USER MANUAL

DAP-1522

VERSION 1.1

D-Link®

WIRELESS

Table of Contents

Product Overview 4
Package Contents 4
System Requirements 4
Introduction 5
Features 6
Hardware Overview 7
Connections 7
LEDs 8

Installation 9
Before you Begin 9
Wireless Installation Considerations 10

AP/Bridge/Auto Mode 11

Configuration for AP Mode 13
Web-based Configuration Utility 13
Setup Wizard 14
Wireless Setup Wizard 15
Add Wireless Device With WPS 22
Manual Configuration 24
Wireless Settings 24
Network Settings 26
DHCP 26
Static IP 27
Advanced 28
MAC Address Filter 28
Advanced Wireless 29
WLAN Partition 30
QoS 31
Traffic Manager 33
Traffic Manager Rule 34
Tools 35
Admin 35
Time 36
System 37
Firmware 38
Status 39
Device Info 39
Wireless 40
Logs 41
Statistics 42
Help 43

Configuration for Bridge Mode 44
Web-based Configuration Utility 44
Setup Wizard 45
Wireless 53
Network Settings 55
Static 55
DHCP 56
Advanced 57
Advanced Wireless 57
Tools 58

Admin 58
Time 59
System 60
Firmware 61
Status 62
Device Info 62
Logs 63
Help 64

Wireless Security 65
What is WEP? 65
What is WPA? 66
Configure WEP in AP Mode 67
Configure WPA-Personal (PSK) in AP Mode 68
Configure WPA-Enterprise (RADIUS) in AP Mode 69
Configure WEP in Bridge Mode 70
Configure WPA-Personal (PSK) in Bridge Mode ... 71

Connect to a Wireless Network 72
Using Windows® XP 72
Configure WEP 73
Configure WPA-PSK 76

Connect to a Wireless Network 77
Using Windows® Vista 77
Configure WEP 79
Configure WPA-PSK 80

Troubleshooting 81

Wireless Basics 86
What is Wireless? 86
Tips 88
Wireless Modes 89

Networking Basics 90
Check your IP address 90
Statically Assign an IP address 91

Technical Specifications 92

Package Contents

- D-Link DAP-1522 Xtreme N Duo Wireless Bridge
- Power Adapter (Use with the power supply provided by the manufacturer)
- CAT5 Ethernet Cable
- Rubber Feet
- CD-ROM with User Manual

Note: Using a power supply with a different voltage rather than the one included with the DAP-1522 will cause damage and void the warranty for this product.

System Requirements

- Computers with Windows®, Macintosh®, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0, Mozilla 1.7.12 (5.0), or Firefox 1.5 and above (for configuration)

Introduction

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

TOTAL SECURITY
The most complete set of security features including WPA2 and MAC Address Control 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 Xtreme N™ Duo Wireless Bridge (DAP-1522) is a draft 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 Xtreme N™ Duo Wireless Bridge to router and share your high-speed Internet access with everyone on the network. In addition, this Wireless Bridge includes a Quality of Service (QoS) engine that keeps digital phone calls (VoIP) and online gaming smooth and responsive, providing a better Internet experience.

EXTENDED WHOLE HOME COVERAGE
Powered by Xtreme N™ Duo technology, this high performance Wireless Bridge provides superior Whole Home Coverage while reducing dead spots. The Xtreme N™ Duo Wireless Bridge is designed for use in bigger homes and for users who demand higher performance networking. Add an Xtreme N™ Duo notebook or desktop adapter and stay connected to your network from virtually anywhere in your home.

TOTAL NETWORK SECURITY
The Xtreme N™ Duo Wireless Bridge 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 WEP 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 Draft 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-1522 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 802.11a, 802.11b, and 802.11g Devices** - The DAP-1522 is still fully compatible with the IEEE 802.11a/b/g standard, so it can connect with existing 802.11a/b/g PCI, USB, and Cardbus adapters.

- **Advanced Firewall Features** - The Web-based user interface displays advanced network management features including **Content Filtering, which allows** easily applied content filtering based on MAC Address.

* 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-1522 and another WPS enabled device. A PC is no longer needed to log into the Web-based interface.

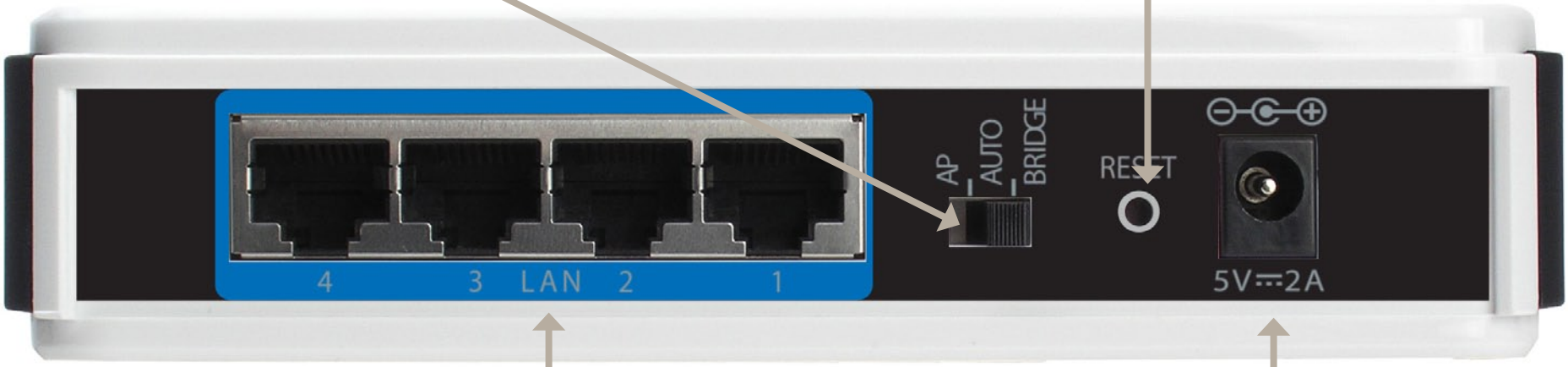
* WPS PIN - (Wi-Fi Protected Setup Personal Identification Number) A PIN is a unique number that can be used to add the access point to an existing network or to create a new network. The default PIN may be printed on the bottom of the access point. For extra security, a new PIN can be generated. You 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, the DAP-1522 lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company’s server. Configure your access point to your specific settings within minutes.

Hardware Overview
Connections

AP-Auto-Bridge Switch
Three-way switch used to select AP, Auto, or Bridge mode.

Reset
Pressing the Reset button restores the access point to its original factory default settings.

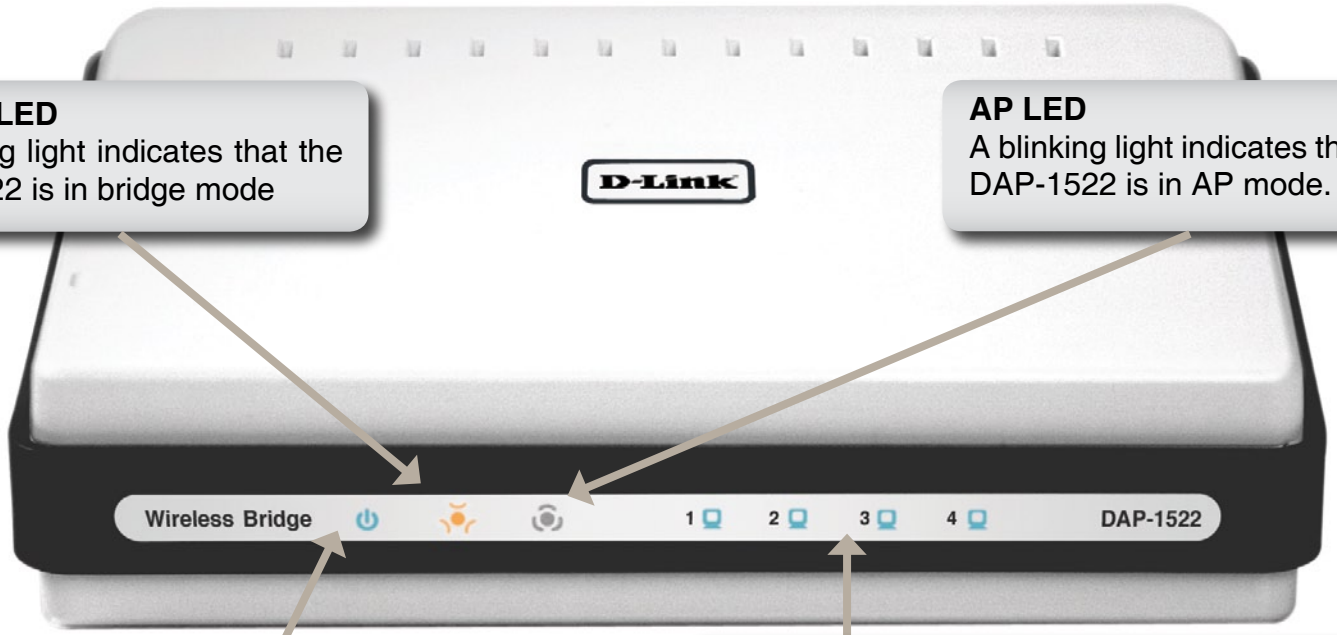


LAN Ports (1-4)
Connect Ethernet devices such as computers, switches, game consoles, setup boxes and hubs.

Power Receptor
Receptor for the supplied power adapter.

Hardware Overview

LEDs



Bridge LED
A blinking light indicates that the DAP-1522 is in bridge mode

AP LED
A blinking light indicates that the DAP-1522 is in AP mode.

Power LED
A solid light indicates a proper connection to the power supply.

LAN LEDs
A solid light indicates a connection to an Ethernet-enabled device on ports 1-4. This LED blinks during data transmission.

WPS LED
A solid light indicates a successful WPS connection. A blinking light indicates the device is trying to establish a connection.

Installation

This section will walk you through the installation process. Placement of the DAP-1522 is very important. Do not place the DAP-1522 in an enclosed area such as a closet, cabinet, or in the attic or garage.

Before you Begin

Please configure the Wireless Bridge with the computer that was last connected directly to your modem. Also, you can only use the Ethernet port on your modem. If you were using the USB connection before using the Wireless Bridge, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the Internet port on the Wireless Bridge, and then turn the modem back on. In some cases, you may need to call your ISP to change connection types (USB to Ethernet).

If you have DSL and are connecting via PPPoE, make sure you disable or uninstall any PPPoE software such as WinPoet, Broadjump, or Enternet 300 from your computer or you will not be able to connect to the Internet.

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.

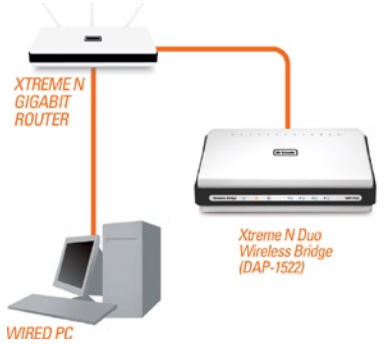
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone in not in use.

AP/Bridge/Auto Mode

Depending on how you want to use your DAP-1522 will determine which mode you use. This section will help you figure out which setting works with your setup.

AP Mode

If you already have a wired or wireless router, and want to add a MediaBand (5GHz wireless), to your network, you will need to move the switch on the back panel of the DAP-1522 to “AP”.



Bridge Mode

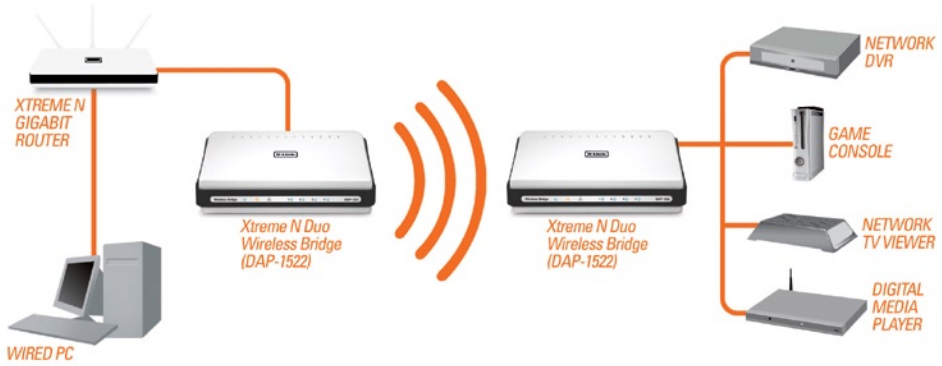
If you want to wirelessly connect multiple Ethernet enabled devices such as game consoles, media players, or network attached storage devices you will need to move the switch on the back panel of the DAP-1522 to “Bridge”.

Auto Mode

If the switch on the back panel of the DAP-1522 is set to “Auto”, the device will wait for 30 seconds, looking for an IP address. If an IP address is found, it will automatically shift to AP mode. If an IP address is not located, the DAP-1522 will automatically shift to Bridge mode.

Create a Full MediaBand (5GHz wireless) Network

If you have two DAP-1522 devices and want to create a wireless network with full MediaBand technology you will need to connect one Wireless Bridge to your router and move the switch on the back panel to “AP”. The second Wireless Bridge will need to be placed next to your Ethernet-enabled devices and you will need to move the switch on the back panel to “Bridge”.

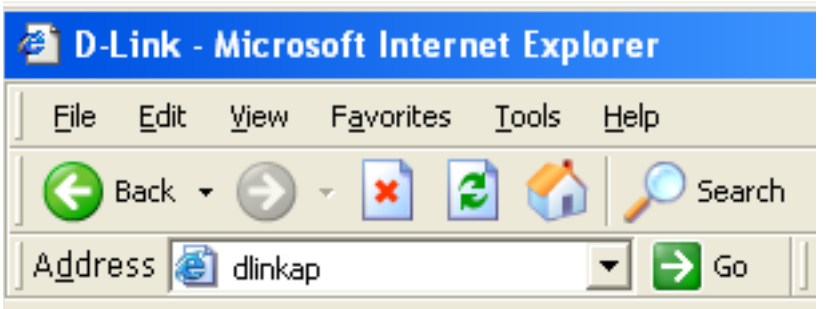


Configuration for AP Mode

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

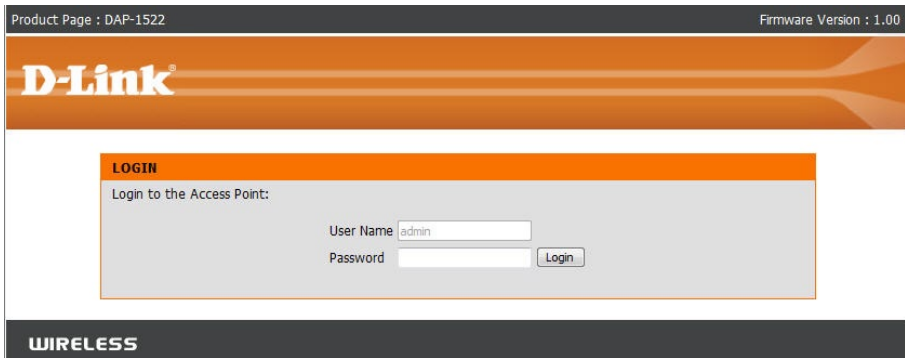
Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter the friendly address for AP mode (dlinkap).



Select **Admin** from the drop-down menu 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.

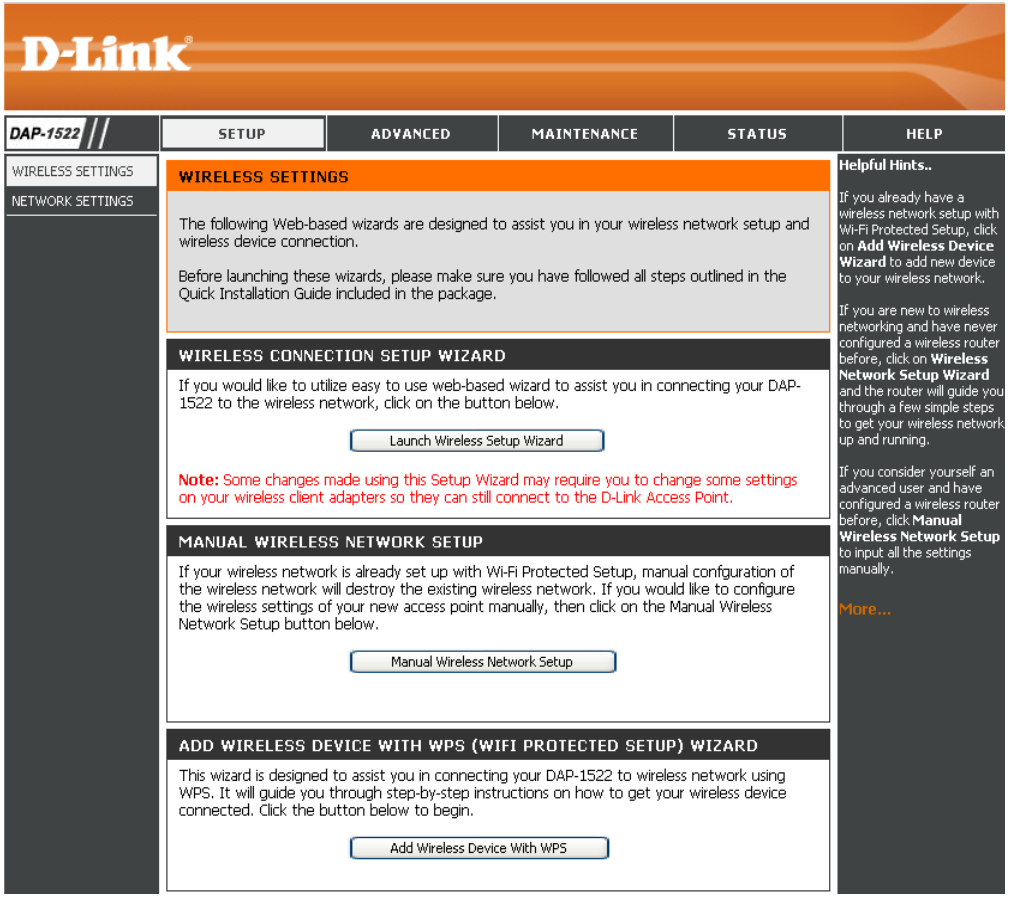


Setup Wizard

Click **Launch Wireless Setup Wizard** to quickly configure your access point.

