D-Link

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User Manual

PowerLine AV Wireless N150 Mini Extender

DHP-W220AV

Preface

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes.

Manual Revisions

Revision	Date	Description
1.00	13 November, 2014	• Initial release for A1 version

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The purpose of this product is to create a constant network connection for your devices. As such, it does not have a standby mode or use a power management mode. If you wish to power down this product, please simply unplug it from the power outlet.

Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA), and automatically switches to a power-saving Network Standby mode within 1 minute of no packets being transmitted. It can also be turned off through a power switch to save energy when it is not needed.
Network Standby: 2.27 watts
Switched Off: 0.05 watts

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Package Contents

DHP-W220AV

CAT5 Ethernet Cable

Wi-Fi Configuration Card

Quick Installation Guide

Depending on your region, a power plug adapter may also be included. If any of the above items are missing, please contact your reseller.

System Requirements

Network Requirements	• Cable/DSL modem • IEEE 802.11b/g/n wireless clients
Web-based Configuration Utility Requirements	**A computer or mobile device with the following:** • Windows®, Macintosh, Linux-based, iOS, or Android™ operating system • An installed Wi-Fi adapter **Browser Requirements:** • Internet Explorer® 8 or higher • Firefox® 12.0 or higher • Safari® 4 or higher • Chrome™ 20 or higher **Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.

Introduction

The DHP-W220AV PowerLine AV Wireless N150 Mini Extender allows you to connect both wired and wireless computers, smartphones, tablets, digital TV, and gaming consoles using the most pervasive medium in your home - the electrical wiring. Share your Internet connection and experience smooth file transfers, streaming multimedia, online gaming and more.

The DHP-W220AV features Zero Configuration for easy plug-and-play installation so you can extend your wired and wireless network quickly. A D-Link exclusive, Clone My Wi-Fi technology lets you copy your existing network settings to your Powerline network easily and painlessly. Then simply press the Simple Connect button and your Powerline network will be set up and ready for use with other network devices. Then press the WPS button to connect your mobile devices and PCs wirelessly while solid security features such as industry-standard 128-bit AES and WEP/WPA/WPA2 encryption protects your Powerline wireless network from intrusion.

The DHP-W220AV incorporates the latest technology to improve on the HomePlug AV technology's data speeds over a home's existing electrical wiring. This fast transmission speed provides ample bandwidth suitable for streaming video signals while simultaneously providing high-speed Internet access throughout the home. Support for 802.11n/g/b devices means your existing devices can easily connect wirelessly to your Powerline network and uPnP support means extraneous devices are easily compatible in your network.

Features

- **Data Transmission Over Electrical Wiring** - The D-Link DHP-W220AV PowerLine AV Wireless N150 Mini Extender, compliant with the HomePlug AV standard, uses your home's existing electrical wiring to create a network or extend your existing network.[1] It turns every power outlet into a potential network connection to access digital media devices, game consoles, print servers, computers, and network storage devices throughout your home. Additionally, Wireless N provides high speed transfers without the need for unsightly network cables.

- **Zero Configuration & Clone My Wi-Fi Technology For Easy Setup** - The DHP-W220AV plugs directly into a power outlet, and does not require any additional cables. To simplify setup, D-Link's Zero Configuration means just that: no configuration needed. Even better, Clone My Wi-Fi technology lets you copy your existing network configuration for hassle-free installation to get you up and running quickly. For convenience, wireless devices can be connected at the push of a button. Use the Internet securely with the 128-bit AES data encryption used to protect the network from unauthorized intruders. With plug and play installation, the DHP-W220AV is an ideal solution to create a wall-to-wall home network.

- **Compact Design That Fits Into Any Home** - Network devices are a part of every home and office, but that doesn't mean it needs to be unsightly. With the wall-wart design in classic white exterior, the DHP-W220AV blends into any decor by staying out of sight. Practicality meets discreetness in a small, unobtrusive package designed for any environment.

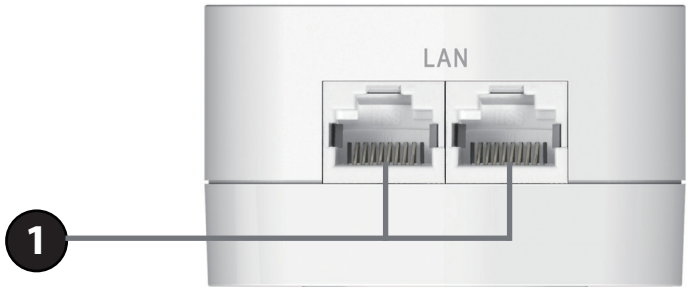
- **Faster Wireless Speeds & Wider Operational Range** - The Wireless N technology incorporated into the DHP-W220AV offers increased speed and range beyond 802.11g technology up to 150 Mbps. This lets you extend your wireless network coverage so you can stream music, movies, and play games from any corner of your home.

- **Ideal For Bandwidth-Intensive Applications** - The DHP-W220AV is capable of delivering Powerline AV data transfer rates even higher than the old AV standard. Rapid transmission speeds of up to 200 Mbps makes it ideal for bandwidth-intensive applications, guaranteeing smooth HD video streaming, clear VoIP calls, and lag-free online gaming experiences. Support for 802.11n provides ample wireless bandwidth and enables users to tap into existing electrical wiring from a wireless device for high-quality multimedia streaming.

[1]Power outlets and electrical wiring must all be part of the same electrical system. Certain electrical conditions in your home, such as wiring condition and configuration, may affect the performance of this product. Additional D-Link Powerline AV adapters are required to add new devices to the network. A minimum of two D-Link Powerline AV Network Adapters are required to create a network. Connecting this product to a power strip with a surge protector may adversely affect the performance of this product. For best results, plug the adapter directly into a wall outlet.

Hardware Overview

Connections



1	**LAN Ports**	Connects to LAN devices such as PCs, TVs, and game consoles.

Hardware Overview

Buttons

1	**Power Button**	Press to power on/off the device.
2	**Simple Connect Button**	Push this button to create a secure Powerline connection with another adapter. It can also be used to connect using Wi-Fi Protected Setup (WPS). To connect using WPS, press this button, then press the WPS button on your wireless client. To reset the device to factory settings, press the button for 10 seconds.

Hardware Overview

LEDs

1	**Power LED**	Solid Orange	The device is powering on.
		Solid Green	The device is on.
		Blinking Green	Fast: The device is performing WPS or PLC synchronization. Slow: The device is in power saving mode.
		Light Off	The device is off.
2	**Powerline LED**	Solid Green	A Powerline connection is established and the data rate is high.
		Solid Orange	A connection is established and the data rate is average.
		Solid Red	A connection is established and the data rate is low.
		Light Off	A Powerline connection is not established.
3	**LAN LED**	Solid Green	The LAN segment is ready.
		Light Off	There is no LAN established.

Installation
Wireless Installation Considerations

The DHP-W220AV lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. 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 D-Link router and other network devices to a minimum - each wall or ceiling can reduce your adapter'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 make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.
5. If you are using 2.4 GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4 GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone in not in use.

Hardware Installation

A minimum of two Powerline devices (your DHP-W220AV and another pre-existing device) are required to create a Powerline network. Make sure your existing HomePlug AV device is plugged into a power outlet near your cable or DSL modem and connected to your network.

Power

Plug the DHP-W220AV into an AC wall outlet where you want to extend your network and press the power button. The Power LED on the DHP-W220AV will turn on to indicate it is receiving power. This may take up to 60 seconds.

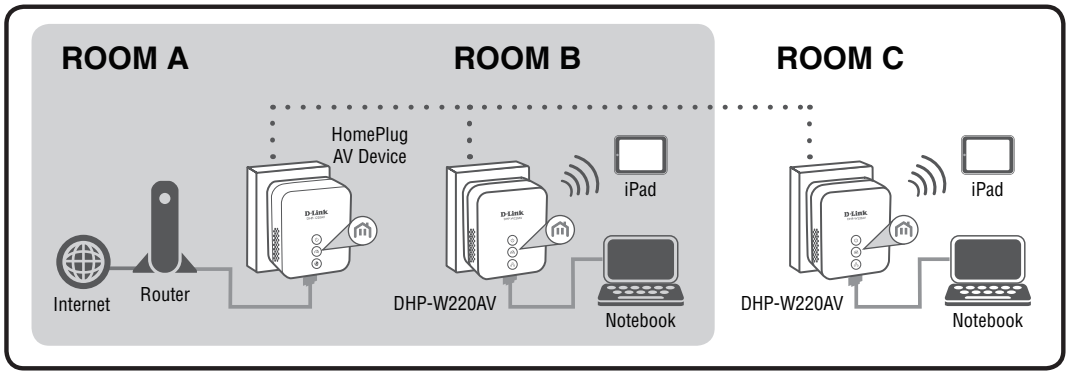
Connect to Your Existing Network

Press the **Simple Connect Button** on the DHP-W220AV for 3 seconds. Then, press the **Simple Connect Button** on the existing Powerline AV device for 3 seconds. This must be done within two minutes after pressing the Simple Connect Button on the DHP-W220AV. The Powerline devices will reboot. Read the installation advice on the next page, and continue to "Configuration" on page 12.

Plug in the Ethernet Cable

Connect one end of the supplied CAT5 Ethernet cable to the LAN port on the DHP-W220AV and the other end of the cable to your computer's Ethernet port. You may also connect to the DHP-W220AV over Wi-Fi with the information on the Wireless Configuration Card to proceed to set up your wireless network.

Note: *Network connectivity is confirmed when the Powerline LED indicators on both Powerline devices are steadily lit. This will indicate that your network is now secure.*



Powerline Installation Considerations

Plan the location of your Powerline devices:

1. Connect Powerline devices to electrical outlets that are not controlled by a wall switch to avoid accidentally turning off power to the device.

2. Do not connect the Powerline devices to an extension cord, surge protector, or power strip as this might prevent it from working correctly, or negatively impact network performance.

