D-Link
*Air*Premier™ AG
DWL-7100AP

802.11a/802.11g (2.4/5GHz)
Wireless Access Point

Manual

D-Link®
Building Networks for People

Contents

Package Contents

Contents of Package:

- **D-Link *Air*Premier™ AG DWL-7100AP**
  802.11a/802.11g (2.4GHz/5GHz) Wireless Access Point
- Power Adapter – 5V DC, 2.0A
- Manual on CD
- Quick Installation Guide
- Ethernet Cable

Note: Using a power supply with a different voltage than the one included with the DWL-7100AP 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 Windows, Macintosh, or Linux-based operating system with an installed Ethernet adapter
- Internet Explorer or Netscape Navigator version 6.0 or above, with JavaScript enabled
- At least 128MB of memory and a 500MHz processor

Introduction

At up to fifteen times the speed of previous wireless devices (up to 108Mbps in Super AG mode), you can work faster and more efficiently, increasing productivity. With the DWL-7100AP, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are able to move across the network quickly.

Inclusion of all three standards (802.11g; 802.11a; 802.11b) means that the DWL-7100AP is versatile enough to allow connection to almost any 802.11 network or device.

The DWL-7100AP has the newest, strongest and most advanced security features available today. When used with other 802.11 WPA (Wi-Fi Protected Access) compatible products in a network with a RADIUS server, the security features include:

WPA: Wi-Fi Protected Access which authorizes and identifies users based on a secret key that changes automatically at regular intervals. **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 ensures much greater security than the standard WEP security. (By contrast, the previous WEP encryption implementations required the keys to be changed manually.)

For home users that will not incorporate a RADIUS server in their network, the security for the DWL-7100AP, used in conjunction with other WPA-compatible 802.11 products, will still be much stronger than ever before. Utilizing the **Pre-Shared Key mode** of WPA, the DWL-7100AP will obtain a new security key every time it connects to the 802.11 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 DWL-7100AP, you will automatically receive a new key every time you connect, vastly increasing the safety of your communication.

Features

- **Faster Wireless Networking with speeds up to 108Mbps in Super AG mode**
- **Compatible with 802.11a, 802.11b and 802.11g Devices -** Fully compatible with the IEEE 802.11a, 802.11b and 802.11g standards, the DWL-7100AP can connect with existing 802.11b-, 802.11g- or 802.11a- compliant wireless network adapter cards.
- **Compatible with the 802.11b standard** to provide a wireless data rate of up to 11Mbps with 802.11b devices.
- **Better security with WPA-** The DWL-7100AP can securely connect to wireless clients on the network using WPA (Wi-Fi Protected Access) providing a much higher level of security for your data and communications than has previously been available.

LEDs

LED stands for **L**ight-**E**mitting **D**iode. The **DWL-7100AP Wireless Access Point** has 5 **Green** LEDs as shown below:

LED	LED Activity
Power	A steady light indicates a connection to a power source
LAN (10/100)	A steady light indicates a connection to the Ethernet port; a blinking light indicates activity
WLAN (802.11a and 802.11b or 802.11g)	A blinking light indicates activity in the respective wireless mode: 802.11a and/or 802.11b/802.11g

Wireless Basics

D-Link *Air*Premier™ AG 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. Strictly adhering to the IEEE standard, the D-Link *Air*Premier™ AG wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs 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 wireless LAN 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 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 go - even outside the home or office.

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.

Wireless Basics (continued)

Standards-Based Technology

The DWL-7100AP Wireless Access Point utilizes the **802.11a, 802.11b** and draft **802.11g** standard.

The IEEE **802.11g** standard is an extension of the **802.11b** standard. It increases the data rate up to 54Mbps within the 2.4GHz band. The **802.11a** standard also increases the data rate up to 54Mbps, but within the 5GHz band. Both 802.11a and 802.11g utilize **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** (**O**rthogonal **F**requency **D**ivision **M**ultiplexing) 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 DWL-7100AP offers the most advanced network security features available today, including WPA.

In addition to its compatibility with 802.11g and 802.11a devices, the DWL-7100AP is compatible with 802.11b devices. This means that if you have an existing 802.11b network, or a network with a mixture of 802.11g, 802.11a and 802.11b, the devices in that network will be compatible with the DWL-7100AP.

Wireless Basics *(continued)*

Installation Considerations

Desktop and laptop computers with wireless network adapters installed can access the D-Link *Air*Premier™ AG DWL-7100AP 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 DWL-7100AP and other network devices to a minimum - each wall or ceiling can reduce your D-Link wireless product's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.

2. Be aware of the direct line between network devices. 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 may generate extreme RF noise.

Getting Started

Right out of the box, with its default settings, the DWL-7100AP will automatically connect with other D-Link *Air*Premier™ AG products.

IP ADDRESS

Note: If you are using a DHCP-capable router in your network you will not need to assign a static IP address.

If you need to assign IP addresses to the computers on the network, please remember that the **IP address for each computer must be in the same IP address range as all the computers in the network**, and the subnet mask must be exactly the same for all the computers in the network.

For example: If the first computer is assigned an IP address of 192.168.0.2 with a subnet mask of 255.255.255.0, then the second computer can be assigned an IP address of 192.168.0.3 with a subnet mask of 255.255.255.0, etc.

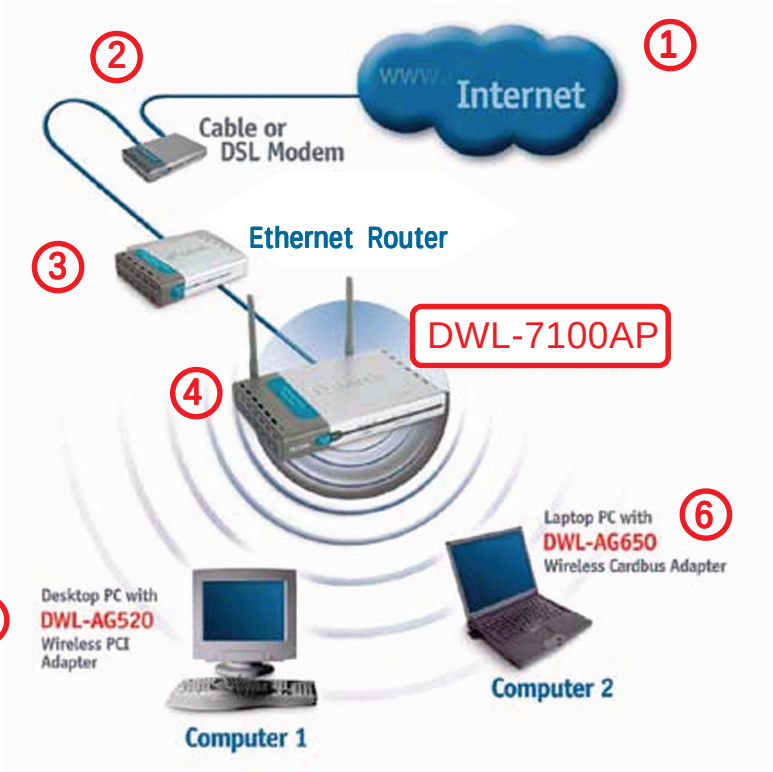
IMPORTANT: If computers or other devices are assigned the same IP address, one or more of the devices may not be visible on the network.

An **Infrastructure** wireless network contains an access point or router. The **Infrastructure Network** example, shown on the following page, contains the following D-Link network devices:

A wireless Access Point - **D-Link *Air*Premier™ AG DWL-7100AP**
An Ethernet Router - **D-Link DI-604**
A laptop computer with a wireless adapter - **D-Link *Air*Premier™ AG DWL-AG650**
A desktop computer with a wireless adapter - **D-Link *Air*Premier™AG DWL-AG520**
A Cable modem - **D-Link DCM-201**

Getting Started (continued)

An **Infrastructure** wireless network contains an access point or router. The **Infrastructure Network** example, shown here, contains the following D-Link network devices:



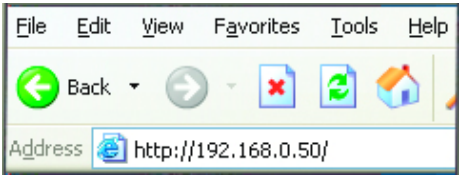
For a typical wireless setup (as shown above,) please do the following:

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 an Ethernet broadband router such as the DI-604. (*See the Quick Installation Guide included with the DI-604.*)
4. Connect the router to the D-Link *Air*Premier™ AG DWL-7100AP. (*See the Quick Installation Guide included with the DWL-7100AP.*)
5. If you are connecting a desktop computer in your network, you can install the D-Link *Air*Premier™ AG DWL-AG520 wireless PCI adapter into an available PCI slot. *(See the Quick Installation Guide included with the DWL-AG520.)*
6. Install the drivers for the D-Link *Air*Premier™ AG DWL-AG650 into the laptop computer. (*See the Quick Installation Guide included with the DWL-AG650.*)

Using the Configuration Menu

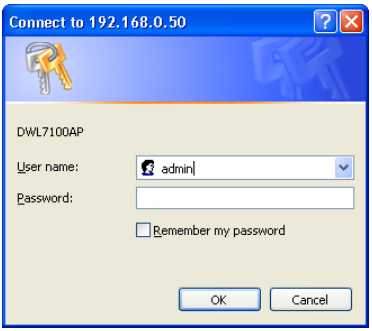
Whenever you want to configure your network or the DWL-7100AP, you can access the Configuration Menu by opening the web-browser and typing in the IP address of the DWL-7100AP. The DWL-7100AP default IP address is shown below:

- Open the web browser
- Type in the **IP address** of the access point



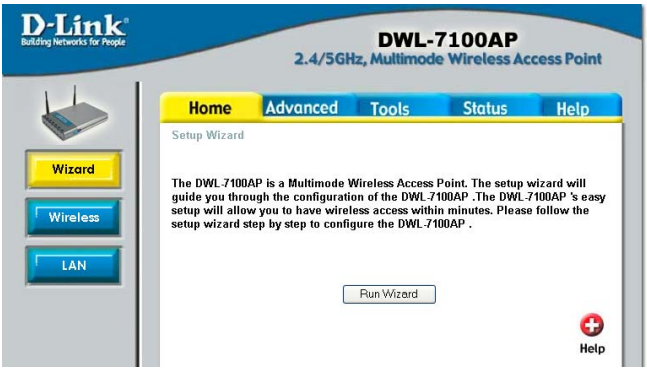
Note: if you have changed the default IP address assigned to the DWL-7100AP, make sure to enter the correct IP address.

