D-Link®

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User Manual

PowerLine AV Wireless N Extender

DHP-W306AV

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Package Contents

D-Link DHP-W306AV PowerLine AV Wireless N Extender

CAT5 Ethernet Cable

CD-ROM with Software and User Manual

System Requirements

Network Requirements

- IEEE 802.11n or 802.11g wireless clients
- 10/100 Ethernet clients

Browser Requirements

- Internet Explorer 6.0 or higher
- Firefox 3.0 or higher
- Safari 3.0 or higher
- Chrome 2.0 or higher

CD Installation Wizard Requirements

- Windows® XP with Service Pack 2 / Vista® / Windows® 7
- An installed Ethernet adapter
- CD-ROM drive

Introduction

The DHP-W306AV allows you to connect both wired and wireless computers, high-definition TVs, networking devices, and gaming consoles using the most pervasive medium in your home - the electrical wiring. Share Internet connections and experience smooth file transfers, streaming multimedia, online gaming and more. The PowerLine AV Wireless N Extender features easy plug-and-play installation and can be connected to any Ethernet-enabled device.

The PowerLine AV Wireless N Extender incorporates the latest technology to deliver up to 200 Mbps over a home's existing electrical wiring. This fast transmission speed provides ample bandwidth suitable for streaming high-quality video HDTV signals while simultaneously providing high-speed Internet access throughout the home. With Quality of Service (QoS) support, the performance of applications which require real-time communication, such as VoIP phonecalls and multiplayer online games, will not be compromised even while streaming Internet TV and music.

DATA TRANSMISSION OVER ELECTRICAL WIRING

The D-Link DHP-W306AV PowerLine AV Wireless N Extender, compliant with the PowerLine AV standard, uses your home's existing electrical wiring to create a network or extend your existing network It turns every power outlet into a possible 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-W306AV offers increased speed and range over standard 802.11g. Initial wireless setup can be accomplished quickly, thanks to a convenient WPS button atop the device. WEP, WPA, and WPA2 encryption keep your network traffic safe and secure.

IDEAL FOR BANDWIDTH-INTENSIVE APPLICATIONS

The DHP-W306AV is capable of delivering data transfer rates of up to 200 Mbps[2]. This rapid transmission speed makes it ideal for bandwidth-intensive applications, guaranteeing smooth HD video streaming, VoIP calls, and lag-free online gaming experiences. In addition, it prioritizes Internet traffic, ensuring that multimedia applications do not experience glitches while web surfing and downloads are in progress. This device provides ample network bandwidth, enabling digital home consumers to tap into existing electrical wiring for high-quality multimedia streaming.

CONVENIENT SETUP AND SECURE OPERATION

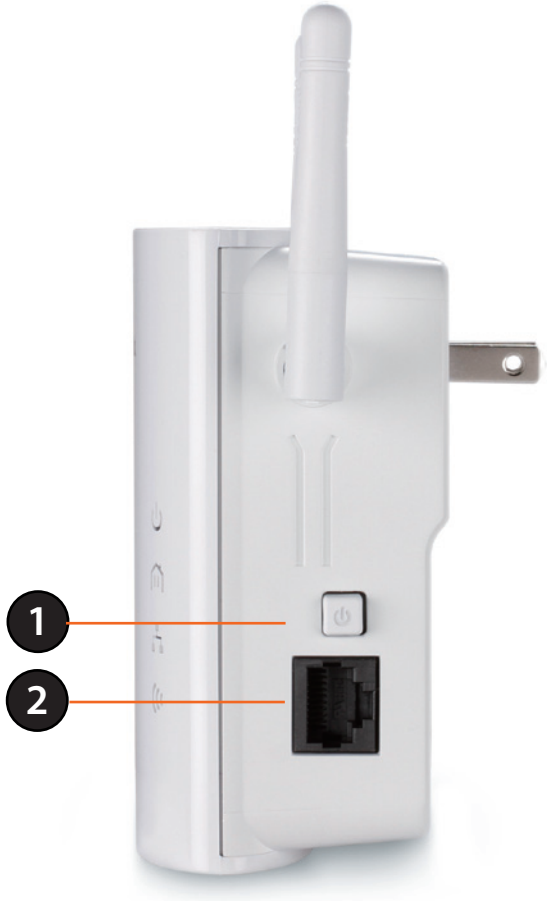
The DHP-W306AV plugs directly into a power outlet, and does not require any additional cables. Extend your home network by connecting multiple devices in the farthest corners of your home via Ethernet cable or Wireless N. For convenient setup, wired or wireless encryption keys can be quickly configured with the push of a button on top of the device. The adapter implements 128-bit AES data encryption to protect the network from unauthorized wiretapping. With hassle-free plug and play installation, the DHP-W306AV 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.

[2] Maximum throughput based on theoretical transmission PHY rate. Actual data throughput will vary. Network conditions and environmental factors, including volume of traffic and network overhead, may lower actual data throughput rate. Interference from devices that emit electrical noise, such as vacuum cleaners and hair dryers, may adversely affect the performance of this product. This product may interfere with devices such as lighting systems that have a dimmer switch or a touch-sensitive on/off feature, shortwave radios, or other PowerLine devices that do not follow the HomePlug standard.

Hardware Overview

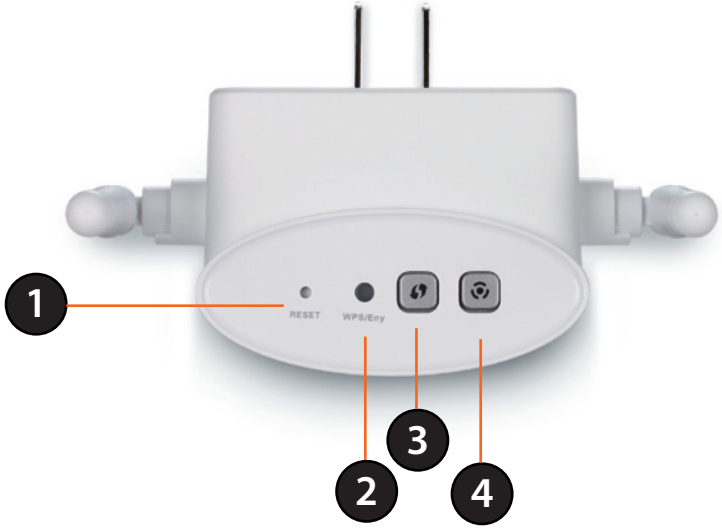
Connections



1	**ON/OFF**	Turns the device **ON** or **OFF. (standby/inactive)**
2	**RJ-45 10/100BASE-TX Ethernet Port**	Connects to Digital Media Devices, PCs, Game Consoles, Network Storage Devices

Hardware Overview

Side



1	**Reset Button**	Press and hold the button to reset to factory default.
2	**WPS/Eny LED**	When enabling WPS, the light will blink during broadcast. Once connected, the LED will remain lit 5 seconds and then will turn off. The LED will start blinking after the Encryption button is pushed. The LED will turn off once the PowerLine AV is connected to a PowerLine network.
3	**WPS Button**	Press to start the WPS process. You will have 120 seconds to start the WPS process on another wireless device.
4	**Encryption Button**	Push this button to establish a secure powerline network with other PowerLine AV devices.

Hardware Overview

LED's

1	Power LED	A solid light indicates a proper connection to the power supply.
2	PowerLine AV LED	A solid light indicates that a powerline connection is established. The LED will blink quickly when data is transmitted to or from another PowerLine unit.
3	Ethernet LED	A solid light indicates a connection to an Ethernet-enabled device. This LED blinks during data transmission.
4	Wireless LED	A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission.

Hardware Installation

Power

Plug in the DHP-W306AV into an AC wall outlet.

Note: Power source is confirmed when the Power LED on the DHP-W306AV is illuminated.

Connect the Ethernet Cable

Connect one end of the supplied CAT5 Ethernet cable to the Ethernet port on the DHP-W306AV and the other end of the cable to the device's Ethernet interface. You can also enable wireless to connect to the Wi-Fi devices using WPS.

Wireless Installation Considerations

The D-Link wireless access point lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind 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 access point 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 access points, 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 2.4GHz cordless phones or wireless products such as ceiling fans, lights, and home security systems, your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone is not in use.

PowerLine Network - Quick Setup
Encryption Button Usage

The Eny Button is used to add a PowerLine AV device to a PowerLine network. You can allow the DHP-W306AV to join a network by pressing the Eny Button to toggle it to the Broadcast state or Join state.

The Eny Button has 3 different trigger states:

Broadcast state - Enables the DHP-W306AV to provide information for another PowerLine AV device to join its PowerLine network (works even if it is the only device existing within the network group). The first PowerLine device will use this state when the Eny Button is pressed.

Join State - This allows an ungrouped PowerLine AV device to join an existing PowerLine network.
PowerLine devices added after the first device will be in the Join State when the Eny Button is pressed.

Ungroup State - Hold down the Eny Button for more than 10 seconds to detach the device from its network group.

Hardware Installation - For Wireless Router

Note: *A minimum of two PowerLine AV Adapters are required to create a network in order for your product to work properly.*

Scenario 1: If you "DO NOT" have an existing PowerLine network and would like to add a DHP-W306AV, we recommend purchasing D-Link's PowerLine AV Network Starter Kit (DHP-307AV) in order to create a PowerLine network.

Step 1
Plug the PowerLine AV Adapter into a power outlet near your router as illustrated in **Room 1**. If you have a pair, plug the second PowerLine AV Adapter into a power outlet in a different room of your home as shown in ***Figure 1,*** **Room 2**.

Note: *Power source is confirmed when the green LED Power Indicator on the PowerLine AV Network Adapter is illuminated.*

Step 2
Connect the Ethernet cable to the PowerLine AV Adapter, and connect the other end of the Ethernet cable to the router's LAN as illustrated in **Room 1**. If you have a pair, connect the second Ethernet cable to the second PowerLine AV adapter. Next, connect then other end of to the PC as illustrated in **Room 2**.

Note: *Connection to an Ethernet-enabled device is confirmed when the green LED Ethernet Indicator on the PowerLine AV Network Adapter is illuminated.*

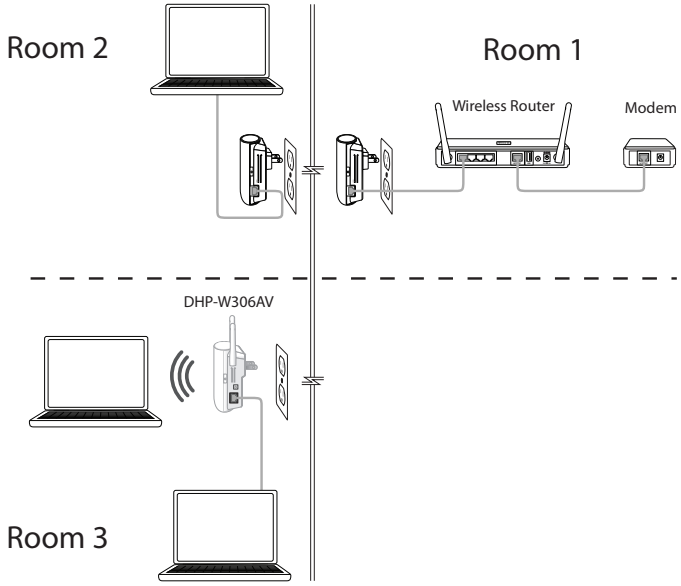


Figure 1

Step 3
Plug the DHP-W306AV Extender into a power outlet in a different area of your home. Turn on the DHP-W306AV Extender by pushing the power button located on the side of this unit. Connect one end of the included Ethernet cable to the Ethernet port on the DHP-W306AV and attach the other end of the Ethernet cable to the PC as illustrated in **Room 3**.

Step 4
To secure PowerLine network from unauthorized users, press the **ENY** button on the PowerLine AV Adapter for 3 seconds. Then, press the **ENY** button on the DHP-W306AV Extender for 3 seconds. This must be done within two minutes after pressing the ENY button on the first device. The ENY LED should blink. Both the PowerLine AV adapter and DHP-W306AV will reboot, and all LEDs will turn Off and On.

Note: *Network Connectivity is confirmed when the PowerLine AV LEDs indicators on both PowerLine AV Adapter and DHP-W306AV are steadily lit. Your network is now secure.*

Step 5
Open a web browser, enter http://192.168.0.50 (or http://dlinkap) and then press **Enter.** When the login window appears, set the user name to **Admin** and leave the password box blank. Click **Log In** to continue the setup or run the Quick Setup Wizard included in the CD. Please refer to the user manual for more detailed installation information and advanced features.

Note: *For PowerLine Settings refer to page 25. For the Wireless Setup Wizard refer to page17. For Wireless Setup refer to page 23.*

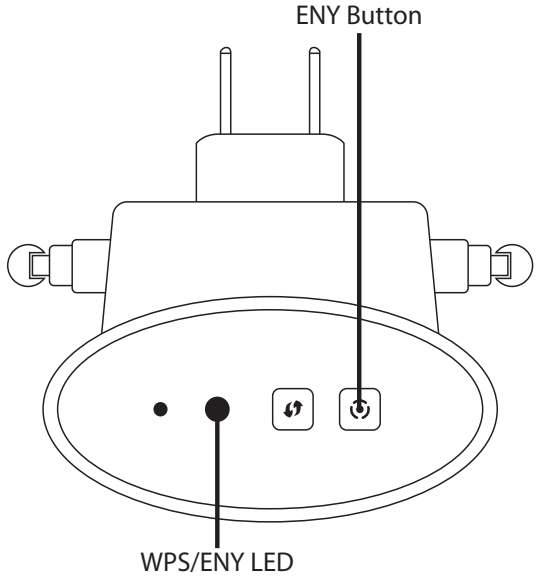
Scenario 2: If you have an existing PowerLine network and would like to add a DHP-W306AV Extender.