3. Avoid using the Powerline devices in an electrical outlet that is located near an appliance that uses a lot of power, such as a washer, dryer, or a refrigerator. This may prevent the adapter from working correctly, or negatively impact network performance.

4. Verify that your Powerline devices are electrically rated to operate with the power available in your location.

5. To help prevent against electrical shock, be sure to plug the power cables into properly grounded electrical outlets.

Safety

Please read all of the safety and operating instructions before using your device:

1. Do not open the device or attempt to repair or service the device.
2. Ensure that the device is plugged into the wall in a vertical position.
3. Use the device in a dry location, and avoid placing it in humid environments.
4. Do not submerge the device in liquid or attempt to clean it with liquids or solvents. To clean the device, disconnect it from the power outlet and use a damp towel.
5. Keep the device out of direct sunlight.
6. Do not cover or block the vents on the device.
7. Make sure that the device has adequate room for ventilation.
8. Avoid placing the device near a heater or radiator.

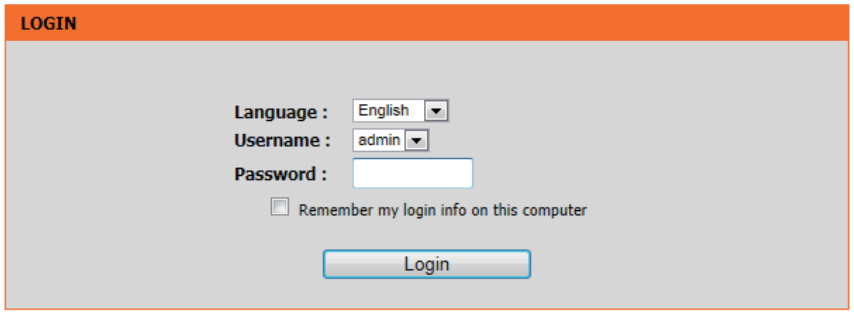
Configuration

Setup

If you wish to change the default settings or optimize the performance of the DHP-W220AV you may use the web-based configuration utility.

To access the configuration utility, open a web browser such as Internet Explorer and enter either **http://dlinkap.local./** (this is on the Wi-Fi Configuration Card) or **http://192.168.0.50** in the address field.

By default, **admin** will be the Username . Leave the password blank.



If you receive a "Page Cannot be Displayed" error, please refer to "Troubleshooting" on page 44 for assistance.

Click **Setup Wizard** after logging in and follow the instructions to configure your DHP-W220AV.

Setup Wizard

Use the wizard's on-screen instructions to conveniently set up your network if you have not yet. You can also manually configure your network. Wi-Fi settings are covered in "Wireless Settings" on page 14 and Powerline settings are covered in "PLC Settings" on page 18.

Wireless Settings

The DHP-W220AV lets you customize your wireless settings for your access point. This device allows you to extend your current network so you can roam about the house while staying connected the entire time. Click **Save Settings** when finished.

Wireless Name: The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive. Enable Auto Channel.

Enable Auto Channel Scan: The auto channel selection setting can be selected to allow this device to choose the channel with the least amount of interference.

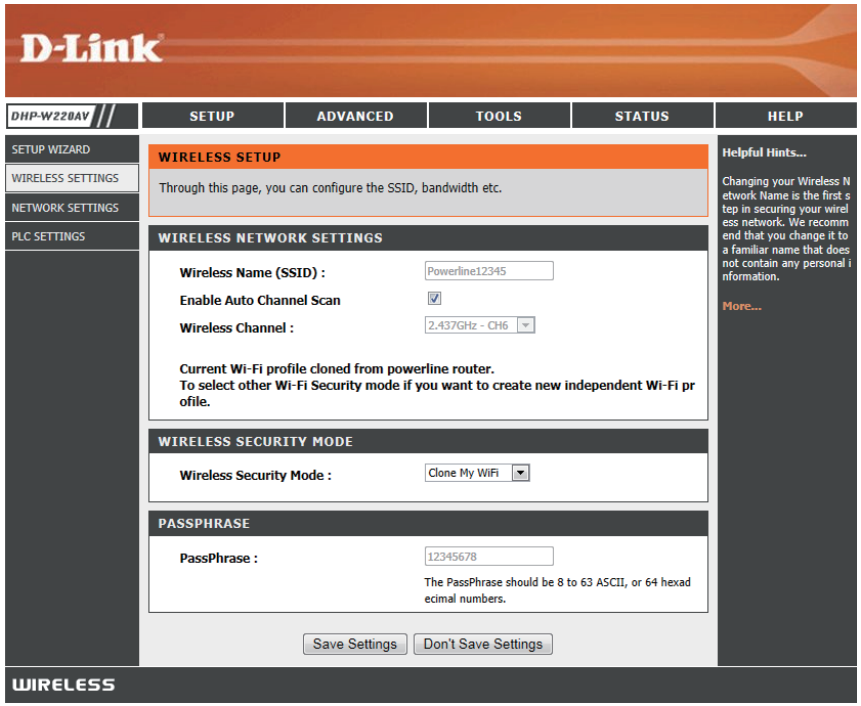
Wireless Channel: By default the channel is set to 1. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable Auto Channel Selection, this option will be greyed out.

Wireless Security Mode: **WPA/WPA2** is more secure than WEP. **WEP** should only be used if you have older devices that are unable to use WPA. Use of TKIP/AES security framework provides the optimum mix of security and compatibility. Please refer to "What is Wireless?" on page 49 for more information. Choosing **Clone My Wi-Fi** will copy the security settings on your current network to the DHP-W220AV.

Passphrase: Choose a password that is strong. A good password uses both letters and numbers in unpredictable places. Example bad passwords could be *password* or *12345678*.

Clone My Wi-Fi

D-Link's new Clone My Wi-Fi technology lets you expand your network quickly and simply. By selecting this option, all of your wireless security settings on your existing network will be copied to the DHP-W220AV. The existing values will be grayed out to indicate they cannot be changed.



Click **Save Settings** to apply your settings.

Note: The DHP-W220AV will copy the Wi-Fi settings from a router that also supports Clone My Wi-Fi. If the DHP-W220AV cannot copy the settings over, the device will keep the default (WPA2) or current settings and search for a router that supports this function when **Save Settings** is clicked.

Network Settings

Static IP

This section will allow you to change the local network settings of the DHP-W220AV and to configure the DHCP settings.

LAN Connection Type: Select **Static IP** to manually enter the IP settings supplied by your Internet Service Provider (ISP).

IPv4 Address: Enter the IP address of the router. The default IP address is **192.168.0.50**.

If you change the IP address, once you click **Save Settings**, you will need to enter the new IP address in your browser in order to log in to the configuration utility in the future.

Subnet Mask: Enter the subnet mask. The default subnet mask is 255.255.255.0.

Default Gateway: Enter the default gateway IP address.

Primary DNS Server: Enter the primary DNS server as provided by your ISP.

Secondary DNS Server: Enter an optional DNS server as provided by your ISP.

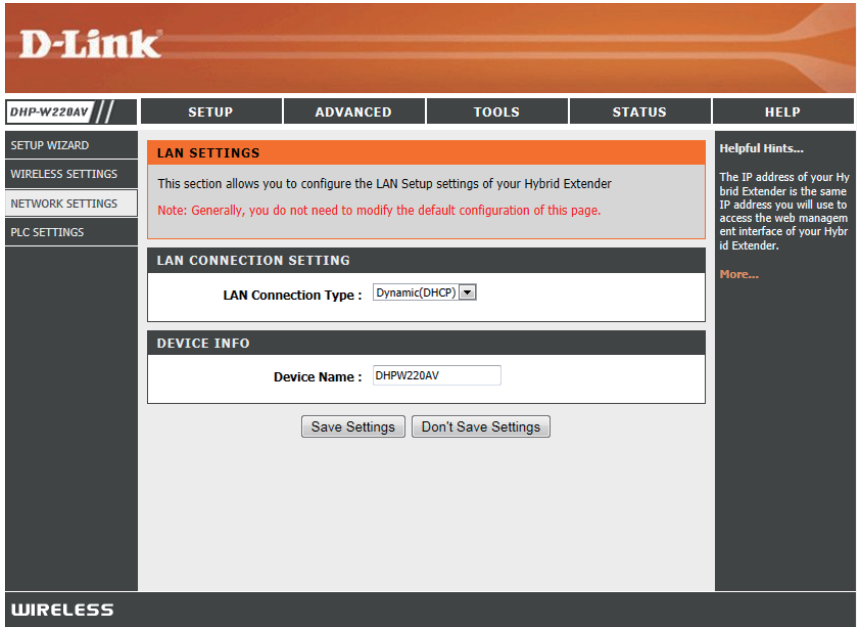
Device Name: Enter the name of the router.

Dynamic IP (DHCP)

If you are unsure what method you use to connect to the Internet, try this first.

LAN Connection Type: Select **Dynamic IP (DHCP)** to obtain IP address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use.

Device Name: Enter the name of the router.



PLC Settings

This section will let you configure your D-Link Powerline AV settings and information.

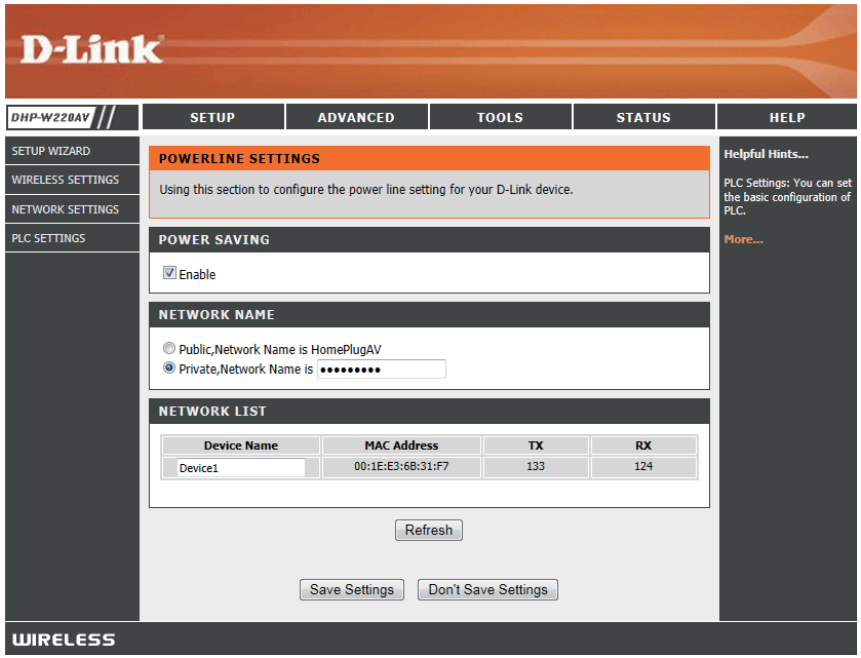
Power Saving: Enable Power Saving mode.