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



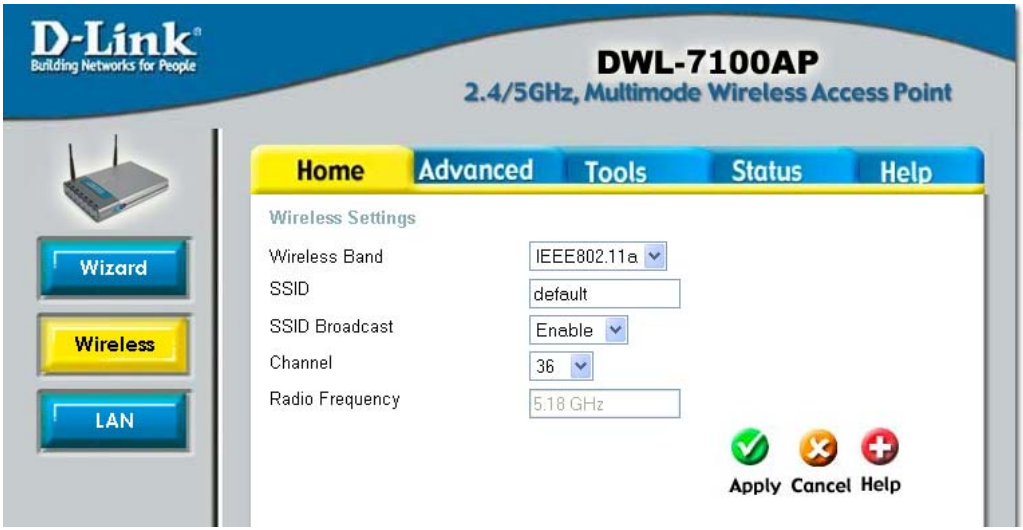
Home > Wizard

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



Using the Configuration Menu (continued)

Home > Wireless



Note: In the Configuration screens that follow, you will be able to configure settings for 802.11a and 802.11g devices in your network. Settings that you input for 802.11g devices will also apply to 802.11b devices in your network.

Wireless Band- Select 802.11g or 802.11a from the pulldown menu.

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.

SSID Broadcast- Enable or Disable SSID Broadcast. Enabling this feature broadcasts the SSID across the network.

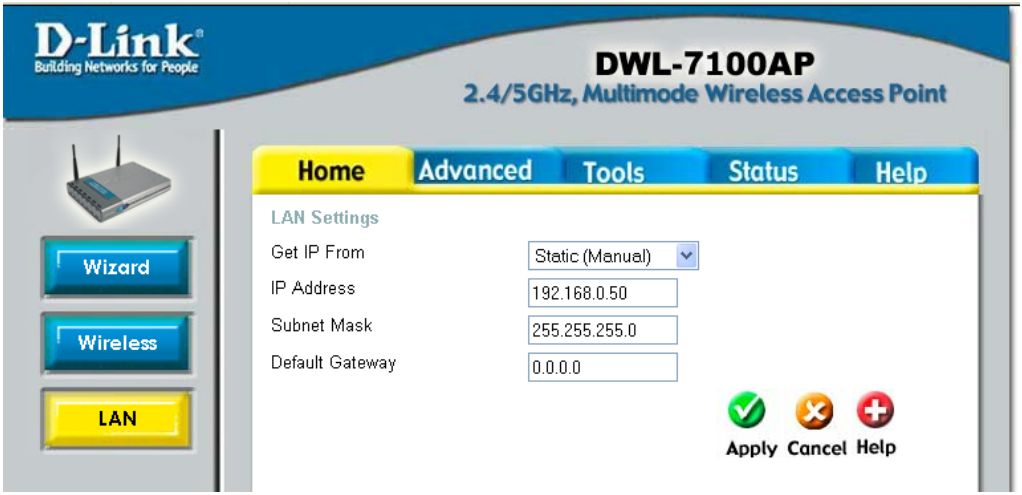
Channel- **6** is the default channel. All devices on the network must share the same channel.

Radio Frequency- The radio frequency will remain at 2.437GHz .

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

Using the Configuration Menu (continued)

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 DWL-7100AP. 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.

Get IP From- Select **Static (Manual)** or **Dynamic (DHCP)** as the method you will use to assign an IP address to the DWL-7100AP.

IP Address- The IP address of the LAN interface. The default IP address is: **192.168.0.50** *(Note: You will need to use the AP Manager to determine the IP address dynamically assigned to the access point.)*

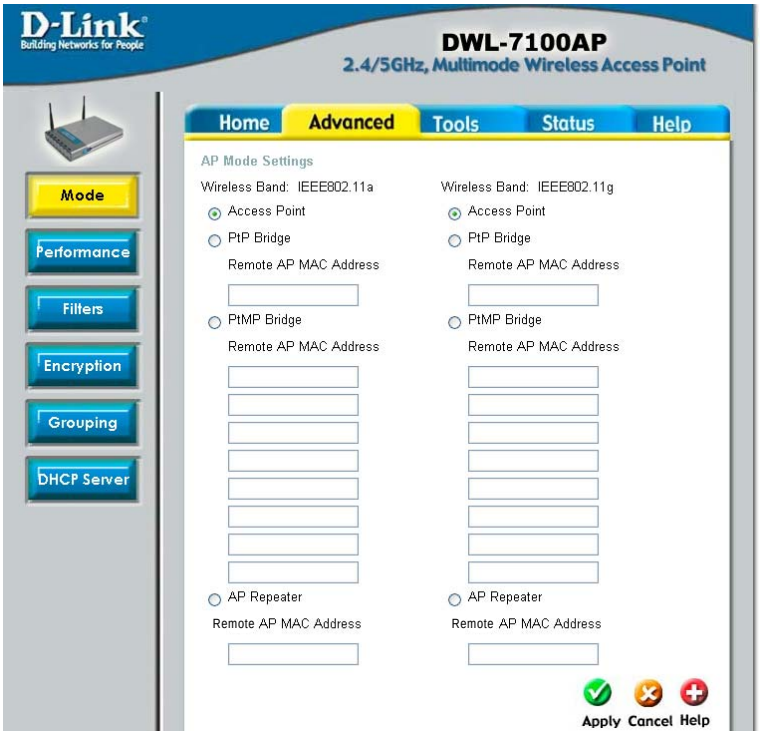
Subnet Mask- The default subnet mask is **255.255.255.0**

Default Gateway- This field is optional. Enter in the IP address of the router on your network.

Apply- Click **Apply** if you have made any changes.

Using the Configuration Menu (continued)

Advanced > Mode



Choose 802.11a or 802.11g wireless band; then select from the following options:

Access Point: Select this mode to create a WLAN (wireless local area network).

PtP Bridge (Point to Point Bridge): This mode enables you to connect two WLANS.

Remote AP MAC Address: Input the remote AP MAC address of the AP with which the DWL-7100AP will associate.

PtMP Bridge (Point to Multi-Point Bridge): This mode enables you to connect multiple WLANs

Remote AP MAC Address: Input the remote AP MAC Addresses of the APs with which the DWL-7100AP will associate

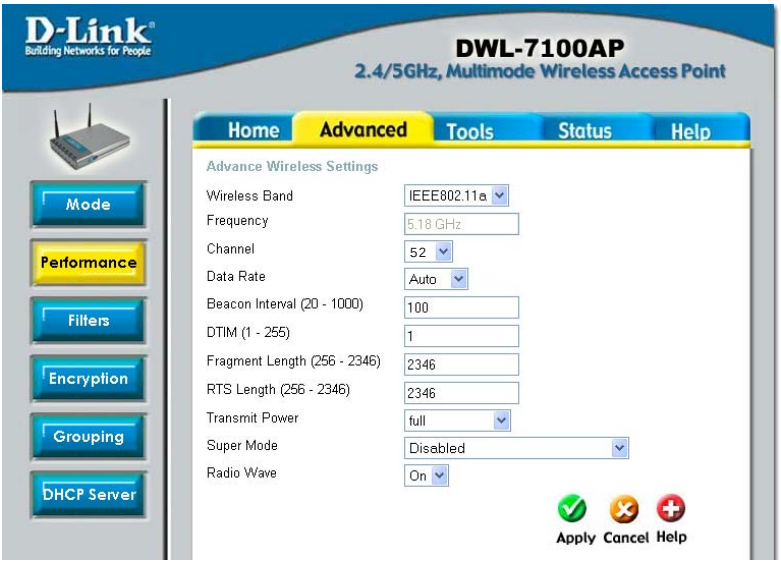
AP Repeater: To extend the range of the wireless network select this option and enter the MAC address of the remote AP within your network that will have its range extended.

Remote AP MAC Address: Enter the MAC address of the remote AP within your network that will have its range extended.

Apply: Click **Apply** if you have made any changes.

Using the Configuration Menu (continued)

Advanced > Performance



Wireless Band: Select **802.11a** (up to 108Mbps speed in turbo mode in the 5GHz range) or **802.11g** (up to 54 Mbps speed with *Air*Plus adapters.)

Frequency: The frequency range will be displayed.

Channel: The default channel for 802.11a is **52.** The default channel for 802.11g is **6.**

Data Rate: Select the transmission rate for the network

Beacon Interval: Beacons are packets sent by an access point to synchronize a wireless network. Specify a Beacon interval value (20-1000.) Default (100) is recommended.

DTIM: (**D**elivery **T**raffic **I**ndication **M**essage) Enter a value between 1 and 255 for the Delivery Traffic Indication Message (DTIM.) A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Fragment Length: This value should 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 2346. Setting the Fragmentation Threshold too low may result in poor performance.

RTS Length: This value should remain at its default setting of 2346. If you encounter inconsistent data flow, only minor modifications to the value range between 256 and 2346 are recommended.

Transmit Power: Adjust the transmission range here. This tool can be helpful for security purposes if you wish to limit the transmission range.

Super Mode: Select Enabled or Disabled.

Radio Wave: Select ON or OFF.

Apply: Click **Apply** if you have made any changes.

Using the Configuration Menu (continued)

Advanced > Filters

Access Control:

Disabled - **Disable** the Access Control feature

Accept - **Accept** the MAC addresses in the list into the network

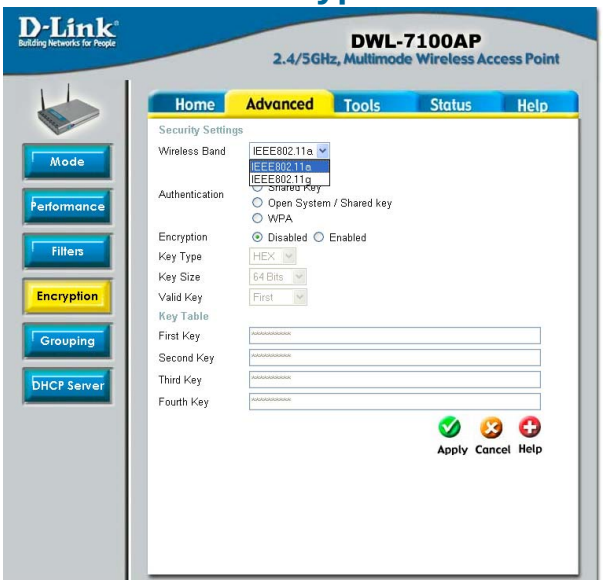
Reject - **Reject** the MAC addresses in the list from participating in the network

Access Control List: Input the MAC addresses into the list

MAC Address (**M**edia **A**ccess **C**ontrol Address)
A unique hardware address that identifies a device on a network. It is assigned at the factory and cannot be changed. Usually you will find this address on a sticker on the device or on the packaging. *(Please use the following format when entering the MAC address- xx:xx:xx:xx:xx:xx)*

Using the Configuration Menu (continued)

Advanced > Encryption



Hexadecimal *digits consist of the numbers 0-9 and the letters A-F*
ASCII *(American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127*

Wireless Band: Select 802.11a or 802.11g.

