identifier) to establish communication. Choose **Disable** if you do not wish to broadcast the SSID over the network.

Tools > Admin

Admin
At this page, the DI-514 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.

Remote Management
Remote Management allows the DI-514 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: Internet IP address of the computer that has access to the Broadband Router. ***It is not recommended that you set the IP address to * (star), because this allows any Internet IP address to access the Broadband Router, which could result in a loss of security for your network.*** If you elect to **enable** Remote Management, enter the IP Address of your remote location.

Port: Select the port number used to access the Broadband Router.

Example: http://x.x.x.x:8080 whereas x.x.x.x is the WAN IP address of the Broadband Router and 8080 is the port used for the Web-Management interface.

Tools > Time

Time

The system time is the time used by the DI-514 for scheduling services. You can manually set the time or connect to a NTP (Network Time Protocol) server. If an NTP server is set, you will only need to set the time zone. If you manually set the time, you may also set Daylight Saving dates and the system time will automatically adjust on those dates.

Tools> System

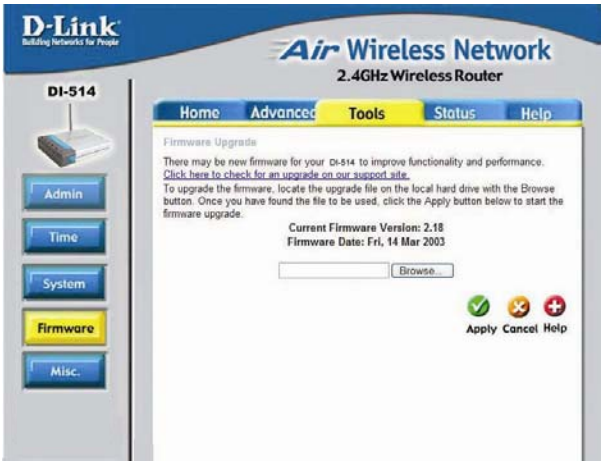
System Settings

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 Browse 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**.

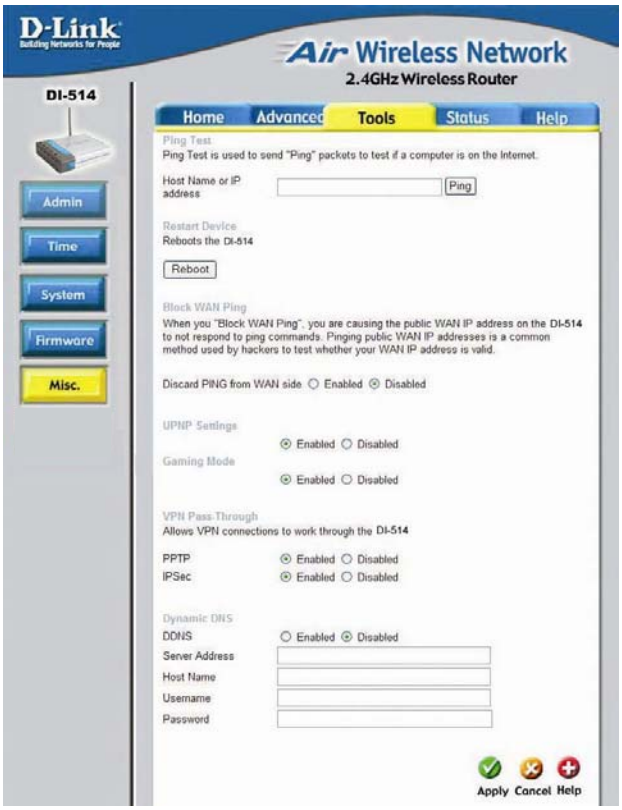
Firmware Upgrade

You can upgrade the firmware of the Broadband Router at this page. 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.

Tools > Firmware



Tools > Misc



Miscellaneous Items

These are additional tools and features of the Broadband Router.

Ping Test

This useful diagnostic utility can be used to check if a computer is on the Internet. It sends ping packets and listens for replies from the specific host.

Reboot Device

If for any reason the Broadband Router is not responding correctly, you may want to reboot the Broadband Router.

Block WAN Ping - When you "Block WAN Ping", the DI-514 will not respond to ping commands from the Internet. Pinging public WAN IP addresses is a common method used by hackers to test whether your WAN IP address is valid.

Discard PING from WAN side: By enabling this option, the DI-514 will not reply to ping (ICMP) request packets from the Internet.

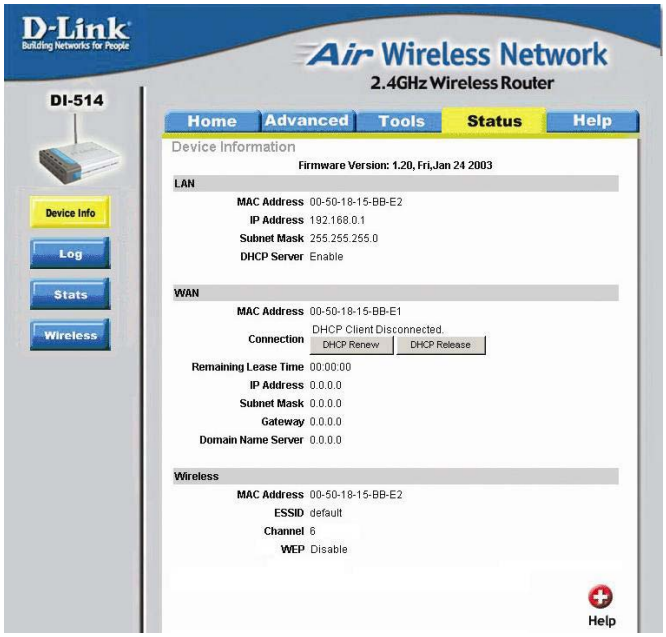
VPN Pass-Through - The Broadband Router supports VPN (Virtual Private Network) pass-through for both PPTP (Point-to-Point Tunneling Protocol) and IPSec (IP Security). Once VPN pass-through is enabled, there is no need to open up virtual services. Multiple VPN connections can be made through the Broadband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

Dynamic DNS - Fill in the required fields to use the Dynamic Domain Server feature.

Status > Device Info

Device Information
This page in the Configuration Utility displays the current information for the Broadband Router. It will display the LAN and WAN, Wireless information.