Step 1
Plug the DHP-W306AV Extender into a power outlet in a different area of your home. Turn on the DHP-W306AV by pushing the power button located on the side of the unit. Connect one end of the included CAT5 Ethernet cable to the Ethernet port on the DHP-W306AV and attach the other end of the Ethernet cable to the PC as shown in **Figure 1**, **Room 3**.

Step 2
To secure your PowerLine network from unauthorized users, press the **ENY** button on the PowerLine AV Adapter for 3 seconds. Then, press the **ENY** button on the DHP-W306AV Extender for 3 seconds. This must be done within two minutes after pressing the ENY button on the first device. The ENY LED should blink. Both the PowerLine AV adapter and DHP-W306AV will reboot, and all LEDs will turn Off and On.

Note: *Network Connectivity is confirmed when the PowerLine AV LEDs indicators on both PowerLine AV Adapter and DHP-W306AV are steadily lit. This will indicate that your network is now secure.*

Step 3
Open a web browser, **enter http://192.168.0.50 (or http://dlinkap)** and then press **Enter**. When the login window appears, set the user name to Admin and leave the password box blank. Click **Log In** to continue the setup or run the Quick Setup Wizard included in the CD. Please refer to the user manual for more detailed installation information and advanced features.



Hardware Installation - For PowerLine AV Wireless Router

Scenario 1: If you have an existing PowerLine network with a PowerLine AV Wireless Router (e.g. D-Link, DHP-1320) and would like to add a DHP-W306AV Extender.

Step 1
Plug the DHP-W306AV Extender into a power outlet in a different room of your home away from the PowerLine device . Turn on the DHP-W306AV by pushing the power button located on the side of the unit. Connect one end of the included Ethernet cable to the Ethernet port of the DHP-W306AV Extender and plug the other end of the Ethernet cable to the PC as shown in **Figure 2.**

Step 2
To secure PowerLine network from unauthorized users, press the **ENY** button on the PowerLine AV Wireless Router for 3 seconds. Then, press the **ENY** button on the DHP-W306AV Extender for 3 seconds. This must be done within two minutes after pressing the ENY button on the first device. The ENY LED should blink. Both the PowerLine AV adapter and DHP-W306AV will reboot, and all LEDs will turn Off and On.

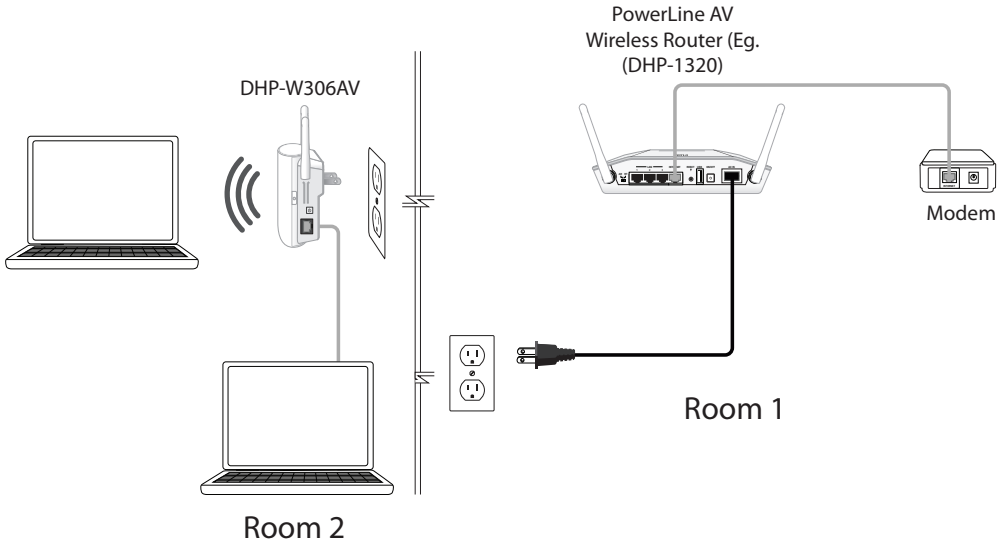


Figure 2

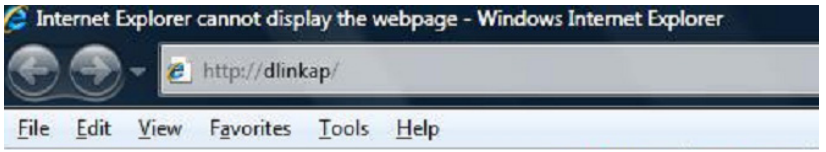
Note: *Network Connectivity is confirmed when the PowerLine AV LEDs indicators on both PowerLine AV Wireless Router and DHP-W306AV are steadily lit. This will indicate that your network is now secure.*

Step 3
Open a web browser, enter **http://192.168.0.50 (or http://dlinkap)** and then press **Enter**. When the login window appears, set the user name to **Admin** and leave the password box blank. Click **Log In** to continue the setup or run the Quick Setup Wizard included in the CD. Please refer to the user manual for more detailed installation information and advanced features.

Wireless

Connect an Ethernet cable from the Ethernet port on the DHP-W306AV to a computer for configuration.

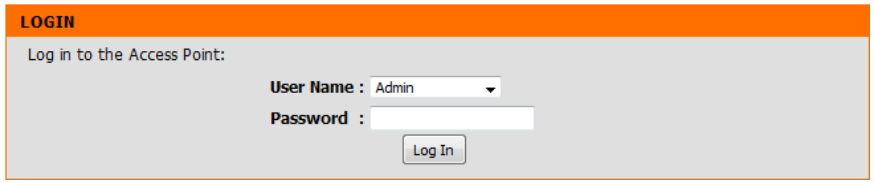
If you wish to change the default settings or optimize the performance of the DHP-W306AV, you may use the web-based configuration utility.



To access the configuration utility, open a web browser such as Internet Explorer and enter either **http://dlinkap** or **http://192.168.0.50** in the address field.

By default, **Admin** will be the User Name . Leave the password blank.

If you receive a "Page Cannot be Displayed" error, please refer to the Troubleshooting section on page **60** for assistance.



If this is your first time configuring the AP, the Wizard will assist you to configure your DHP-W306AV.

Wireless Setup Wizard

Click **Launch Wireless Setup Wizard** to configure your access point and skip to the next page.

To set up your wireless network, click **Add Wireless Device With WPS** and skip to page 31.

If you would like to enter your settings without running the wizard, click **Wireless Setup** on the left side and skip to page 21.

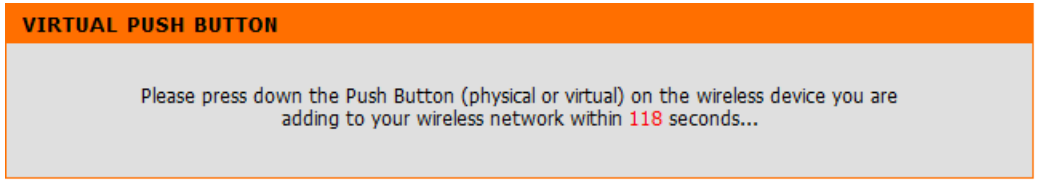
This Wizard is designed to assist you in configuring your DHP-W306AV as an access point.

Select WPS as the configuration method only if your wireless device supports Wi-Fi Protected Setup (WPS). For Manual setup, skip to the next page.

Click **Next** to continue.

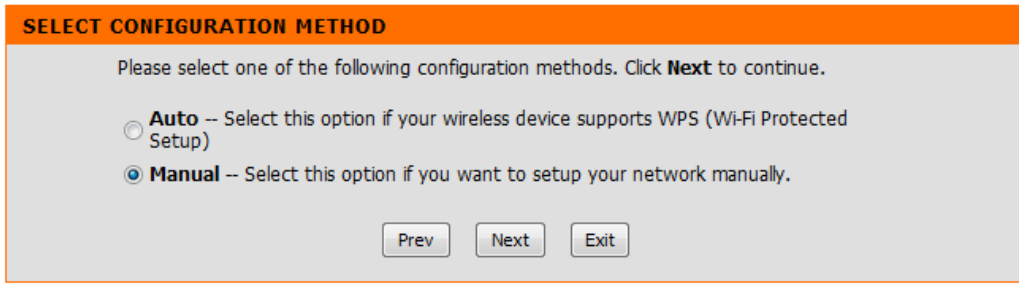
Please press the **WPS Push Button** (physical or virtual) on the device you want to add to your wireless network to complete the setup. In order for your network settings to take effect the AP will reboot automatically.

When the device has finished rebooting the main screen will be displayed.



Select Manual as the configuration method to setup your network manually.

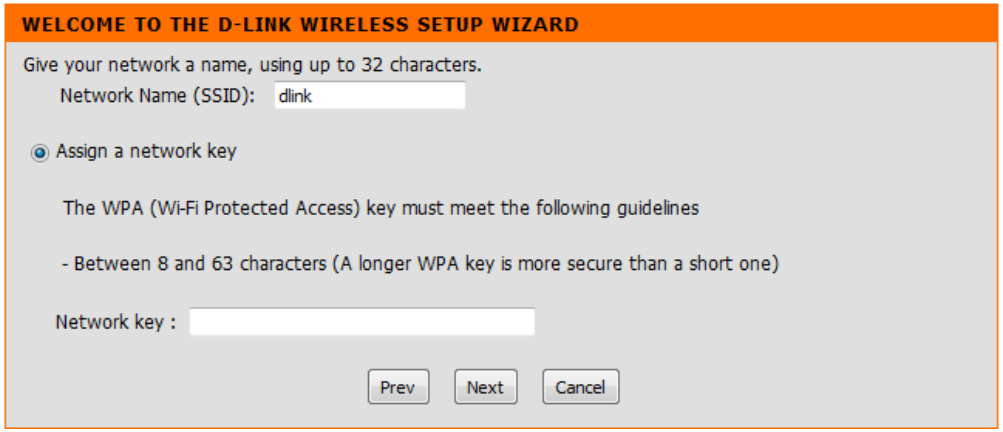
Click **Next** to continue.



Enter a name for your wireless network (SSID).

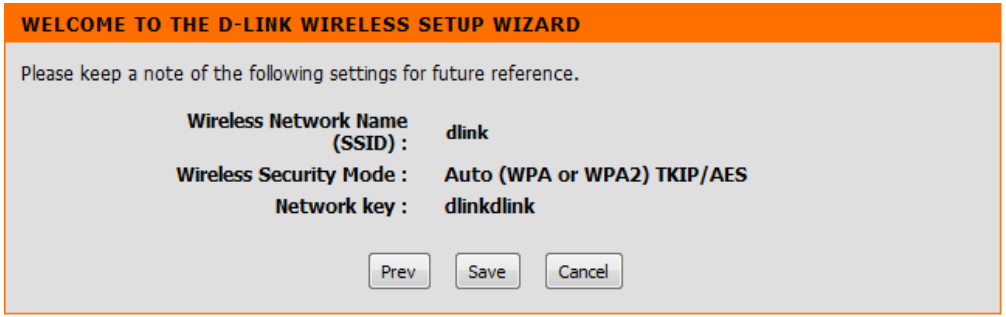
Assign a network key as the configuration method, enter your network key. This key must be entered on your wireless clients.

Click **Next** to continue.



The following screen will show you the network key to enter on your wireless clients.

Click **Save** to finish the Setup Wizard.



Wireless Setup

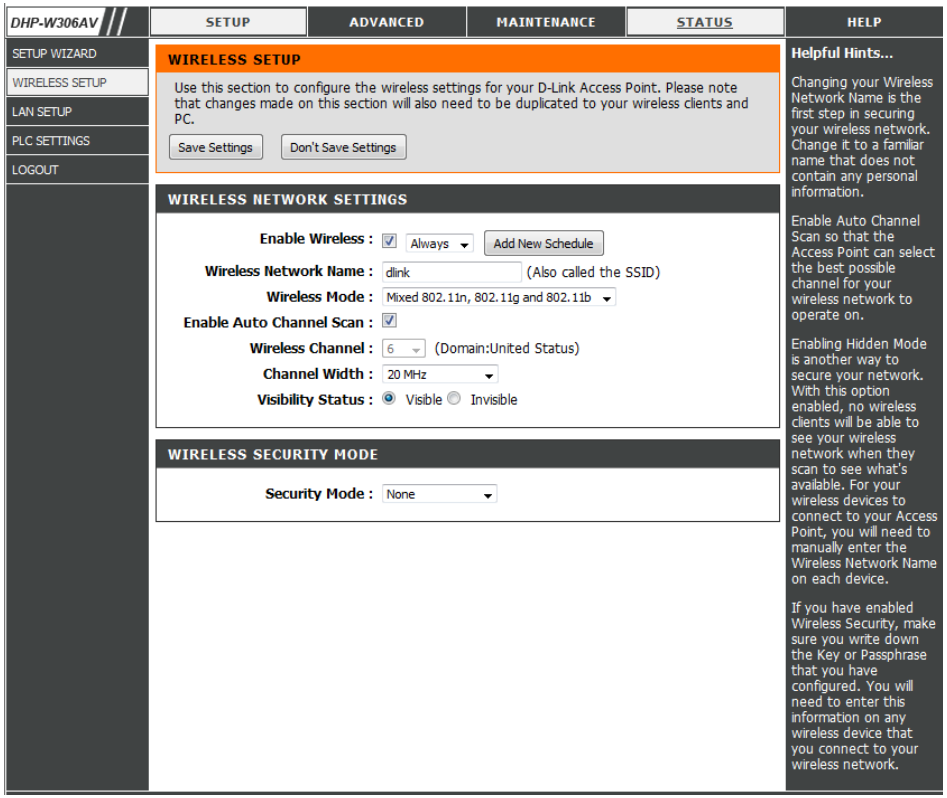
Enable Wireless: Check this box to enable the wireless function. If you would prefer not to use wireless, uncheck the box to disable all the wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click Add New Schedule to create a new schedule.