Authentication: Select from one of the following:

- **Open System:** the DWL-7100AP will be visible to all devices on the network. **Open System** is the **default** setting.
- **Shared Key:** in order to access the DWL-7100AP on the network, the device must be listed in the **Access Control List**
- **Shared Key/Open System:** click here to select both options
- **WPA:** click here to select WPA security features

Encryption: Select **Enabled** or **Disabled** (the **default** setting is **Disabled**)

Key Type: Select **HEX** (Hexadecimal) or **ASCII**

Key Size: Select **64, 128 or 256 bit for 802.11b; 64, 128, 152 bit for 802.11a**

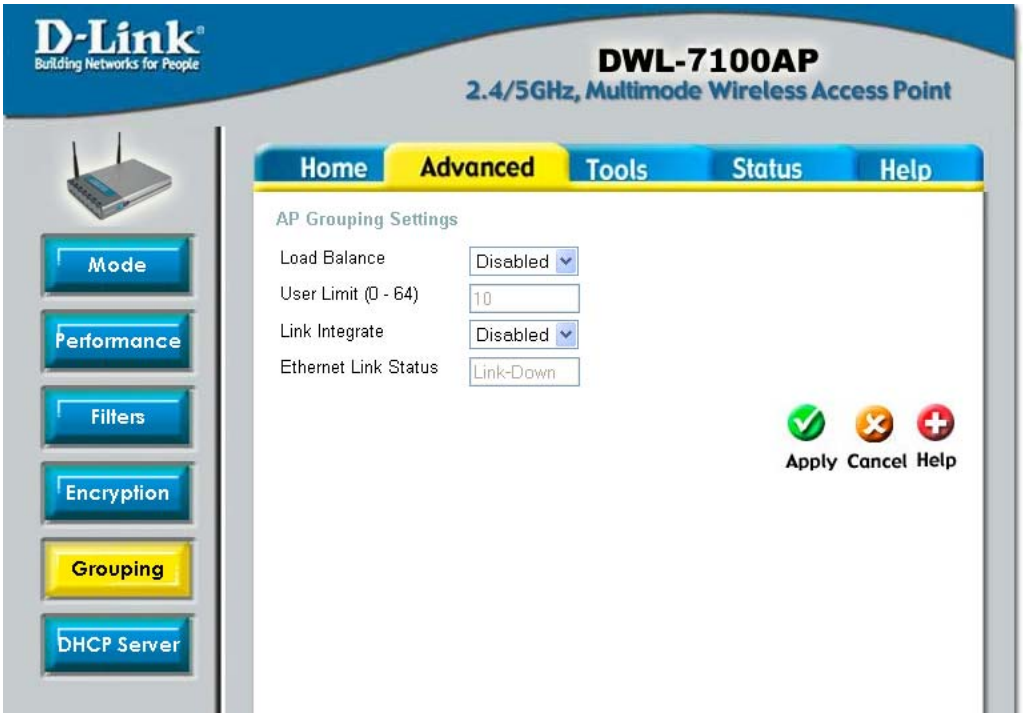
Valid Key: Select the key that you will use from one of the four keys in the Key Table.

Key Table: Input up to 4 keys using the format that you have selected in *Wep Key Type.*

Apply: Click **Apply** if you have made any changes.

Using the Configuration Menu (continued)

Advanced > Grouping



When you **Enable Load Balance** you allow several DWL-7100APs to balance wireless network traffic and wireless clients among the DWL-7100APs in the network**.** Assign each access point a different **non-overlapping channel** (e.g., 1, 6, 11).

User Limit: Set the **User Limit** in this field (0-64).

Link Integrity: Select **Enabled** or **Disabled**.

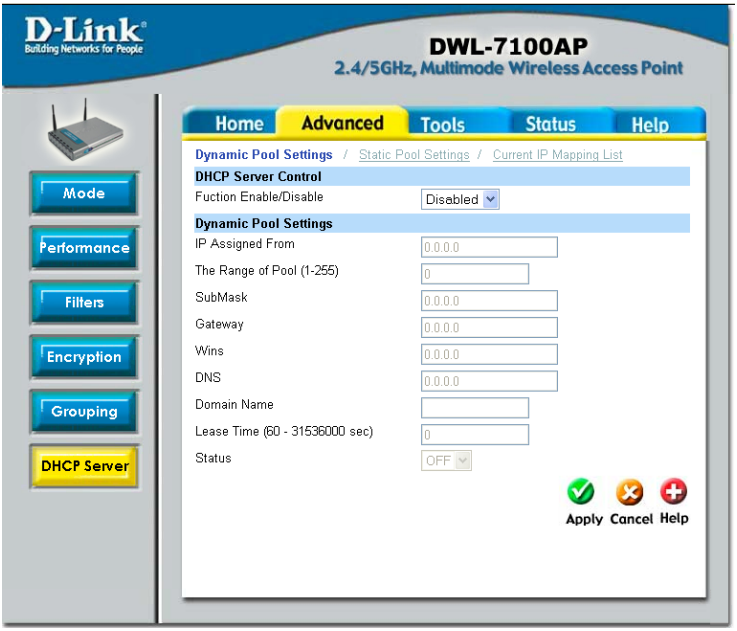
When **Link Integrity** is Enabled, whenever the Ethernet connection between the LAN and the AP is disconnected - then the wireless segment associated with the AP will also be disconnected from the AP.

Ethernet Link Status: This field displays the Ethernet Link Status. **Link Up** indicates that there is an Ethernet LAN connection to the AP.

Apply: Click **Apply** if you have made any changes.

Using the Configuration Menu (continued)

Advanced > DHCP Server > Dynamic Pool Settings



DHCP Server Control-

Enable or **Disable** the DHCP function here.

Dynamic Pool Settings-

IP Assigned From -

Enter the starting IP address in the range.

The Range of Pool (1-255)-

Enter the number (the quantity) of IP address in the range.

SubMask- Enter the subnet mask here.

Gateway- Enter the IP address of the router on the network.

Wins- **Windows Internet Naming Service** is a system that determines the IP address of a network computer that has a dynamically assigned IP address.

DNS- Enter the IP address of the DNS server. The DNS server translates domain names such as www.dlink.com into IP addresses.

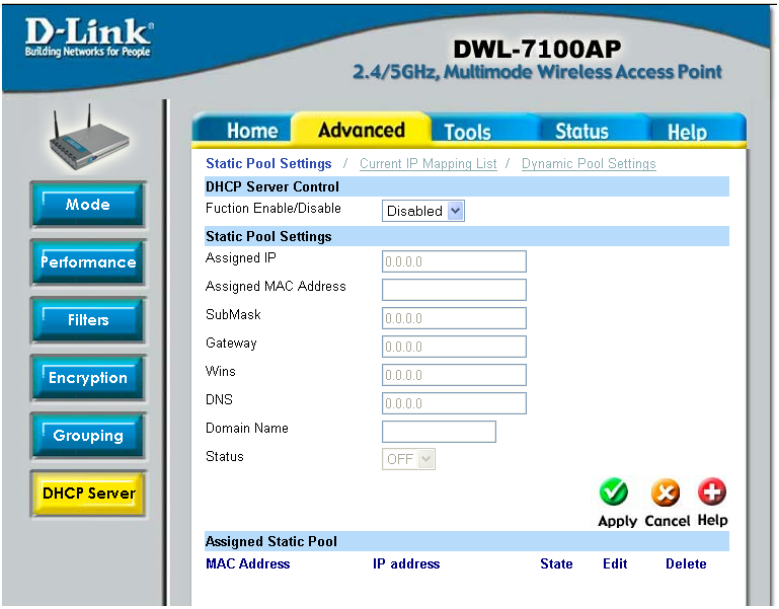
Domain Name- Enter the Domain Name of the DWL-7100AP.

Lease Time- Select the Lease Time here The Lease Time is the period of time before the DHCP server will assign new IP addresses.

Status- Turn the **Dynamic Pool Settings ON** or **OFF** here.

Using the Configuration Menu (continued)

Advanced > DHCP Server > Static Pool Settings



DHCP Server Control-

Enable or **Disable** the DHCP function here.

Static Pool Settings-

Assigned IP-

Enter the static IP address of the device here.

Assigned MAC Address-

Enter the MAC address of the device here.

SubMask- Enter the subnet mask here.

Gateway- Enter the IP address of the router on the network.

Wins- **Windows Internet Naming Service** is a system that determines the IP address of a network computer that has a dynamically assigned IP address.

DNS- Enter the IP address of the DNS server. The DNS server translates domain names such as www.dlink.com into IP addresses.

Domain Name- Enter the Domain Name of the DWL-7100AP.

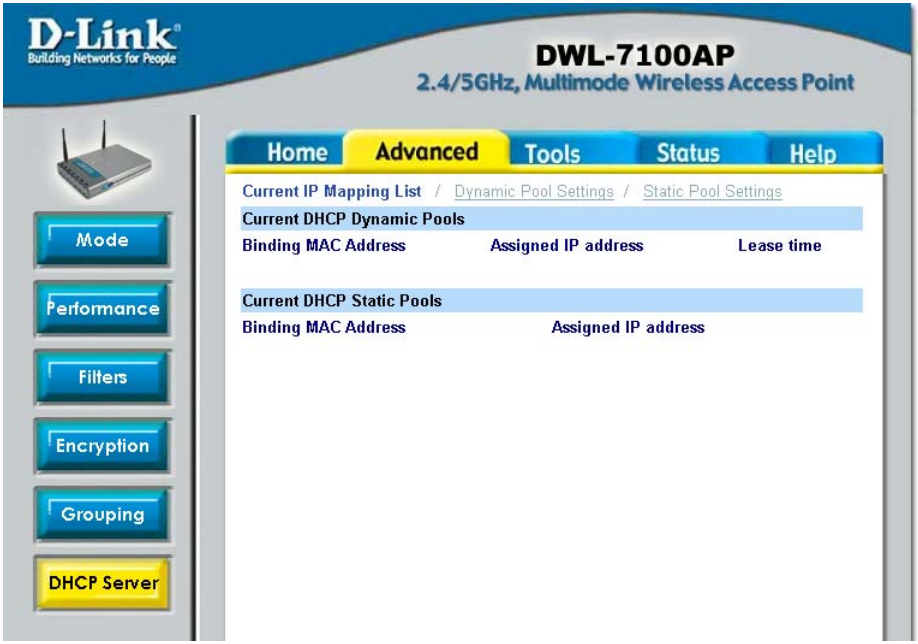
Status- Turn the **Static Pool Settings ON** or **OFF** here.