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

This page allows you to observe the DI-514's working status:

LAN

- **IP Address:** LAN/Private IP Address of the DI-514
- **Subnet Mask:** LAN/Private Subnet Mask of the DI-514

WAN

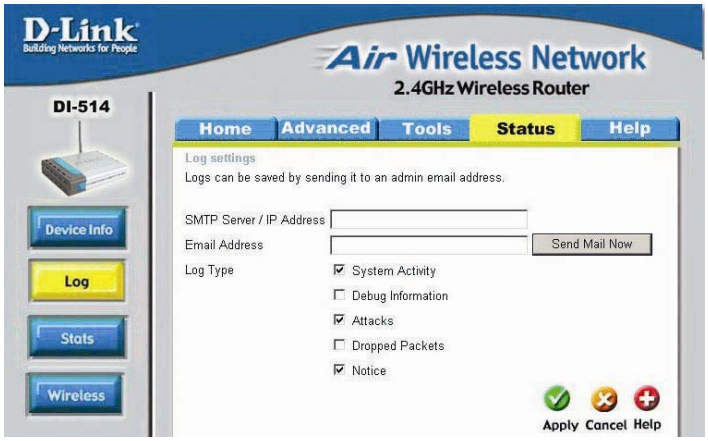
- **IP Address:** WAN/Public IP Address
- **Subnet Mask:** WAN/Public Subnet Mask
- **Gateway:** WAN/Public Gateway IP Address
- **Domain Name Server:** WAN/Public DNS IP Address
- **Wan Status:** WAN Connection Status

Firmware version: Displays the current firmware version

WAN MAC Address: Displays the WAN port MAC/hardware address

LAN MAC Address: Displays the LAN port MAC/hardware address

Status > Log



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.

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 logs.

Log Settings

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

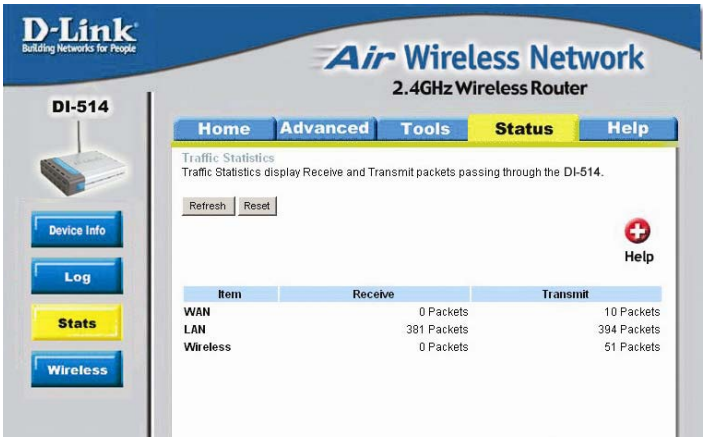
SMTP Server/IP Address - The address of the SMTP server that will be used to send the logs.

Email Address - The email address the logs will be sent to. Click on Email Log Now to send the email.

Status > Stats

Traffic Statistics

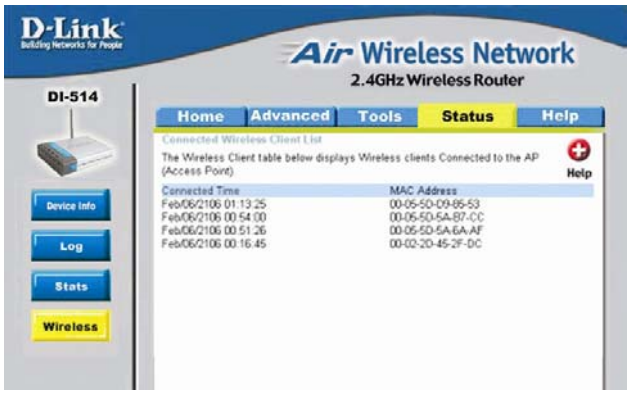
The Broadband Router keeps statistics of traffic that passes through it. You are able to view the amount of packets that passes through the Router on both the WAN port and the LAN port. The traffic counter will reset if the device is rebooted.



Status > Wireless

Connected Wireless Clients List

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



6. Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DI-514 Wireless Access Point. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

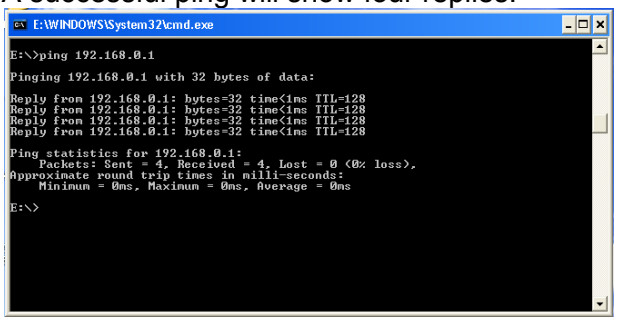
(Note: It is recommended that you use an Ethernet connection to configure the DI-514 Access Point.)

1. The computer used to configure the DI-514 cannot access the Configuration menu.

- Check that the **Ethernet LED** on the DI-514 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 6 (**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-514. Please see **Checking the IP Address in Windows XP** in the **Networking Basics** section of this manual.

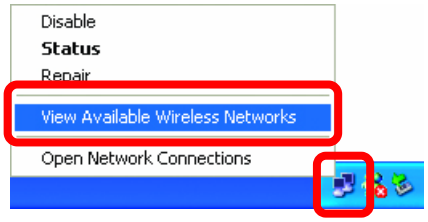
Note: The IP Address of the DI-514 is 192.168.0.1. All the computers on the network must have a unique IP Address in the same range, e.g., 192.168.0.x. and a Subnet Mask of 255.255.255.0. Any computers that have identical IP Addresses will not be visible on the network.

- Do a **Ping test** to make sure that the DI-514 is responding. Go to **Start**>**Run**>Type **Command**>Type **ping 192.168.0.1.** A successful ping will show four replies.



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

- Make sure the wireless client is associated and joined with the correct router. 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 gateway. *Since the DI-514 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.**)*