To set up your wireless network, click **Add Wireless Device With WPS** and skip to page 22.

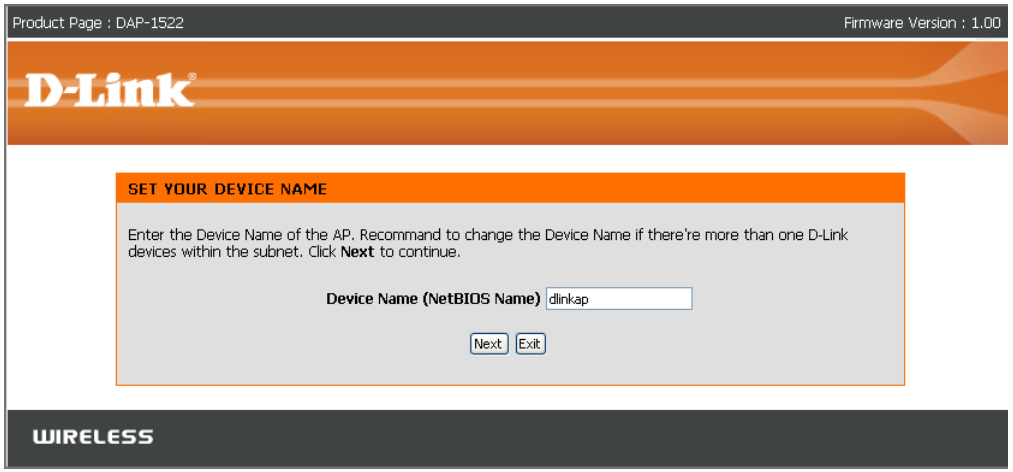
If you want to enter your settings without running the wizard, click **Manual Wireless Network Setup** and skip to page 24.



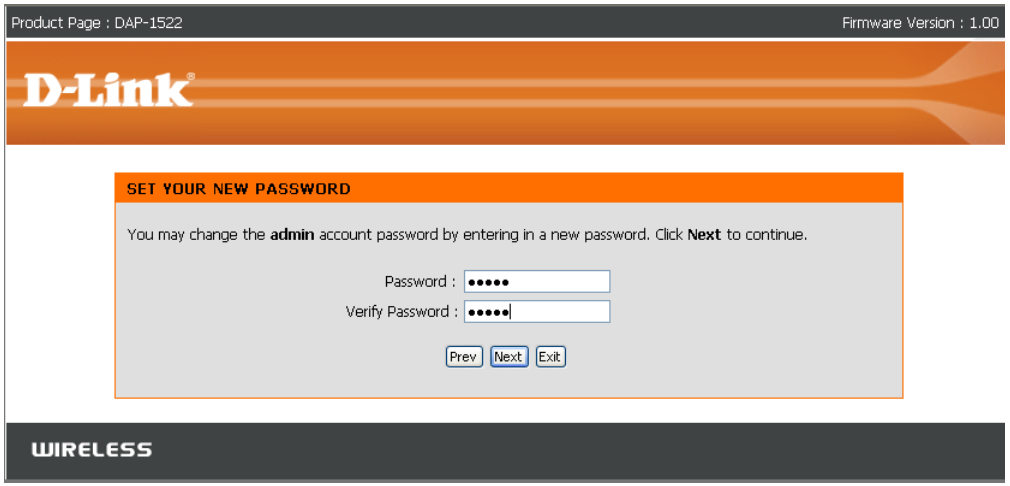
Wireless Setup Wizard

This Wizard is designed to assist you in connecting your wireless device to your access point. It will guide you through step-by-step instructions on how to get your wireless device connected.

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



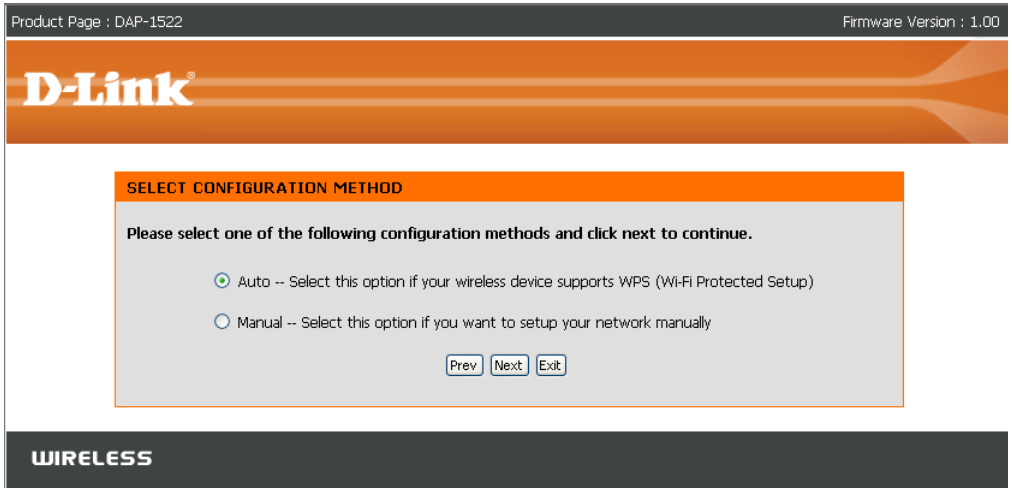
If you want to change the admin account password, enter a new password and click **Next**.



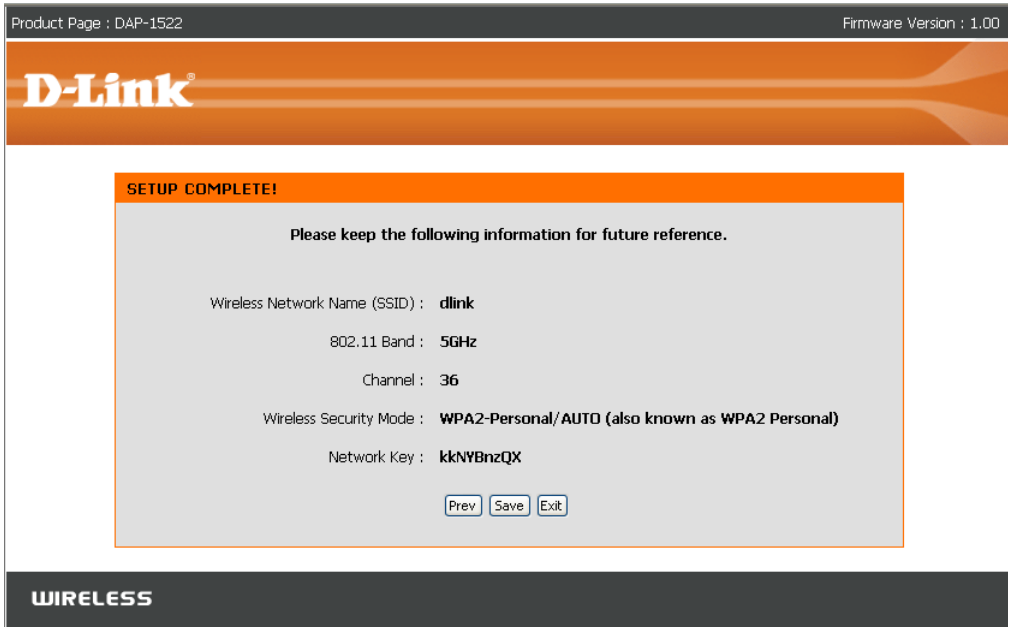
Select **Auto** as the configuration method only if your wireless device supports Wi-Fi Protected Setup.

Skip to page 17 for **Manual** configuration.

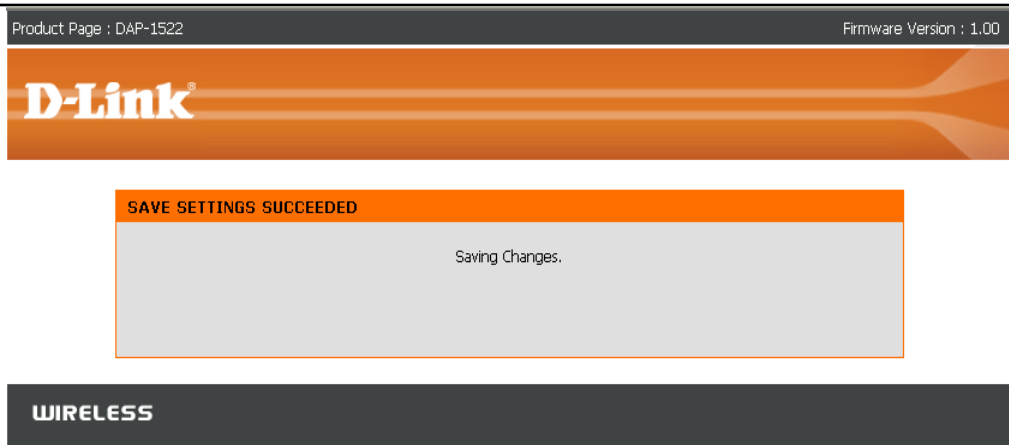
Click **Next** to continue.



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

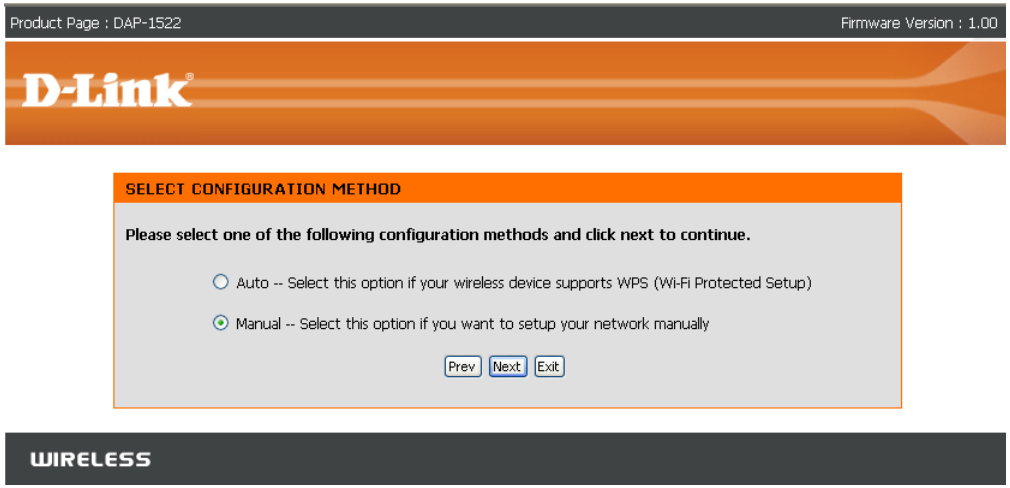


The following screen opens to indicate that you have successfully saved your new settings.



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

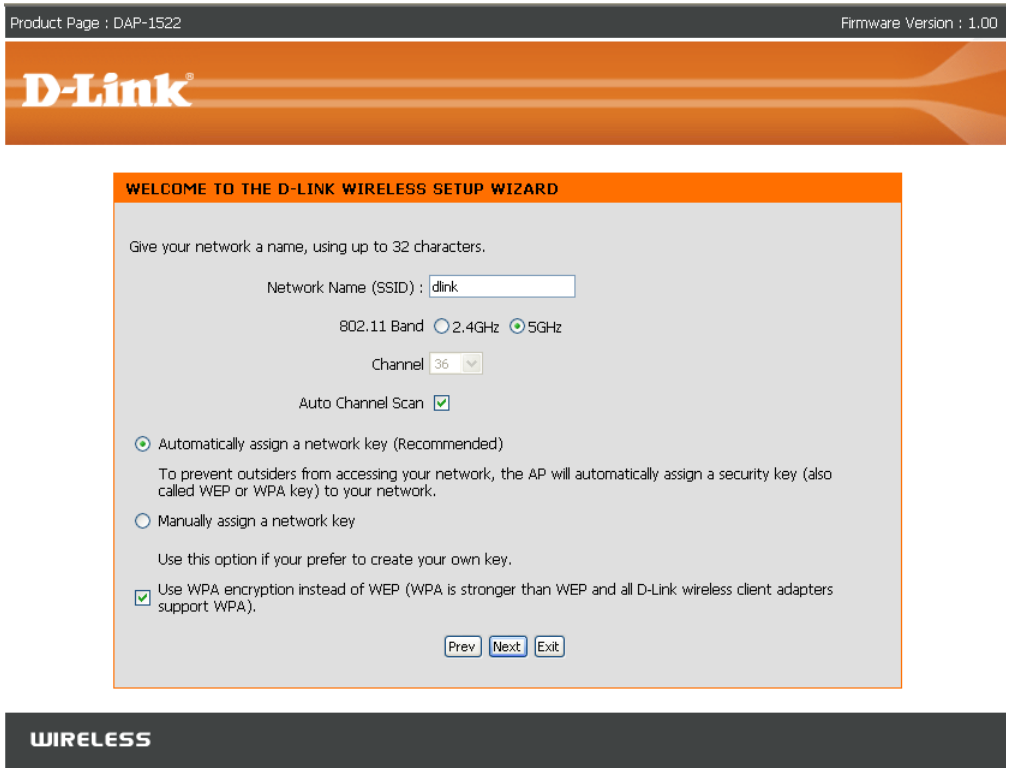
Click **Next** to continue.



Enter a network name and choose Automatically assign a network key.

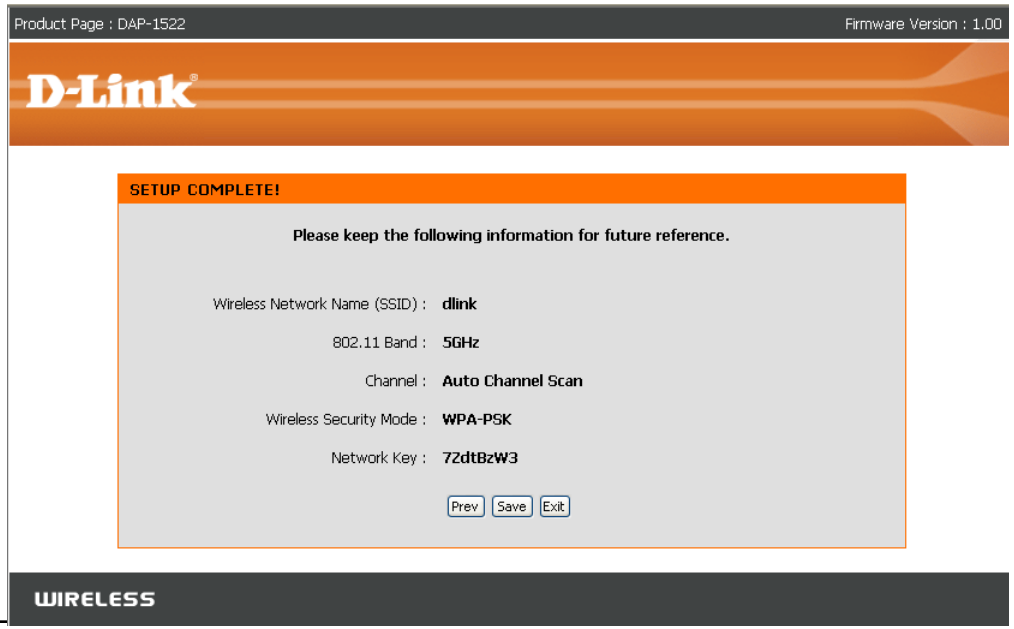
To Manually assign a network key, skip to page 19.

Click **Next** to continue.