Assigned Static Pool- After you have input the **Static Pool Settings** for each device, click **Apply** and the profile will appear in this list at the bottom of the window.

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

Using the Configuration Menu (continued)

Advanced > DHCP Server > Current IP Mapping List



This screen displays information about the current DHCP dynamic and static IP address pools. This information is available when you enable the DHCP function of the DWL-7100AP and assign dynamic and static IP address pools.

Current DHCP Dynamic Pools-These are IP address pools to which the DHCP server function has assigned dynamic IP addresses.

Binding MAC address- The MAC address of a device on the network that is within the DHCP dynamic IP address pool.

Assigned IP address- The current corresponding DHCP-assigned dynamic IP address of the device.

Lease Time- The length of time that the dynamic IP address will be valid.

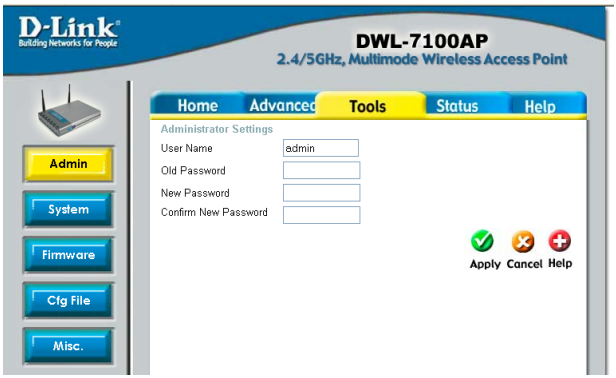
Current DHCP Static Pools-These are IP address pools to which the DHCP server function has assigned static IP addresses.

Binding MAC address- The MAC address of a device on the network that is within the DHCP static IP address pool.

Assigned IP address- The current corresponding DHCP-assigned static IP address of the device.

Using the Configuration Menu (continued)

Tools > Admin



User Name: The default User Name is admin.

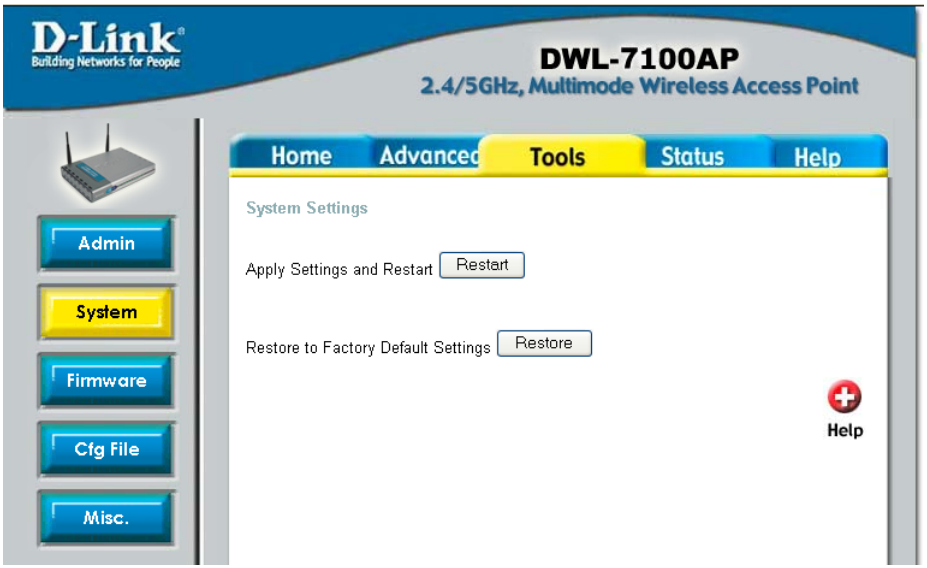
Old Password: To change your password, first enter the old password.

New Password: Enter the new password.

Confirm New Password: Re-enter the new password.

Apply: To save changes, click **Apply**.

Tools > System

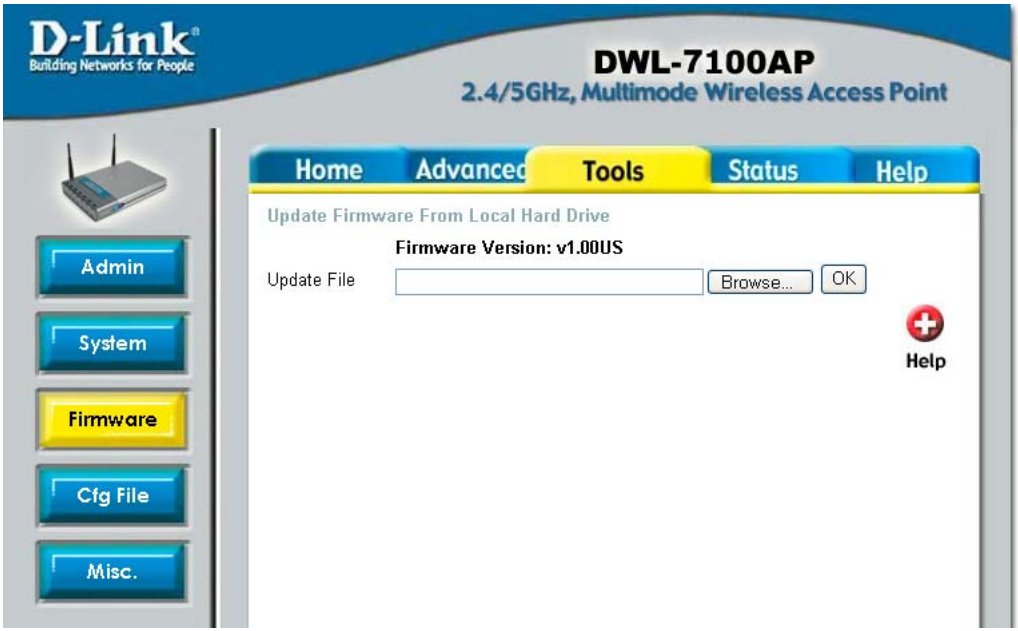


Apply Settings and Restart: If you have made any changes to the configuration settings, click **Restart** to apply the changes.

Restore to Factory Default Settings: To return the DWL-7100AP to the factory default settings, click **Restore**.

Using the Configuration Menu (continued)

Tools> Firmware



Update File: Click on **Browse** to find the updated firmware file on your hard drive. (Before you browse your hard drive you will need to download the updated firmware from the D-Link Support website: http://support.dlink.com)

After you find the updated firmware file on your hard drive, click **OK**.

Using the Configuration Menu (continued)

Tools > Cfg File

Update File-

Browse for the configuration settings that you have saved to your hard drive. Click **OK** when you made your selection.

Load Settings to the Local Hard Drive-

Click **OK** to load the selected settings.

Tools > Misc.

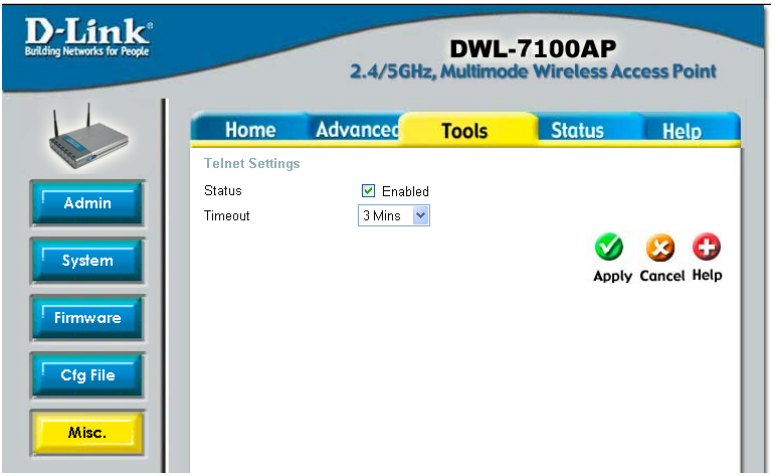
Telnet Settings

Status-

Click to Enable a Telnet session.

Timeout-

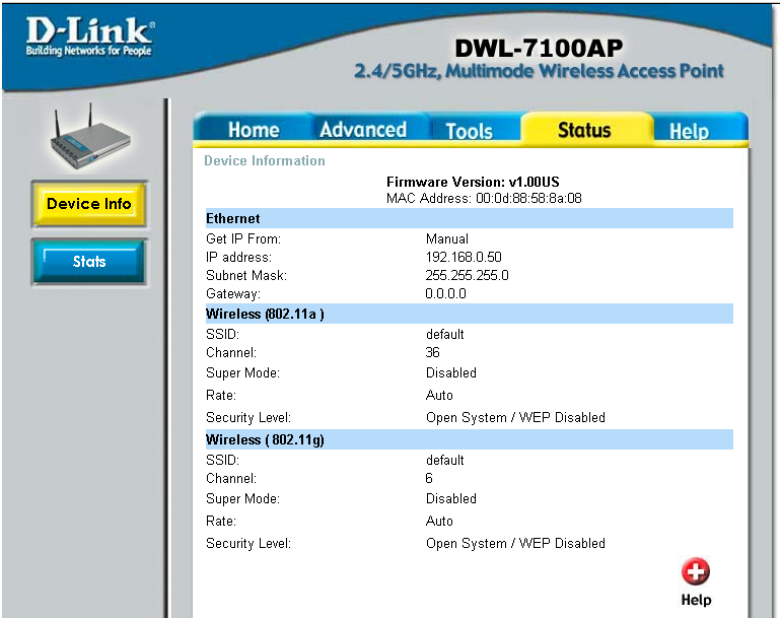
Select a time period after which a session timeout will occur.



Using the Configuration Menu (continued)

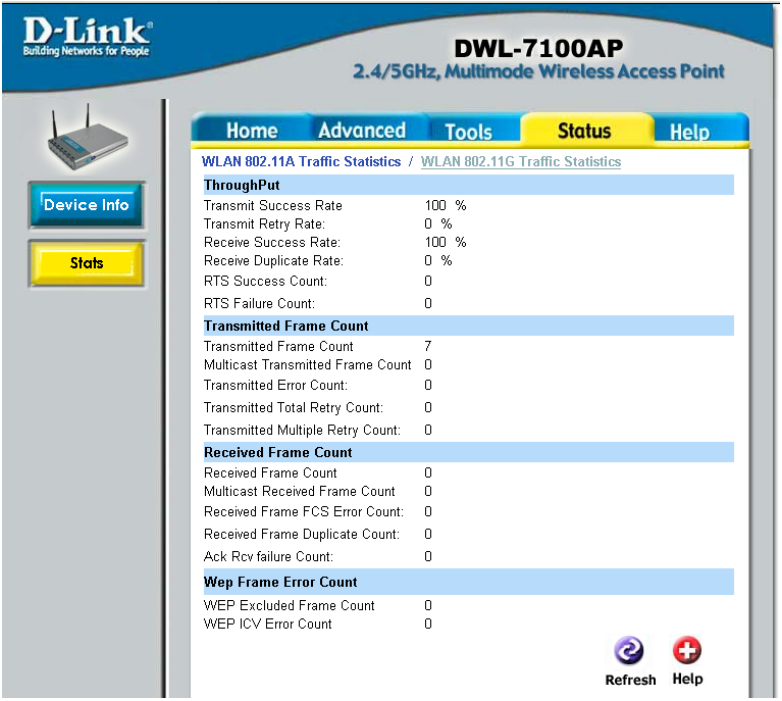
Status > Device Info

This window displays the settings of the DWL-7100AP, as well as the firmware version and the MAC address.