Network Name: You can set the name of your network and to make it either public or private. Make sure the Network Name of all of the devices within your Powerline network is the same.

Public Network Name: Select this option if you would like to make your Powerline network public with the default Network Name of "HomePlugAV". Since this is a commonly used Network Name, it is less secure than a private Network Name.

Private Network Name: Select this option if you wish to make your Powerline network more secure by using a private Network Name.

Network List: This section provides information such as MAC Address and data transmission rates on the network devices on your Powerline network.



Advanced

MAC Address Filter

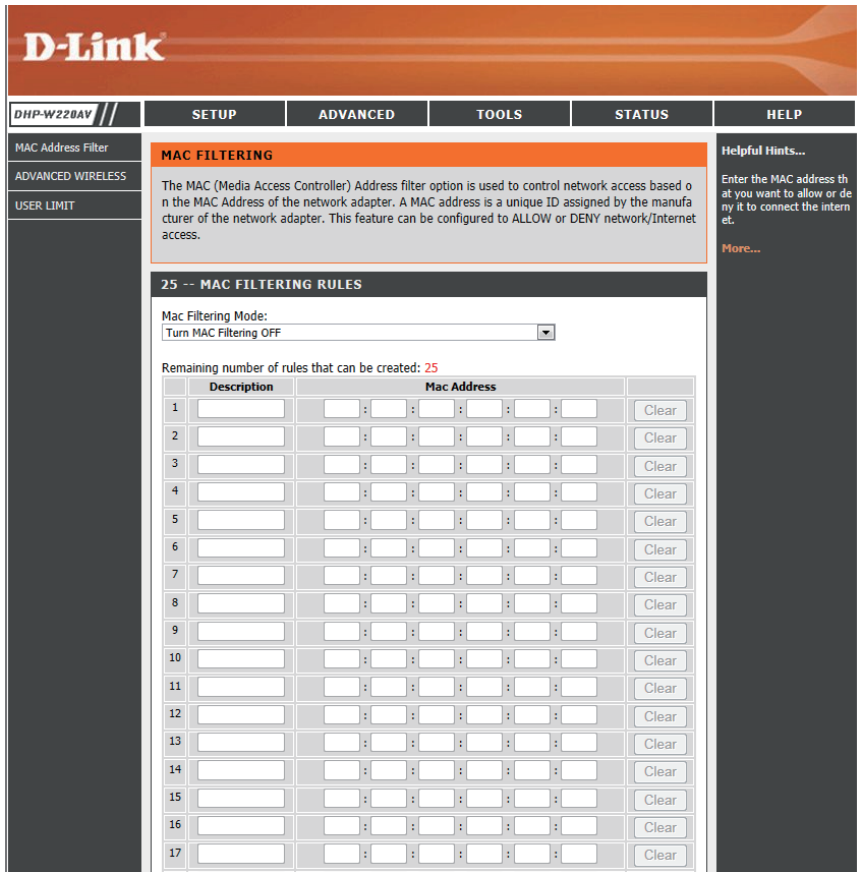
Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers from accessing the network according to their MAC addresses. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the DHP-W220AV.

MAC Filtering Rules: Select **Turn MAC Filtering Off**, **Allow MAC addresses listed below**, or **Deny MAC addresses listed below** from the drop-down menu.

MAC Address: Enter the MAC address you would like to filter.

To find the MAC address on a computer, please refer to *"Networking Basics" on page 53* section in this manual.

Click **Save Settings** to save the current configuration.



Advanced Wireless

This page allows you to change some of the advanced wireless settings of the DHP-W220AV. It is recommended that you only change these settings if you are familiar with their functions and proper settings, or are instructed to do so.

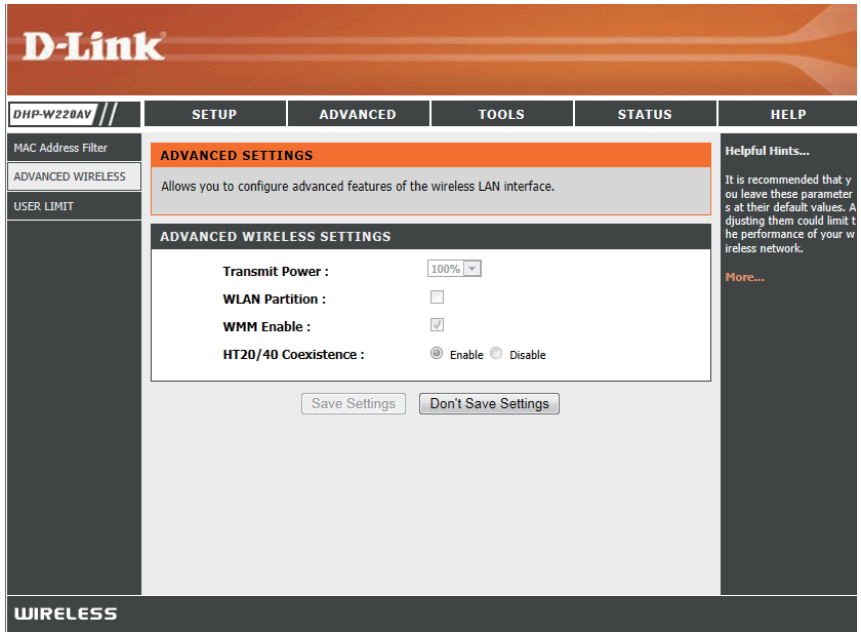
Transmit Power: Set the transmission power of the antennas for the 2.4 GHz band.

WLAN Partition: This enables 802.11d operation. 802.11d is a wireless specification developed to allow implementation of wireless networks in countries that cannot use the 802.11 standard. This feature should only be enabled if you are in a country that requires it.

WMM Enable: WMM is QoS for your wireless network. This will improve the quality of video and voice applications for your wireless clients.

HT20/40 Coexistence: Enable this option to reduce interference from other wireless networks in your area. If the channel width is operating at 40 MHz and there is another wireless network's channel overlapping and causing interference, the router will automatically change to 20 MHz.

Click **Save Settings** to save the current configuration.

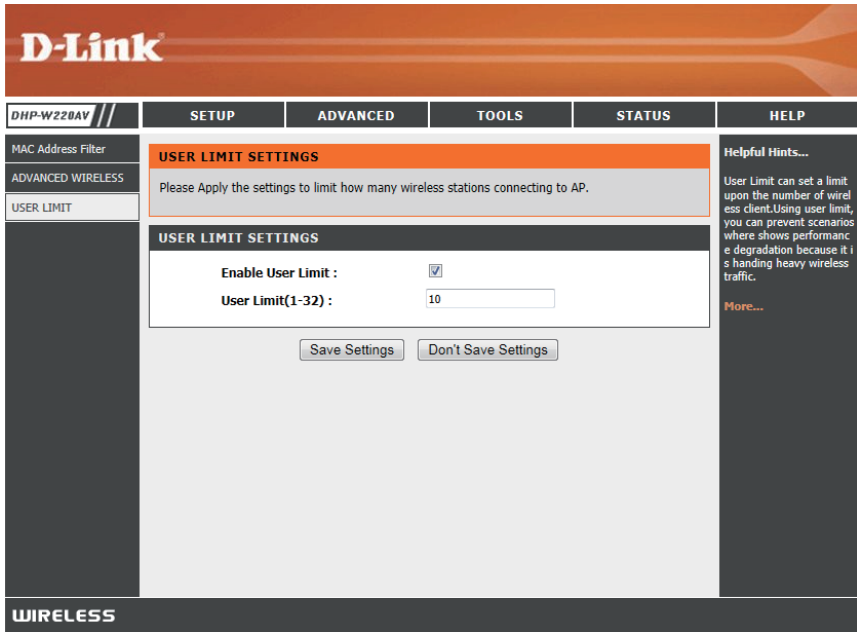


User Limit

Enable User Limit: Check to enable the User Limit function.

User Limit(1-32): Enter a number between 1 and 32 of the maximum number of clients that can connect to this network.

Click **Save Settings** to save the current configuration.



Tools

Admin

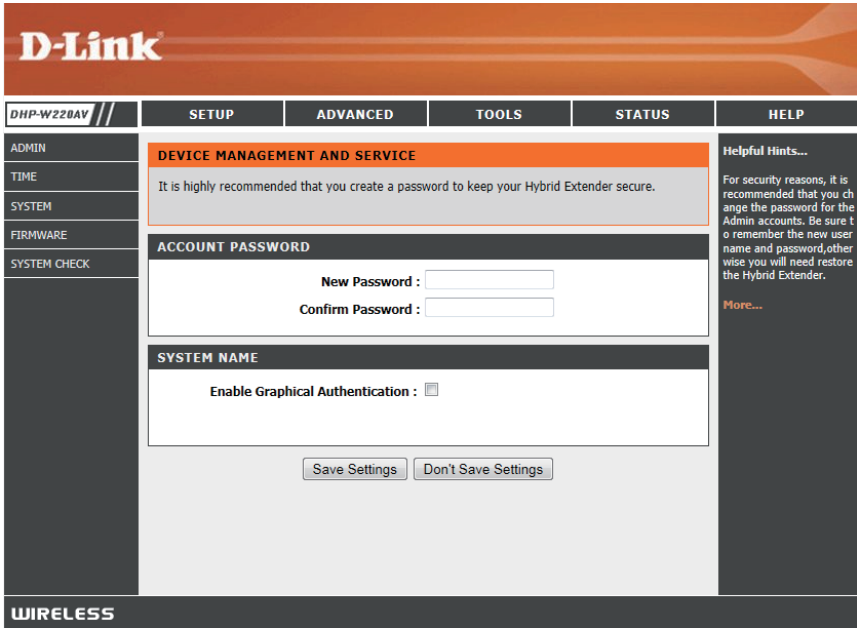
This page will allow you to change the administrator password, which is used to access the configuration interface and change settings.