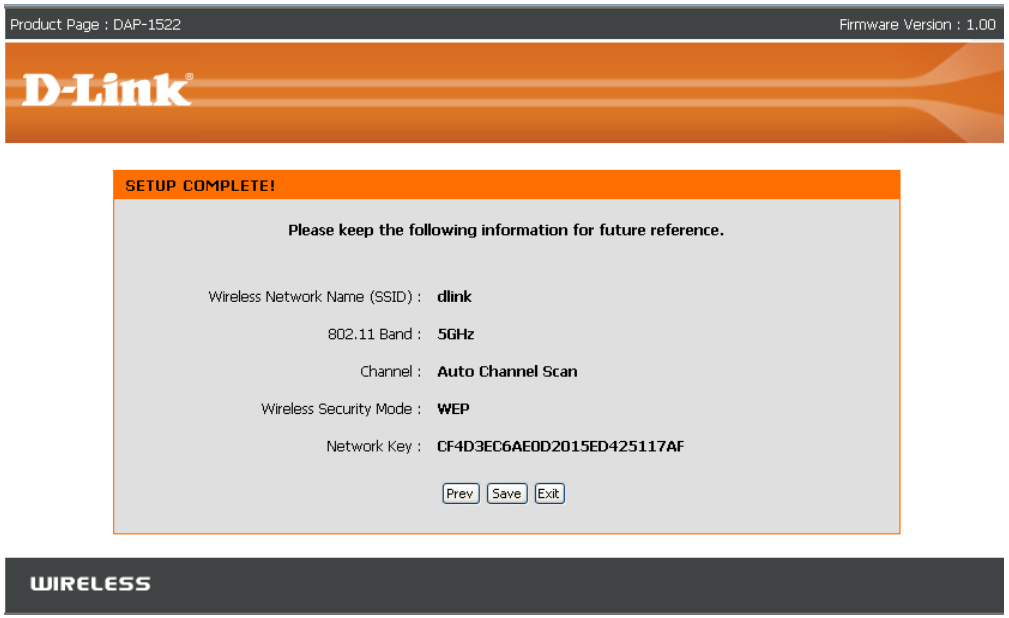
If you choose WPA-PSK encryption, the following screen will show you your Network Key to enter on your wireless clients.

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



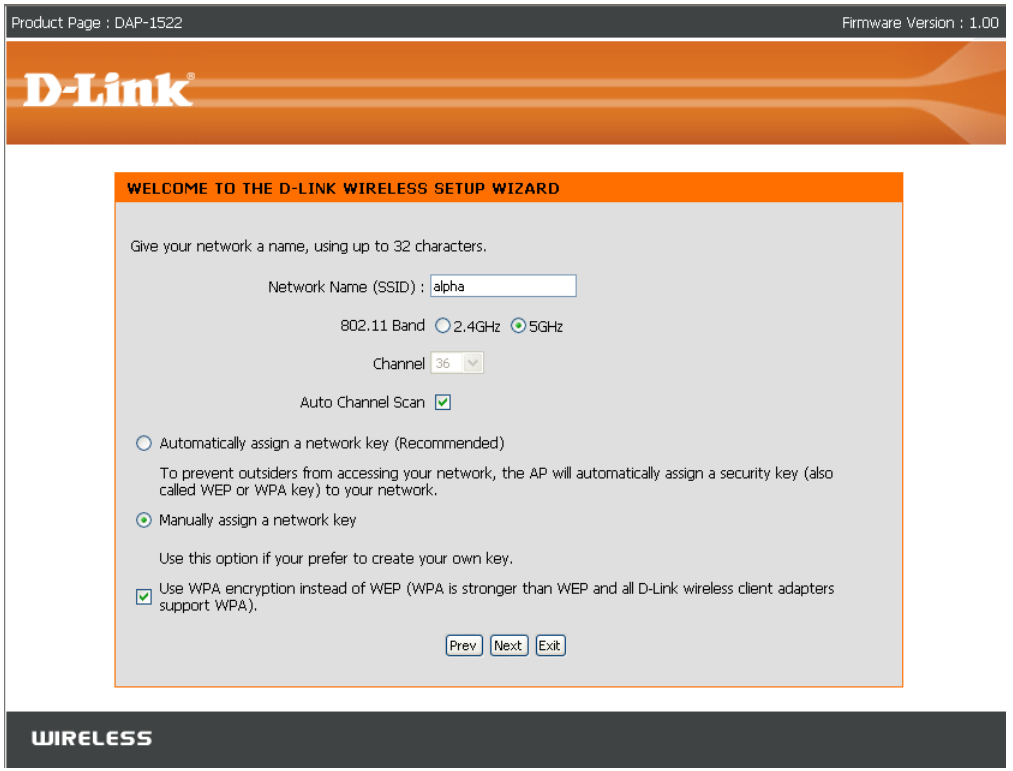
If you choose WEP encryption, the following screen will show you your Network Key to enter on your wireless clients.

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



Choose **Manually assign a network key** to create you own key.

Click **Next** to continue.

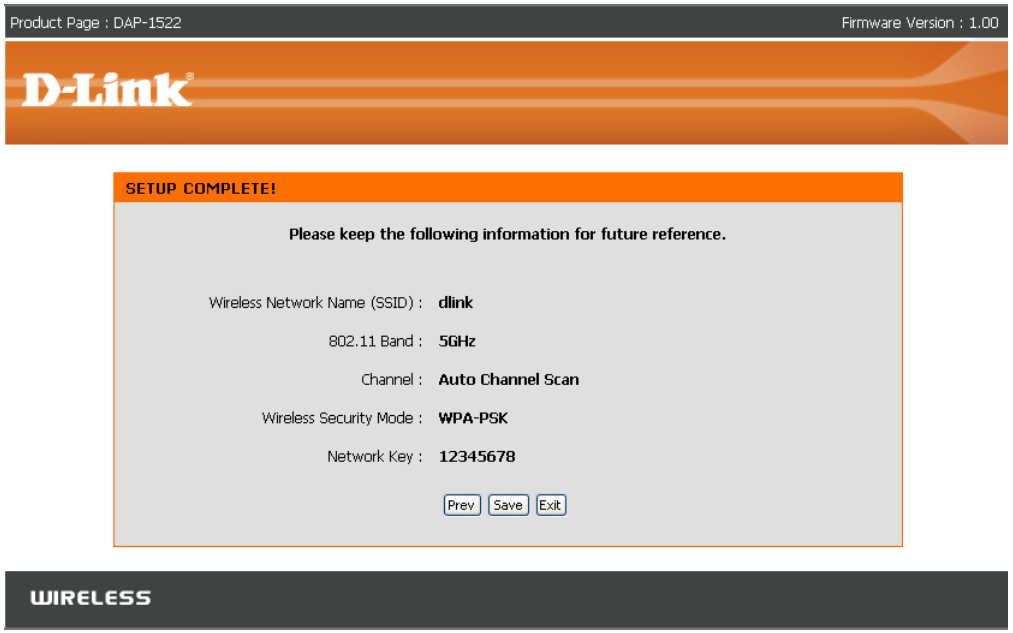


For **WPA** encryption, enter a Network Key between 8 and 63 characters long or enter exactly 64 characters using 0-9 and A-F.

Click **Next** to continue.

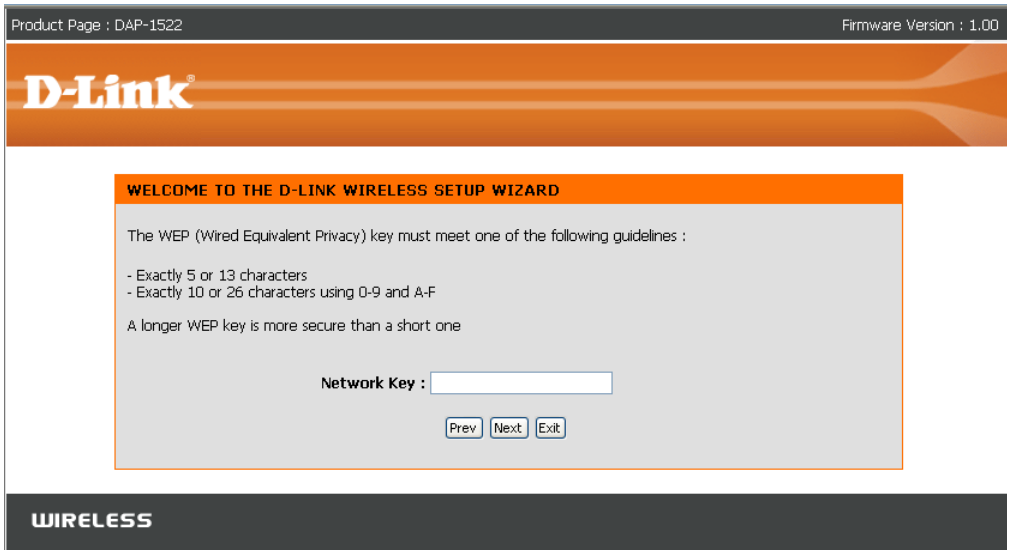
If you select **WPA** encryption, the following screen will show you your network key to enter on your wireless clients.

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



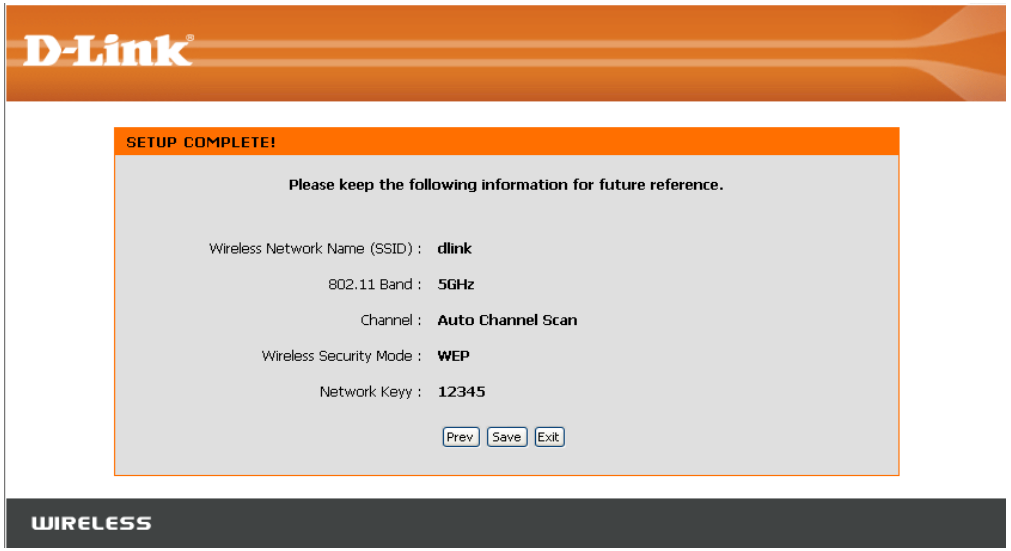
For **WEP** encryption, enter a Network Key exactly 5 or 13 characters long or exactly 10 or 26 characters using 0-9 and A-F.

Click **Next** to continue.



If you select **WEP** encryption, the following screen will show you your network key to enter on your wireless clients.

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



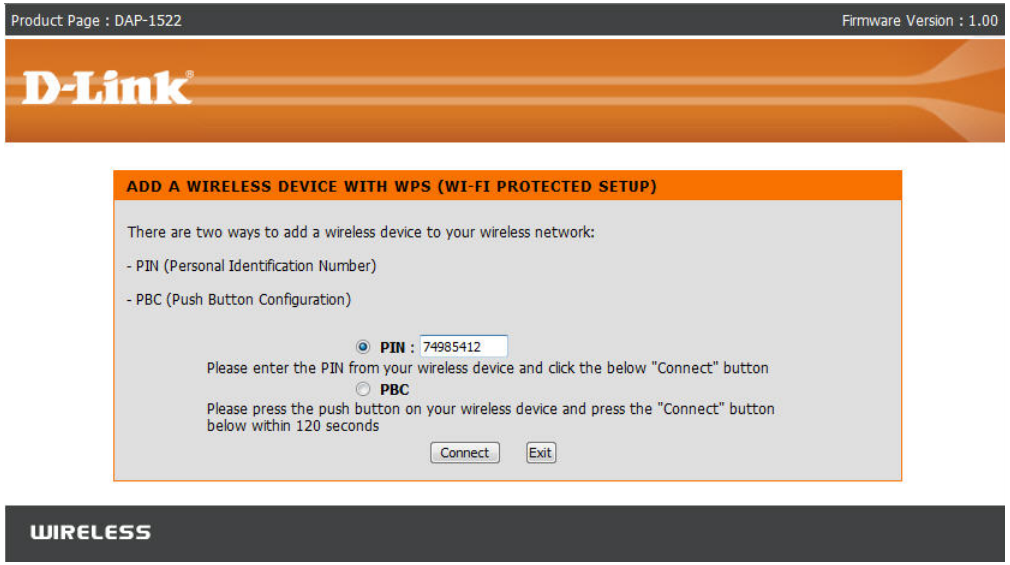
Add Wireless Device With WPS

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.

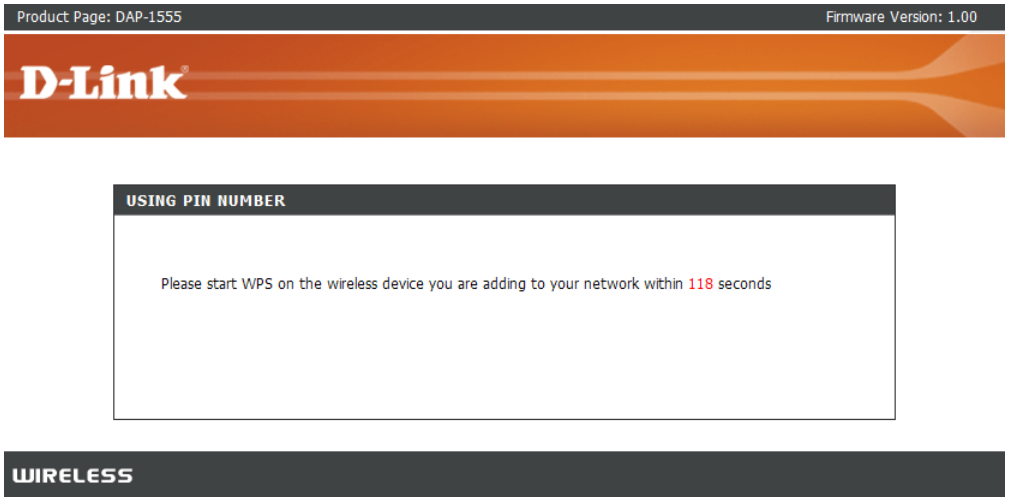
Select **PIN** to use your PIN number from your wireless device to connect to your network.

For **PBC** configuration, skip to page 23.

Click **Connect** to continue.

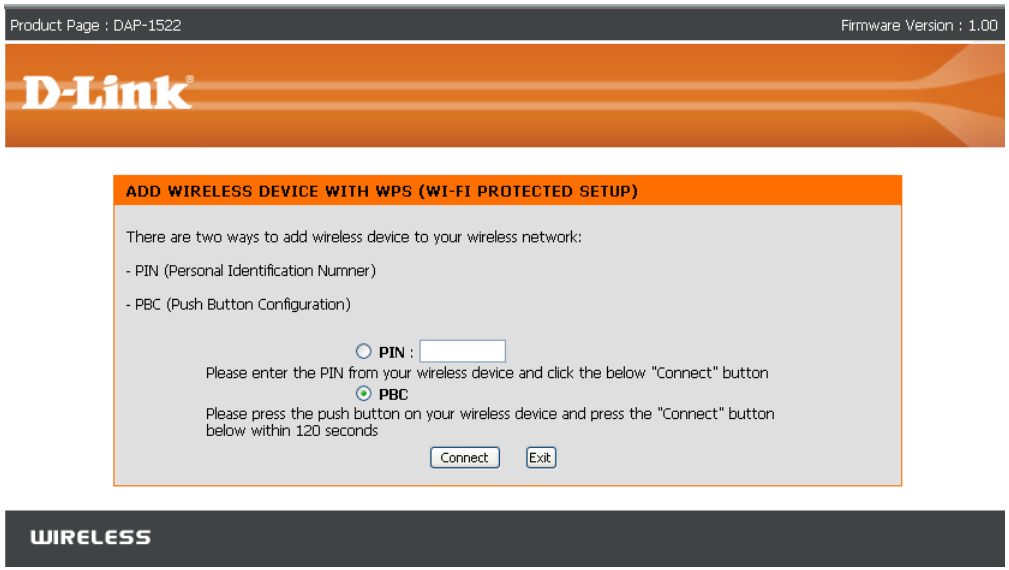


Start WPS on the wireless device you are adding to you wireless network to complete the setup.

