D-Link®

Version 2.0 | 03/23/2012


# User Manual

## Wireless N Pocket Router

DAP-1350

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# Package Contents

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| **D-Link DAP-1350<br>Wireless N<br>Pocket Router/Access Point** |  |
| **Power Adapter** |  |
| **Ethernet Cable** |  |
| **CD-ROM** |  |
| **USB Power Cable** |  |
| **Travel Case** |  |

**Note:** Using a power supply with a different voltage rating than the one included with the DAP-1350 will cause damage and void the warranty for this product.

# System Requirements

| | |
|---|---|
| **Network Requirements** | • An Ethernet-based Cable or DSL modem (router mode only)<br>• IEEE 802.11n or 802.11g wireless clients (router or AP mode)<br>• IEEE 802.11n or 802.11g wireless AP or router (client mode)<br>• 10/100 Ethernet |
| **Web-based Configuration Utility Requirements** | **Computer with the following:**<br>• Windows®, Macintosh®, or Linux-based operating system<br>• An installed Ethernet adapter<br><br>**Browser Requirements:**<br>• Internet Explorer 6.0 or higher<br>• Firefox 3.0 or higher<br>• Safari 3.0 or higher<br>• Chrome 2.0 or higher<br><br>**Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version. |
| **CD Installation Wizard Requirements** | **Computer with the following:**<br>• Windows® 7, Vista®, or XP (with Service Pack 2 or higher)<br>• An installed Ethernet adapter<br>• CD-ROM drive |

# Introduction

D-Link, an industry leader in networking, introduces the new D-Link DAP-1350 Wireless N Router/Access Point. With the ability to transfer files with a maximum wireless signal rate of up to 300Mbps*, the DAP-1350 gives you high-speed wireless network access for your home or when you travel.

The DAP-1350 is Wi-Fi IEEE 802.11n compliant, meaning that it can connect and interoperate with other 802.11n compatible wireless client devices. The DAP-1350 is also backwards compatible with 802.11b/g. It can be flexibly configured to operate in 3 different modes: **Access Point**, **Wireless Client**, and **Router**. With its Setup Wizard, the DAP-1350 ensures that you will be up and running on a wireless network in just a matter of minutes.

The DAP-1350 features Wi-Fi Protected Access (WPA-PSK/WPA2-PSK) to provide an enhanced level of security for wireless data communications. The DAP-1350 also includes additional security features to keep your wireless connection safe from unauthorized access.

The DAP-1350 supports WPS on all three operation modes, with each capable of being conveniently set up by using the PIN method or Push Button.

• 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.

## TOTAL PERFORMANCE
Combines award winning access point features and 802.11n wireless technology to provide the best wireless performance.

## TOTAL SECURITY
The most complete set of security features including WPA/WPA2 encryption to protect your network against outside intruders.

## TOTAL COVERAGE
Provides greater wireless signal rates even at farther distances for best-in-class Whole Home Coverage.

## ULTIMATE PERFORMANCE
The D-Link Wireless N Pocket Router/Access Point (DAP-1350) is a 802.11n compliant device that delivers real world performance of up to 650% faster than an 802.11g wireless connection (also faster than a 100Mbps wired Ethernet connection). Create a secure wireless network to share photos, files, music, video, printers, and network storage throughout your home. Connect the DAP-1350 to router and share your high-speed Internet access with everyone on the network.

## EXTENDED WHOLE HOME COVERAGE
This high performance Wireless AP provides superior Whole Home Coverage while reducing dead spots. The DAP-1350 is designed for use in bigger homes and for users who demand higher performance networking.

## TOTAL NETWORK SECURITY
The DAP-1350 supports all of the latest wireless security features to prevent unauthorized access, be it from over the wireless network or from the Internet. Support for WPA and WPA2 standards ensure that you'll be able to use the best possible encryption method, regardless of your client devices.

* Maximum wireless signal rate derived from IEEE Standard 802.11g, 802.11a 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 conditions will adversely affect wireless signal range.

# Features

- **Faster Wireless Networking -** The DAP-1350 provides up to 300Mbps* wireless connection with other 802.11n wireless clients. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio. The performance of this 802.11n wireless access point gives you the freedom of wireless networking at speeds 650% faster than 802.11g.

- **Compatible with 802.11b and 802.11g Devices -** The DAP-1350 is still fully compatible with the 802.11b/g standards, so it can connect with existing 802.11b/g PCI, USB, and Cardbus adapters.

- **WPS PBC-** (Wi-Fi Protected Setup Push Button Configuration) Push Button Configuration is a button that can be pressed to add the device to an existing network or to create a new network. A virtual button can be used on the utility while a physical button is placed on the side of the device.

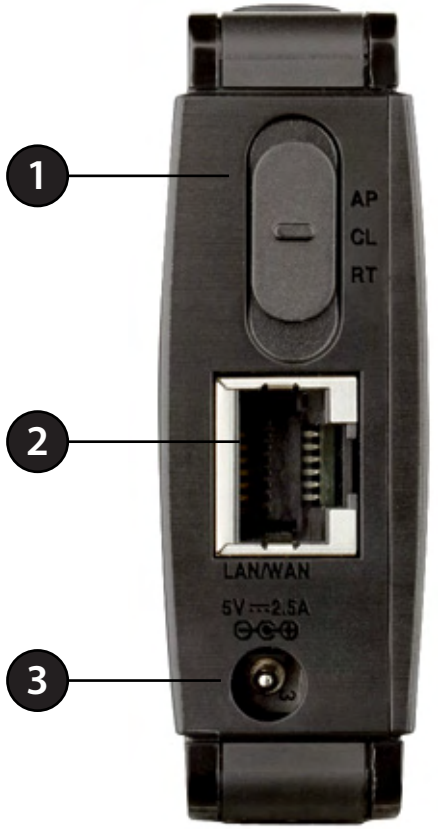
  This easy setup method allows you to form a secured wireless link between the DAP-1350 and another WPS enabled device. A PC is no longer needed to log into the Web-based interface.

- **WPS PIN -** (Wi-Fi Protected Setup Personal Identification Number ) A PIN is a unique number that can be used to add the access point to an existing network or to create a new network. The default PIN may be printed on the bottom of the access point. For extra security, a new PIN can be generated. You can restore the default PIN at any time. Only the Administrator ("admin" account) can change or reset the PIN.

- **User-friendly Setup Wizard -** Through its easy-to-use web-based user interface, you can configure your access point to your specific settings within minutes.

# Hardware Overview
## Connections

| | | |
|---|---|---|
| **1** | Mode Selector | **Mode Selector**<br>Select from one of the three modes:<br>**AP** (top) - Access Point (AP) Mode<br>**CL** (middle) - Wireless Client Mode<br>**RT** (bottom) - Router Mode |
| **2** | LAN/WAN Port | When using as a LAN port, connect Ethernet devices such as computers or game consoles. When using as a WAN port, connect your Broadband modem or Internet connection. |
| **3** | Power Receptor | Receptor for the supplied power adapter. |



# Hardware Overview

## Side


## Bottom


| | | |
|---|---|---|
| **1** | WPA Button/LED | Press to start the WPS process. You will have 120 seconds to start the WPS process on another wireless device. When enabling WPS, the light will blink during broadcast. Once connected, the LED will stay solid for 5 seconds and then turn off. |
| **2** | USB Port | The USB port is used to connect USB devices such as a printer to share on your network. |
| **3** | Reset Button | Press and hold to reset the device back to the factory default settings |

# Hardware Overview

## LEDs


| | | |
|---|---|---|
| **1** | Power LED | A solid light indicates a proper connection to the power supply. |
| **2** | LAN/WAN LED | A solid light indicates a connection to an Ethernet-enabled device. This LED blinks during data transmission. |
| **3** | Wireless LED | A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission. |

# Installation

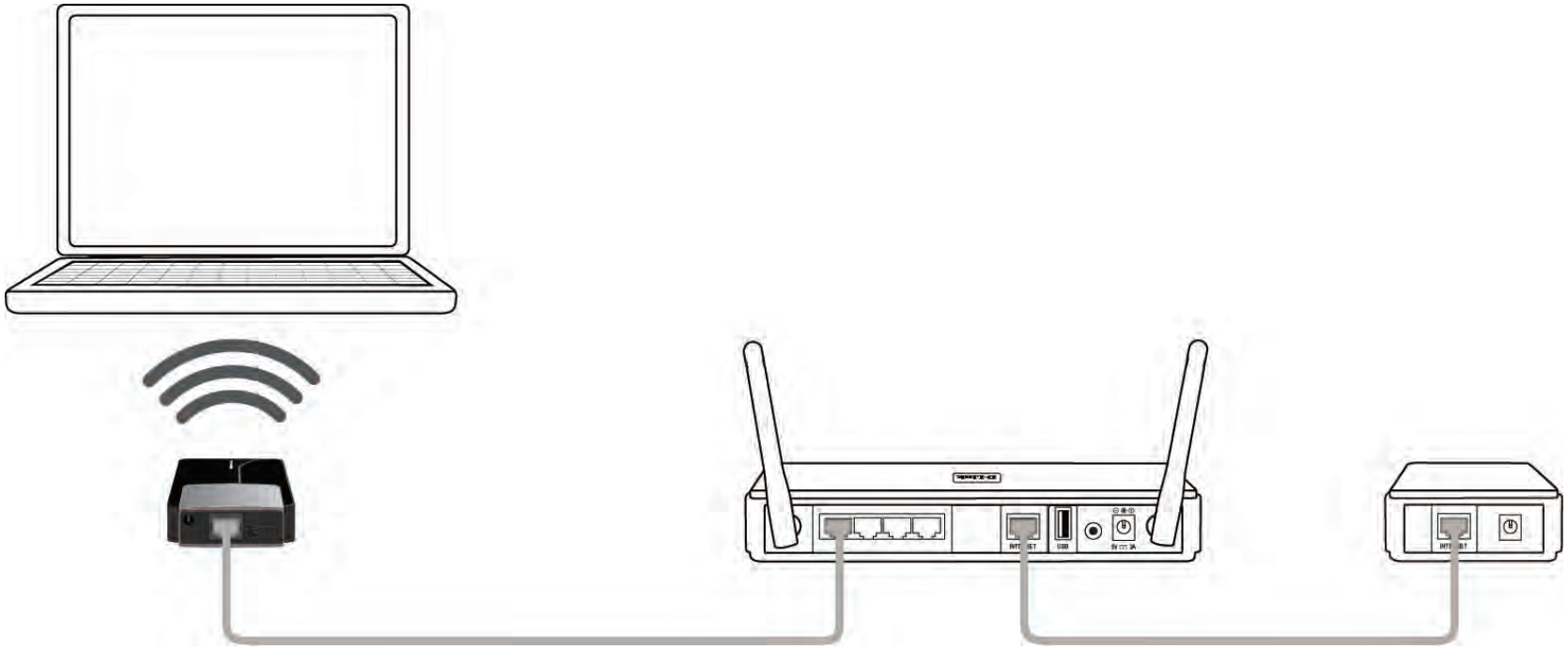
Please configure the DAP-1350 by following the Install Guide poster. The next few pages will explain the different operational modes you can use.

# Operation Modes

Depending on how you want to use your DAP-1350 will determine which mode you use. This section will help you figure out which setting works with your setup.

# Access Point Mode

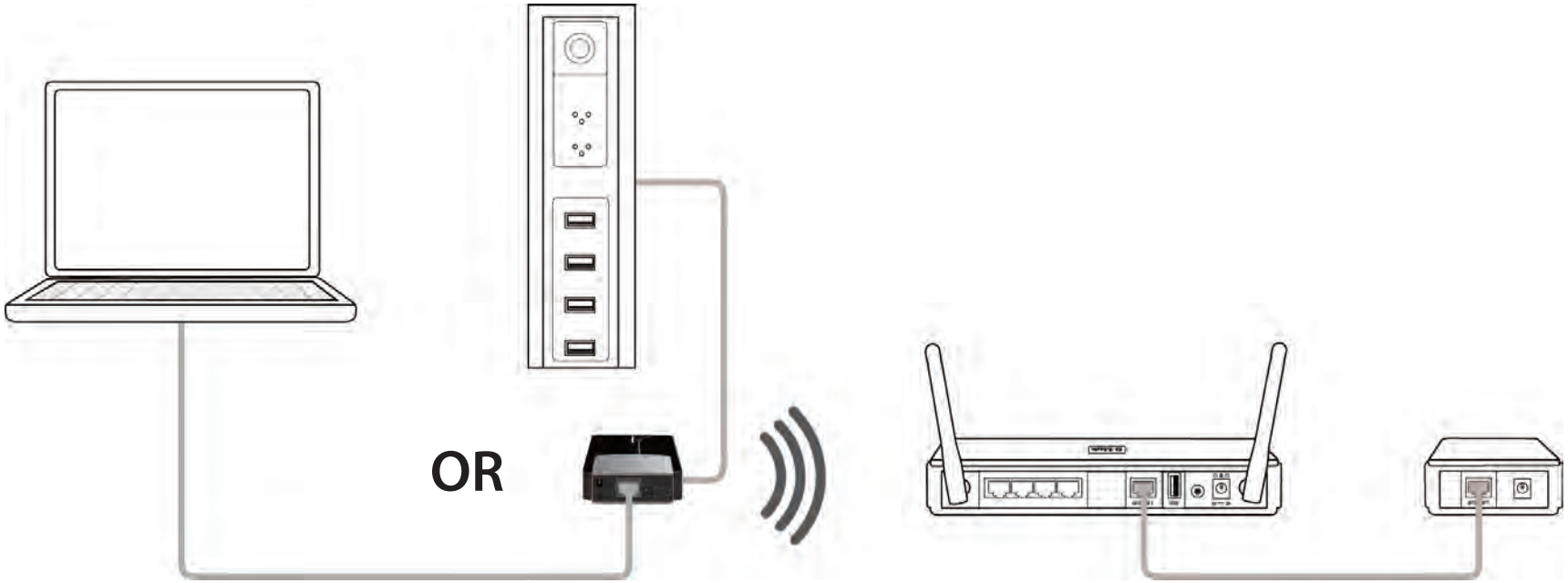
In the Access Point mode, the DAP-1350 acts as a central connection point for any computer (client) that has a 802.11n or backward-compatible 802.11b/g wireless network interface and is within range of the AP. Clients must use the same SSID (wireless network name) and channel as the AP in order to connect. If wireless security is enabled on the AP, the client will need to enter a password to connect to the AP. In Access Point mode, multiple clients can connect to the AP at the same time.



# Wireless Client Mode

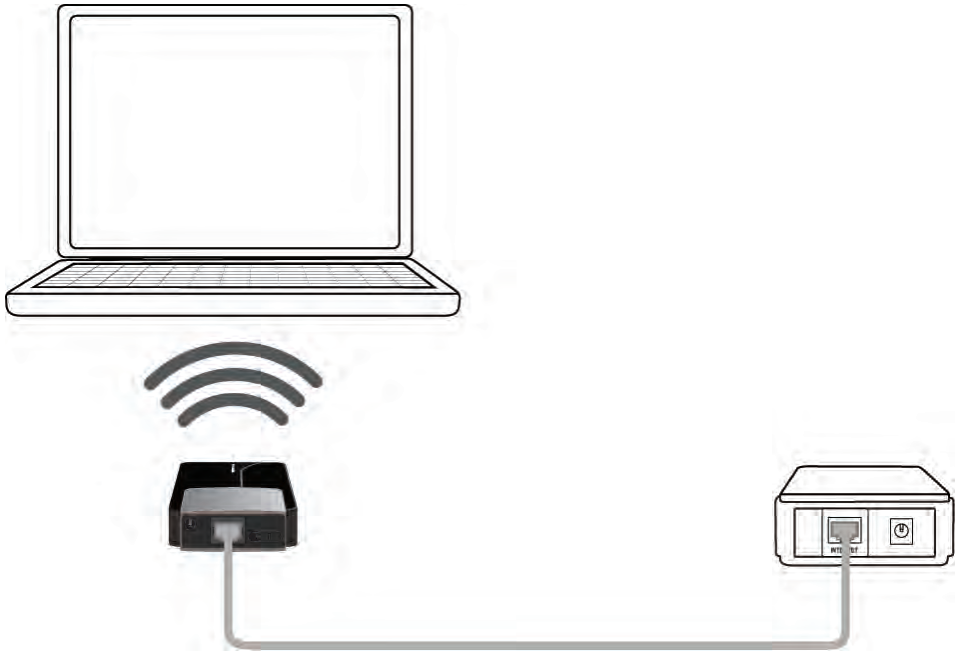
In the Wireless Client mode, the DAP-1350 acts as a wireless network adapter for your Ethernet-enabled device (such as a game console or a laptop). Connect your Ethernet-enabled device to the AP using an Ethernet cable. The AP Client mode can support one wired client.

**Example:** Connect a gaming console using an Ethernet cable to the DAP-1350. The unit is set to Wireless Client mode which will wirelessly connect to a wireless router on your network.



# Router Mode

In the Router mode, the DAP-1350 connects to a broadband modem. In this mode, the DAP-1350 also acts as a router for wireless clients on your network and provides NAT (Network Address Translation) and a DHCP server to generate IP addresses. NAT and the DHCP server allow many computers to share the same Internet connection.



# 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, 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 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 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 2.4GHz 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.

# Configuration

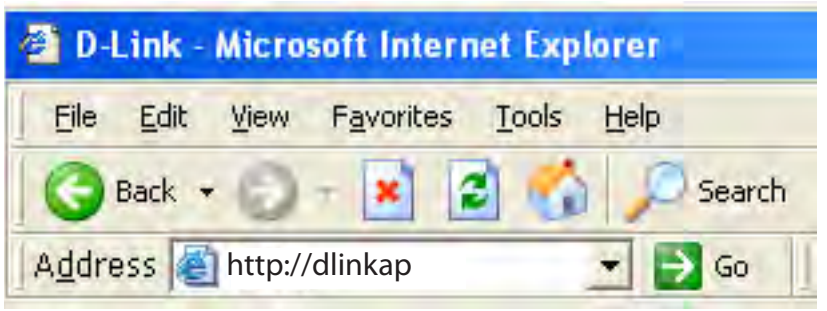
This section will show you how to configure your new D-Link wireless access point using the web-based configuration utility.

# Access Point Mode

Change the mode selector to **AP** on the device. Connect an Ethernet cable from the Ethernet port on the DAP-1350 to a computer for configuration.

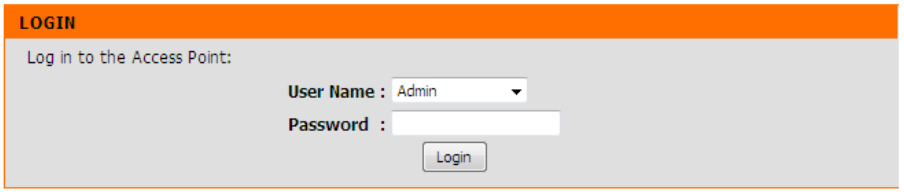
If you wish to change the default settings or optimize the performance of the DAP-1350, you may use the web-based configuration utility.

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




Enter your password. Leave the password blank by default.

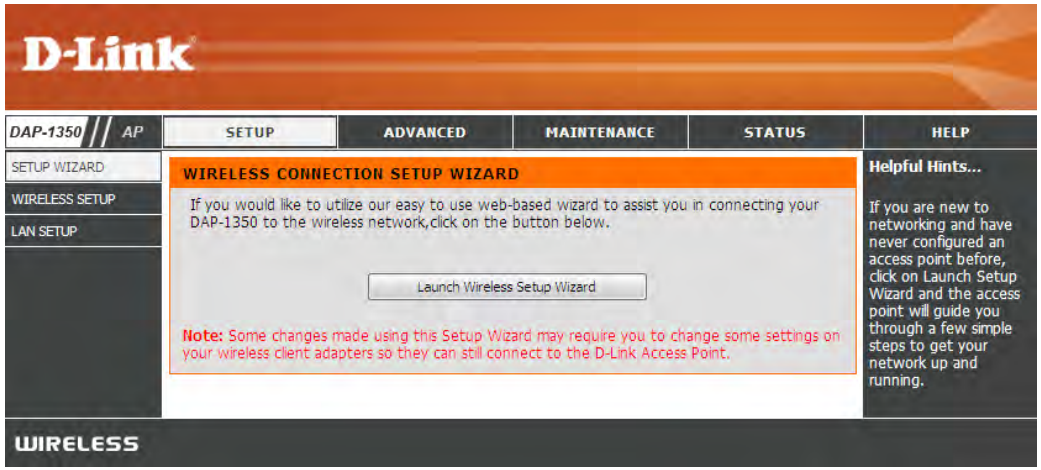
If you get a Page Cannot be Displayed error, please refer to the **Troubleshooting** section for assistance.



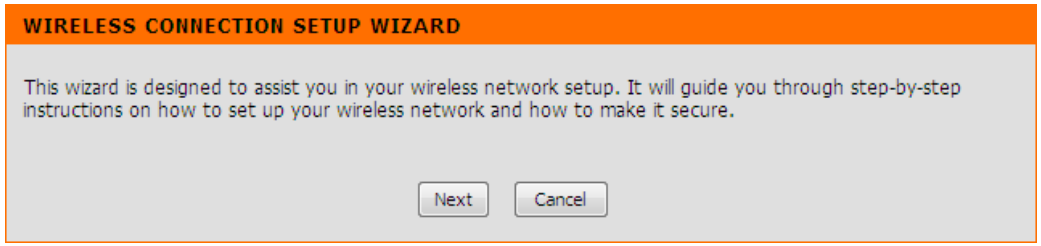
# Wireless Setup Wizard

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

If you want to enter your settings without running the wizard, click **Wireless Setup** on the left side and skip to page 25.

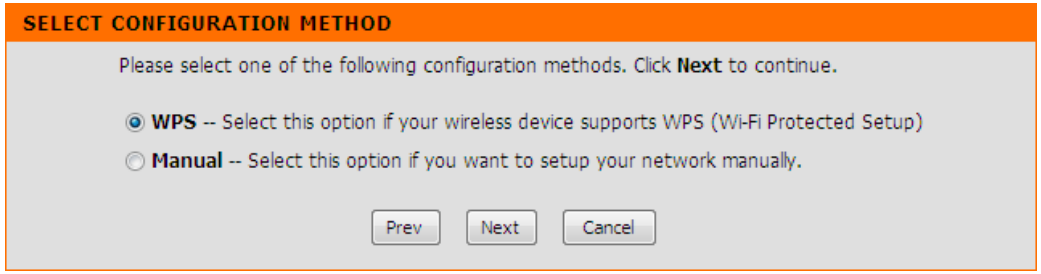



Click **Next** to continue.



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

Click **Next** to continue.



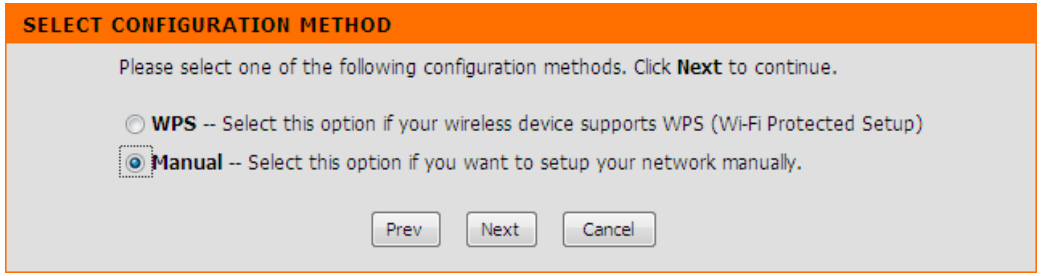

Click **Save** to save your network settings.

In order for your network settings to take effect the AP will reboot automatically.

When the device has finished rebooting the main screen will display.

Select **Manual** as the configuration method to set up your network manually.

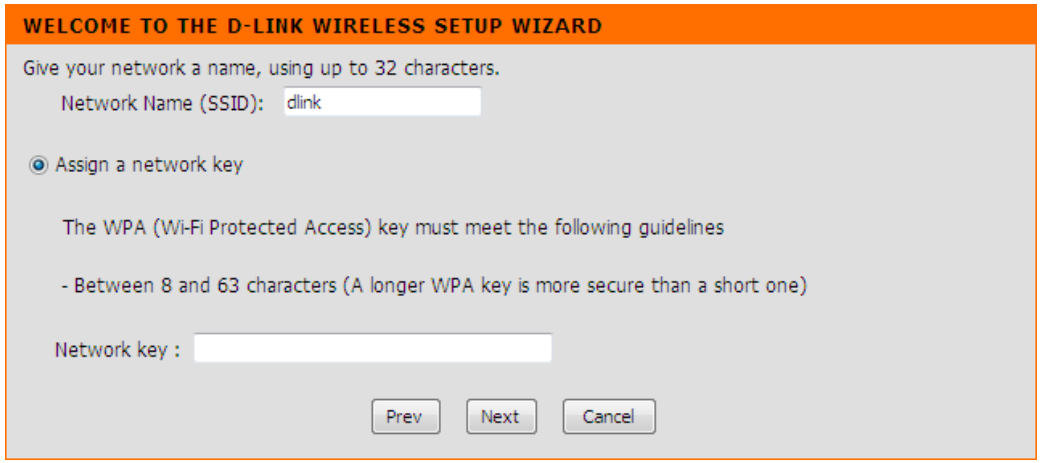
Click **Next** to continue.




Enter a name for your wireless network (SSID). This name can be up to 32 characters and is case-sensitive.

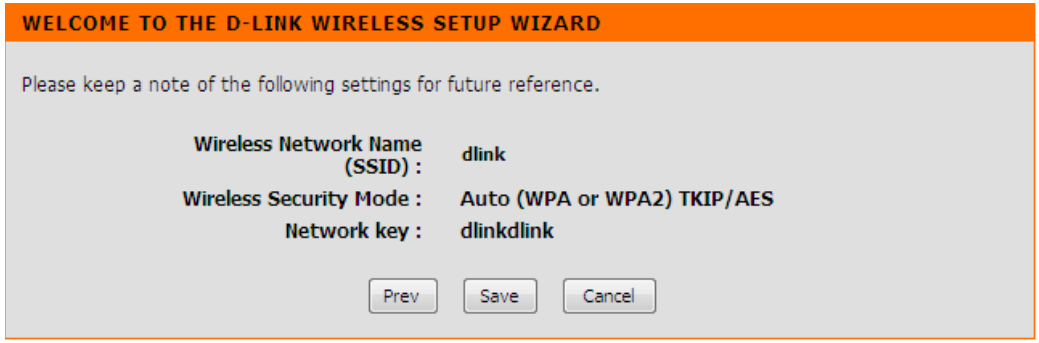
Enter your network key (passphrase).

Click **Next** to continue.



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

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



# Wireless Setup

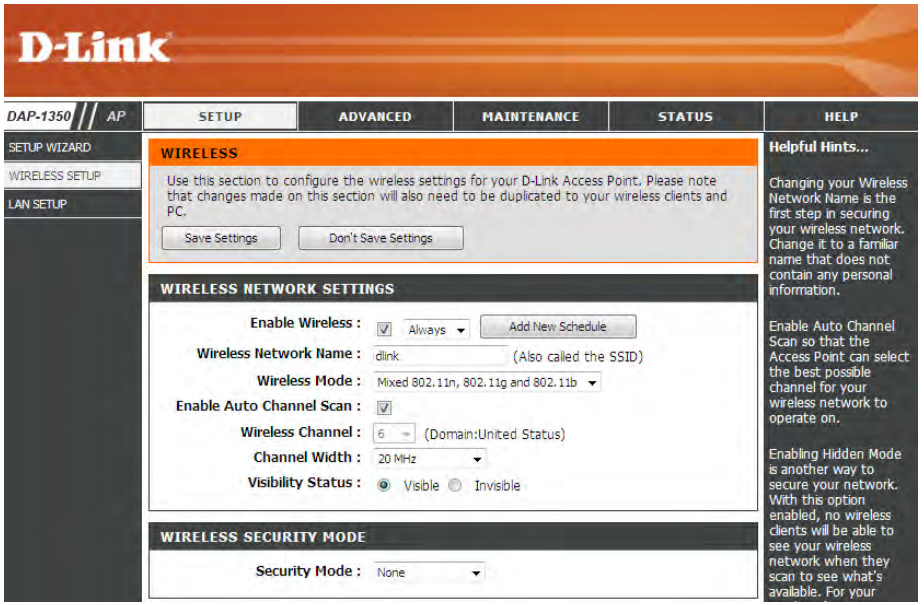
**Enable Wireless:** Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop down menu or click **Add New Schedule** to create a new 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, it is highly recommended to change from the default network name.

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

**Enable Auto Channel Scan:** The **Auto Channel Scan** setting can be selected to allow the DAP-1350 to select the channel with the least amount of interference (during boot-up).

**Wireless Channel:** Indicates the channel setting for the DAP-1350. 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.



**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.

**Visibility Status:** Select **Invisible** if you do not want the SSID of your wireless network to be broadcasted by the DAP-1350. If checked, the SSID of the DAP-1350 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DAP-1350 in order to connect to it.

# LAN Setup

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

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

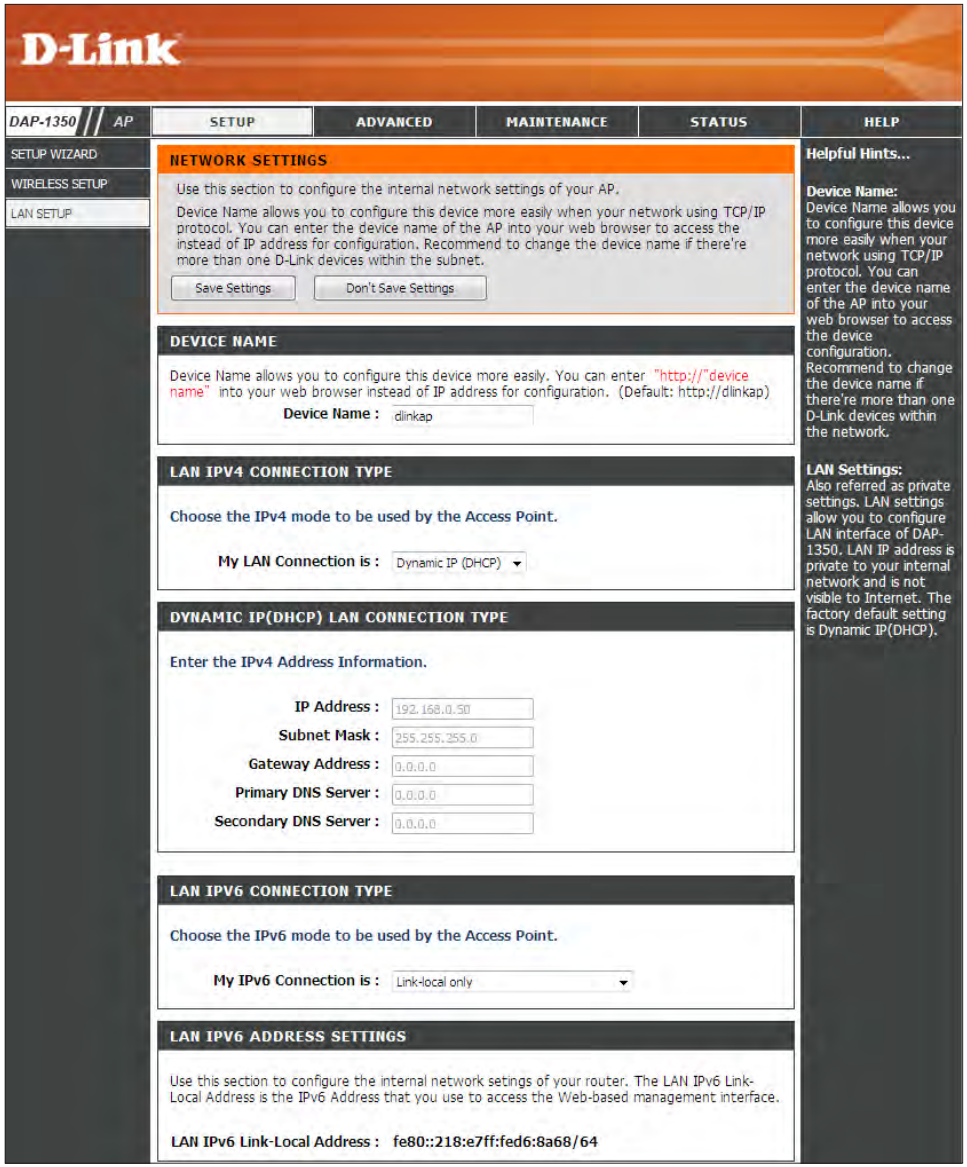
**My LAN Connection Is:** Use the drop-down menu to select **Dynamic IP (DHCP)** to automatically obtain an IP address on the LAN/ private network.

Select **Static IP** to manually enter the IP settings of your access point.

**IP Address:** (For Static IP only) - 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 get back into the configuration utility.

**Subnet Mask:** (For Static IP only) - Enter the Subnet Mask.

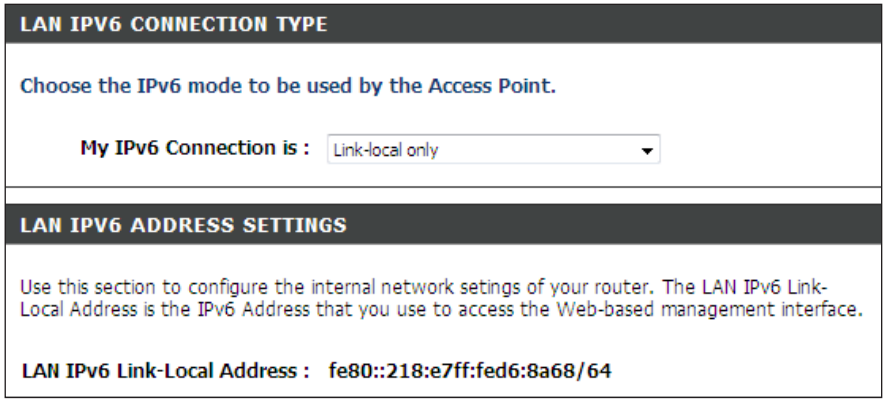
**Default Gateway:** (For Static IP only) - Enter the Gateway. This is usually the LAN or internal IP address of your router.



# IPV6 Settings

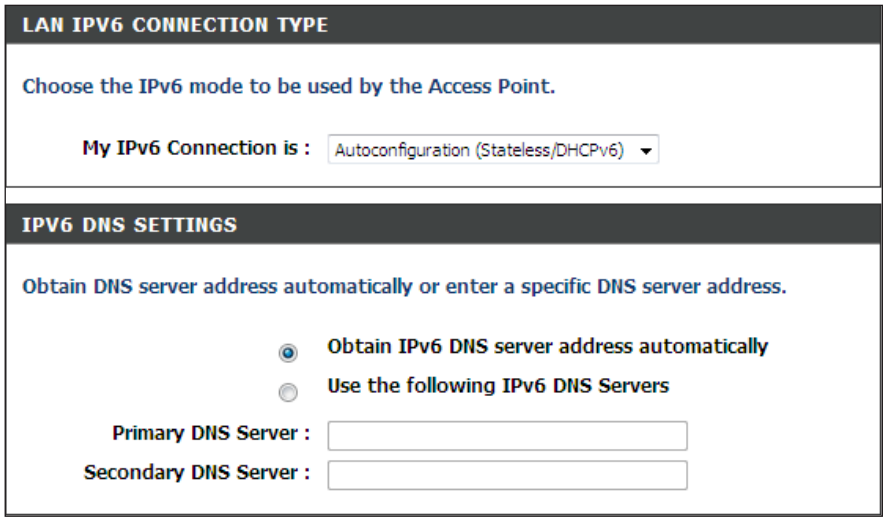
**My LAN Connection Is:** Select **Link-Local Only** from the drop-down menu.

**LAN IPV6 Settings:** Displays the IPv6 address of the router.



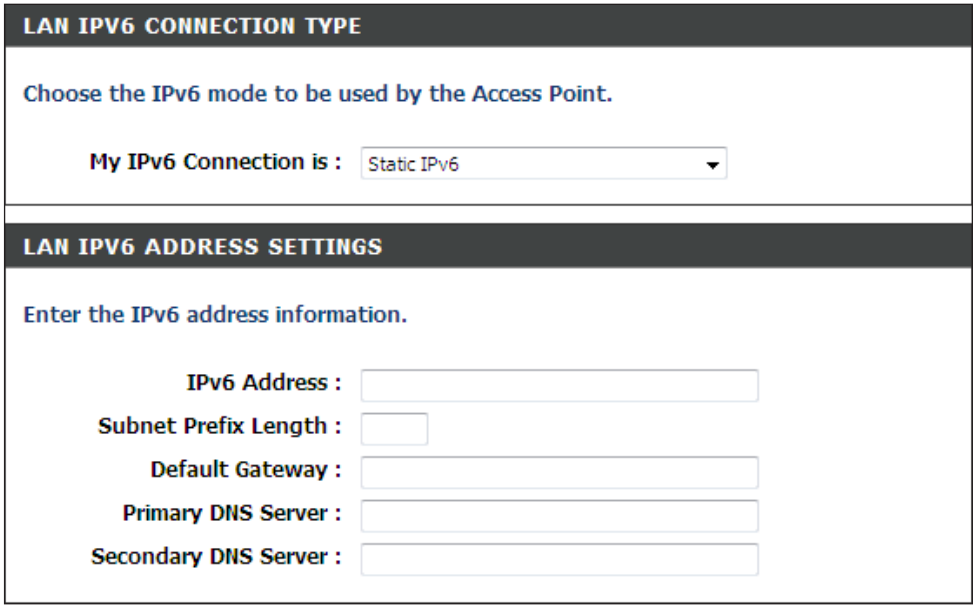

**My LAN Connection Is:** Select **Autoconfiguration (Stateless/DHCP v6)** from the drop-down menu.

**LAN IPV6 Settings:** Click **Obtain IPv6 DNS server address automatically** to have your router or DHCP server assign the DNS servers to your access point or click **Use the following IPv6 DNS Servers** to manually enter the primary and secondary DNS servers.



**My LAN Connection Is:** Select **Static IPv6** from the drop-down menu.

**LAN IPV6 Settings:** Enter your IPv6 settings.



# MAC Address Filter

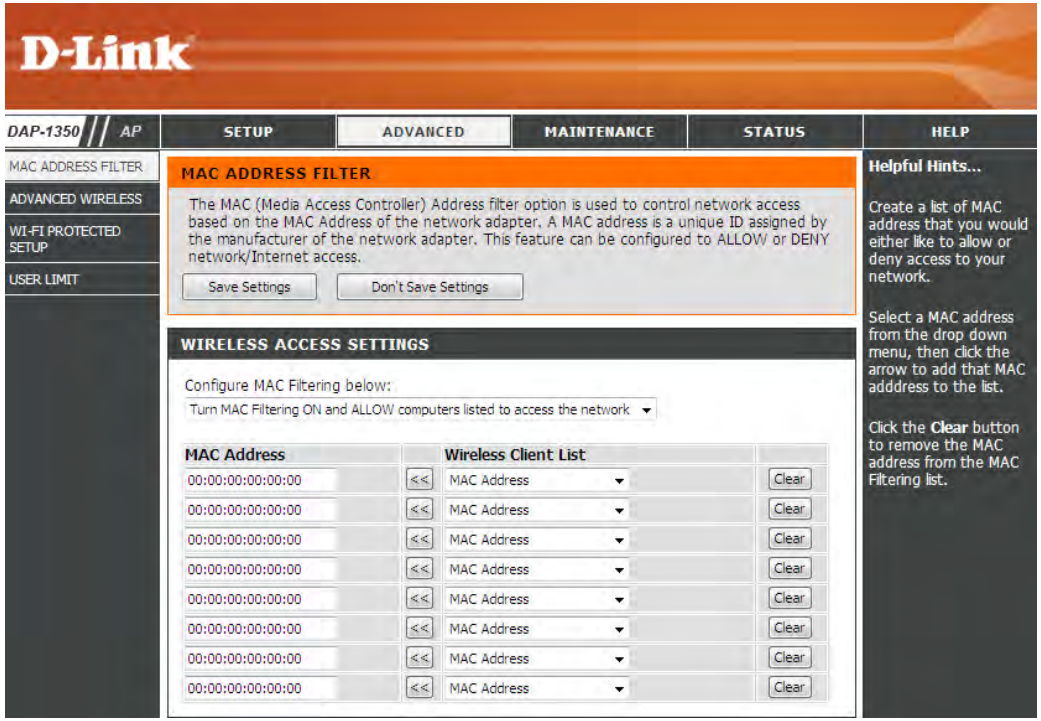
Use MAC (Media Access Control) Filters to authorize wireless clients by their MAC addresses to access your network. When enabled, any client not on the MAC filter list will not be able to access your network.