New Password: Enter a new password for the admin user name. The administrator account can change the configuration of the device.

Confirm Password: Enter the same password that you entered in the previous textbox in order to confirm its accuracy.

Enable Graphical Authentication: Enables a CAPTCHA verification which will require users to type letters or numbers from a distorted image displayed on the screen to prevent online hackers and unauthorized users from gaining access to your device's configuration. This feature is disabled by default.

Click **Save Settings** to save and activate the new changes.



Time

The Time and Date options allow you to configure, update, and maintain the correct time on the internal system clock. From this section you can set the time zone that you are in. Daylight saving and NTP can also be configured to automatically adjust the time when needed.

Time Zone: Select the Time Zone from the drop-down menu.

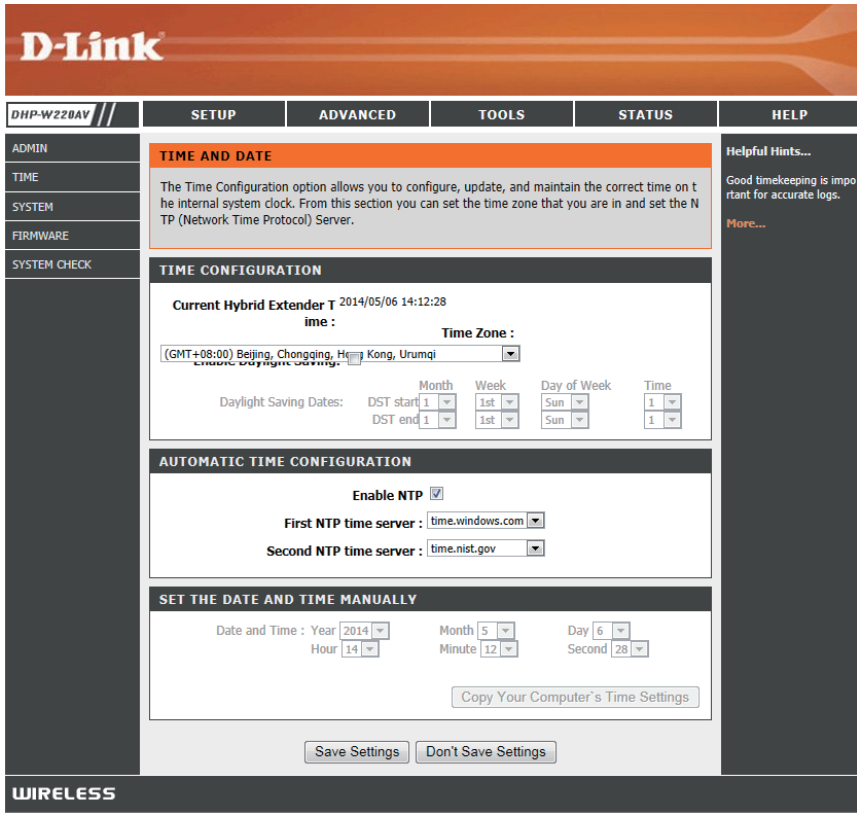
Enable Daylight Saving: To enable daylight saving time adjustment, click the Enable Daylight Saving check box. Next, use the drop-down menu to select a Daylight Saving Offset and then enter a start date and an end date for daylight saving time.

Enable NTP: NTP (Network Time Protocol) allows the device to automatically set the system clock based on an Internet NTP server. Check this box to use a NTP server. This will only connect to a server on the Internet, not a local server.

NTP Server Used: Enter the NTP server or select one from the drop-down menu.

Set Date and Time Manually: To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second and then click Save Settings. You can also click the Copy Your Computer's Time Settings button at the bottom of the screen.

Click **Save Settings** to save and activate the new changes.



System

This page lets you both save and delete settings on your DHP-W220AV.

Save Settings To Local Hard Drive: Use this option to save the current DHP-W220AV configuration settings to a file on the computer you are using. Click the **Save** button. You will then see a file dialog where you can select a location and file name for the settings.

Load Settings From Local Hard Drive: Use this option to load previously saved DHP-W220AV configuration settings. Click **Browse** to find a previously saved configuration file. Then, click the **Upload Settings** button to transfer those settings to the DHP-W220AV.

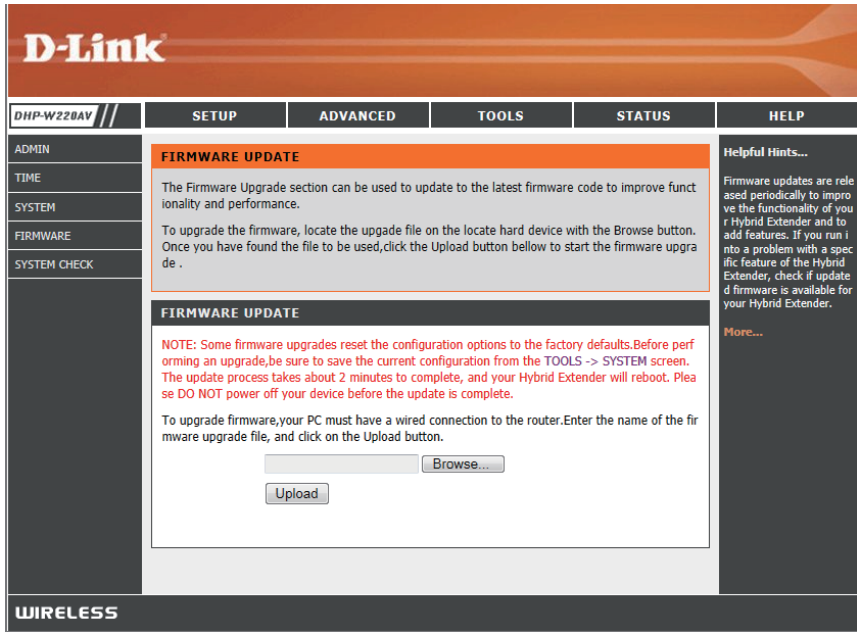
Restore to Factory Default Settings: This option will restore all configuration settings back to the settings that were in effect at the time the DHP-W220AV was shipped from the factory. Any settings that have not been saved will be lost, including any rules that you have created. If you would like to save the current DHP-W220AV configuration settings, use the **Save** button above.

Reboot the Device: Click to reboot the DHP-W220AV.

Firmware

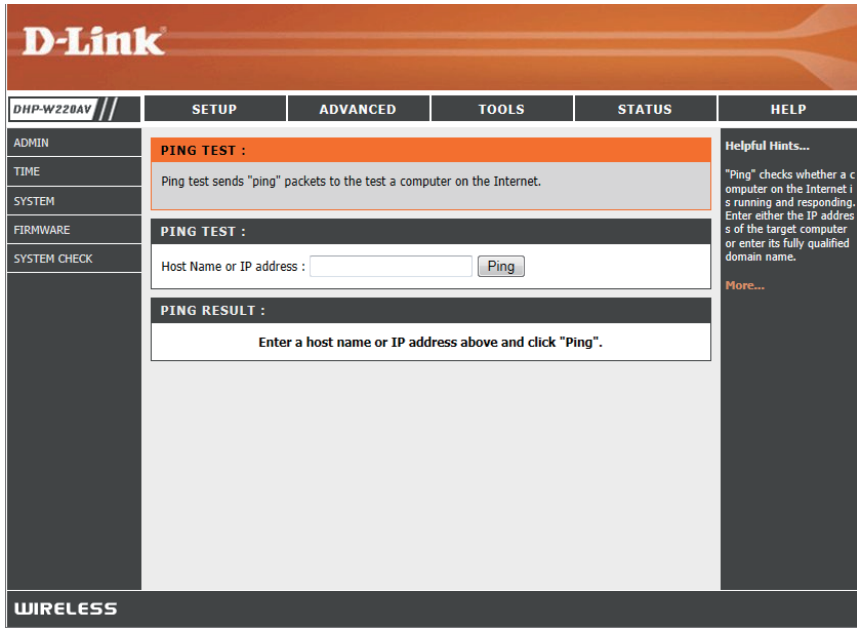
You can upgrade the firmware of the DHP-W220AV from this page. Make sure the firmware you would like to use is on the local hard drive of your computer. Click **Browse...** to locate the firmware file to be used for the update. Please check the D-Link support site for firmware updates at **http://support.dlink.com**. You can download firmware upgrades to your hard drive from the D-Link support site.

Firmware Update: After you have downloaded the new firmware, click **Browse...** to locate the firmware update on your hard drive. Click **Upload** to complete the firmware upgrade.



System Check

This page helps you to diagnose connection problems.



Ping Test: A ping test sends a tiny bit of information to a website and anticipates a response. Pinging an extremely stable site such as your favorite search engine or news site can help tell you if your Internet connection is working properly. If you can ping a site or address from here but your computer is getting no connectivity, then the DHP-W220AV is working properly but there is the problem with the computer.

Ping Result: "Ping timeout" means that the site did not respond. This happens if the site is down or does not exist, but also if you do not have Internet connectivity. If you ping several common websites and all result in a timeout then there is likely an issue with your Internet connection. If the result says a site is alive, then your Internet connection is working.

