D-Link
*Air*Premier™ AG
DWL-7200AP

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

Manual

D-Link®

Building Networks for People

Contents

Package Contents

Contents of Package:

- **D-Link *Air*Premier™ AG DWL-7200AP**
  802.11a/802.11g (2.4GHz/5GHz) Wireless Access Point with PoE

- Power Adapter – 48V, 0.4A

- Manual on CD

- Quick Installation Guide

- Ethernet Cable

Note: Using a power supply with a different voltage than the one included with the DWL-7200AP 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-7200AP, 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-7200AP is versatile enough to allow connection to almost any 802.11 network or device.

The DWL-7200AP 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 <u>not</u> incorporate a RADIUS server in their network, the security for the DWL-7200AP, 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-7200AP 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-7200AP, 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-7200AP 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-7200AP 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-7200AP 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-7200AP 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 (108Mbps in Super G mode) 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-7200AP 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-7200AP 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-7200AP.

Wireless Basics *(continued)*

Installation Considerations

Desktop and laptop computers with wireless network adapters installed can access the D-Link *Air*Premier™ AG DWL-7200AP 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-7200AP 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-7200AP 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-7200AP**
An Ethernet Router - **D-Link DI-604**
A laptop computer with a wireless adapter - **D-Link *Air*Premier™ AG DWL-AG660**
A desktop computer with a wireless adapter - **D-Link *Air*Premier™AG DWL-AG530**
A Cable modem - **D-Link DCM-201**

Note: D-Link DWL-7200AP provide following wireless operation modes to the EEC countries: (i) IEEE 802.11a: AP Mode, (ii) IEEE 802.11g: AP Mode, WDS(Wireless Distribution System) bridge mode Point to Point, Point to Multi-Point, Repeater and AP Client.

Using the Configuration Menu

Whenever you want to configure your network or the DWL-7200AP, you can access the Configuration Menu by opening the web-browser and typing in the IP address of the DWL-7200AP. The DWL-7200AP default IP address is shown below:

- Open the web browser
- Type in the **IP address** of the access point
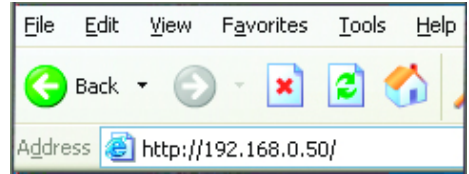
Note: if you have changed the default IP address assigned to the DWL-7200AP, make sure to enter the correct IP address.

- Type **admin** in the **User Name** field

- Leave the **Password** blank

- Click **Next**
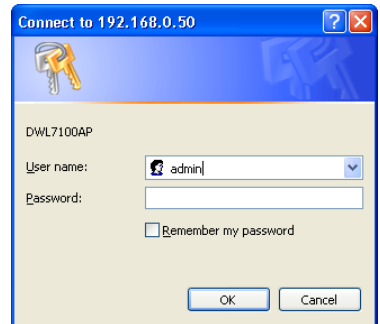
Home > Wizard

The **Home>Wizard** screen will appear. Please refer to the *Quick Installation Guide* for more information regarding the Setup Wizard.
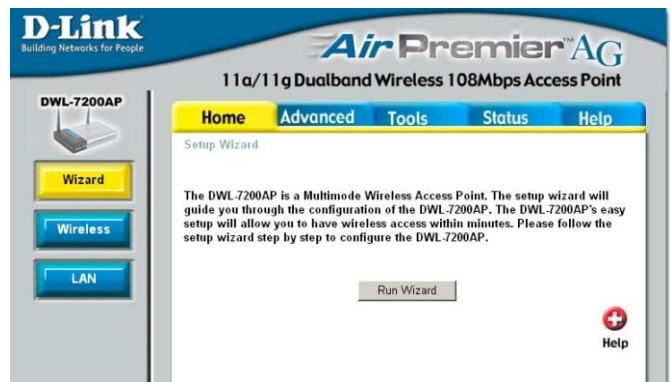
Using the Configuration Menu (continued)

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.

