D-Link®

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User Manual

Powerline AV Wireless N150 Mini Router

DHP-1220AV

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
1.0	7 May, 2014	• Initial release for A1 version
1.01	22 October, 2014	• Power Usage

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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-1220AV

Wi-Fi Configuration Card

CAT5 Ethernet Cable

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.

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

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-1220AV Powerline AV Wireless N150 Mini Router 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-1220AV features easy plug-and-play installation so you can extend your wired and wireless network quickly. A D-Link exclusive, Clone-My-WiFi technology lets you copy your existing network settings to your Powerline network easily. Simply press the Simple Connect button and your Powerline network will be set up and ready for use with other network devices. Rest assured as solid security features such as industry-standard 128-bit AES and WEP/WPA/WPA2 encryption protects your Powerline wireless network from intrusion.

The DHP-1220AV 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-1220AV Powerline AV Wireless N150 Mini Router, 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.

- **Faster Wireless Speeds & Wider Operational Range** - The Wireless N technology incorporated into the DHP-1220AV offers increased speed and range beyond 802.11g technology. Initial wireless setup can be accomplished quickly, thanks to a convenient setup wizard.

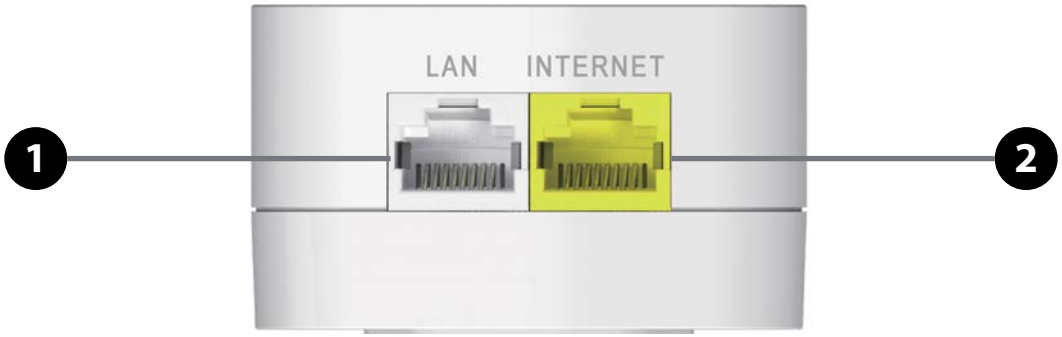
- **Ideal For Bandwidth-Intensive Applications** - The DHP-1220AV is capable of delivering Powerline AV data transfer rates even higher than the old AV standard. This rapid transmission speed makes it ideal for bandwidth-intensive applications, guaranteeing smooth HD video streaming, clear VoIP calls, 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.

- **Convenient Setup and Secure Operation** - The DHP-1220AV plugs directly into a power outlet, and does not require any additional cables. Extend your home network and connect multiple devices in the farthest corners of your home via Ethernet cable or Wireless N. To simplify setup, D-Link's Clone-My-WiFi technology lets you copy your existing network configuration for hassle-free installation to get you up and running quickly. For convenience, wired or wireless encryption keys can be quickly configured with the push of the WPS button. Feel secure with the 128-bit AES data encryption used to protect the network from unauthorized wiretapping. With plug and play installation, the DHP-1220AV is an ideal solution to create a wall-to-wall home network.

[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 Port**	Connects to LAN devices such as PCs, TVs, and game consoles.
2	**INTERNET Port**	Connects to WAN sources such as a DSL or Cable modem.

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.
		Light Off	The device is off.
2	**Powerline LED**	Solid Green	A Powerline connection is established.
		Light Off	A Powerline connection has not been established.
3	**LAN LED**	Solid Green	The LAN segment is ready.
		Light Off	There is no LAN established.

Installation
Wireless Installation Considerations

The DHP-1220AV 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-1220AV and another pre-existing device or a DHP-W220AV) are required to create a Powerline network.

Power

Plug the DHP-1220AV into an AC wall outlet where you want to extend your network and press the power button. The Power LED on the DHP-1220AV will turn on to indicate it is receiving power. This may take up to 60 seconds.

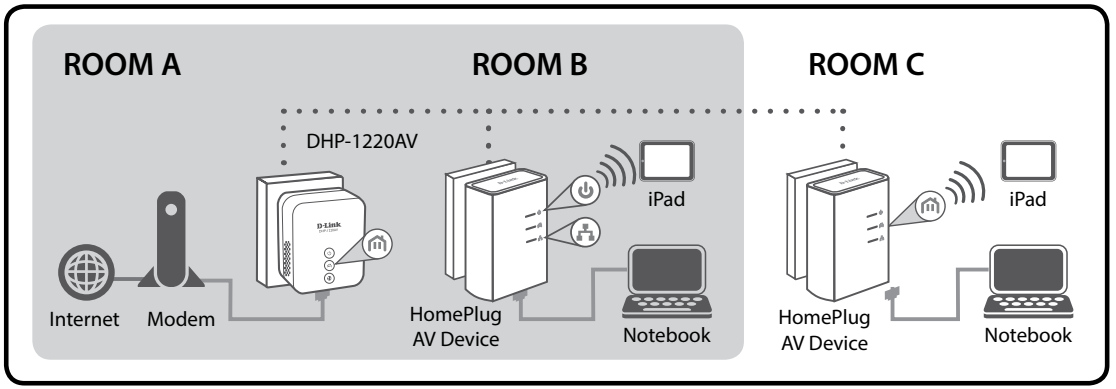
Plug in the Ethernet Cable

Connect one end of the supplied CAT5 Ethernet cable to the Ethernet port on the DHP-1220AV and the other end of the cable to your Cable or DSL modem's Ethernet port.

Connect to Your Existing Network

Press the **Simple Connect Button** on the DHP-1220AV 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-1220AV. The Powerline devices will reboot. Read the installation advice on the next page, and continue to "Configuration" on page 12.

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 or 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.

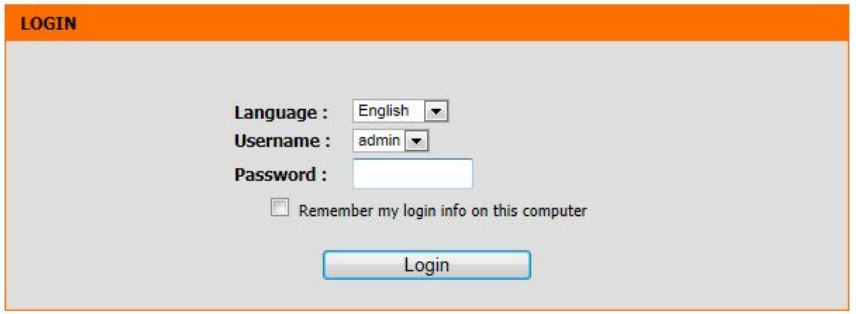
8. Avoid placing the device near a heater or radiator.

Configuration
Setup

If you wish to change the default settings or optimize the performance of the DHP-1220AV 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://dlinkrouter.local./** (this is on the Wi-Fi Configuration Card) or **http://192.168.0.1** in the address field.

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



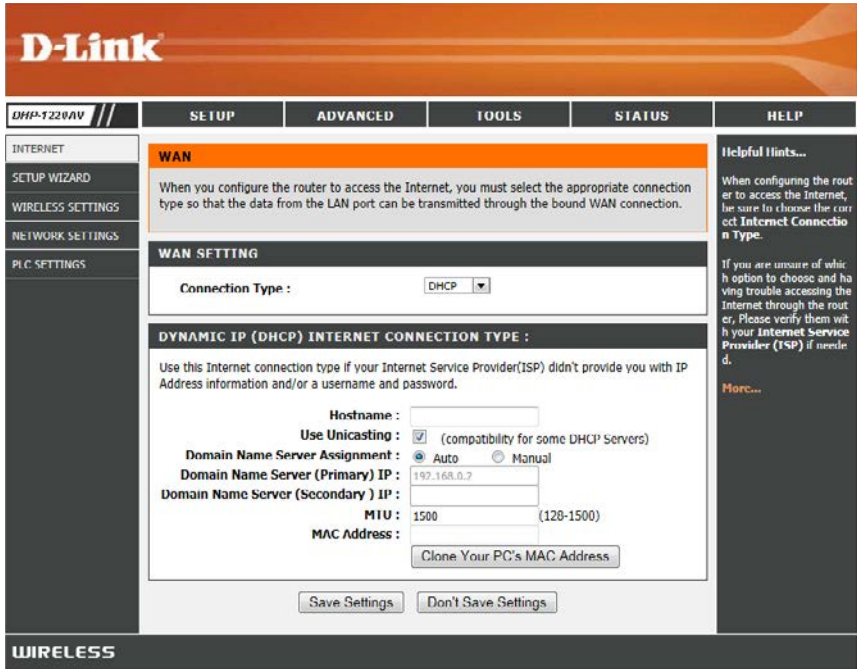
If you receive a "Page Cannot be Displayed" error, please refer to "Troubleshooting" on page 50 for assistance.

You will automatically proceed to the **Setup** heading after logging in.

Internet

Dynamic IP (DHCP)

If you are unsure what method you use to connect to the Internet, try this first. Cable modems usually use this type of connection.



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. This option is commonly used for cable modem services.

Host Name: The host name is optional but may be required by some ISPs. Leave blank if you are not sure.

Use Unicasting: Check the box if you are having problems obtaining an IP address from your ISP.

Domain Name Server Assignment: Select **Auto** to automatically detect the primary domain name server IP address, or **Manual** to enter it yourself.

Primary Domain Name Server: It will automatically display the IP address or you can enter it here.