Wireless Network Name: When you are browsing for available wireless networks, this is the name that will appear in the list (unless Visibility Status is set to Invisible, see below). This name is also referred to as the SSID. For security purposes, changing the default network name is highly recommended.

Enable Auto Channel Scan : The Auto Channel Scan setting can be selected to allow the DHP-W306AV to select the channel with the least amount of interference (during boot-up). Indicates the channel setting for the DHP-W306AV.

Wireless Channel: 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 Scan, this option will be grayed out.

Wireless Mode: Select one of the following:
802.11n Only - Select if you are only using 802.11n wireless clients.
Mixed 802.11n, 802.11g and 802.11b - Select if you are using a mix of 802.11n, 11g, and 11b wireless clients.
Mixed 802.11n, 802.11g - Select if you are only using 802.11n, 11g wireless clients.



Channel Width: Select the Channel Width:
Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.
20MHz - Select if you are not using any 802.11n wireless clients.

Security Settings: Locking the wireless security settings prevents the settings from being changed by any new external user using its PIN.Devices can still be added to the wireless network using Wi-Fi Protected Setup. It is still possible to change wireless network settings with Manual Wireless Network Setup, Wireless Network Setup Wizard, or an existing external WLAN Manager user. Please refer to page **47**.

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

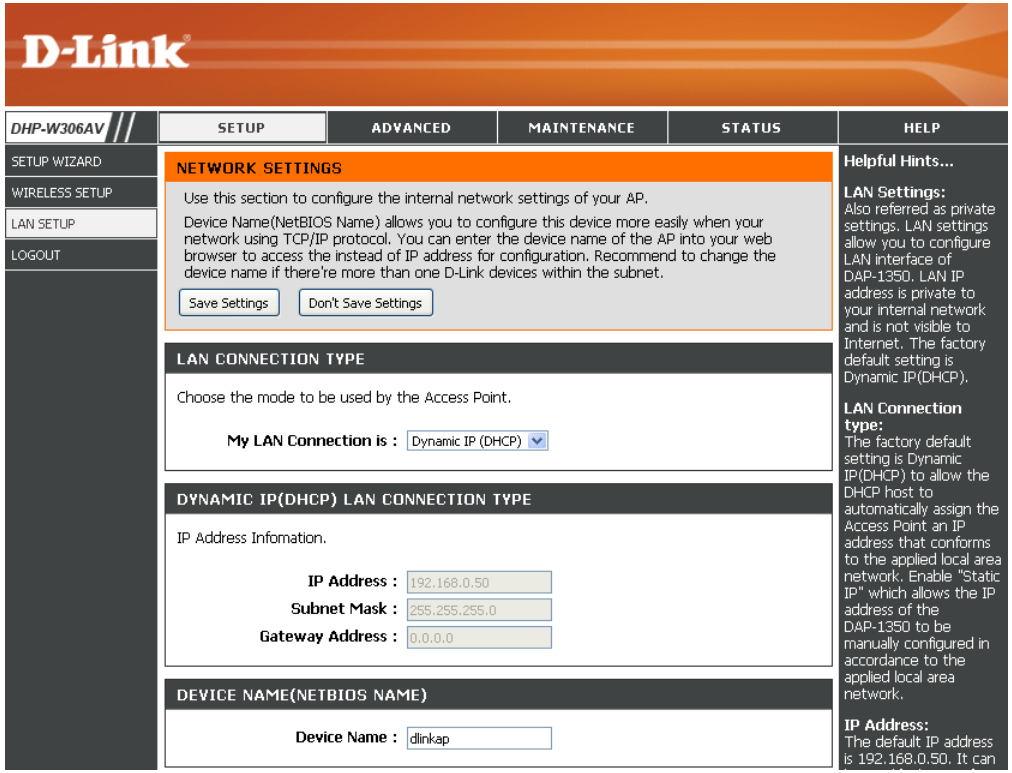
LAN Setup - DHCP

This section will allow you to change the local network settings of the access point and to configure the DHCP settings.

LAN Connection Type: Use the drop-down menu to select Dynamic IP (DHCP) to automatically obtain an IP address on the LAN/private network.

Device Name: Enter the Device Name of the AP. Changing the Device Name is recommended if there is more than one D-Link device within the subnet.

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



LAN Setup - Static IP

Select Static IP to manually enter the IP address, subnet mask, and default gateway addresses.

LAN Connection Type: Select Static IP from the drop-down menu.

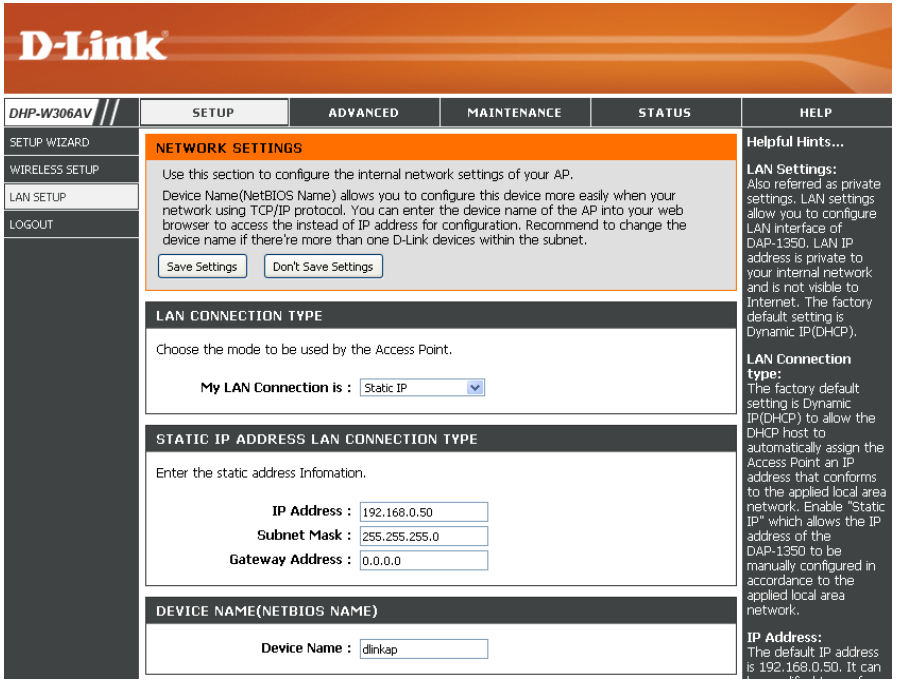
IP Address: Enter the IP address of the access point. The default IP address is 192.168.0.50. If you change the IP address, once you click Apply, you will need to enter the new IP address in your browser to return to the configuration utility.

Subnet Mask: Enter the Subnet Mask.

Default Gateway: Enter the Gateway. This is usually the LAN or internal IP address of your router.

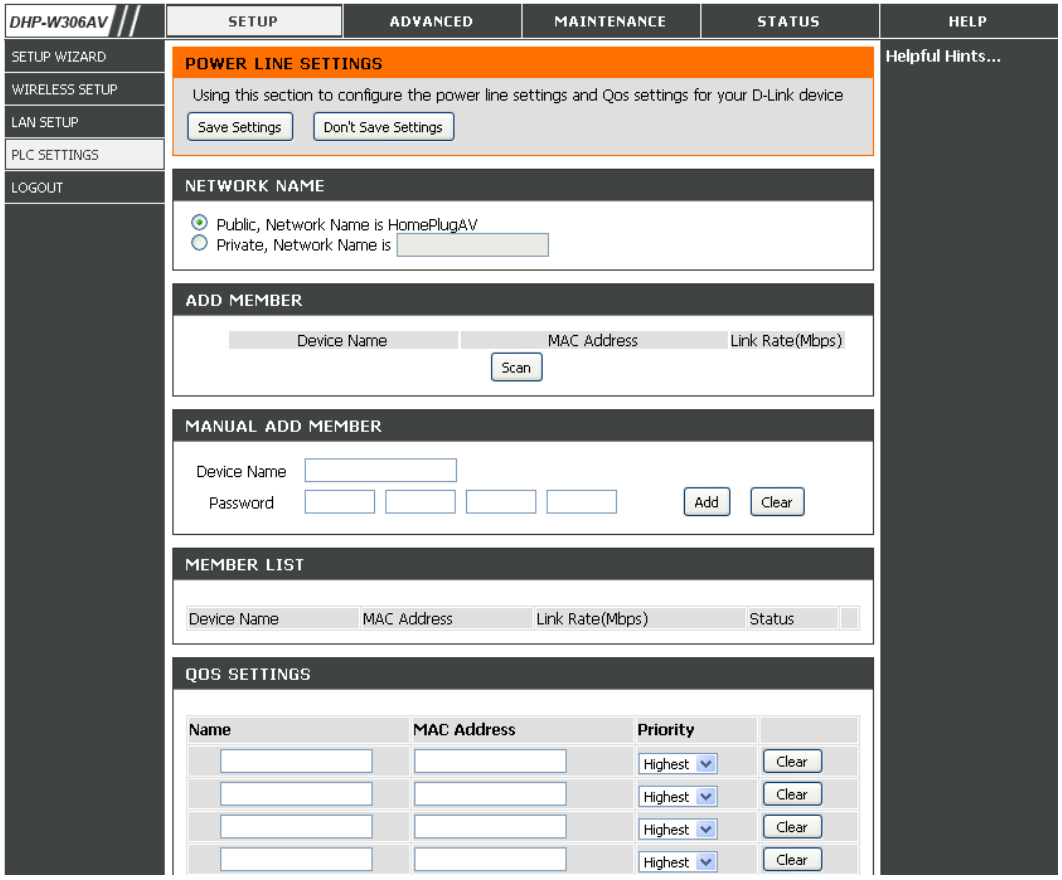
Device Name: Enter the Device Name of the AP. It is recommended that you change the Device Name if there is more than one D-Link device within the subnet. You can enter the device name of the AP into your web browser to access it instead of IP address for configuration. If you are using the device name to connect, make sure that your PC and your DHP-W306AV are on the same network.

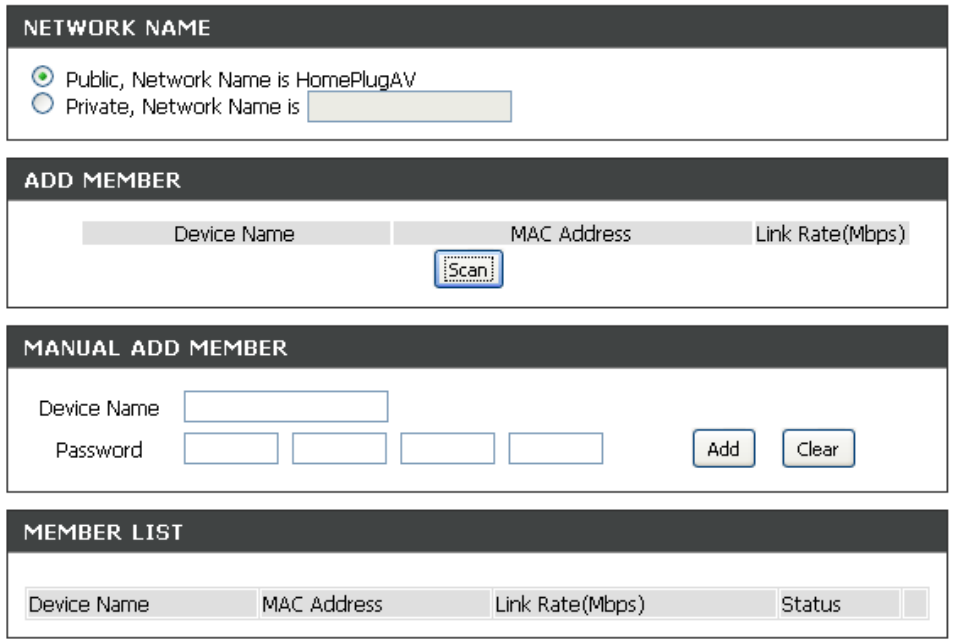
Save Settings: Click **Save Settings** to save and activate the new changes.



Configuration
PLC Settings

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





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. Type the name of your private PowerLine network in the field.

Scan: Scan for new PowerLine devices.

Add Memeber: This section lets you add new PowerLine AV devices to your PowerLine network. To add a new device, give it a Device Name and enter its Password, then click Add. When you add a device it is given the current Network Name.

Device Name: Type a name you wish to use to identify a specific PowerLine AV device. For example, "Jack's room".

Password: The Password is used to verify that you are authorized to perform changes on a device. You can find the Password printed on the back of your device.