Due to DFS(Dynamic Frequency Selection),802.11a SSID Broadcast is always enabled.(EEC countries)

Channel- **6** is the default channel. All wireless 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.

* default settings vary for 802.11a

11

Using the Configuration Menu (continued)

Home > LAN
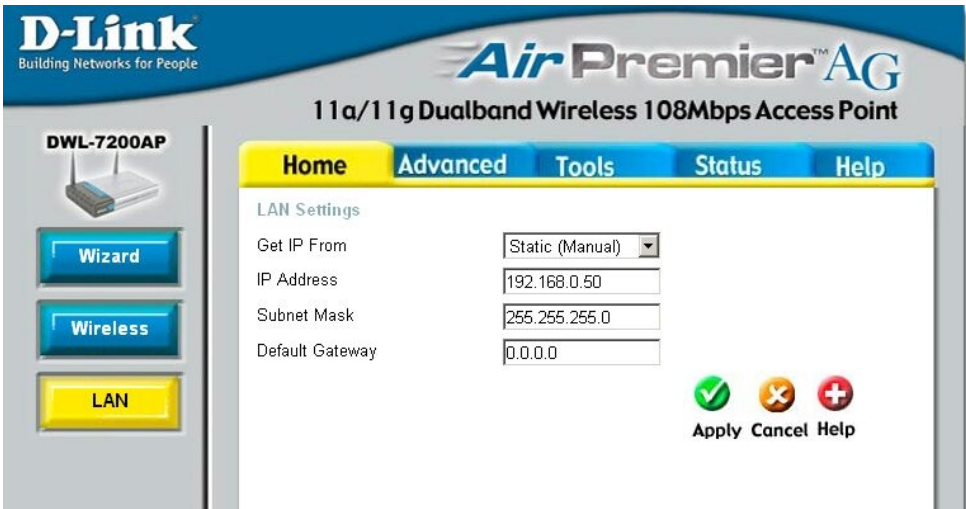
LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DWL-7200AP. These settings may be referred to as private settings. You may change the LAN IP address if needed. The LAN IP address is private to your internal network 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-7200AP.

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-7200AP 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 Address of the APs with which the DWL-7200AP will associate

AP Repeater: To extend the ange of the wireless network select this option and enter the MAC address ofthe 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

AP Clinet: To transform any IEEE 802.3 Ethernet device (e.g., A computer, print, etc.) Into an 802.11b wireless client when it communicates with another DWL-7200AP that is acting as an AP.

Remote AP MAC Address: Enter the MAC address of the remote AP within your network

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

* WDS (Wireless Distribution System) features for PtP/PtMP Bridging and Repeating are only available in 2.4GHz. (EEC countries)

Using the Configuration Menu (continued)

Advanced > Performance

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

Frequency: The frequency range will be displayed.

Channel: 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
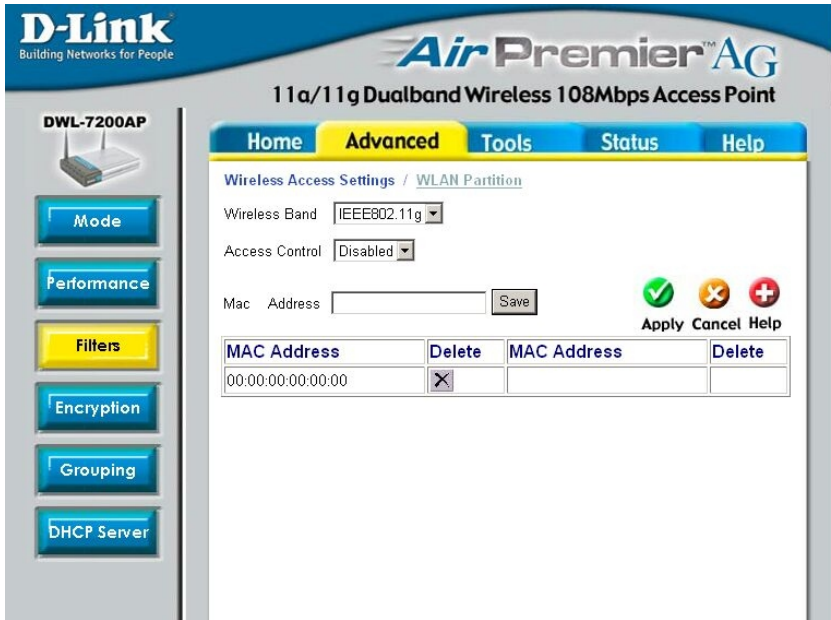
Access Control:

> **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

Wireless Band: Select 802.11a or 802.11g.