Status > Stats

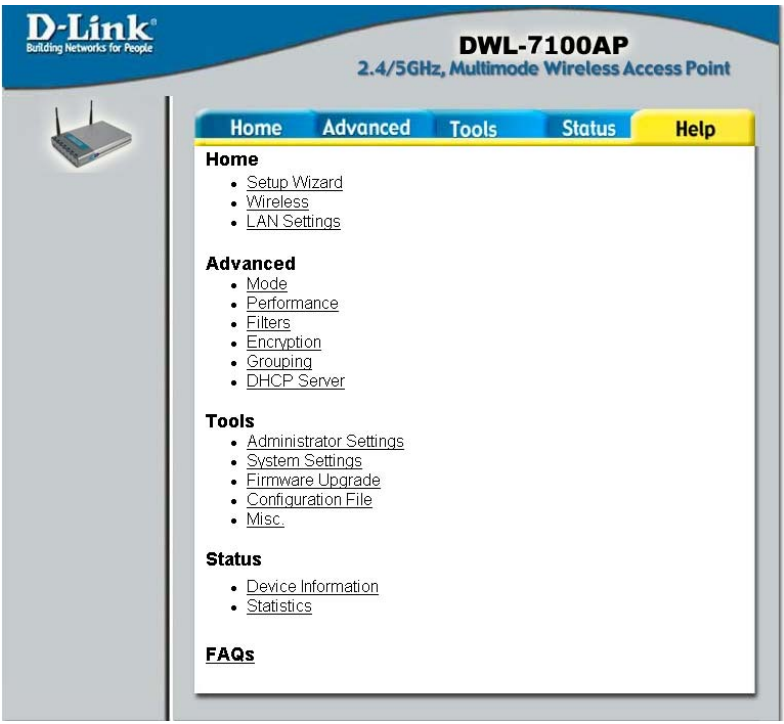
This window displays the network traffic statistics for both received and transmitted communications through the Ethernet port and wireless connections associated with the access point. You may select 802.11a or 802.11g statistics.



Using the Configuration Menu (continued)

Help

The **Help** menu is displayed here. You can also click on **Help** in any window for additional 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.**

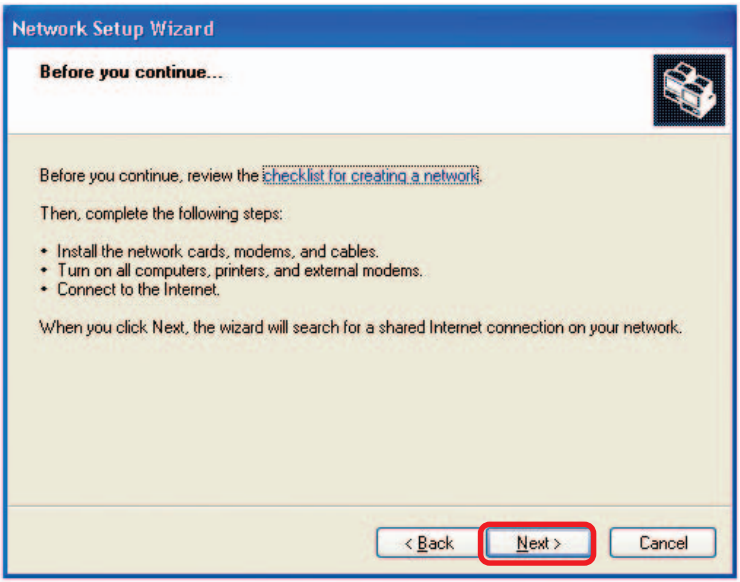
Note: Please refer to websites such as http://www.homenethelp.com and http://www.microsoft.com/windows2000 for information about networking computers using Windows 2000, Me or 98.

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

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

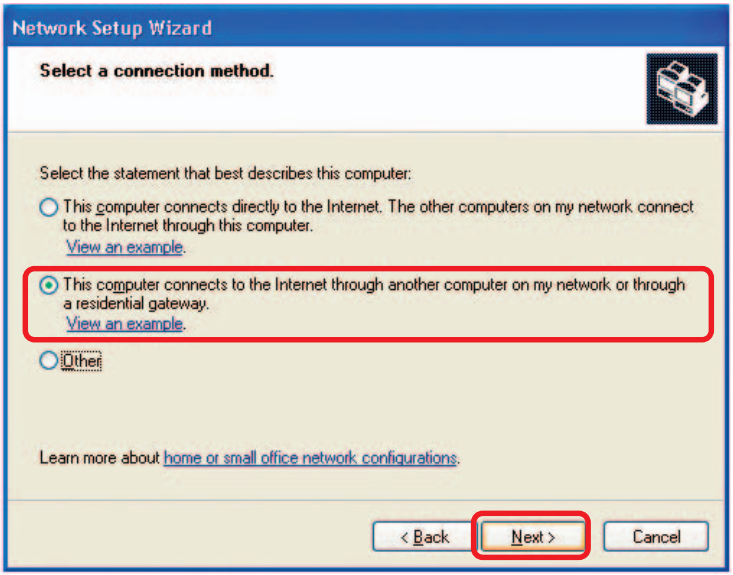
Networking Basics (continued)

Please follow all the instructions in this window:



Click **Next**.

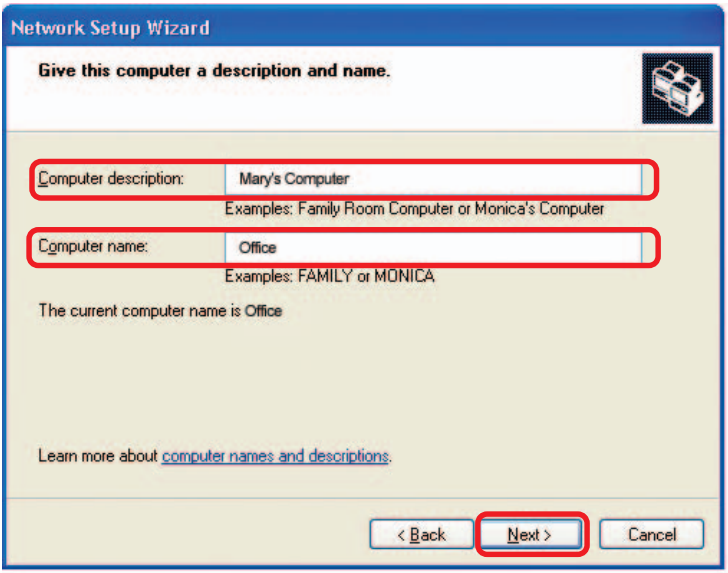
In the following window, select the best description of your computer. If your computer connects to the internet through a gateway/router, select the second option as shown.



Click **Next**.

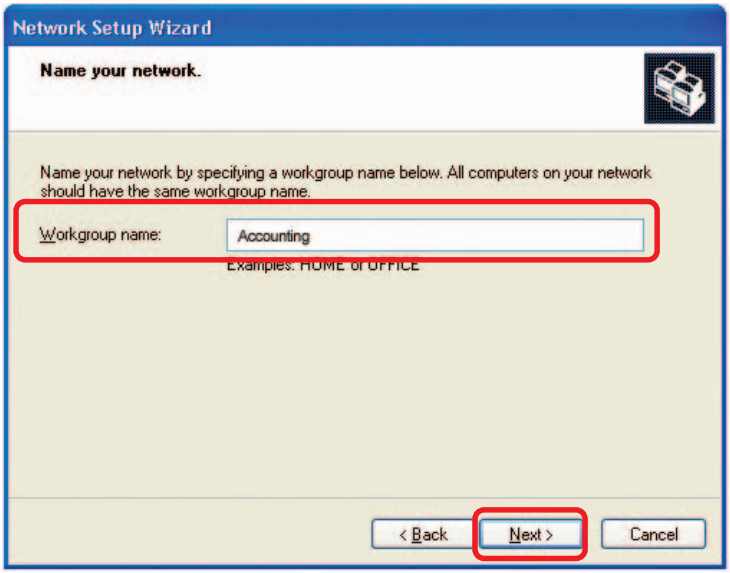
Networking Basics (continued)

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



Click **Next**.

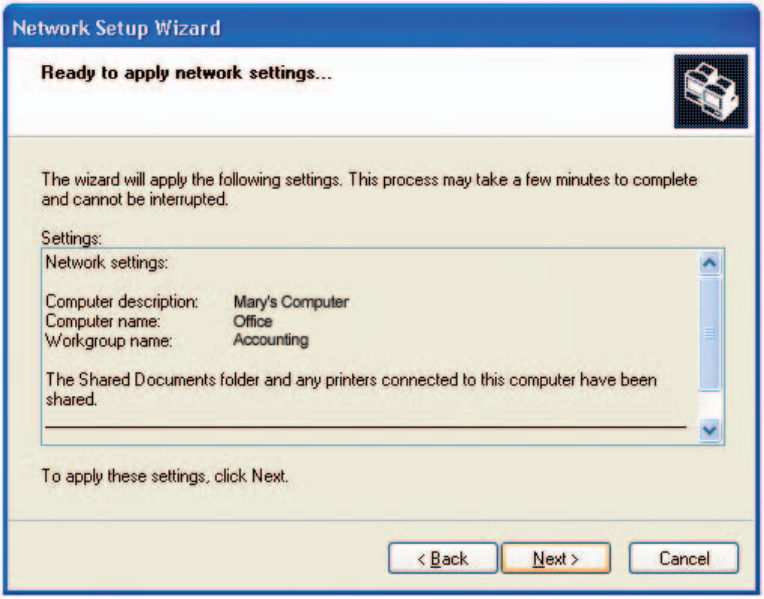
Enter a **Workgroup** name. All computers on your network should have the same **Workgroup name.**



Click **Next**.