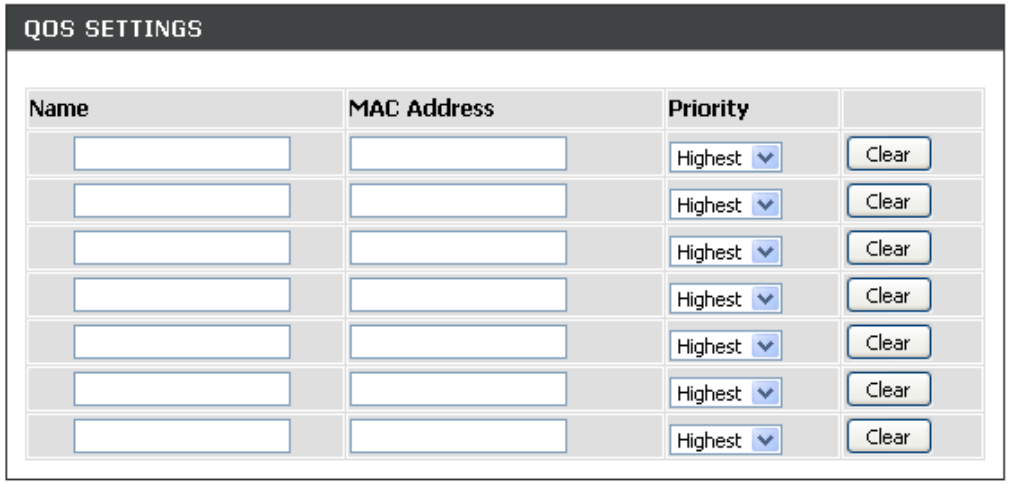
Member List: This section provides information on the PowerLine AV devices in your PowerLine network, or any devices that were previously connected but it are currently disconnected.

Link Rate: Displays the device's current data rate in Mbps.

Status: This field shows the status of the device. If the field displays the word Connect, then the device is connected to your PowerLine network. If the field displays the word Disconnect, then the device has been added to the network but it is not ready. Please check its password and make sure the device is powered on.

Mac Address: You can find the MAC address printed on the back of your device.

QoS Setting: You can configure your PowerLine AV devices to give priority to powerline network traffic accordingly. Enter the name, MAC Address, and priority level.



MAC Address Filter - Static IP

Use MAC (Media Access Control) Filters to authorize wireless clients to access your network by their MAC addresses. When enabled, any client not on the MAC filter list will not be able to access your network.

MAC Address Filter: Select **Enable** or Disable from the drop-down menu.

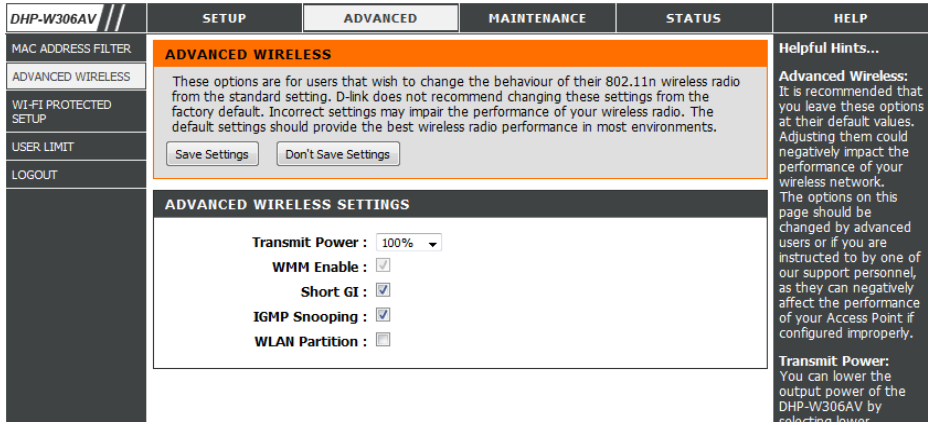
Reset to unconfigure: Click to restore the default Wi-Fi setup.

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. Click Save Settings to activate and save.

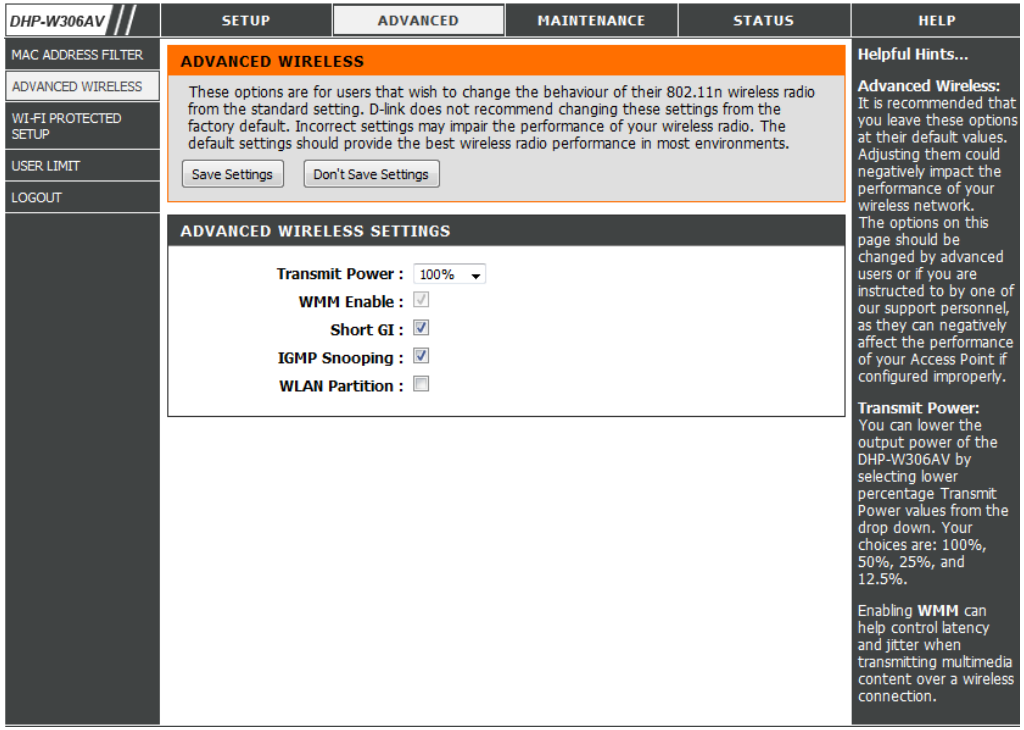
Note: Make sure to enter the computer you are currently using to configure the access point first or you will not be able to access the configuration utility once you click Save Settings.

MAC Filter List: Displays the list of clients in the filter list.

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



Advanced Wireless



Transmit Power: Sets the transmit power of the antennas.

Note: Transmit power is regulated by international standard. Users are forbidden to change its maximum limit.

WMM Enable: WMM is a Quality of Service (QoS) system for your wireless network. Enabling this feature will improve the quality of video and voice applications for your wireless clients.

Short GI: Check this box to reduce the guard interval time therefore increasing the data capacity. However, this setting less reliable and may create higher data loss.

IGMP Snooping: Select this checkbox to enable IGMP snooping. IGMP snooping is a layer 2 feature which enables the device to learn Multicast group membership based on IGMP messages passing through the built-in switch. Because the switch learns the IGMP messages and knows which clients are involved in the multicast group membership, it is able to forward multicast traffic only to the ports that requested for it (based on their membership).

WLAN Partition: Select this checkbox to enable WLAN partition. If this feature is enabled, then there is no barrier between communication among wireless stations connecting to the Access Point. If this is disabled, wireless clients are not allowed to exchange data through the Access Point.

Wi-Fi Protect Setup

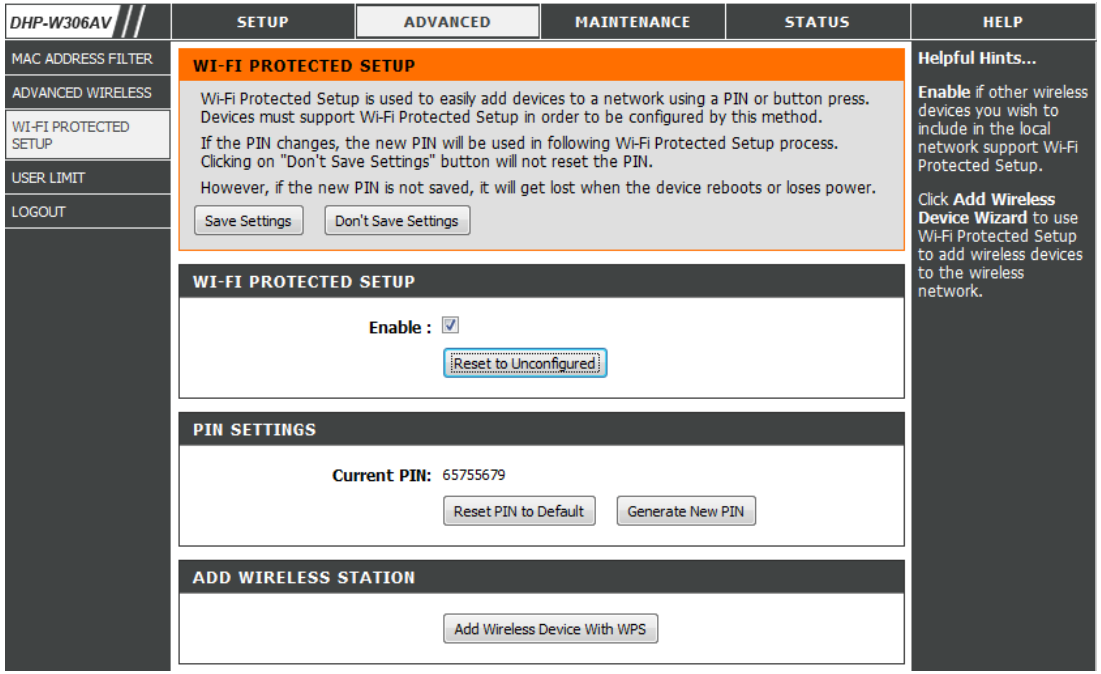
Wi-Fi Protect Setup: Enables the Wi-Fi Protected Setup feature.

Reset to Unconfigure: Restores the default Wi-Fi setup.

Current PIN: Shows the current value of the access point's PIN.

Generate New PIN: Create a random number that is a valid PIN. This becomes the access point's PIN. You can then copy this PIN to the user interface of the user.

Reset PIN to Default: Restores the default PIN of the access point.



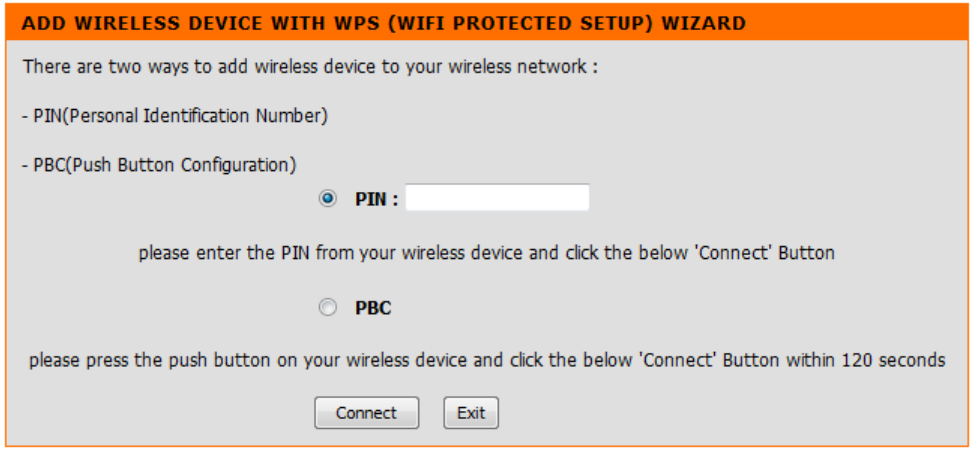
Add Wireless Device with WPS

You will be directed to the page below when clicking **Add Wireless Device with WPS** from the Wi-Fi protected Setup page.

Adding a Wireless Device Using the PIN Method

Select PIN to use your PIN number from your wireless device to connect to your network.

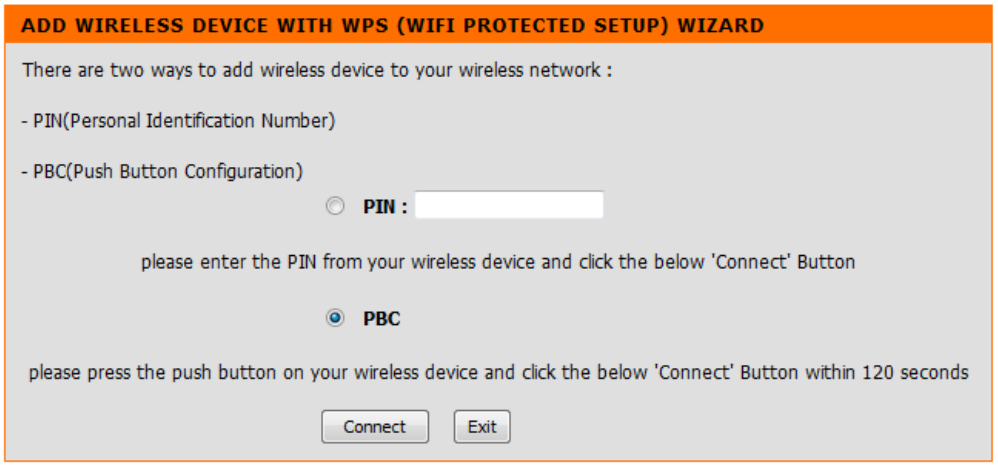
Click **Connect** to continue. Start WPS on the wireless device you are adding to you wireless network to complete the setup



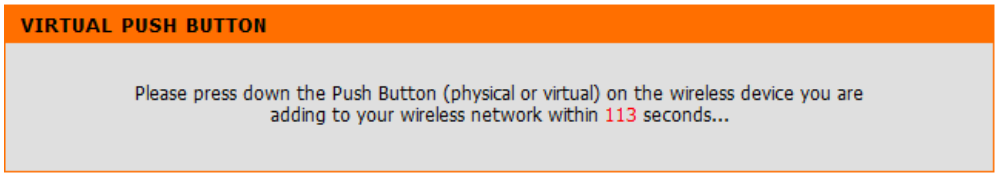
Adding a Wireless Device Using the PBC Method

Select PBC to use Push Button Configuration in order to connect to your network.