**MAC Address Filter:** When **Disable** is selected, MAC addresses are not used to control network access.
When **Turn MAC Filtering ON and ALLOW computers listed...** is selected, only computers with MAC addresses listed in the MAC Address List are granted network access.
When **Turn MAC Filtering ON and DISALLOW computers listed...** is selected, any computer with a MAC address listed in the MAC Address List is refused access to the network.

**MAC Address:** Enter the MAC address you would like to filter.
You can select a client currently connected to your access point from the **Wireless Client List** drop-down menu and then click **<<** to populate the MAC Address field.

Click **Save Settings** to activate and save.

**Clear:** Click to remove the client from the MAC address filter rule.



# Advanced Wireless

**Transmit Power:** Sets the transmit power of the antennas.

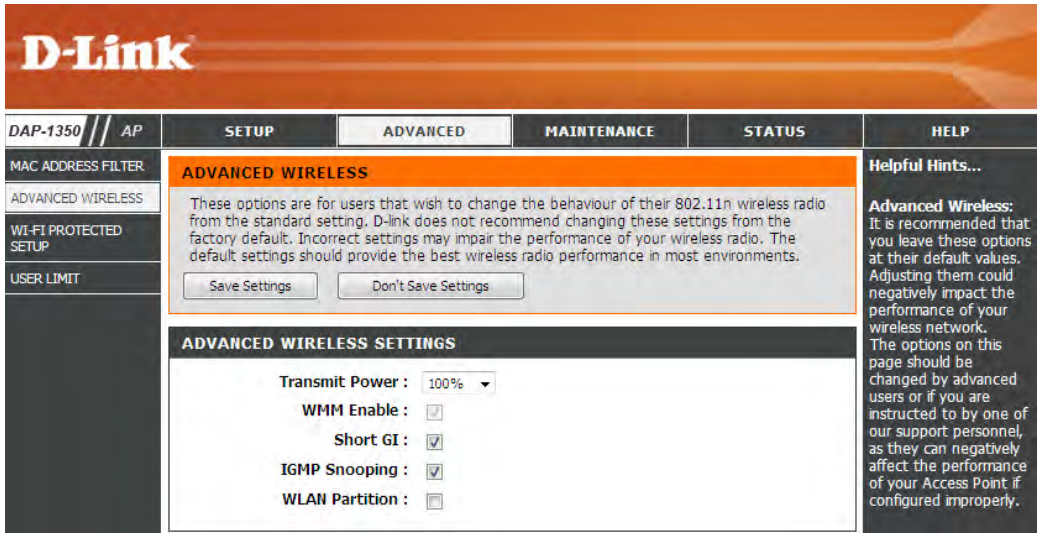
**Note:** Transmit power is regulated by international standard. Users are forbidden to change its maximum limit.

**WMM Enable:** WMM is QoS for your wireless network. This 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, it's less reliable and may create higher data loss.

**IGMP Snooping:** This enables IGMP snooping for the wireless onnection. We recommend enabling this if you often use multicast services such as video conferencing and streaming audio/video.

**WLAN Partition:** Check to enable WLAN Partition.



# Wi-Fi Protected Setup

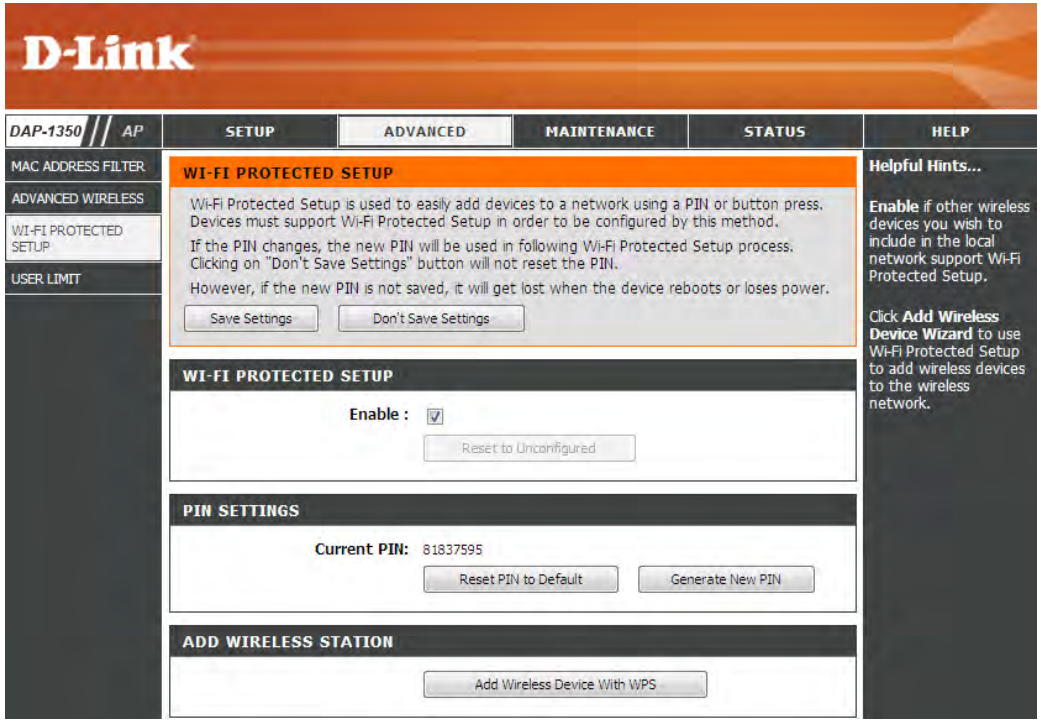
**Enable:** Enable the Wi-Fi Protected Setup feature.

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

**Reset to Unconfigured:** Resets Wi-Fi Protected Status to Not Configured. Vista WPS icon will only be displayed when the Wi-Fi Protected Status is Not Configured.

**Reset Pin to Default:** Restores the default Pin of the access point.

**Add Wireless Device with WPS:** Refer to the next page for the WPS wizard.



# Add Wireless Device With WPS

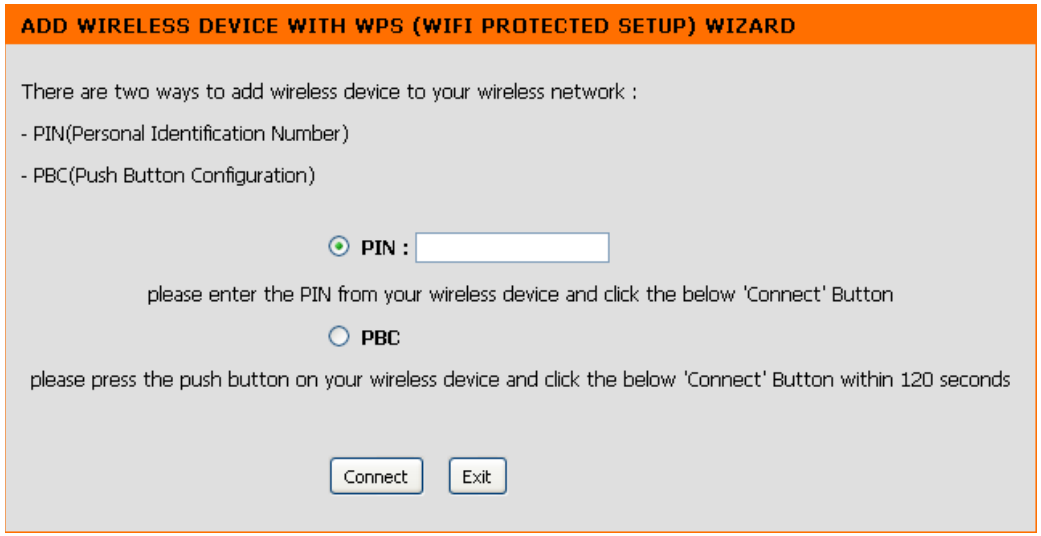
This Wizard is designed to assist you in your wireless network setup. It will guide you through step-by-step instructions on how to set up your wireless network and how to make it secure.

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

For **PBC** configuration, skip to the next page.

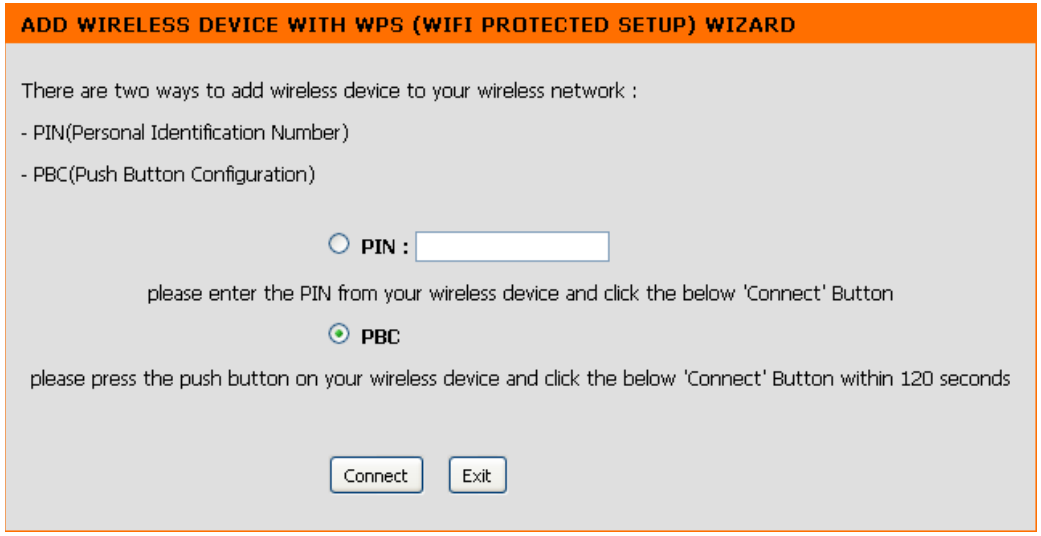
Click **Connect** to continue.

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

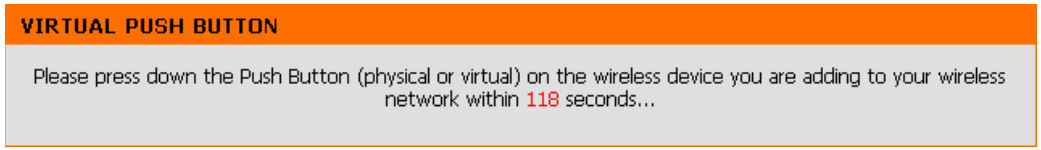


Select **PBC** to use the Push Button Configuration in order to connect to your network.

Click **Connect** to continue.




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



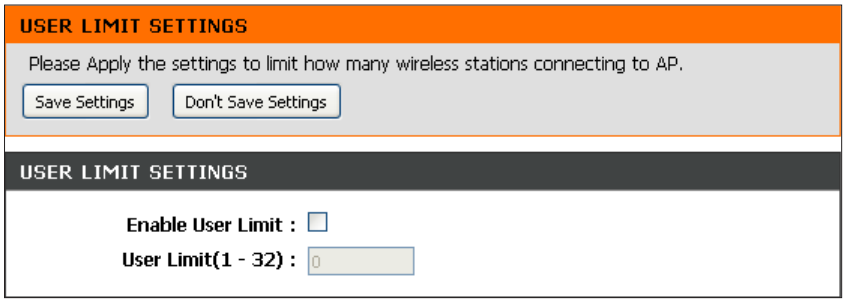
# User Limit

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.



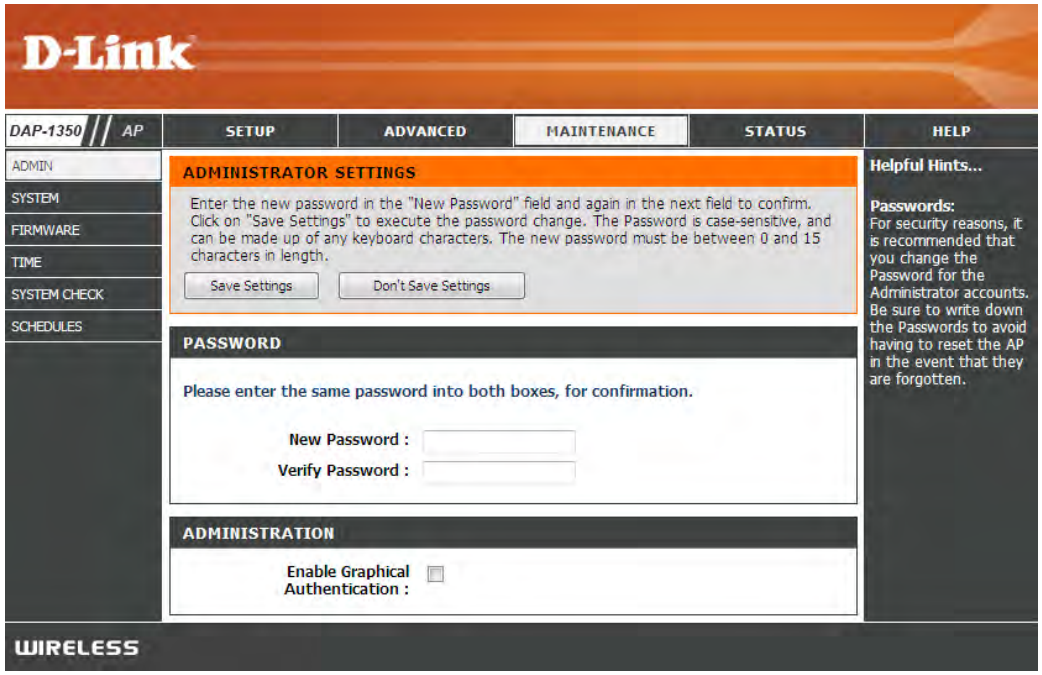
# Admin

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

**New Password:** Enter a new password for the Administrator Login Name. The administrator can make changes to the settings.

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

**Enable Graphical Authentication:** Enables a challenge-response test to 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 router's network settings. This feature is disabled by default.



# System

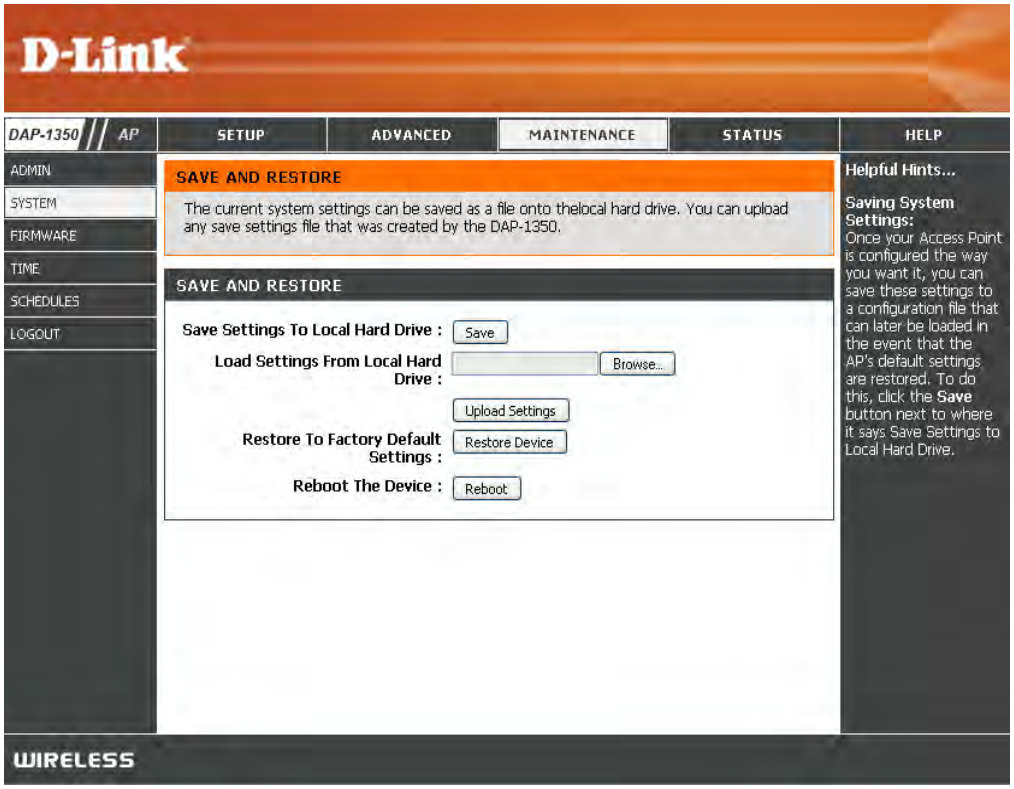
**Save to Local Hard Drive:** Use this option to save the current access point configuration settings to a file on the hard disk of the computer you are using. Click the **Save** button. You will then see a file dialog where you can select a location and file name for the settings.

**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 want 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.



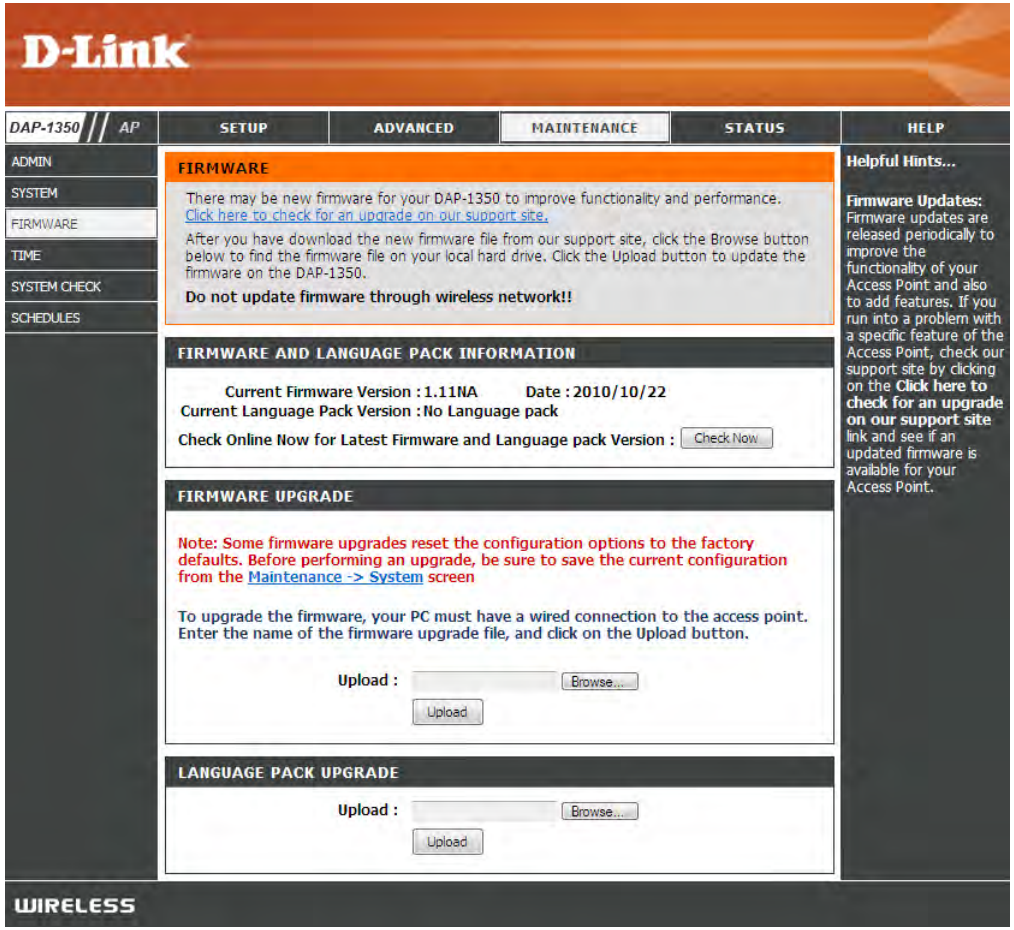
# Firmware

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

**Firmware Upgrade:** Click on **Check Now** to find out if there is an updated firmware; if so, download the new firmware to your hard drive.

**Browse:** 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.

**Upload:** Once you have a firmware update on your computer, use this option to browse for the file and then upload the information into the access point.




## Language Pack

You can change the language of the web UI by uploading available language packs.

**Browse:** After you have downloaded the new language pack, click **Browse** to locate the language pack file on your hard drive. Click **Upload** to complete the language pack upgrade.

**Note:** In most cases you must unzip the file first before uploading.

# 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.

# System Check

**Ping Test/IPv6 Ping Test:** The Ping Test is used to send Ping packets to test if a computer or device is on the Internet. Enter the IP Address that you wish to ping, and click **Ping**.

**Ping Result:** The results of your ping attempts will be displayed here.

# Schedules

Schedules can be created for use with enforcing rules. For example, if you want to restrict web access to Mon-Fri from 3pm to 8pm, you could create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a Start Time of 3pm and End Time of 8pm.

**Name:** Enter a name for your new schedule.

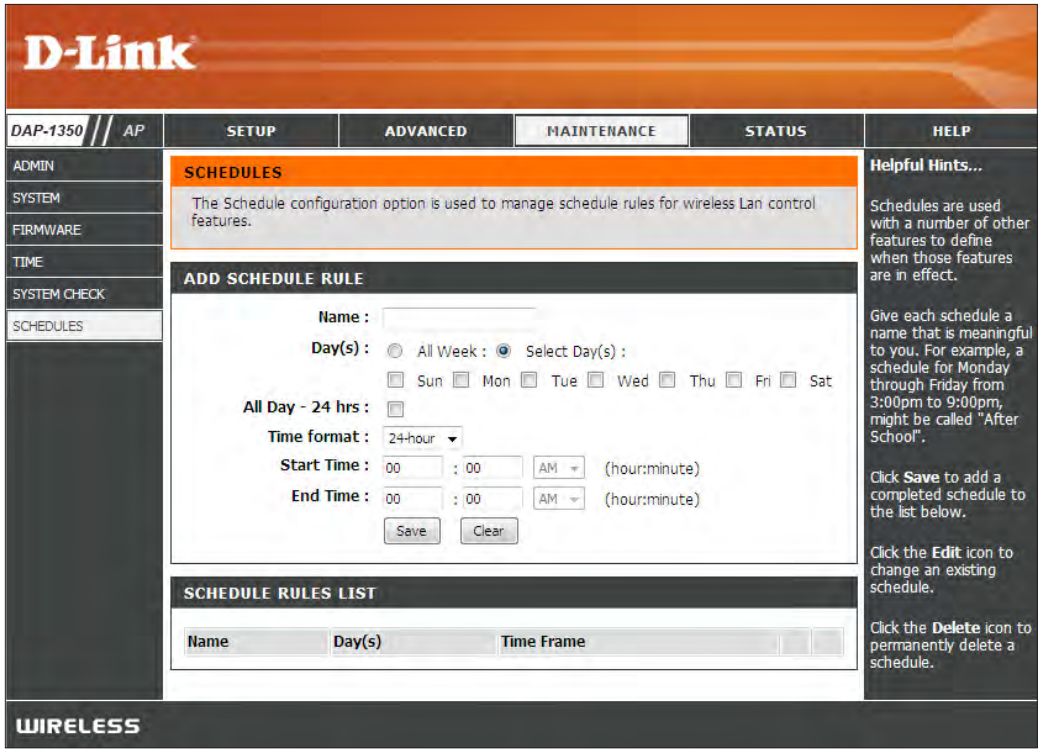
**Days:** Select a day, a range of days, or All Week to include every day.

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

**Time Format:** Select the time format you want from the drop-down menu.

**Save:** Click **Save** to save your schedule. You must click **Save Settings** at the top for your schedules to go into effect.

**Schedule Rules 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.



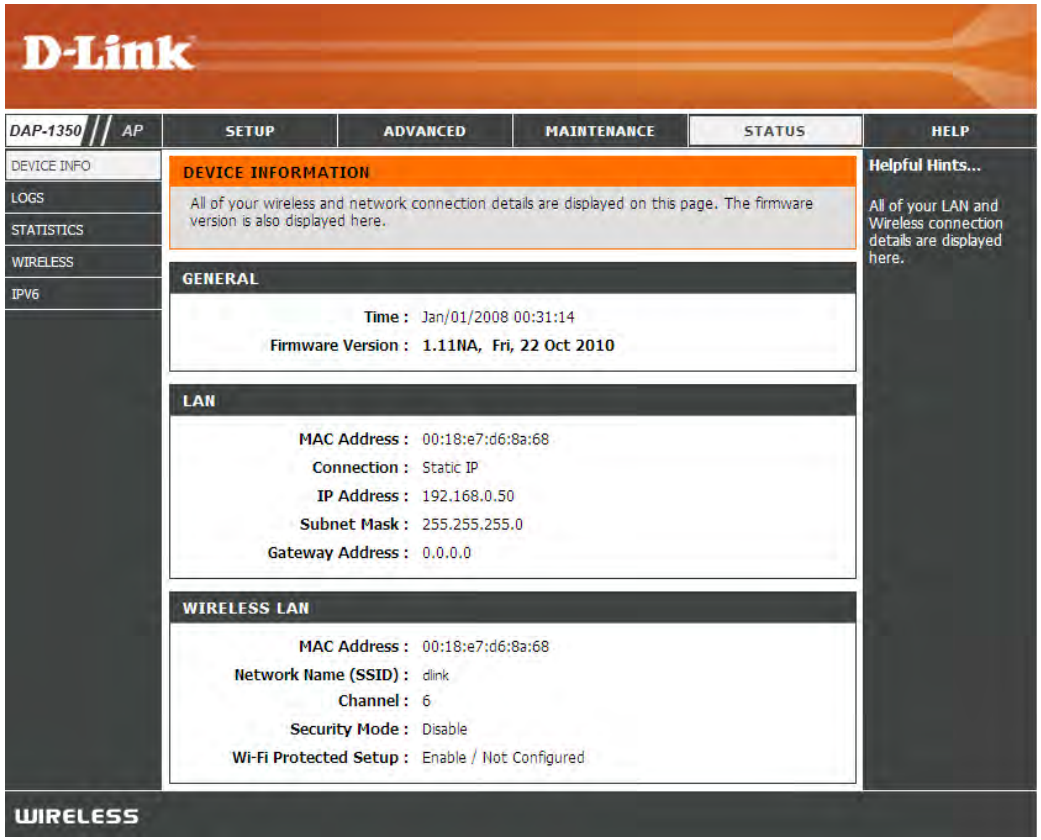
# Device Info

This page displays the current information for the DAP-1350. 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 DAP-1350 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 want to display from the log: **System Activity**, **Debug Information**, **Attacks**, **Dropped Packets**, and **Notice**. Select 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.

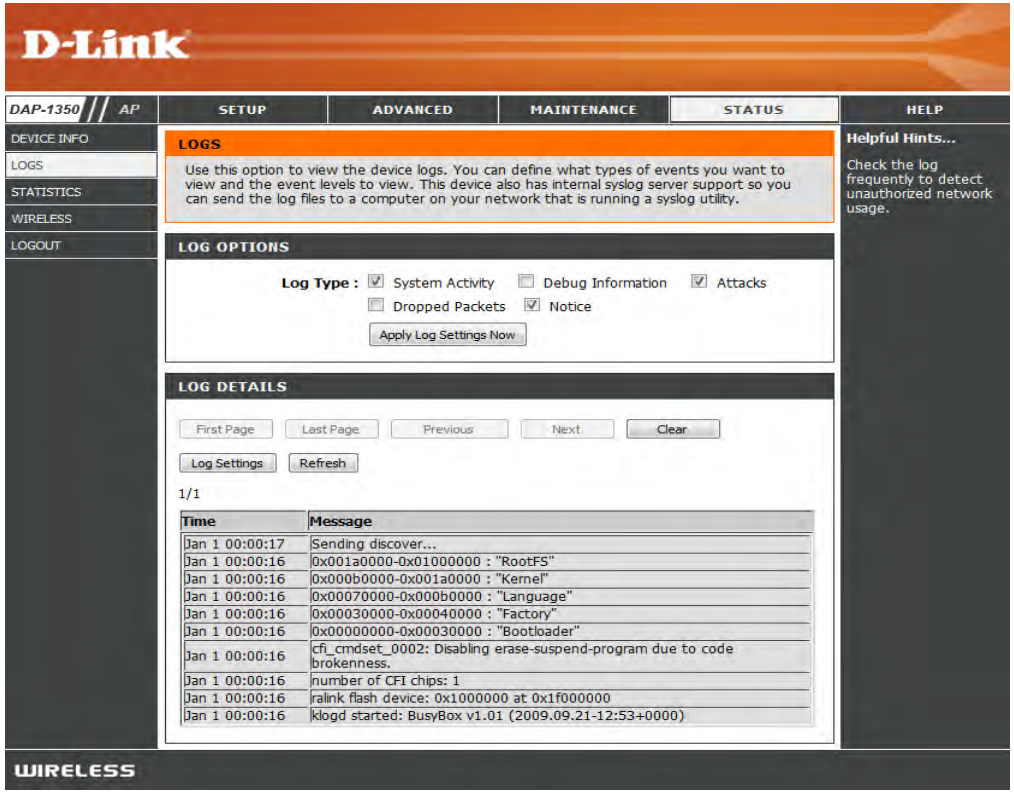
**Previous:** This button directs you to the previous page of the log.

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

**Clear:** This button clears all current log content.

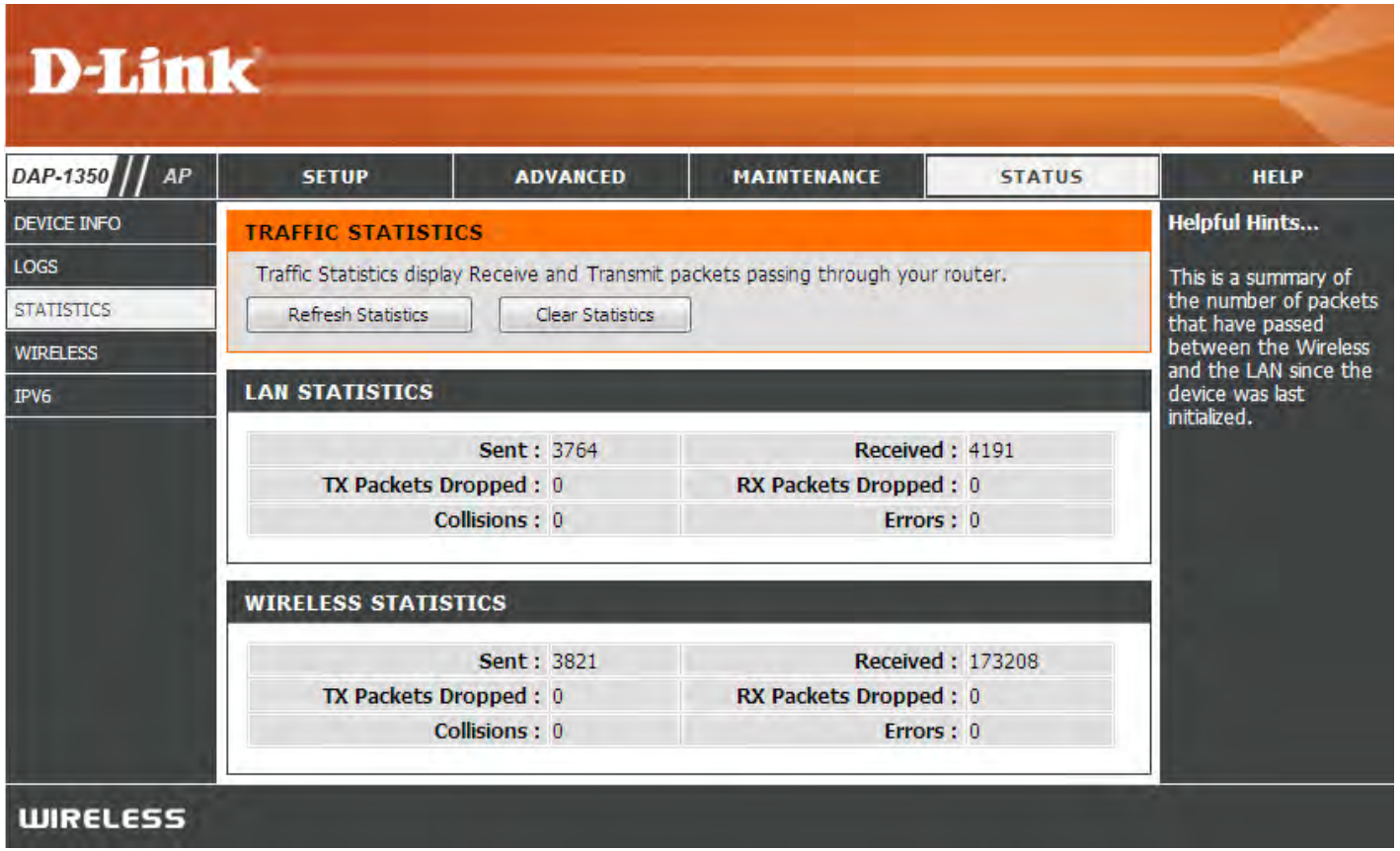
**Log Settings:** This button opens a new menu where you can configure the log settings.

**Refresh:** This button refreshes the log.



# Statistics

The DAP-1350 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

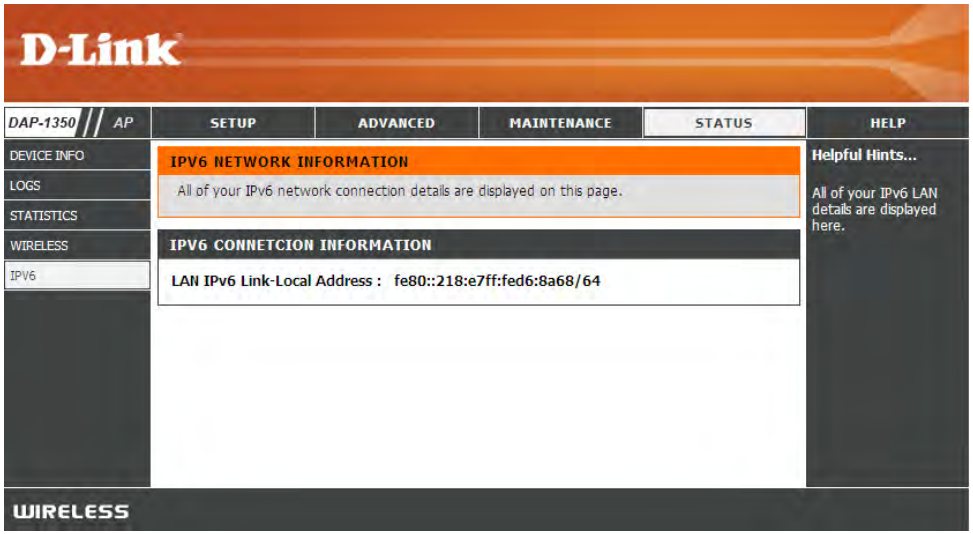
The wireless section allows you to view the wireless clients that are connected to your wireless access point.

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

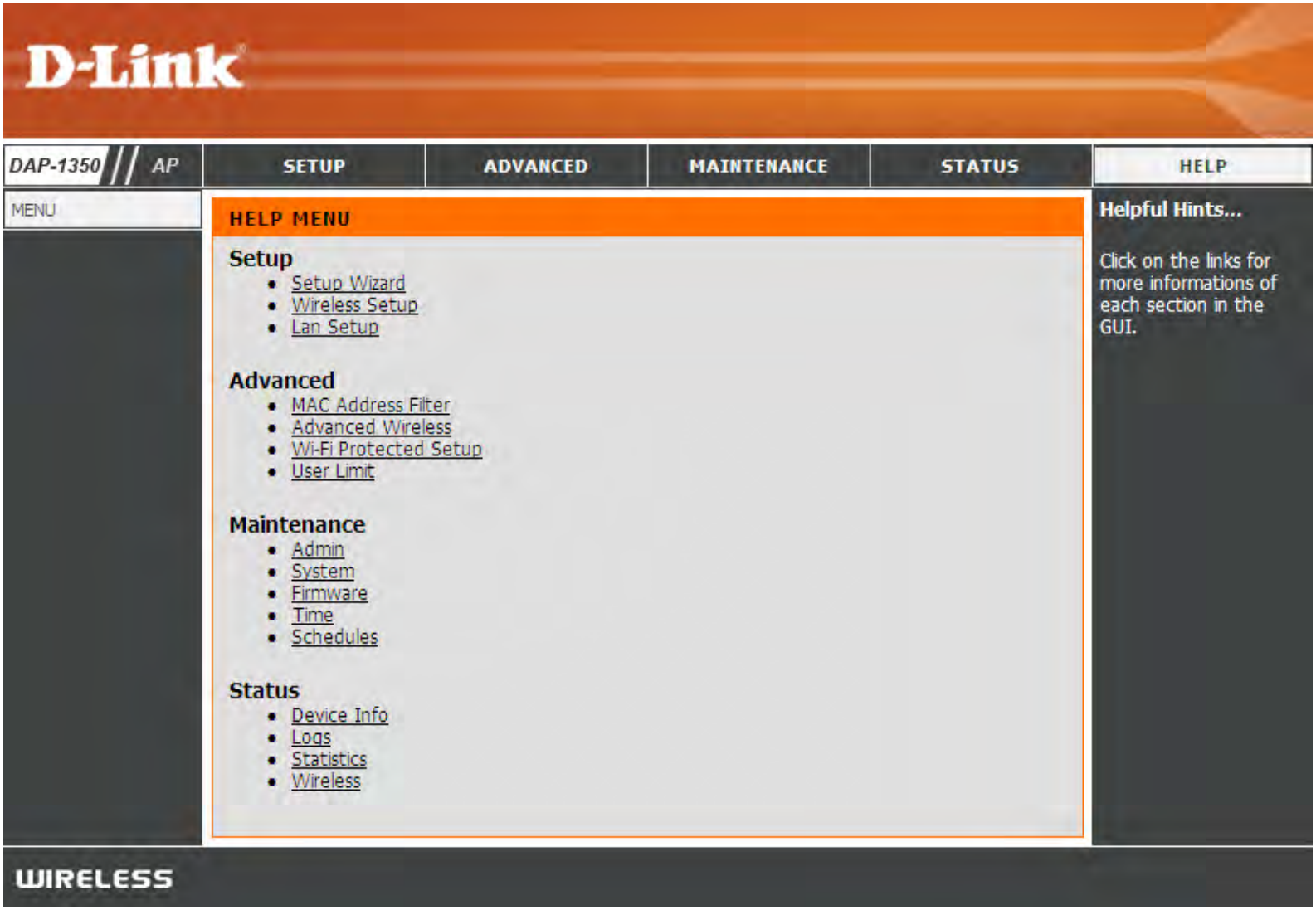
**MAC Address:** The Ethernet ID (MAC address) of the wireless client.

# IPv6

The IPv6 section allows you to view the IPv6 network connections.