Secondary Domain Name Server: Enter an optional secondary domain name server.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MAC Address: The default MAC address is set to the Internet port's physical interface MAC address on the broadband router. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card (not recommended).

Static IP

My Internet Connection Is: Select **Static IP** to manually enter the IP settings supplied by your ISP.

IP Address: Enter the IP address assigned by your ISP.

Subnet Mask: Enter the subnet mask assigned by your ISP.

Default Gateway: Enter the gateway assigned by your ISP.

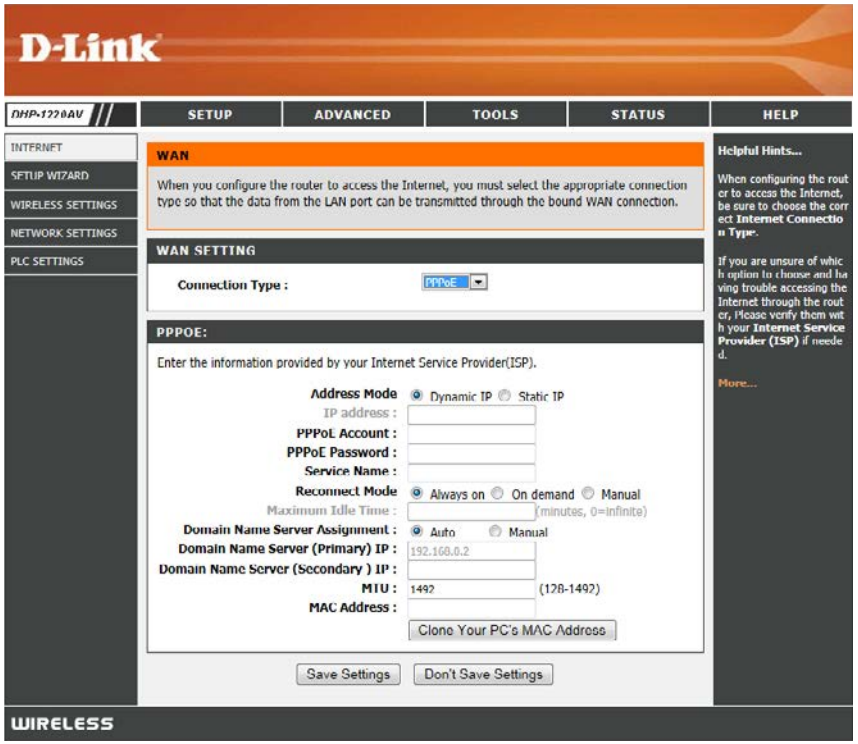
DNS Servers: The DNS server information will be supplied by your ISP

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

MAC Address: The default MAC address is set to the Internet port's physical interface MAC address on the broadband router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

PPPoE (Username/Password)

Choose PPPoE (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services. Make sure to remove any PPPoE software from your computer. The software is not needed and will not work through a router.



My Internet Connection: Select **PPPoE (Username/Password)** from the drop-down menu.

Address Mode: Select **Static IP** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

IP Address: Enter the IP address (Static PPPoE only).

Username: Enter your PPPoE username.

Password: Enter your PPPoE password and then retype the password in the next box.

Service Name: Enter the ISP service name (optional).

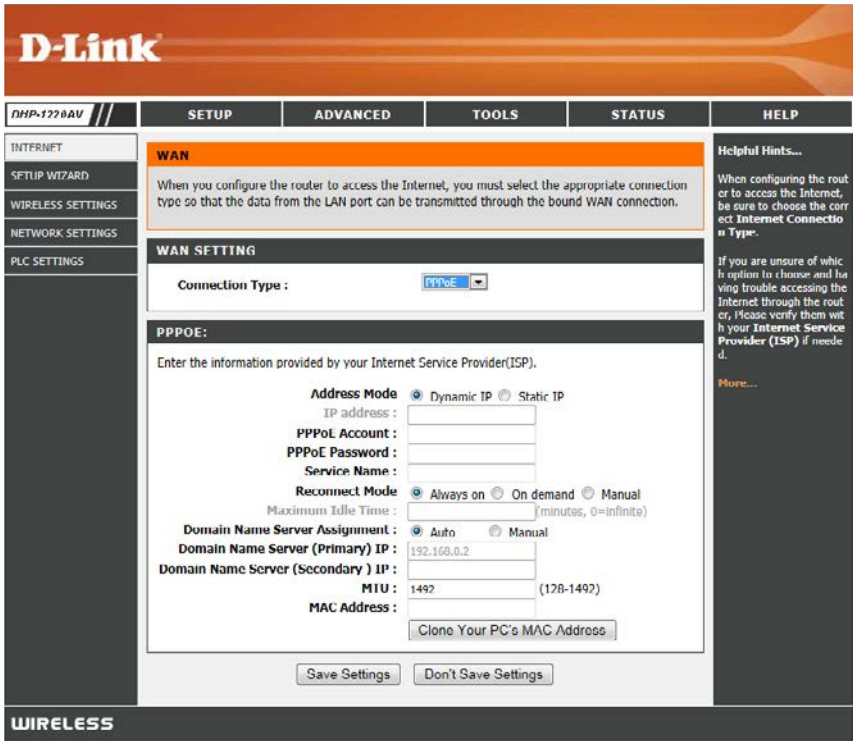
Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

DNS Addresses: Enter the primary and secondary DNS server addresses (Static PPPoE only).

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

MAC Address: The default MAC address is set to the Internet port's physical interface MAC address on the broadband router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.



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 at "Wireless Settings" on page 18 and Powerline settings are at "PLC Settings" on page 21.

Wireless Settings

The DHP-1220AV 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.

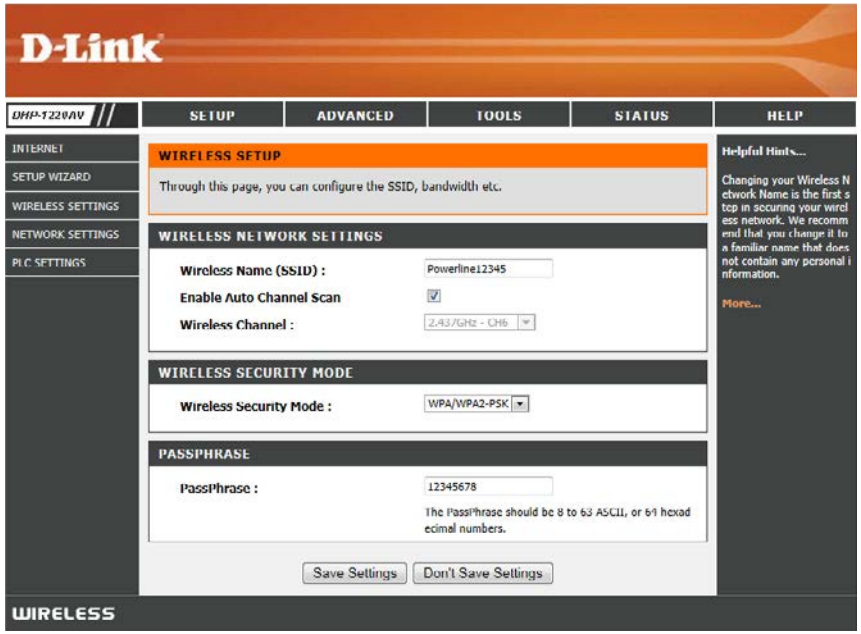
Wireless Network Name: The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive.

Enable Auto Channel 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 55 for more information.

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*.



Network Settings

This section will allow you to change the local network settings of the DHP-1220AV and to configure the DHCP settings.

Router IP Address: Enter the IP address of the router. The default IP address is 192.168.0.1.

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.

Device Name: Enter a name for the router.

Enable DNS Relay: Uncheck the box to transfer the DNS server information from your ISP to your computers. If checked, your computers will use the router for a DNS server.

Enable DHCP Server: Check this box to enable the DHCP server on your router. Uncheck to disable this function.

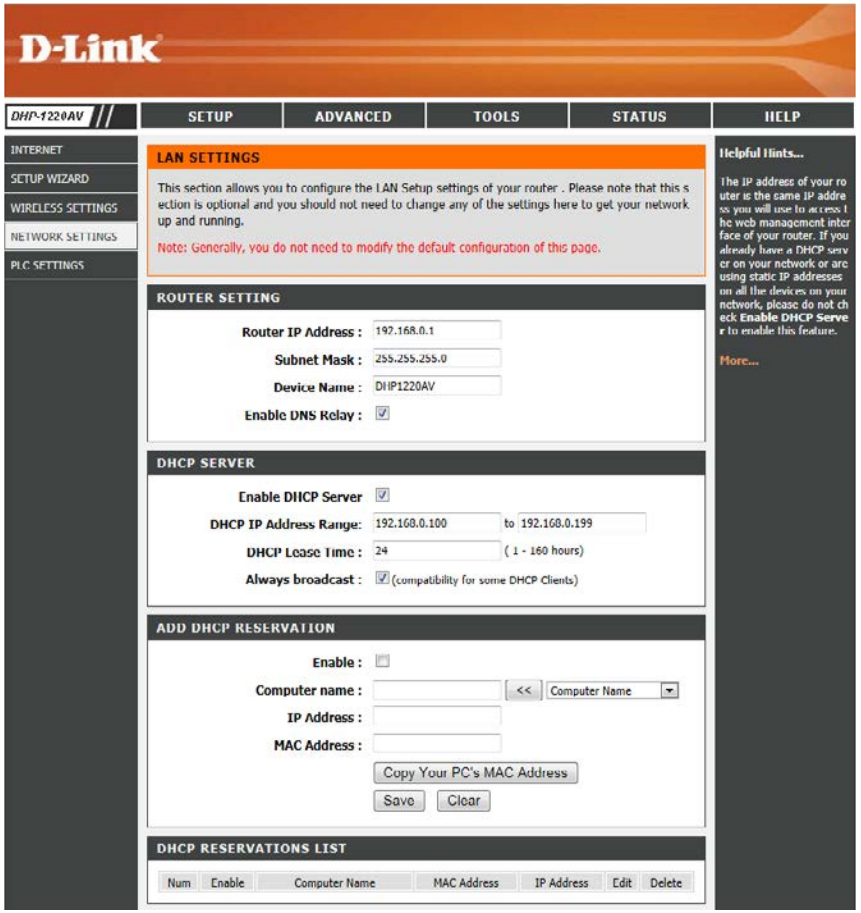
DHCP IP Address Range: Enter the starting and ending IP addresses for the DHCP server's IP assignment range.