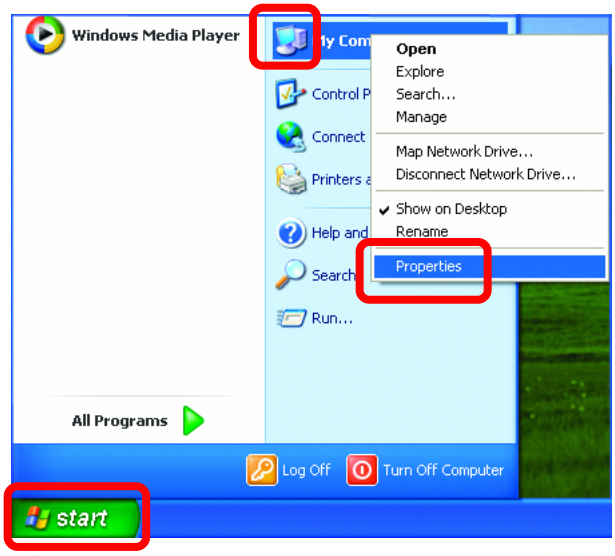
Troubleshooting

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

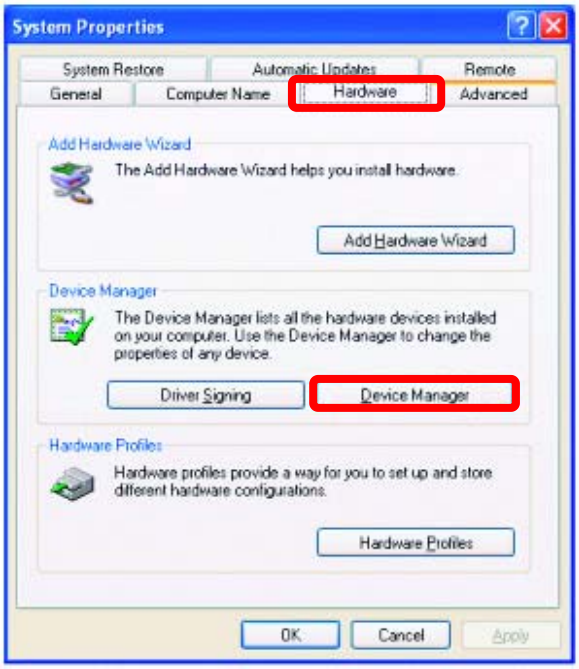
You may be using different network adapters than those illustrated here, but this procedure will remain the same, regardless of the type of network adapters you are using.

- Go to **Start**
- **Right-click** on **My Computer**
- Click **Properties**

NOTE: Screen shots taken using Windows XP. If you are using a different Operating System your screen may look different.

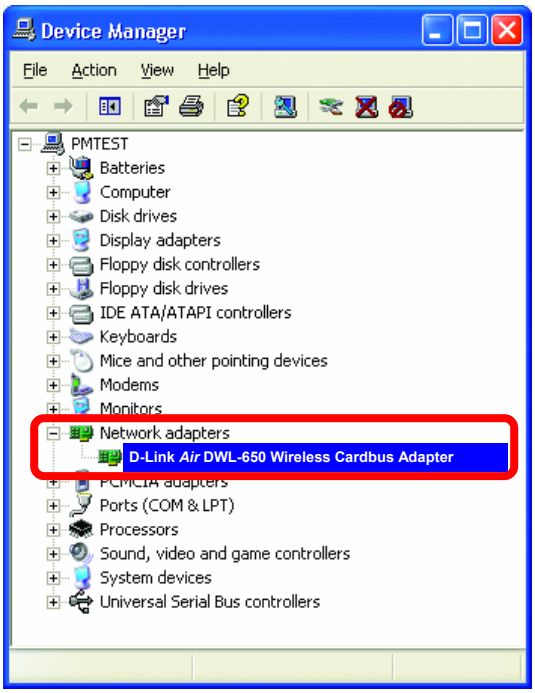


- **Select** the **Hardware Tab**
- Click **Device Manager**

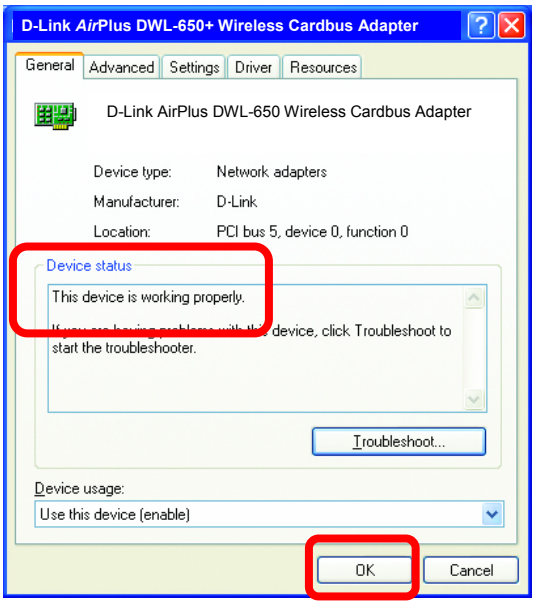


Troubleshooting

- Double-click on **Network Adapters**
- **Right-click** on **D-Link *Air*Plus DWL-650 Wireless Cardbus Adapter**
- Select **Properties** to check that the drivers are installed properly



- Look under **Device Status** to check that the device is working properly.
- Click **OK**



4. Resetting the DI-514 to Factory Default Settings

After you have tried other methods for troubleshooting your network, you may choose to **Reset** the DI-514 to the factory default settings. Remember that D-Link Plus products network together, out of the box, at the factory default settings.

To hard-reset the D-Link Plus DI-514 to Factory Default Settings, please do the following:

- Leave the device powered on, do not disconnect the power
- Press the reset button and hold (use a paper clip)
- Keep the button pressed about 10 seconds
- Release the button

The DI-514 will then automatically reboot itself.

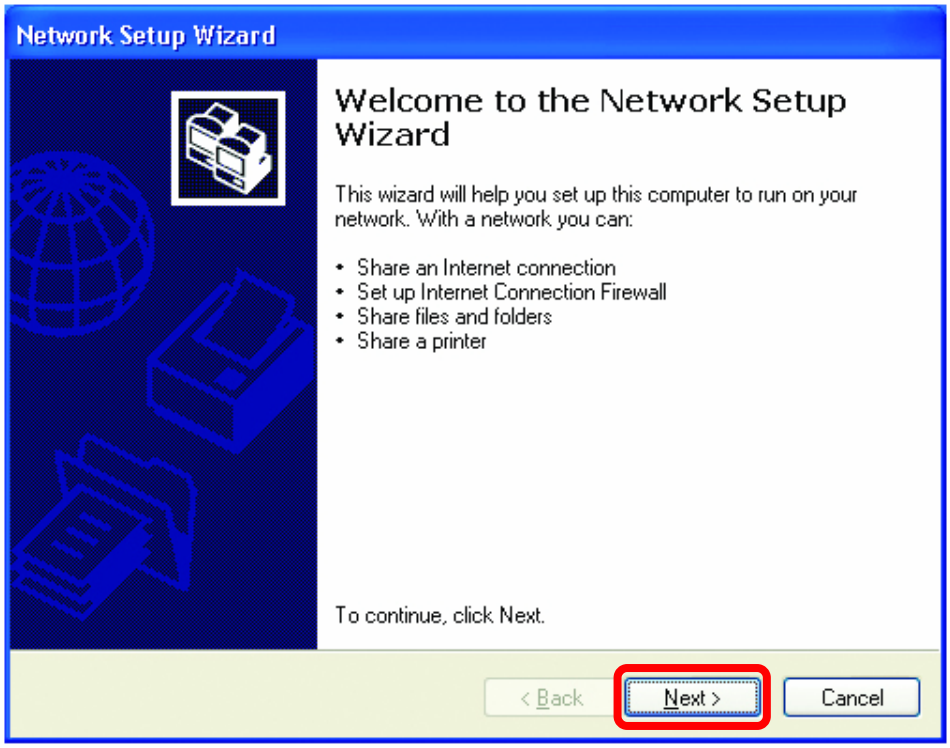
7. Networking Basics

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.