# Help


D-Link
DAP-1350 // AP
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
MENU
HELP MENU
Setup
Setup Wizard
Wireless Setup
Lan Setup
Advanced
MAC Address Filter
Advanced Wireless
Wi-Fi Protected Setup
User Limit
Maintenance
Admin
System
Firmware
Time
Schedules
Status
Device Info
Logs
Statistics
Wireless
Helpful Hints...
Click on the links for more informations of each section in the GUI.
WIRELESS

# Wireless Client Mode

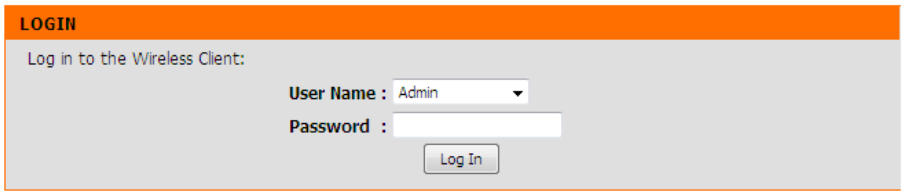
Change the mode selector to **CL** on the device. Connect an Ethernet cable from the Ethernet port on the DAP-1350 to a computer for configuration.

If you wish to change the default settings or optimize the performance of the DAP-1350, you may use the web-based configuration utility.

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


Enter your password. Leave the password blank by default.

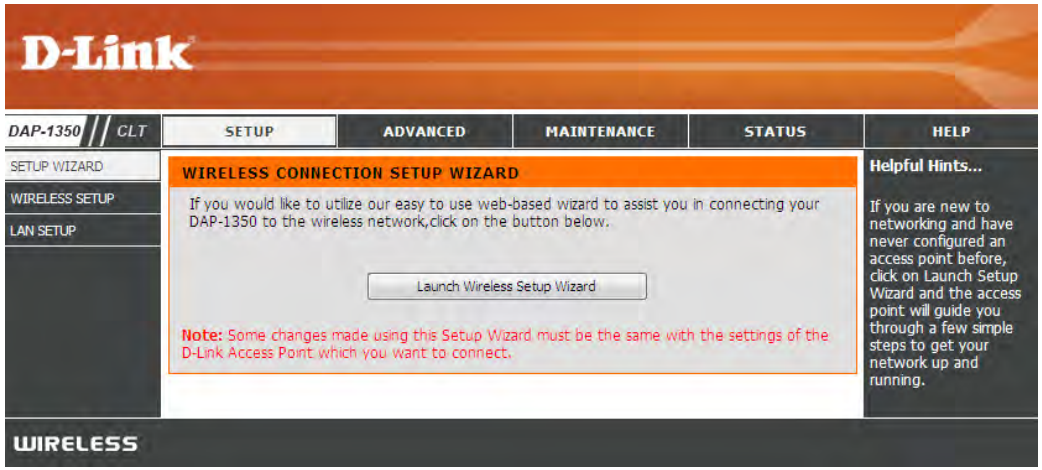
If you get a Page Cannot be Displayed error, please refer to the **Troubleshooting** section for assistance.



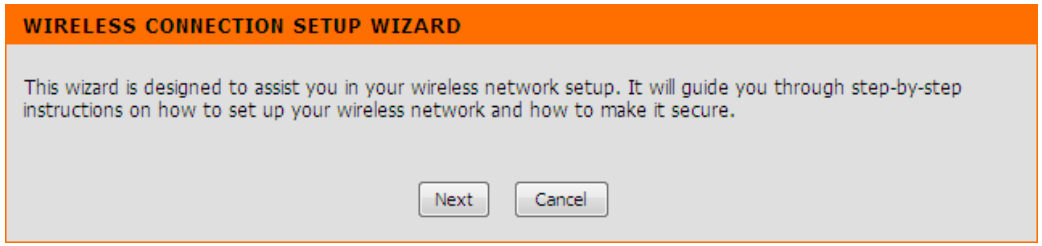
# Wireless Setup Wizard

This Wizard is designed to assist you in configuring your DAP-1350 as a wireless client.

Click the **Launch Wireless Setup Wizard** button to use the wizard to setup your network.

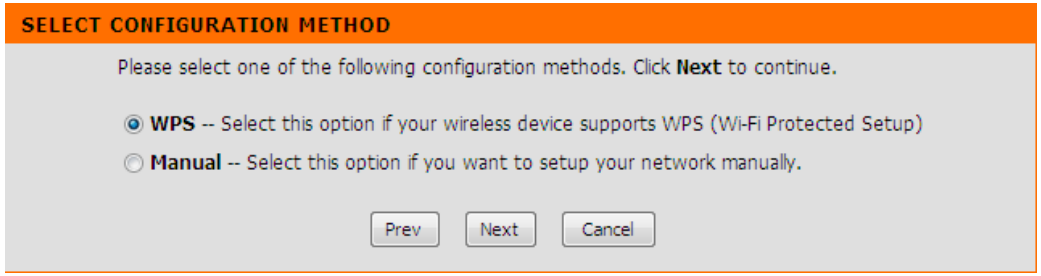



Click **Next** to continue.

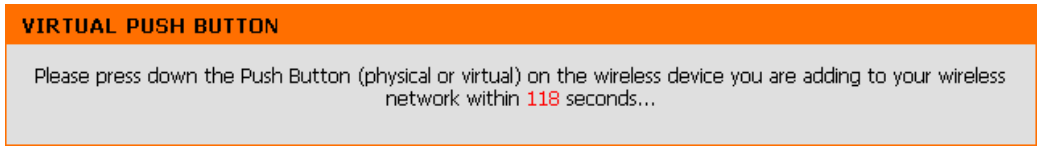


Select **WPS** as the configuration method only if your wireless device supports Wi-Fi Protected Setup (WPS). For **Manual** setup, skip to the next page.

Click **Next** to continue.

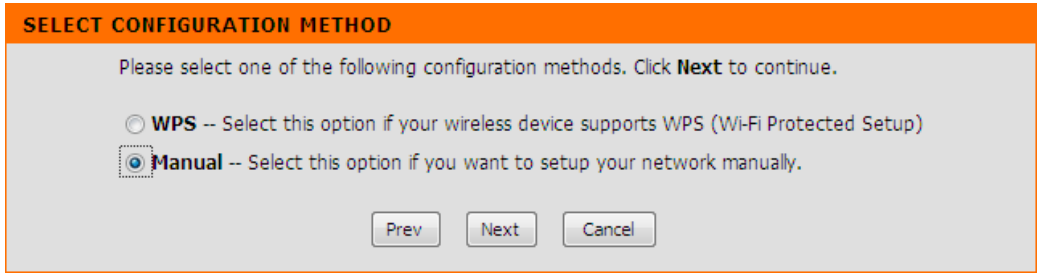



On the device you want to connect to, start the PBC process on the device. You will have 2 minutes to start the PBC process on both devices.

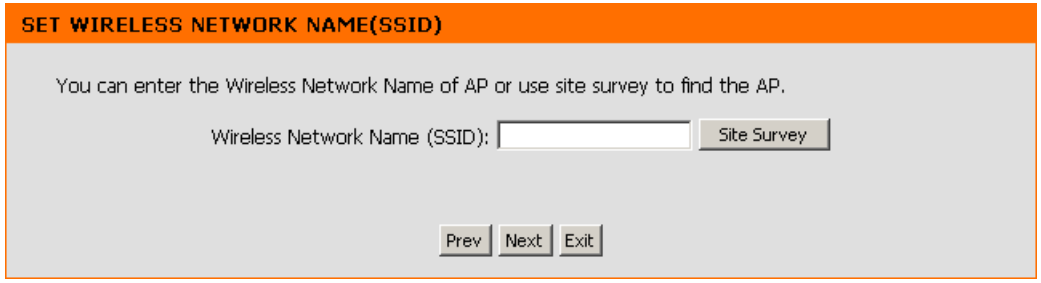


Select **Manual** as the configuration method to set up your network manually.

Click **Next** to continue.

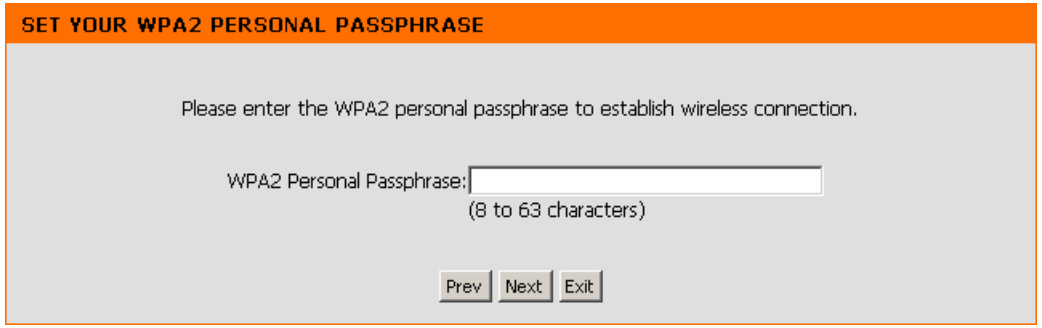



Enter the network name (SSID) of the network you want to connect to. If you do not know the exact name or would like to search for the wireless network, click **Site Survey**.

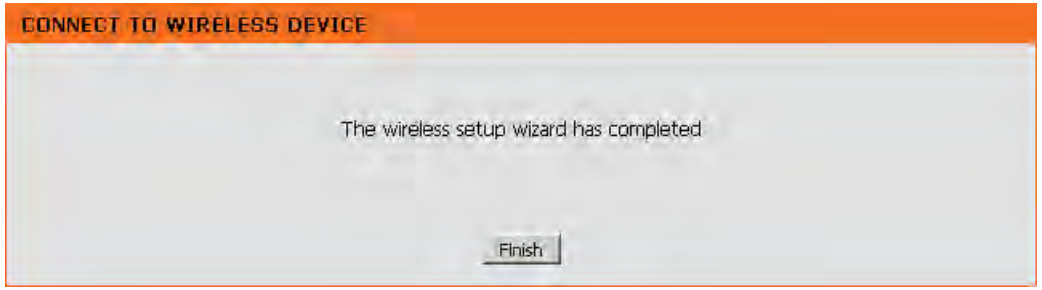



Find your access point from the list, click the radio button in the right column, and click **Connect**.

If you select **WPA** or **WPA2**, enter the wireless security password. Click **Next** to complete the Setup Wizard.




The Wireless Setup Wizard is complete. Click **Finish** to reboot the device.



# Manual Wireless Setup

**Wireless Type:** Select **Infrastructure** if connecting to an access point or wireless router, or select **Ad-Hoc** if connecting to another wireless client.

**Site Survey:** Click **Site Survey** to display a list of wireless networks in your area. You may select the wireless access point to connect to.

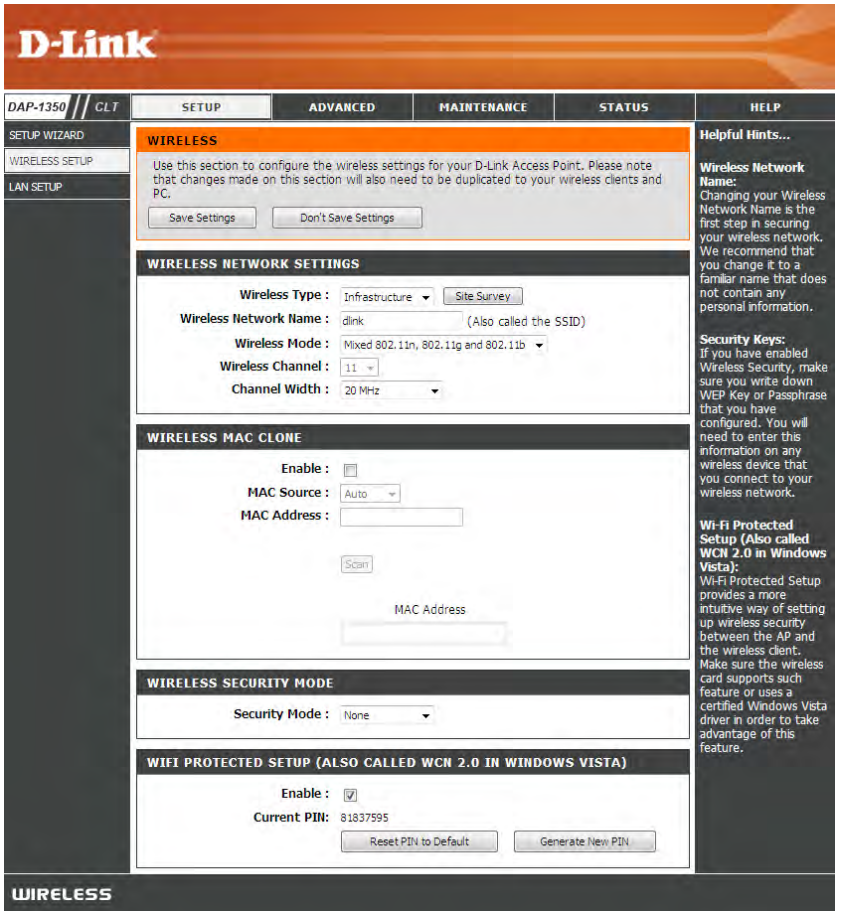
**Wireless Network Name:** Enter the SSID of the wireless network you want to connect to. If you do not know for sure, click **Site Survey** and select it from the list, if available.

**Wireless Mode:** Select the appropriate 802.11 mode based on the wireless clients in your network. Select **Mixed 802.11b/g**, **802.11n Only**, or **Mixed 802.11b/g/n** from the drop-down menu.

**Wireless Channel:** The channel will automatically change to the channel of the AP you are connected to.

**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.

**Wireless MAC Clone:** You can clone the MAC address of the device connected via Ethernet to the DAP-1350.




**Wireless Security Mode:** Select a wireless security setting. Options are **None**, **WEP**, **WPA**, or **WPA2**. See the Wireless Security section in this manual for a detailed explanation of the wireless security options.

**WPS:** Select **Enable** if you want to configure the DAP-1350 with Wi-Fi Protection setup.

# LAN Settings

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

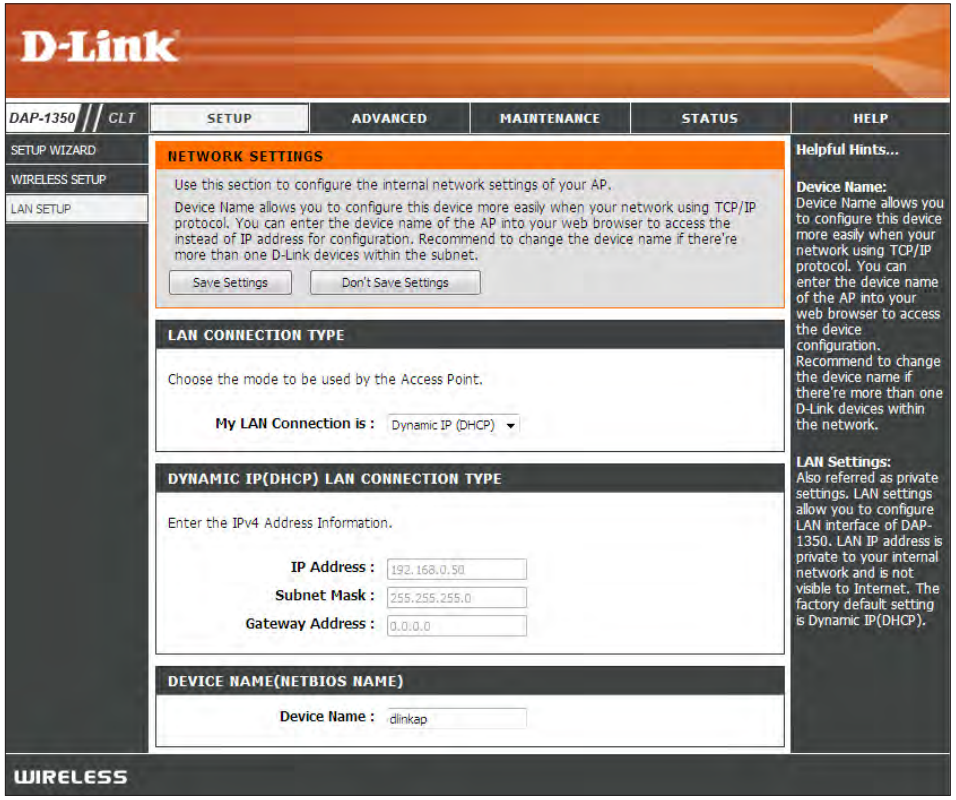
**My LAN Connection is:** Use the drop-down menu to select **Dynamic IP** (DHCP) to automatically obtain an IP address on the LAN/private network or select **Static IP** to manually enter the IP settings.

**IP Address:** 192.168.0.50 is the default IP Address of the DAP-1350.

**Subnet Mask:** 255.255.255.0 is the default subnet mask. All devices on the network must have the same subnet mask to communicate on the network.

**Default Gateway:** Enter the IP Address of the gateway in your network.

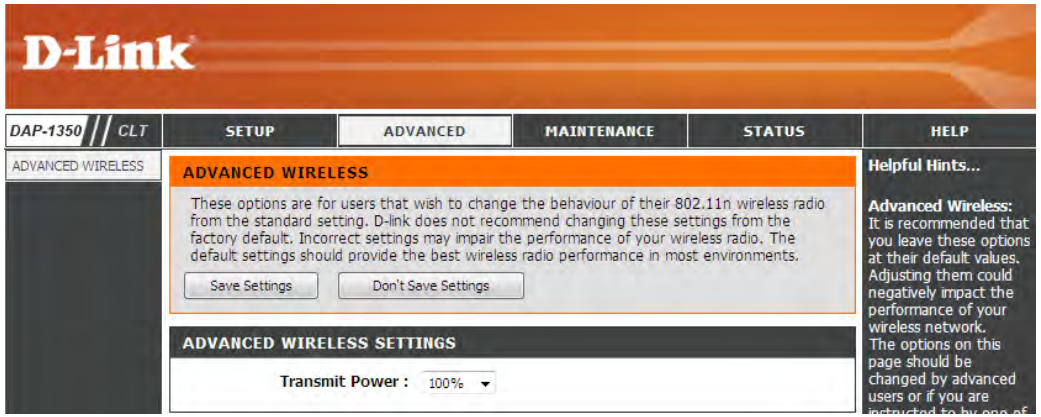
**Device Name:** Enter the Device Name of the AP. It is recommended to change the Device Name if there is more than one D-Link device within the subnet.



# 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.



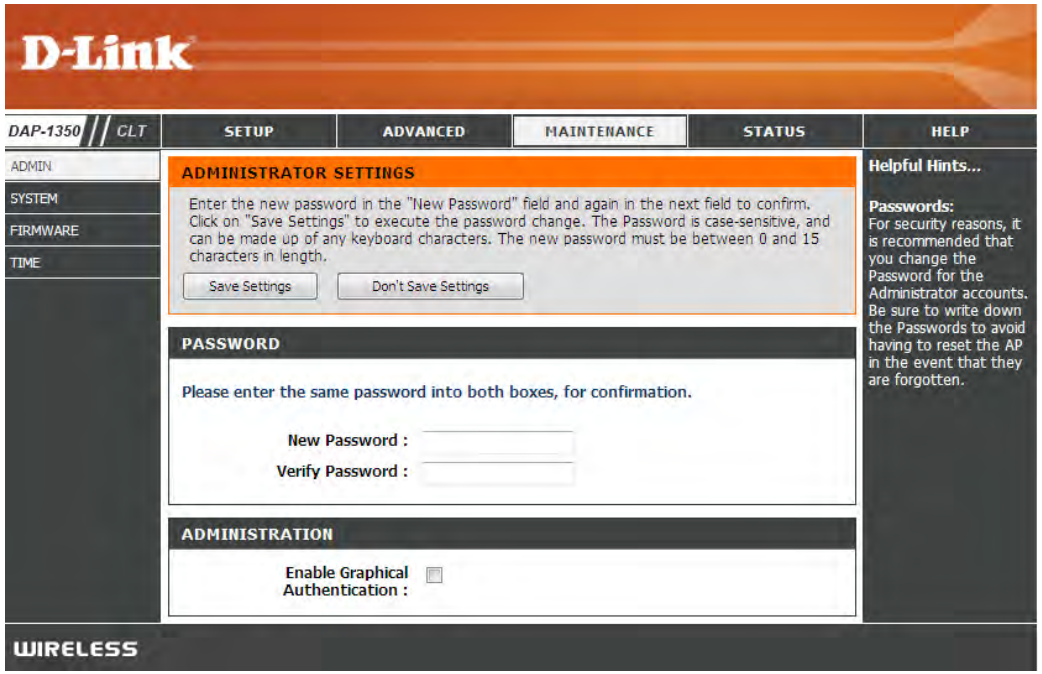
# Admin

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

**Password:** Enter a new password for the Administrator Login Name. The administrator can make changes to the settings.

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

**Enable Graphical Authentication:** Enables a challenge-response test to 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 router's network settings.



# System

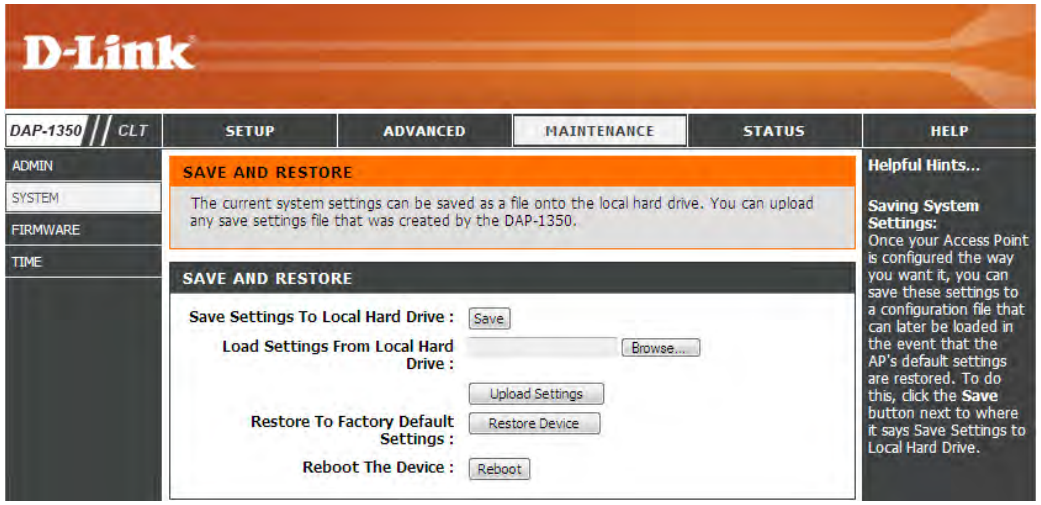
**Save to Local Hard Drive:** Use this option to save the current access point configuration settings to a file on the hard disk of the computer you are using. Click the **Save** button. You will then see a file dialog where you can select a location and file name for the settings.

**Load 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 want 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.



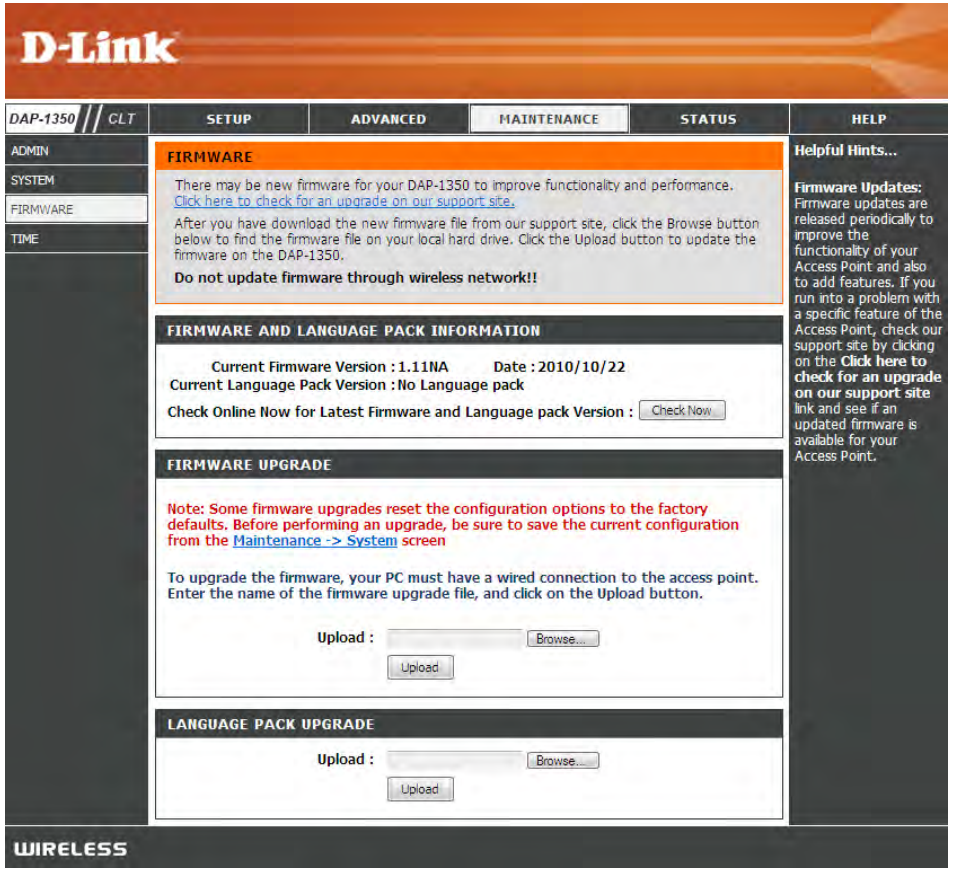
# Firmware

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

**Firmware Upgrade:** Click on **Check Now** to find out if there is an updated firmware; if so, download the new firmware to your hard drive.

**Browse:** 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.

**Upload:** Once you have a firmware update on your computer, use this option to browse for the file and then upload the information into the access point.




## Language Pack

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**Browse:** After you have downloaded the new language pack, click **Browse** to locate the language pack file on your hard drive. Click **Upload** to complete the language pack upgrade.

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# 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.

**Enable 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.

# Device Info

This page displays the current information for the DAP-1350. 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 DAP-1350 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 want to display from the log: **System Activity**, **Debug Information**, **Attacks**, **Dropped Packets**, and **Notice**. Select 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.

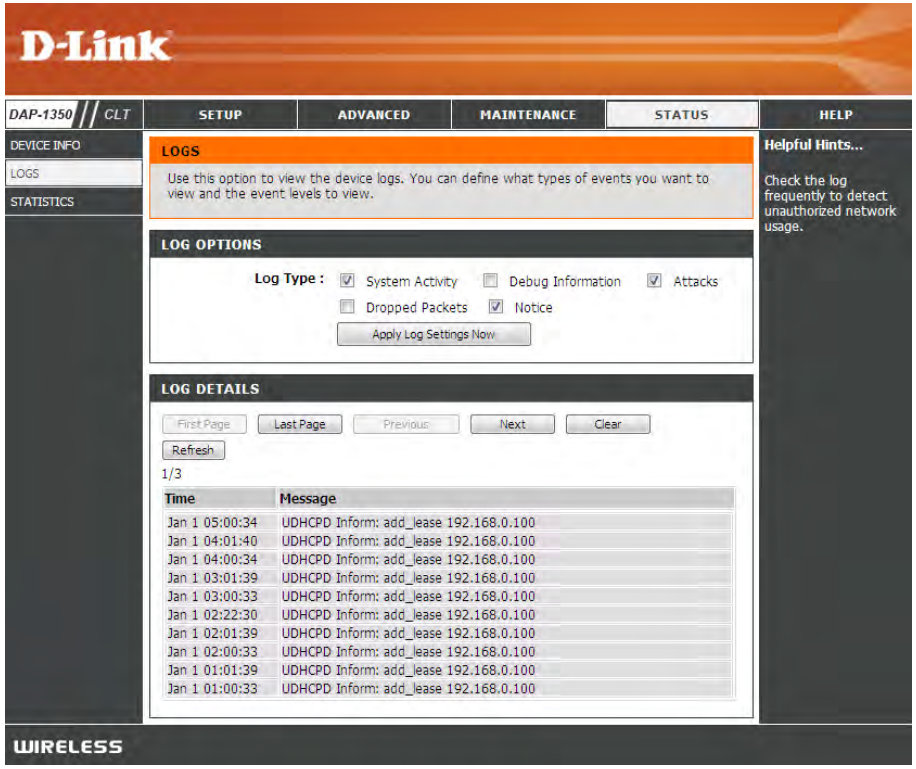
**Previous:** This button directs you to the previous page of the log.

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

**Clear:** This button clears all current log content.

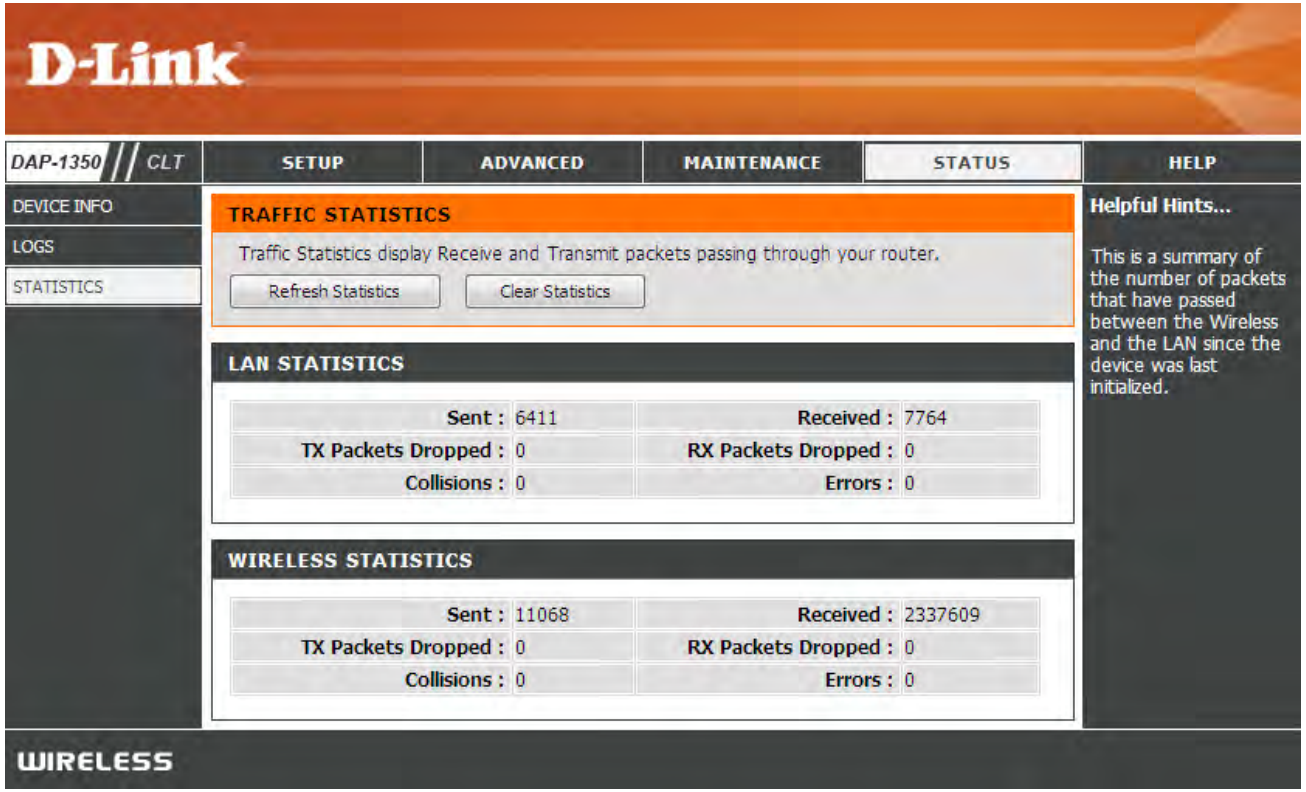
**Log Settings:** This button opens a new menu where you can configure the log settings.

**Refresh:** This button refreshes the log.

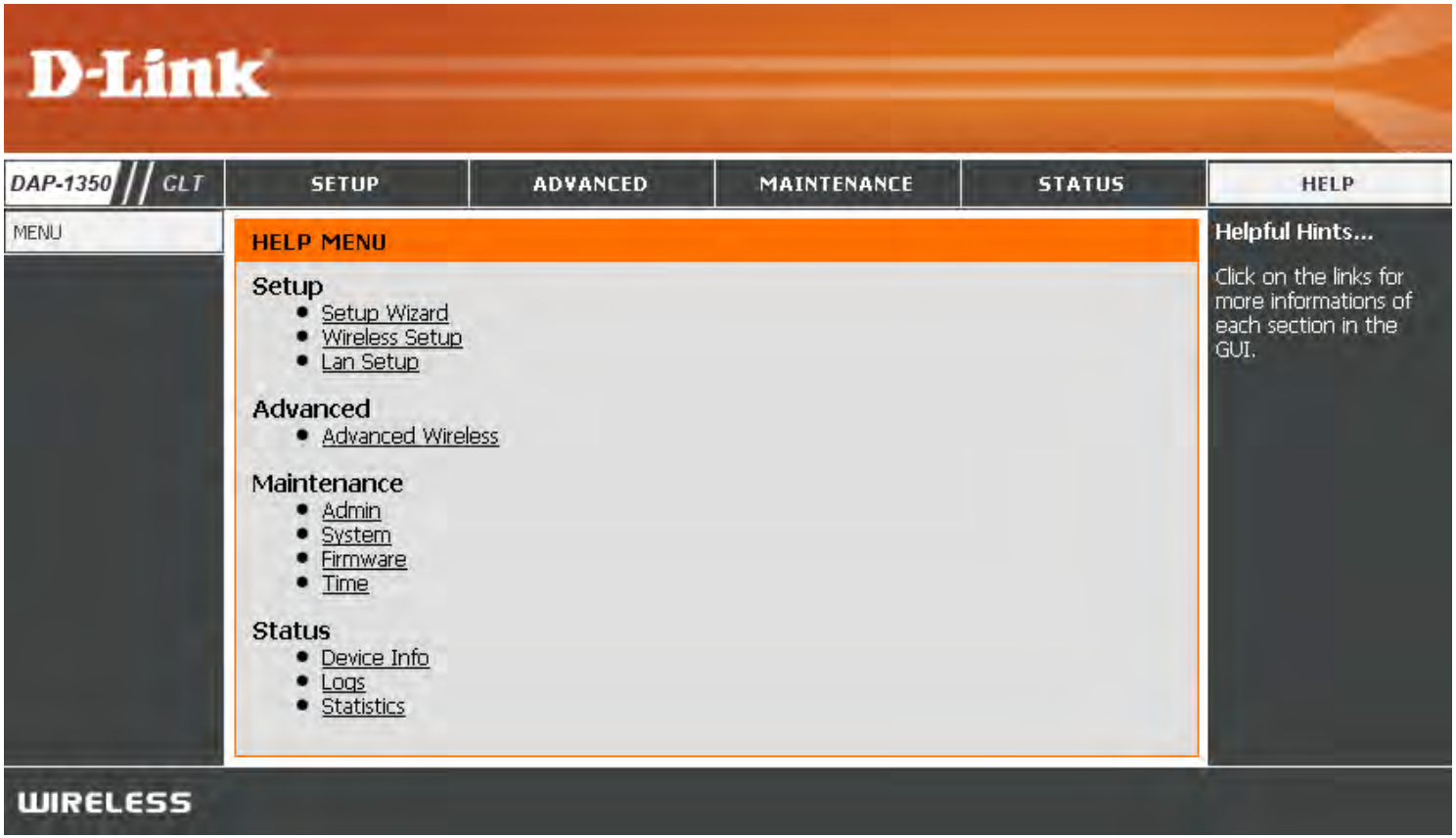


# Statistics

The DAP-1350 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.



# Help


D-Link
DAP-1350 // CLT
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
MENU
HELP MENU
Setup
Setup Wizard
Wireless Setup
Lan Setup
Advanced
Advanced Wireless
Maintenance
Admin
System
Firmware
Time
Status
Device Info
Logs
Statistics
Helpful Hints...
Click on the links for more informations of each section in the GUI.
WIRELESS

# Router Mode

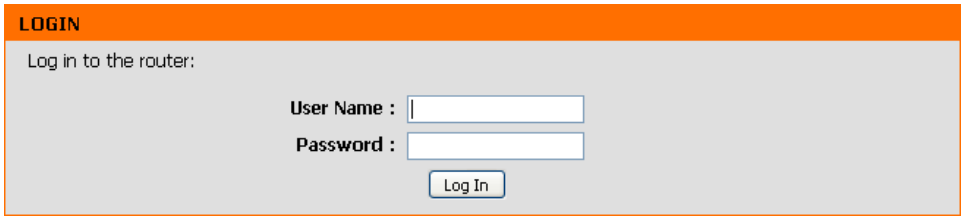
Change the mode selector to **RT** on the device. Connect an Ethernet cable from the Ethernet port on the DAP-1350 to your broadband modem. You will need to connect wirelessly to the DAP-1350 to configure it.

If you wish to change the default settings or optimize the performance of the DAP-1350, you may use the web-based configuration utility.

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


Type **admin** and then enter your password. Leave the password blank by default.

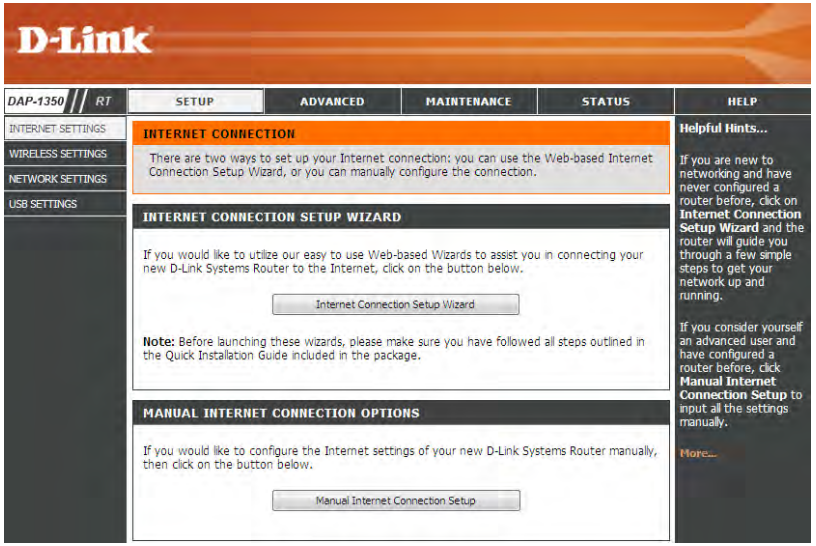
If you get a Page Cannot be Displayed error, please refer to the **Troubleshooting** section for assistance.



# Setup Wizard

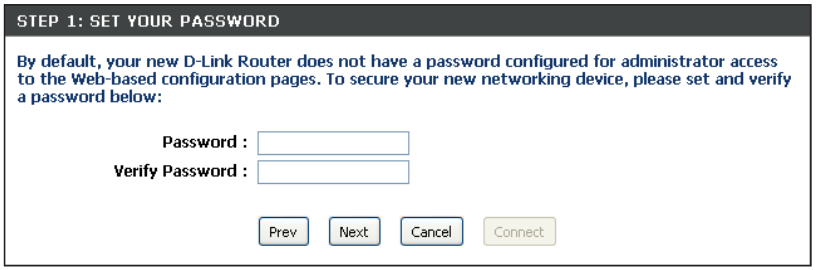
Click **Launch Internet Connection Setup Wizard** to begin.

If you want to enter your settings without running the wizard, click **Manual Internet Configuration Setup** and skip to page 65.