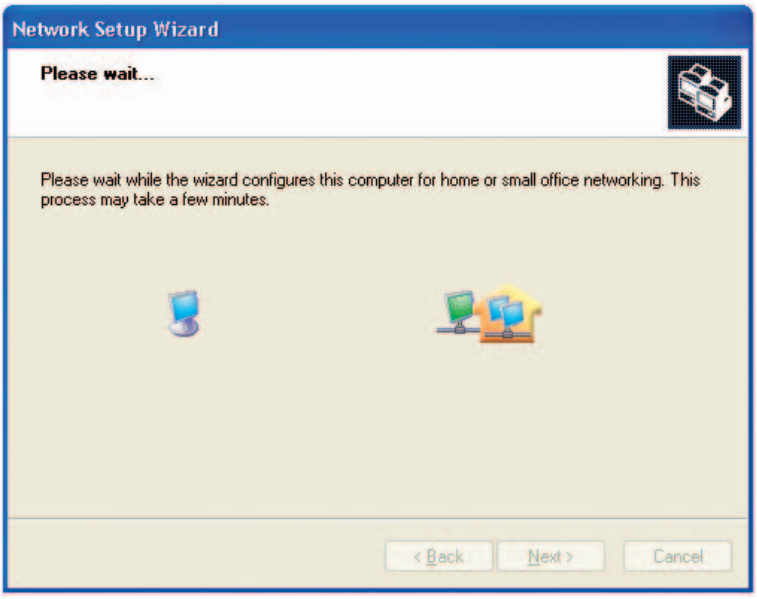
Networking Basics (continued)

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



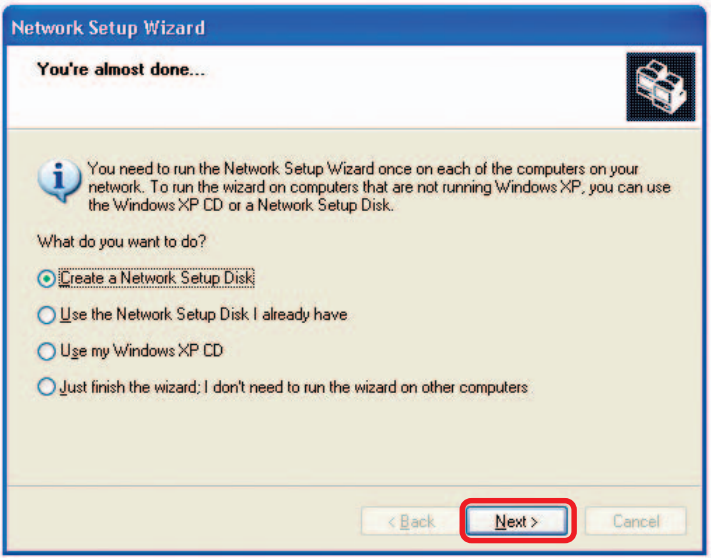
When the changes are complete, click **Next**.

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

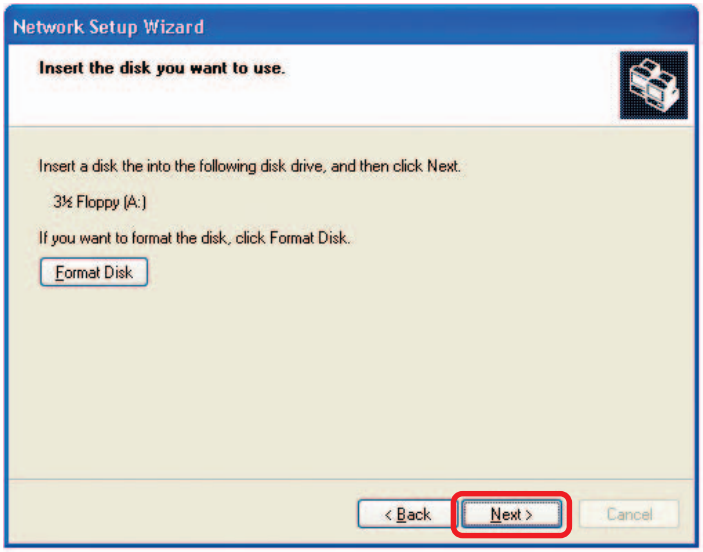


Networking Basics (continued)

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**.

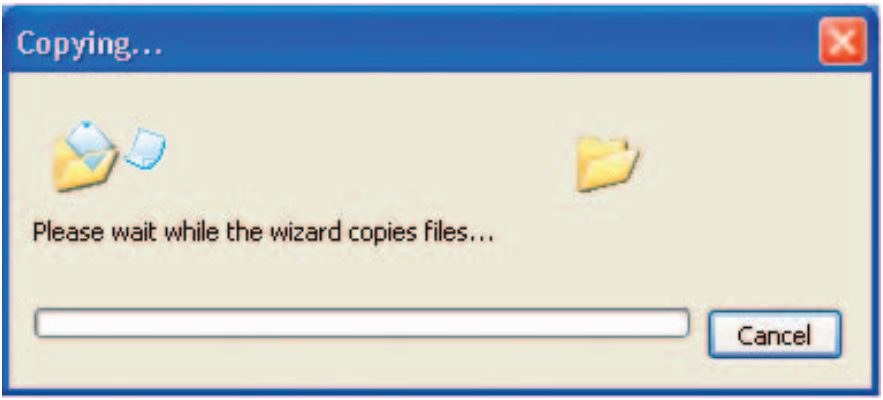


Insert a disk into the Floppy Disk Drive, in this case drive **A.**

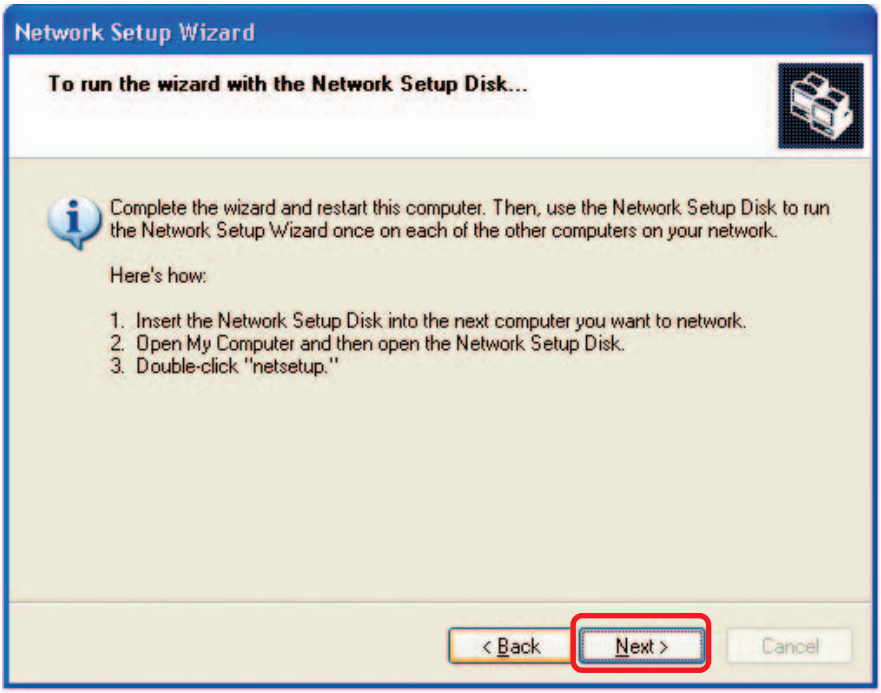


Format the disk if you wish, and click **Next.**

Networking Basics (continued)

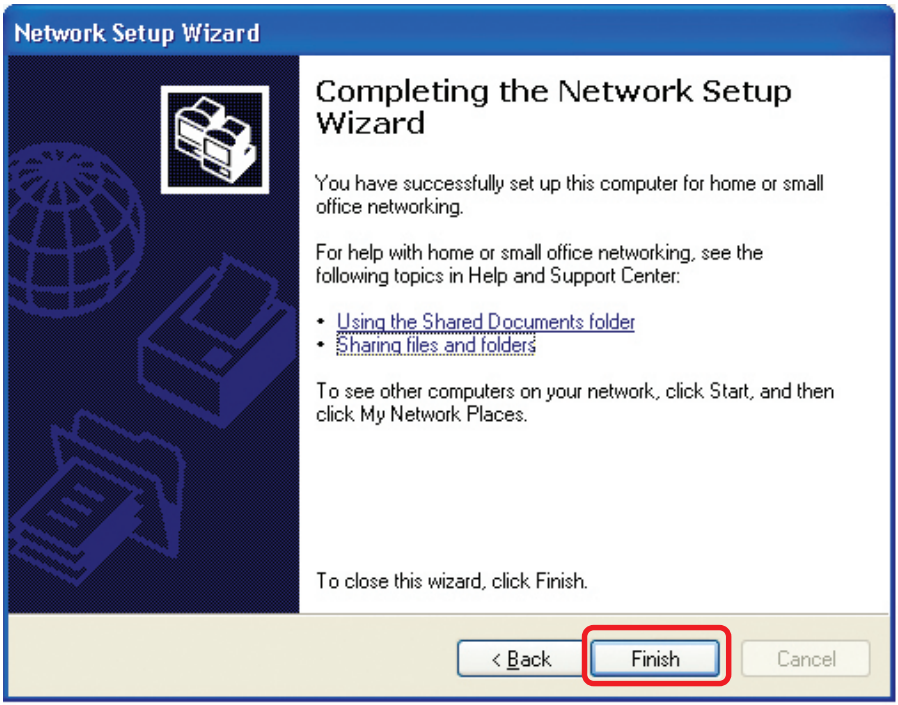


Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. To continue click **Next.**

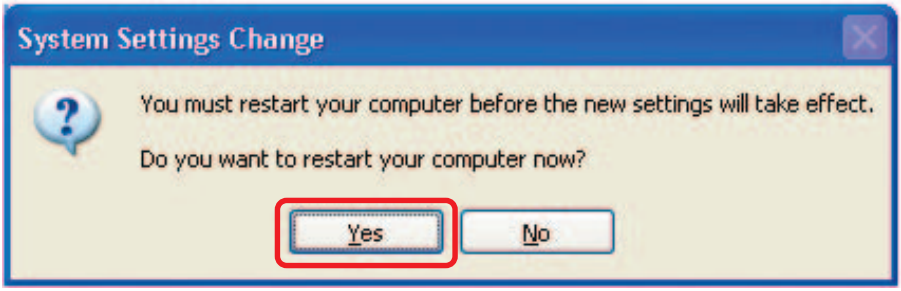


Networking Basics (continued)

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 (continued)

Naming your Computer

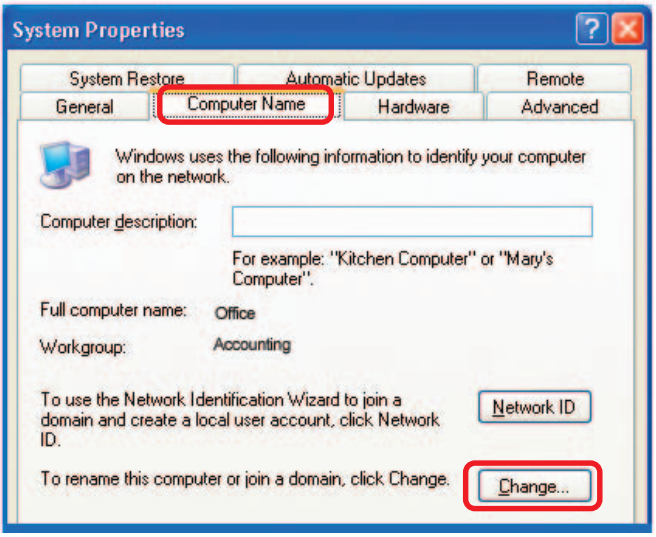
To name your computer in **Windows XP**, please follow these directions:

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

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

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

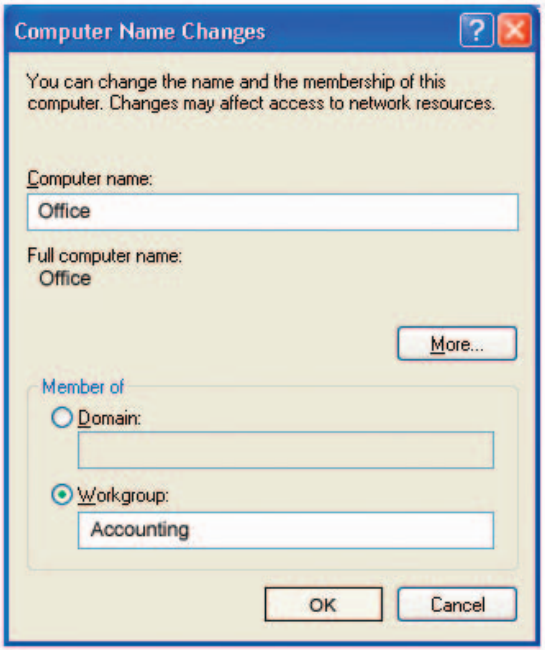
- To rename the computer and join a domain, click **Change**.



Networking Basics (continued)

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

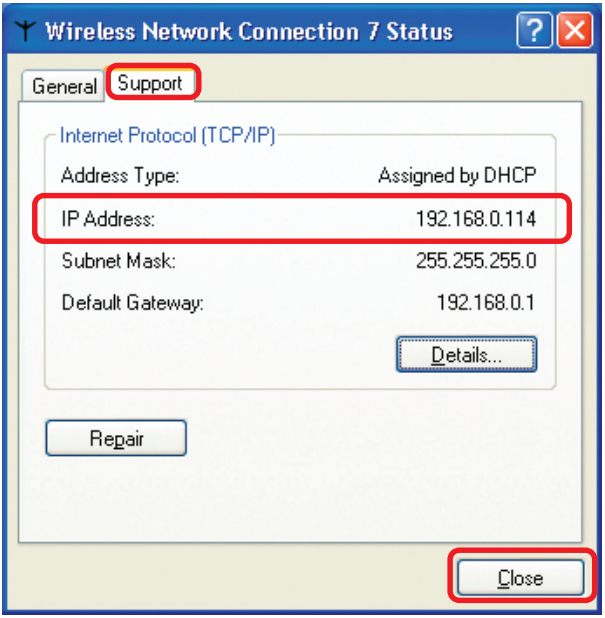
The wireless adapter-equipped computers in your network must be in the same IP address range (see ***Getting Started*** in this manual for a definition of IP address range). To check on the IP address of the adapter, please do the following:

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

Networking Basics (continued)

Checking the IP Address in Windows XP

This window will appear.



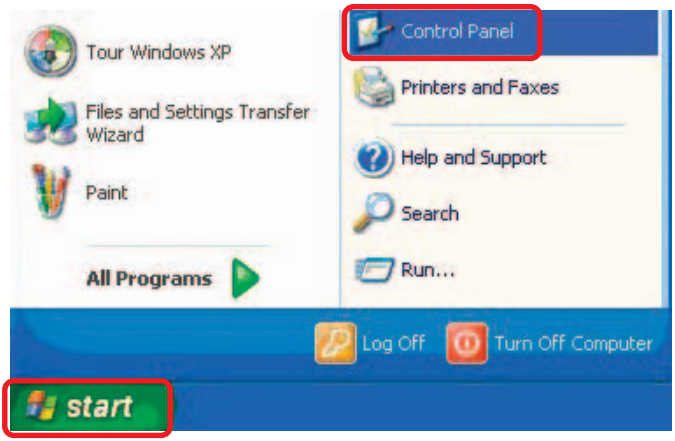
- Click the **Support tab**.
- Click **Close**.

Assigning a Static IP Address in Windows XP/2000

Note: DHCP-capable 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 router you will not need to assign static IP addresses.

If you are not using a DHCP capable router, or you need to assign a static IP address, please follow these instructions:

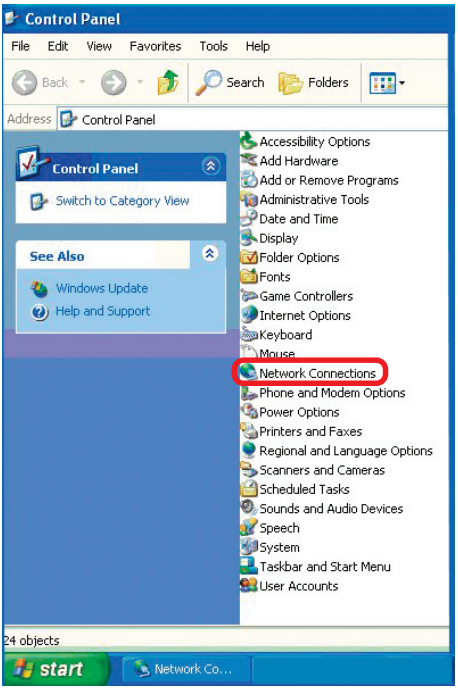
- Go to **Start**.
- Double-click on **Control Panel**.



Networking Basics (continued)

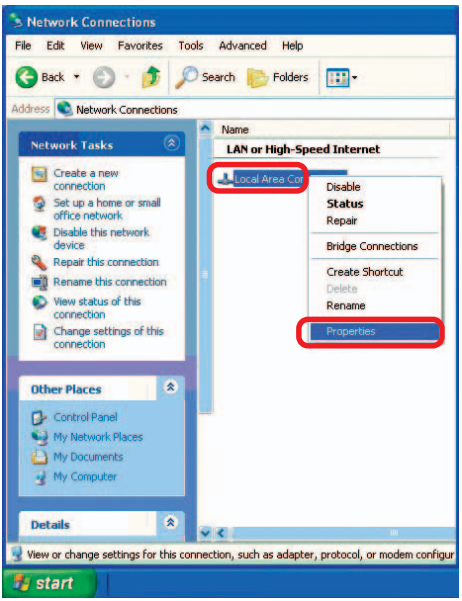
Assigning a Static IP Address in Windows XP/2000

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



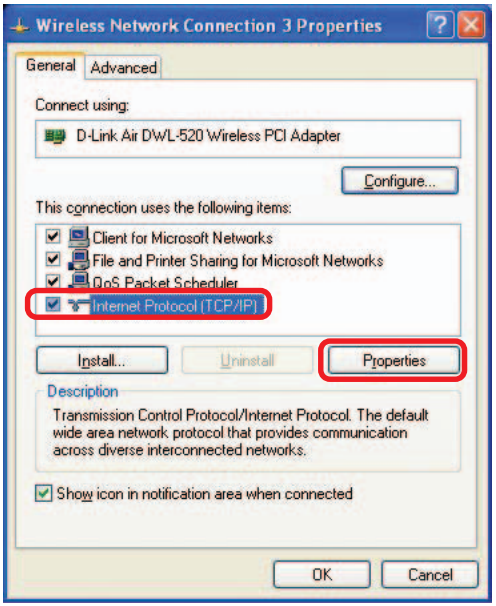
- Right-click on **Local Area Connections**.

- Double-click on **Properties**.

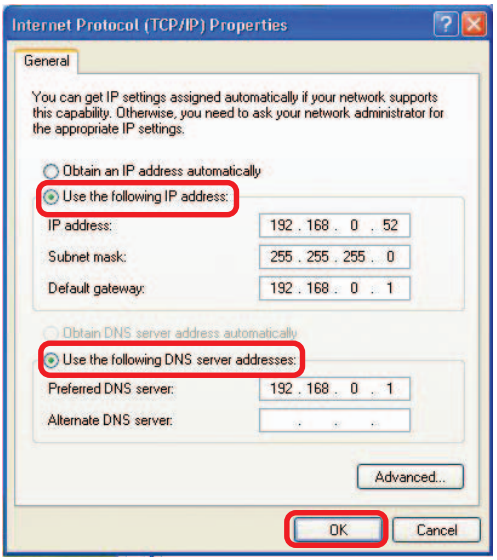


Networking Basics (continued)

Assigning a Static IP Address in Windows XP/2000



- Click on **Internet Protocol (TCP/IP)**
- Click **Properties**
- In the window below, select **Use the following IP address**. 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)

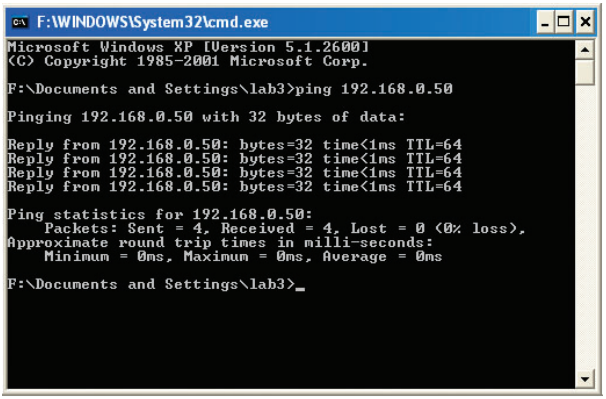
- Select **Use the following DNS server addresses**. Enter the LAN IP address of the wireless router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)
- Click **OK**

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 router).

Networking Basics (continued)

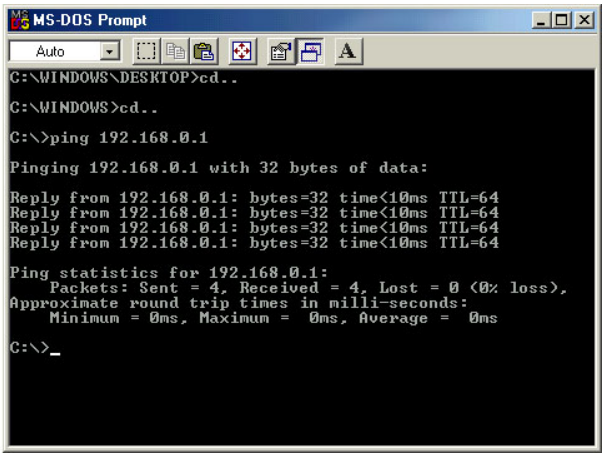
Checking the Wireless Connection by Pinging in Windows XP and 2000

- 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.



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.