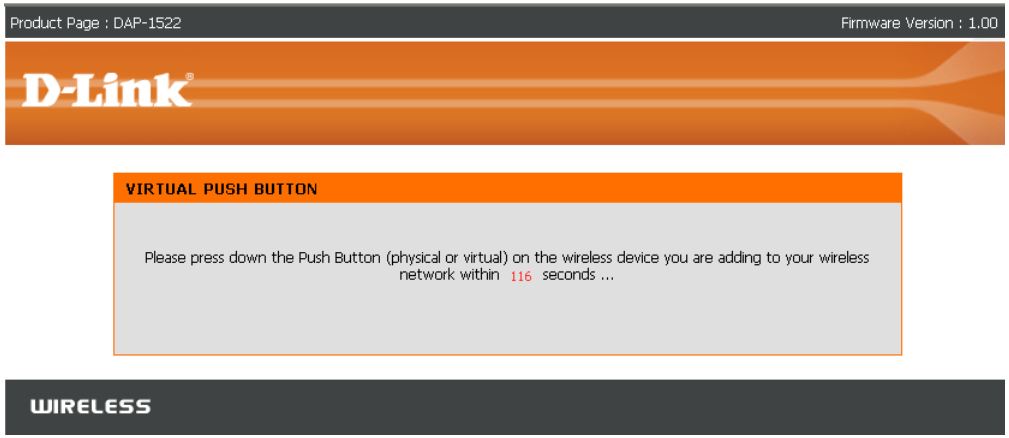


Select **PBC** to use the Push Button Configuration to connect to your network.

Click **Connect** to continue.



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



Manual Configuration
Wireless Settings

Wireless Mode: The current wireless mode is set to Access Point, it will create a wireless infrastructure network.

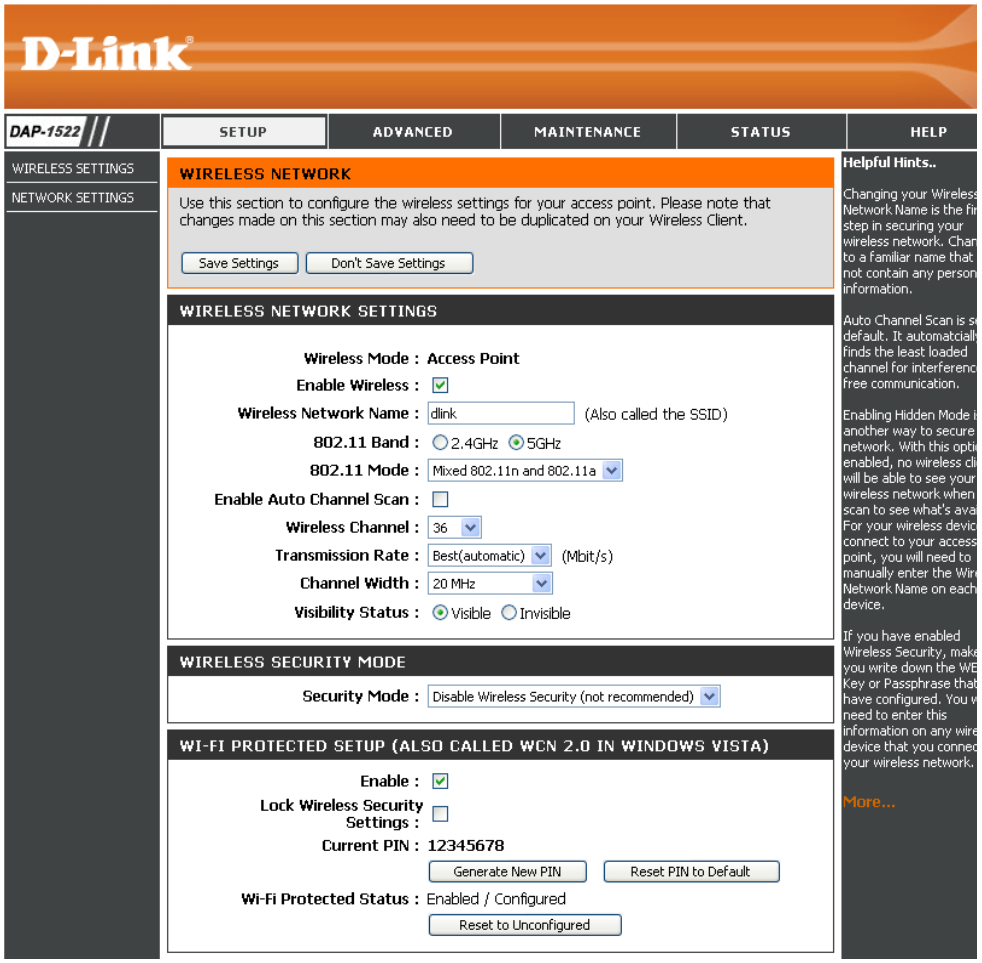
Enable Wireless: Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions.

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 pre-configured network name.

802.11 Band: Operating frequency band. Choose 2.4GHz for visibility to legacy devices and for longer range. Choose 5GHz for least interference.

802.11 Mode: If you choose 2.4GHz band, than select one of the following:
Mixed 802.11n, 802.11g and 802.11b - Select if you are using a mix of 802.11n, 11g, and 11b wireless clients. **802.11b Only** - Select if you are only using 802.11b wireless clients.
802.11g Only - Select if you are only using 802.11g wireless clients.
802.11n Only - Select if you are only using 802.11n wireless clients.
Mixed 802.11g and 802.11b - Select if you are using a mix of 802.11g and 11b wireless clients.
Mixed 802.11n and 802.11g - Select if you are using a mix of 802.11n and 11g wireless clients.

If you choose 5GHz band, then select either **802.11a Only, 802.11n Only,** or **Mixed 802.11n and 802.11a**.



Enable Auto Channel Scan: The Auto Channel Scan setting can be selected to allow the DAP-1522 to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1522. 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.

Transmission Rate: Select the transmit rate. It is strongly suggested to select **Best (automatic)** for best performance.

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-1522. If Invisible is selected, the SSID of the DAP-1522 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DAP-1522 in order to connect to it.

Security Mode: Refer to page 63 for more information regarding the wireless security.

Enable: Enable the Wi-Fi Protected Setup feature.

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

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

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

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

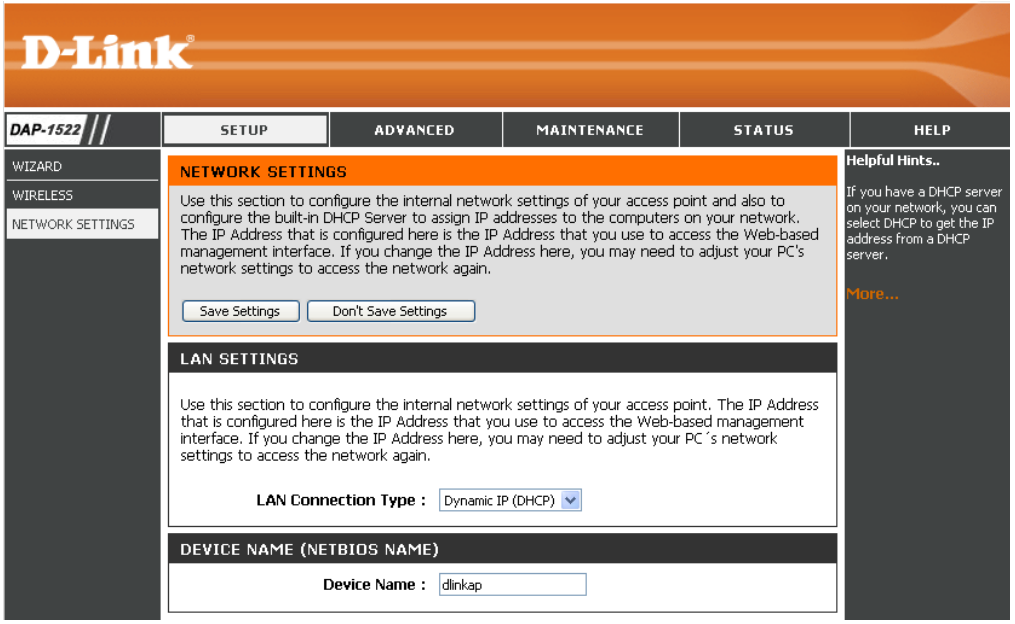
Reset to Unconfigured: Resets Wi-Fi Protected Status to Not Configured. Vista WPS icon will only be displayed when the Wi-Fi Protected Status is Not Configured.

Network Settings
DHCP

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

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

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



Static IP

Select Static IP Address if all the Internet port's 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. Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Access point will not accept the IP address if it is not in this format.

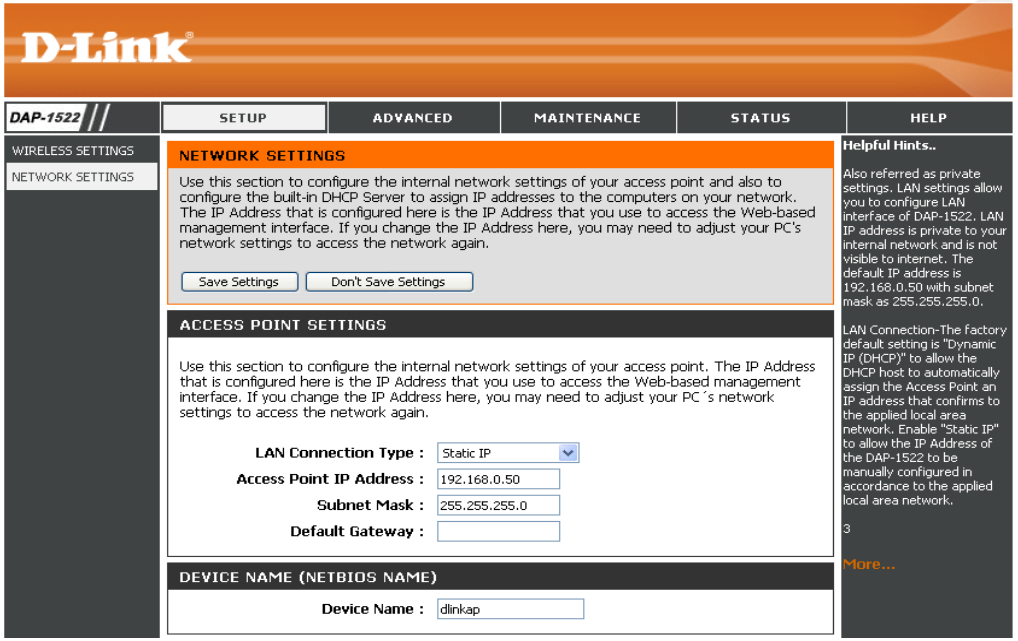
LAN Connection Type: Use the drop-down menu to select Static IP if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses. Select Dynamic IP (DHCP) to automatically assign an IP address to the computers on the LAN/private network.

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

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

Default Gateway: Enter the Gateway assigned by your ISP.

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.

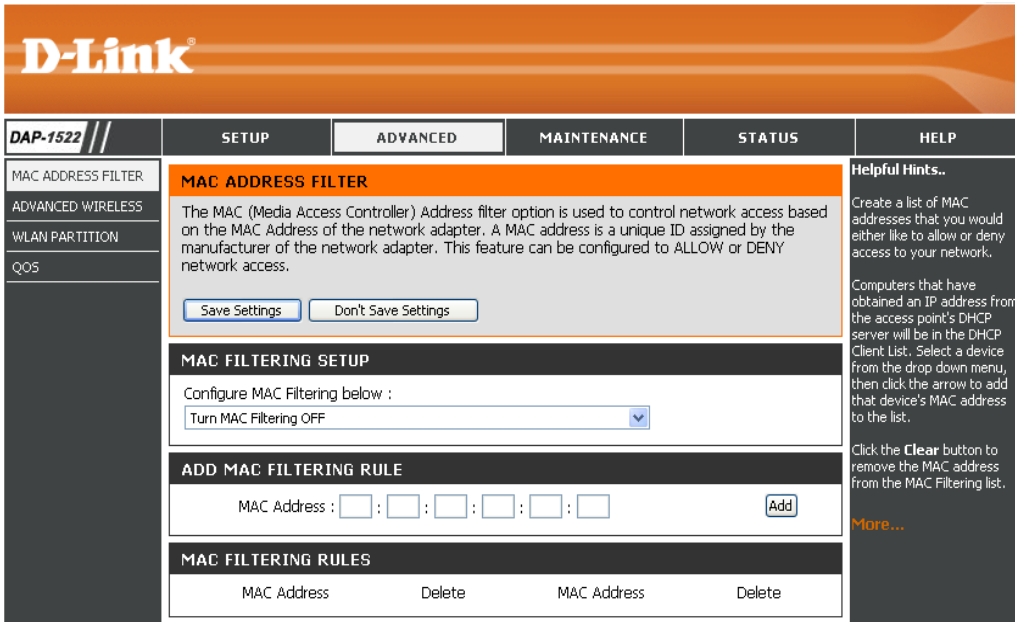


Advanced
MAC Address Filter

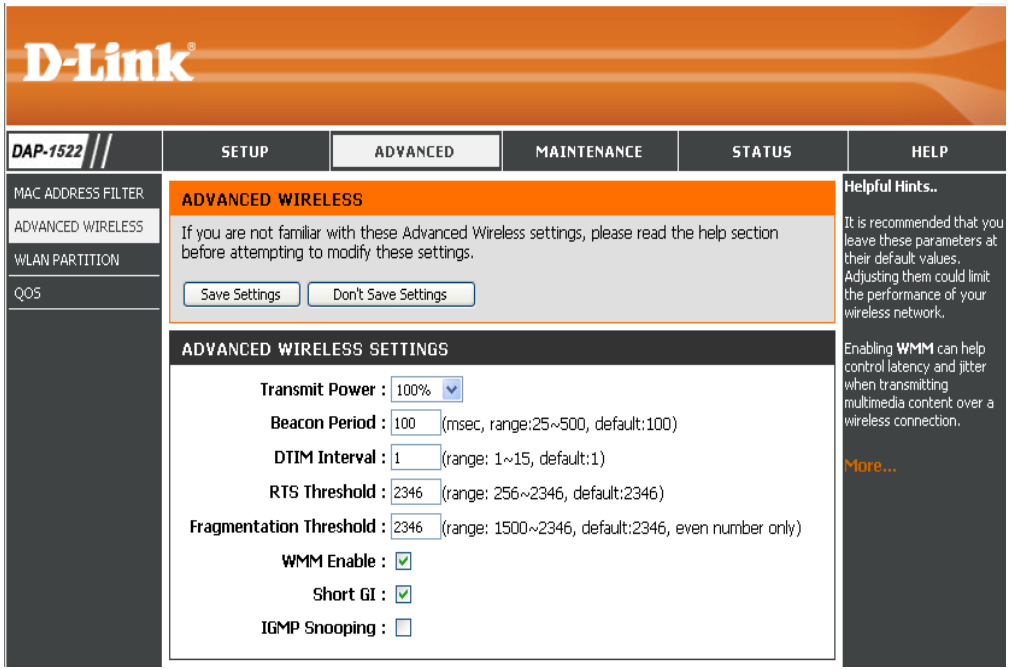
The MAC address filter section can be used to filter network access by machines based on the unique MAC addresses of their network adapter(s). It is most useful to prevent unauthorized wireless devices from connecting to your network. A MAC address is a unique ID assigned by the manufacturer of the network adapter.

Configure MAC Filtering: When “Turn MAC Filtering OFF” is selected, MAC addresses are not used to control network access. When “Turn MAC Filtering ON and ALLOW computers listed to access the network” is selected, only computers with MAC addresses listed in the MAC Address List are granted network access. When “Turn MAC Filtering ON and DENY computers listed to access the network” is selected, any computer with a MAC address listed in the MAC Address List is refused access to the network.

Add MAC Filtering Rule: This parameter allows you to manually add a MAC filtering rule. Click the Add button to add the new MAC filtering rule to the MAC Filtering Rules list at the bottom of this screen.



Advanced Wireless



Transmit Power: Set the transmit power of the antennas.

Beacon Period: Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. 100 is the default setting and is recommended.

DTIM Interval: (Delivery Traffic Indication Message) 1 is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

RTS Threshold: This value should remain at its default setting of 2346. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation Threshold: The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting.

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 is less reliable and may create higher data loss.

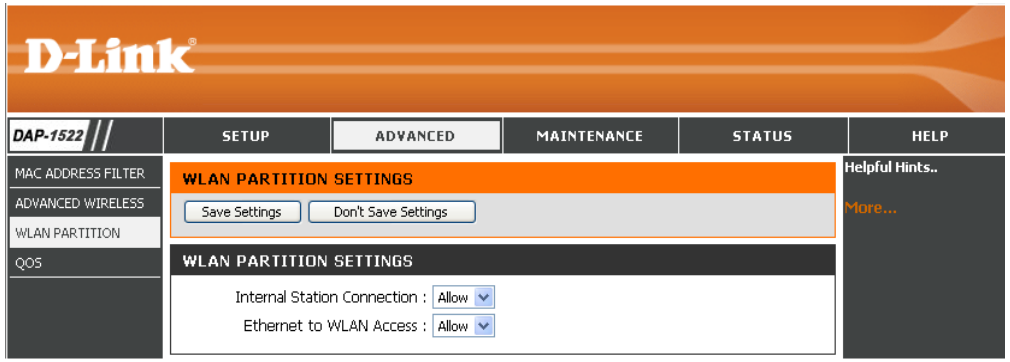
IGMP Snooping: This enables IGMP snooping for the wireless connection. We recommend enabling this if you often use multicast services such as video conferencing and streaming audio/video.