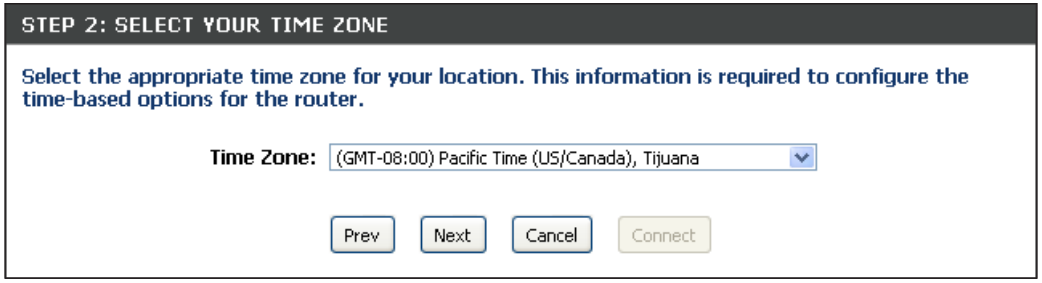



Click **Next** to continue.

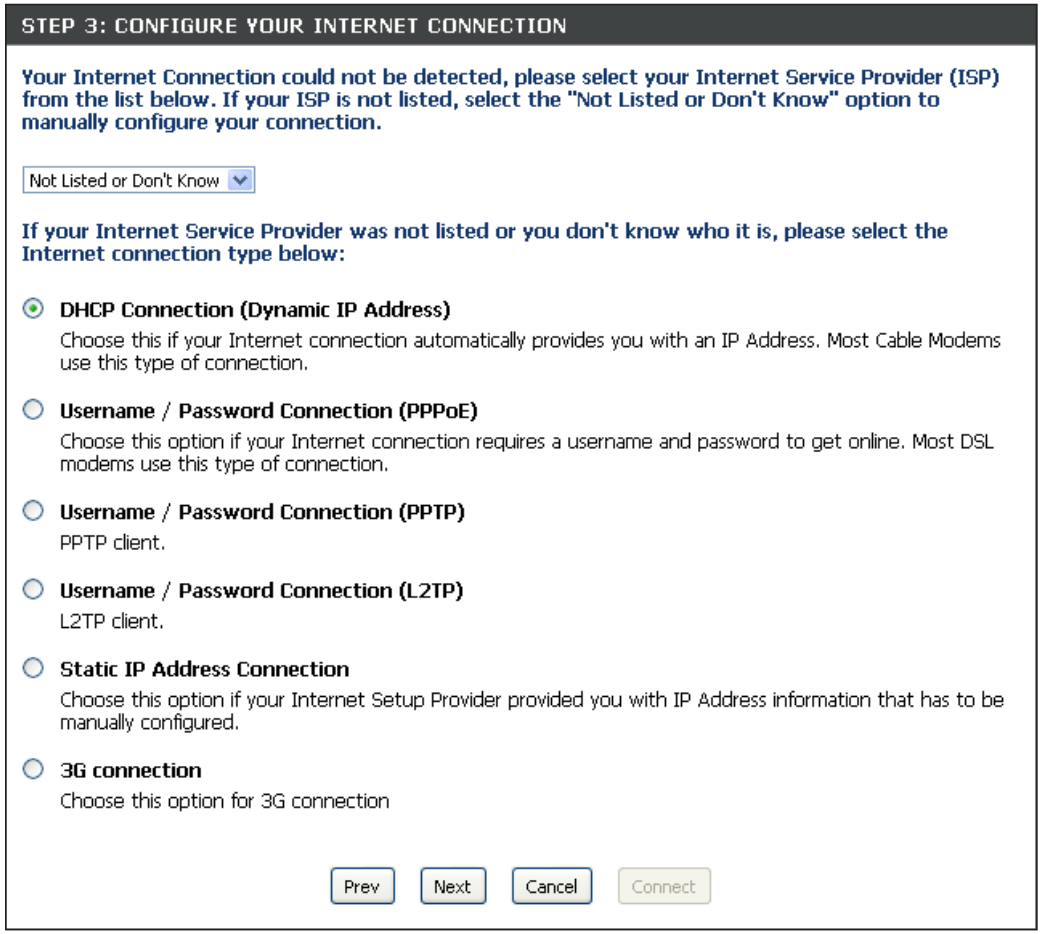

Create a new password and then click **Next** to continue.



Select your time zone from the drop-down menu and then click **Next** to continue.

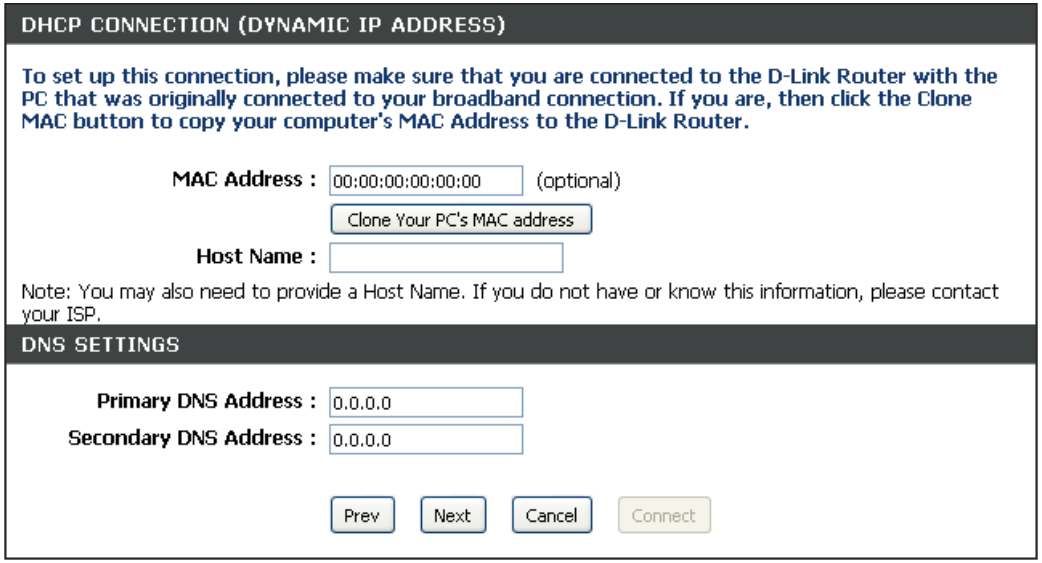



Select the type of Internet connection you use and then click **Next** to continue.



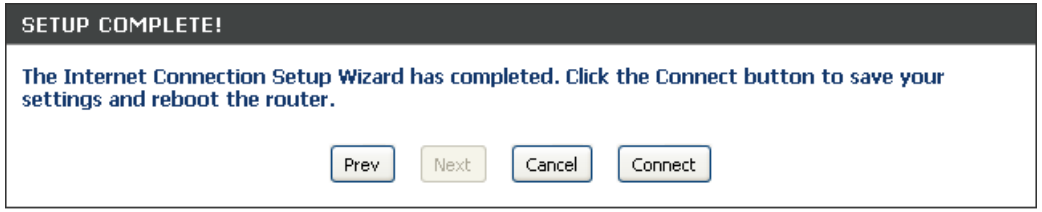
If you selected Dynamic, you may need to enter the MAC address of the computer that was last connected directly to your modem. If you are currently using that computer, click **Clone Your PC's MAC Address** and then click **Next** to continue.

The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.




Click **Connect** to save your settings. Once the router is finished rebooting, click **Continue**. Please allow 1-2 minutes to connect.

Close your browser window and reopen it to test your Internet connection. It may take a few tries to initially connect to the Internet.

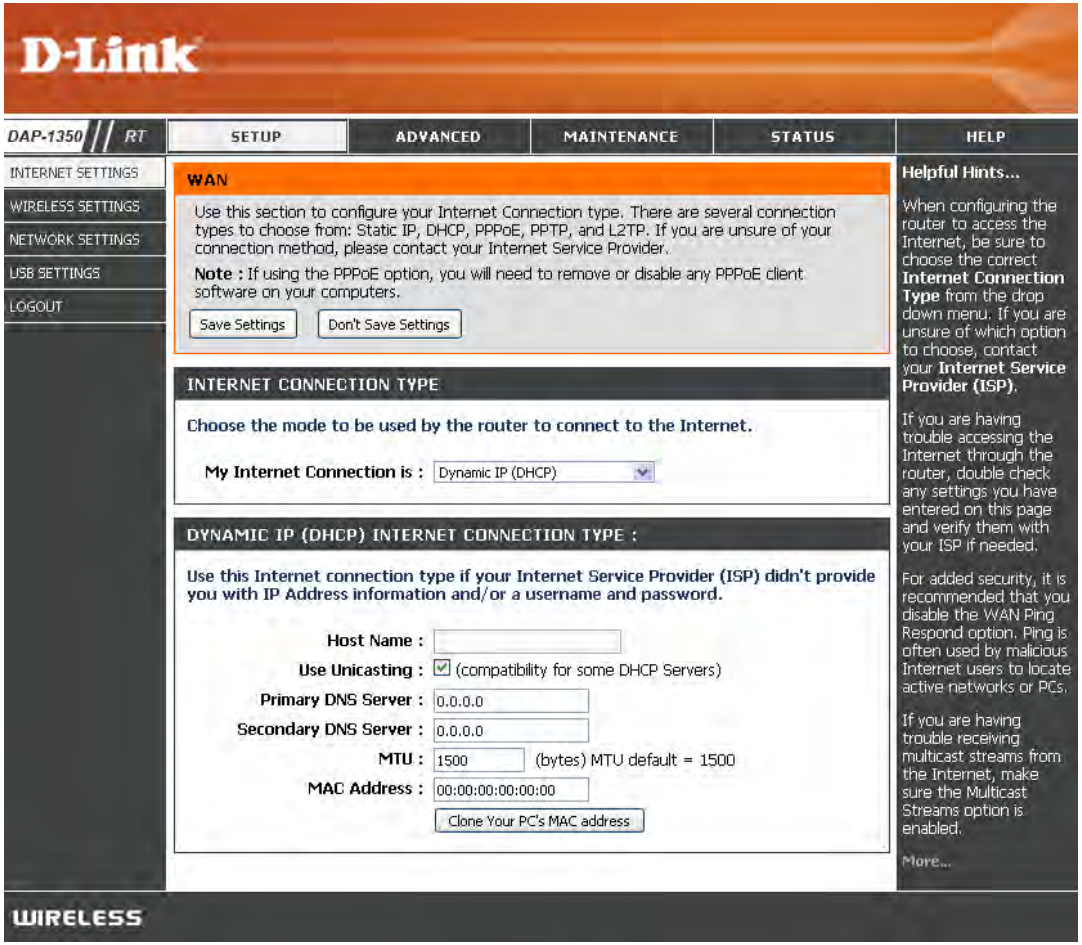


# Internet Setup

If you opt to set up your Internet connection manually, you will be redirected to a WAN page that allows you to select your Internet type and enter the correct configuration parameters.

Select your Internet connection type using the "**My Internet Connection is"** drop-down menu.

Click the **Save Settings** button when you have configured the connection.



# Dynamic IP (DHCP)

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 number to use. This option is commonly used for Cable modem services.

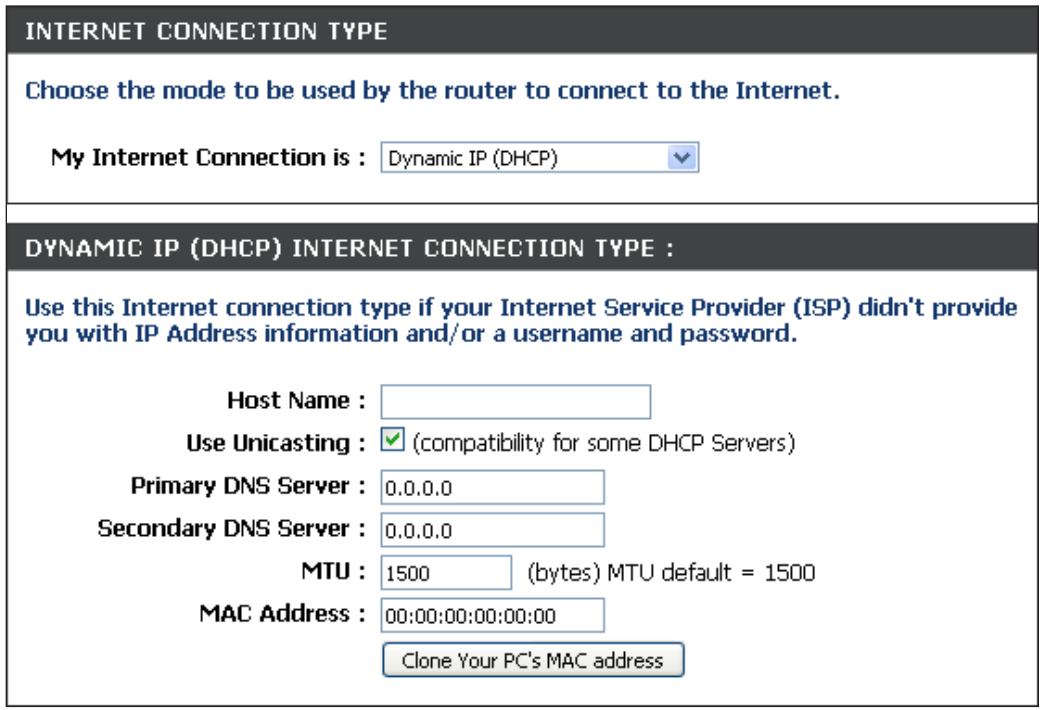
**Host Name:** The Host Name is optional but may be required by some ISPs.

**Use Unicasting:** Select if you are having problems obtaining an IP address from your DHCP server.

**DNS Server:** Enter the Primary and Secondary DNS server IP address assigned by your ISP.

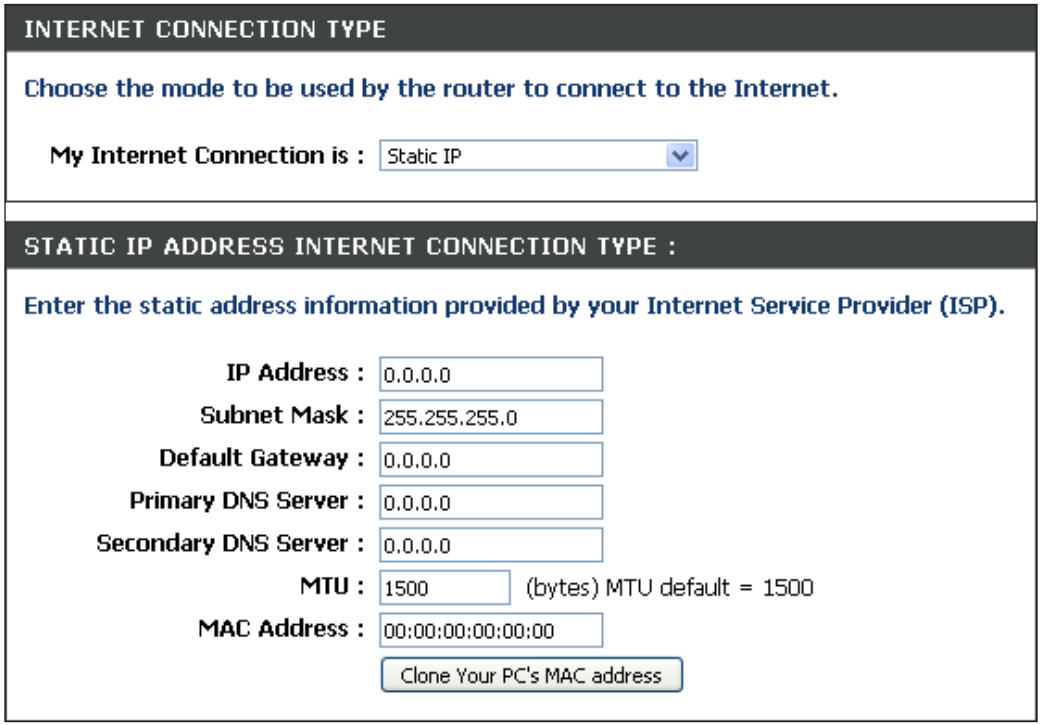
**MTU:** You may need to change the MTU (Maximum Transmission Unit) for optimal performance with your specific ISP. The default MTU size is 1500.

**MAC Address:** The default MAC address is set to the Ethernet MAC address your DAP-1350. You can click the **Clone Your PC's MAC Address** button to replace the AP's MAC address with the MAC address of the PC that you used to register with your ISP. It is not recommended that you change the default MAC address unless required by your ISP.



# Static IP

Select Static IP if all WAN IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP.




**IP Address:** Enter the IP Address provided by your ISP (Internet Service Provider).

**Subnet Mask:** 255.255.255.0 is the default subnet mask. All devices on the network must have the same subnet mask to communicate on the network.

**Default Gateway:** Enter the IP Address of the gateway in your network.

**Primary DNS Server:** Enter the Primary DNS (Domain Name System) server IP address assigned by your ISP.

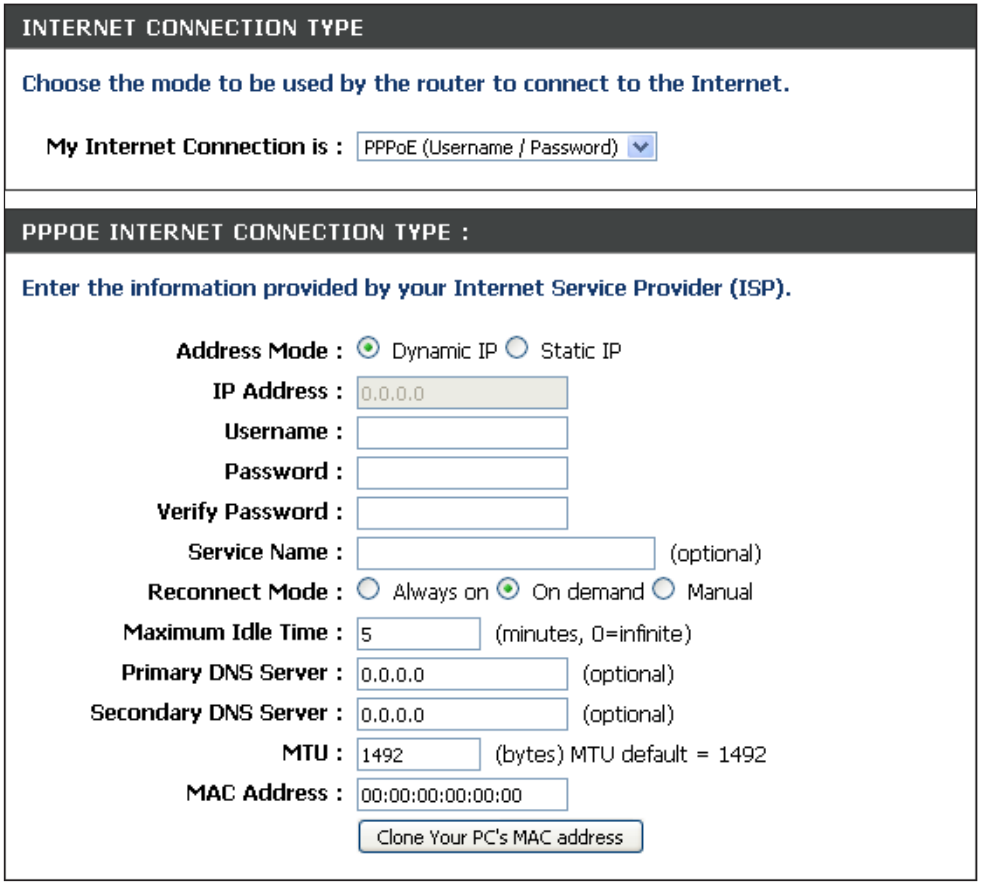
**Secondary DNS Server:** Enter the Secondary DNS (optional) server IP address assigned by your ISP.

**MTU:** You may need to change the MTU (Maximum Transmission Unit) for optimal performance with your specific ISP. The default MTU size is 1500.

**Clone MAC Address:** The default MAC address is set to the MAC address on the AP (Access Point). You can click the Clone Your PC's MAC Address button to replace the AP's MAC address with the MAC address of your Ethernet card. It is not recommended that you change the default MAC address unless required by your ISP.

# PPPoE

Select 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 your PPPoE software from your computer. The software is no longer needed and will not work through the DAP-1350.




**Username:** Enter your PPPoE user name.

**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 **Always on**, **On Demand** or **Manual**.

**Maximum Idle Time:** Enter the time (in minutes) where the router will disconnect if idle for the time specified.

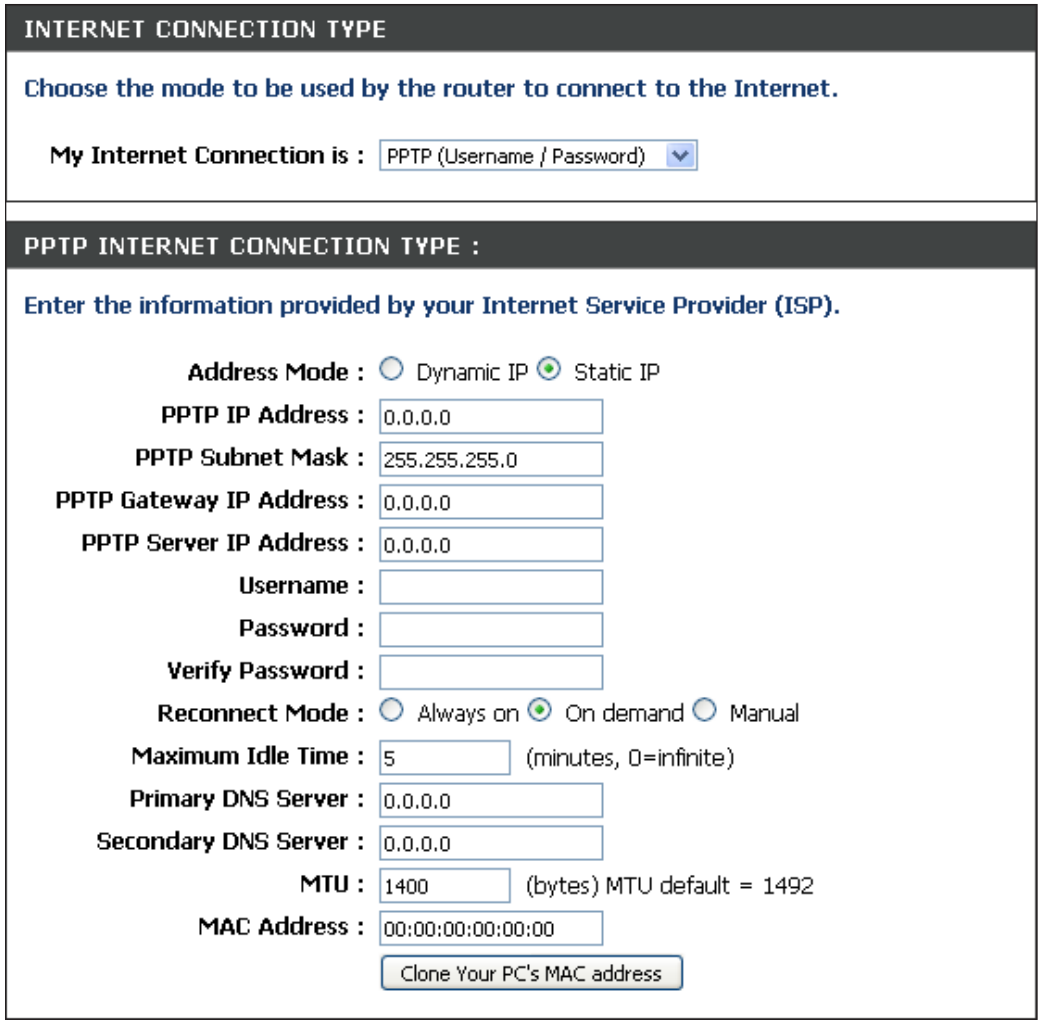
**DNS Servers:** Enter the Primary and Secondary DNS (Domain Name System) server IP address assigned by your ISP.

**MTU:** You may need to change the MTU (Maximum Transmission Unit) for optimal performance with your specific ISP. The default MTU size is 1400.

**Clone MAC Address:** The default MAC address is set to the MAC address on the AP (Access Point). You can click the **Clone Your PC's MAC Address** button to replace the AP's MAC address with the MAC address of your Ethernet card. It is not recommended that you change the default MAC address unless required by your ISP.

# PPTP

Choose PPTP (Point-to-Point Tunneling Protocol) if your ISP uses a PPTP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.




**PPTP IP Address:** Enter the IP address (Static PPTP only).

**PPTP Subnet Mask:** Enter the subnet mask.

**PPTP Server IP Address:** Enter the Server IP Address provided by your ISP.

**Username:** Enter your PPTP username.

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

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

**Maximum Idle Time:** Enter the time (in minutes) where the router will disconnect if idle for the time specified.

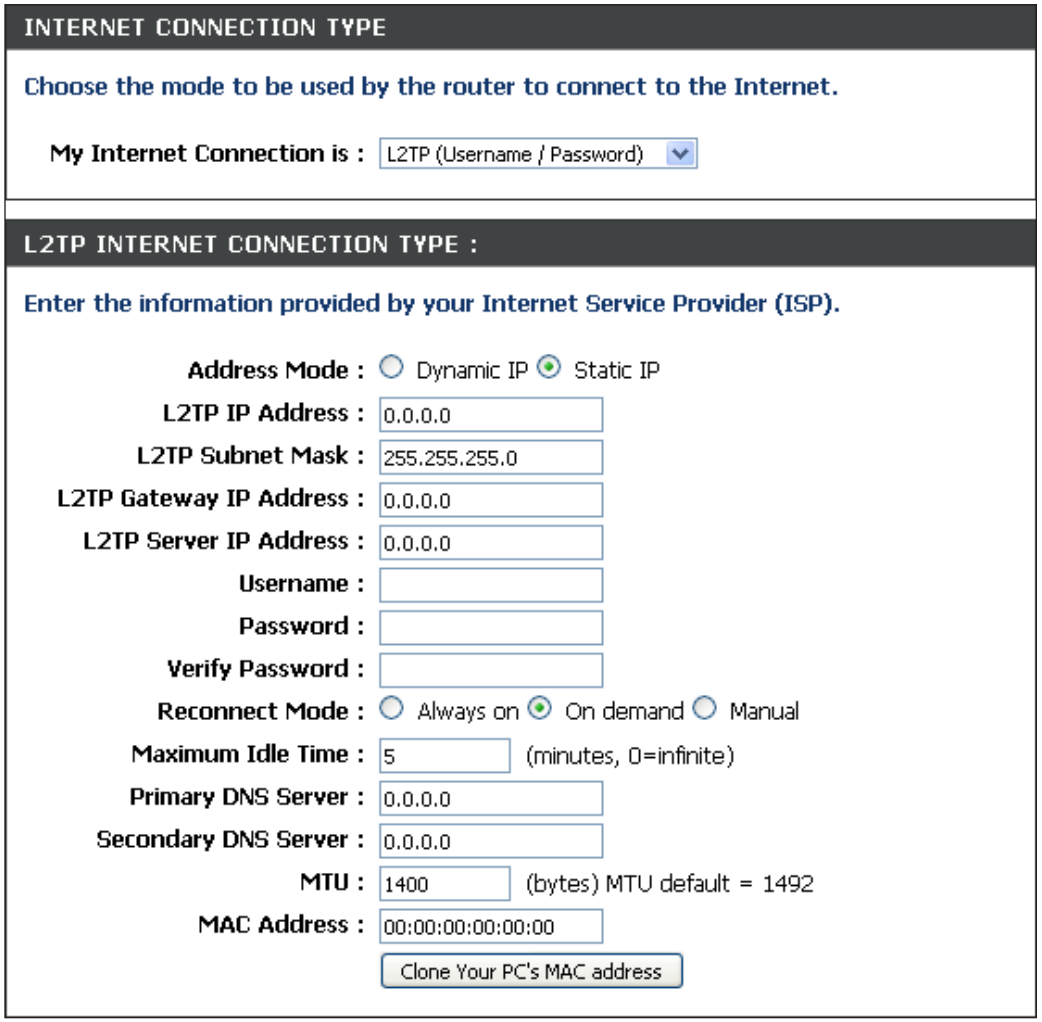
**DNS Servers:** Enter the Primary and Secondary DNS (Domain Name System) server IP address assigned by your ISP.

**MTU:** You may need to change the MTU (Maximum Transmission Unit) for optimal performance with your specific ISP. The default MTU size is 1400.

**Clone MAC Address:** The default MAC address is set to the MAC address on the AP (Access Point). You can click the **Clone Your PC's MAC Address** button to replace the AP's MAC address with the MAC address of your Ethernet card. It is not recommended that you change the default MAC address unless required by your ISP.

# L2TP

Choose L2TP (Point-to-Point Tunneling Protocol) if your ISP uses a L2TP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.




**PPTP IP Address:** Enter the IP address (Static PPTP only).

**PPTP Subnet Mask:** Enter the subnet mask.

**PPTP Server IP Address:** Enter the Server IP Address provided by your ISP.

**Username:** Enter your PPTP username.

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

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

**Maximum Idle Time:** Enter the time (in minutes) where the router will disconnect if idle for the time specified.

**DNS Servers:** Enter the Primary and Secondary DNS (Domain Name System) server IP address assigned by your ISP.

**MTU:** You may need to change the MTU (Maximum Transmission Unit) for optimal performance with your specific ISP. The default MTU size is 1400.

**Clone MAC Address:** The default MAC address is set to the MAC address on the AP (Access Point). You can click the **Clone Your PC's MAC Address** button to replace the AP's MAC address with the MAC address of your Ethernet card. It is not recommended that you change the default MAC address unless required by your ISP.

# USB3G

Choose USB3g if you are using an USB 3G adapter for your Internet connection.

**ISP Name:** Enter your Internet Service Provider (ISP) name.

**APN:** Select **Auto** or **Manual**. If you select manual, enter the Access Point Name (APN) for your 3G service provider.

**Dial Number:** Enter the dial number for your 3G service provider.

**PIN:** Enter your PIN.

**Verify PIN:** Enter your PIN again to verify.

**Auth Protocol:** Select the protocol from the drop-down menu.

**Username:** Enter your username.

**Password:** Enter your password.

**Verify Password:** Enter your password again to verify.

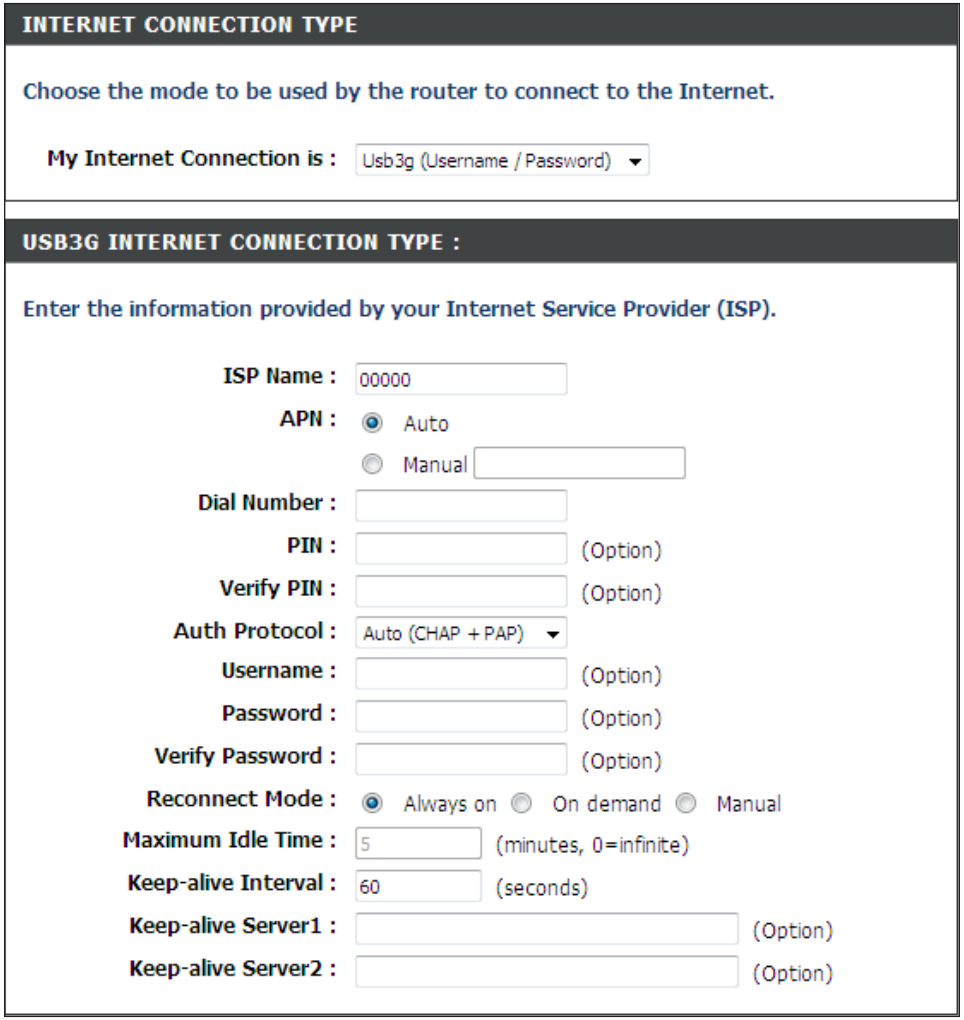
**Reconnect Mode:** Select the reconnect mode (**Always on**, **On Demand**, or **Manual**).

**Maximum Idle Time:** Enter the maximum amount of time the Internet connection should be maintained during inactivity. To disable this feature, enable the Always-on reconnect mode.

**Keep-alive Interval:** Enter the keep-alive interval (in seconds). When idle, the DAP-1350 will send keep-alive alerts so your connection will not be dropped.

**Keep-alive Server 1:** Enter your primary keep-alive server.

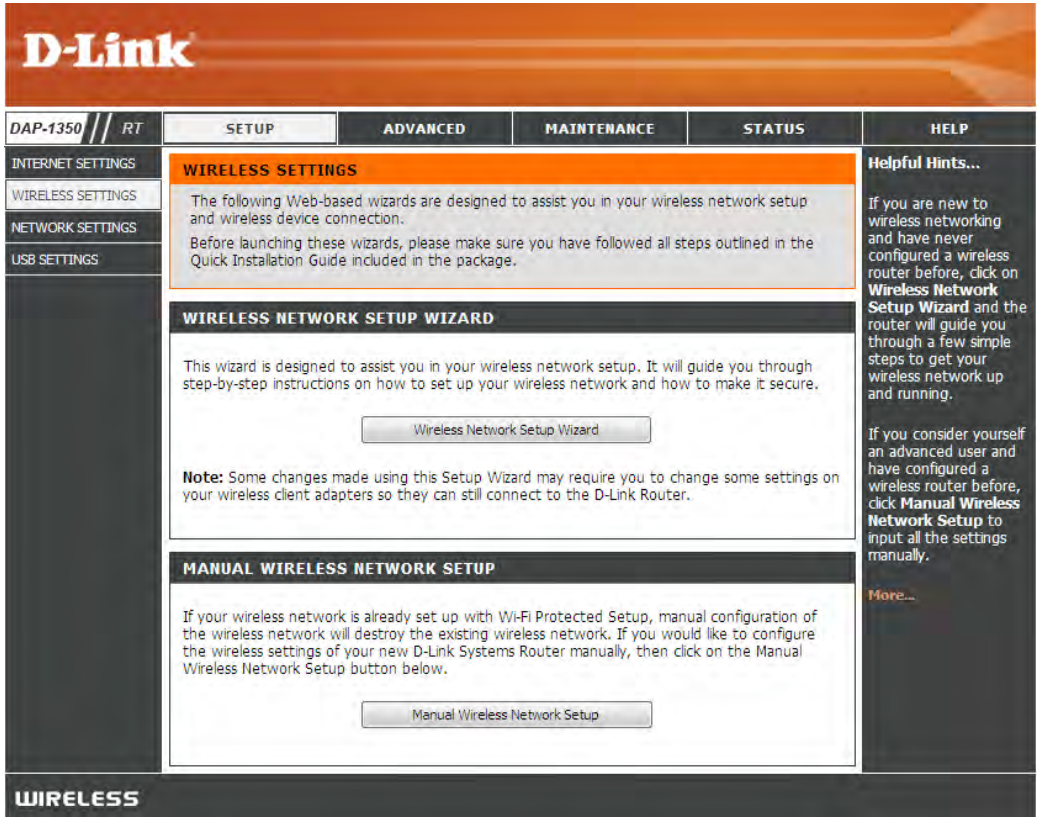
**Keep-alive Server 2:** Enter your secondary keep-alive server.



# Wireless Setup Wizard

You may click **Wireless Network Setup Wizard** to quickly configure your router. Refer to the next page.

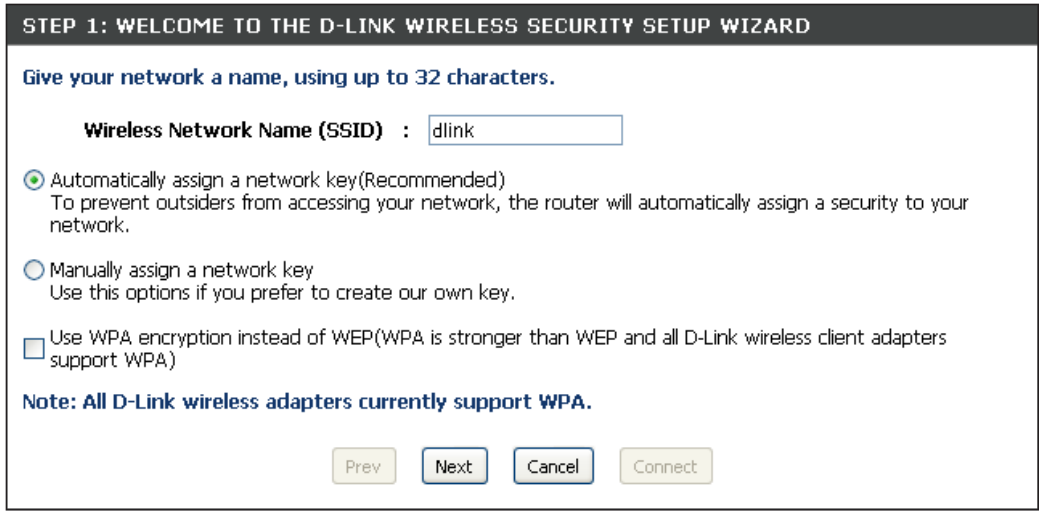
If you want to enter your settings without running the wizard, click **Manual Wireless Network Setup** and skip to page 77.



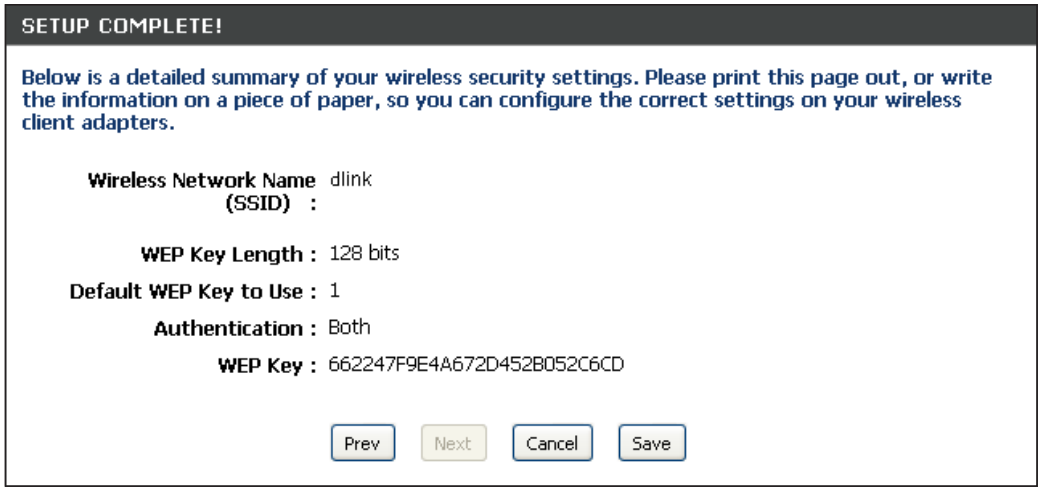
Type your desired wireless network name (SSID).