Click **Connect** to continue.



Press the WPS Button on the wireless device that you are adding to your network to complete the setup.



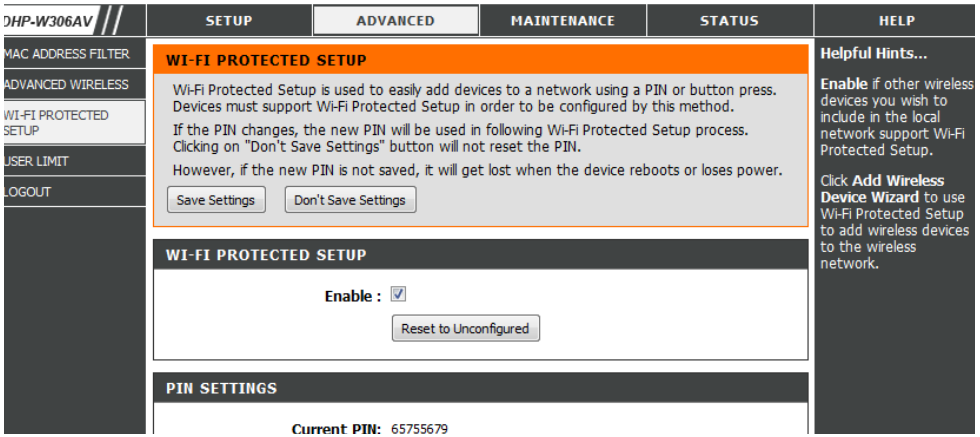
User Limit

Enter the maximum number of wireless clients that can connect at one time to your access point

Enable User Limit: Check the Enable User Limit box to enable this feature.

User Limit: Enter the maximum number of clients, between 1 and 32.

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



Admin

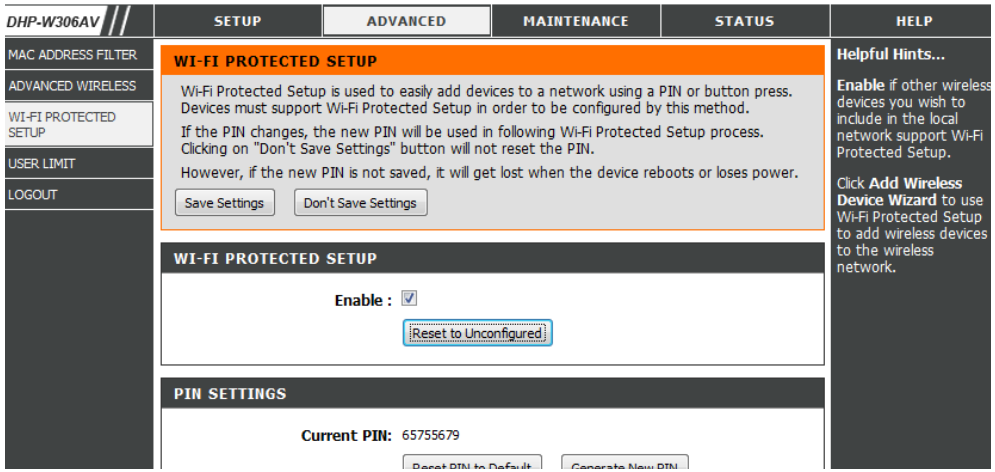
This page will allow you to change the Administrator password. The administrator password has read/write access.

Password: Enter a new password for the Admin User Name. The administrator account can change the configuration of the device.

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

Enable Graphical: Enables a challenge-response test 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.

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



System

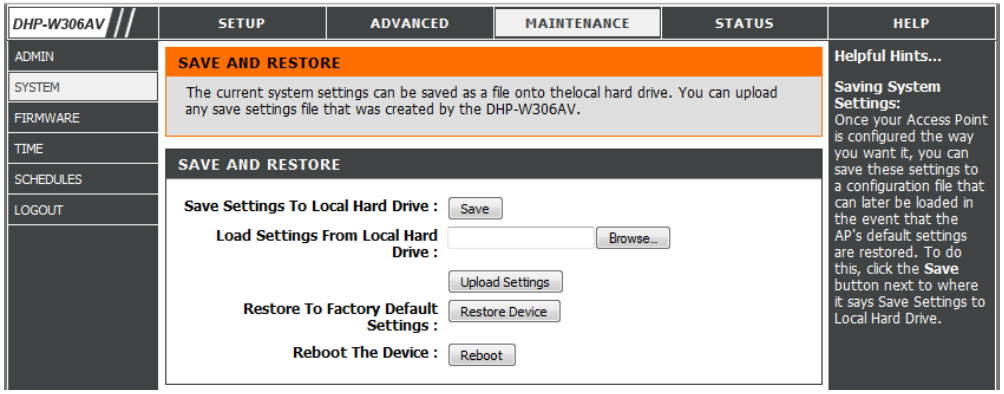
Save to Local Hard Drive: Use this option to save the current access point configuration settings to a file on the computer you are using. Click the Save button. You will then see a file dialog where you can select a location and file name for the settings.

Upload from Local Hard Drive: Use this option to load previously saved access point configuration settings. Click Browse to find a previously saved configuration file. Then, click the Upload Settings button to transfer those settings to the access point.

Restore to Factory Default: This option will restore all configuration settings back to the settings that were in effect at the time the access point 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 access point configuration settings, use the Save button above.

Note: Restoring the factory default settings will not reset the Wi-Fi Protected Status to Not Configured.

Reboot the Device: Click to reboot the access point.



Firmware

You can upgrade the firmware of the access point 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 Information: Click on the **Check Now** button to find out if there is an updated firmware or language pack version. If a new version exists, download the new firmware to your hard drive.

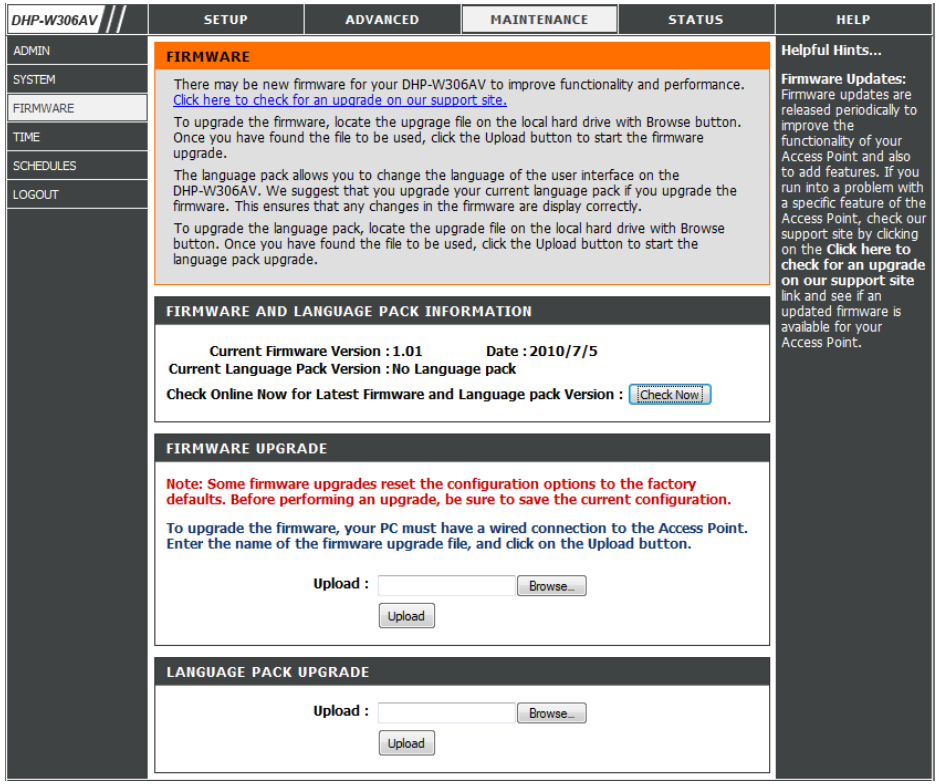
Firmware Upgrade: After you have downloaded the new firmware, click Browse to locate the firmware update on your hard drive. Click **Upload** to complete the firmware upgrade.

Language Pack Upgrade: To upgrade the language pack, follow these steps:

1. Click the **Browse** button to locate the D-Link language pack upgrade file on your computer. Note: Language pack file extension will be *.LNG

2. Once you have found the file, click the **Upload** button to begin the language pack upgrade process. This can take a minute or more.

3. Wait for the device to reboot. This process can take about 75 seconds.



Time

The Time Configuration option allows 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 can also be configured to automatically adjust the time when needed.

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

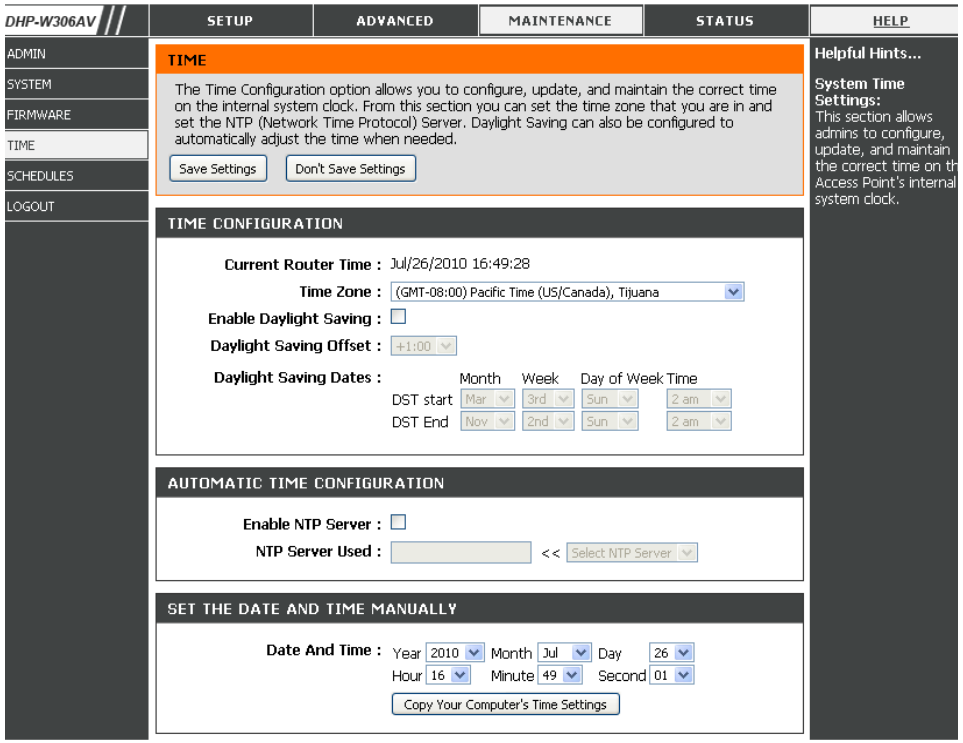
Daylight Saving: To select Daylight Saving time manually, click the Enable Daylight Saving check box. Next use the drop-down menu to select a Daylight Saving Offset and then enter a start date and an end date for daylight saving time.

Enable NTP Server: NTP is short for Network Time Protocol. NTP synchronizes computer clock times in a network of computers. 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.

Date and Time: 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.

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



Schedules

Schedules can be created for use with enforcing rules. For example, if you would like to restrict web access to Mon-Fri from 3:00 p.m. to 8:00 p.m., you could create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a StartTime of 3:00 p.m. and End Time of 8:00 p.m.

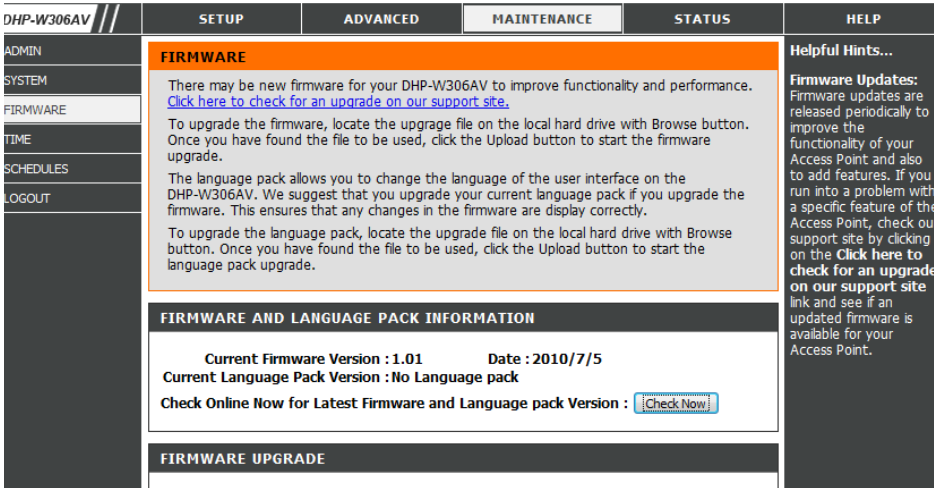
Name: Enter a name for your new schedule.

Days: Select a day, a range of days, or All Week to include every day.

Time: Check All Days or enter a start and end time for your schedule.

Add: After making your changes, click **Save** to save
Schedule Rules the schedule rule.

List: The list of schedules will be listed here. Click the **Edit** icon to make changes or click the **Delete** icon to remove the schedule.