Authentication: Select from one of the following:

- **Open System:** the DWL-7200AP will be visible to all devices on the network. **Open System** is the **default** setting.

- **Shared Key:** in order to access the DWL-7200AP 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

Load Balance: Select **Enabled** or **Disabled**.

> When you **Enable Load Balance** you allow several DWL-7200APs to balance wireless network traffic and wireless clients among the DWL-7200APs 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-7200AP.

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-7200AP.
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
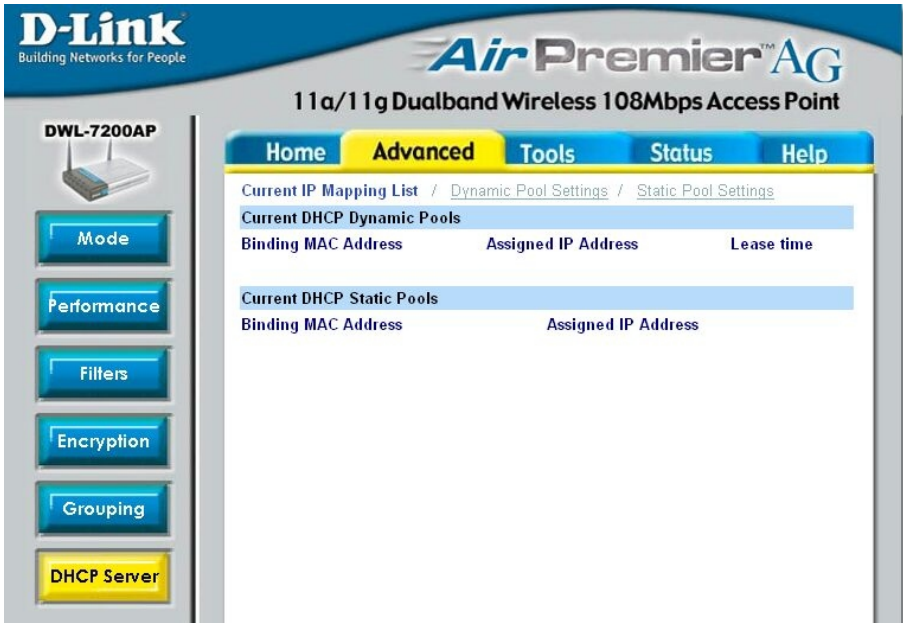
This screen displays information about the current DHCP dynamic and static IP address pools. This information is available when you enable the DHCP function of the DWL-7200AP and assign dynamic and static IP address pools.

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
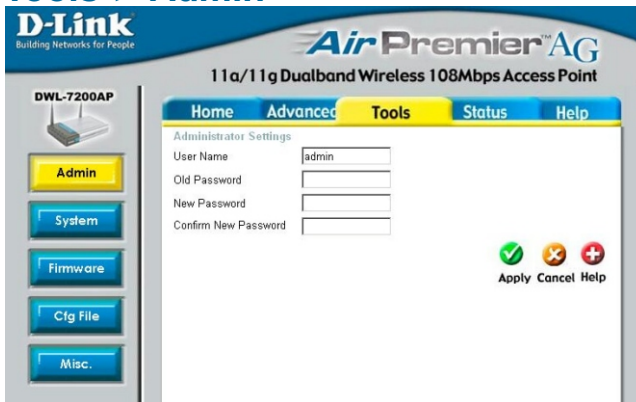
User Name: The default User Name is admin.