**Automatically:** Select this option to automatically generate the router's network key and click **Next**.

**Manually:** Select this option to manually enter your network key and click **Next**.



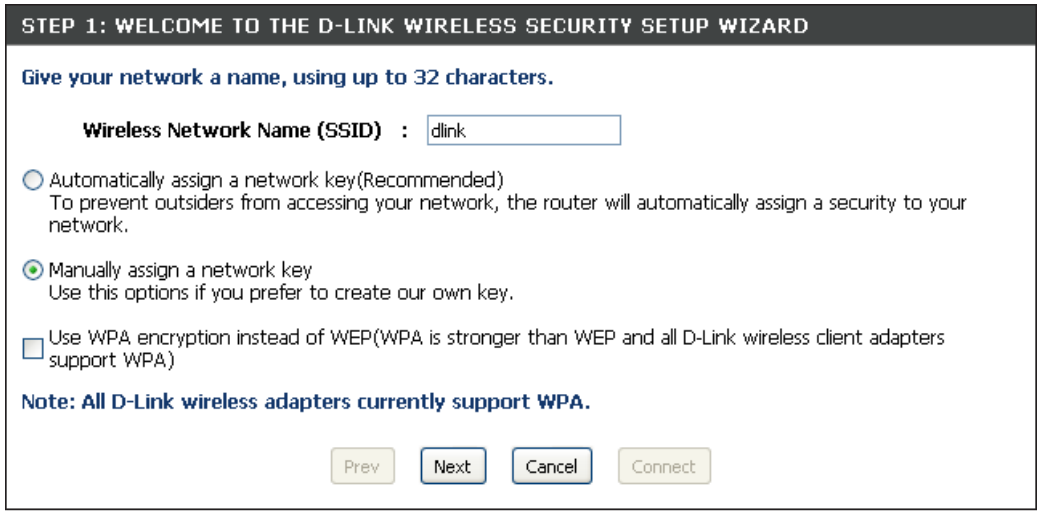

If you selected **Automatically**, the summary window will display your settings. Write down the security key and enter this on your wireless clients. Click **Save** to save your settings.



If you selected **Manually assign a network key** as the configuration method, enter your network key. This key must be entered on your wireless clients.

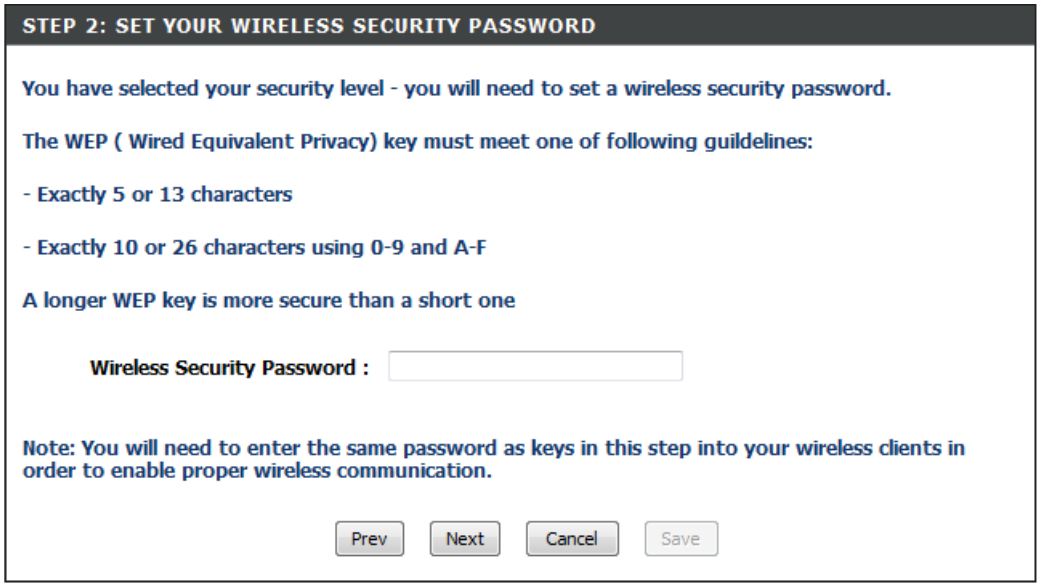
Check the **Use WPA encryption instead of WEP** box to use WPA Encryption instead of WEP.

Click **Next** to continue.



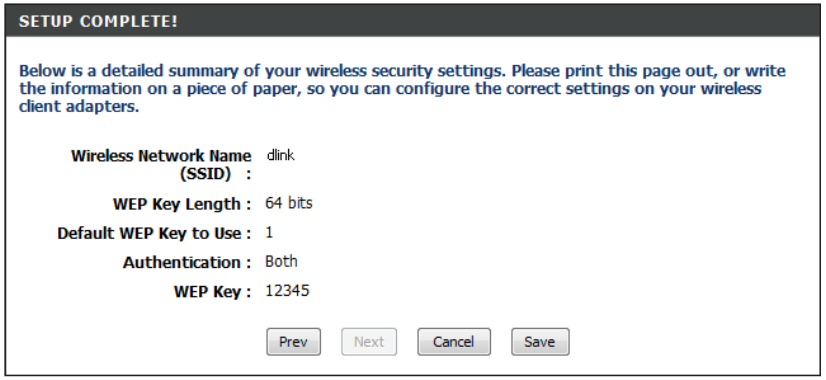

For **WEP** encryption, enter a Network Key exactly 5 or 13 characters long or exactly 10 or 26 characters using 0-9 and A-F.

Click **Next** to continue.



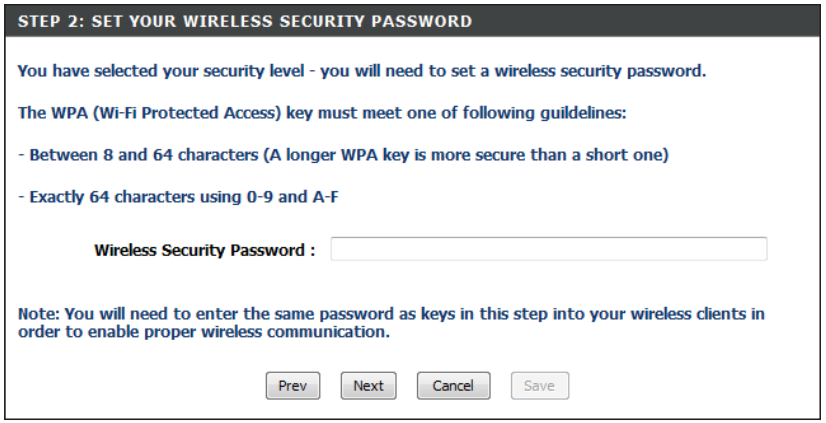
The summary screen will appear.

Click **Save** to continue.



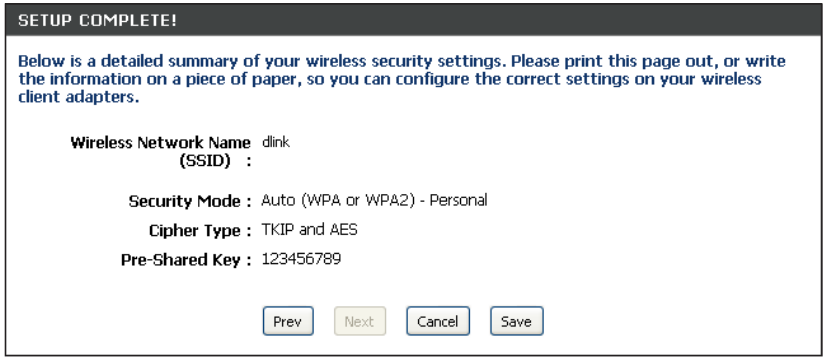

If you select **WPA**, enter the wireless security password (8-32 characters). Click **Next** to complete the Setup Wizard.

Click **Next** to continue.

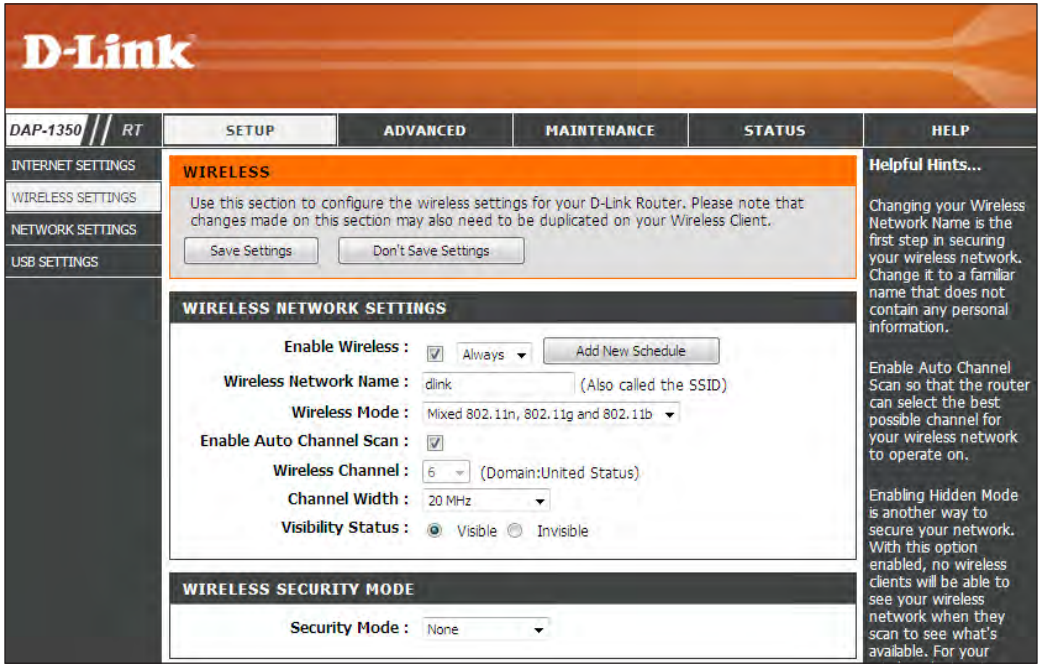



The summary screen will appear.

Click **Save** to continue.



# Wireless Settings




**Enable Wireless:** Select this to turn the Wi-Fi module on and off. Use the drop-down box to select if you want to use a schedule. Click **Add New Schedule** to add or change a schedule.

**Wireless Network Name:** Enter a wireless network name (SSID) for your network (up to 32 characters).

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

**Enable Auto Channel Scan:** Check this box to have the device automatically scan for the best available channel.

**Wireless Channel:** Select a wireless channel. It is recommended to use channels 1,6, or 11.

**Channel Width:** Select the appropriate channel width between **20MHz** or **Auto 20/40MHz** from the drop-down menu.

**Visibility Status:** Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DAP-1350. If Invisible is selected, the SSID of the DAP-1350 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DAP-1350 in order to connect to it.

**Wireless Security Mode:** Select a wireless security setting. Options are None, WEP, WPA, or WPA2. Refer to the **Wireless Security** section of this manual for a detailed explanation of the wireless security options.

# Network Settings

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

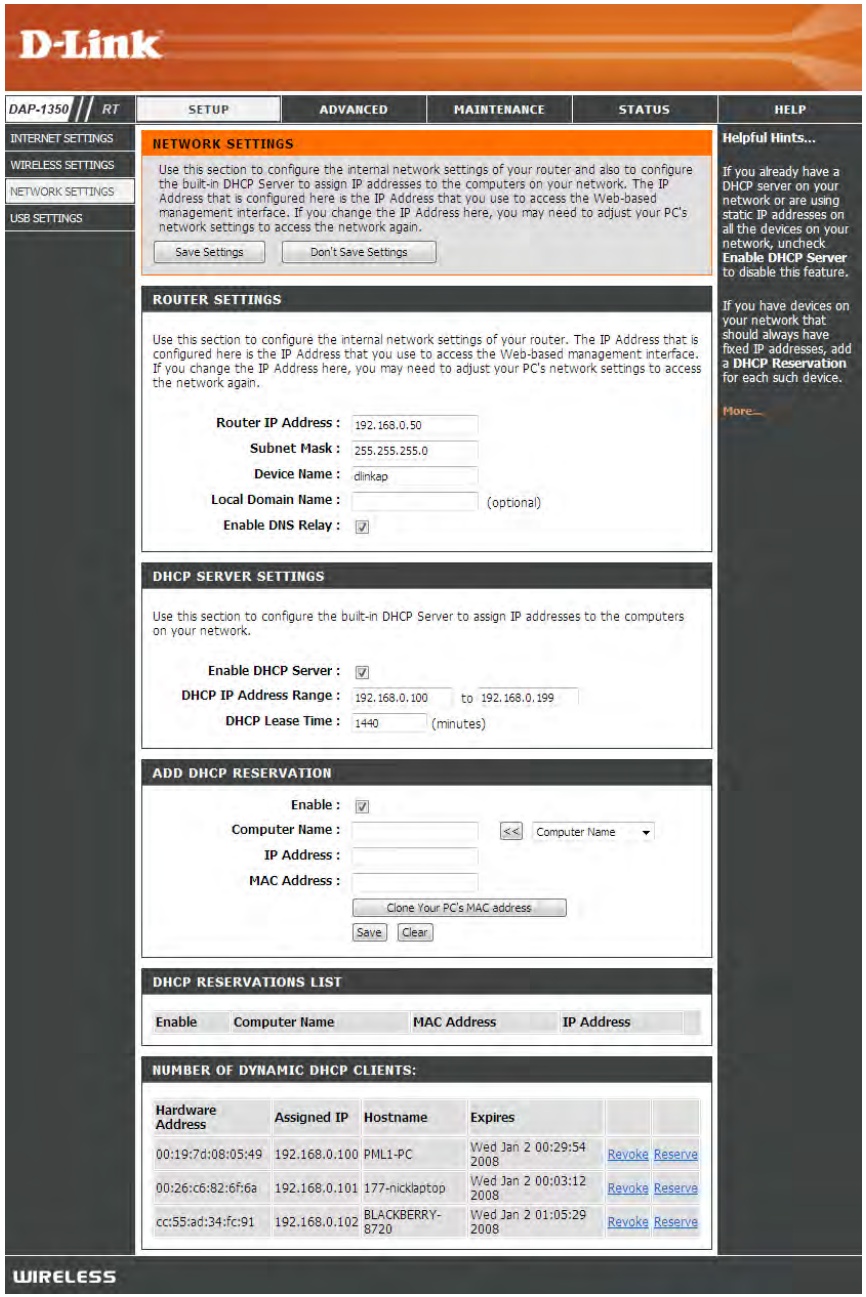
If you change the IP address, once you click **Apply**, you will need to enter the new IP address in your browser to get back into the configuration utility.

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

**Device Name:** Enter a name for the DAP-1350.

**Local Domain:** Enter the Domain name (Optional).

**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.



# DHCP Server Settings

DHCP stands for Dynamic Host Control Protocol. The DAP-1350 has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to "Obtain an IP Address Automatically." When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DAP-1350. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

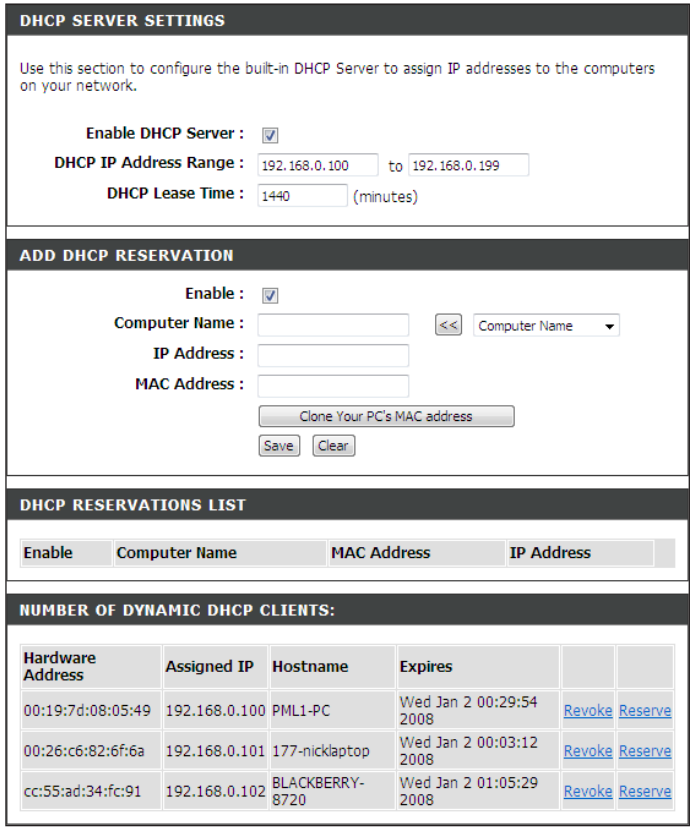
**Enable DHCP Server:** Check this box to enable the DHCP server on your router. Uncheck to disable this function.

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

**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.

**Add DHCP Reservation:** Refer to the next page for the DHCP Reservation function.



# DHCP Reservation

If you want a computer or device to always have the same IP address assigned, you can create a DHCP reservation. The router will assign the IP address only to that computer or device.

**Note:** This IP address must be within the DHCP IP Address Range.

**Enable:** Check this box to enable the reservation.

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

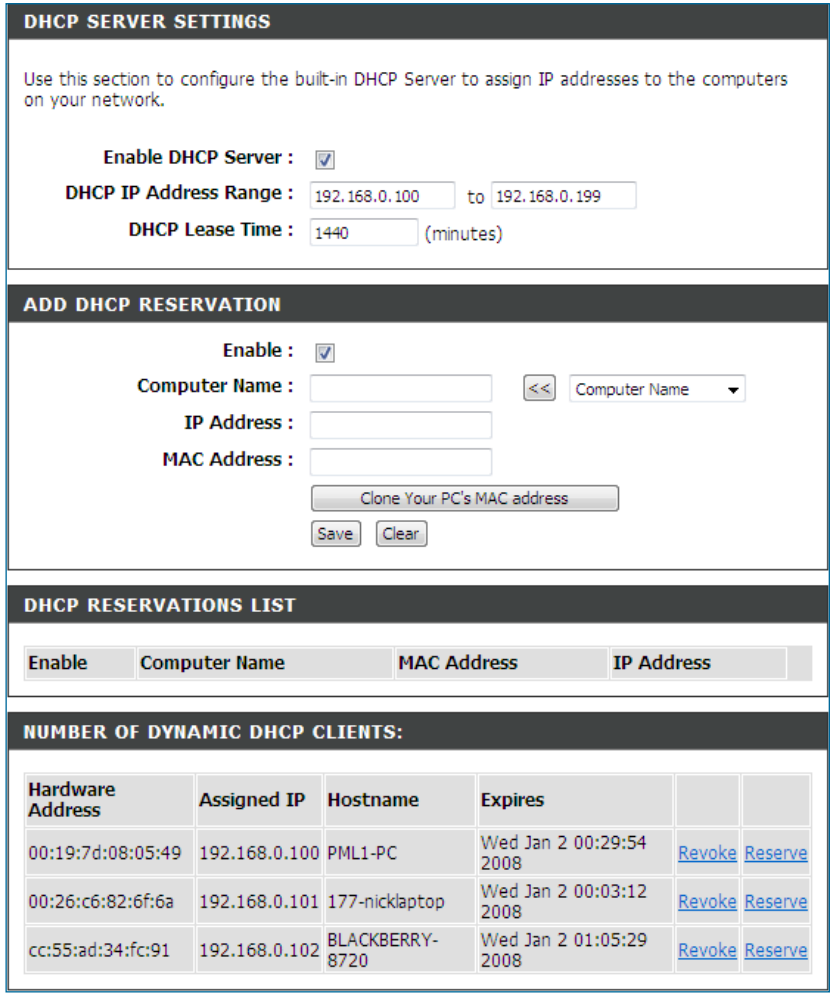
**IP Address:** Enter the IP address you want to assign to the computer or device. This IP Address must be within the DHCP IP Address Range.

**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.

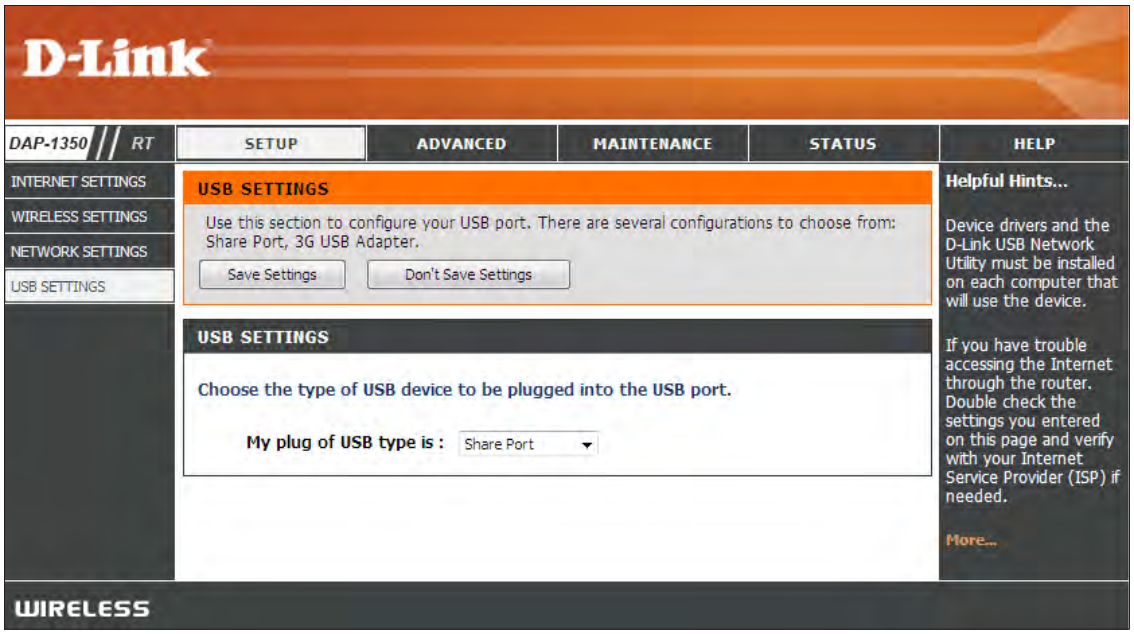
**Number of Dynamic DHCP Clients:** In this section you can see what LAN devices are currently leasing IP addresses.



# USB Settings

Use this section to configure your USB port. Share Port will be selected.

***Note:*** *If using the SharePort option, users will need to install the SharePort Utility into the computers to share the USB device through the router. Please see the SharePort Manual on the CD for more information.*




***Note:*** *The USB port may be used for 3G adapters. Currently only D-Link's 3G cards will be supported.*

# Virtual Server

The DAP-1350 can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP address can be automatically redirected to local servers in the LAN (Local Area Network).

The DAP-1350 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DAP-1350 are invisible to the outside world. If you wish, you can make some of the LAN computers accessible from the Internet by enabling Virtual Server. Depending on the requested service, the DAP-1350 redirects the external service request to the appropriate server within the LAN network.

The DAP-1350 is also capable of port-redirection meaning incoming traffic to a particular port may be redirected to a different port on the server computer.

Each virtual service that is created will be listed at the bottom of the screen in the Virtual Servers List. There are pre-defined virtual services already in the table. You may use them by enabling them and assigning the server IP to use that particular virtual service.

For a list of ports for common applications, please visit **http://www.dlink.com/support/faq/?prod_id=1191**.

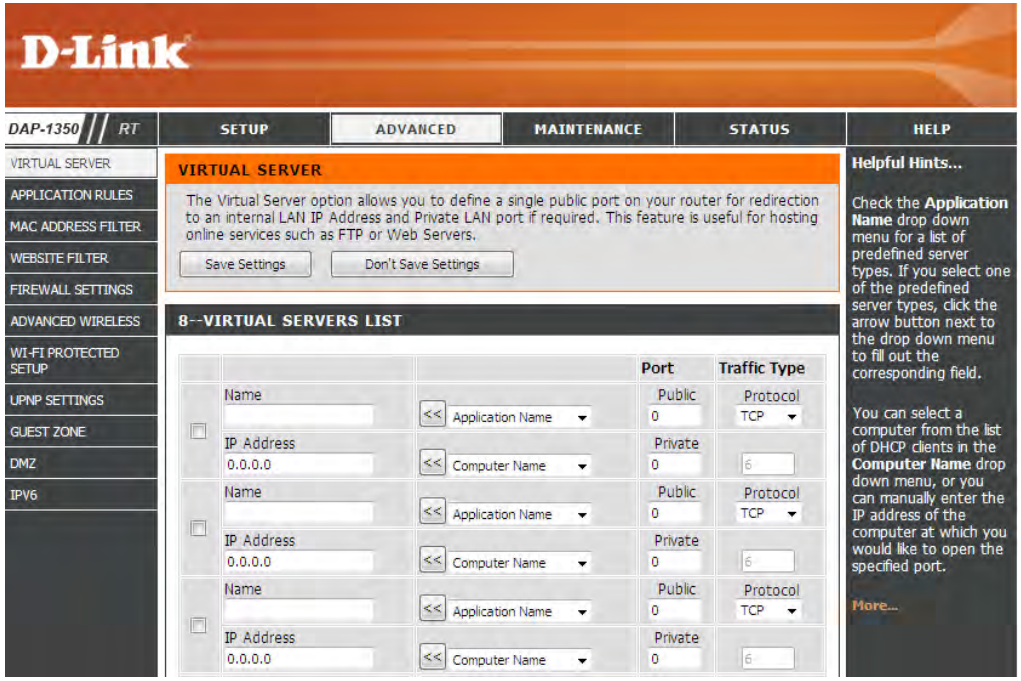
This will allow you to open ports (port forwarding).

**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), you computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <<.

**Private Port/ Public Port:** Enter the port that you want to open next to Private Port and Public Port. The private and public ports are usually the same. The public port is the port seen from the Internet side, and the private port is the port being used by the application on the computer within your local network.

**Protocol Type:** Select **TCP**, **UDP**, **Both**, or **Other** from the drop-down menu.



# Application Rules

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DAP-1350. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the firewall (public) ports associated with the trigger port to open them for inbound traffic.

The DAP-1350 provides some predefined applications in the table on the bottom of the web page. Select the application you want to use and enable it.

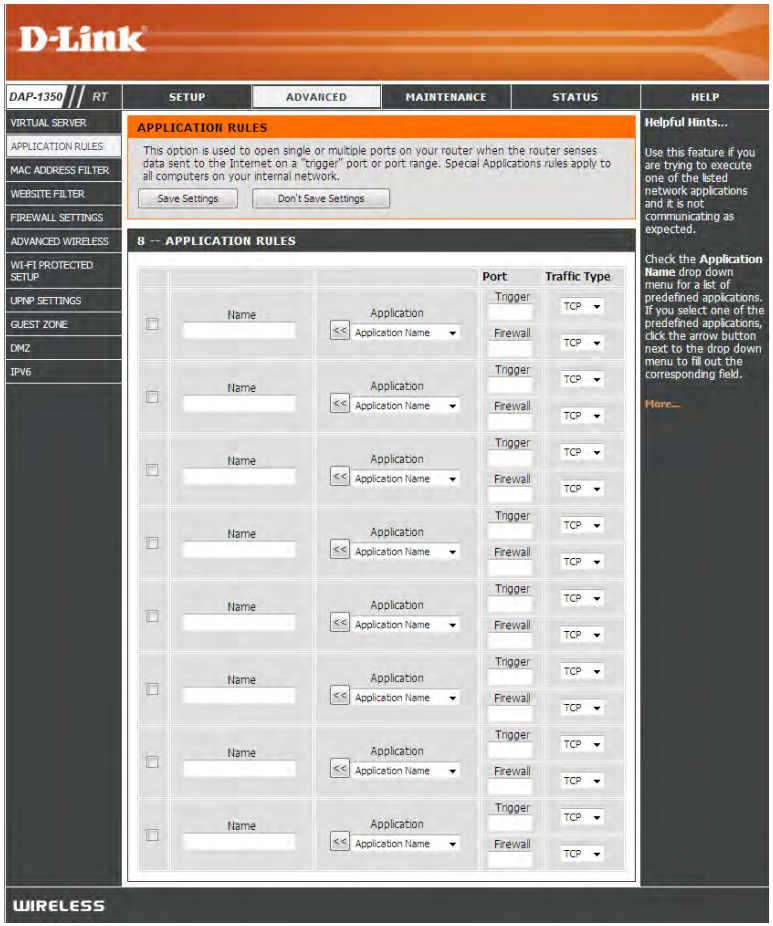
**Name:** Enter a name for the rule. You may select a pre-defined application from the drop-down menu and click <<.

**Trigger:** This is the port used to trigger the application. It can be either a single port or a range of ports.

**Traffic Type:** Select the protocol of the trigger port (TCP, UDP, or Both).

**Firewall:** This is the port number on the Internet side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

**Traffic Type:** Select the protocol of the firewall port (TCP, UDP, or Both).



# MAC Address Filter

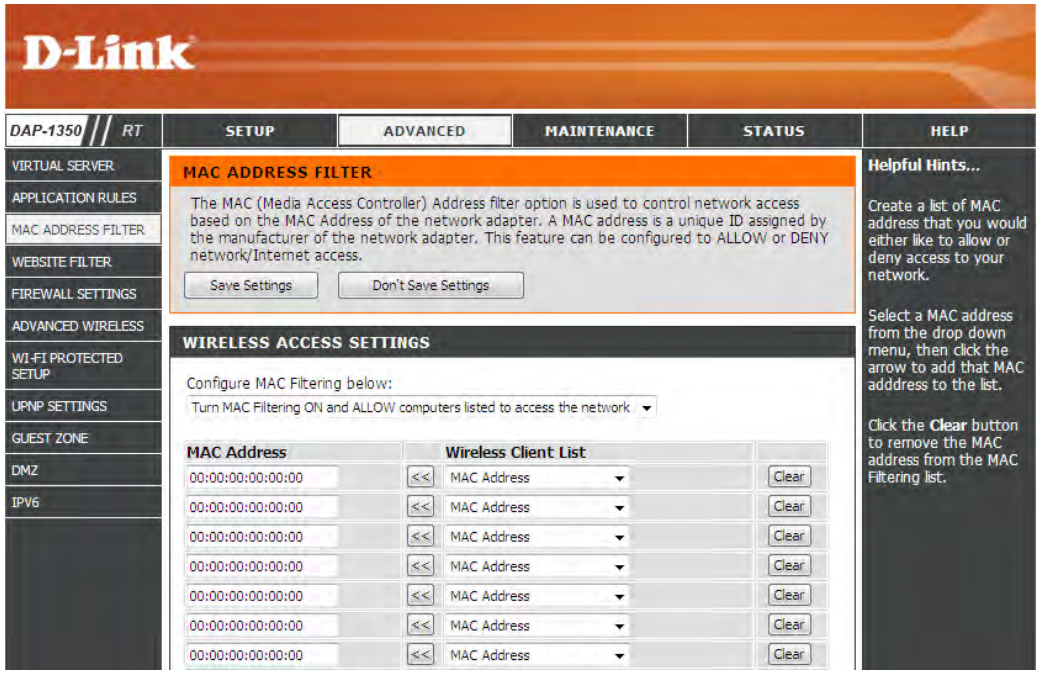
Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Network. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

**MAC Address Filter:** When **Disable** is selected, MAC addresses are not used to control network access.
When **Turn MAC Filtering ON and ALLOW computers listed...** is selected, only computers with MAC addresses listed in the MAC Address List are granted network access.
When **Turn MAC Filtering ON and DISALLOW computers listed...** is selected, any computer with a MAC address listed in the MAC Address List is refused access to the network.

**MAC Address:** Enter the MAC address you would like to filter.
You can select a client currently connected to your access point from the **Wireless Client List** drop-down menu and then click **<<** to populate the MAC Address field.

Click **Save Settings** to activate and save.

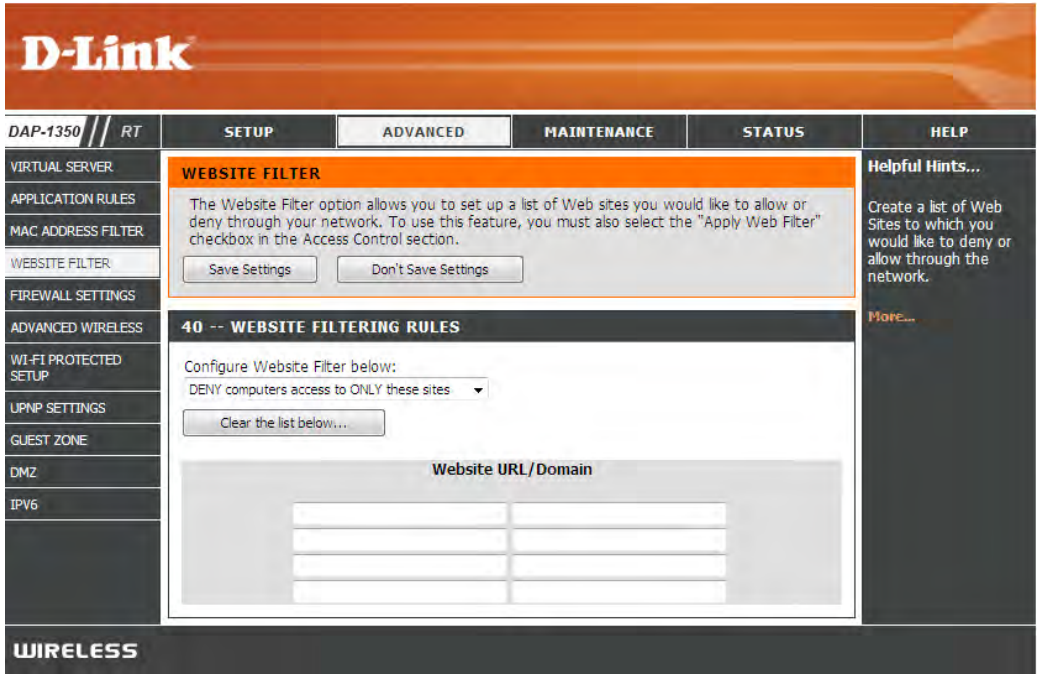
**Clear:** Click to remove the client from the MAC address filter rule.



# Website Filters

Website Filters are used to deny LAN computers from accessing specific web sites by the URL or domain. A URL is a specially formatted text string that defines a location on the Internet. If any part of the URL contains the blocked word, the site will not be accessible and the web page will not display. To use this feature, enter the text string to be blocked and click **Save Settings**. The text to be blocked will appear in the list. To delete the text, click **Clear the List Below**.

**Website URL/ Domain:** Enter the keywords or URLs that you want to block (or allow). Any URL with the keyword in it will be blocked.



# Firewall Settings

A firewall protects your network from the outside world. The D-Link DAP-1350 offers a firewall type functionality. The SPI feature helps prevent cyber attacks. Sometimes you may want a computer exposed to the outside world for certain types of applications. If you choose to expose a computer, you can enable DMZ. DMZ is short for Demilitarized Zone. This option will expose the chosen computer completely to the outside world.

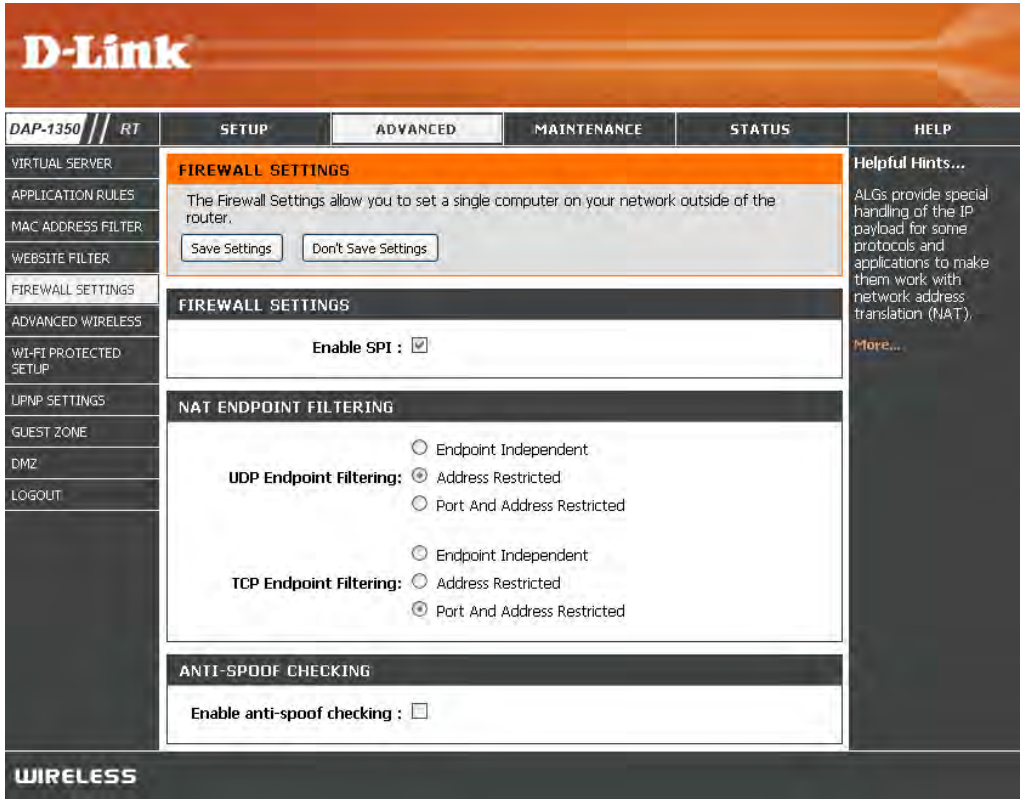
**Enable SPI:** SPI (Stateful Packet Inspection, also known as dynamic packet filtering) helps to prevent cyber attacks by tracking more state per session. It validates that the traffic passing through the session conforms to the protocol.

**NAT Endpoint Filtering:** Select one of the following for TCP and UDP ports:

**Endpoint Independent** - Any incoming traffic sent to an open port will be forwarded to the application that opened the port. The port will close if idle for 5 minutes.

**Address Restricted** - Incoming traffic must match the IP address of the outgoing connection.

**Address + Port Restriction** - Incoming traffic must match the IP address and port of the outgoing connection.



# Advanced Wireless Settings

**Transmit Power:** Sets the transmit power of the antennas.

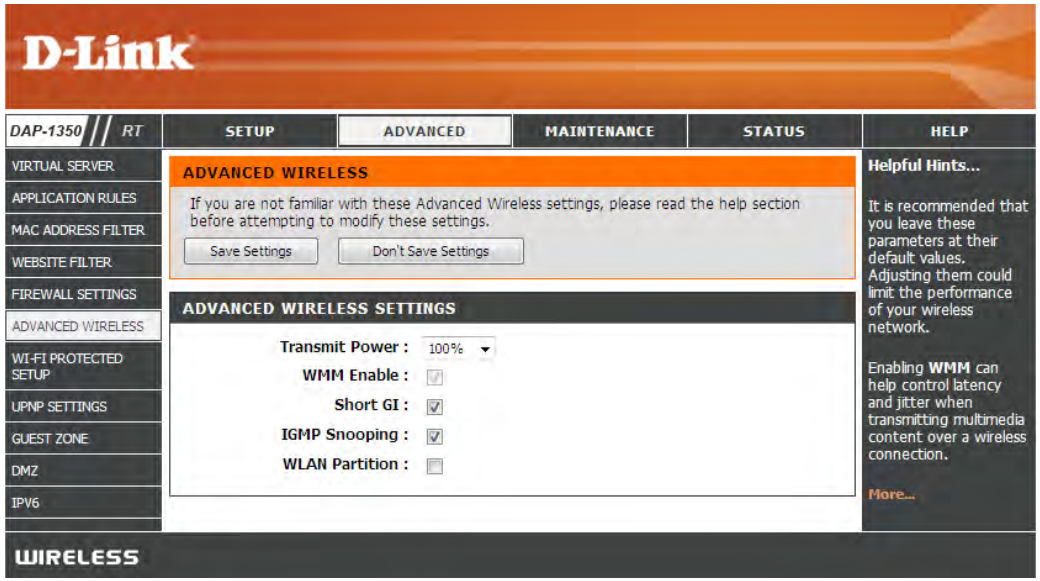
**Note:** Transmit power is regulated by international standard. Users are forbidden to change its maximum limit.