Troubleshooting

This Chapter provides solutions to problems that can occur during the installation and operation of the DWL-7100AP Wireless Access Point. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

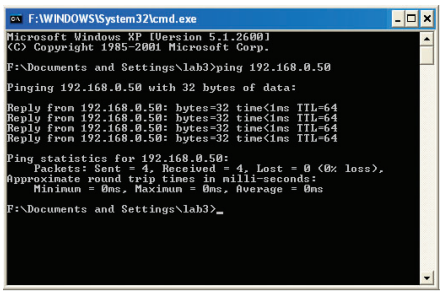
Note: It is recommended that you use an Ethernet connection to configure the DWL-7100AP.

1. The computer used to configure the DWL-7100AP cannot access the Configuration menu.

- Check that the **Ethernet LED** on the DWL-7100AP 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 in this section: **Check that the drivers for the network adapters are installed properly**.
- Check that the **IP address** is in the same range and subnet as the DWL-7100AP. Please see **Checking the IP Address in Windows XP** in the **Networking Basics** section of this manual.

Note: The IP address of the DWL-7100AP is 192.168.0.50. 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 DWL-7100AP is responding. Go to **Start**>**Run**>Type **Command**>Type **ping 192.168.0.50.** A successful ping will show four replies.

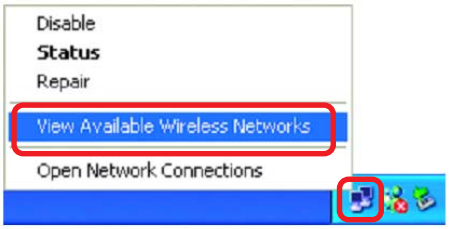


Note: If you have changed the default IP address, make sure to ping the correct IP address assigned to the DWL-7100AP.

Troubleshooting (continued)

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 DWL-7100AP has an IP address of 192.168.0.50, 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.)*

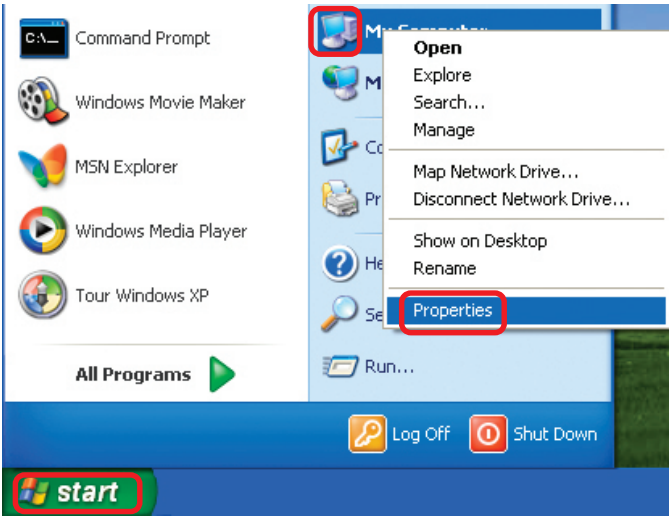
- If it is necessary to assign a **static IP address** to the wireless adapter, please refer to the appropriate section in **Networking Basics**. If you are entering a **DNS server address** you must also enter the **default gateway address.** *(Remember that if you have a DHCP-capable router, you will not need to assign a static IP address. See **Networking Basics: Assigning a Static IP Address.**)*

Troubleshooting (continued)

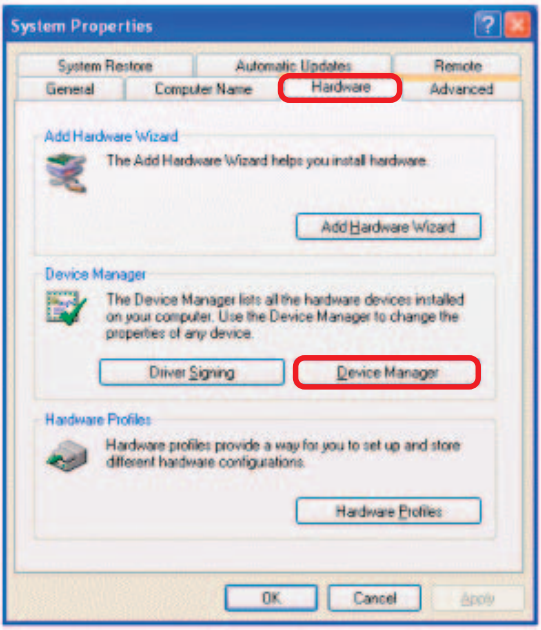
3. Check that the drivers for the network adapters are installed properly.

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**



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

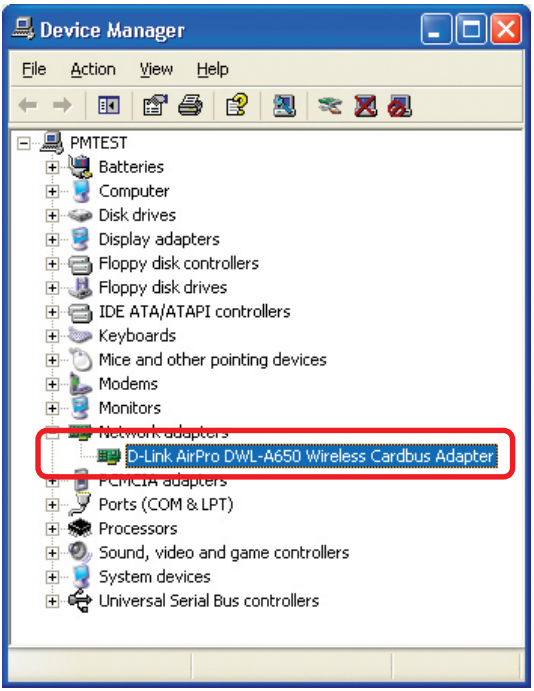


Troubleshooting (continued)

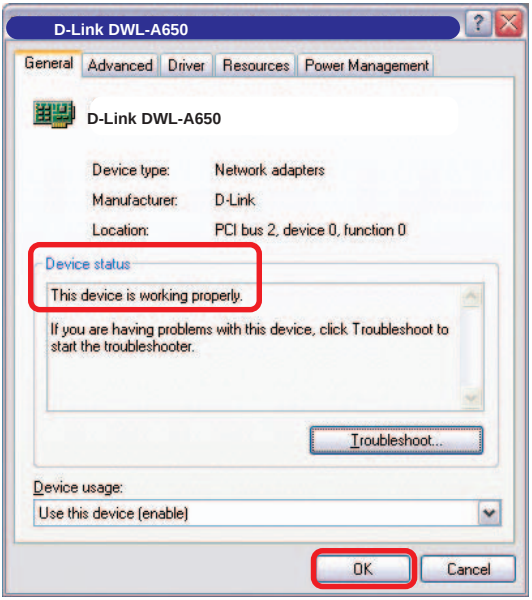
- Double-click on **Network adapters**

- Right-click on **D-Link DWL-A650 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**

Troubleshooting (continued)

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 DWL-7100AP. 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 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?

To establish a wireless connection, while enabling Encryption on the DWL-7100AP, you must also enable encryption on the wireless client.

- For 802.11a, the Encryption settings are: 64-, 128- or 152-bit. Make sure that the encryption bit level is the same on the access point and the wireless client.

- For 802.11b, the Encryption settings are: 64-, 128-, or 256-bit. Make sure that the encryption bit level is the same on the access point and the wireless client.

Make sure that the SSID on the access point and the wireless client are exactly the same. If they are not, wireless connection will not be established. Please note that there are two separate SSIDs for 802.11a and 802.11b. The default SSID for both 802.11a and 802.11b is **default**.

Troubleshooting (continued)

7. Resetting the DWL-7100AP to Factory Default Settings

After you have tried other methods for troubleshooting your network, you may choose to **Reset** the DWL-7100AP to the factory default settings.

To hard-reset the D-Link DWL-7100AP to factory default settings, please do the following:

- Locate the **Reset** button on the back of the DWL-7100AP
- Use a paper clip to press the **Reset** button
- Hold for about 10 seconds and then release
- After the DWL-7100AP reboots (this may take a few minutes) it will be reset to the factory default settings

Technical Specifications

Standards

- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.11a
- IEEE 802.3
- IEEE 802.3u

Device Management

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

Network Architecture

- Supports Infrastructure Mode

LEDs

- Power
- WAN
- LAN (10/100)
- WLAN - 802.11a, 802.11g

Wireless Operating Range*

- Indoors – up to 328 feet (100 meters)
- Outdoors – up to 1,312 feet (400 meters)

Temperature

- Operating: 32ºF to 149ºF (0ºC to 55ºC)
- Storing: 4ºF to 167ºF (-20ºC to 75ºC)

Humidity:

- 95%maximum, non-condensing

** Environmental Conditions may adversely affect wireless signal range*

Technical Specifications (continued)

Safety and Emissions:

- FCC
- CE
- CSA

Physical Dimensions:

- L = 7.6 inches (193mm)
- W = 5.5 inches (140mm)
- H = 1.2 inches (31mm)

Wireless Data Rates with Automatic Fallback:

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

Security:

- 64-, 128-, 152-bit WEP (Wired Equivalent Privacy)
- WPA - Wi-Fi Protected Access (64,128-bit WEP with TKIP,
- MIC, IV Expansion, Shared Key Authentication)
- Supports Advanced Encryption Standard (AES)

External Antenna Type:

- Dual Non-Detachable Dipole Antenna

Wireless Frequency Range:

- 2.4 – 2.462GHz
- 5.15 – 5.35GHz, 5.725-5.85GHz

Modulation Technology:

- Orthogonal Frequency Division Multiplexing (OFDM)
- PBCC
- Complementary Code Keying (CCK)

Technical Specifications (continued)

Media Access Control:

- CSMA/CA with ACK

Wireless Transmit Power:

- 15dBm(32mW)±2dB

Power Adapter:

- Ext. Power Supply DC 5V, 2.0A
- 100-120V ~ 50-60Hz

Weight:

- 0.62 lbs (280g)

Receiver Sensitivity:

- 54Mbps OFDM, 10% PER,-73dBm
- 48Mbps OFDM, 10% PER,-76dBm
- 36Mbps OFDM, 10% PER,-82dBm
- 24Mbps OFDM, 10% PER,-85dBm
- 18Mbps OFDM, 10% PER,-88dBm
- 12Mbps OFDM, 10% PER,-89dBm
- 11Mbps CCK, 8% PER,-91dBm
- 9Mbps OFDM, 10% PER,-90dBm
- 6Mbps OFDM, 10% PER,-91dBm
- 5.5Mbps CCK, 8% PER,-92dBm
- 2Mbps QPSK, 8% PER,-93dBm
- 1Mbps BPSK, 8% PER,-94dBm

Warranty:

- 3 year

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

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.

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 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:17595 Mt. Herrmann, Fountain Valley, CA 92708-4160
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 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.

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.

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.

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

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.

(1) The devices are restricted to indoor operations within the 5.15 to 5.25GHz range. (2) For this device to operate in the 5.15 to 5.25GHz range, the devices must use integral antennas.

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.

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

(02/03/2004)