Note: *If you statically (manually) assign IP addresses to your computers or devices, make sure the IP addresses are outside of this range or you may have an IP conflict.*

DHCP Lease Time: The length of time for the IP address lease. Enter the lease time in minutes.

Always Broadcast: Enable this feature to broadcast your network's DHCP server to LAN/WLAN clients.

Enable: Check this box to enable DHCP reservation.



Computer Name: Enter the computer name or select from the drop-down menu and click **<<**.

IP Address: Enter the IP address you want to assign to the computer or device. This IP address must be within the DHCP IP Address Range.

MAC Address: Enter the MAC address of the computer or device.

Copy Your PC's MAC Address: If you want to assign an IP address to the computer you are currently on, click this button to populate the fields.

Save: Click **Save** to save your entry. You must click **Save Settings** at the top to activate your reservations.

DHCP Reservations List

DHCP Reservations List: Displays any reservation entries. Displays the host name (name of your computer or device), MAC address, and IP address.

Enable: Check to enable the reservation.

Edit: Click the edit icon to make changes to the reservation entry.

Delete: Click to remove the reservation from the list.

PLC Settings

This section will show you how to configure your new D-Link Powerline AV using the web-based configuration utility.

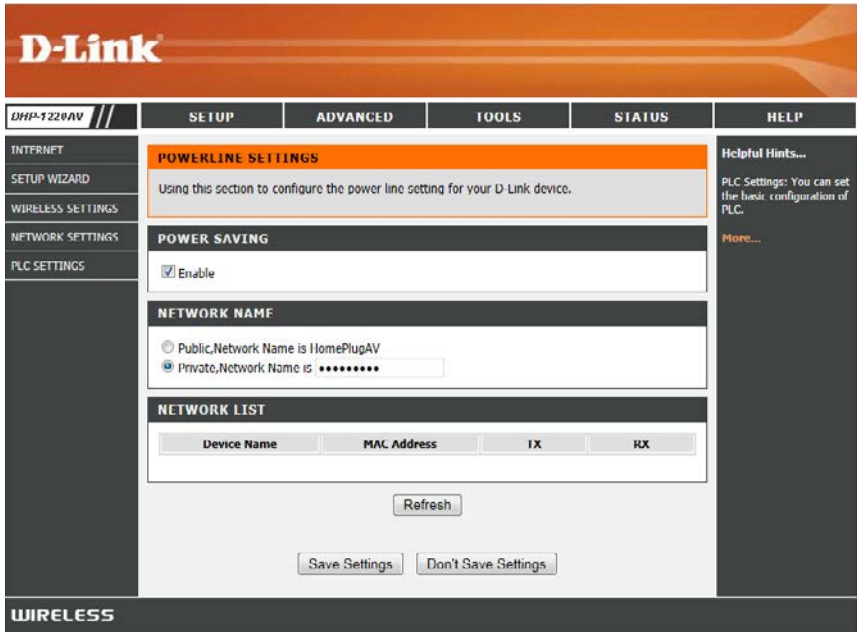
Power Saving: Power save mode.

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 on the network devices on your Powerline network.



Advanced

Port Forwarding

Name: Enter a name for the rule or select an application from the drop-down menu. Select an application and click to populate the fields.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), your computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <<.

TCP/UDP: Enter the TCP and/or UDP port or ports that you want to open. You can enter a single port or a range of ports. Separate ports with a comma. Example: 24,1009,3000-4000

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

Network 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-1220AV.

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

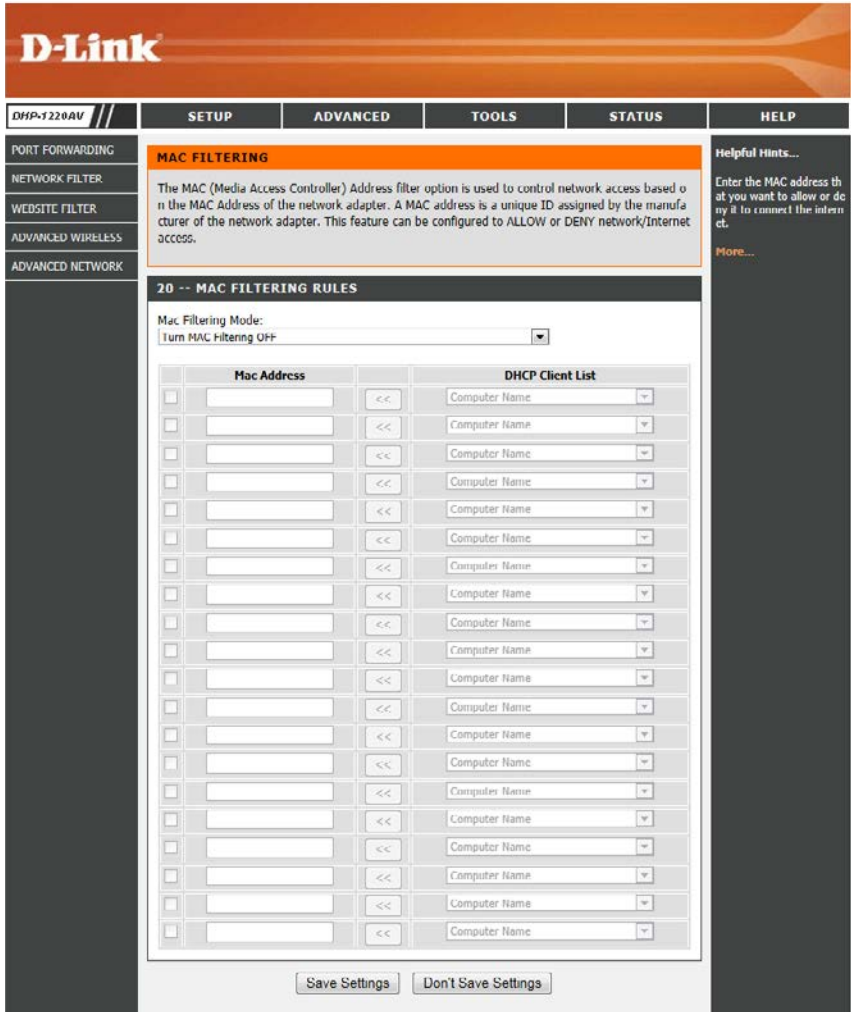
MAC Address: Enter the MAC address you would like to filter.

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

DHCP Client: Select a DHCP client from the drop-down menu and click **<<** to copy that MAC address.

Schedule: Select a schedule for the network filtering rule, or click **New Schedule** to create a new schedule.

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



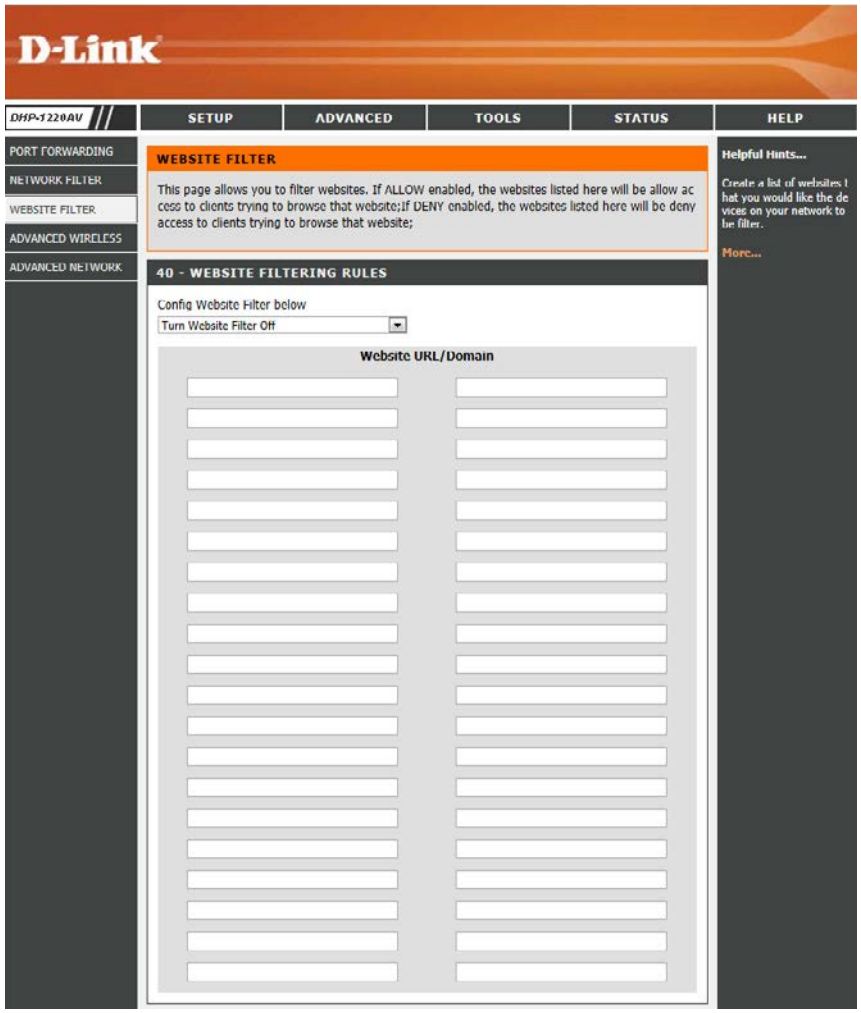
Website Filter

Website Filters are used to allow you to set up a list of Web sites that can be viewed by multiple users through the network. To use this feature, select **Allow** or **Deny**, enter the domain or website and click **Save Settings**. You must also select **Apply Web Filter** under the *Access Control* section.