**WMM Enable:** WMM is QoS for your wireless network. This 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, it's less reliable and may create higher data loss.

**IGMP Snooping:** This enables IGMP snooping for the wireless connection. We recommend enabling this if you often use multicast services such as video conferencing and streaming audio/video.

**WLAN Partition:** Check to enable WLAN Partition.



# Wi-Fi Protected Setup

Wi-Fi Protected Setup (WPS) System is a simplified method for securing your wireless network during the "Initial setup" as well as the "Add New Device" processes. The Wi-Fi Alliance (WFA) has certified it across different products as well as manufactures. The process is just as easy, as depressing a button for the Push-Button Method or correctly entering the 8-digit code for the Pin-Code Method. The time reduction in setup and ease of use are quite beneficial, while the highest wireless Security setting of WPA2 is automatically used.

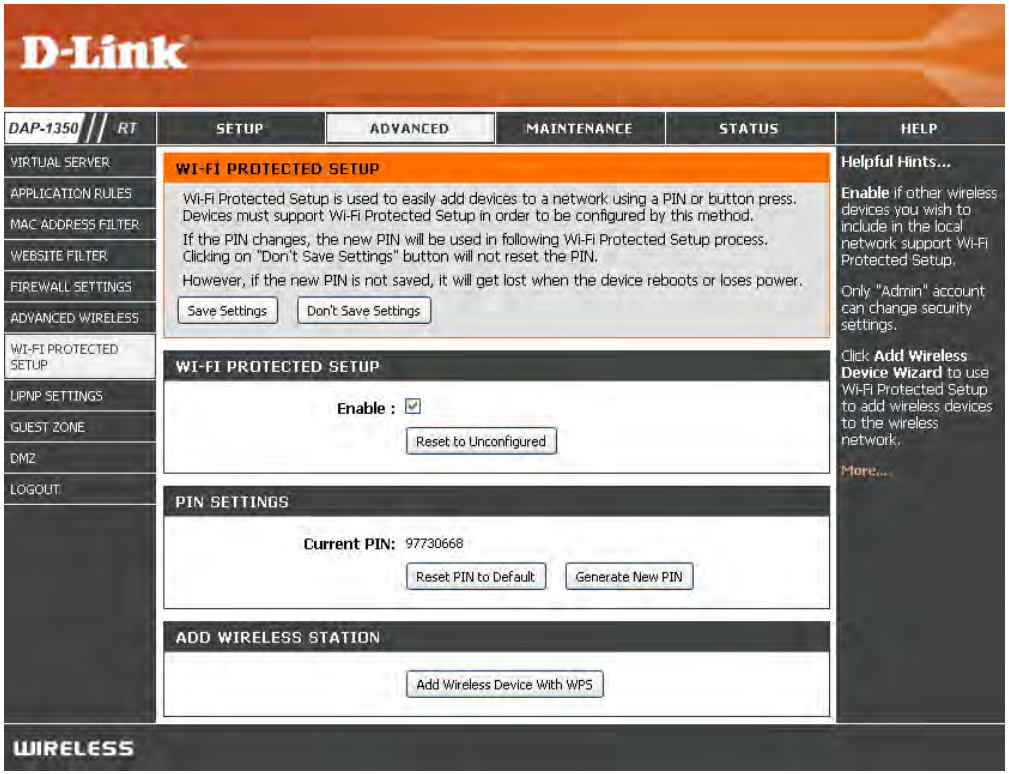
**Enable:** Enable the Wi-Fi Protected Setup feature.

**Lock Wireless Security Settings:** Locking the wireless security settings prevents the settings from being changed by the Wi-Fi Protected Setup feature of the router. Devices can still be added to the network using Wi-Fi Protected Setup. However, the settings of the network will not change once this option is checked.

**PIN Settings:** A PIN is a unique number that can be used to add the router to an existing network or to create a new network. The default PIN may be printed on the bottom of the router. For extra security, a new PIN can be generated. You can restore the default PIN at any time. Only the Administrator ("admin" account) can change or reset the PIN.

**Current PIN:** Shows the current value of the router's PIN.

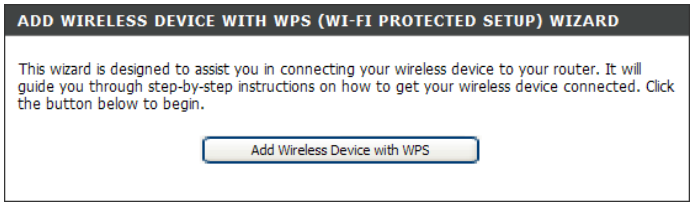
**Reset PIN to Default:** Restore the default PIN of the router.




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

# Add Wireless Device with WPS Wizard

From the **Setup** > **Wireless Settings** screen, click **Add Wireless Device with WPS**.

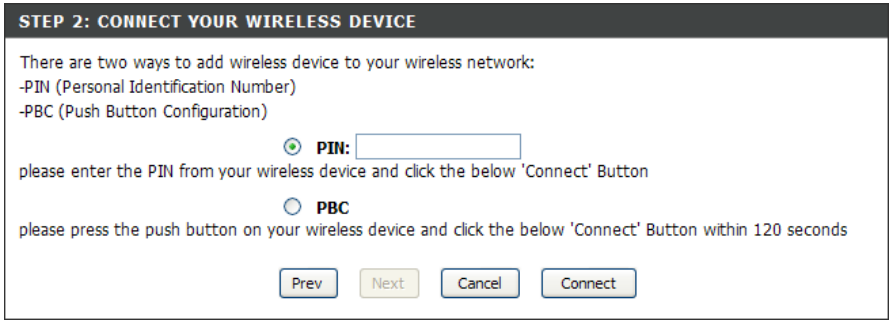



Select **Auto** to add a wireless client using WPS (Wi-Fi Protected Setup). Once you select **Auto** and click **Connect**, you will have a 120 second time limit to apply the settings to your wireless client(s) and successfully establish a connection.

If you select **Manual**, a settings summary screen will appear. Write down the security key and enter this on your wireless clients.

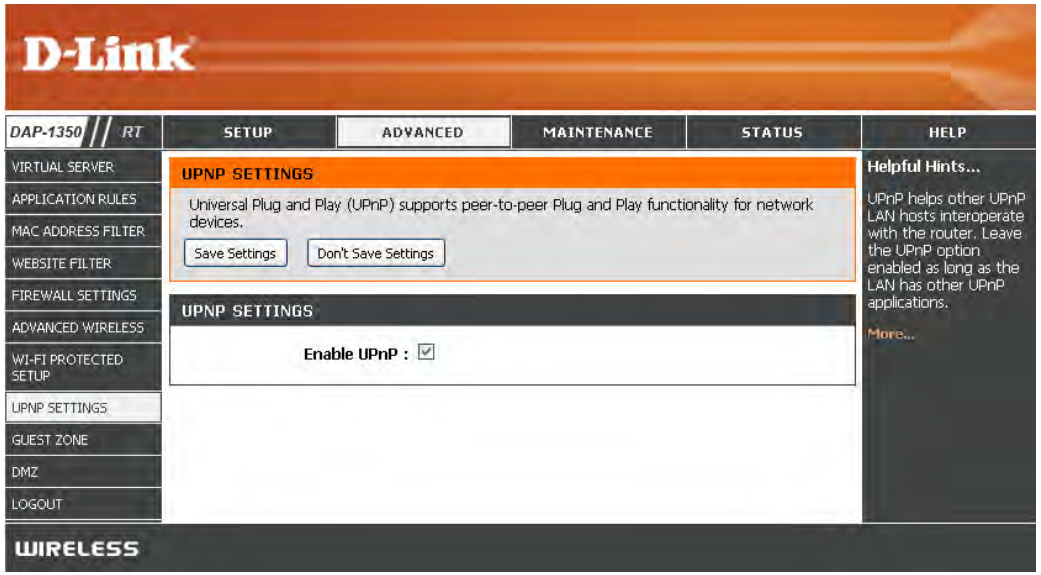

**PIN:** Select this option to use PIN method. In order to use this method you must know the wireless client's 8 digit PIN and click **Connect**.

**PBC:** Select this option to use PBC (Push Button) method to add a wireless client. Click **Connect**.



# UPnP Settings

**UPnP Settings:** To use the Universal Plug and Play (UPnP™) feature click on **Enabled**. UPnP provides compatibility with networking equipment, software and peripherals.



# Guest Zone

The Guest Zone feature will allow you to create temporary zones that can be used by guests to access the Internet. These zones will be separate from your main wireless network.

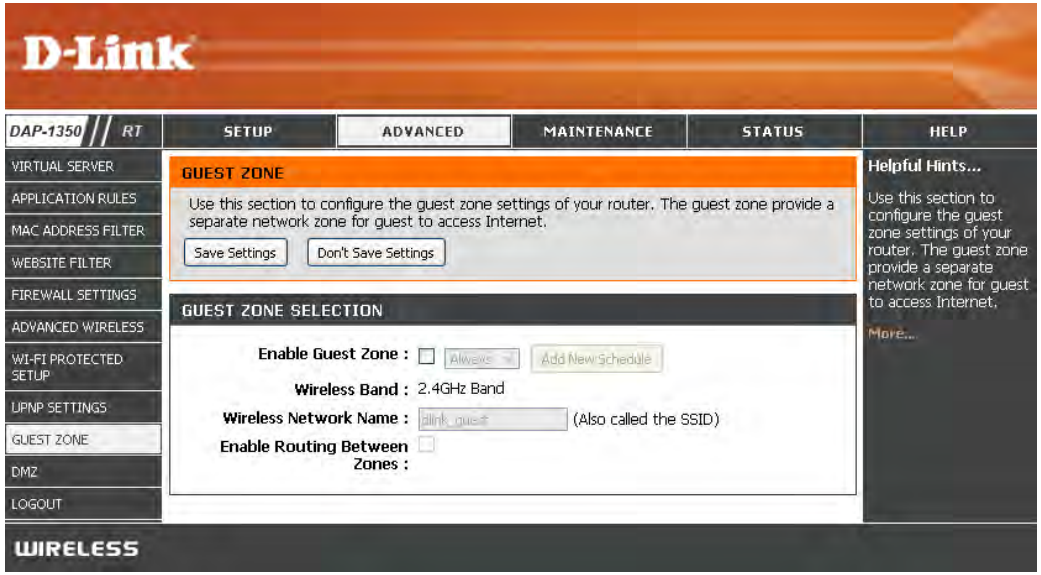
**Enable Guest Zone:** Check to enable the Guest Zone feature.

**Schedule:** The schedule of time when the Guest Zone will be active. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the **Tools** > **Schedules** section.

**Wireless Network Name:** Enter a wireless network name (SSID) that is different from your main wireless network.

**Enable Routing Between Zones:** Check to allow network connectivity between the different zones created.

**Security Mode:** Select the type of security or encryption you would like to enable for the guest zone.

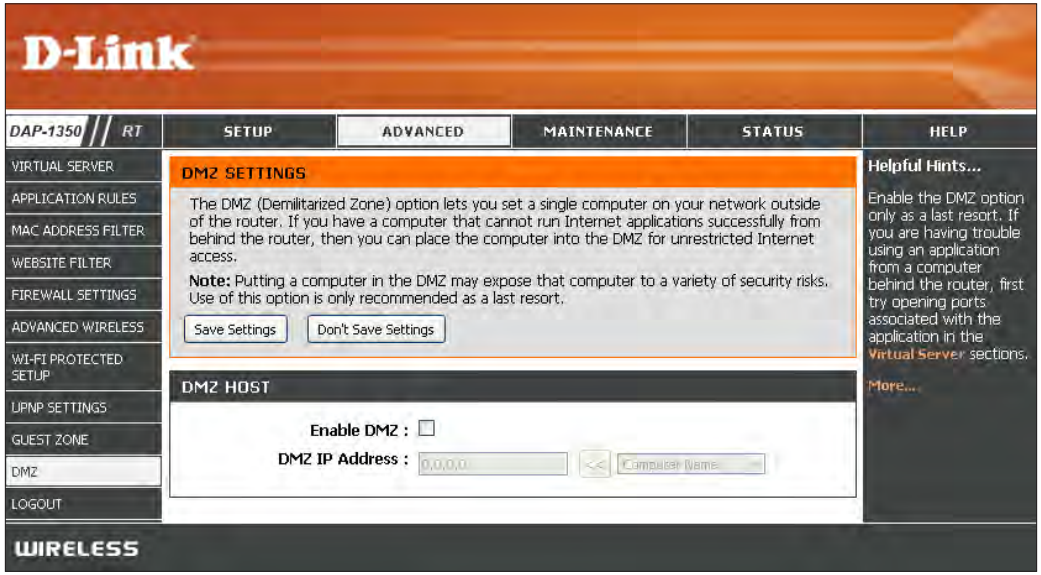


# DMZ

This feature allows you to set up a DMZ (Demilitarized Zone) host. If you have a client PC that cannot run Internet applications properly from behind the DAP-1350, then you can set the client up for unrestricted Internet access. The DMZ allows a computer to be exposed to the Internet. This feature is useful for gaming purposes. Enter the IP address of the computer that will be the DMZ host. Adding a client to the DMZ may expose your local network to a variety of security risks, so only use this option as a last resort.

**Enable DMZ:** Check this box to enable DMZ.

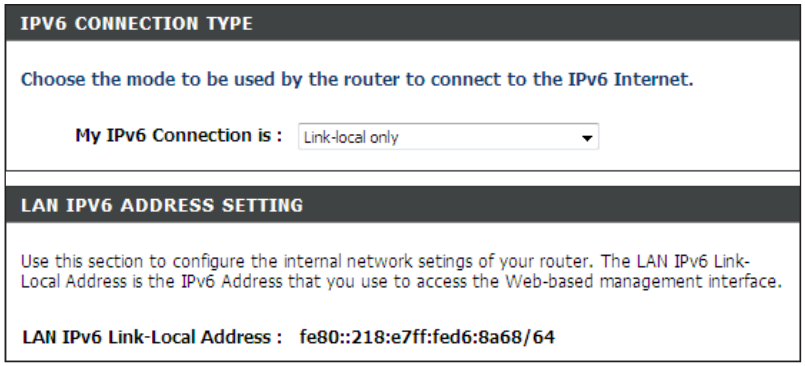
**DMZ Host IP Address:** Enter the IP address of the computer you would like to open all ports to. You can select a computer from the Computer Name drop-down menu and click << to enter the computer name into the DMZ Host IP Address field.



# IPV6 Settings

**My LAN Connection Is:** Select **Link-Local Only** from the drop-down menu.

**LAN IPV6 Settings:** Displays the IPv6 address of the router.




# Static IPv6 (Stateful)

**My IPv6 Connection:** Select **Static IPv6** from the drop-down menu.

**WAN IPv6 Address Settings:** Enter the address settings supplied by your Internet provider (ISP).

**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

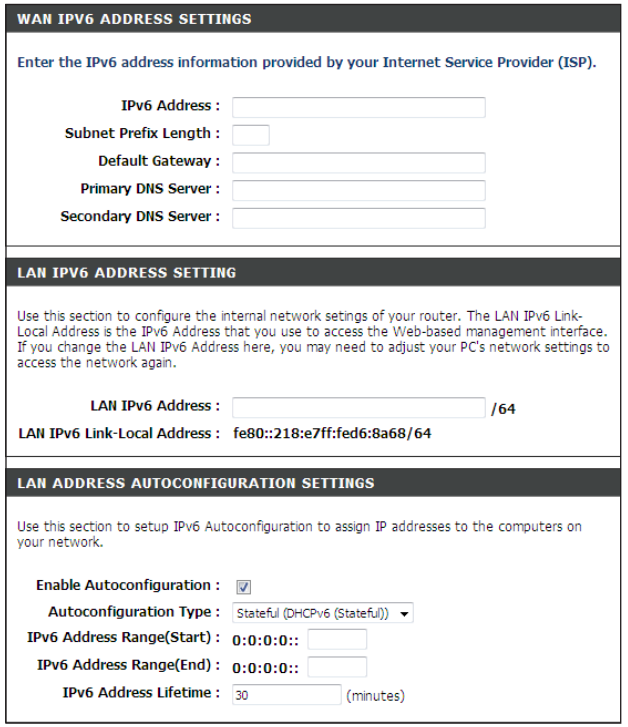
**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the **Autoconfiguration** feature.

**Autoconfiguration Type:** Select **Stateful (DHCPv6 (Stateful))**.

**IPv6 Address Range Start:** Enter the start IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Range End:** Enter the end IPv6 Address for the DHCPv6 range for your local computers.



# Static IPv6 (Stateless)

**My IPv6 Connection:** Select **Static IPv6** from the drop-down menu.

**WAN IPv6 Address Settings:** Enter the address settings supplied by your Internet provider (ISP).

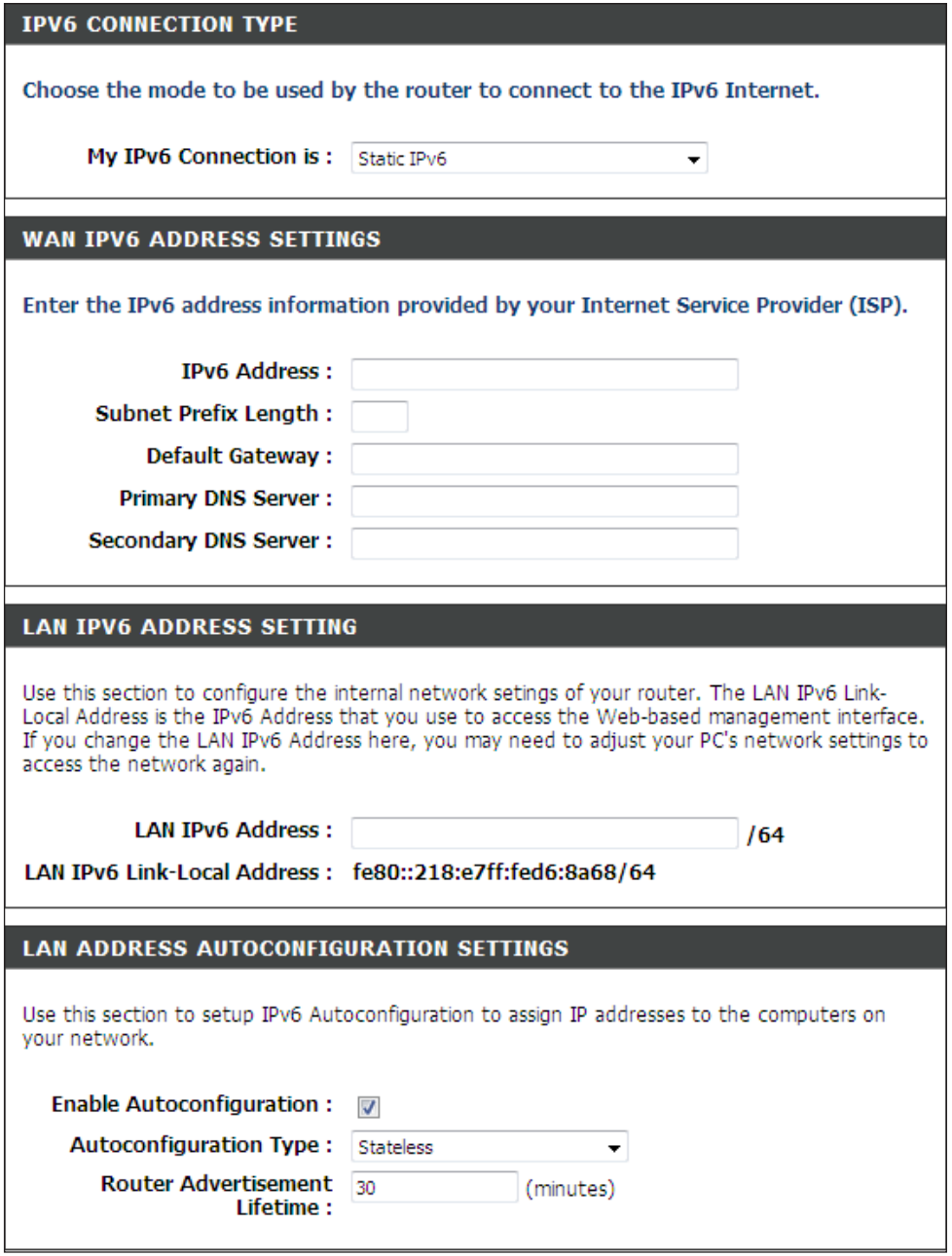
**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the **Autoconfiguration** feature.

**Autoconfiguration Type:** Select **Stateless**.

**Router Advertisement Lifetime:** Enter the Router Advertisement Lifetime (in minutes).



# Autoconfiguration IPv6 (Stateless)

**My IPv6 Connection:** Select **Autoconfiguration (Stateless/DHCPV6** from the drop-down menu.

**IPv6 DNS Settings:** Select **Obtain IPv6 DNS server address automatically**.

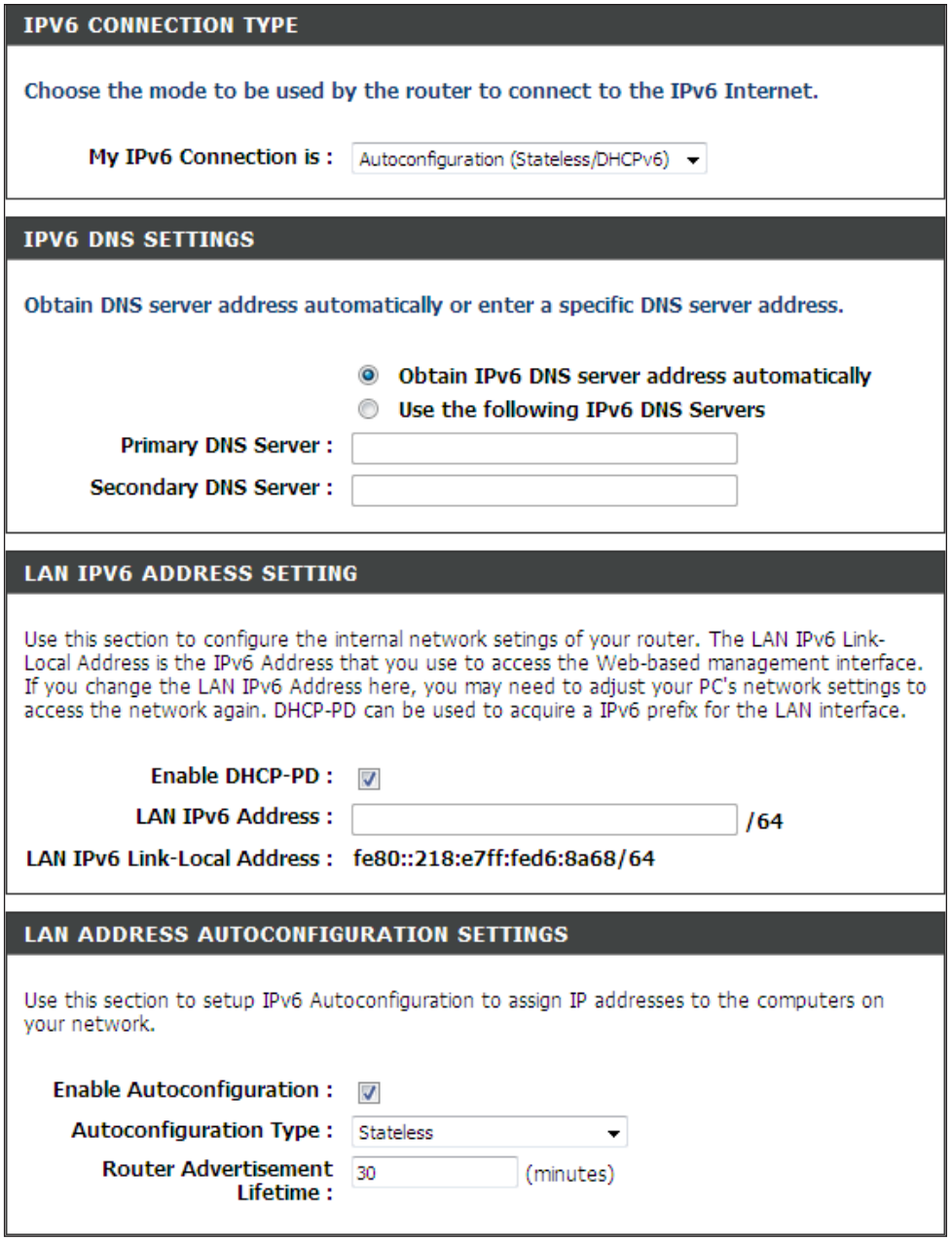
**LAN IPv6 Address:** Check the Enable DHCP-PD box to automatically acquire an IPv6 prefix for the LAN interface. Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the **Autoconfiguration** feature.

**Autoconfiguration Type:** Select **Stateless**.

**Router Advertisement Lifetime:** Enter the Router Advertisement Lifetime (in minutes).



# Autoconfiguration IPv6 (Stateful)

**My IPv6 Connection:** Select **Autoconfiguration (Stateless/DHCPV6** from the drop-down menu.

**IPv6 DNS Settings:** Select **Obtain IPv6 DNS server address automatically**.

**LAN IPv6 Address:** Check the Enable DHCP-PD box to automatically acquire an IPv6 prefix for the LAN interface. Enter the LAN (local) IPv6 address for the router.

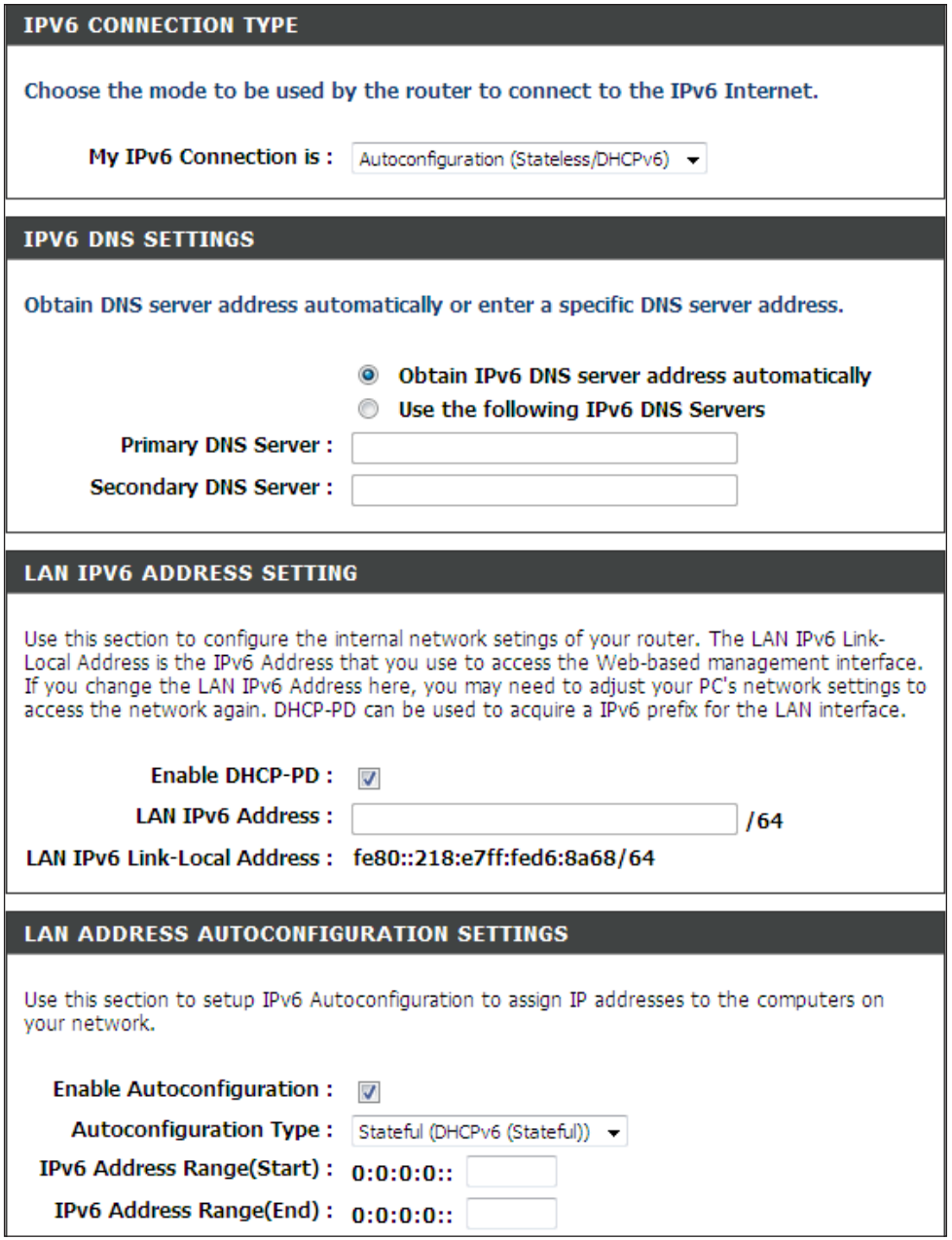
**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the **Autoconfiguration** feature.

**Autoconfiguration Type:** Select **Stateful (DHCPv6 (Stateful))**.

**IPv6 Address Range Start:** Enter the start IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Range End:** Enter the end IPv6 Address for the DHCPv6 range for your local computers.



# IPv6 over IPv4 Tunnel (Stateless)

**My IPv6 Connection:** Select **IPv6 over IPv4 Tunnel** from the drop-down menu.

**IPv6 in IPv4 Tunnel Settings:** Enter the settings supplied by your Internet provider (ISP).

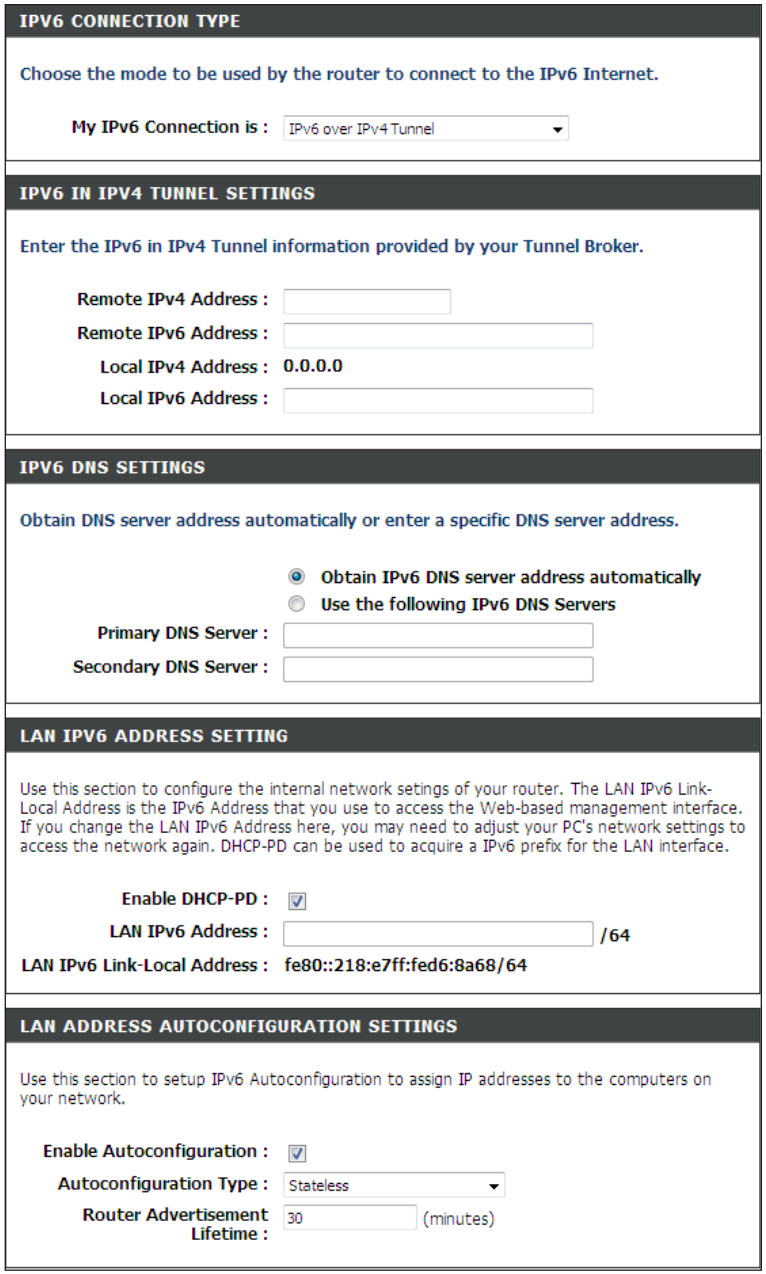
**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the **Autoconfiguration** feature.

**Autoconfiguration Type:** Select **Stateless**.

**Router Advertisement Lifetime:** Enter the Router Advertisement Lifetime (in minutes).



# IPv6 over IPv4 Tunnel (Stateful)

**My IPv6 Connection:** Select **IPv6 over IPv4 Tunnel** from the drop-down menu.

**IPv6 in IPv4 Tunnel Settings:** Enter the settings supplied by your Internet provider (ISP).

**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

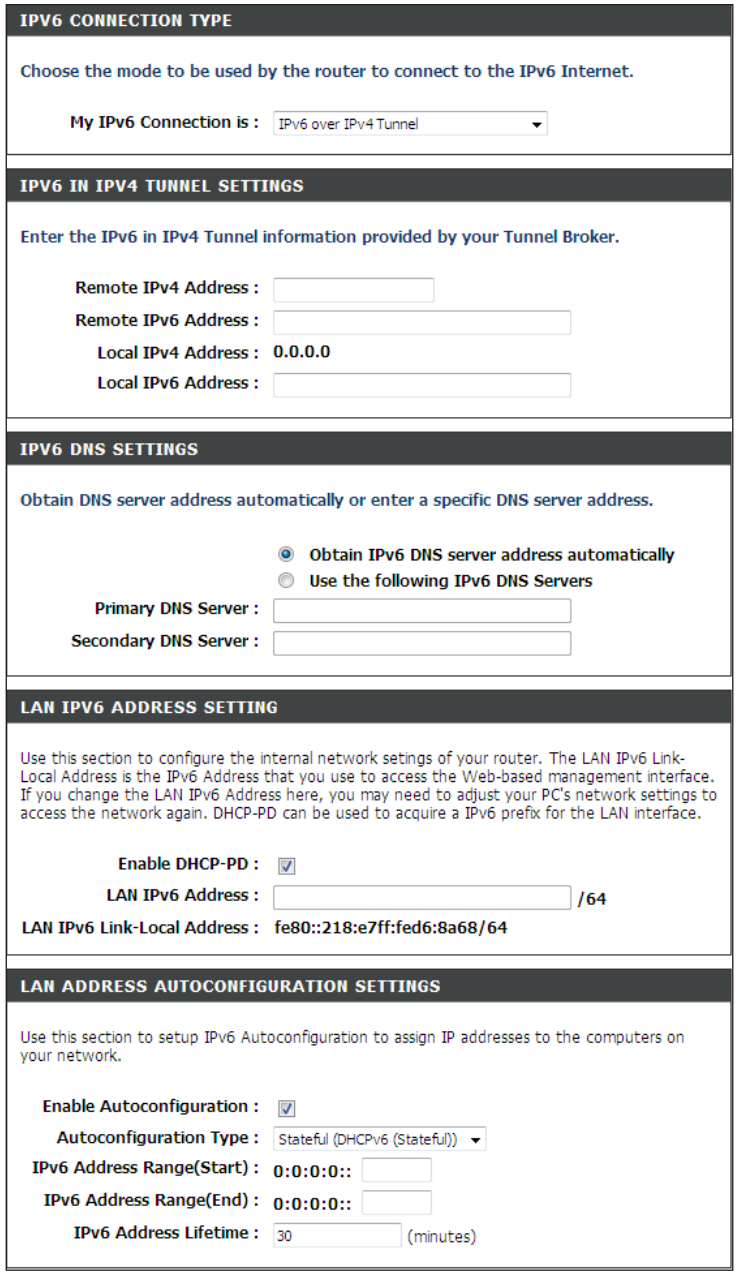
**Enable Autoconfiguration:** Check to enable the Autoconfiguration feature.

**Autoconfiguration Type:** Select **Stateful (DHCPv6 (Stateful))**.

**IPv6 Address Range Start:** Enter the start IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Range End:** Enter the end IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Lifetime:** Enter the IPv6 Address Lifetime (in minutes).