Status

Device Info

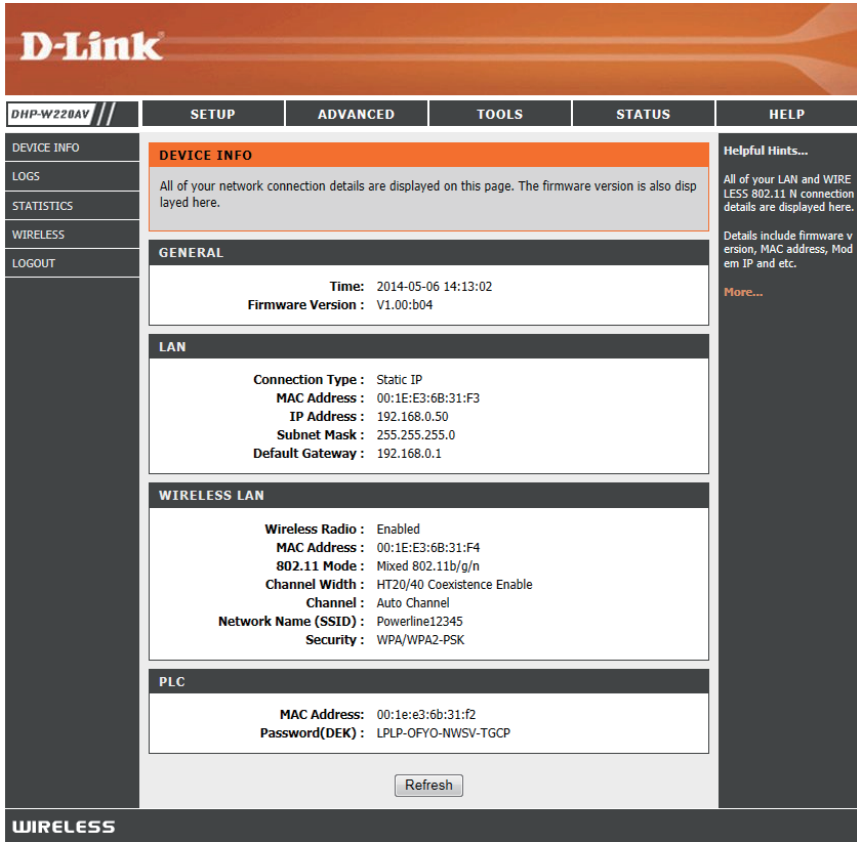
This page displays the current information for the DHP-W220AV. It will display the LAN and wireless LAN information.

General: Displays the DHP-W220AV's time and firmware version.

LAN: Displays the MAC address and the private (local) IP settings for the DHP-W220AV.

Wireless LAN: Displays the wireless MAC address and your wireless settings such as SSID and Channel.

PLC: Shows the DHP-W220AV's Powerline Connection settings.



Logs

The DHP-W220AV keeps a running log of events and activities occurring on the DHP-W220AV when logging is enabled. If the AP is rebooted, the logs are automatically cleared. You can save the log files prior to clearing them.

Log Options: Tick **Enable** to start logging network events.

First Page: Go to the first page of the log.

Last Page: Go to the last page of the log.

Previous: Go to the previous page of the log.

Next: Go to the next page of the log.

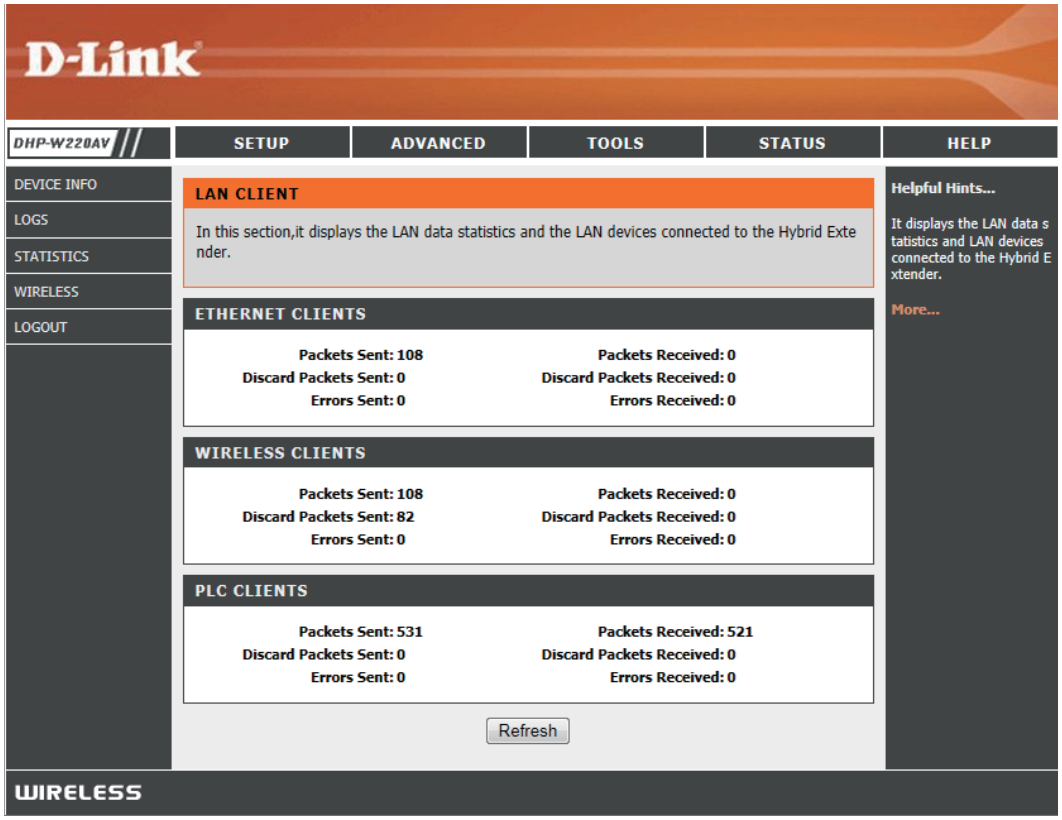
Refresh: Updates the log to the current time.

Save Log: Save the log to your hard drive.

Clear: This button clears all current log content.

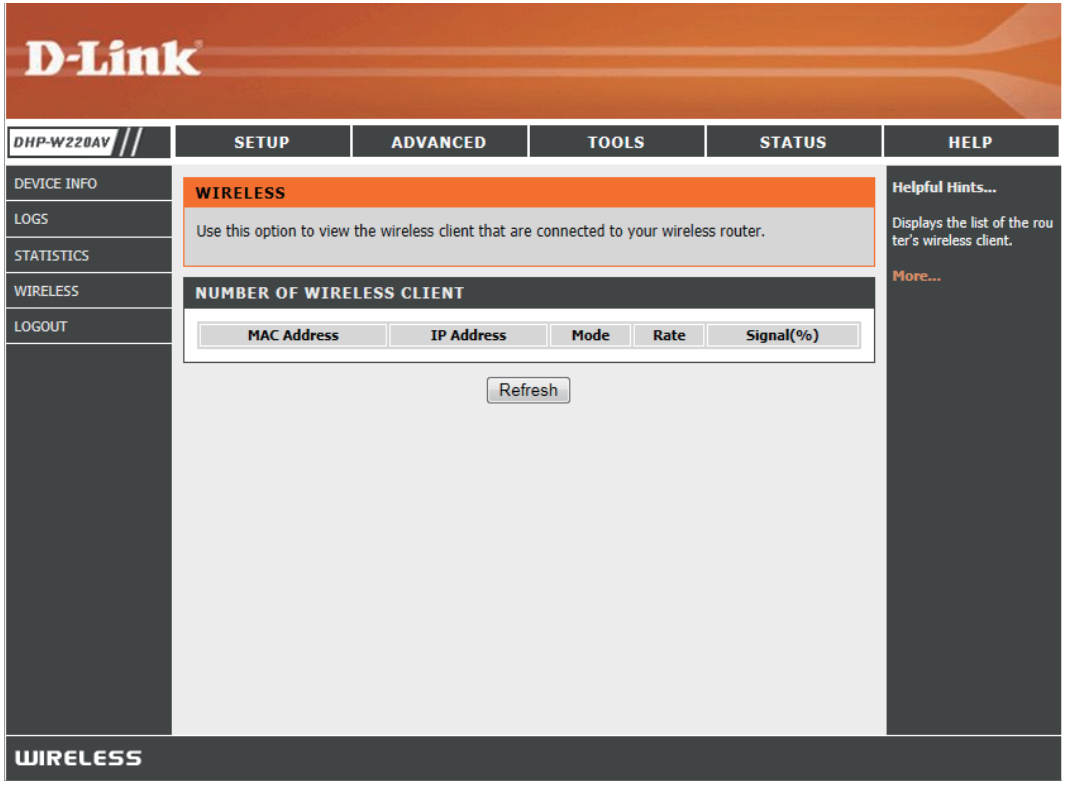
Statistics

The DHP-W220AV keeps statistics on the traffic that passes through it. You can view the amount of packets that pass through the LAN and wireless portions of the network. The traffic counter will reset if the DHP-W220AV is rebooted.