WLAN Partition

WLAN Partition allows you to segment your Wireless network by managing access to both the internal station and Ethernet access to your WLAN.

Internal Station Connection: Use the drop-down menu to either Allow or Deny internal station connection.

Ethernet to WLAN Access: Use the drop-down menu to either Allow or Deny Ethernet to Wireless LAN access.



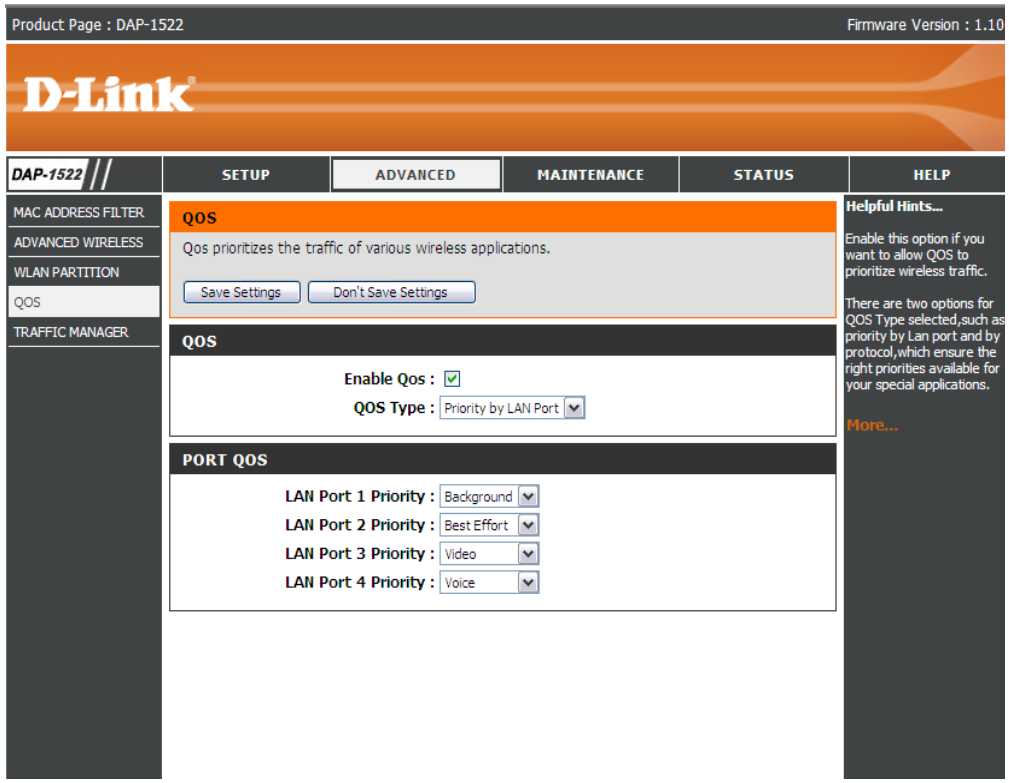
QoS

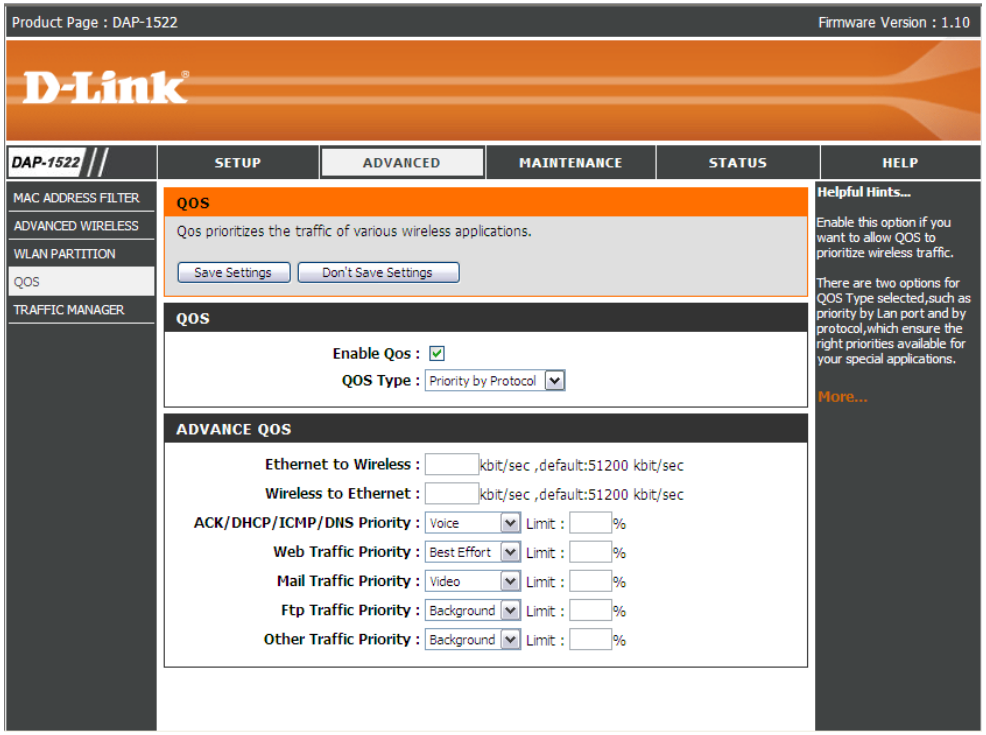
Quality of Service (QoS) feature regulates flow of data through the access point by assigning a priority to each packet, which enhances your experience of using a wireless network by prioritizing the traffic of different applications. Enabling this option allows the AP to prioritize traffic. There are two options available for the special application.

Enable QoS: Enable this option if you want QoS to prioritize your traffic.

QoS Type: There are two options available for your special application: (1) Priority by LAN Port, and (2) Priority by Protocol.

Priority by LAN Port: There are four priority levels for all LAN ports. The priority level values assigned are 1 for Background, 3 for Best Effort, 5 for Video and 7 for Voice (Voice is the highest level and Background is the lowest level).at a normal priority.





Priority by Protocol: Users can set the priority and percentage of total bandwidth reserved for each of their four traffic categories. Please note that the combined percentage value of transmission limits does not have to be 100%, these percentages represent the maximum bandwidth designated for each traffic category.

Wireless to Ethernet: The value entered here indicates the wireless to Ethernet speed required before the Advanced QoS function is enabled. Advanced QoS will be enabled once the total bandwidth reaches or surpasses the set value. The suggested range is 800 ~ 96000kbits/sec.

Ethernet to Wireless: The value entered here indicates the Ethernet to wireless speed required before the Advanced QoS function is enabled. Advanced QoS will be enabled once the total bandwidth reaches or surpasses the set value. The suggested range is 800 ~ 96000kbits/sec.

ACK/DHCP/ICMP/DNS Priority: Represents the priority value and bandwidth limit applied to ACK, DHCP, ICMP, and DNS for packet delivering.

Web Traffic Priority: Traffic generated by typical Web services (packets sent through ports 80,443, 3128 and 8080).

Mail Traffic Priority: Traffic generated by e-mail sending and receiving (ports 25, 110, 465 and 995).

Ftp Traffic Priority: Traffic generated by FTP Uploading and Downloading (ports 20, 21).

Other Traffic Priority: Other traffic generated that does not regard the aforementioned packet delivery.

Note: Normally the wireless connection transmits application data packets based on the wireless to Ethernet speed and Ethernet to wireless speed. Users can treat the two speeds as system transmission bandwidth, where all applications will share the whole system bandwidth based on assigned priorities. Note that the maximum amount of bandwidth that can be used is the same as the set value of both speeds.

Traffic Manager

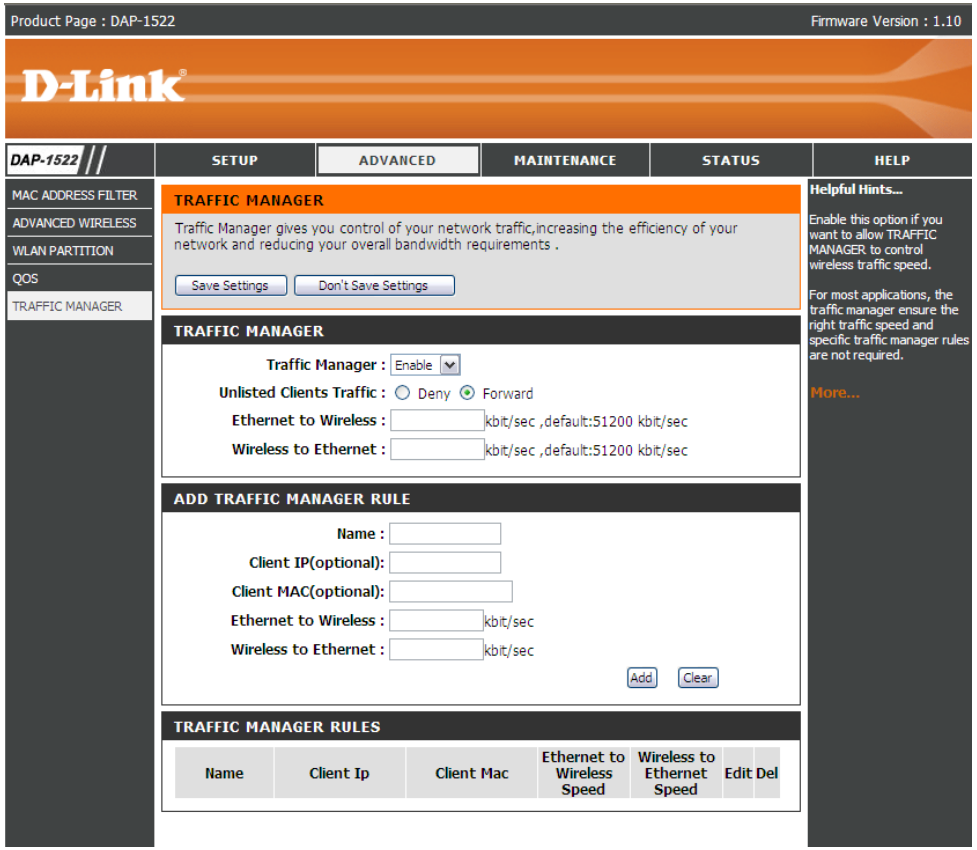
Traffic Manager assigns the device's entire bandwidth, which includes both the wireless to Ethernet speed and Ethernet to wireless speed. The user may add rules for data transmission performance between the access point device and the individual client. For unlisted client traffic, users can either choose to deny or forward packet transferred for such clients.

Enable Traffic Manager: Traffic Manager enables traffic control of the delivering and receiving of data packets.

Unlisted Clients Traffic: There are two options available for Unlisted Clients Traffic: (1) deny, and (2) forward.

Ethernet to Wireless: This section allows the user to indicate the device's maximum bandwidth from Ethernet to wireless.

Wireless to Ethernet: This section allows the user to indicate the device's maximum bandwidth from wireless to Ethernet.



Add Traffic Manager Rule

In Traffic Manager Rule enter settings for each user of your network, using adequate IP (Client IP) or MAC address (Client MAC). Set appropriate Ethernet to Wireless and Wireless to Ethernet speeds for the traffic you want to regulate.

Name: Enter a name for your new rule.

Client IP (optional): The IP address assigned to the client.

Client MAC (optional) : By assigning MAC addresses to the set of traffic manager rules, specific rules can be defined for individual devices.

Ethernet to Wireless: Represents the available bandwidth for client data to be forwarded from Ethernet to wireless, the suggested range is 800 ~ 96000kbits/sec.

Wireless to Ethernet: Represents the available bandwidth for client data to be forwarded from wireless to Ethernet, the suggested range is 800 ~ 96000kbits/sec.

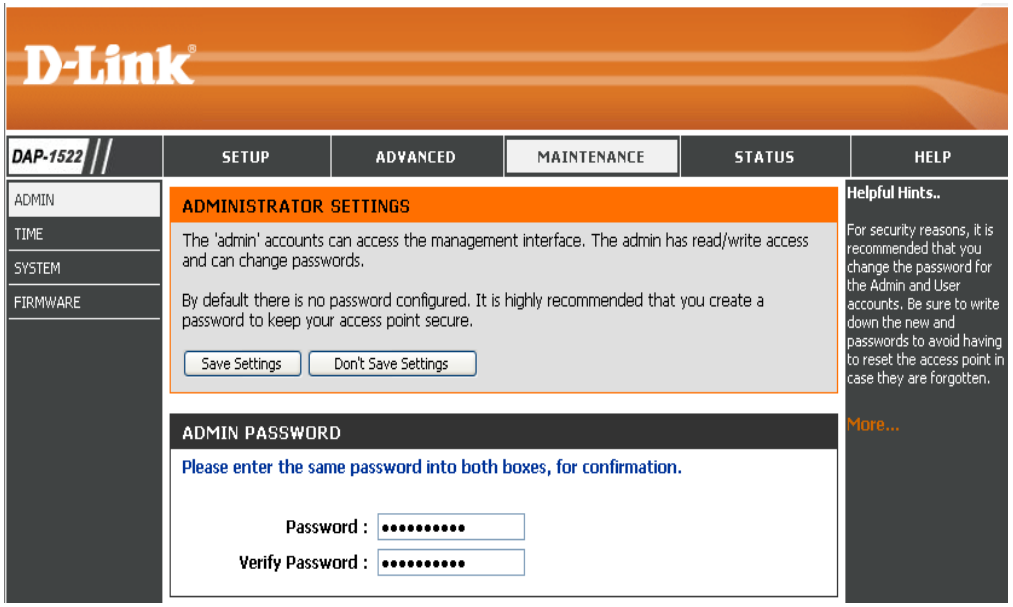
Note: Normally the wireless connection transmits application data packets based on the wireless to Ethernet speed and Ethernet to wireless speed. Users can treat the two speeds as system transmission bandwidth, where all applications will share the whole system bandwidth based on assigned priorities. Note that the maximum amount of bandwidth that can be used is the same as the set value of both speeds.

Tools
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.



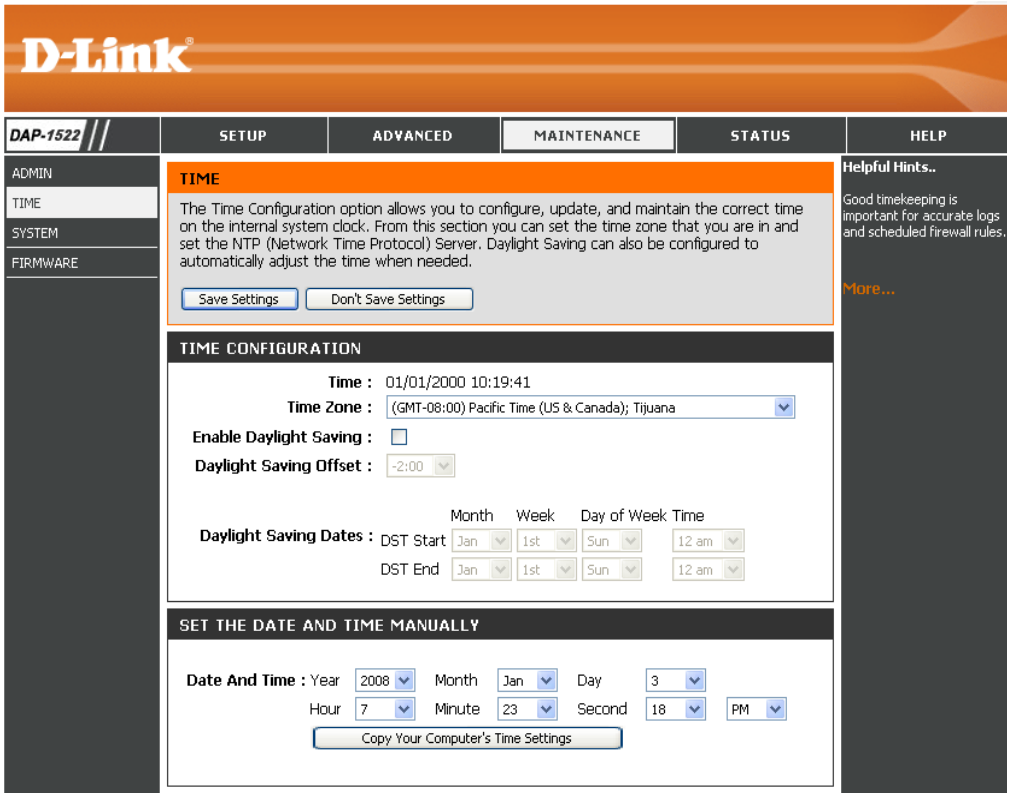
Time

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, tick 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.