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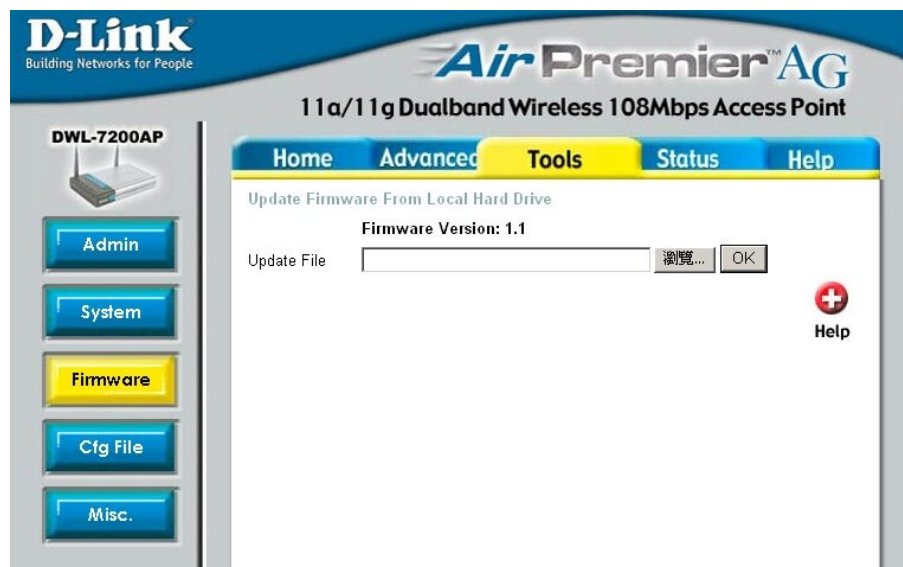
Apply: To save changes, click **Apply**.

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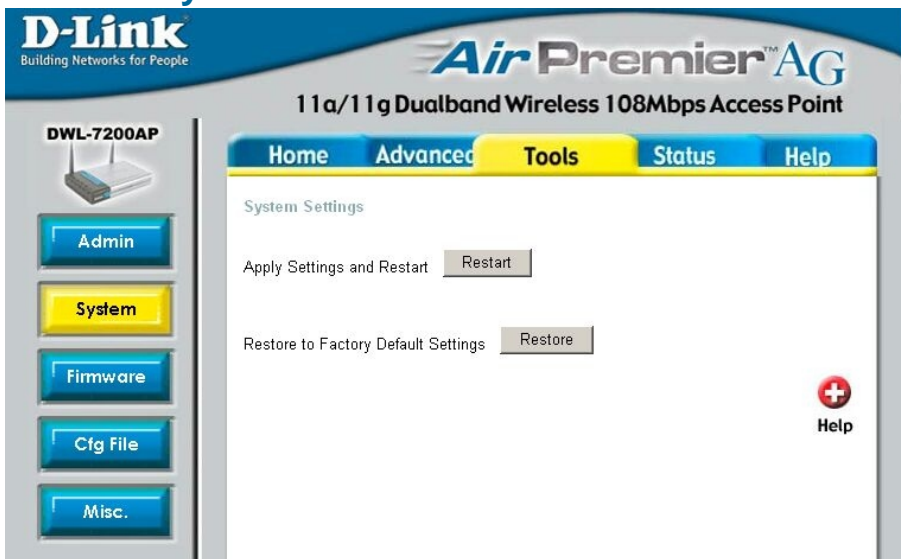
Apply Settings and Restart: If you have made any changes to the configuration settings, click **Restart** to apply the changes.

Restore to Factory Default Settings: To return the DWL-7200AP 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://www.dlink.co.uk/pages/tech_support/tech_support_overview.asp