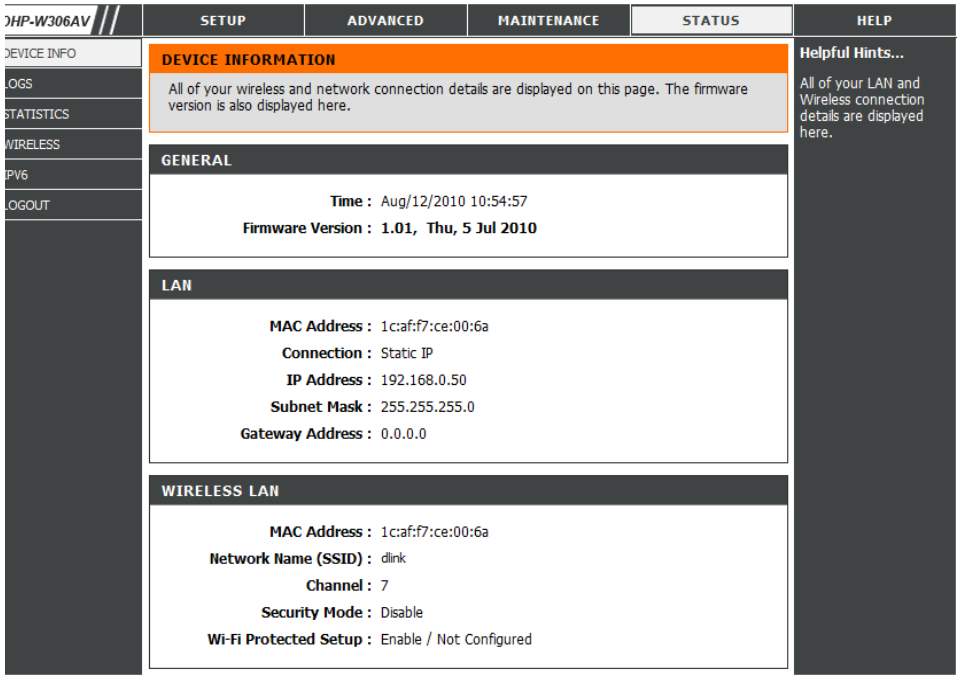
Device Info

This page displays the current information for the DHP-W306AV. It will display the LAN and wireless LAN information.

General: Displays the access point's time and firmware version.

LAN: Displays the MAC address and the private (local) IP settings for the access point.

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



Logs

The DHP-W306AV keeps a running log of events and activities occurring on the AP. If the AP is rebooted, the logs are automatically cleared. You can save the log files under Log Settings.

Log Options: You can select the types of messages that you would like to display from the log: System Activity, Debug Information, Attacks, Dropped Packets, and Notice. Select the types you want to view and click Apply Log Settings Now.

First Page: This button directs you to the first page of the log.

Last Page: This button directs you to the last page of the log.

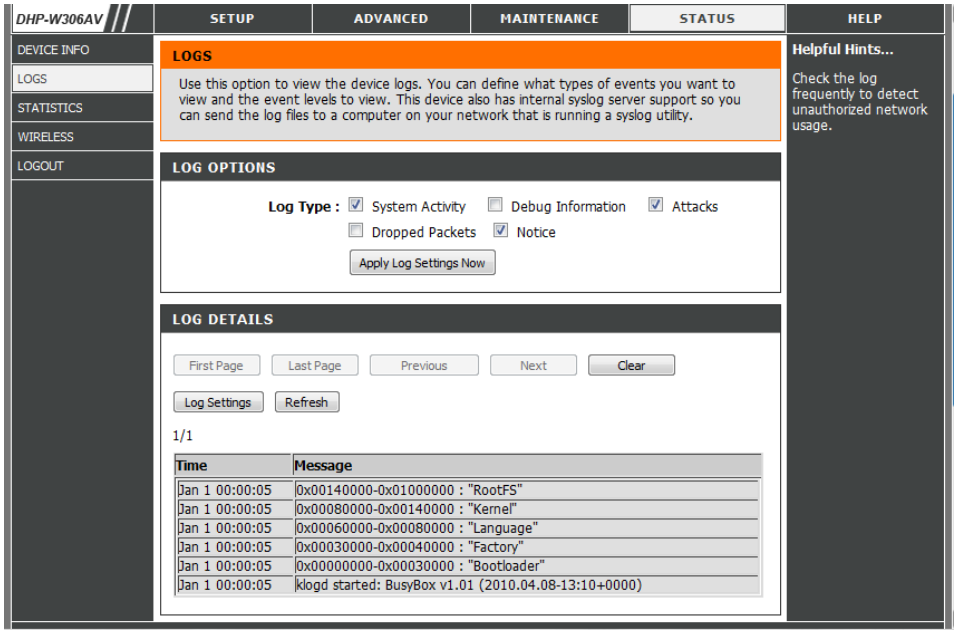
Previous: This button directs you to the previous page of the log.

Next: This button directs you to the next page of the log.

Clear: This button clears all current log content.

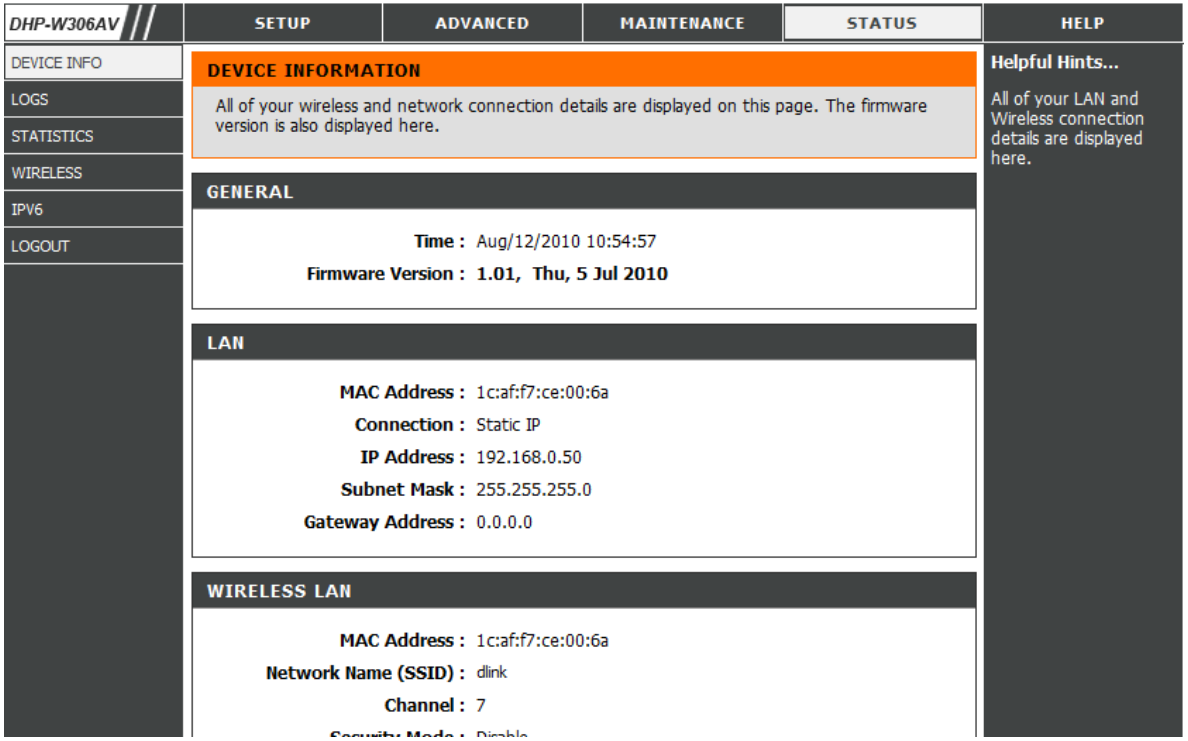
Log Settings: This button opens a new menu where you can configure the log settings.

Refresh: This button refreshes the log.



Statistics

The DHP-W306AV keeps statistics of 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 access point is rebooted.

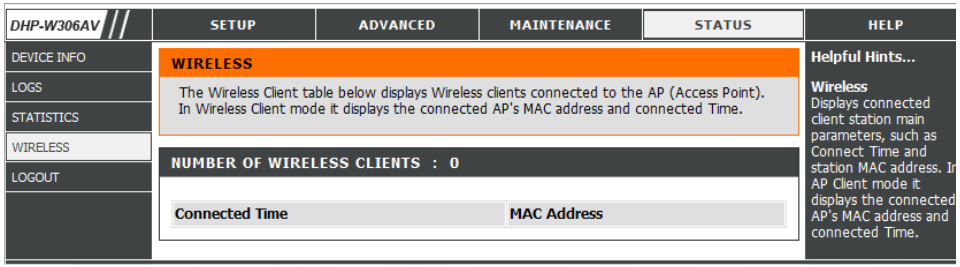


Wireless

The wireless section allows you to view the wireless clients that are connected to your wireless access point.

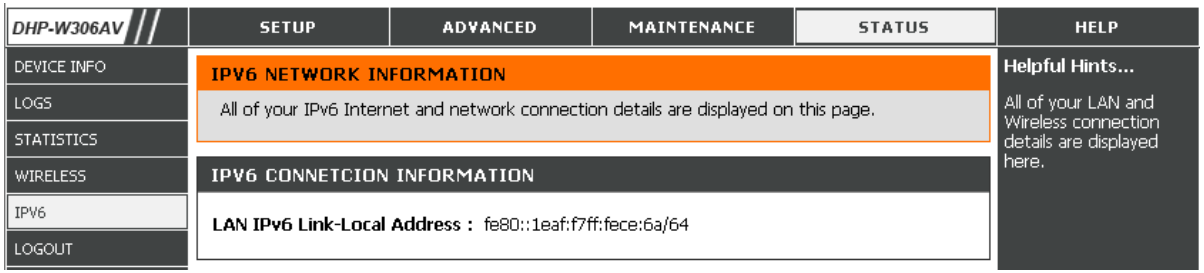
Connection Time: Displays the amount of time the wireless client has been connected to the access point.

MAC Address: Displays the Ethernet ID (MAC address) of the wireless client.



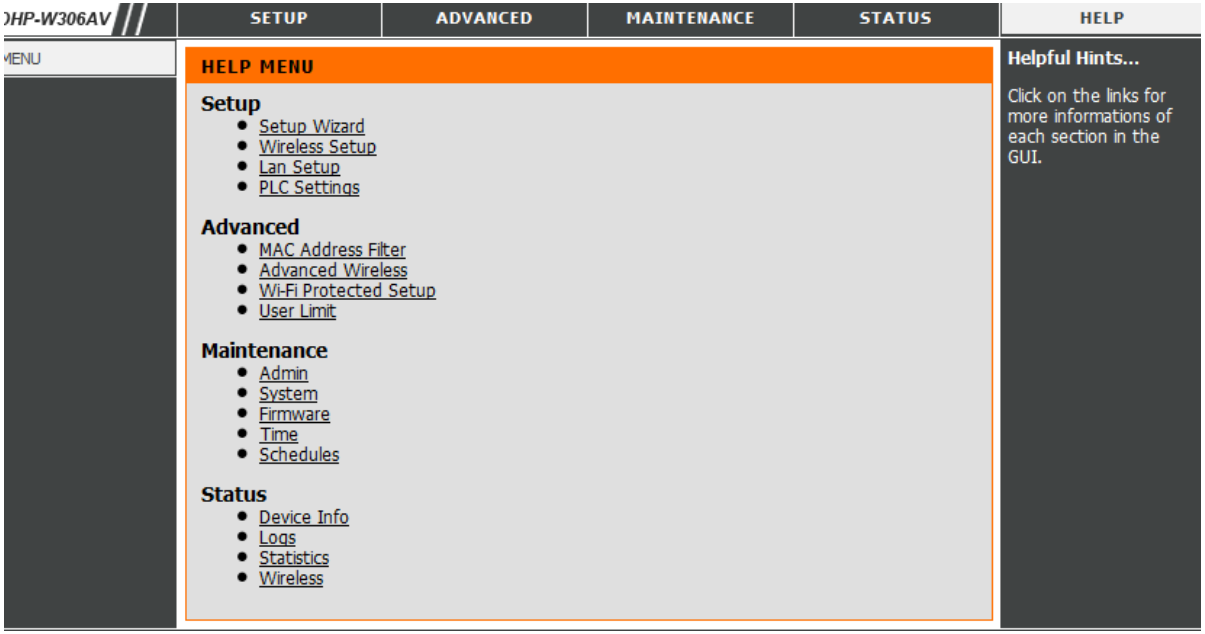
IPv6

This section will display all of your IPv6 Internet and network connection details.



Help

Click on the links below for more information on each section in the GUI.



Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DHP-W306AV offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA (Wi-Fi Protected Access)
- WEP (Wired Equivalent Privacy)
- WPA2-PSK (Pre-Shared Key)
- WPA-PSK (Pre-Shared Key)

What is WEP?

WEP stands for Wired Equivalent Privacy. It is based on the IEEE 802.11 standard and uses the RC4 encryption algorithm. WEP provides security by encrypting data over your wireless network so that it is protected as it is transmitted from one wireless device to another.

To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange – alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.

What is the WPA?

WPA, or Wi-Fi Protected Access, is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy). The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.

- User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless bridge or access point.

WPA/WPA2 incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

Configure WEP

It is recommended to enable encryption on your wireless access point before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

1. Log into the web-based configuration by opening a web browser and entering the IP address of the access point (192.168.0.50). Click on **Setup** and then click **Wireless Settings** on the left side.

2. Next to Security Mode in the Wireless Security Mode section, select **WEP Mode**.

3. Next to WEP Encryption, select **64-bit** or **128-bit** encryption.

4. Next to WEP Key 1, enter a WEP key that you create. Make sure you enter this key exactly on all your wireless devices.