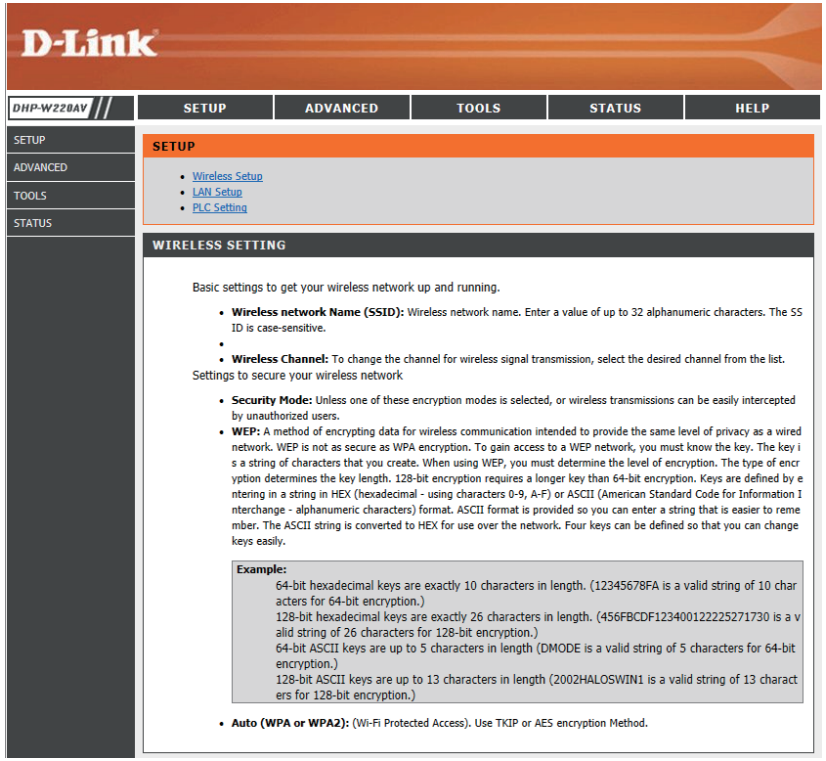
Wireless

The wireless client table displays a list of current connected wireless clients. This table displays the connection details and MAC and IP addresses of the connected wireless clients. Click **Refresh** to update the list.



Help

Click on a link in the Help heading for more information on each section of the firmware.



Connecting to a Wireless Network

WPS Button

The easiest and most secure way to connect your wireless devices to the router is WPS (Wi-Fi Protected Setup). Most wireless devices such as wireless adapters, media players, Blu-ray DVD players, wireless printers and cameras will have a WPS button (or a software utility with WPS) that you can press to connect to the router. Please refer to your user manual for the wireless device you want to connect to make sure you understand how to enable WPS. To connect a client, follow the steps below:

To connect your wireless devices to the router using WPS:

Step 1 - Press the WPS button on the router for about 1 second. The Power/Status LED will start to blink.

Step 2 - Within 2 minutes, press the WPS button on your wireless client (or launch the software utility and start the WPS process).

Step 3 - Allow up to 2 minutes to configure. Once the Power/Status LED stops blinking, you will be connected and your wireless connection will be secure with WPA2.

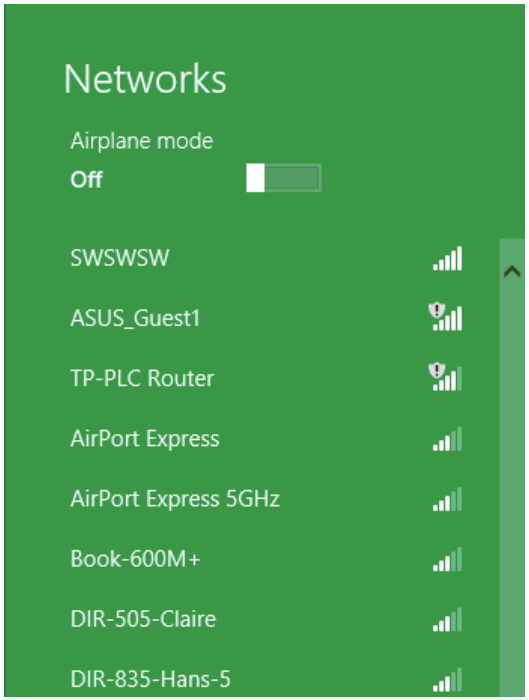
Windows® 8

WPA/WPA2

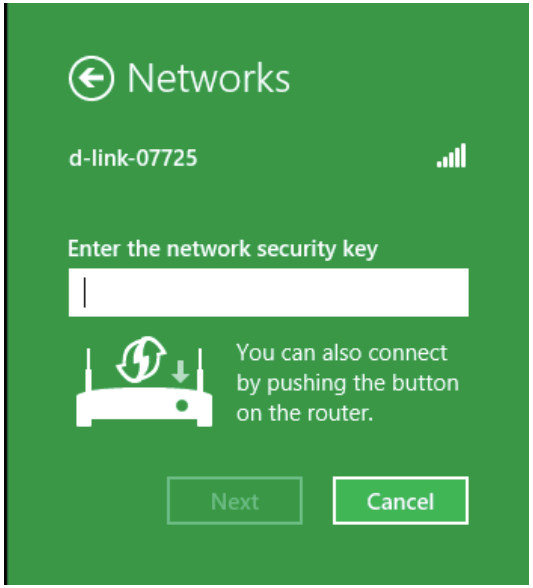
It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key (Wi-Fi password) being used.

To join an existing network, locate the wireless network icon in the taskbar, next to the time display.

Clicking on this icon will display a list of wireless networks which are within connecting proximity of your computer. Select the desired network by clicking on the network name.

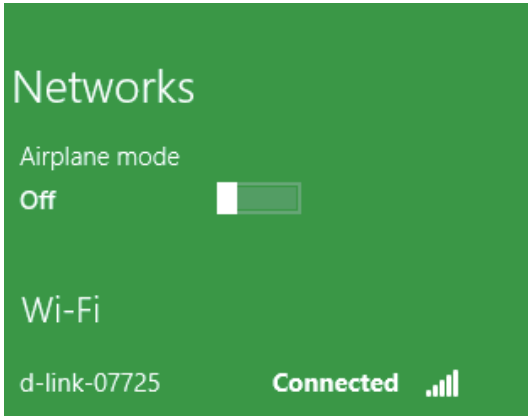


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click **Next**.



If you wish to use Wi-Fi Protected Setup (WPS) to connect to the router, you can also press the WPS button on your router at this point to enable the WPS function.

When you have established a successful connection to a wireless network, the word **Connected** will appear next to the name of the network to which you are connected.

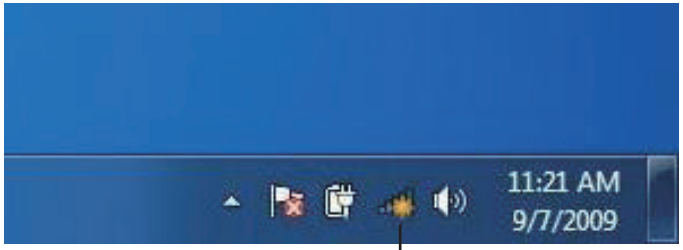


Windows® 7

WPA/WPA2

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Click on the wireless icon in your system tray (lower-right corner).



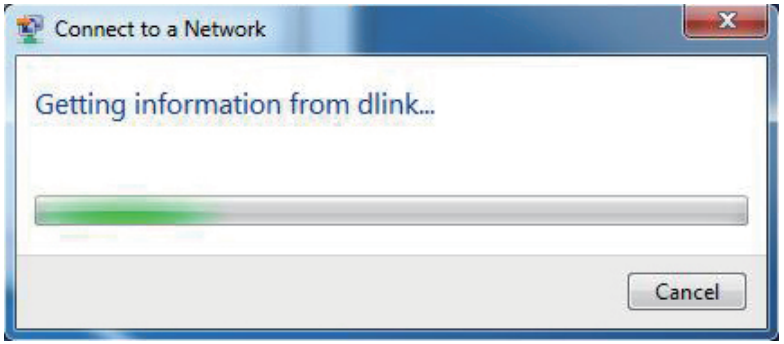
Wireless Icon

2. The utility will display any available wireless networks in your area.

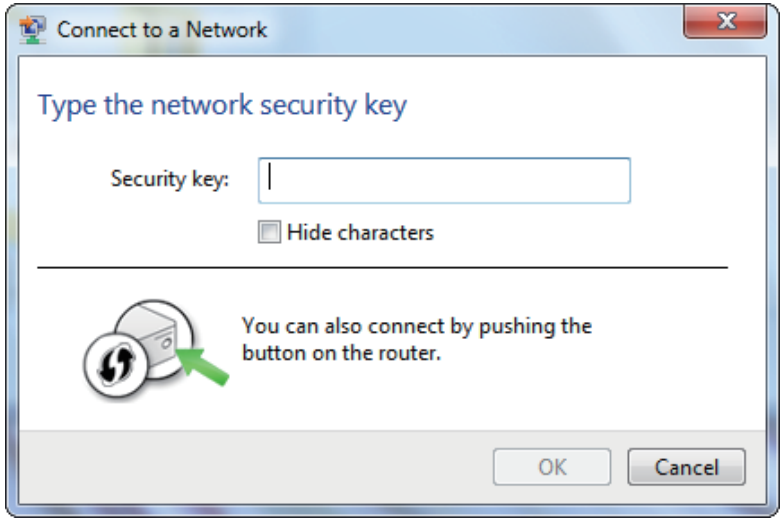
3. Highlight the wireless connection with Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

   If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

4. The following window appears while your computer tries to connect to the router.



5. Enter the same security key or passphrase (Wi-Fi password) that is on your router and click **OK**. You can also connect by pushing the WPS button on the router.



It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.

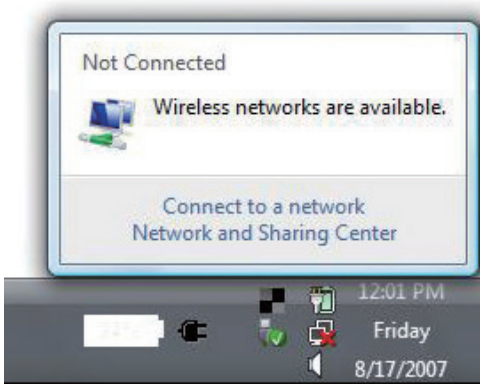
Windows Vista®

Windows Vista® users may use the built-in wireless utility. If you are using a third-party utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows Vista® utility as seen below.

If you receive the **Wireless Networks Detected** pop-up, click on the center of the window to access the utility.