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

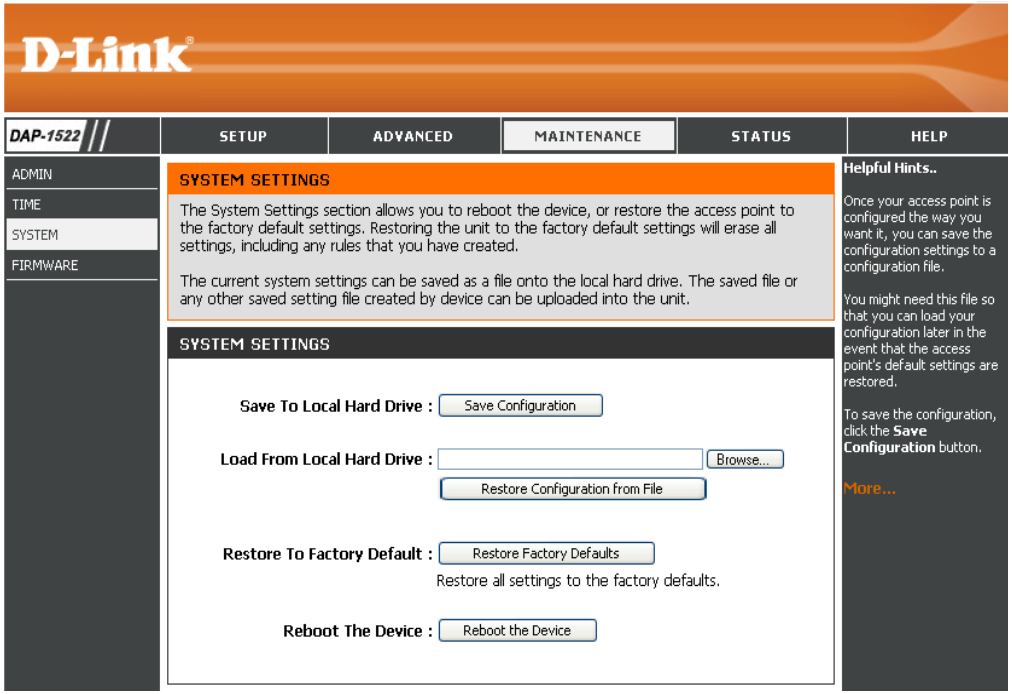
Save to Local Hard Drive: Use this option to save the current access point configuration settings to a file on the hard disk of the computer you are using. First, click the Save button. You will then see a file dialog, where you can select a location and file name for the settings.

Load from Local Hard Drive: Use this option to load previously saved access point configuration settings. First, use the Browse control to find a previously save file of configuration settings. Then, click the Load 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.

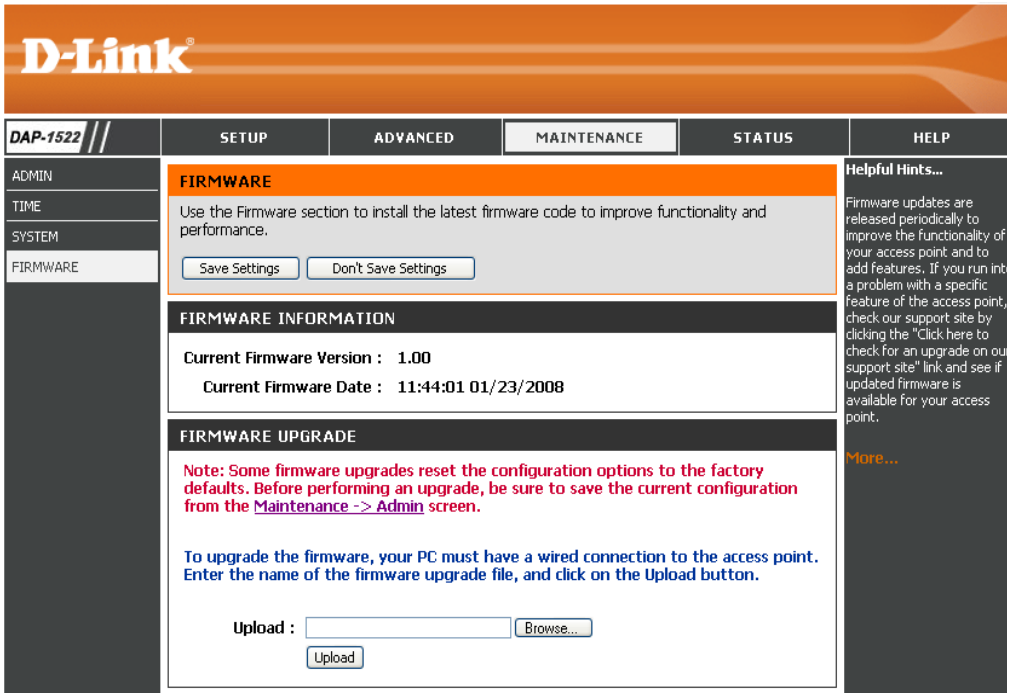


Firmware

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.

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.



Status

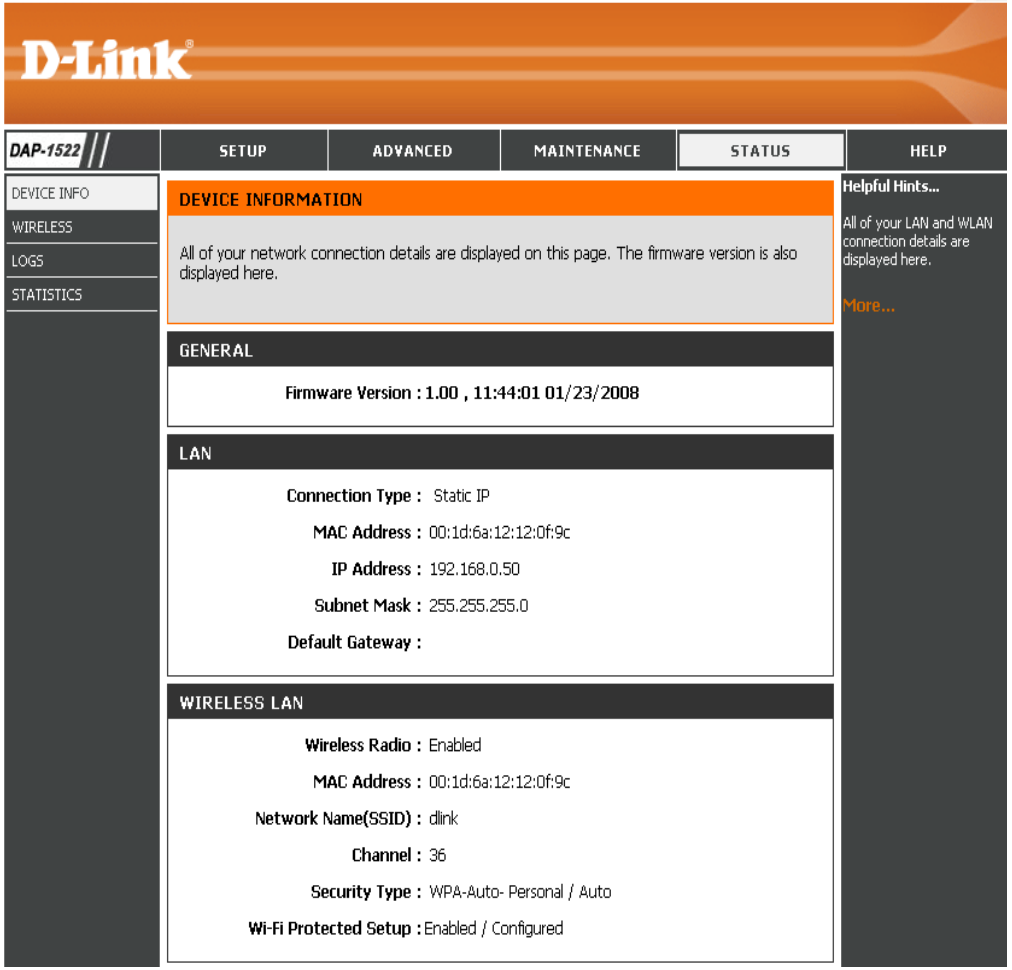
Device Info

This page displays the current information for the DAP-1522. It will display the LAN and wireless LAN information.

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

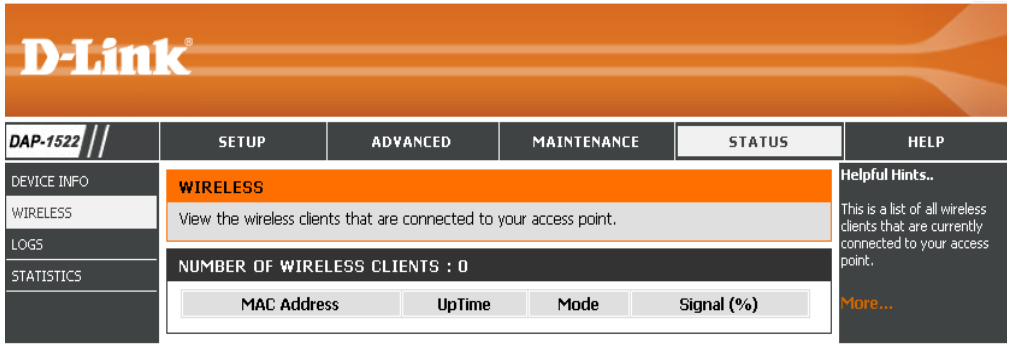
LAN: Displays the MAC address and the private (local) IP settings for the access point.

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



Wireless

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



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

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

Mode: The transmission standard being used by the client. Values are 11a, 11b, 11g, 11ng or 11na for 802.11a, 802.11b, 802.11g or 802.11n respectively.

Signal: This is a relative measure of signal quality. The value is expressed as a percentage of theoretical best quality. Signal quality can be reduced by distance, by interference from other radio-frequency sources (such as cordless telephones or neighboring wireless networks), and by obstacles between the access point and the wireless device.

Logs

The access point automatically logs (records) events of possible interest in its 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 access point logs. You can define what types of events you want to view and the level of the events to view. This access point 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

What to View: There are three types of logs that can be viewed: System Activity, Wireless Activity, and Notice. Tick the corresponding check box for the type(s) that you want displayed in the log.

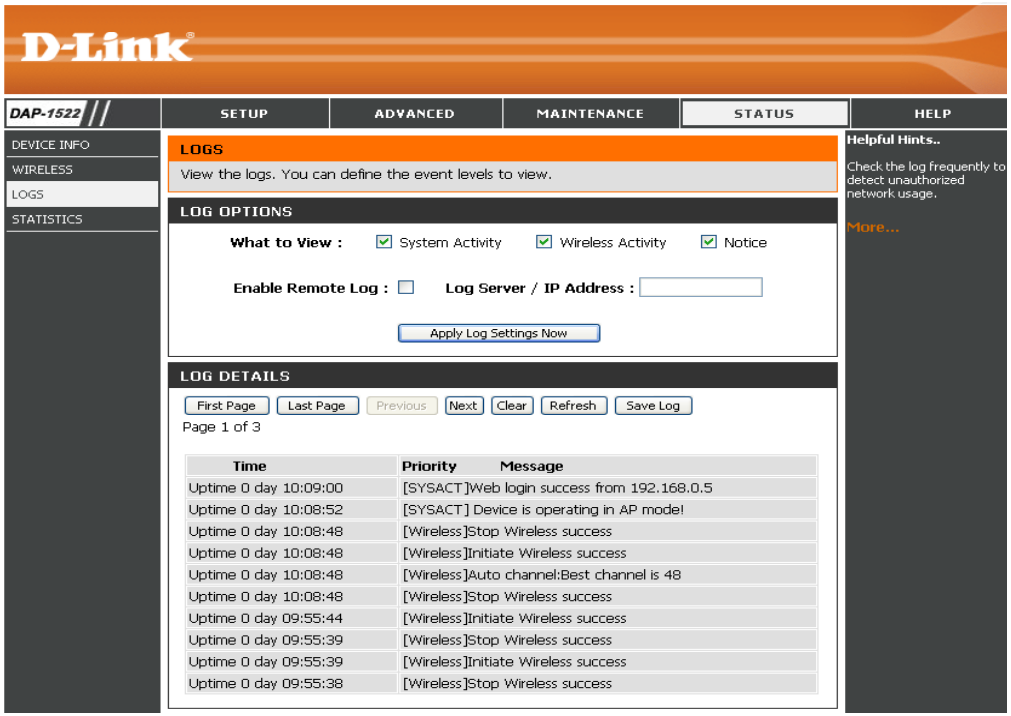
Enable Remote Log: Tick this check box and enter a Log Server name or IP address to enable the remote log feature.

Apply Log Settings Now: Click this button to immediately filter the log results so that only the selected options appear in the Log Details section of this screen.

Refresh: Updates the log details on the screen so it displays any recent activity.

Clear: Clears all of the log contents.

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



Statistics

The Statistics page displays all of the LAN and Wireless packets transmit and receive statistics.

TX Packets: The total number of packets sent from the access point.

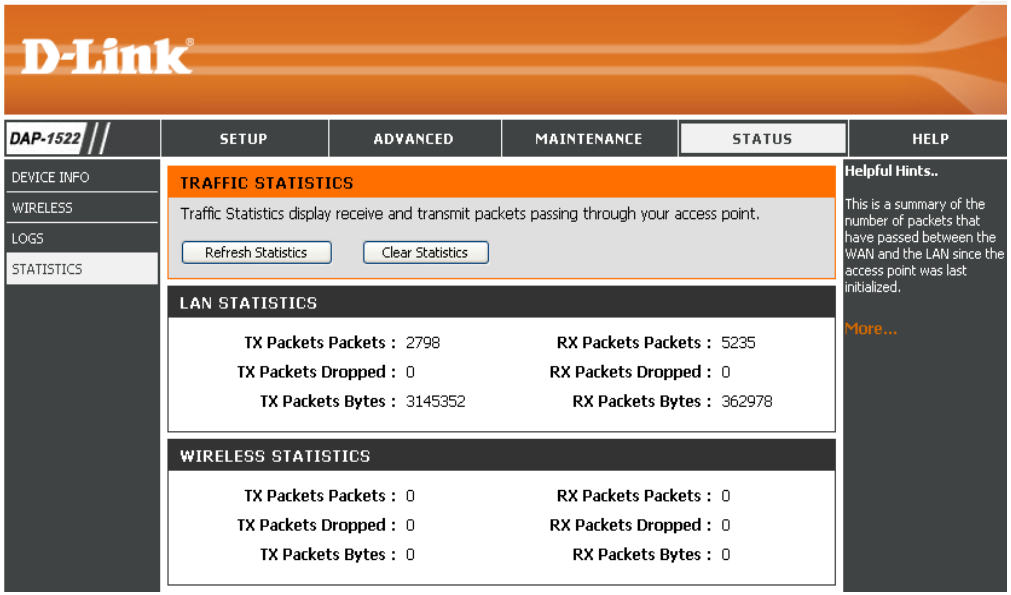
RX Packets: The total number of packets received by the access point.

TX Packets Dropped: Displays the number of packets that were dropped while sending, due to errors, collisions, or access point resource limitations.

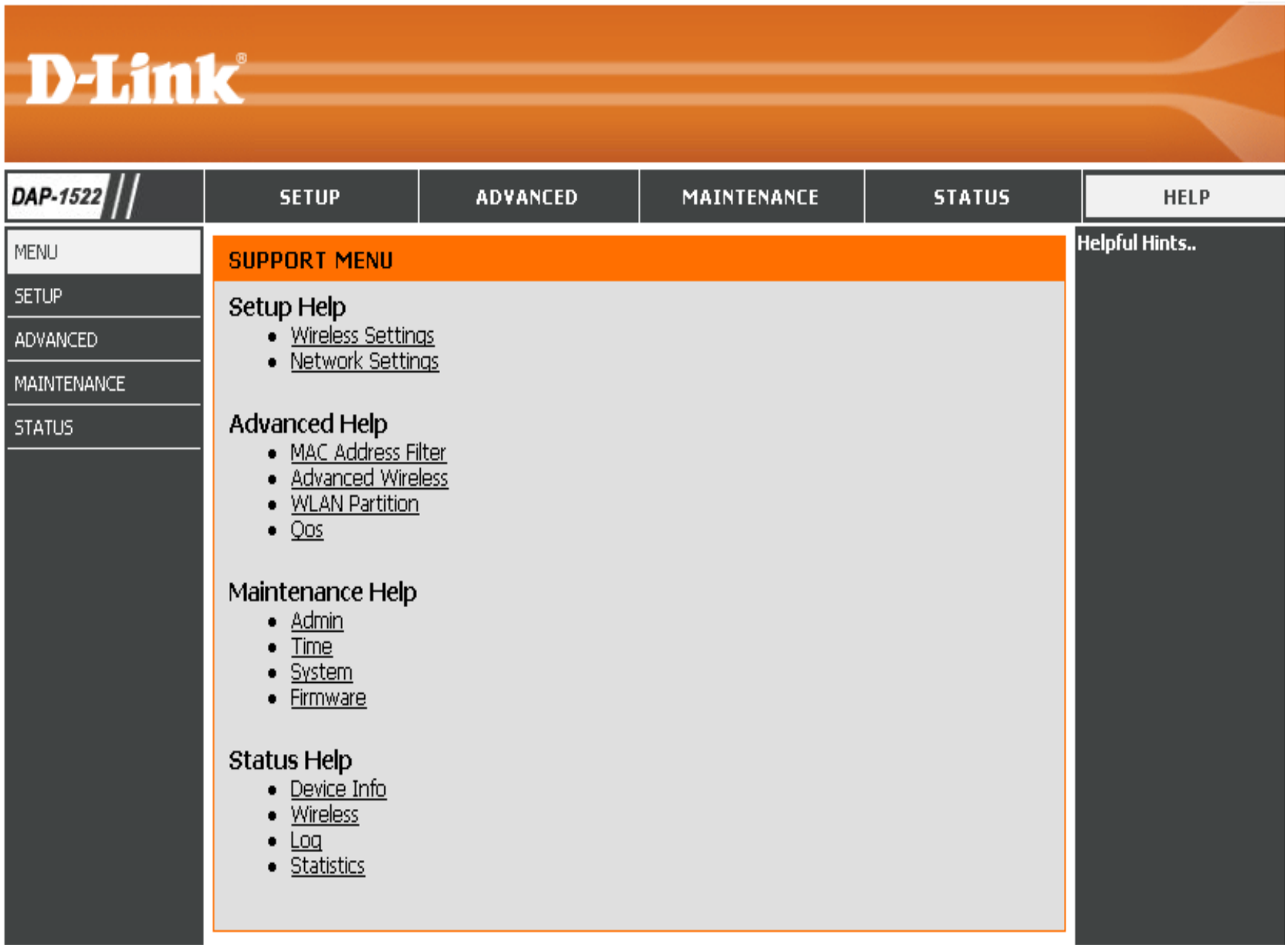
RX Packets Dropped: Displays the number of packets that were dropped while receiving, due to errors, collisions, or access point resource limitations.