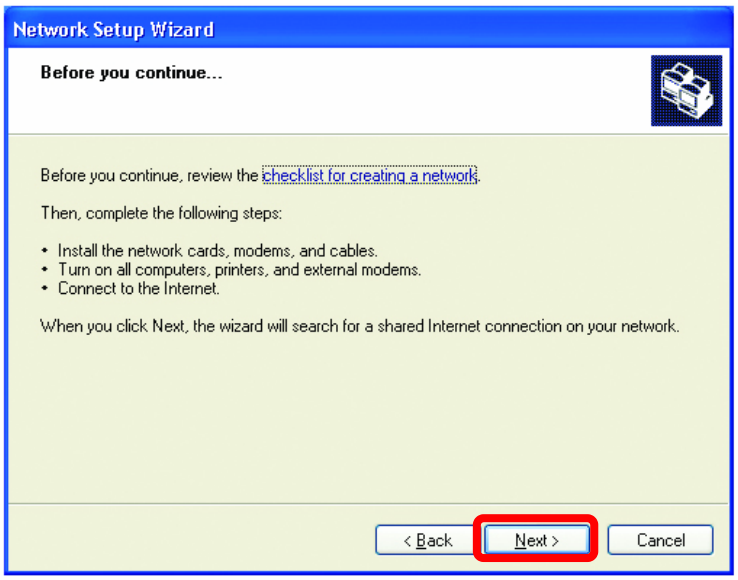
Go to **Start>Control Panel>Network Connections**
Select **Set up a home or small office network**



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

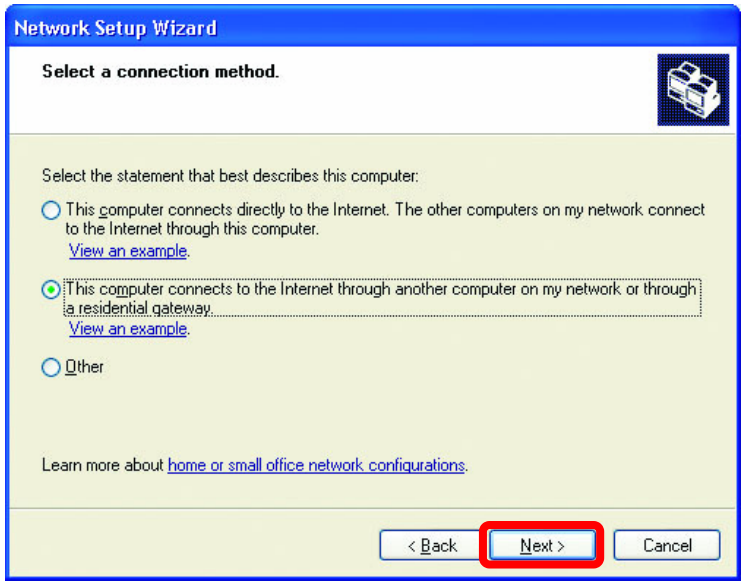
Networking Basics

Please follow all the instructions in this window:



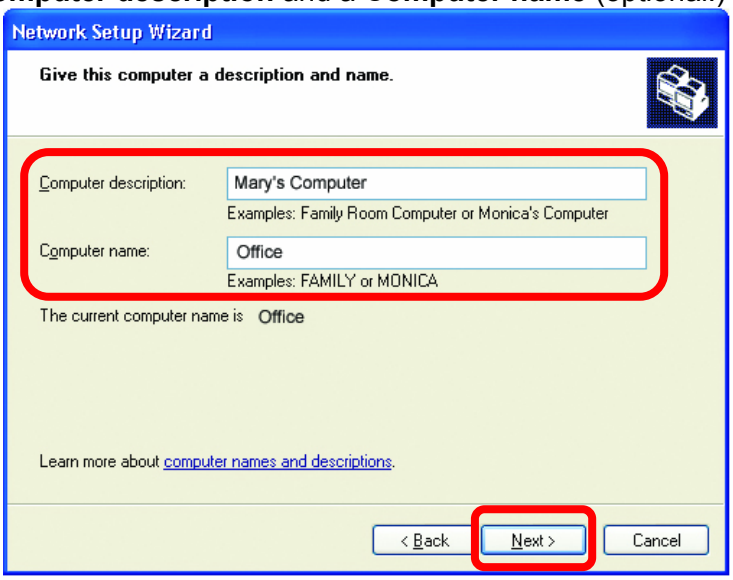
Click **Next**

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.