Configure Website Filter: Select either **DENY computers access to ONLY these sites** or **ALLOW computers access to ONLY these sites**.

Website URL/ Domain: Enter the keywords or URLs that you want to allow or block.

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-1220AV. 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.

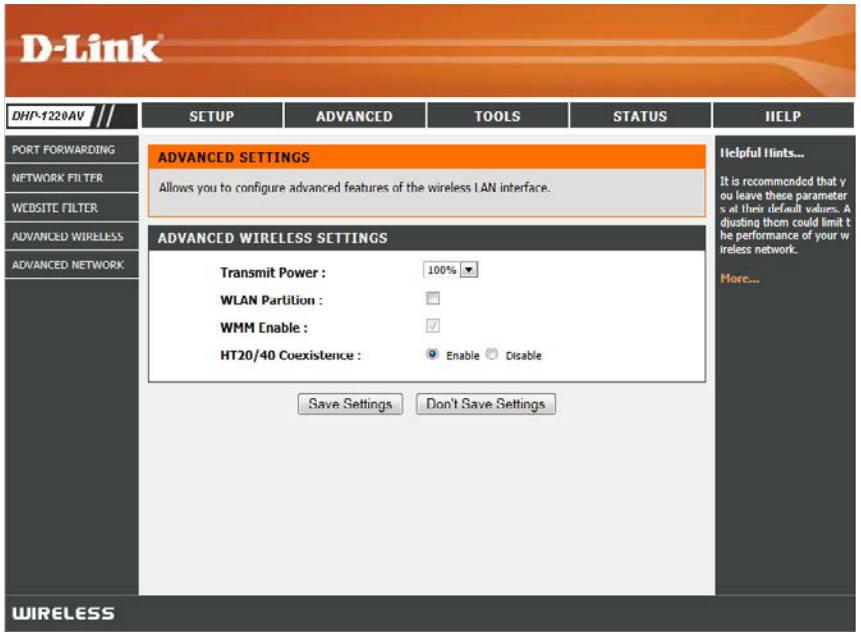
Transmit Power: Set the transmission power of the antennas for the 2.4 GHz band.

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 40MHz and there is another wireless network's channel overlapping and causing interference, the router will automatically change to 20MHz.

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



Advanced Network

This page allows you to change some of the advanced network settings of the DHP-1220AV. 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.

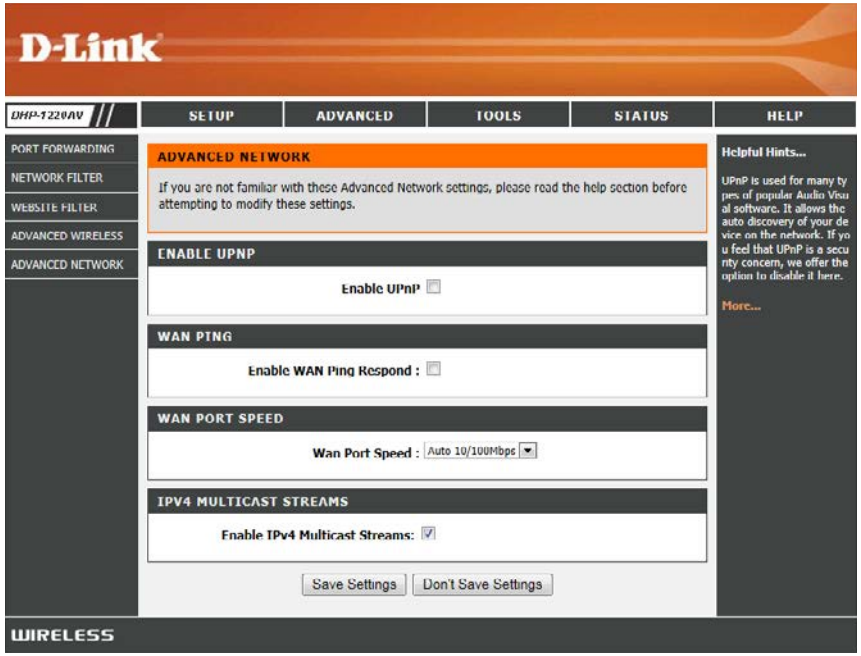
Enable UPnP: To use the Universal Plug and Play (UPnP™) feature click on **Enabled**. UPnP provides plug and play functionality with compatible networking equipment, software and peripherals.

WAN Ping: Checking the box will allow the DHP-1220AV to respond to pings. Unchecking the box may provide some extra security from hackers.

WAN Port Speed: You may set the port speed of the Internet/WAN port to 10 Mbps, 100 Mbps, 1000 Mbps, or Auto (recommended).

Enable IPv4 Multicast Streams: Check the box to allow multicast traffic to pass through the router from the Internet (IPv4).

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.

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.

Gateway Name: Enter a name for your gateway.

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.

Enable Remote Management: Check to allow remote access to the router management page from the Internet.

Save Settings: 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.

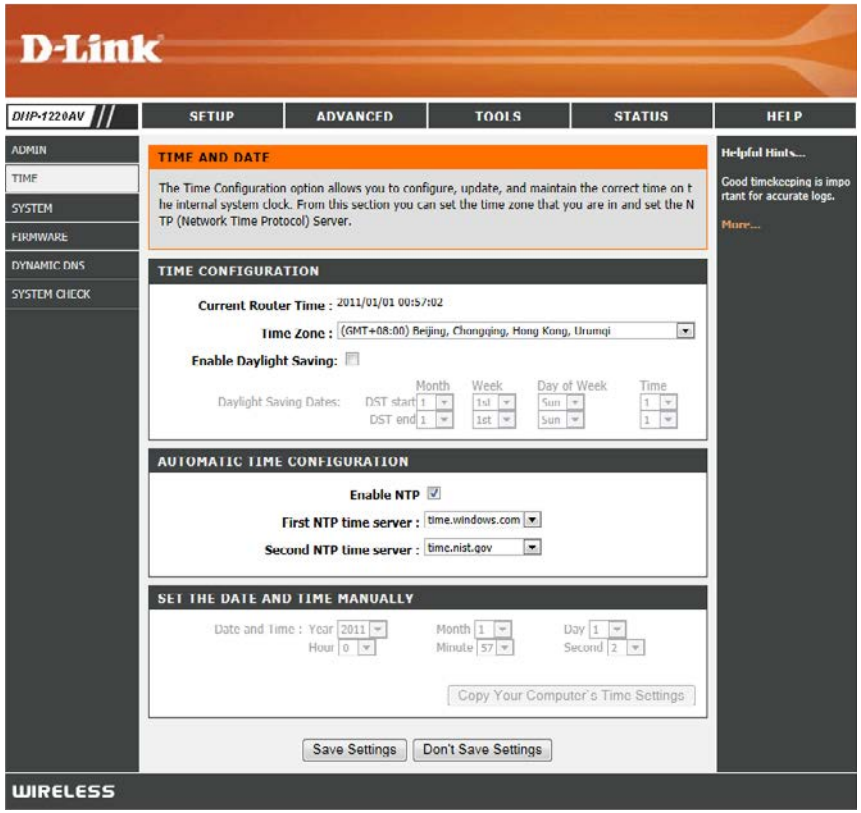
Enable Daylight Saving: To enable daylight saving time adjustment, click the Enable Daylight Saving check box. Next, use the drop-down menu to select a Daylight Saving Offset and then enter a start date and an end date for daylight saving time.

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

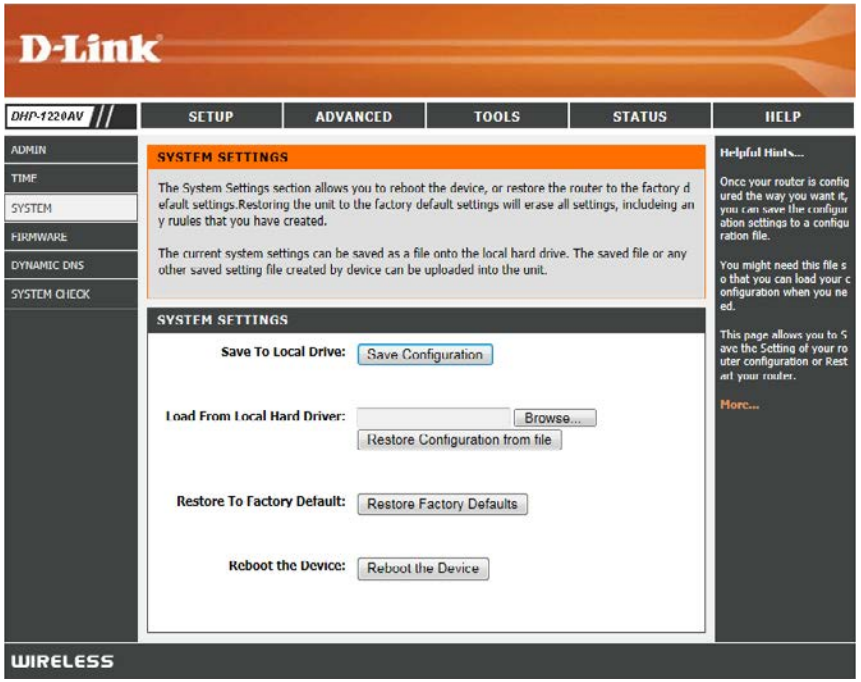
This page lets you both save and delete settings on your DHP-1220AV.