TX Bytes: Displays the number of bytes that were sent from the access point.

RX Bytes: Displays the number of bytes that were received by the access point.



Help

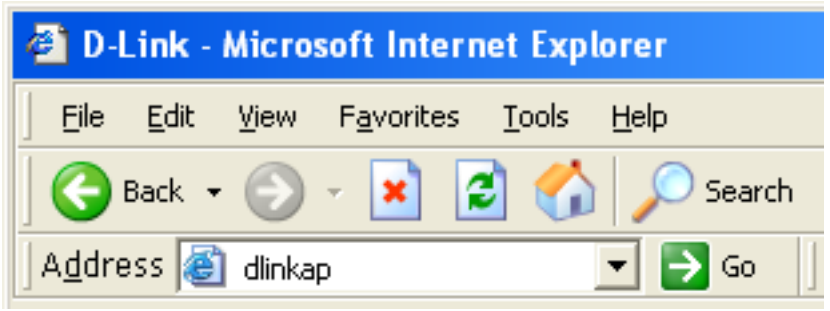

D-Link
DAP-1522
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
MENU
SETUP
ADVANCED
MAINTENANCE
STATUS
SUPPORT MENU
Setup Help
Wireless Settings
Network Settings
Advanced Help
MAC Address Filter
Advanced Wireless
WLAN Partition
Qos
Maintenance Help
Admin
Time
System
Firmware
Status Help
Device Info
Wireless
Log
Statistics
Helpful Hints..

Configuration for Bridge Mode

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

Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter the friendly address for Bridge mode (dlinkap).



Select **Admin** from the drop-down menu 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.

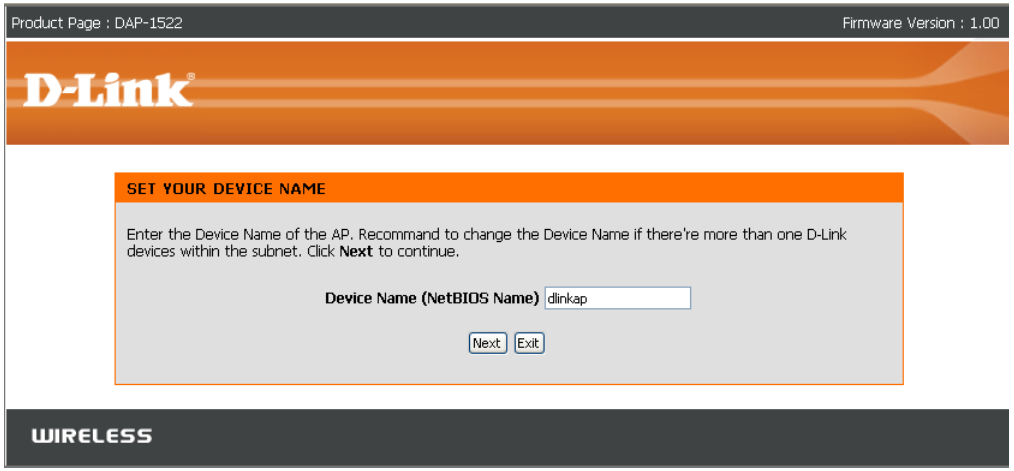
Setup Wizard

This wizard is designed to assist you in configuring the wireless settings for your bridge. It will guide you through step-by-step instructions on how to setup your wireless network.

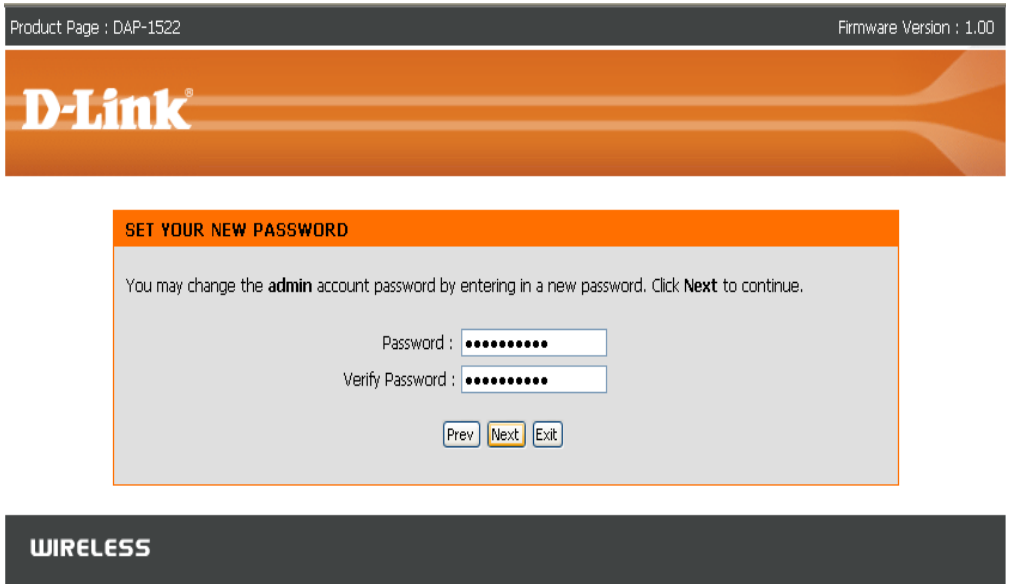
Click **Launch Wireless Setup Wizard** to begin.

Click **Launch Wireless Setup Wizard**

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



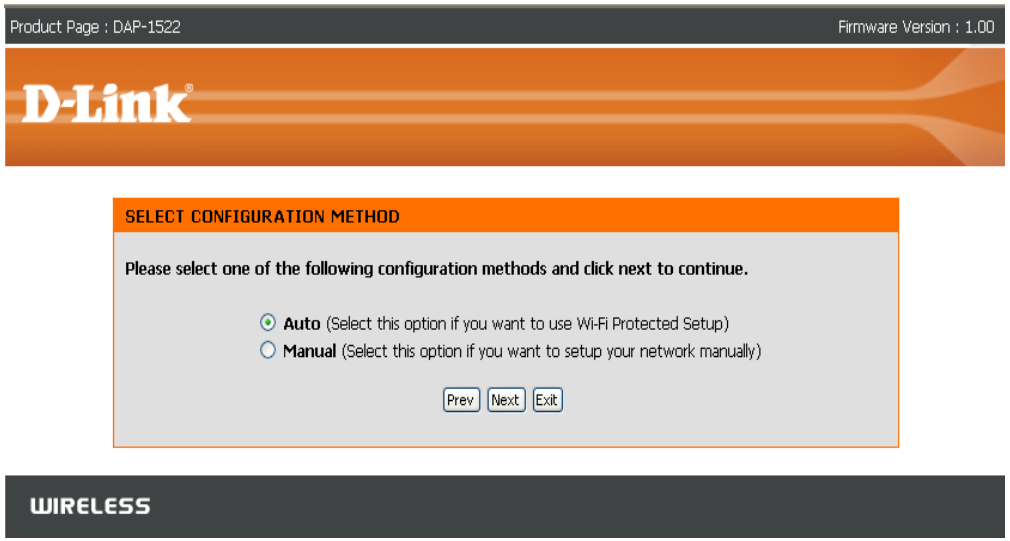
If you want to change the admin account password, enter a new password and click **Next**.



Select **Auto** configuration if you want to use Wi-Fi Protected Setup.

If you want to set up your network manually, skip to page 47.

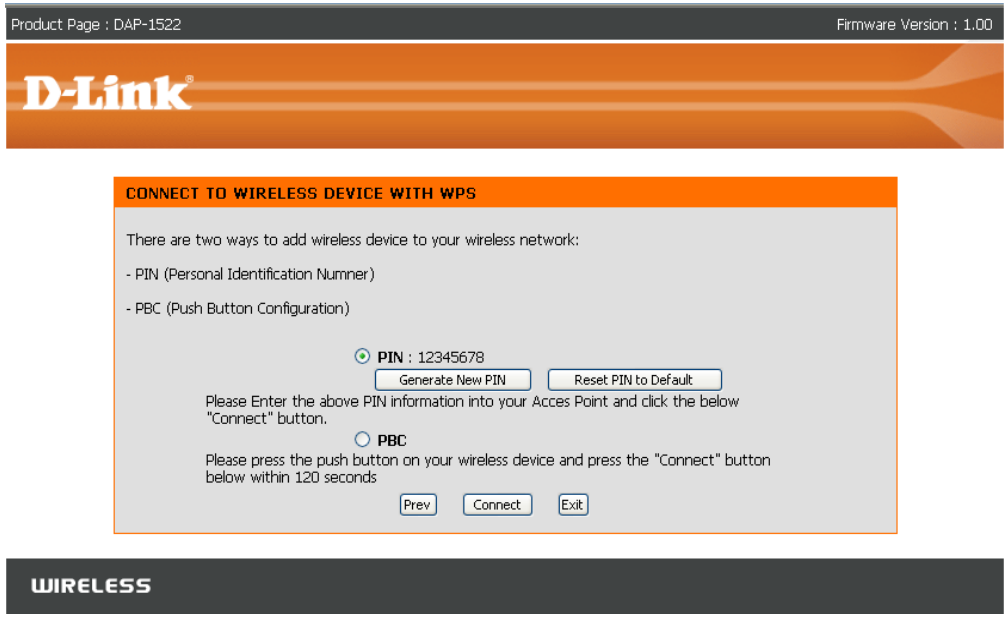
Click **Next** to continue.



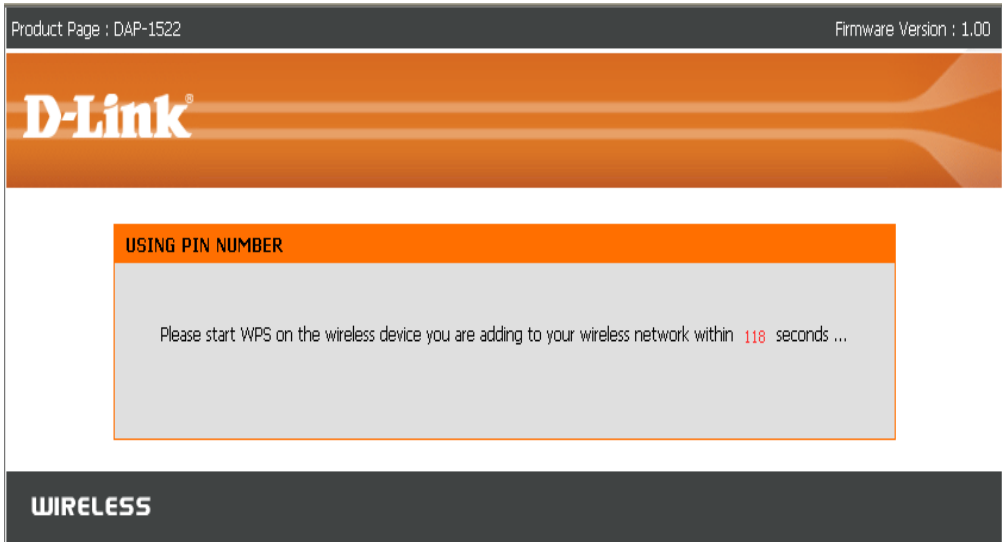
Select **PIN** to connect your wireless device with WPS.

For **PBC** configuration, skip to page 46.

Enter the PIN number used into you access point and click **Connect**.



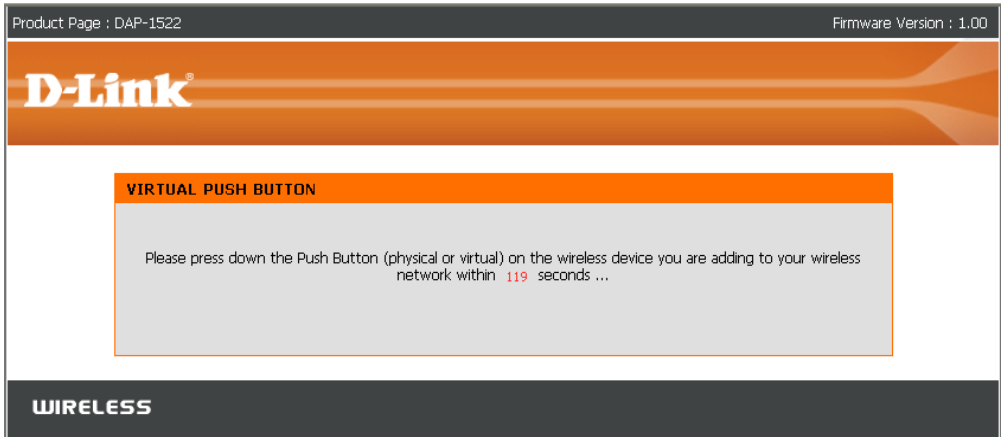
Start WPS on the wireless device you are adding to you wireless network to complete the setup.



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

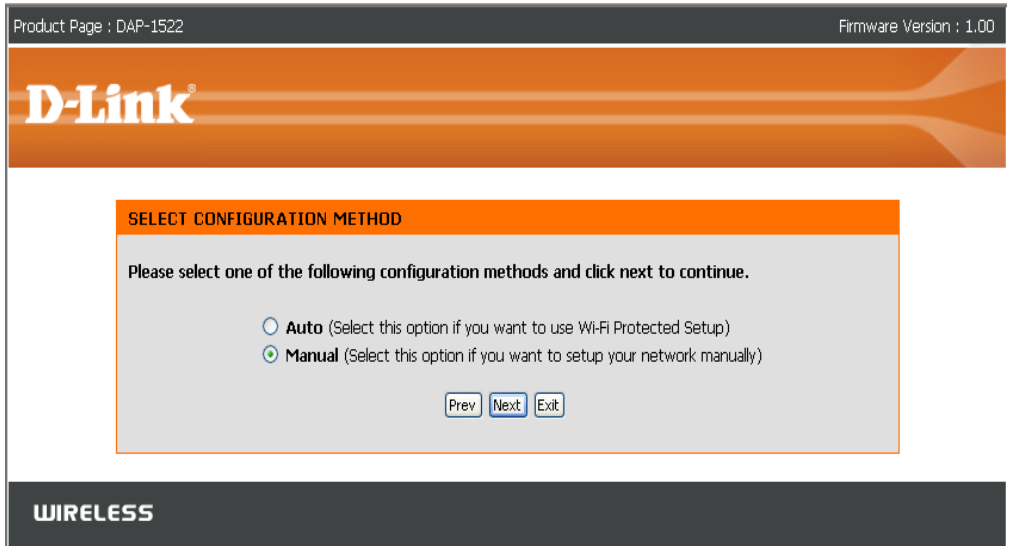
Click **Connect** to continue.