5. Next to Authentication, select **Both** or **Shared Key**.

Configure WPA/WPA2 Personal

It is recommended to enable encryption on your wireless access point before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

1. Log into the web-based configuration by opening a web browser and entering the IP address of the access point (192.168.0.50). Click on Setup and then click **Wireless Settings** on the left side.

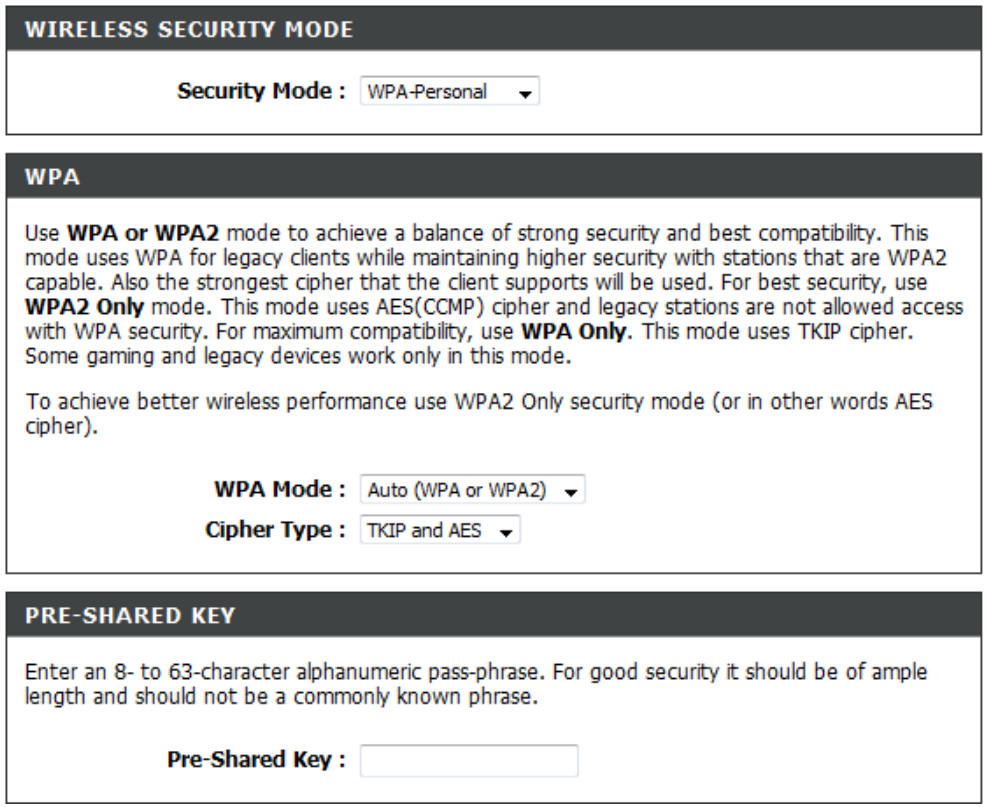
2. For **Security Mode,** select **WPA Personal.**

3. For **WPA Mode,** you can select **Auto (WPA or WPA2), WPA2 only or WPA Only**.

4. For **Cipher Type**, select **TKIP and AES** or **TKIP or AES**.

5. For **Pre-Shared Key**, enter a key. The **Pre-Shared Key** must be between 8-63 characters.

6. Click **Save Settings** at the top of the window to save your settings. If you are configuring the access point with a wireless adapter, you will lose connectivity until you enable WPA-PSK on your adapter and enter the same passphrase as you did on the access point.



It is recommended to enable encryption on your wireless access point before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

1. Log into the web-based configuration by opening a web browser and entering the IP address of the access point (192.168.0.50). Click on **Setup** and then click **Wireless Settings** on the left side.

2. For **Security Mode**, select **WPA-Enterprise**.

3. For **WPA Mode,** you can select **Auto (WPA or WPA2), WPA2 only** or **WPA Only**.

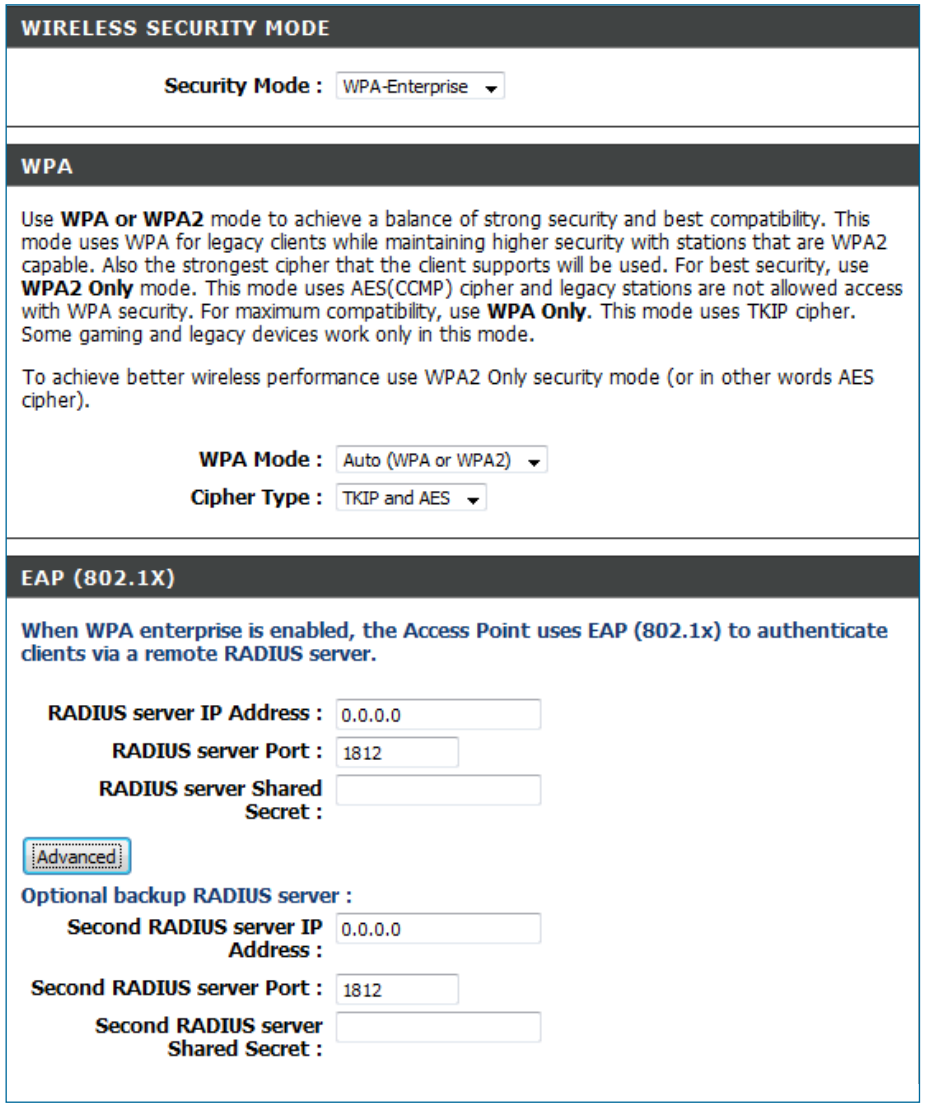
4. For **Cipher Type**, select **TKIP** or **AES.**

5. Next to **RADIUS Server**, enter the IP Address of your RADIUS server.

6. For **Port**, enter the port you are using with your RADIUS server. 1812 is the default port.

7. Next to **Shared Secret**, enter the security key.

8. Click **Save Settings** to save your settings.



Connect to a Wireless Network
Using Windows® 7

It is recommended to enable wireless security (WPA/WPA2) on your 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.

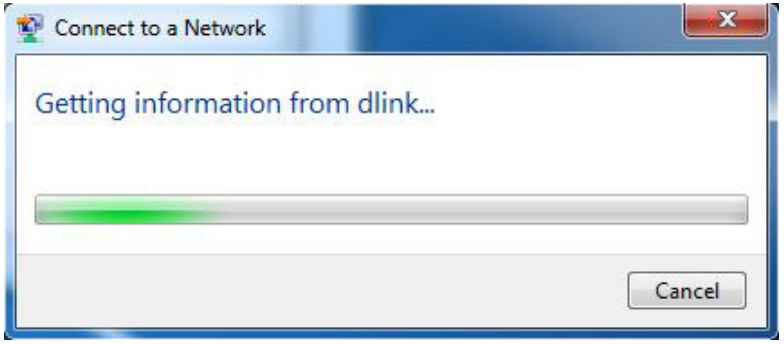
1. Click on the wireless icon in your system tray (lower-right corner).

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

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

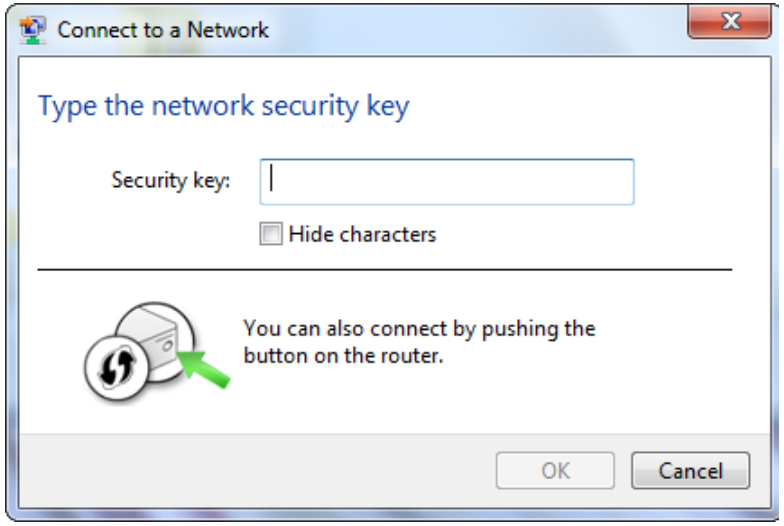
   If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

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



5. Enter the same security key or passphrase that is on your access point and click **Connect**. You can also connect by pushing the WPS button on the router.

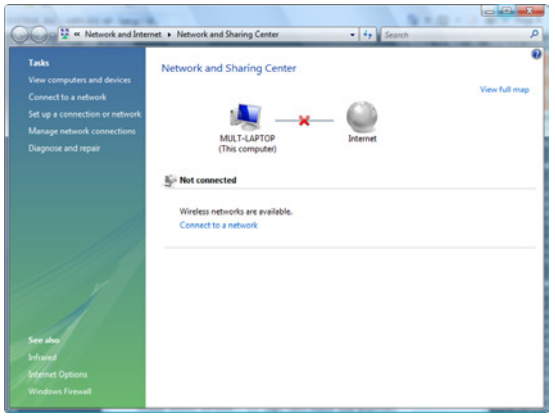
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



Connect to a Wireless Network
Using Windows Vista®

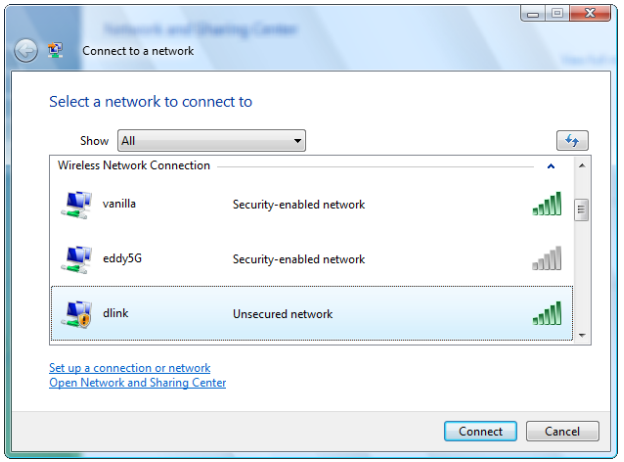
Windows Vista® users may use the convenient, built-in wireless utility. Follow these instructions:

From the **Start menu**, go to **Control Panel**, and then click on Network and Sharing Center.



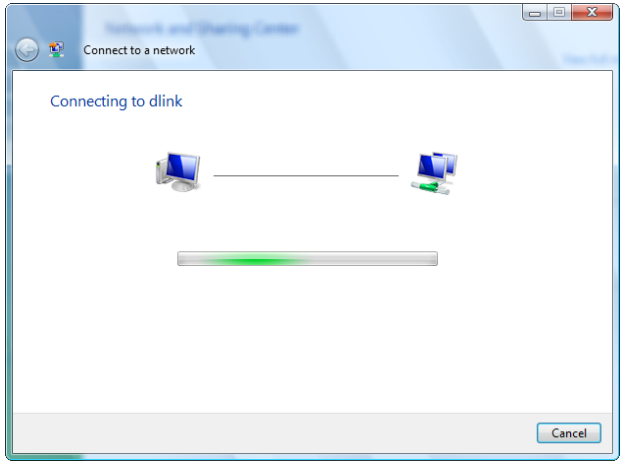
The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the **Connect** button.

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



Click **Connect Anyway** to continue.

The utility will display the following window to indicate a connection is being made.



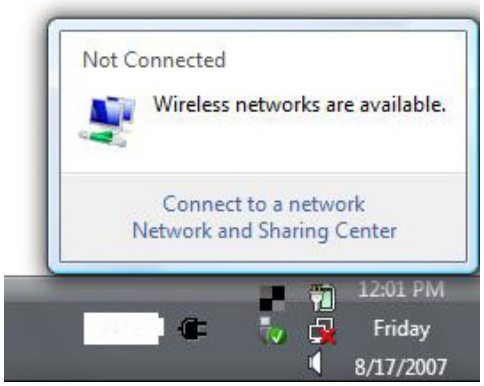
The final window indicates the establishment of a successful connection.