Save Settings To Local Hard Drive: Use this option to save the current DHP-1220AV 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-1220AV configuration settings. Click **Browse** to find a previously saved configuration file. Then, click the **Upload Settings** button to transfer those settings to the DHP-1220AV.

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-1220AV 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-1220AV configuration settings, use the **Save** button above.

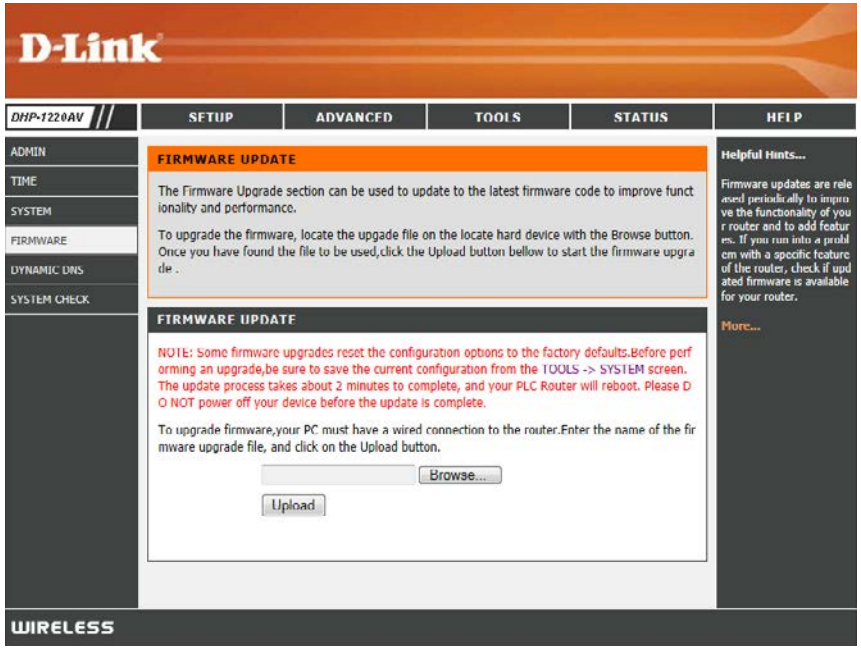
Reboot the Device: Click to reboot the DHP-1220AV.



Firmware

You can upgrade the firmware of the DHP-1220AV 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.



Dynamic DNS

The DDNS feature allows you to host a server (Web, FTP, game server, etc.) using a domain name that you have purchased with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your domain name to connect to your server no matter what your IP address is.

Enable Dynamic DNS: Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP address. Check the box to enable DDNS.

Server Address: Select your DDNS provider from the drop-down menu or enter the DDNS server address.

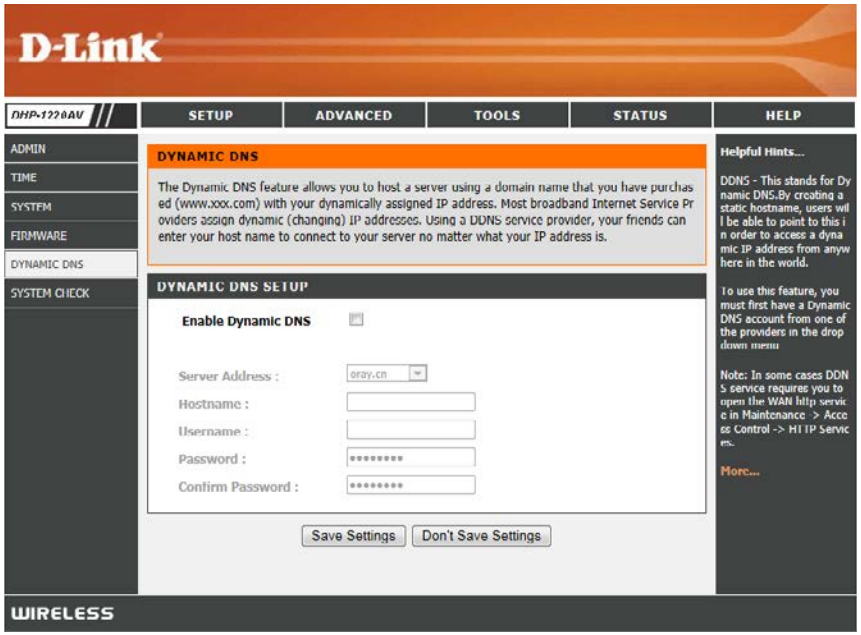
Host Name: Enter the host name that you registered with your DDNS service provider.

Username: Enter the username for your DDNS account.

Password: Enter the Password for your DDNS account.

Confirm Password: Enter your Password again to confirm.

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

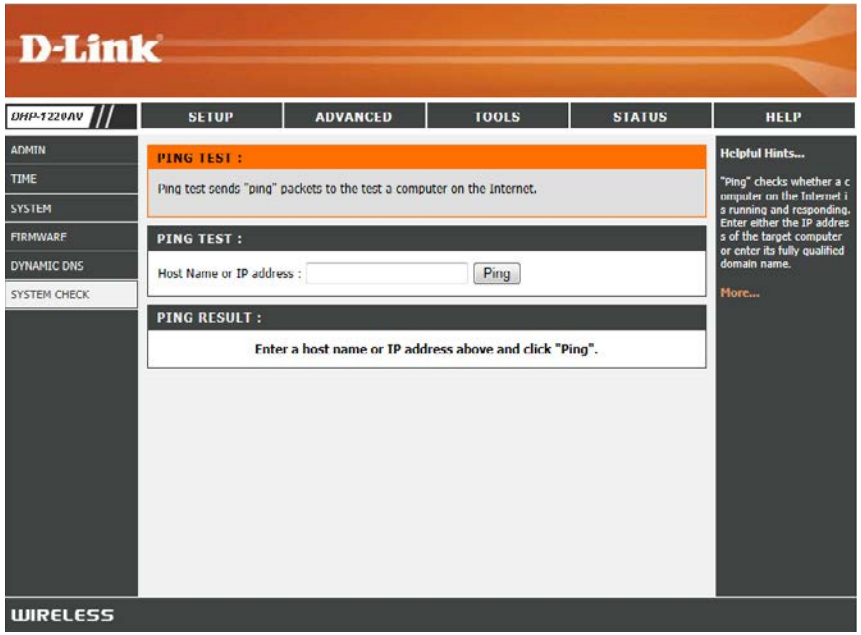


System Check

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-1220AV 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-1220AV. It will display the LAN and wireless LAN information.

General: Displays the DHP-1220AV's time and firmware version.

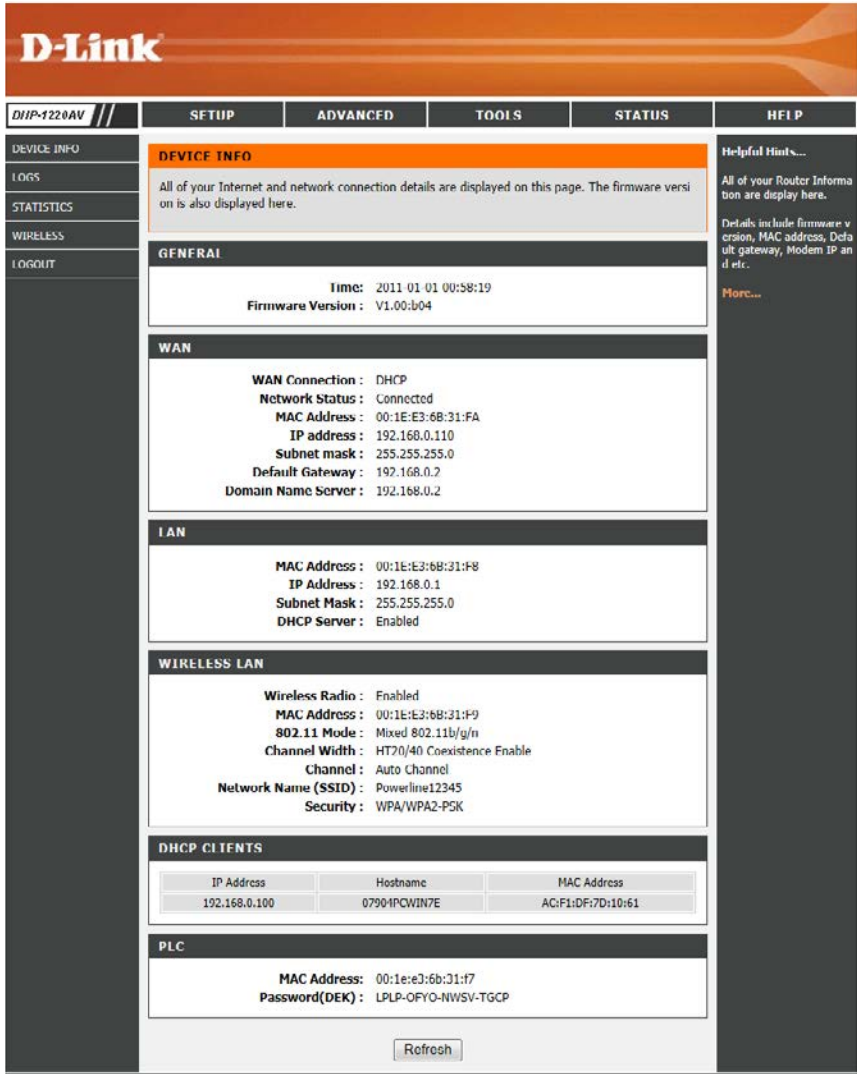
WAN: Displays the WAN information provided by your service provider.