# 6 to 4 Tunneling (Stateless)

**My IPv6 Connection:** Select **6 to 4** from the drop-down menu.

**6 to 4 Settings:** Enter the IPv6 settings supplied by your Internet provider (ISP).

**Primary/Secondary DNS Address:** Enter the primary and secondary DNS server addresses.

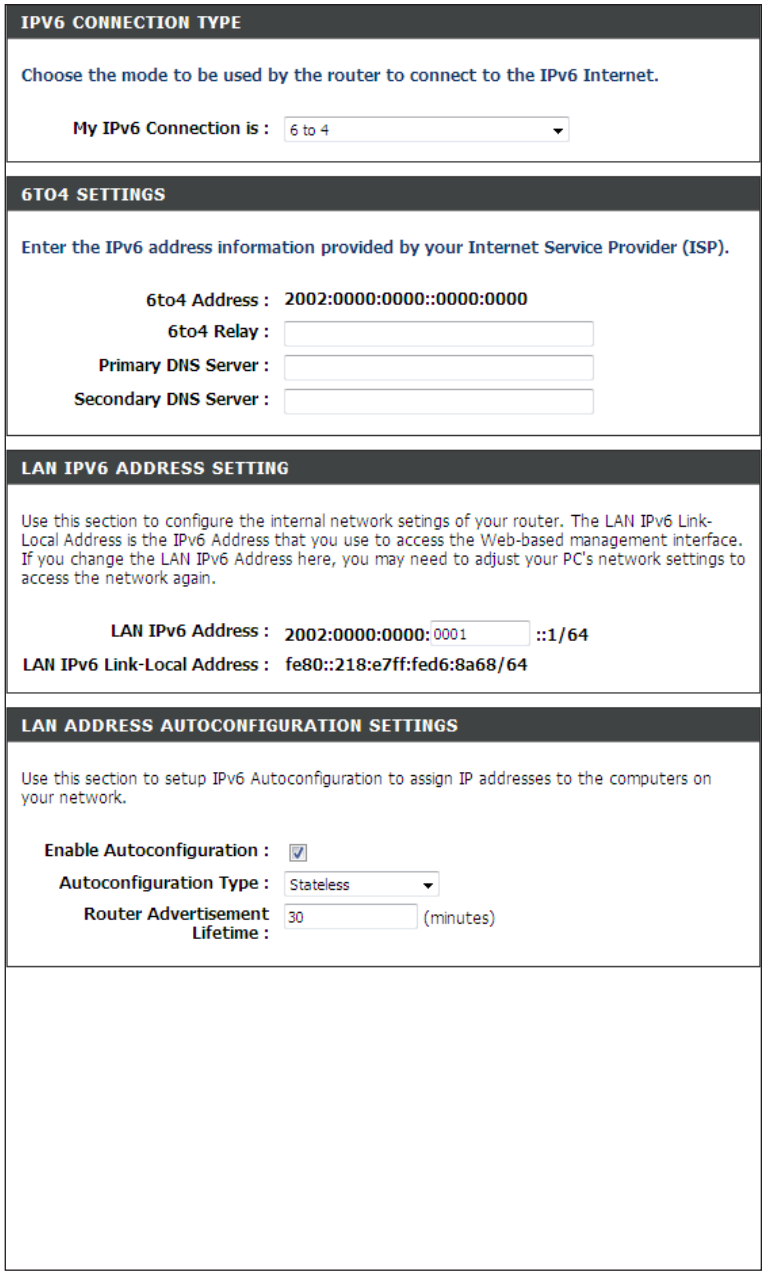
**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

**Enable Autoconfiguration:** Check to enable the Autoconfiguration feature.

**Autoconfiguration Type:** Select **Stateless**.

**Router Advertisement Lifetime:** Enter the Router Advertisement Lifetime (in minutes).



# 6 to 4 Tunneling (Stateful)

**My IPv6 Connection:** Select **6 to 4** from the drop-down menu.

**6 to 4 Settings:** Enter the IPv6 settings supplied by your Internet provider (ISP).

**Primary/Secondary DNS Address:** Enter the primary and secondary DNS server addresses.

**LAN IPv6 Address:** Enter the LAN (local) IPv6 address for the router.

**LAN Link-Local Address:** Displays the Router's LAN Link-Local Address.

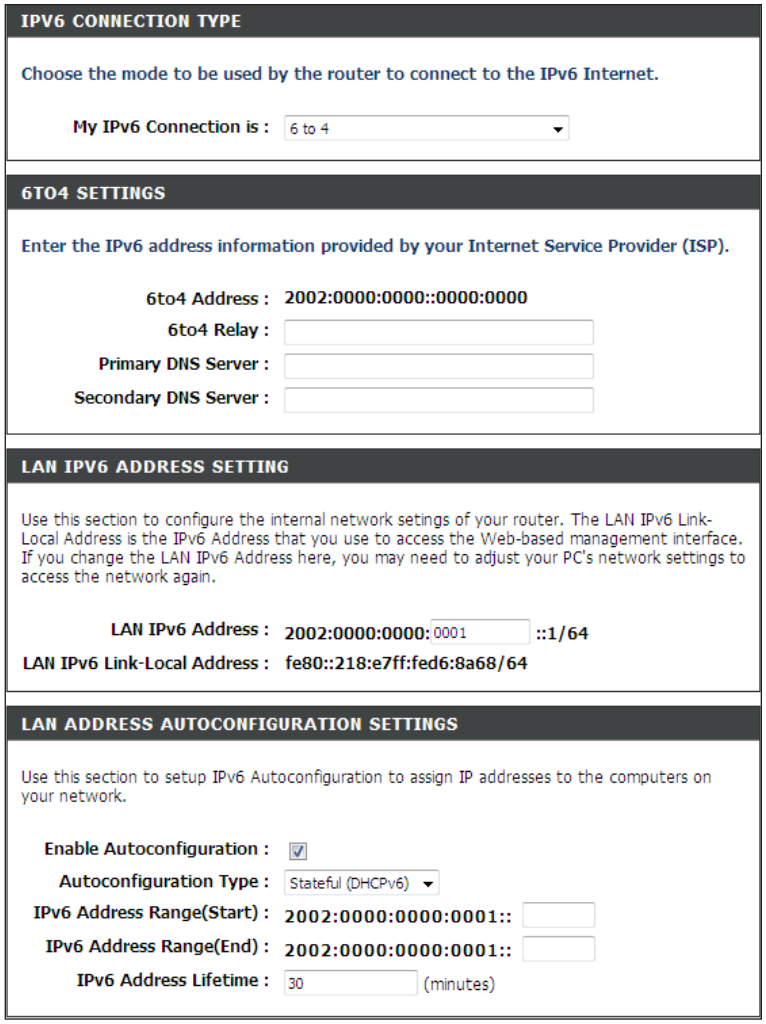
**Enable Autoconfiguration:** Check to enable the Autoconfiguration feature.

**Autoconfiguration Type:** Select **Stateful (DHCPv6)**.

**IPv6 Address Range Start:** Enter the start IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Range End:** Enter the end IPv6 Address for the DHCPv6 range for your local computers.

**IPv6 Address Lifetime:** Enter the IPv6 Address Lifetime (in minutes).



# Administrator Settings

This page will allow you to change the Administrator password. You can also enable Remote Management. There are two accounts that can access the management interface through the web browser.

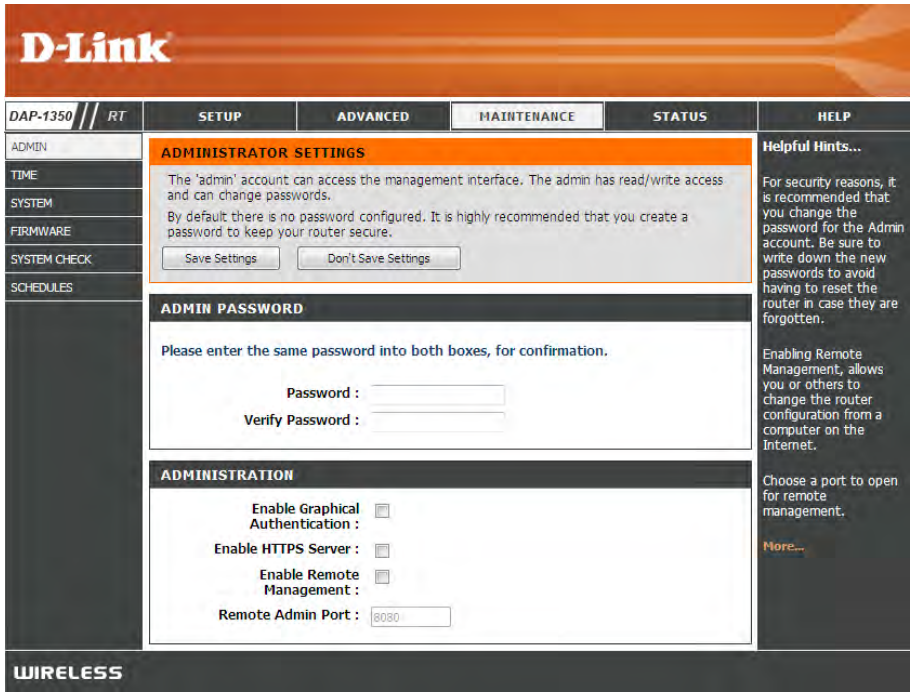
**Admin Password:** Enter a new password for the Administrator Login Name. The administrator can make changes to the settings.

**Enable Graphical Authentication:** Enables a challenge-response test to 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 router's network settings.

**Enable HTTPS Server:** Check to enable HTTPS to connect to the router securely.

**Remote Management:** Remote management allows the DAP-1350 to be configured from the Internet by a web browser. A username and password is still required to access the Web-Management interface. In general, only a member of your network can browse the built-in web pages to perform Administrator tasks. This feature enables you to perform Administrator tasks from the remote (Internet) host.

**Remote Admin Port:** The port number used to access the DAP-1350.



# Time Settings

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 and set the Time Server. Daylight Saving can also be configured to automatically adjust the time when needed.

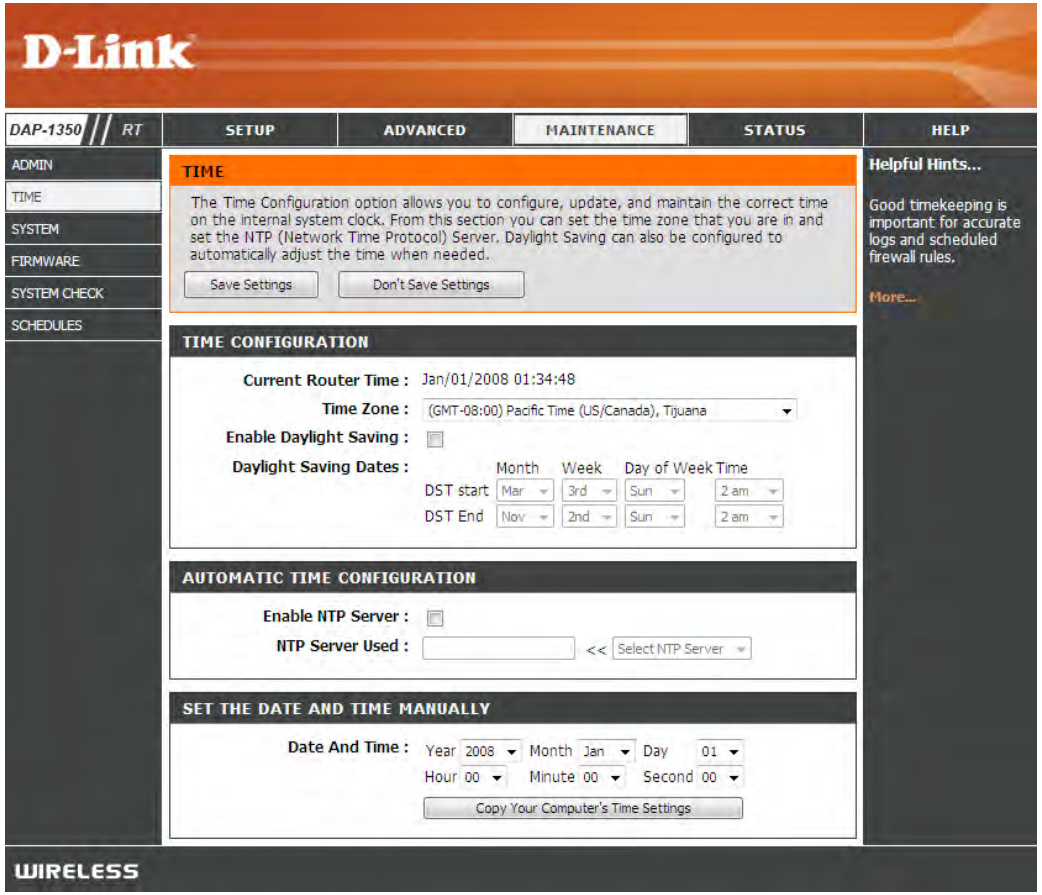
**Time Zone:** Select the Time Zone from the drop-down menu.

**Daylight Saving:** To select Daylight Saving time manually, select enabled or disabled, and 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.

**Manual:** To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second and then click **Set Time**. You can also click **Copy Your Computer's Time Settings**.



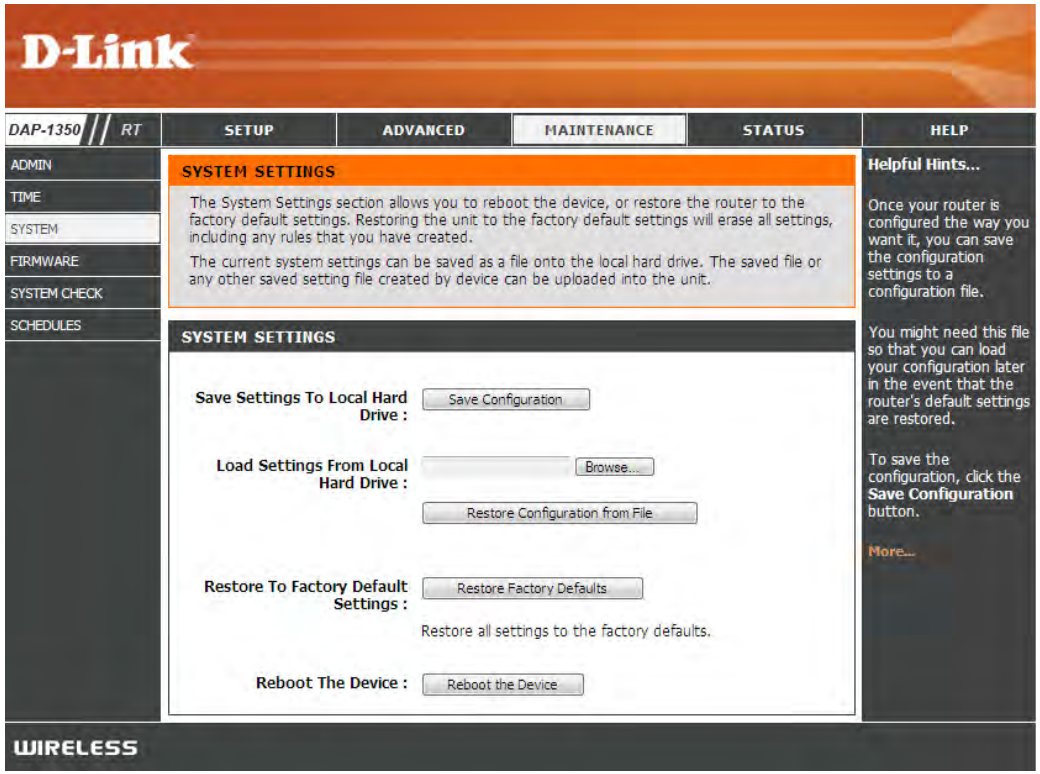
# System Settings

**Save Settings to Local Hard Drive:** Use this option to save the current router configuration settings to a file on the hard disk of the computer you are using. First, 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 router configuration settings. First, use the Browse control to find a previously save file of configuration settings. Then, click the **Restore Configuration from File** button to transfer those settings to the router.

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

**Reboot Device:** Click to reboot the router.



# Firmware Update

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

**Firmware Upgrade:** Click on **Check Now** to find out if there is an updated firmware; if so, download the new firmware to your hard drive.

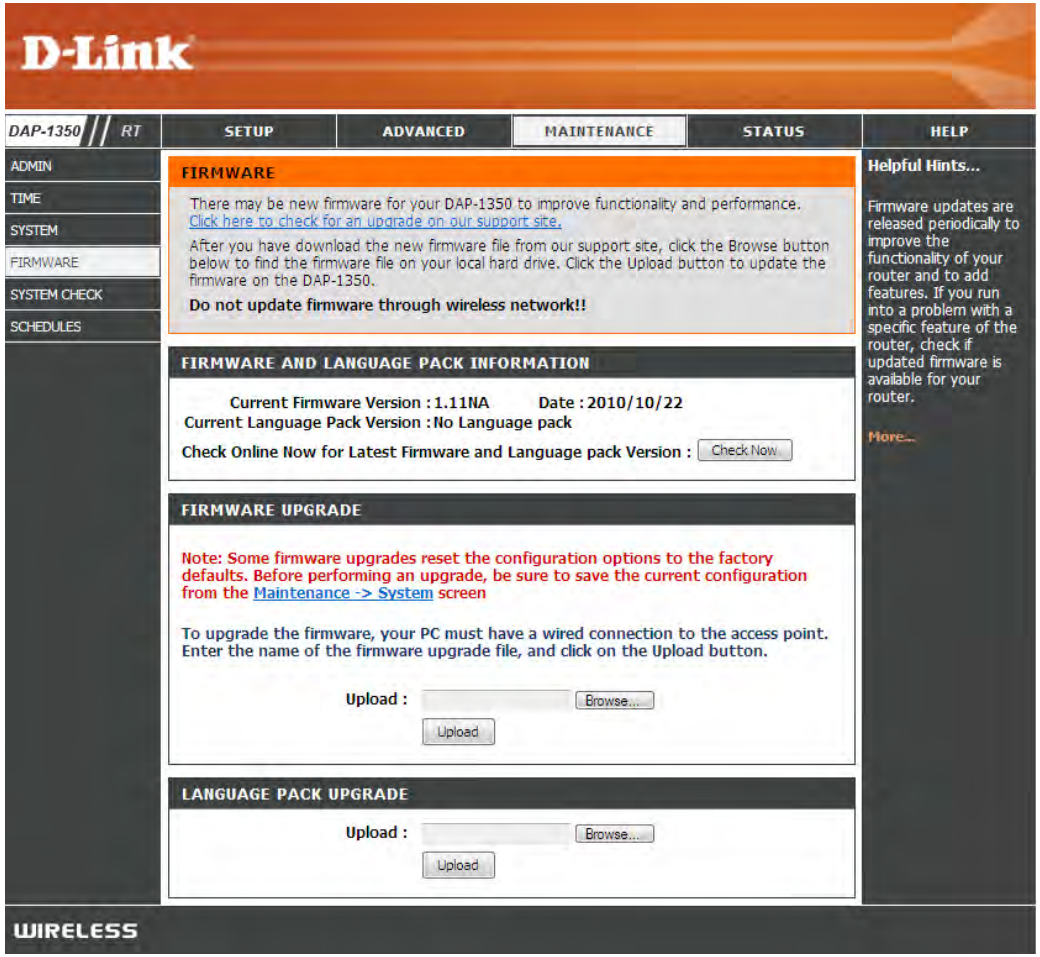
**Browse:** After you have downloaded the new firmware, click **Browse** to locate the firmware update on your hard drive. Click **Upload** to complete the firmware upgrade.

## Language Pack

You can change the language of the web UI by uploading available language packs.

**Browse:** After you have downloaded the new language pack, click **Browse** to locate the language pack file on your hard drive. Click **Upload** to complete the language pack upgrade.

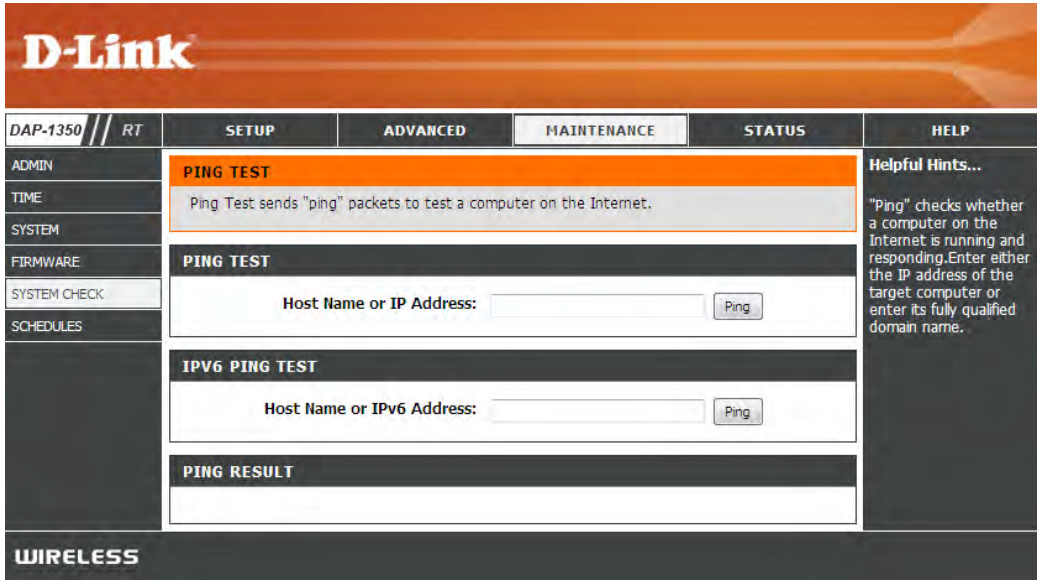
**Note:** In most cases you must unzip the file first before uploading.



# System Check

**Ping Test/IPv6 Ping Test:** The Ping Test is used to send Ping packets to test if a computer or device is on the Internet. Enter the IP Address that you wish to ping, and click **Ping**.

**Ping Result:** The results of your ping attempts will be displayed here.



# Schedules

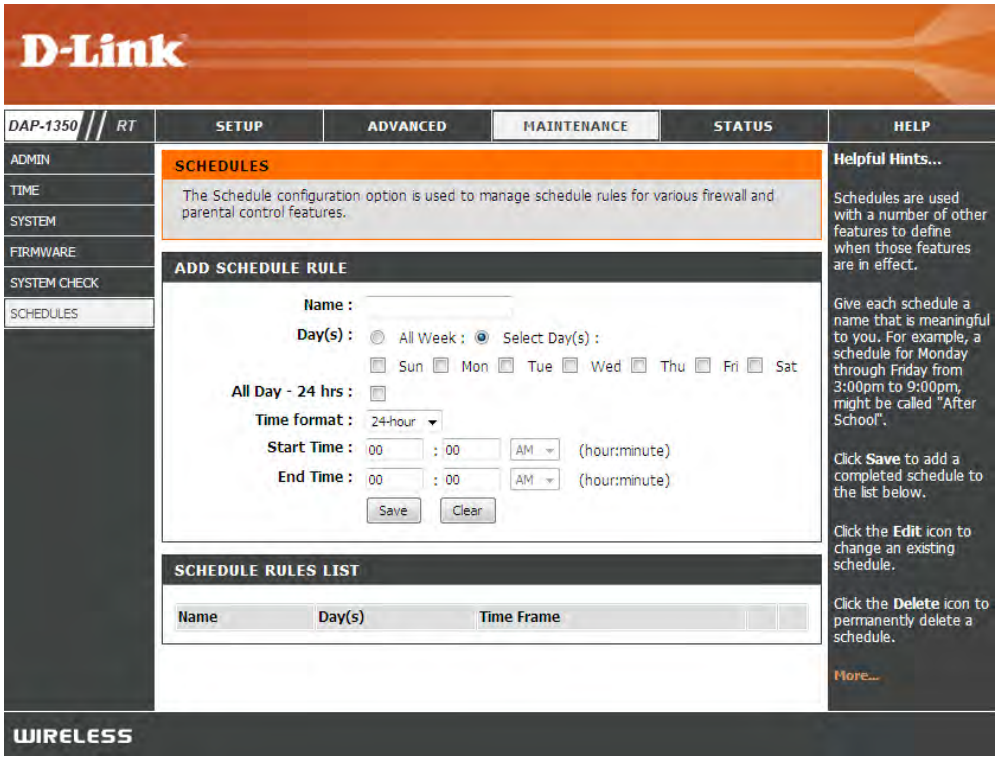
**Name:** Enter a name for your new schedule.

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

**Time:** Check **All Day - 24hrs** or enter a start and end time for your schedule.

**Save:** Click **Save** to save your schedule. You must click Save Settings at the top for your schedules to go into effect.

**Schedule Rules 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 Information

This page displays the current information for the DAP-1350. It will display the LAN, WAN (Internet), and Wireless information.

If your Internet connection is set up for a Dynamic IP address then a **Release** button and a **Renew** button will be displayed. Use **Release** to disconnect from your ISP and use **Renew** to connect to your ISP.

If your Internet connection is set up for PPPoE, a **Connect** button and a **Disconnect** button will be displayed. Use **Disconnect** to drop the PPPoE connection and use **Connect** to establish the PPPoE connection.

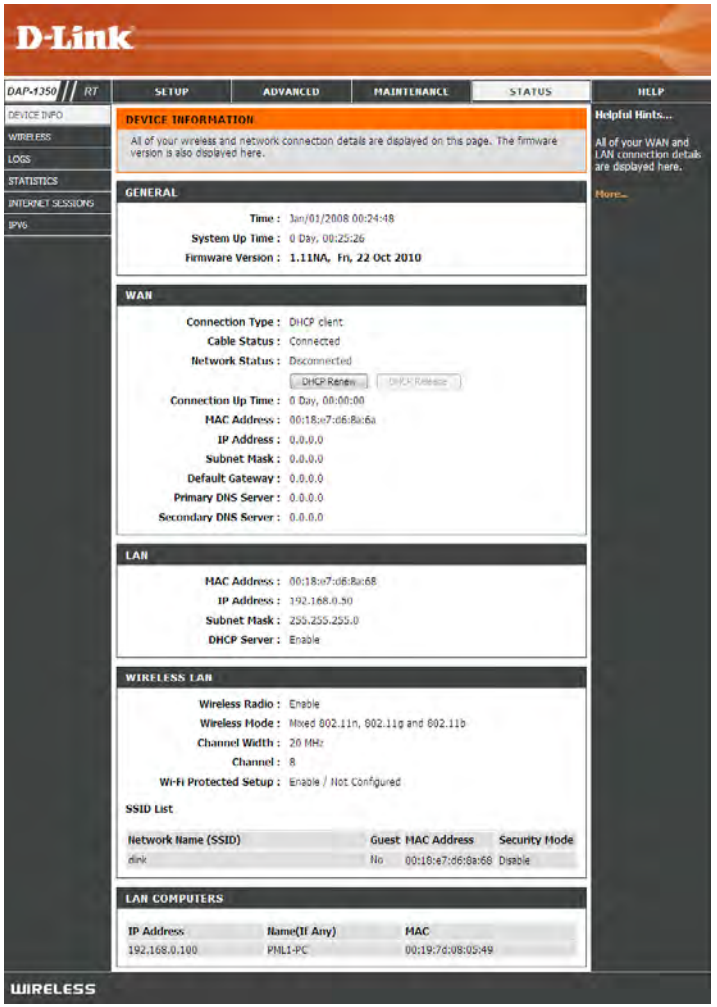
**General:** Displays the router's time and firmware version.

**WAN:** Displays the MAC address and the public IP settings for the router.

**LAN:** Displays the MAC address and the private (local) IP settings for the router.

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

**LAN Computers:** Displays computers and devices that are connected to the router via Ethernet and that are receiving an IP address assigned by the router (DHCP).



# Wireless

The wireless client table displays a list of current connected wireless clients. This table also displays the connection rate and MAC address of the connected wireless clients.

# Logs

The router automatically logs (records) events of possible interest in it's internal memory. If there isn't enough internal memory for all events, logs of older events are deleted but logs of the latest events are retained. The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of the events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.

**Log Options:** You can select the types of messages that you want to display from the log: **System Activity**, **Debug Information**, **Attacks**, **Dropped Packets**, and **Notice**. Select 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.

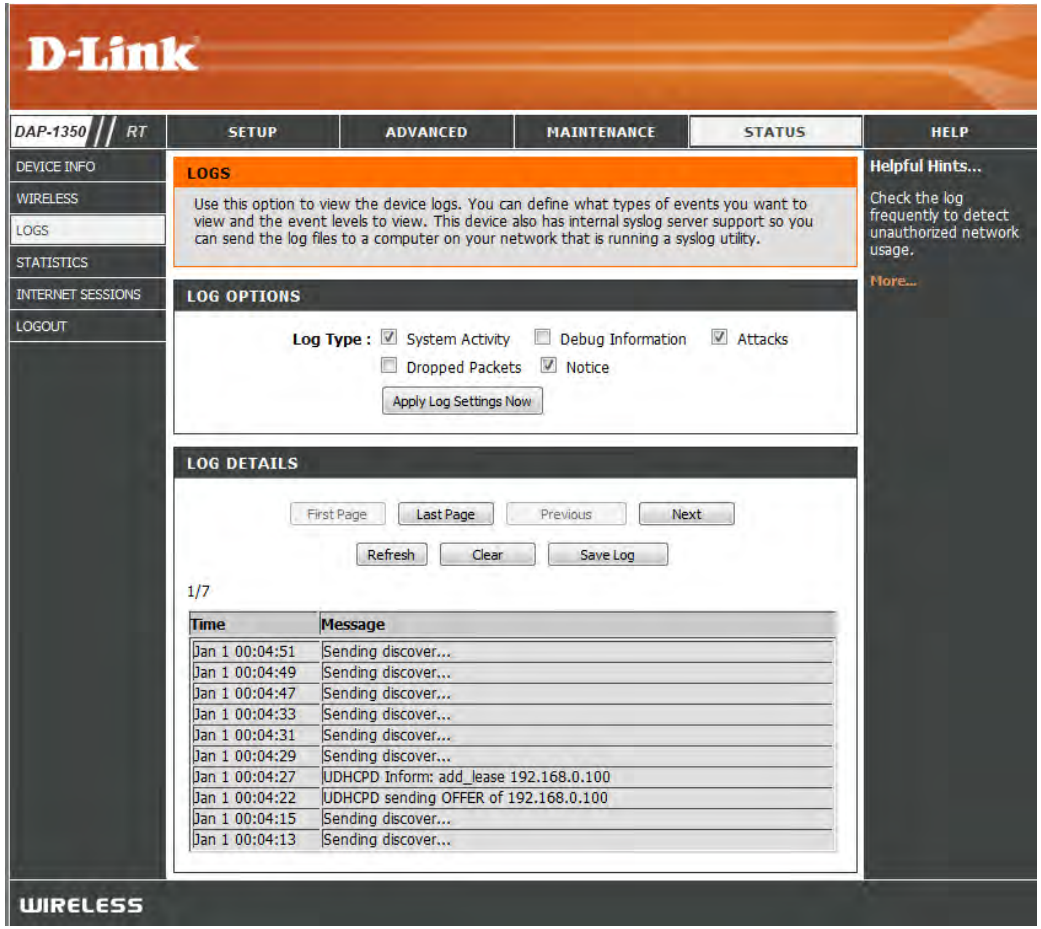
**Next:** This button directs you to the next page of the log.

**Clear:** This button clears all current log content.

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

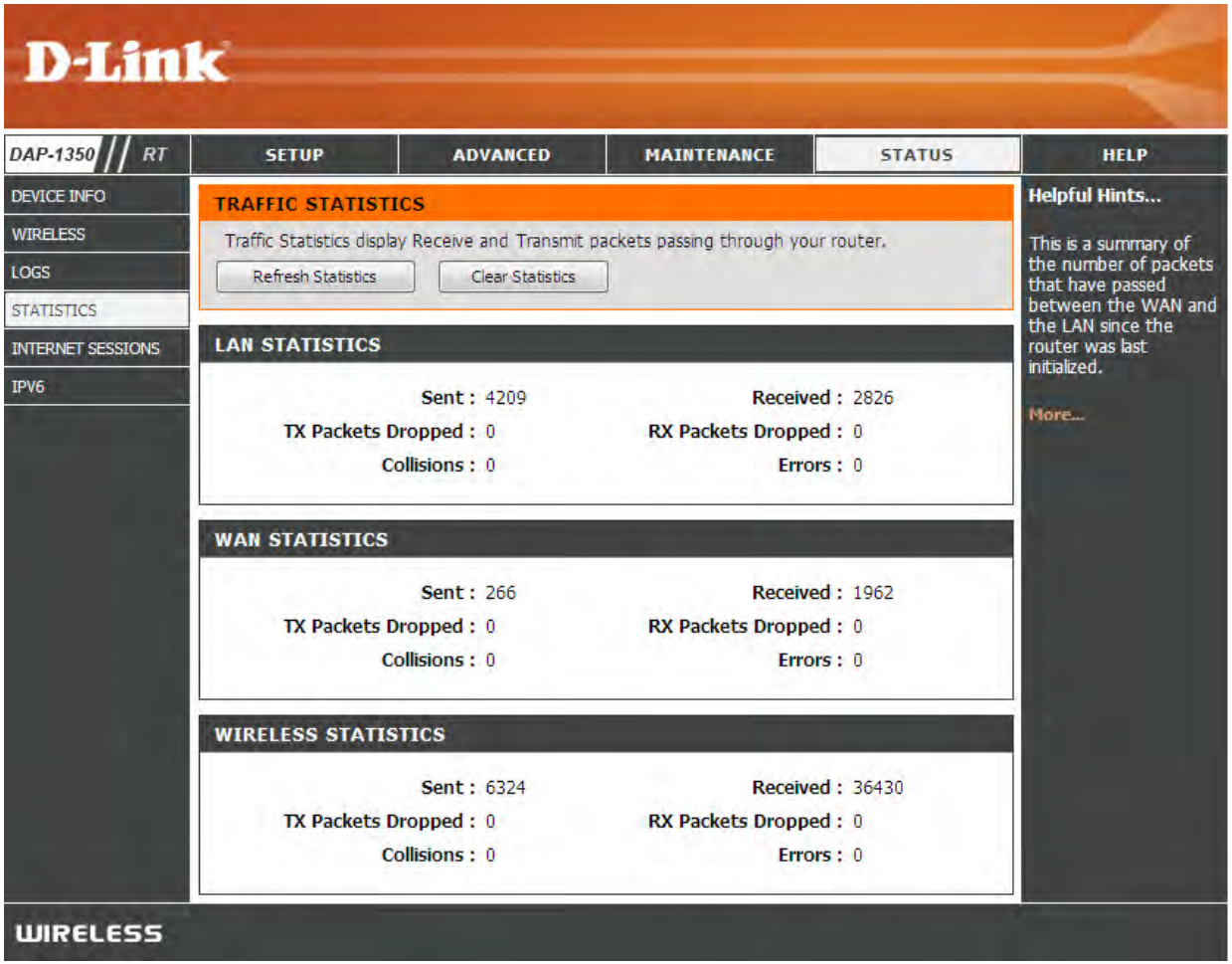
**Refresh:** This button refreshes the log.

**Save Log:** This option will save the router log to a file on your computer.



# Statistics

The screen below displays the Traffic Statistics. Here you can view the amount of packets that pass through the DAP-1350 on the Internet, wireless, and the LAN ports. The traffic counter will reset if the device is rebooted.



# Internet Sessions

The Internet Sessions page displays full details of active Internet sessions through your router. An Internet session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.


**Local:** The IP address and, where appropriate, port number of the local application.

**NAT:** The port number of the LAN-side application as viewed by the WAN-side application.

**Internet:** The IP address and, where appropriate, port number of the application on the Internet.

**Protocol:** The communications protocol used for the conversation.

**State:** State for sessions that use the TCP protocol:

**NO:** None -- This entry is used as a placeholder for a future connection that may occur.
**SS:** SYN Sent -- One of the systems is attempting to start a connection.
**EST:** Established -- the connection is passing data.
**FW:** FIN Wait -- The client system has requested that the connection be stopped.
**CW:** Close Wait -- The server system has requested that the connection be stopped.
**TW:** Time Wait -- Waiting for a short time while a connection that was in FIN Wait is fully closed.
**LA:** Last ACK -- Waiting for a short time while a connection that was in Close Wait is fully closed.
**CL:** Closed -- The connection is no longer active but the session is being tracked in case there are any retransmitted packets still pending.

**Dir:** The direction of initiation of the conversation:

**Out** - Initiated from LAN to WAN.
**In** - Initiated from WAN to LAN.

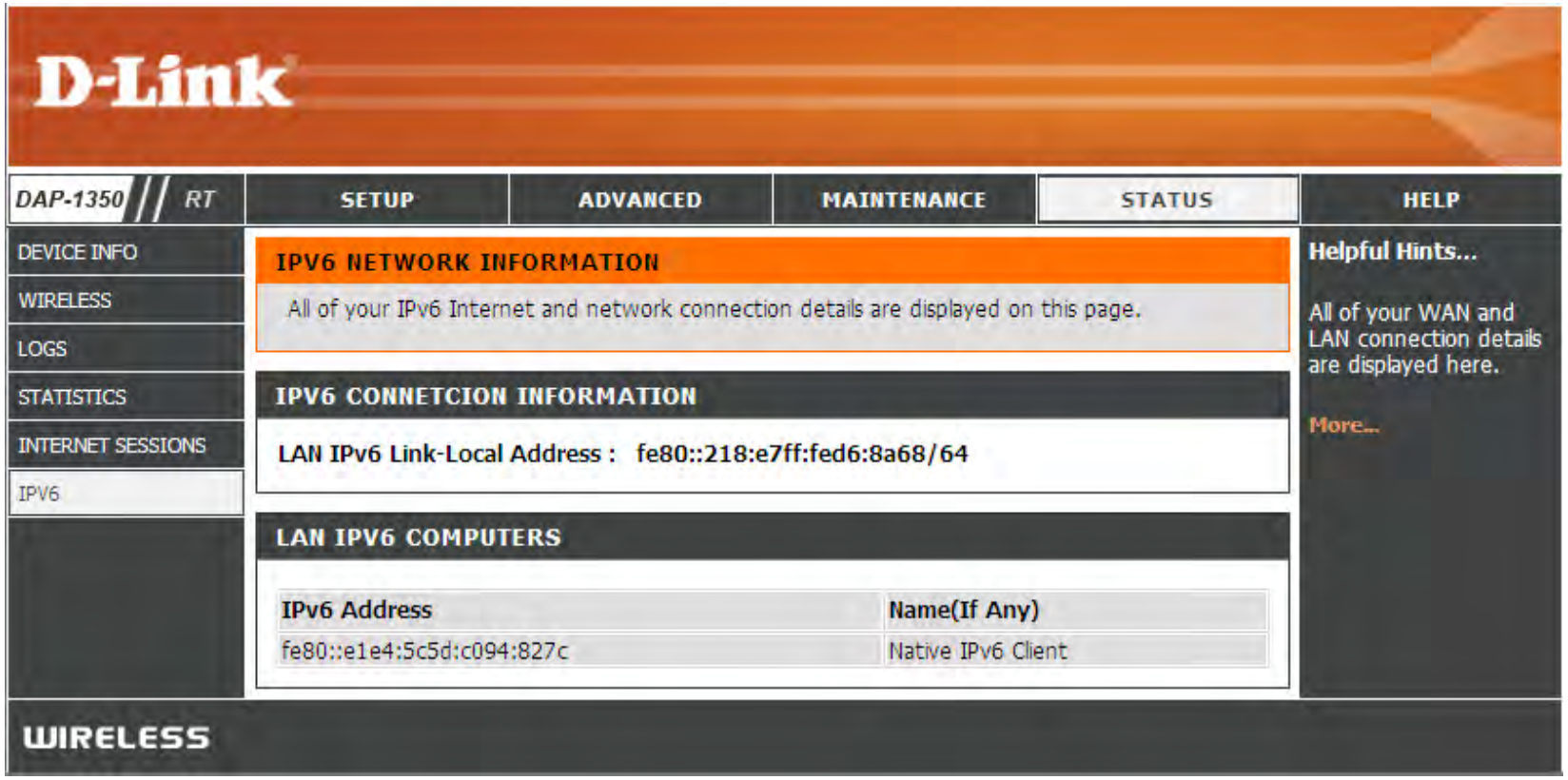
**Priority:** The preference given to outbound packets of this conversation by the QoS Engine logic. Smaller numbers represent higher priority.

**Time Out:** The number of seconds of idle time until the router considers the session terminated. The initial value of Time Out depends on the type and state of the connection.

**300 seconds** - UDP connections.
**240 seconds** - Reset or closed TCP connections. The connection does not close instantly so that lingering packets can pass or the connection can be re-established.
**7800 seconds** - Established or closing TCP connections.

# IPv6

The screen below displays the IPv6 Internet and network connection details.



# Help


D-Link
DAP-1350 // RT
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
MENU
SETUP
ADVANCED
MAINTENANCE
STATUS
SUPPORT MENU
Setup
Advanced
Maintenance
Status
SETUP HELP
Internet Connection
Internet Settings
Wireless Settings
Network Settings
USB Settings
ADVANCED HELP
Virtual Server
Application Rules
MAC Address Filter
Website Filter
Firewall Settings
Advanced Wireless
Wi-Fi Protected Setup
UPNP Settings
Guest Zone
DMZ
MAINTENANCE HELP
Admin
Time
System
Firmware
Schedules
STATUS HELP
Device Info
Wireless
Logs
Statistics
Internet Sessions
Helpful Hints...
Click on the links for more informations of each section in the GUI.
WIRELESS

# Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DAP-1350 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 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.