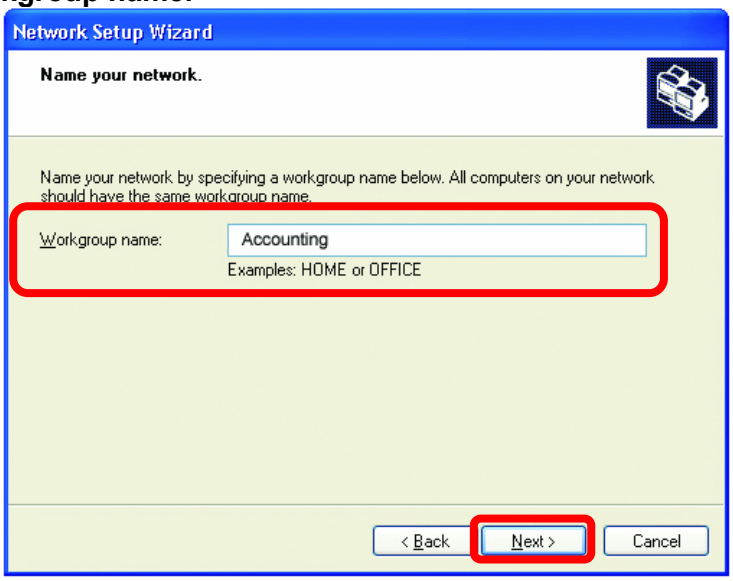
Click **Next**

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



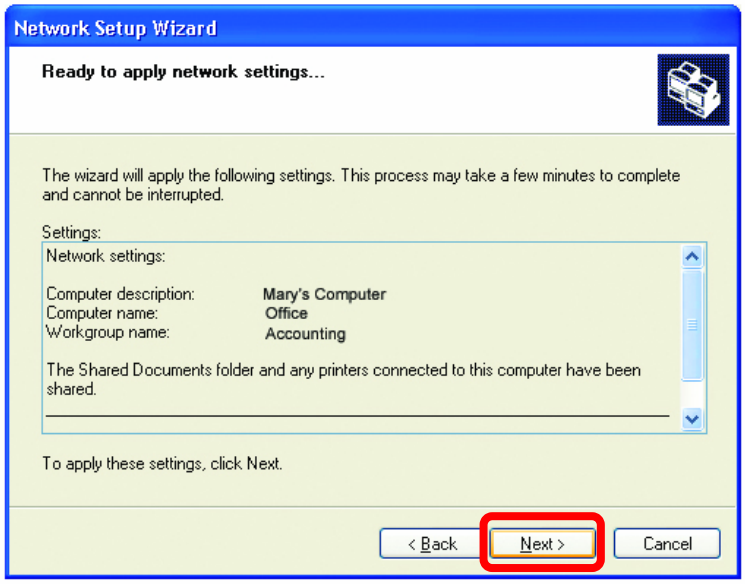
Click **Next**

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



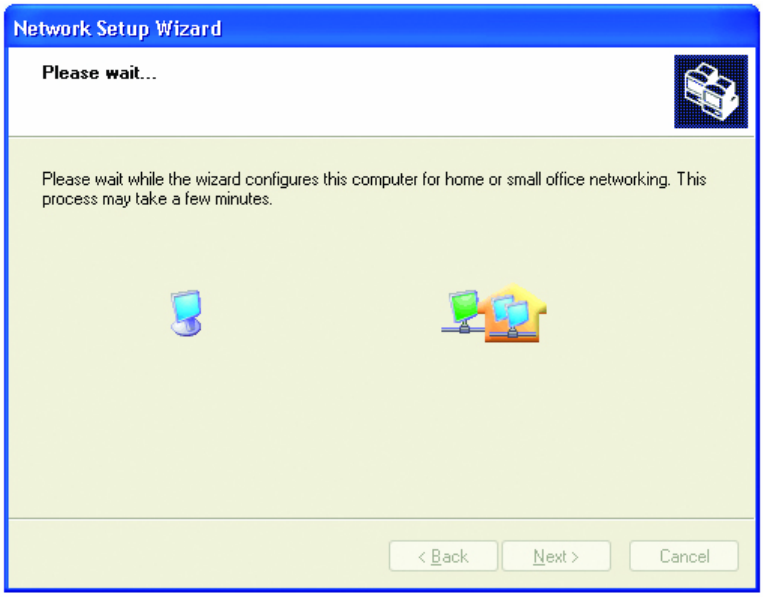
Click **Next**

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

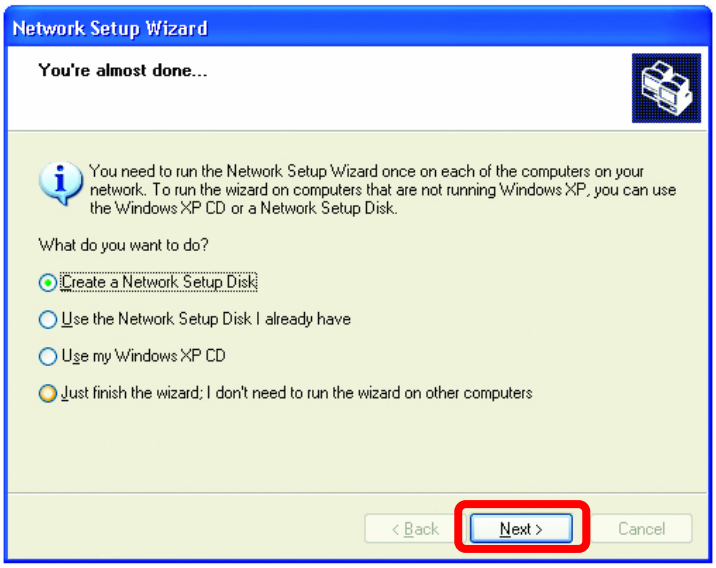


When the changes are complete, click **Next**.

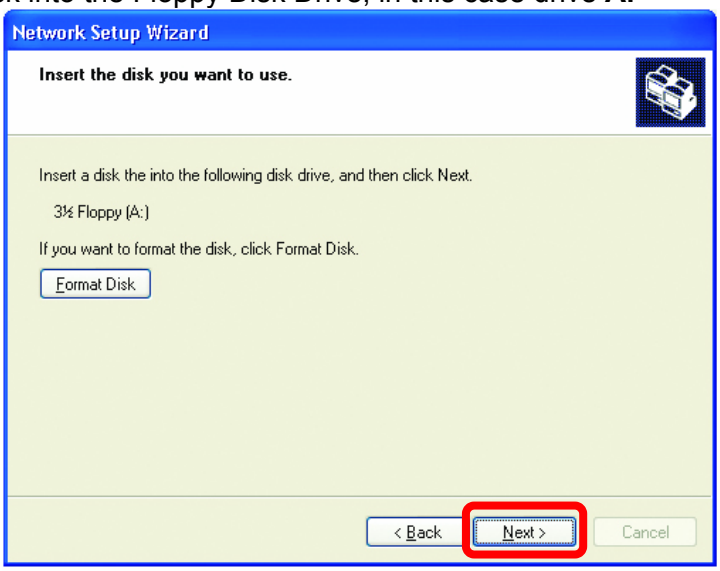
Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.



In the window below, select the best option. 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**.



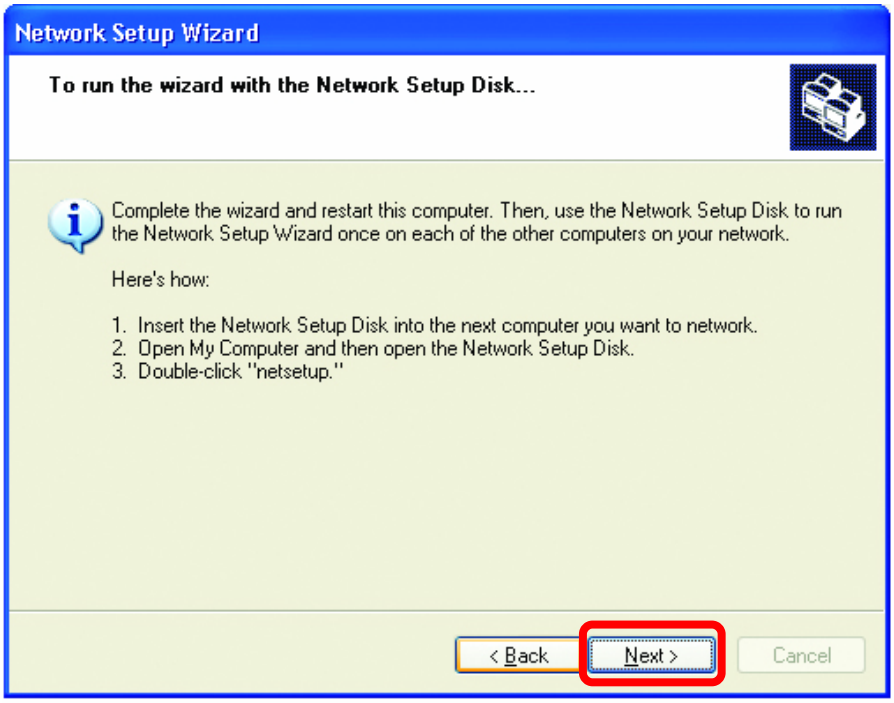
Insert a disk into the Floppy Disk Drive, in this case drive **A.**