LAN: Displays the MAC address and the private (local) IP settings for the DHP-1220AV.

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

DHCP Clients: Displays network information for all connected clients.

PLC: Shows the DHP-1220AV's Powerline Connection settings.



Logs

The DHP-1220AV keeps a running log of events and activities occurring on the DHP-1220AV 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.

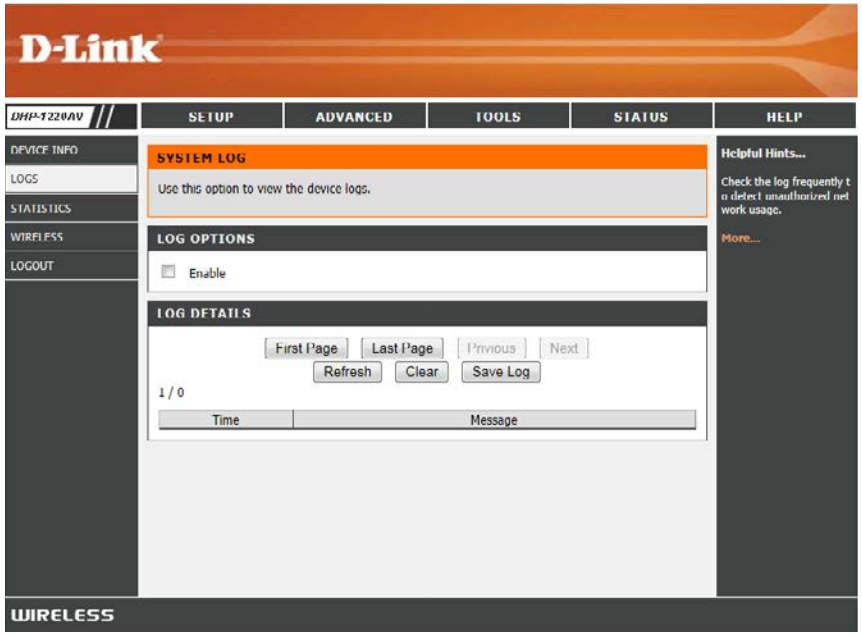
Previous: Go to the previous page of the log.

Next: Go to the next page of the log.

Refresh: Updates the log to the current time.

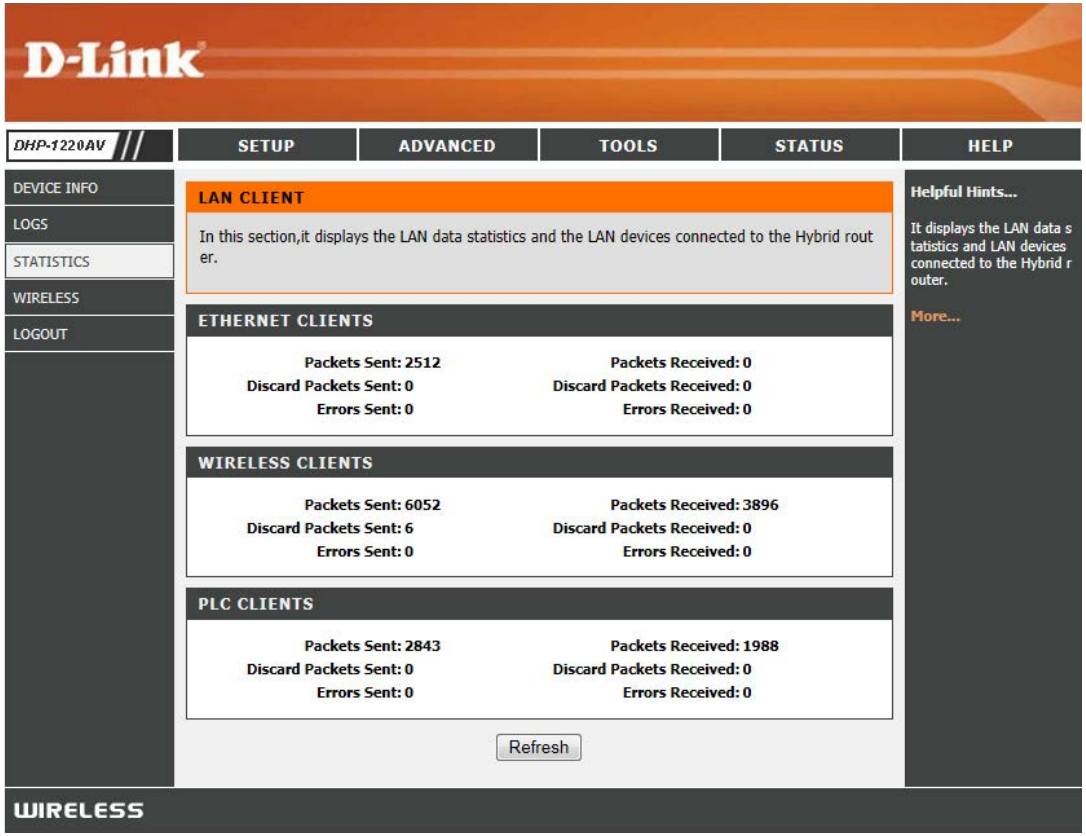
Clear: This button clears all current log content.

Save Log: Save the log to your hard drive.



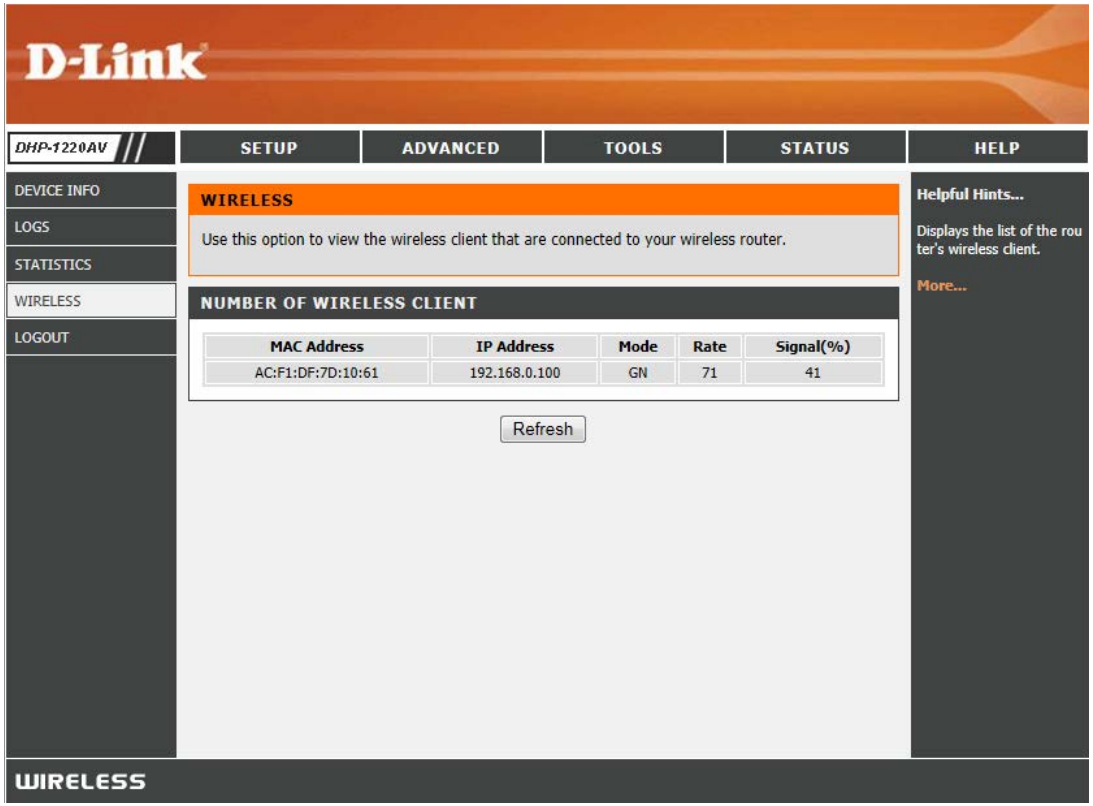
Statistics

The DHP-1220AV 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-1220AV is rebooted.