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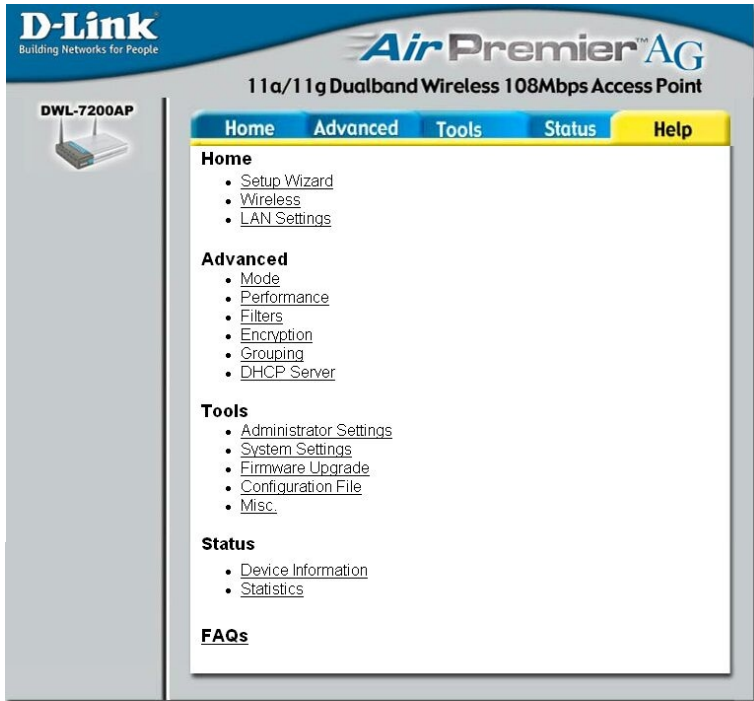
Timeout-
Select a time period after which a session timeout will occur.

Using the Configuration Menu (continued)

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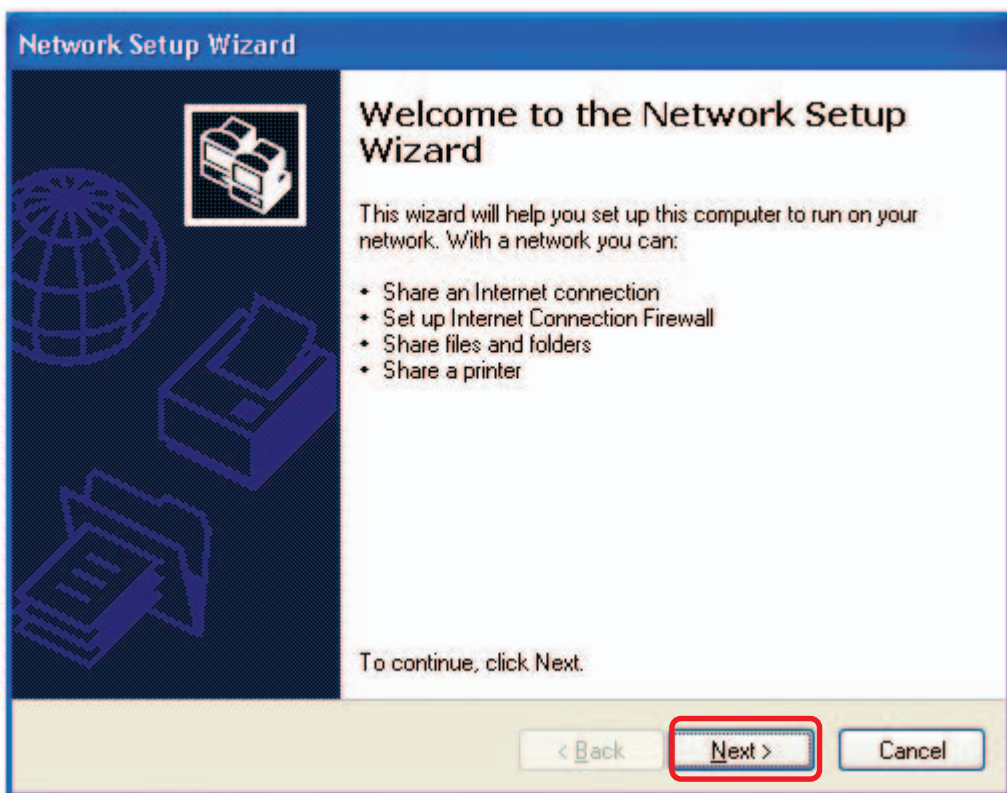
When this screen appears, click **Next.**