Format the disk if you wish, and click **Next.**

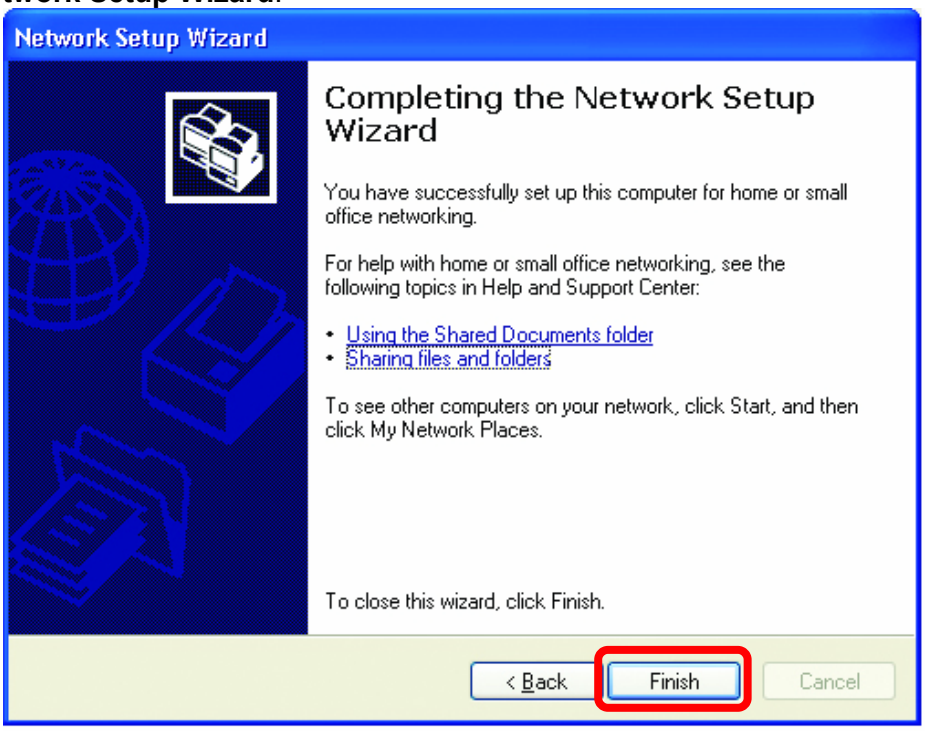
Please wait while the **Network Setup Wizard** copies the files.

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.**

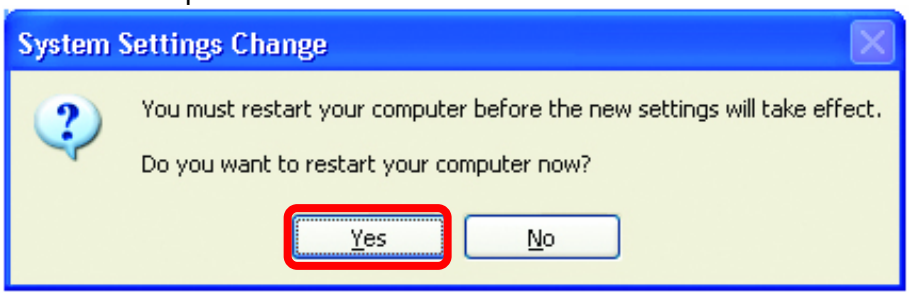


Networking Basics

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**:

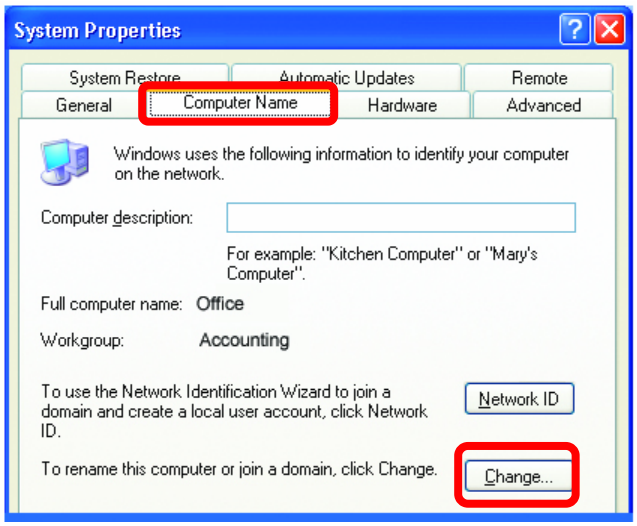
- Click **Start** (in the lower left corner of the screen)
- **Right-click** on **My Computer**
- Select **Properties** and click

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

*You may enter a **Computer description** if you wish, this field is optional.*

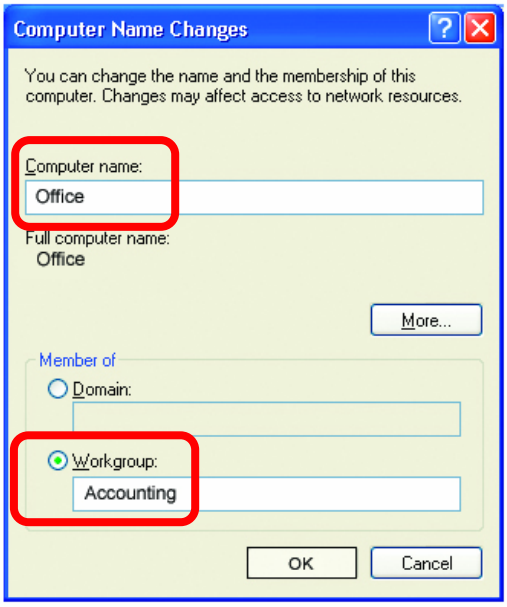
To rename the computer and join a domain,

- Click **Change…**



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

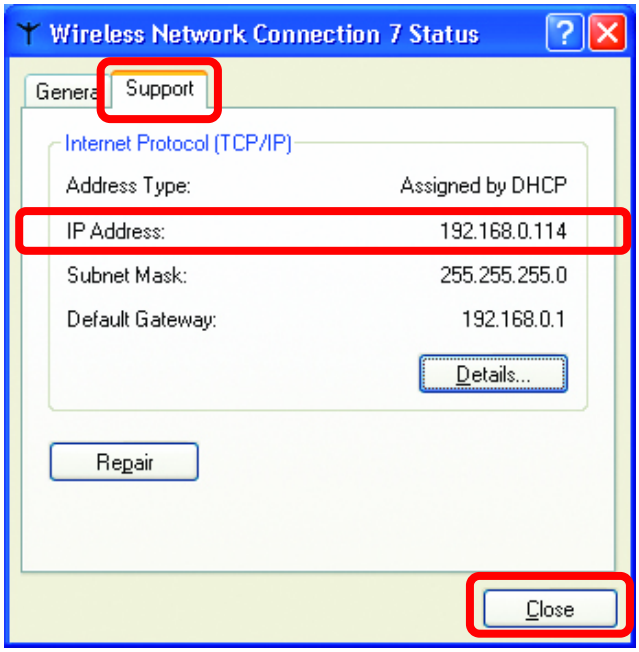
The wireless adapter-equipped computers in your network must be in the same IP Address range (see **Getting Started** in this manual for a definition of IP Address Range.) To check on the IP Address of the adapter, please do the following:

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

Checking the IP Address in Windows XP

This window will appear.