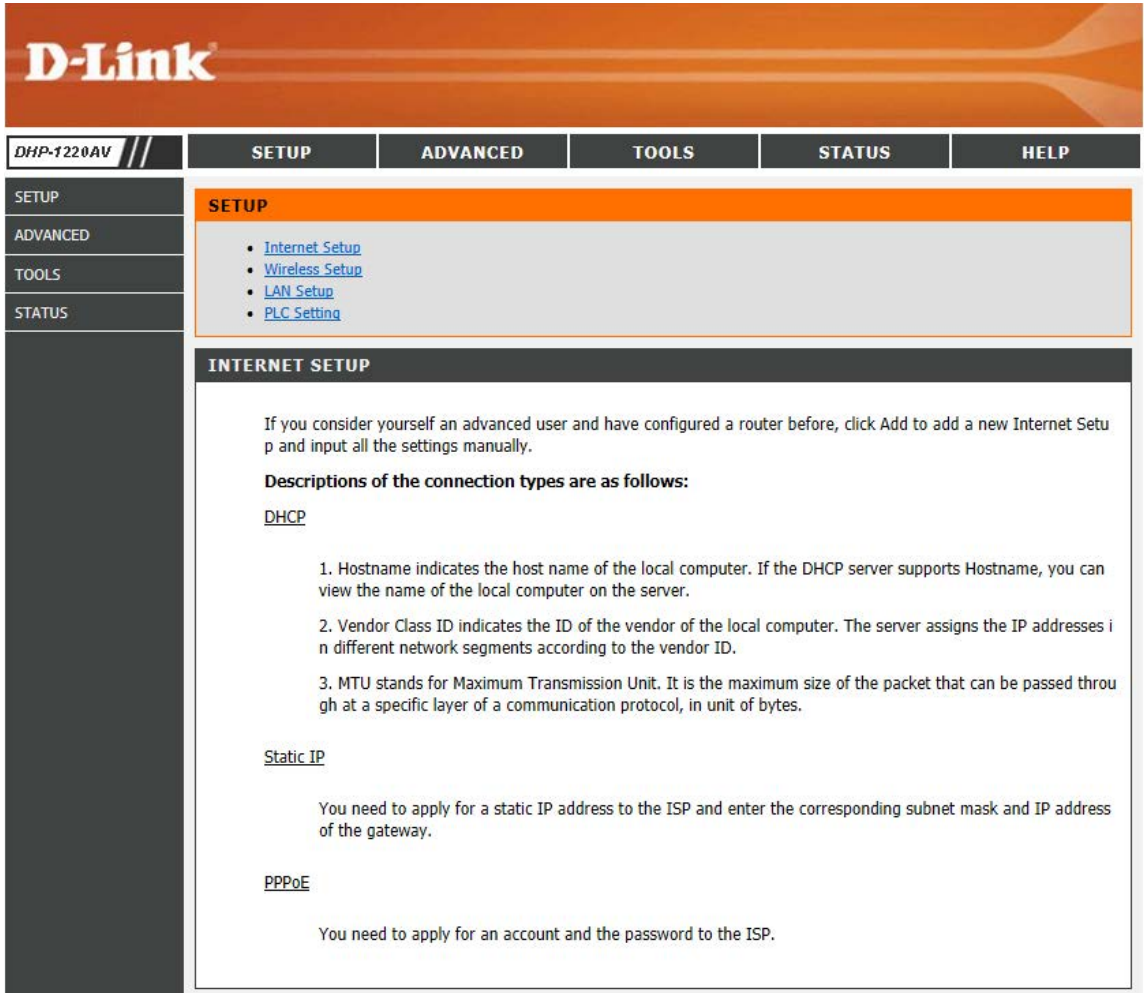
Wireless

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

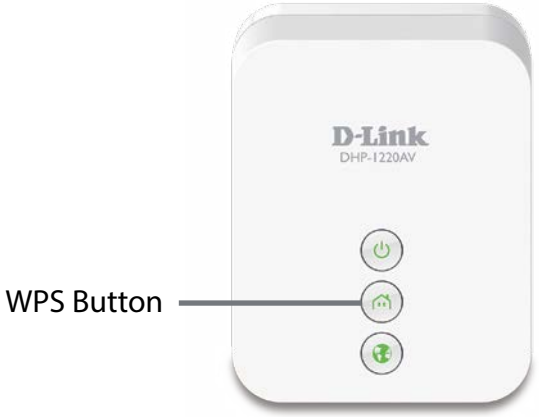
The easiest and most secure way to connect your wireless devices to the router is WPS (Wi-Fi Protected Setup). Most wireless devices such as wireless adapters, media players, Blu-ray DVD players, wireless printers and cameras will have a WPS button (or a software utility with WPS) that you can press 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.

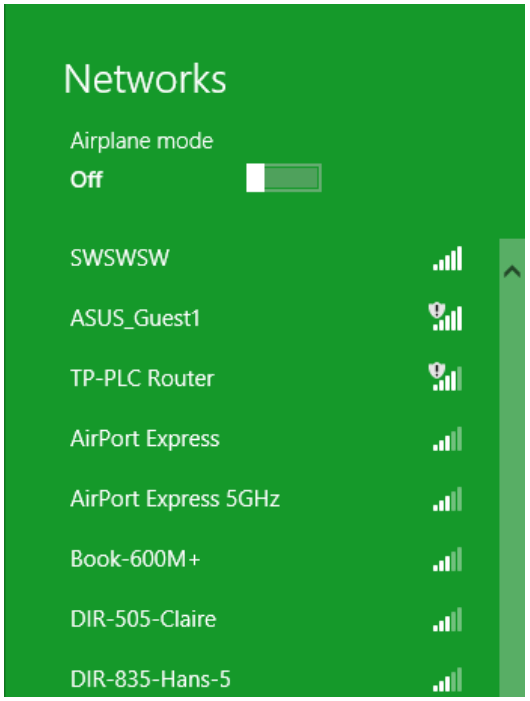


Windows® 8
WPA/WPA2

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.

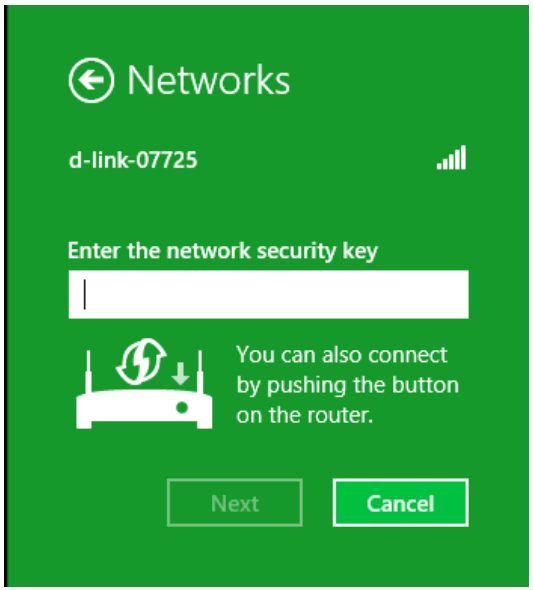
To join an existing network, locate the wireless network icon in the taskbar, next to the time display.

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.

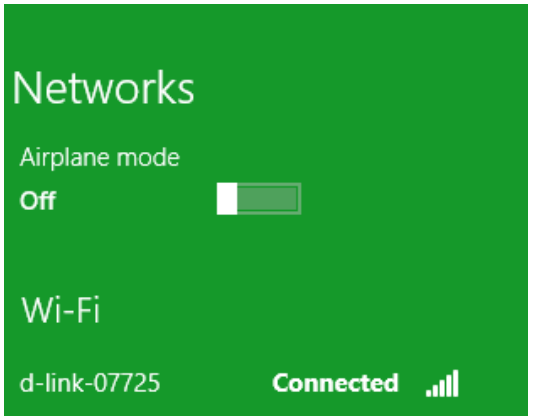


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click **Next**.

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).

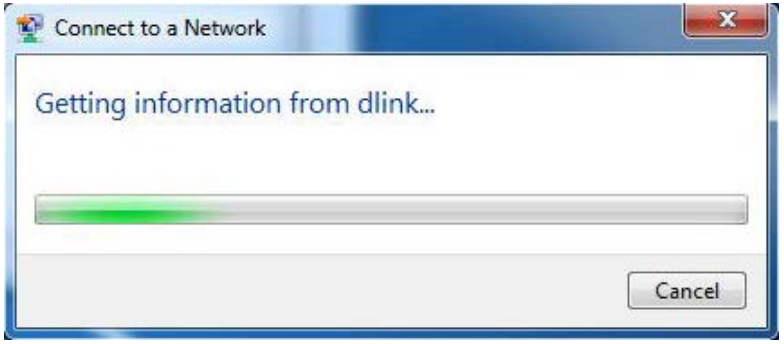
Wireless Icon

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

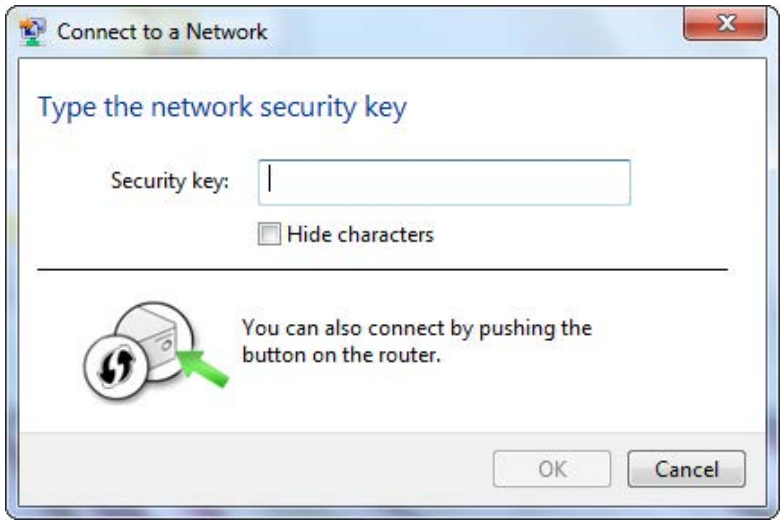
3. Highlight the wireless connection with Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

   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**.

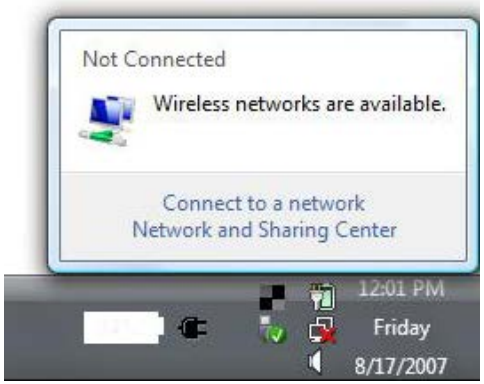
The utility will display available wireless networks in your area. Select a network (displayed using the SSID) and click the **Connect** button.