The next two pages display the windows used to connect to either a WEP or a WPA-PSK wireless network.

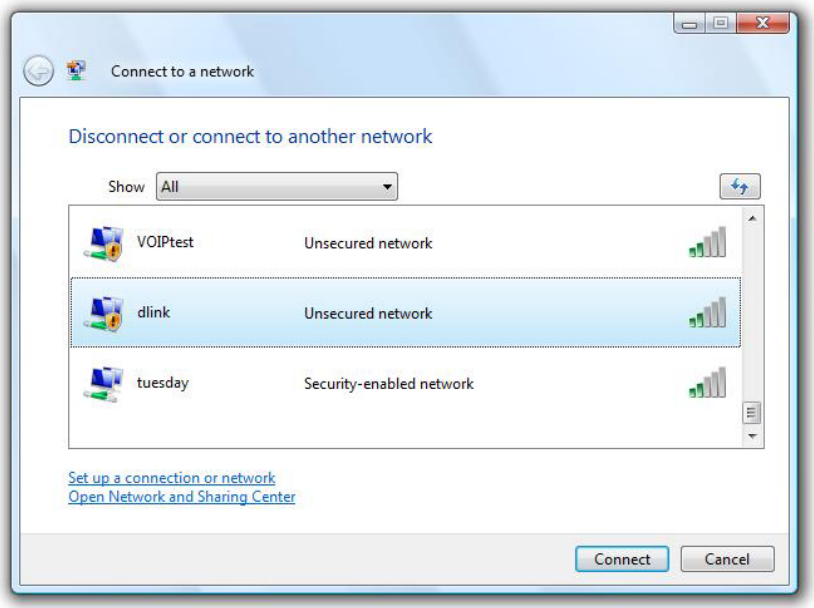
Configure Wireless Security

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**.



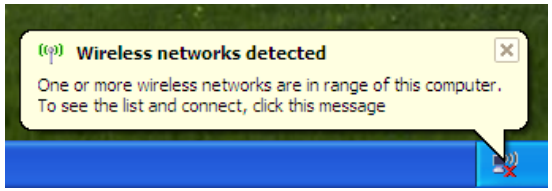
3. Enter the same security key or passphrase that is on your router and click **Connect**.

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.

Connect to a Wireless Network Using Windows® XP

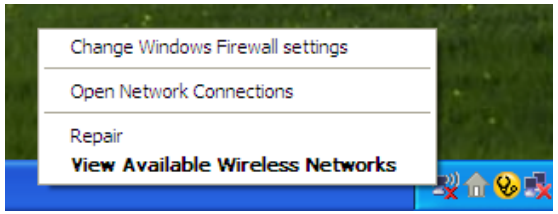
Windows XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility or Windows 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows XP utility as seen below.

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



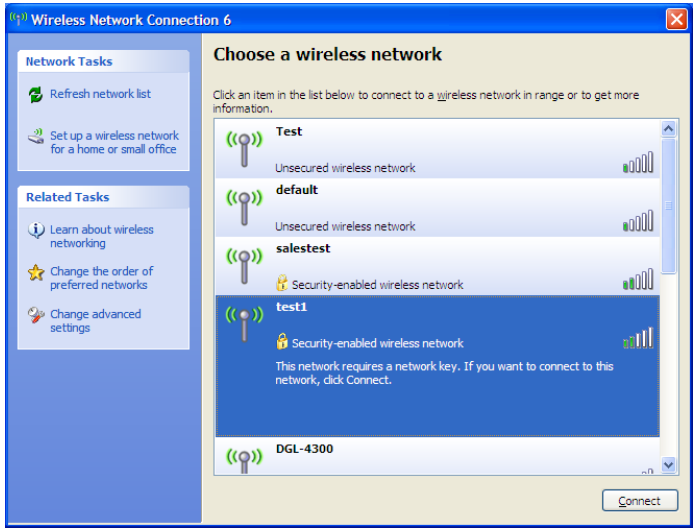
or

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.

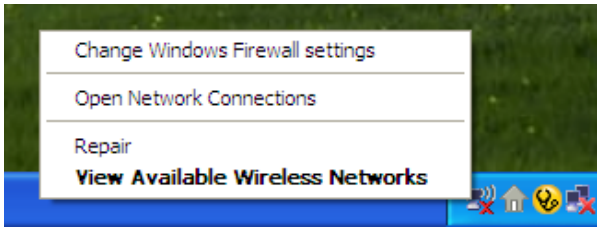
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



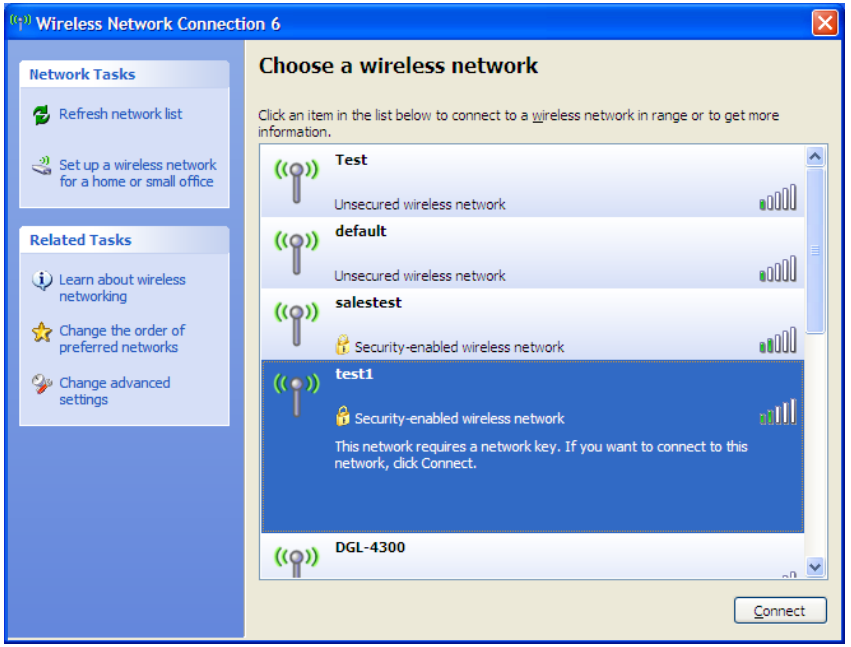
Configure WPA-PSK

It is recommended to enable encryption 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 passphrase being used.

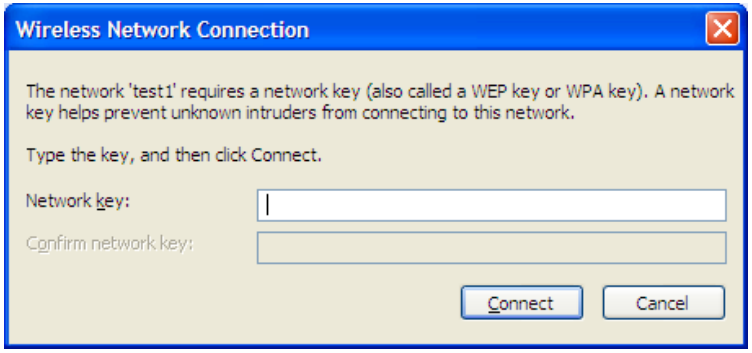
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.



2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**. The default SSID for DHP-W306AV is **dlink.**



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-W306AV. 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 am I unable to access the web-based configuration utility?

When entering the IP address of the D-Link access point (192.168.0.50 for example), you are not connecting to a website on the Internet or 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® 6.0 and higher
  - Mozilla Firefox 3.0 and higher
  - Google™ Chrome 2.0 and higher
  - Apple Safari 3.0 and higher

- Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.

- Disable any internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, 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 Reset... 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 access point in the address bar. This should open the login page for your the web management.
- If you still cannot access the configuration, unplug the power to the access point for 10 seconds and plug back in. Wait about 30 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 access point. Unfortunately this process will change all your settings back to the factory defaults. To reset the access point, locate the reset button (hole) on the rear panel of the unit. With the access point powered on, use a paperclip to hold the button down for 5 seconds. Release the button and the access point will go through its reboot process. Wait about 30 seconds to access the access point. The default IP address is 192.168.0.50. When logging in, the username is Admin and leave the password box empty

3. Why can't my PowerLine AV device detect my other PowerLine AV devices.

This may due to the accidental change of the device password. Use the web-based configuration utility and select **Setup** > **PLC SETTINGS**. Fill in the password in the blank. Then repeat the same procedure to the other PowerLine AV device via web-based configuration utility.

4. I cannot start my PowerLine AV device.

Please check your power supply is working. PowerLine AV device operates from the power supplied by the home electrical wiring and can not operate without a working power supply.

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 Access point 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.

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 as seen in the picture, 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.

Who uses wireless?
Wireless technology has 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 email, 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 access point or Access Point
Make sure you place the bridge/access point in a centralized location within your network for the best performance. Try to place the bridge/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, wireless speakers, and televisions as far away as possible from the bridge/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security
Don't let your next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA, WPA2, or WEP security feature on the access point. 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 bridge.

- **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 bridge. All the wireless devices, or clients, will connect to the wireless bridge or access point.

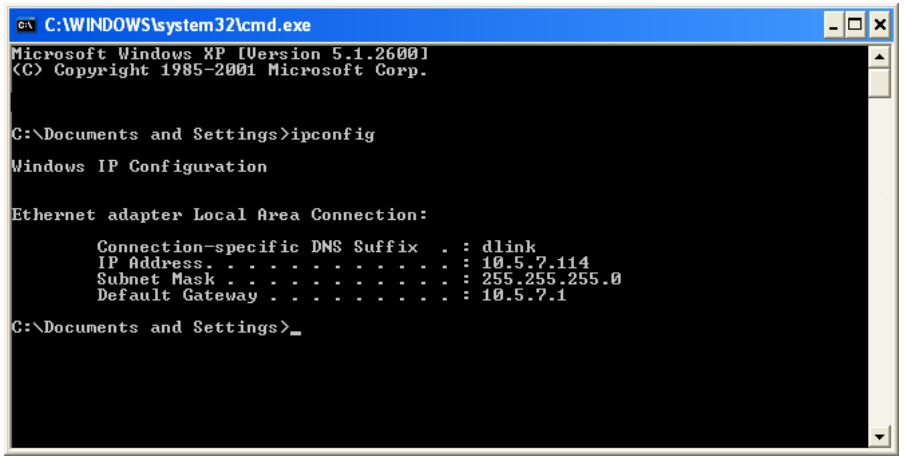
An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

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 access point. 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/access point, 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.

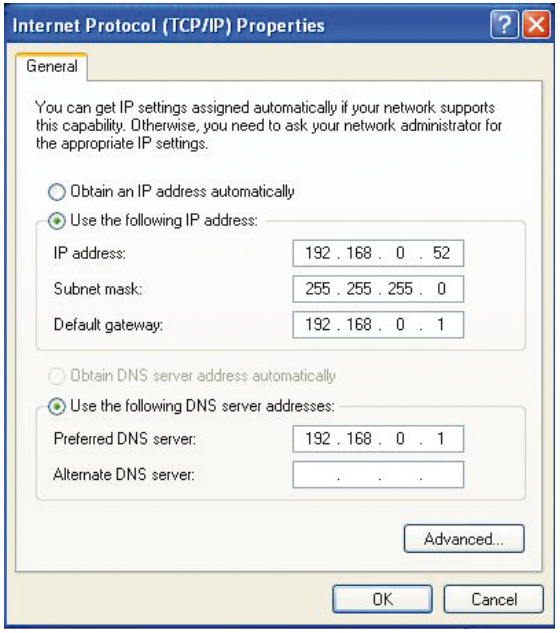
Step 2
Right-click on the Local Area Connection which represents your D-Link network adapter and select Properties.

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 802.3
- IEEE 802.3u

Network Ports

- One 10/100 Ethernet port

AC Input

- 100 ~ 240VAC 50~60Hz

Safety

- UL, CE LVD

Security

- WPA
- WPA2

Wireless Signal Rates*

- 300Mbps
- 108Mbps
- 54Mbps
- 48Mbps
- 36Mbps
- 18Mbps
- 24Mbps
- 12Mbps
- 11Mbps
- 9Mbps
- 6Mbps
- 5.5Mbps
- 2Mbps
- 1Mbps

MSC (0-15)

- 130Mbps (270)
- 104Mbps (216)
- 66Mbps (135)
- 52Mbps (108)
- 26Mbps (54)
- 12Mbps (27)
- 117Mbps (243)
- 78Mbps (162)
- 58.5Mbps (121.5)
- 39Mbps (81)
- 19.5Mbps (40.5)
- 6.5Mbps (13.5)

Frequency Range

- 2.4GHz to 2.497GHz

Encryption

- 128 bit AES

Operation Temperature

- 32°F to 104°F (O°C to 40°C)

Storage Temperature

- 14°F to 158°F (10°C to 70°C)

Humidity

- Operation: 10% ~ 90% RH
- Storage: 5% ~ 90% RH

Transmitter Output Power

- 17dBm ± 2dB

LEDs

- Power
- WLAN
- Internet
- LAN (10/100)

* Maximum wireless signal rate derived from IEEE Standard 802.11g and 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.

Safety & Emissions

- FCC
- IC
- CE
- C-Tick

Dimensions

- L = 4.13 inches
- W = 2.79 inches
- H = 2.02 inches

Weight

- 0.45 lbs

Warranty

- 1 Year Limited

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 DLink 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:
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 DLink 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 1-877-453-5465, 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.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. Do not include any manuals or accessories in the shipping package. DLink will only replace the defective portion of the product and will not ship back any accessories.

- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer 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. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered:

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 NONINFRINGEMENT.

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.

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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.

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