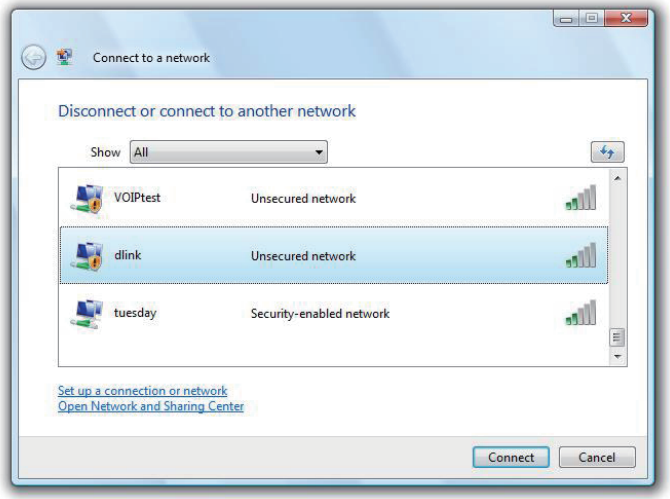
or

Right-click on the wireless computer icon in your system tray (lower-right corner next to the time). Select **Connect to a network**.



The utility will display available wireless networks in your area. Select a network (displayed using the SSID) and click the **Connect** button.

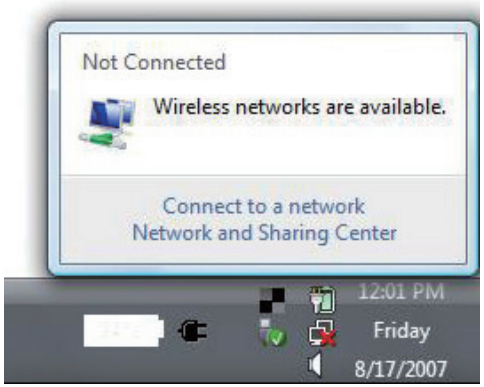
If you have a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



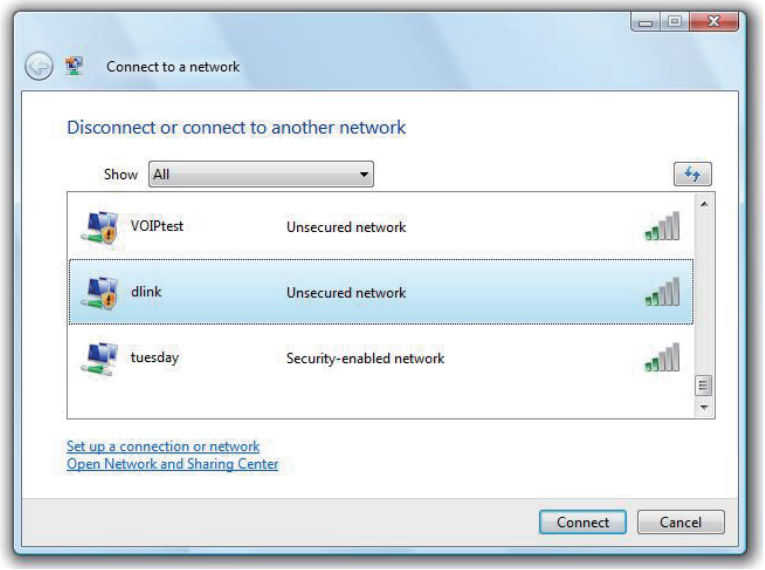
WPA/WPA2

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Open the Windows Vista® Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower right corner of screen). Select **Connect to a network**.



2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. Enter the same security key or passphrase that is on your router and click **Connect**.

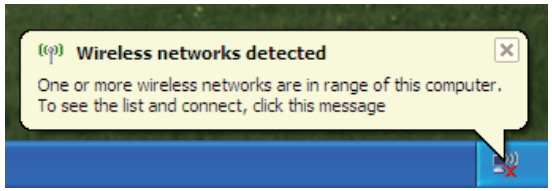
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.

Windows® XP

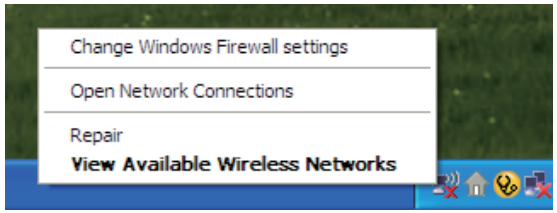
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows® XP utility as seen below.

If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

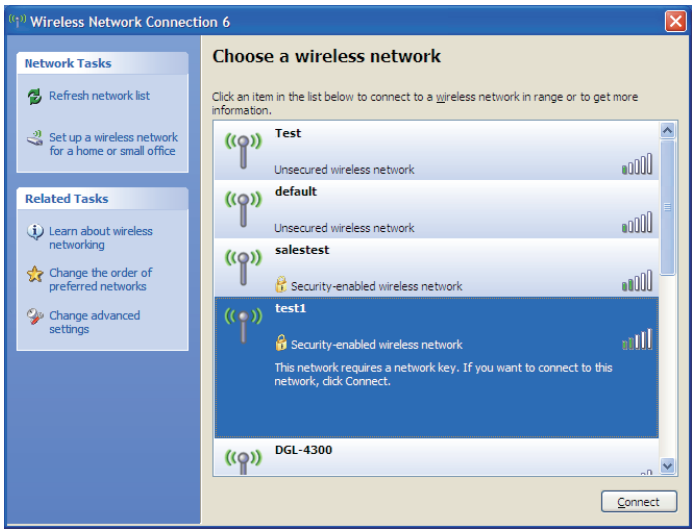


Right-click on the wireless computer icon in your system tray (lower-right corner next to the time). Select **View Available Wireless Networks**.



The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the **Connect** button.

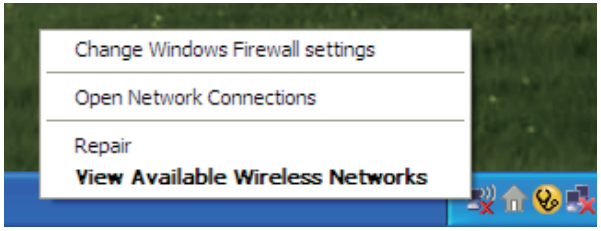
If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



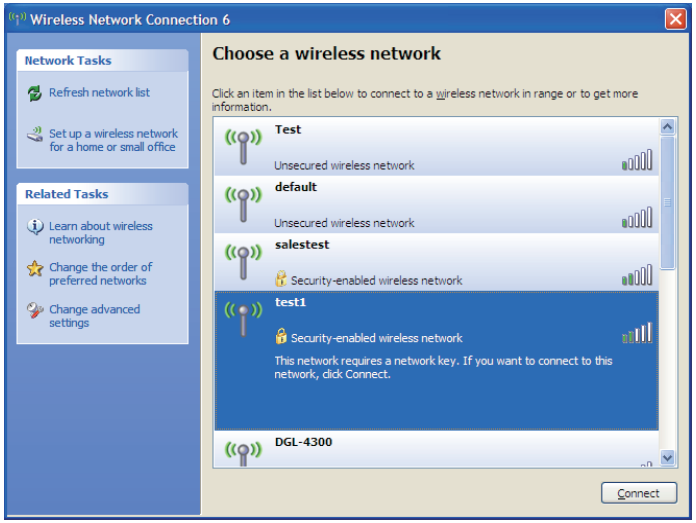
WPA/WPA2

It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

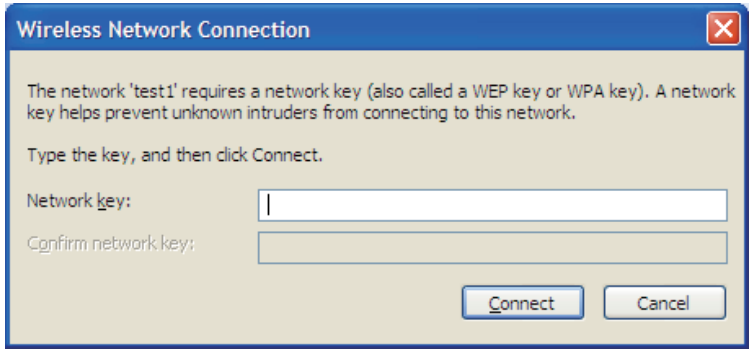
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.



2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK passphrase and click **Connect**.



It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WPA-PSK settings are correct. The WPA-PSK passphrase must be exactly the same as on the wireless router.

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DHP-W220AV. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

1. Why can't I access the web-based configuration?

When entering **http://dlinkap.local**, you are not connecting to a website nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

Make sure you have an updated Java-enabled Web browser. We recommend the following:

- Microsoft Internet Explorer® 8.0 or higher
- Mozilla Firefox® 12.0 or higher
- Google™ Chrome 20 or higher
- Safari® 4.0 or higher

Verify wireless connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different device if possible.

Disable any Internet security software running on the computer. Software firewalls such as ZoneAlarm, BlackICE, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

Configure your Internet settings:

- Go to **Start** > **Settings** > **Control Panel**. Double-click the **Internet Options** Icon. From the **Security** tab, click the button to restore the settings to their defaults.
- Click the **Connection** tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click **OK**.
- Go to the **Advanced** tab and click the button to restore these settings to their defaults. Click **OK** three times.
- Close your Web browser (if open) and open it.

Access the web management. Open your Web browser and enter the IP address of your D-Link router in the address bar. This should open the login page for your web management.

If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug back in. Wait about 60 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

2. What can I do if I forgot my password?

If you forgot your password, you must reset your router. Unfortunately this process will change all your settings back to the factory defaults.

To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 60 seconds to access the router. The default IP address is **192.168.0.50** or you may be able to reach the device at **http://dlinkap.local./**. When logging in, leave the admin password box empty.

3. Why can't I connect to certain sites or send and receive emails when connecting through my router?

If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Ex. 1492, 1482, 1472, etc).