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.

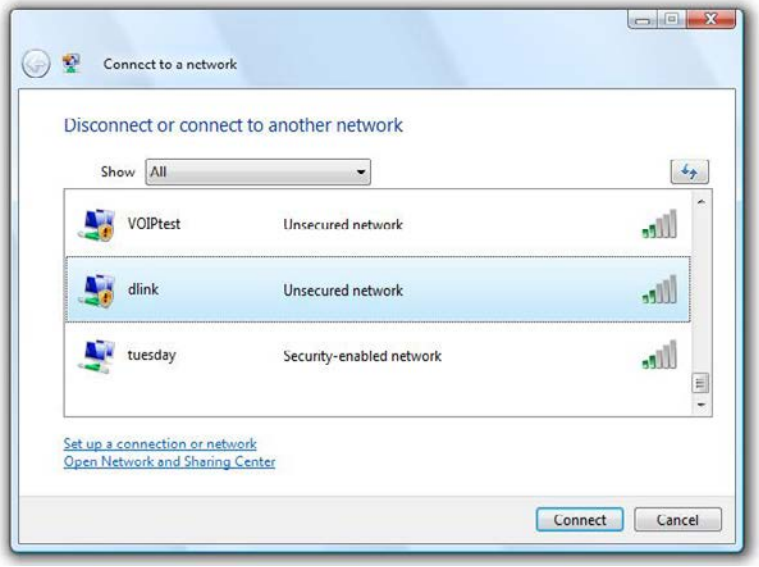
WPA/WPA2

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**.



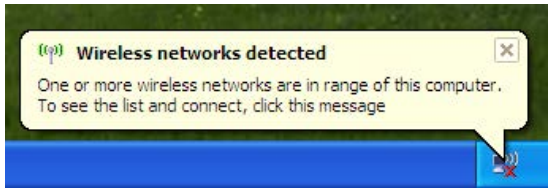
3. Enter the same security key or passphrase that is on your router and click **Connect**.

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

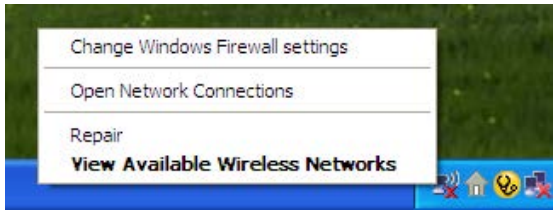
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities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



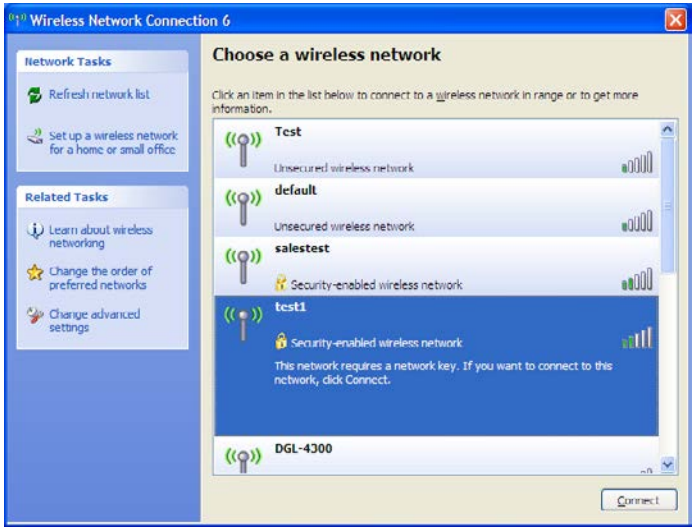
or

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.

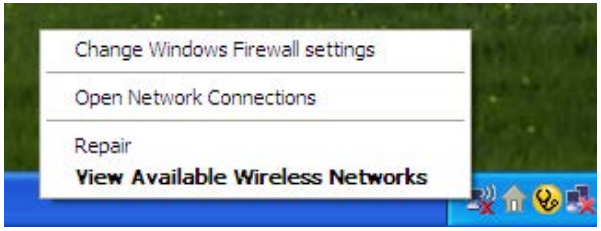
If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



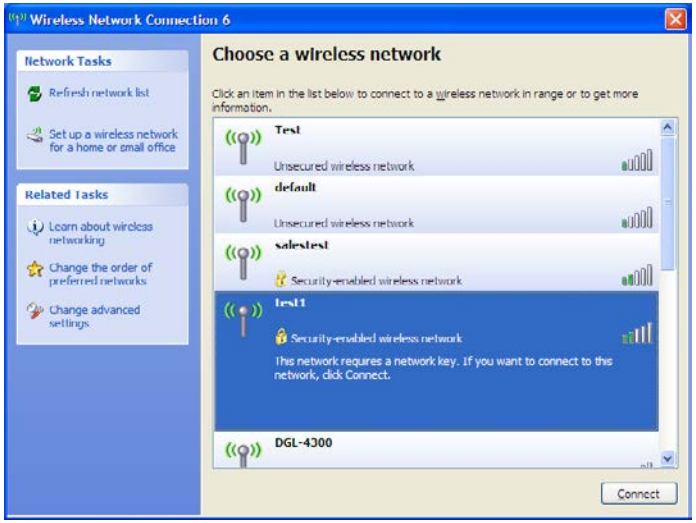
WPA/WPA2

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.

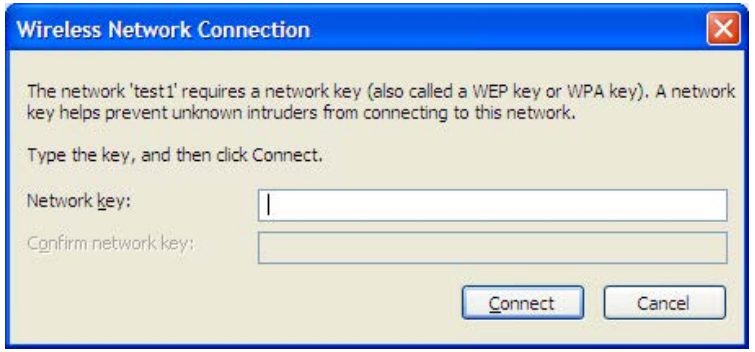
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.



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-1220AV. 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://dlinkrouter.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 192.168.0.1 or you may be able to reach the router at **http://dlinkrouter.local./** or **http://dlinkrouter./**. 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

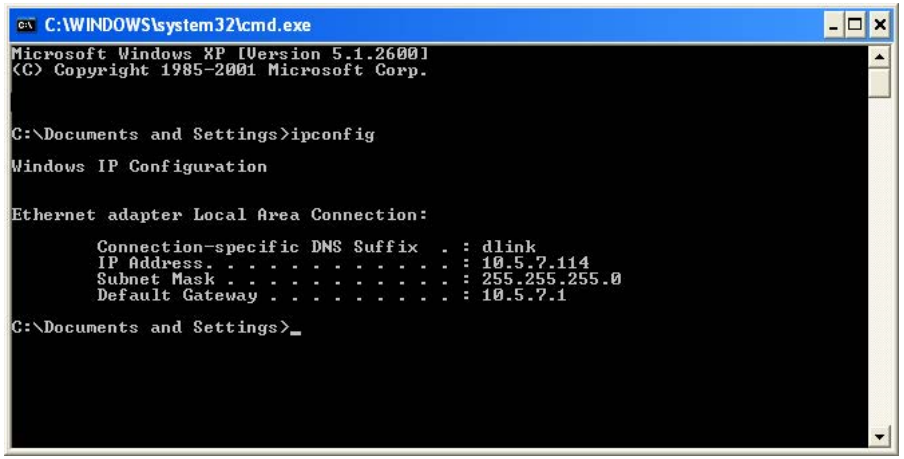
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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-1220AV. 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-1220AV, or you need to assign a static IP address, please follow the steps below:

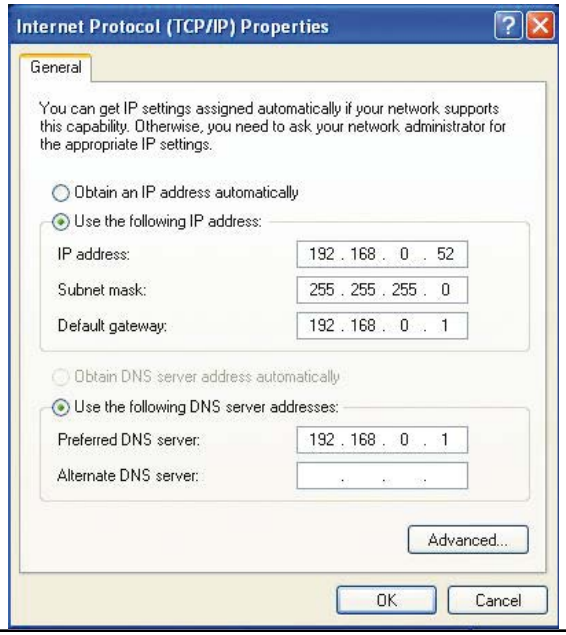
Step 1
Windows Vista® - Click on Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections.
Windows® XP - Click on Start > Control Panel > Network Connections.
Windows® 2000 - From the desktop, right-click My Network Places > Properties.

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
- One 10/100 Mbps Ethernet WAN port
- One 10/100 Mbps Ethernet LAN port
- 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)