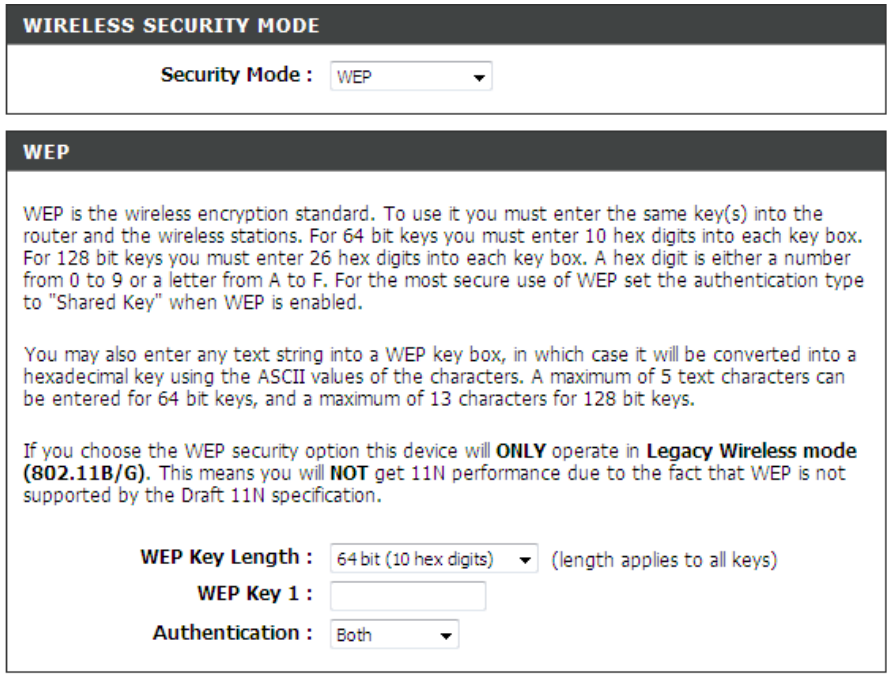
2. Next to Security Mode in the Wireless Security Mode section, select **Enable WEP Wireless Security (Basic)**.

3. Next to *Authentication*, select **Open** or **Shared Key**.

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

5. Next to *Key Type*, select either **Hex** or **ASCII**.
   Hex (recommended) - Letters A-F and numbers 0-9 are valid. ASCII - All numbers and letters are valid.

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




7. 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 WEP on your adapter and enter the same WEP key as you did on the access point.

# 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.

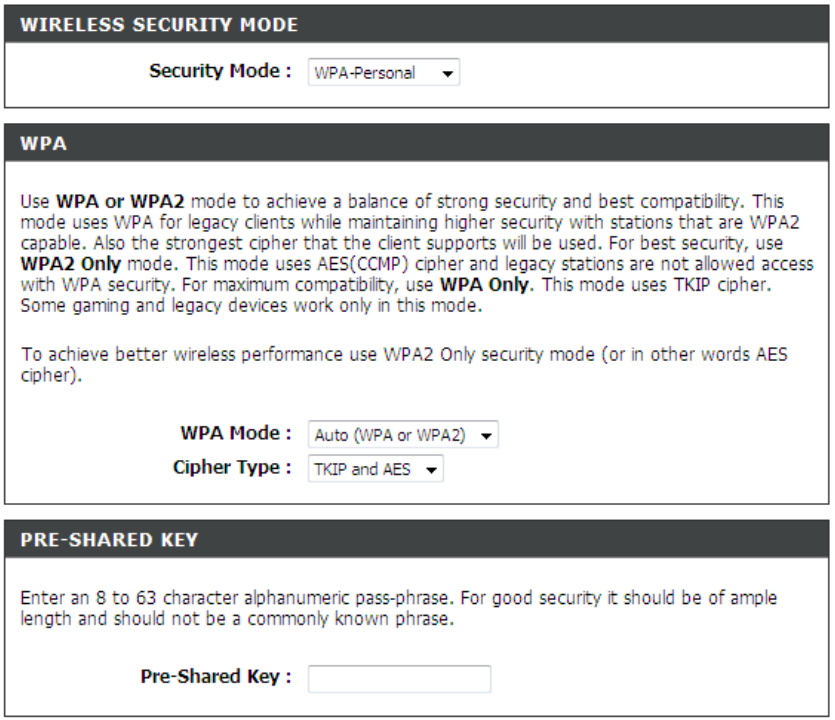
2. Next to *Security Mode*, select **WPA-Personal**.

3. Next to *WPA Mode*, select **WPA**, **WPA2**, or **Auto**.

4. Next to *Cipher Type*, select **TKIP**, **AES**, or **Auto**.

5. Next to *Pre-Shared Key*, enter a key. The key is entered as a passphrase in ASCII format at both ends of the wireless connection. The passphrase 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.



# Configure WPA/WPA2 Enterprise

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*, select **WPA-Enterprise**.

3. Next to *WPA Mode*, select **WPA**, **WPA2**, or **Auto**.

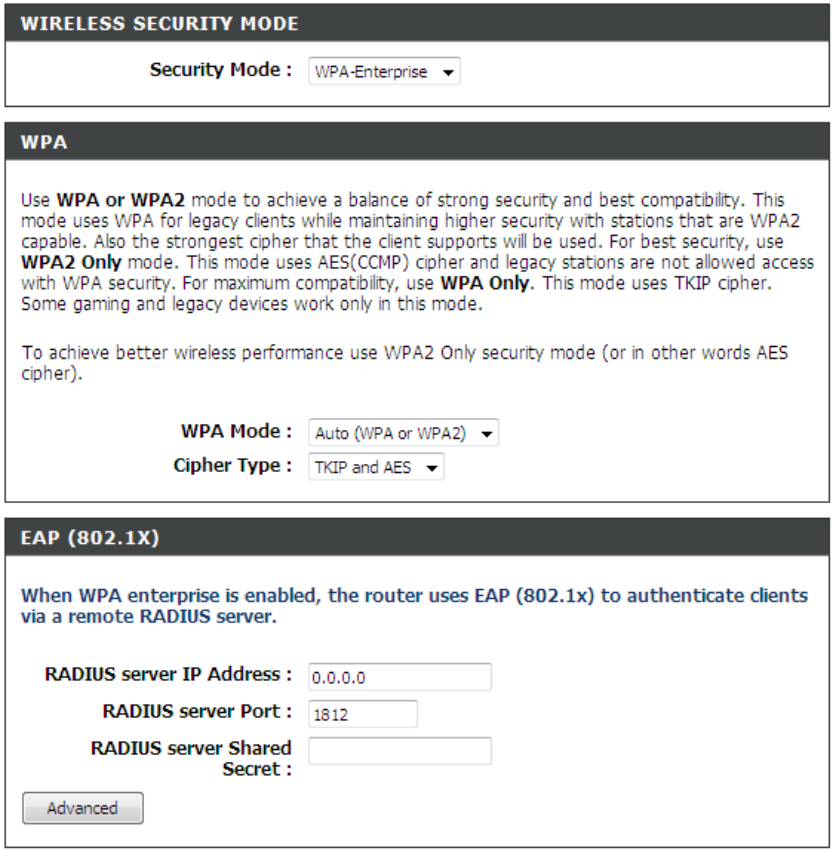
4. Next to *Cipher Mode*, select **TKIP**, **AES**, or **Auto**.

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

6. Next to *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 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).

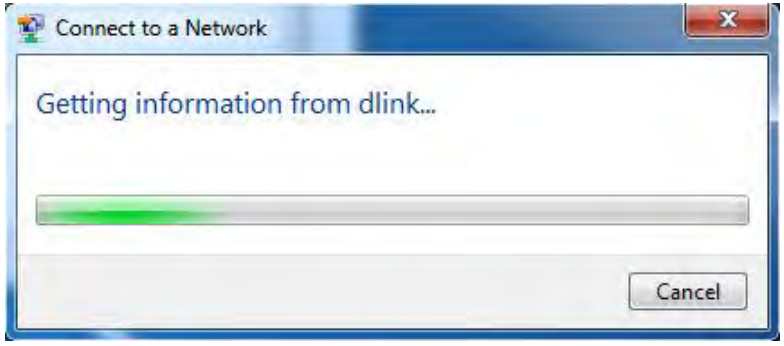

Wireless Icon

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

3. Highlight the wireless 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.



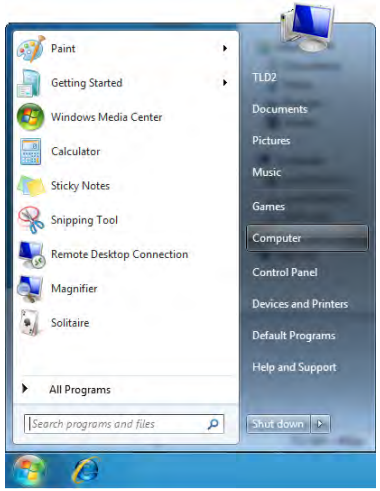
5. Enter the same security key or passphrase that is on your router and click **Connect**. You can also connect by pushing the WPS button on the router.


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.

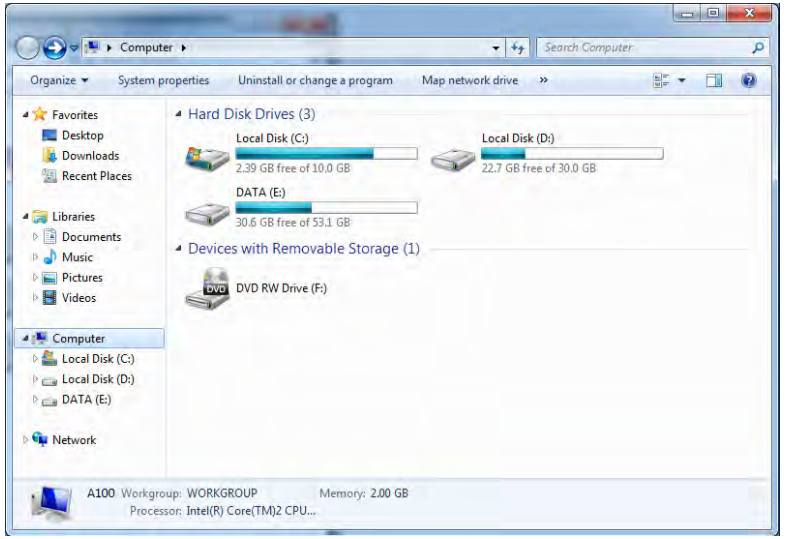
# Configure WPS

The WPS feature of the DAP-1350 can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature:

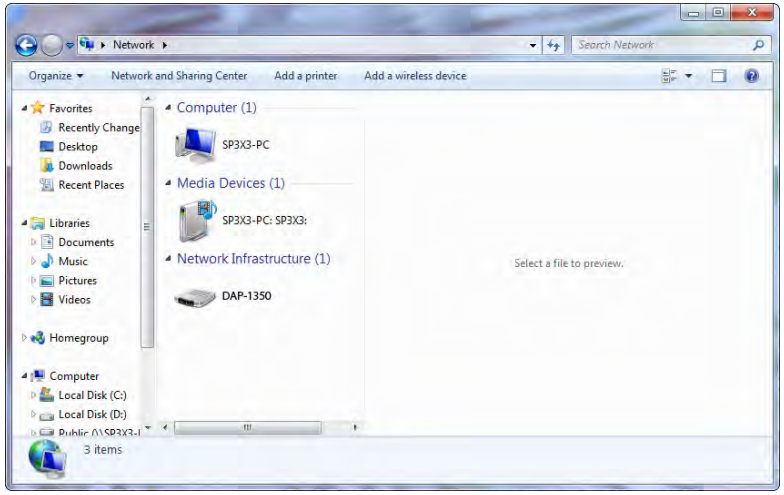
1. Click the **Start** button and select **Computer** from the Start menu.



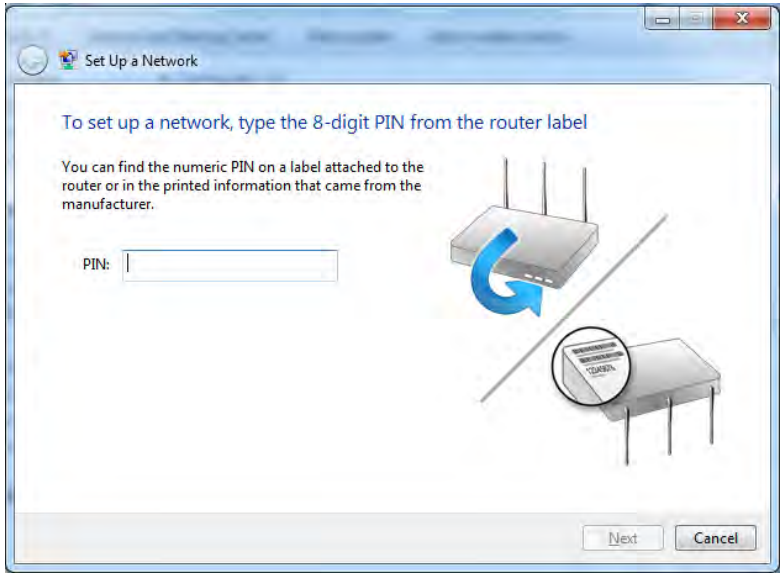

2. Click the **Network** option.



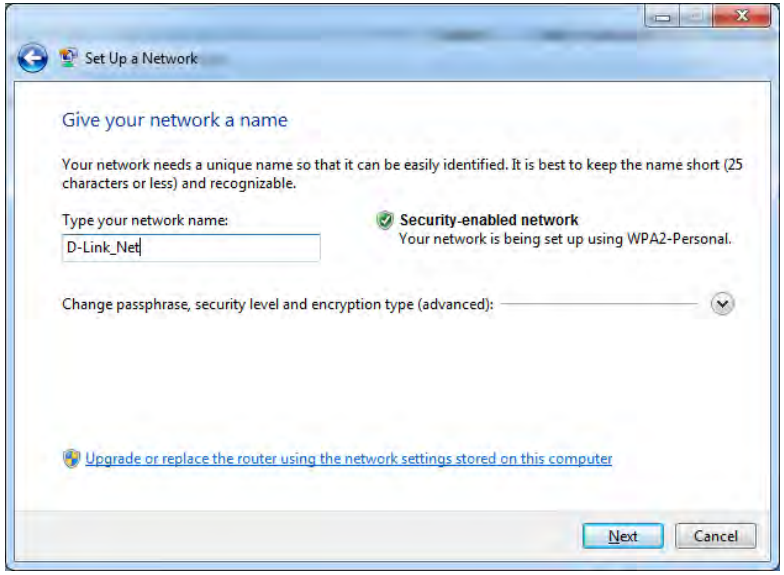
3. Double-click the DAP-1350. ®




4. Input the WPS PIN number (displayed in the WPS window on the Router's LCD screen or in the **Setup** > **Wireless Setup** menu in the Router's Web UI) and click **Next**.

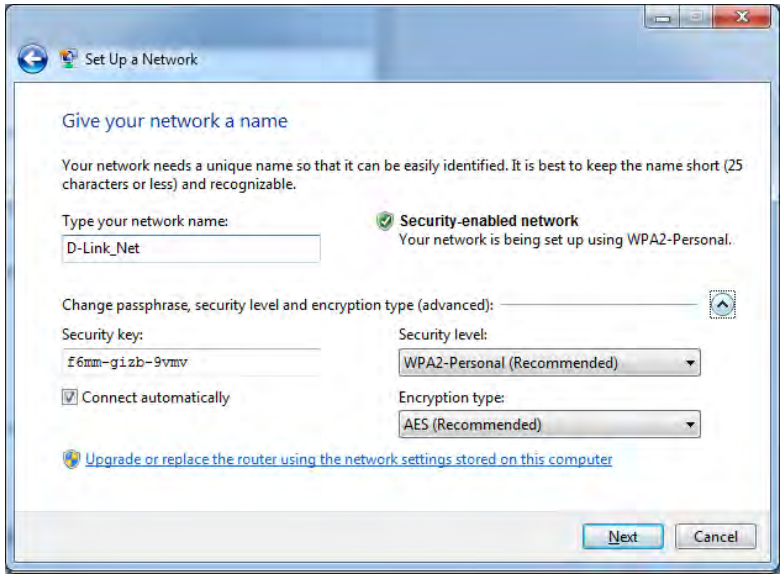


5. Type a name to identify the network.



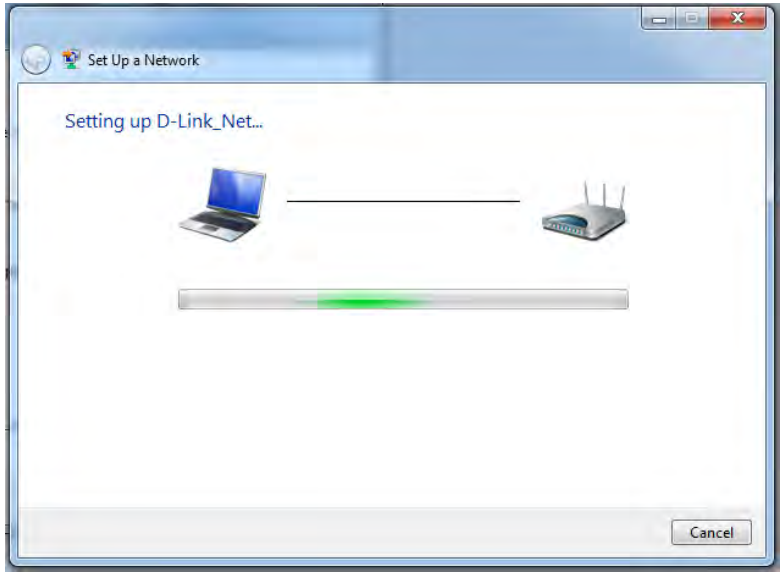

6. To configure advanced settings, click the icon.

Click **Next** to continue.



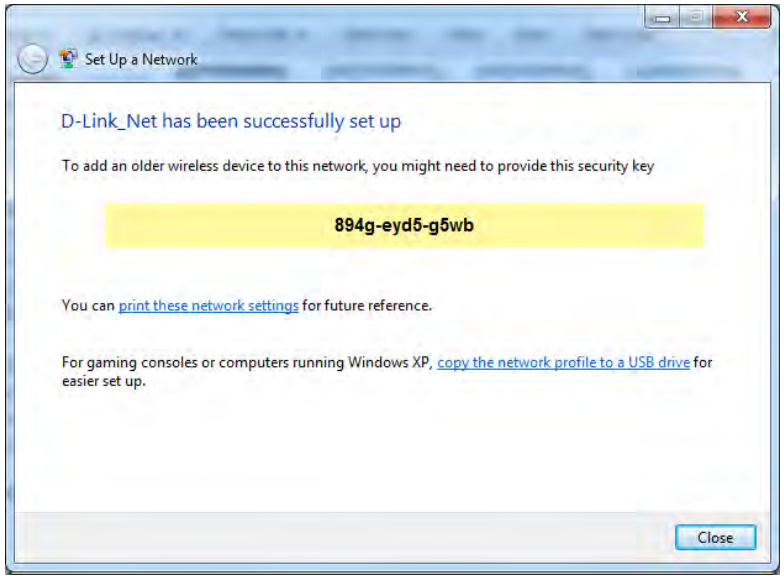
7. The following window appears while the Router is being configured.

   Wait for the configuration to complete.




8. The following window informs you that WPS on the router has been setup successfully.

   Make a note of the security key as you may need to provide this security key if adding an older wireless device to the network in the future.

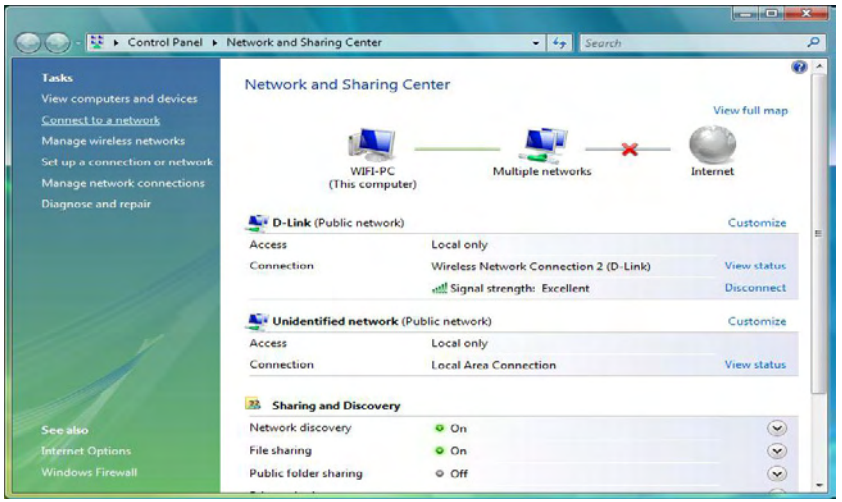



9. Click **Close** to complete WPS setup.

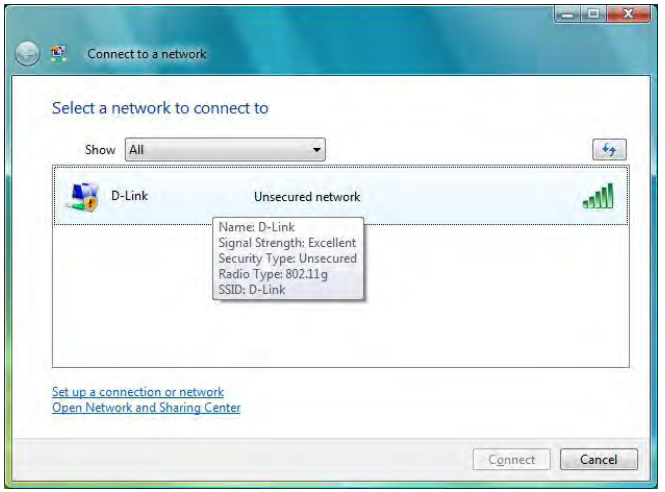
# Using Windows Vista®

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

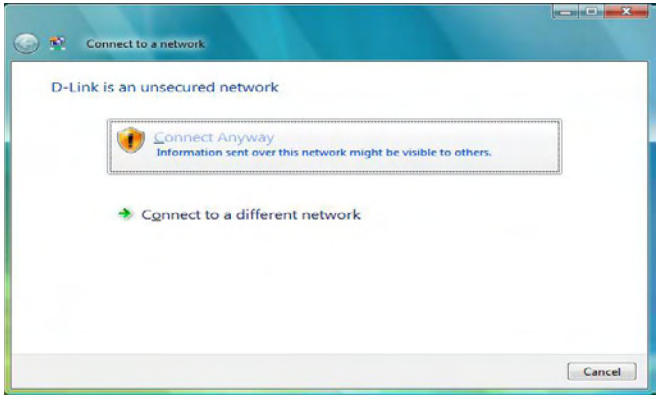
From the Start menu, go to Control Panel, and then click on **Network and Sharing Center**.



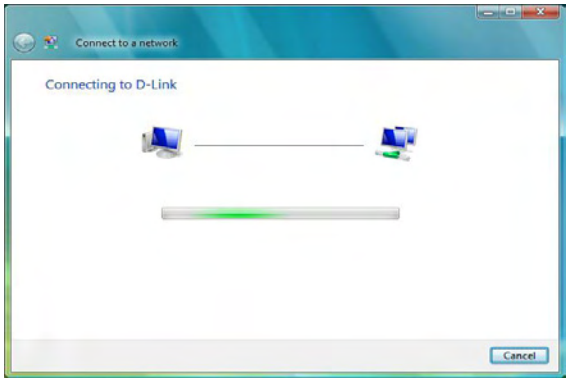

The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) under Select a network to connect to and then click the **Connect** button.



Click **Connect Anyway** to continue.

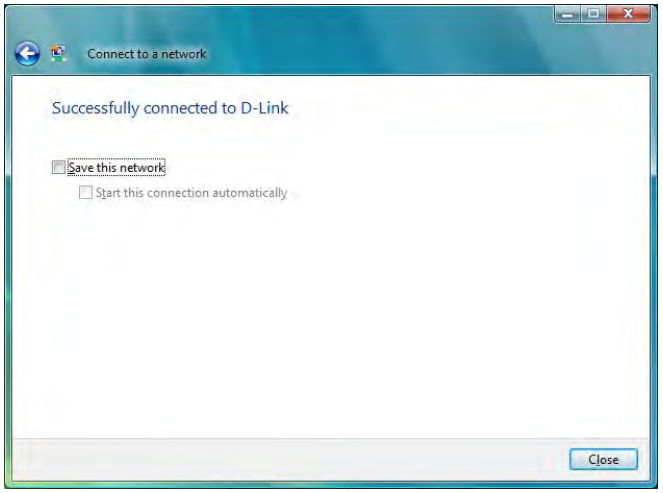



The utility will display the following window to indicate a connection is being made.




The final window indicates the establishment of a successful connection.

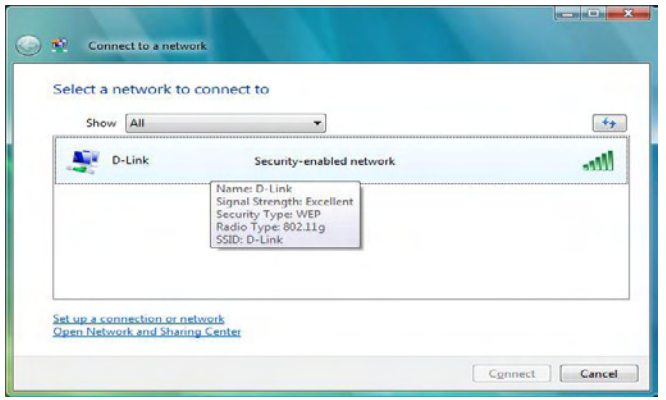
The next two pages display the windows used to connect to either a WEP or a WPA-PSK wireless network.



# Configure WEP

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

Click on a network (displayed using the SSID) using WEP under Select a network to connect to and then click the **Connect** button.

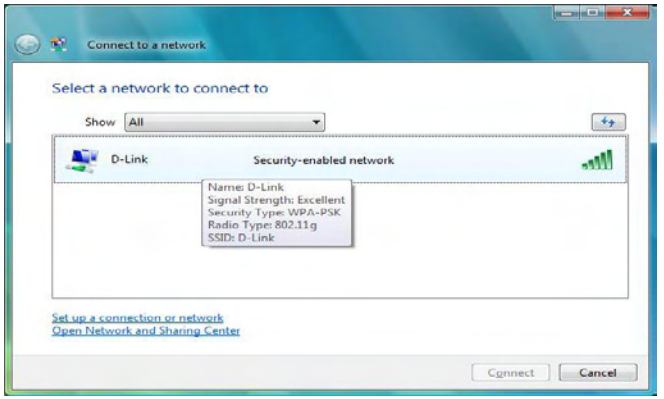



Enter the appropriate security key or passphrase in the field provided and then click the **Connect** button.

# Configure WPA-PSK

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

Click on a network (displayed using the SSID) using WPA-PSK under Select a network to connect to and then click the **Connect** button.

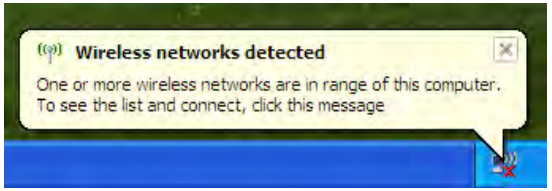



Enter the appropriate security key or passphrase in the field provided and then click the **Connect** button.

# Using Windows® XP

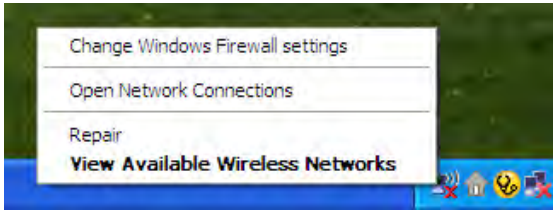
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. 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.



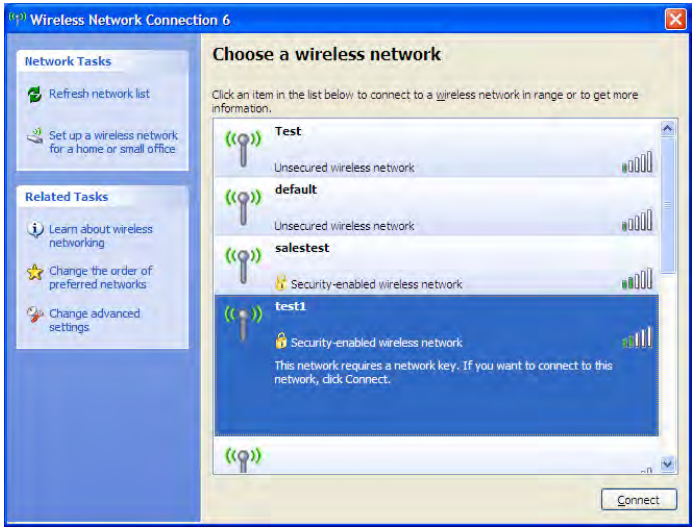

or

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.

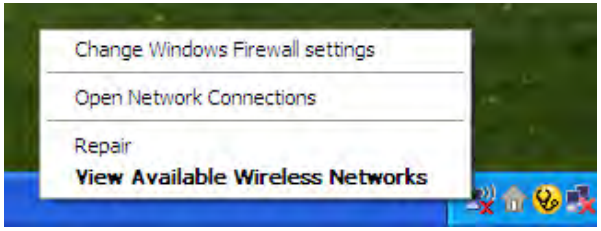
If you get a good signal, but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



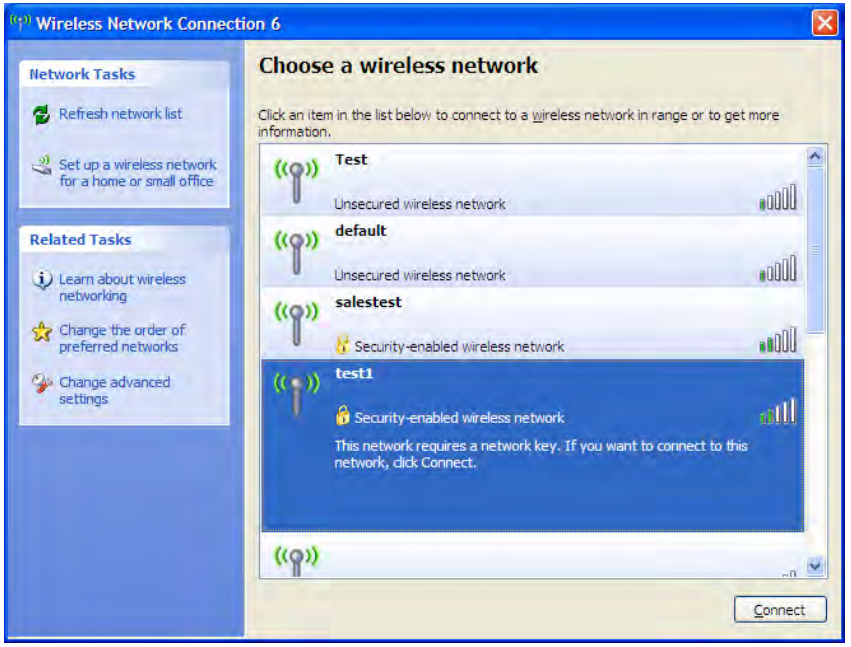
# Configure WEP

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

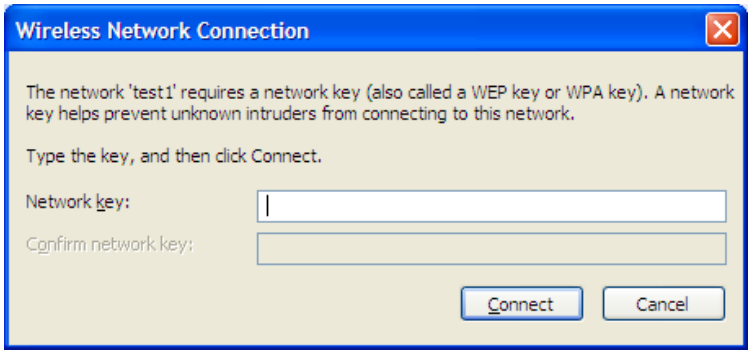
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks.**




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 same WEP key that is on your access point and click **Connect.**

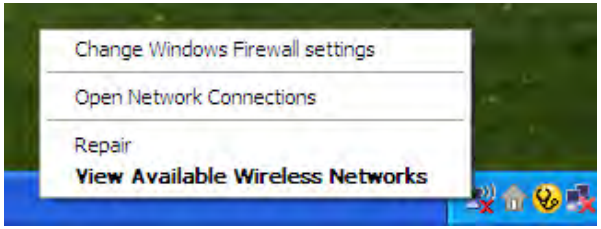



It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WEP settings are correct. The WEP key must be exactly the same as on the wireless access point.

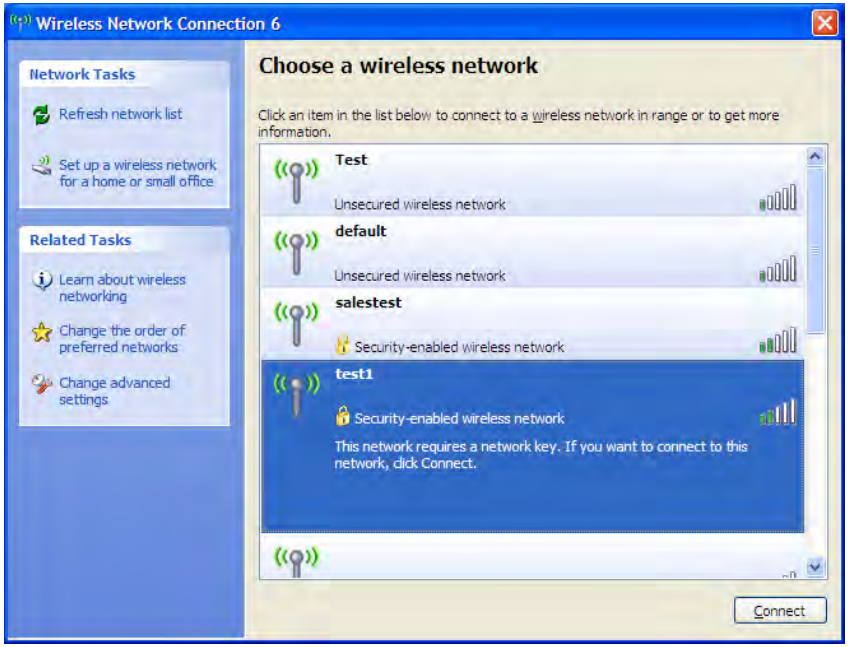
# Configure WPA-PSK

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

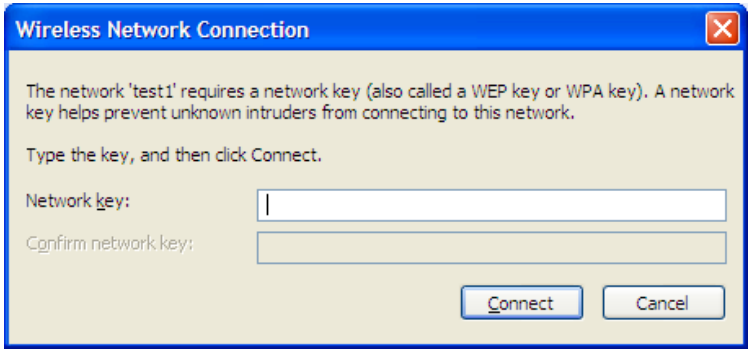
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks.**




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 access point.

# Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1350. 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 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 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 I connect to certain sites or send and receive emails when connecting through my pocket router (router mode only)?**

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).

**Note: AOL DSL+ users must use MTU of 1400.**

**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 access point with the proper MTU size.

To change the MTU rate on your access point follow the steps below:

- Open your browser, enter the IP address of your access point (192.168.0.50) 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 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.

## 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 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 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

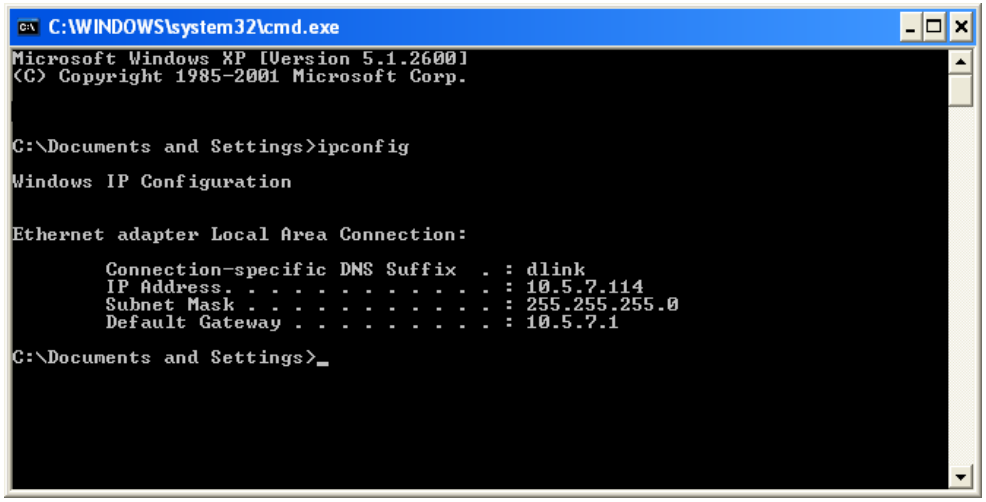
## Check your IP address

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/router, or you need to assign a static IP address, please follow the steps below:

**Step 1**

**Windows® 7** - Click on **Start** > **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Change Adapter Setting.**

**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 network adapter and select **Properties**.

**Step 3**

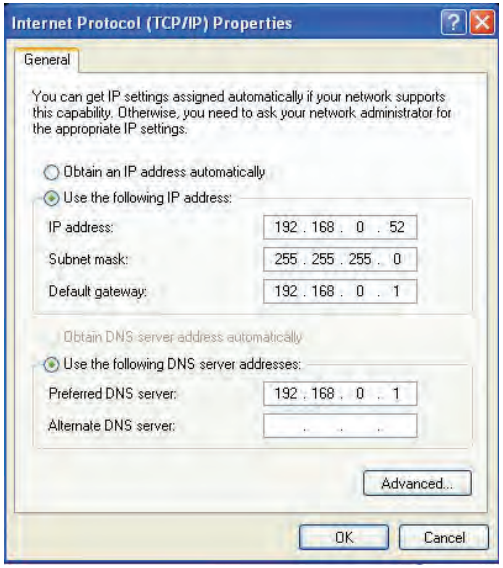
Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

**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 router´s LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. 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

**Security**
- Wi-Fi Protected Access (WPA, WPA2)®
- Wi-Fi Protected Setup™ (WPS)
  - WPS Push Button
  - PIN

**Interface Type**
- 1 10/100 LAN/WAN Port
- 1 USB Port for SharePort™
- 1 Push-Button (for Wi-Fi Protected Setup™)

**Antenna Type**
- Embedded Antennas

**Wireless Signal Rates[1]**
- 300Mbps
- 108Mbps
- 54Mbps
- 48Mbps
- 36Mbps
- 24Mbps
- 18Mbps
- 12Mbps
- 11Mbps
- 9Mbps
- 6Mbps
- 5.5Mbps
- 2Mbps
- 1Mbps

**Maximum Operating Voltage**
- 5V 2.5A

**Modulation**
- DQPSK
- DBPSK
- CCK
- OFDM

**Frequency Range[2]**
- 2.4GHz to 2.483GHz

**LEDs**
- Power
- Ethernet
- WLAN

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

**Humidity**
- 90% maximum (non-condensing)

**Safety & Emissions**
- FCC Class B
- IC
- Wi-Fi®

**Dimensions**
- W3.6" x D2.6" x H0.8" (91.4mm x 66mm x 20.3mm)

**Weight**
- 0.5lbs (0.23kg)

[1]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 conditions will adversely affect wireless signal range.

[2]Range varies depending on country's regulation.

# Warranty

**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.

## Federal Communication Commission Interference 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 communications. 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 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.

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

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

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

**IMPORTANT NOTE:**
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## Industry Canada Statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:
1) this device may not cause interference and
2) this device must accept any interference, including interference that may cause undesired operation of the device

**IMPORTANT NOTE:**

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

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

**For Taiwan 警語：**

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。