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

- Click on **Start** and then click **Run**.
- Windows® 95, 98, and Me users type in **command** (Windows® NT, 2000, XP, Vista®, and 7 users type in **cmd**) and press **Enter** (or click **OK**).
- Once the window opens, you'll need to do a special ping. Use the following syntax:

ping [url] [-f] [-l] [MTU value]

Example: **ping yahoo.com -f -l 1472**

```
C:\>ping yahoo.com -f -l 1482

Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:

Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms

C:\>ping yahoo.com -f -l 1472

Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:

Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 93ms, Maximum =  203ms, Average =  132ms

C:\>
```

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, lets say that 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network we're working with (1452+28=1480).

Once you find your MTU, you can now configure your router with the proper MTU size.

To change the MTU rate on your router follow the steps below:

- Open your browser, enter the IP address of your router (192.168.0.1, **http://dlinkrouter.local.** or **http://dlinkrouter.**) and click **OK**.
- Enter your username (admin) and password (blank by default). Click **OK** to enter the web configuration page for the device.
- Click on **Setup** and then click **Manual Configure**.
- To change the MTU enter the number in the MTU field and click **Save Settings** to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. Strictly adhering to the IEEE standard, the D-Link 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.

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

What is Wireless?

Wireless or Wi-Fi technology is another way of connecting your computer to the network without using wires. Wi-Fi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office network.

Why D-Link Wireless?

D-Link is the worldwide leader and award winning designer, developer, and manufacturer of networking products. D-Link delivers the performance you need at a price you can afford. D-Link has all the products you need to build your network.

How does wireless work?

Wireless works similar to how cordless phone work, through radio signals to transmit data from one point A to point B. But wireless technology has restrictions as to how you can access the network. You must be within the wireless network range area to be able to connect your computer. There are two different types of wireless networks Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)

Bluetooth is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate in a range up to 30 feet away.

Compared to WLAN the speed and wireless operation range are both less than WLAN, but in return it doesn't use nearly as much power which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

Who uses wireless?

Wireless technology as become so popular in recent years that almost everyone is using it, whether it's for home, office, business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the web, check e-mail, instant message, etc.
- Gets rid of the cables around the house
- Simple and easy to use

Small Office and Home Office

- Stay on top of everything at home as you would at office
- Remotely access your office network from home
- Share Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere not just at home or office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless network is easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips

Here are a few things to keep in mind, when you install a wireless network.

Centralize your router or Access Point

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference

Place home appliances such as cordless telephones, microwaves, and televisions as far away as possible from the router/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security

Don't let you next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the router. Refer to product manual for detail information on how to set it up.

Wireless Modes

There are basically two modes of networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more wireless network Cardbus adapters.

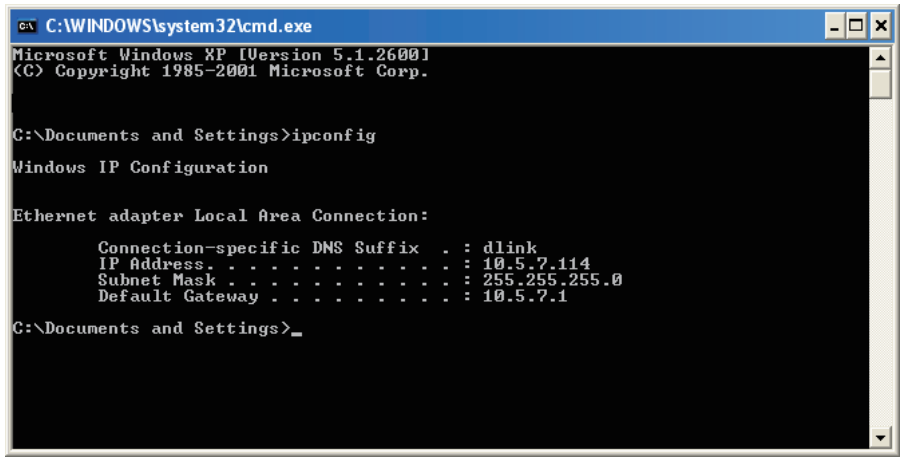
An Infrastructure network contains an Access Point or wireless router. All the wireless devices, or clients, will connect to the wireless router or access point.

An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

Networking Basics

Check your IP address

After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.



Click on **Start** > **Run**. In the run box type **cmd** and click **OK**. (Windows® 7/ Vista® users type **cmd** in the Start Search box.)

At the prompt, type **ipconfig** and press **Enter**.
This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your DHP-W220AV. Some firewall software programs may block a DHCP request on newly installed adapters.

If you are connecting to a wireless network at a hotspot (e.g. hotel, coffee shop, airport), please contact an employee or administrator to verify their wireless network settings.

Statically Assign an IP address

If you are not using a DHCP capable gateway/DHP-W220AV, or you need to assign a static IP address, please follow the steps below:

Step 1
Windows Vista® - Click on Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections.
Windows® XP - Click on Start > Control Panel > Network Connections.
Windows® 2000 - From the desktop, right-click My Network Places > Properties.

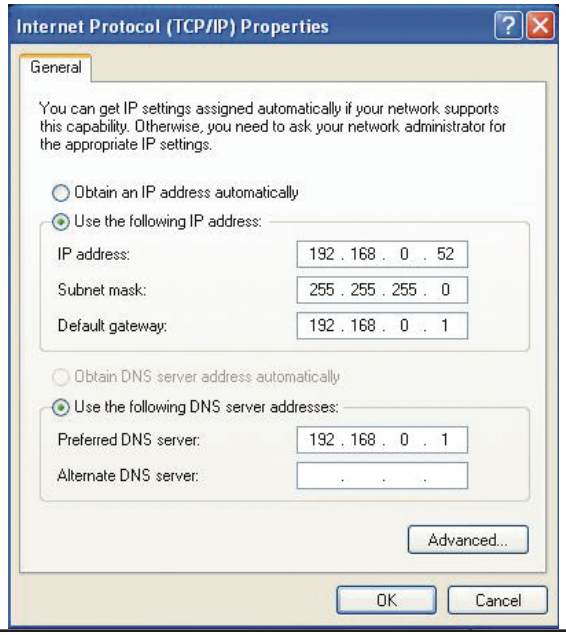
Step 2
Right-click on the Local Area Connection which represents your D-Link network adapter and select Properties.

Step 3
Highlight Internet Protocol (TCP/IP) and click Properties.

Step 4
Click Use the following IP address and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.
Example: If the AP's LAN IP address is 192.168.0.50, make your IP address 192.168.0.X where X is a number between 2 and 99 (excluding the number 50). Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1).
The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5
Click **OK** twice to save your settings.



Technical Specifications

Standards
- IEEE 802.11n
- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.3x
- IEEE 802.3u
- IEEE 1901
- HomePlug AV

Network Interfaces
- Two 10/100 Mbps Ethernet LAN ports
- Wireless N
- Powerline

AC Input
- 100 - 240 V AC, 50/60 Hz

Data Rate
- Ethernet: 10/100 Mbps
- WLAN: Up to 150 Mbps
- Powerline: Up to 200 Mbps

Frequency Range
- 2.4 GHz to 2.497 GHz

Encryption
- 128-bit AES
- WEP/WPA/WPA2

Operating Temperature
- 0 to 40 °C (32 to 104 °F)

Storage Temperature
- -20 to 65 °C (-4 to 149 °F)

Humidity
- Operation: 10% to 90% non-condensing
- Storage: 5% to 95% non-condensing

LEDs
- Power
- Powerline
- Ethernet

Safety & Emissions
- FCC
- CE
- UL
- CE/LVD

Dimensions
- 73 x 58 x 37 mm (2.87 x 2.28 x 1.46 inches)

Weight
- 96 grams (3.39 ounces)

Contacting Technical Support

U.S. and Canadian customers can contact D-Link technical support through our website or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g., DHP-W220AV)
- Hardware Revision (located on the label on the bottom of the PowerLine (e.g., rev A1))
- Serial Number (s/n number located on the label on the bottom of the PowerLine).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:

(877) 453-5465

Internet Support:

http://support.dlink.com

For customers within Canada:

Phone Support:

(866) 354-6599

Internet Support:

http://support.dlink.ca

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for 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, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below ("Hardware") will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below ("Warranty Period"), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any 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, at its option, 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 or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual 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 ("Software 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 Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, 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 the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. 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 portions 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 (USA):

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, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.

- The customer must obtain a Case ID Number from D-Link Technical Support at https://support.dlink.com, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization ("RMA") number by completing the RMA form and entering the assigned Case ID Number at http://rma.dlink.com/.

- • 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. Please refer to shipping and packaging instructions located online at http://rma.dlink.com/.
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- • 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 and shipped to **D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708**. 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. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer.

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• 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.

Submitting A Claim (Canada):

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:

- Customers need to provide their receipt (proof of purchase) even if the product is registered. Without a receipt, no warranty service will be done. The registration is not considered a proof of purchase.

- 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, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.

- The customer must obtain a Case ID Number from D-Link Technical Support at 1-800-361-5265, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization ("RMA") number by completing the RMA form and entering the assigned Case ID Number at https://rma.dlink.ca/.

- 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 be rejected by D-Link. Products shall be fully insured by the customer and shipped to D-Link Networks, Inc., 2525 Meadowvale Boulevard Mississauga, Ontario, L5N 5S2 Canada. 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 Purolator Canada or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in Canada, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. 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.

- RMA phone number: 1-800-361-5265 Hours of Operation: Monday-Friday, 9:00AM – 9:00PM EST

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:
Products that, 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; and 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.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited 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 THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. 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 NONCONFORMING 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 you may also have other rights which vary from state to state.

Trademarks:

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Copyright Statement:

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CE Mark Warning:

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

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

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

IMPORTANT NOTICE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

For detailed warranty information applicable to products purchased outside the United States, please contact the corresponding local D-Link office.

Industry Canada Statement:

This device complies with RSS-210 of the Industry Canada 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:
Radiation Exposure Statement:
This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This device has been designed to operate with an antenna having a maximum gain of 2 dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Registration

Register your product online at registration.dlink.com

Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

Version 1.00
November 13, 2014