- Click the **Support Tab**



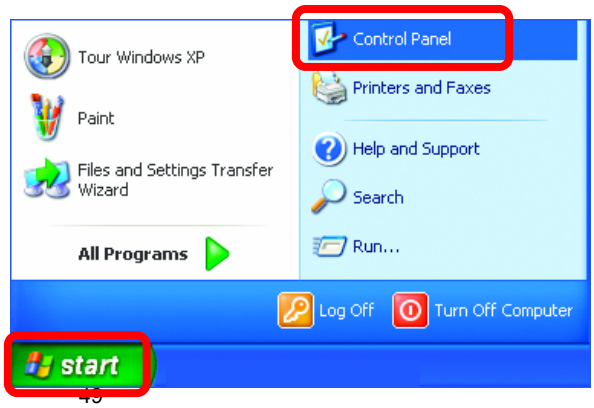
- Click **Close**

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.

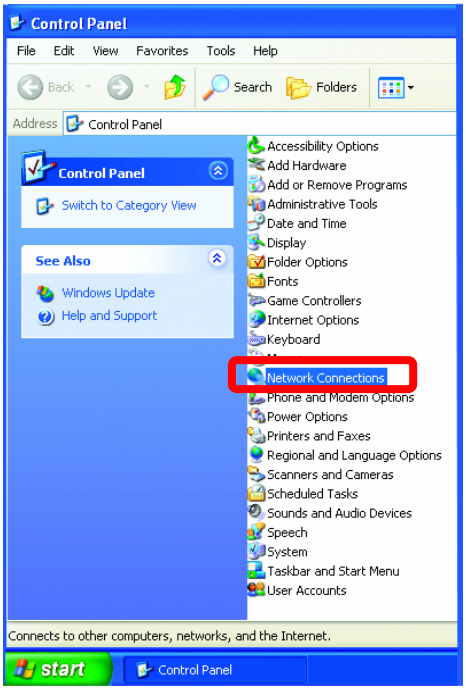
If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP Address, please follow these instructions:

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

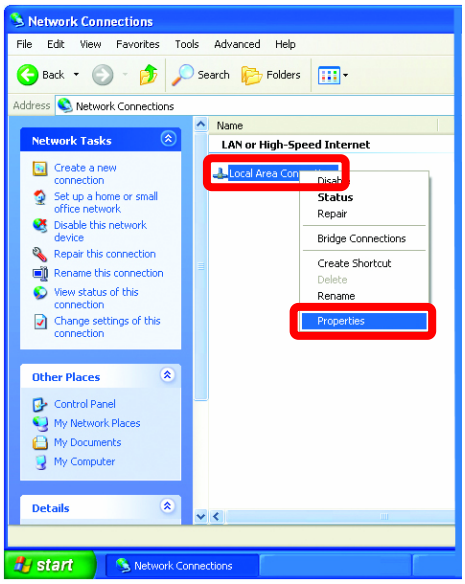


Assigning a Static IP Address in Windows XP/2000

- **Double-click** on **Network Connections**



- **Right-click** on **Local Area Connections.**
- **Double-click Properties**

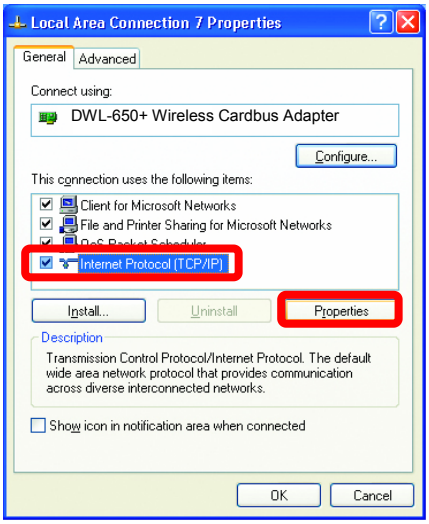


Assigning a Static IP Address in Windows XP/2000

- Highlight **Internet Protocol (TCP/IP)**

- Click **Properties**

- Select **Use the following IP address** in the **Internet Protocol (TCP/IP) Properties** window, below.



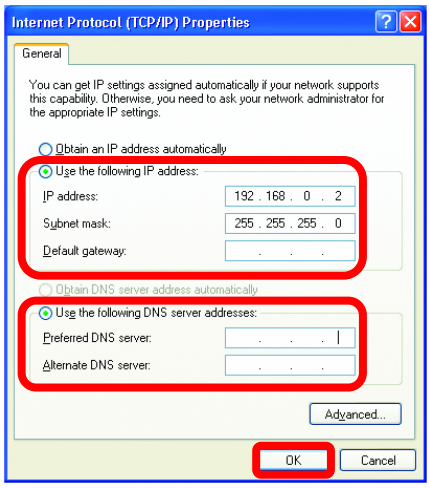
- Input your **IP address and subnet mask.** (The IP Addresses on your network must be within the same range. For example, if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)

  IP Address:
  e.g., 192.168.0.2

  Subnet Mask:
  255.255.255.0

  Default Gateway:
  Enter the LAN IP Address of the wireless router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)

- Select **Use the following DNS server addresses**. Enter the LAN IP address of the wireless router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)



- Click **OK**

You have completed the assignment of a Static IP Address. *(You do not need to assign a Static IP Address if you have a DHCP-capable Gateway/Router.)*

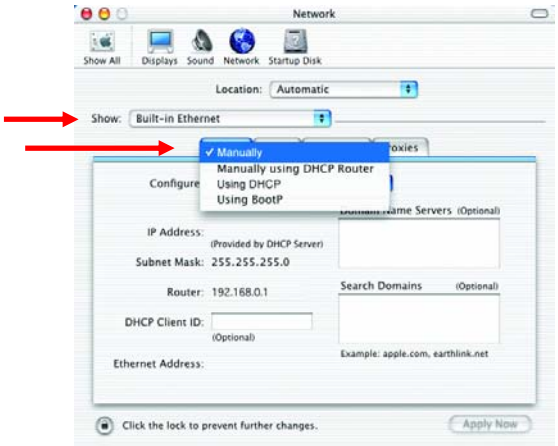
Assigning a Static IP Address with Macintosh OS X

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

Click on **Network**

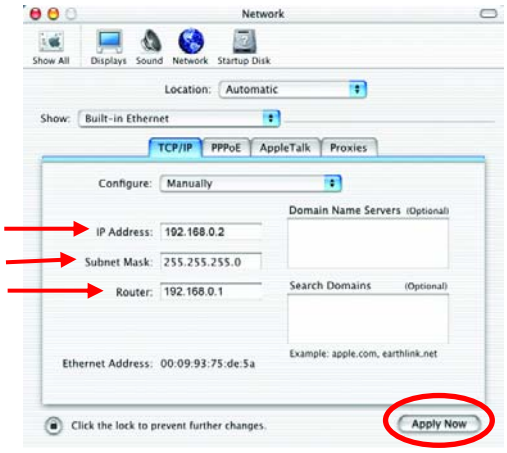
Select **Built-in Ethernet** in the **Show** pull-down menu.

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**



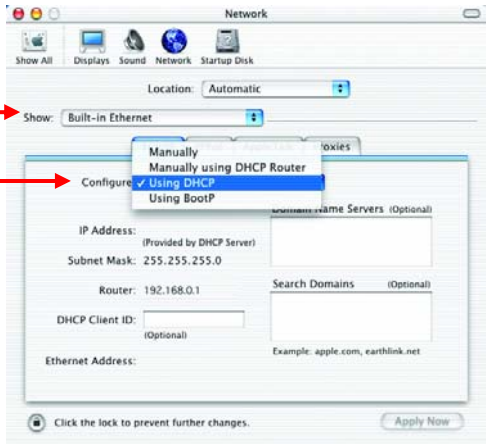
Selecting a Dynamic IP Address with Macintosh OS X

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

Click on **Network**

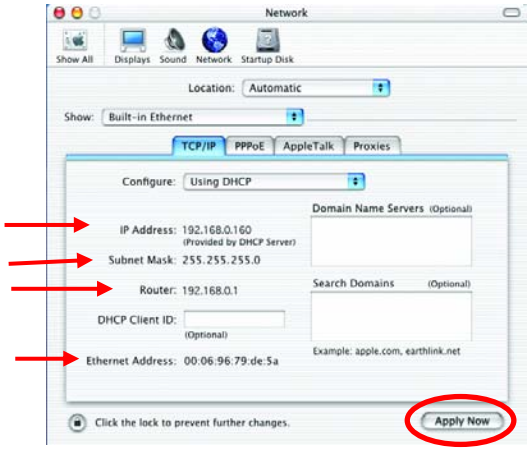
Select **Built-in Ethernet** in the **Show** pull-down menu.

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



Click **Apply Now**

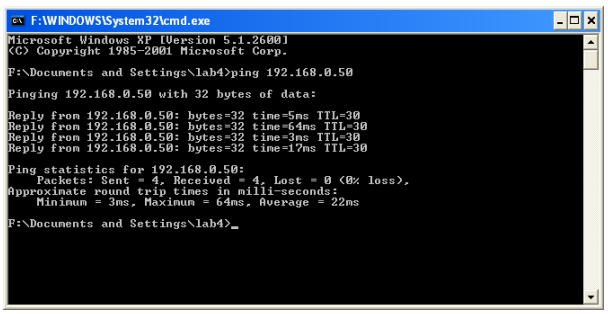
The **IP Address**, **Subnet mask**, and the **Router's IP Address** will appear in a few seconds.



Checking the Wireless Connection by Pinging

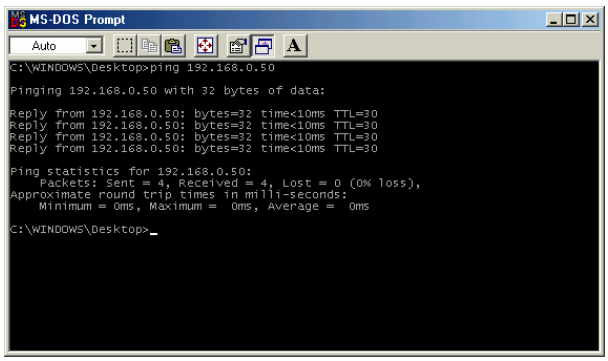
For Windows XP and 2000:

Go to **Start** > **Run** > type **cmd**. A window similar to *Fig. 9.25* 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.



For Windows ME and 98SE:

Go to **Start** > **Run** > type **command**. A window similar to *Fig. 9.26* 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.



8. Technical Specifications

Standards
• 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.

Wireless Data Rates
With Automatic Fallback
• 11Mbps • 5.5Mbps • 2Mbps • 1Mbps

Encryption
64/128 - bit RC4

Media Access Control
CSMA/CA with ACK

Wireless Frequency Range
2.4GHz to 2.462GHz

Wireless Operating Range
Indoors: Up to 328 feet (100 meters)
Outdoors: Up to 1,312 feet (400 meters)

Wireless Modulation Technology
Direct Sequence Spread Spectrum (DSSS)
11-chip Barker sequence

Modulation Techniques
• 11Mbps (CCK)
• 5.5Mbps (CCK)

• 2Mbps(DQPSK)
• 1Mbps(DBPSK)

Wireless Transmit Power
16dBm

External Antenna Type
Single detachable reverse SMA

LEDs
• Power
• Status
• WAN
• Local Network—10/100
• WLAN (Wireless Connection)

Operating Temperature
32°F to 131°F (0°C to 55°C)
Humidity
95% maximum (non-condensing)

Power Input
Power Supply DC 5V, 2.5A

Safety & Emissions
• FCC
• UL

Dimensions
• L = 5.6 inches (142mm)
• W = 4.3 inches (109mm)
• H = 1.2 inches (31mm)

Weight
~2.0 lbs (907g)

Warranty
1 year

9. Technical Support

Technical Support

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

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

U.S. and Canadian customers can contact D-Link Technical Support through our website, or by phone.

Tech Support for customers within the United States:

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
email:support@dlink.com

Tech Support for customers within Canada:

D-Link Technical Support over the Telephone:
(800) 361-5265
Monday to Friday 8:30am to 9:00pm EST

D-Link Technical Support over the Internet:
http://support.dlink.ca
email:support@dlink.ca

10. Warranty and Registration (USA only)

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.

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

- Hardware (excluding power supplies and fans) One (1) Year
- Power Supplies and Fans One (1) Year
- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware 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 shall be fully insured by the customer. 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.
- Return Merchandise Ship-To Address
  USA: 53 Discovery Drive, Irvine, CA 92618
  Canada: 2180 Winston Park Drive, Oakville, ON, L6H 5W1 (Visit http://www.dlink.ca for detailed warranty information within Canada)

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

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Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

Trademarks: D-Link is a registered trademark of D-Link Systems, Inc. Other trademarks or registered trademarks are the property of their respective manufacturers or owners.

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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:
The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment; such modifications could void the user's authority to operate the equipment.

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

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least eight inches (20 cm) from all persons.

This equipment must not be operated in conjunction with any other antenna.

For detailed warranty outside the United States, please contact corresponding local D-Link office.

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