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



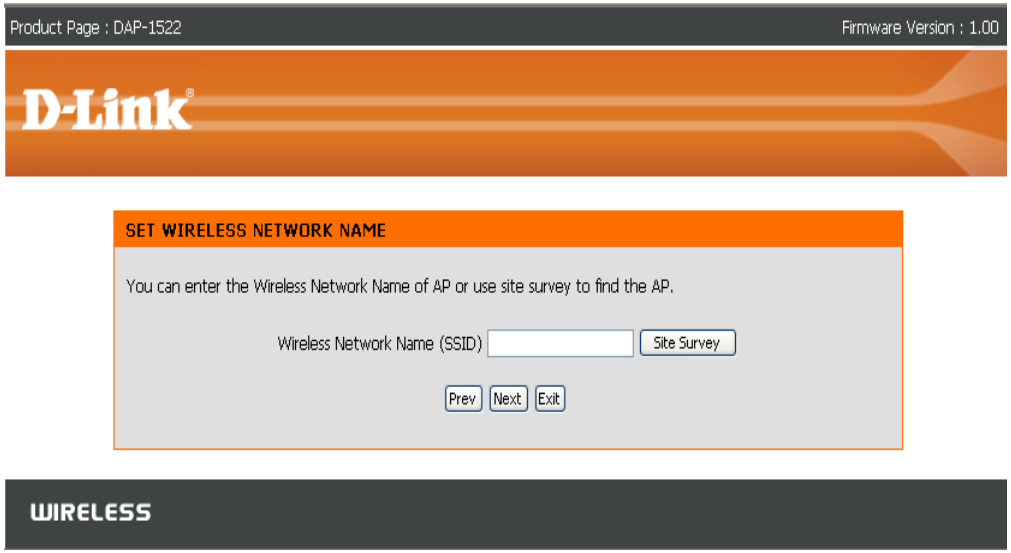
Select **Manual** configuration to set up your network manually.

Click **Next** to continue.



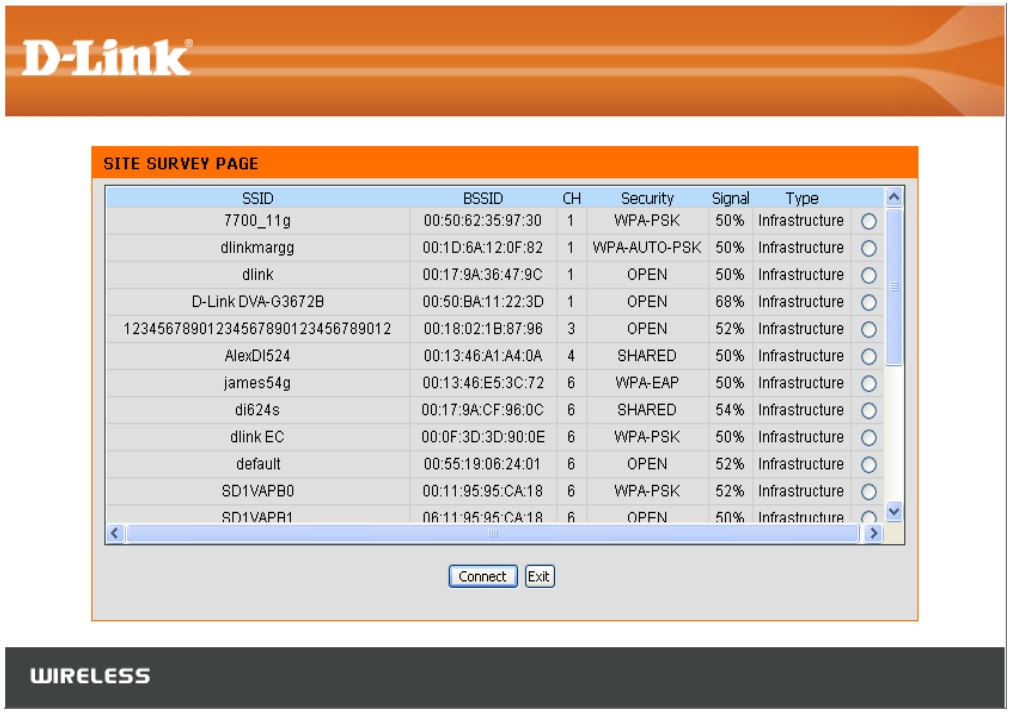
Enter the Wireless Network Name of the AP or click the Site Survey button to find the AP.

Click **Next** to continue on to page 50.

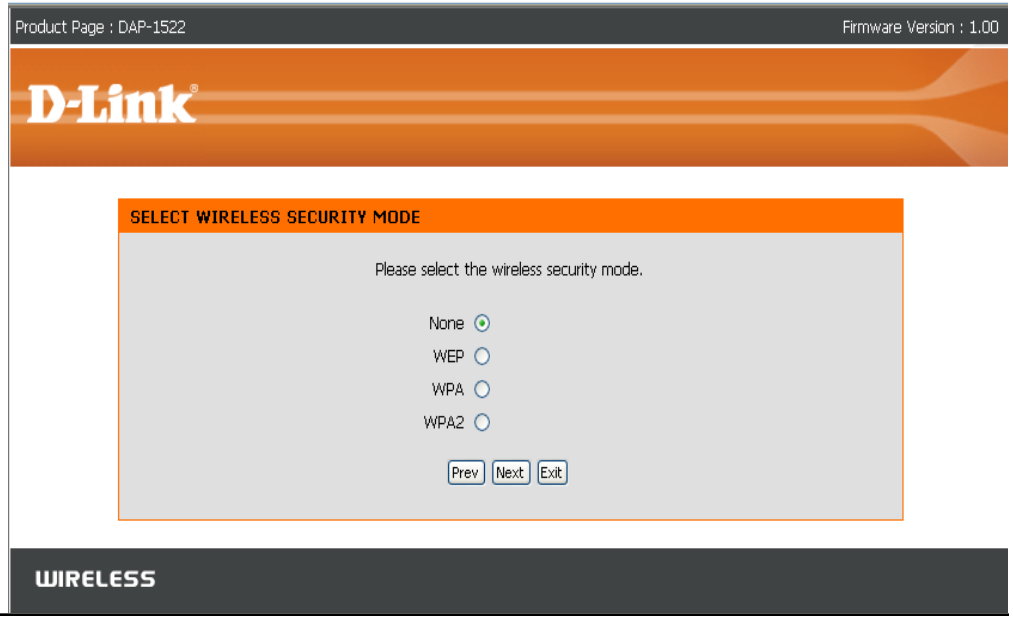


If you clicked on **Site Survey,** the following screen will be displayed.

Find your access point from the list and click **Connect** to complete the Setup Wizard.

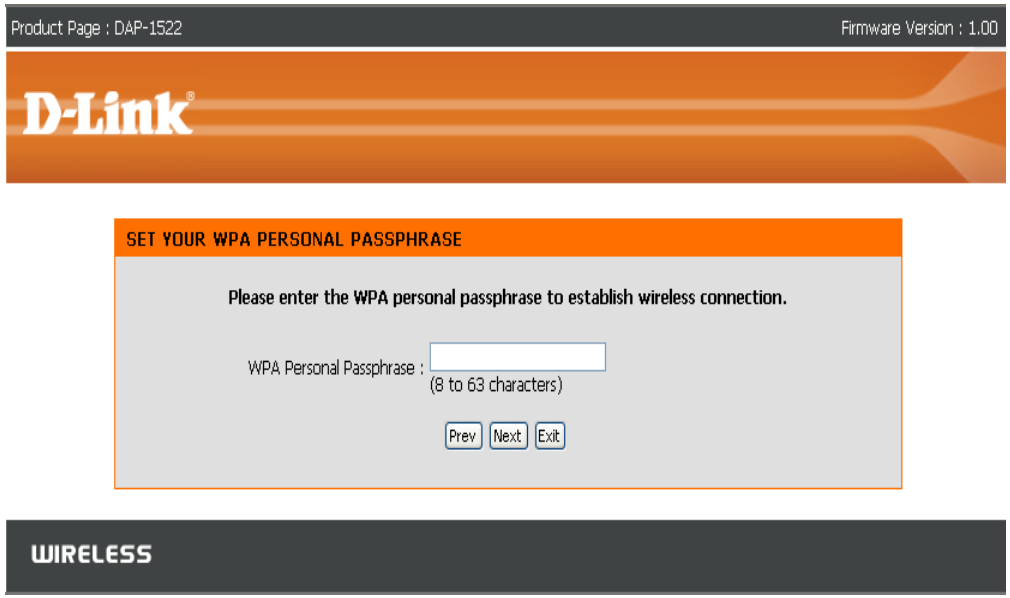


Choose which Security Mode you want to use and click **Next** to continue.

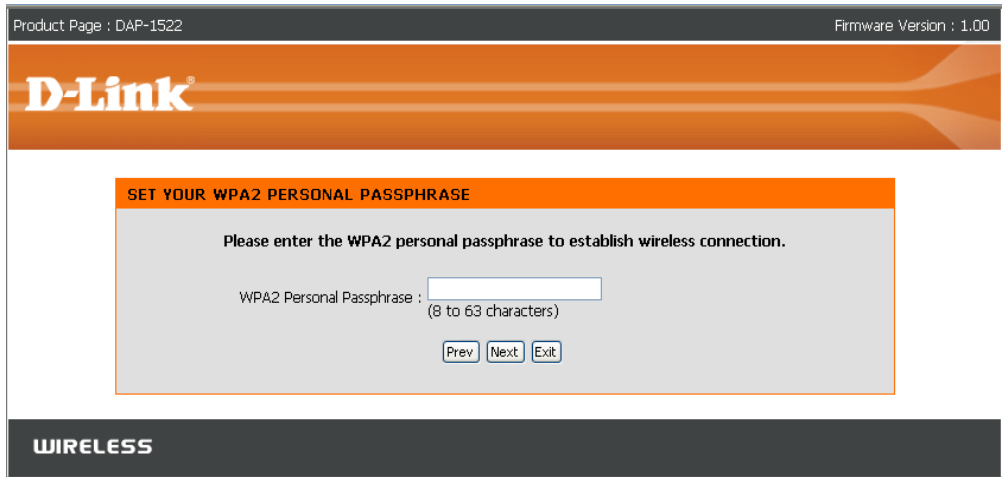


If you choose **WEP**, enter the wireless security password and click **Next** to complete the Setup Wizard.

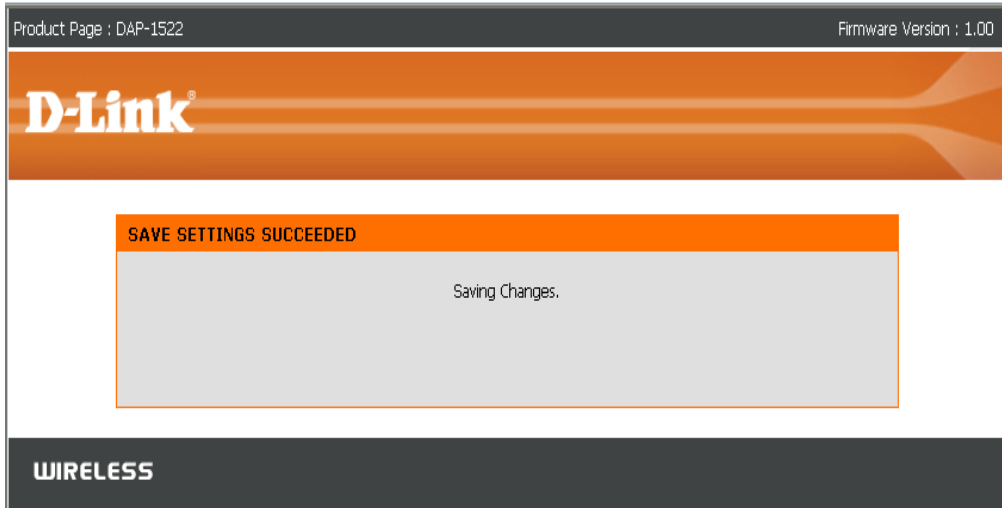
If you choose **WPA**, enter the WPA Personal Passphrase and click **Next** to complete the Setup Wizard.



If you choose **WPA2**, enter the WPA2 Personal Passphrase and click **Next** to complete the Setup Wizard.



The following screen opens to indicate that you have successfully saved your new settings.



Wireless

Wireless Mode: Select Infrastructure to connect to a wireless (AP) Access Point, select Ad-hoc to connect to another bridge or wireless station.

Site Survey: A function that looks for available wireless networks.

Enable Wireless: Tick the check box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions.

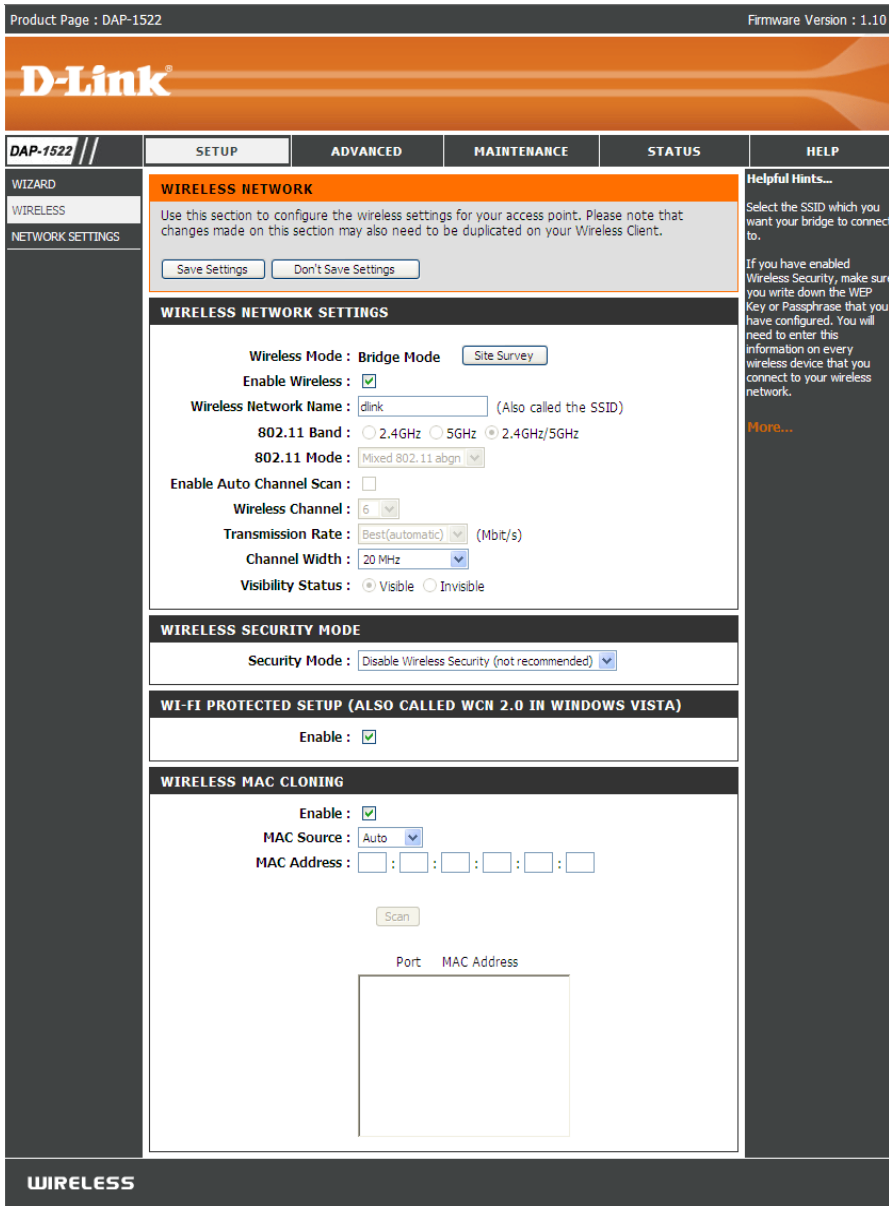
Wireless Network Name: Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive.

802.11 Band The options include 2.4GHz, 5GHz, and 2.4GHz/5GHz. This option is unavailable in Bridge Mode.

802.11 Mode: If all of the wireless devices in your wireless network can connect in the same transmission mode, you can improve performance slightly by choosing the appropriate “Only” mode. If you have some devices that use a different transmission mode, choose the appropriate “Mixed” mode. This option is unavailable in Bridge Mode.

Enable Auto Channel Scan: The **Auto Channel Scan** setting is used to allow the DAP-1522 to choose the channel with the least amount of interference.
This option is unavailable in Bridge Mode.

Wireless Channel: Indicates the channel setting for the DAP-1522. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. This option is unavailable in Bridge Mode.



Transmission Rate: Select the transmit rate. It is strongly suggested to select **Best (automatic)** for best performance. This option is unavailable in Bridge Mode.

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.

Visibisibility Status: This setting determines whether the DAP-1522 will continue to periodically broadcast its presence on the network. This option is unavailable in Bridge Mode.

Security Mode: Refer to page 65 for more information regarding wireless security.

Enable: Enable the Wi-Fi Protected Setup feature.

Wireless MAC Cloning

Enabling this option allows the user to manually assign the source MAC address to forward packets. If not manually assigned, the packet's source MAC address field will be automatically selected as the DAP-1522's MAC address.

MAC Address: Enter the desired MAC address connected to your DAP-1522 to enable the clone function.

Scan: Click the Scan button to search for all available devices connected to your DAP-1522's Ethernet ports

Network Settings
Static

This section will allow you to change the local network settings of the bridge and to configure the Static settings.

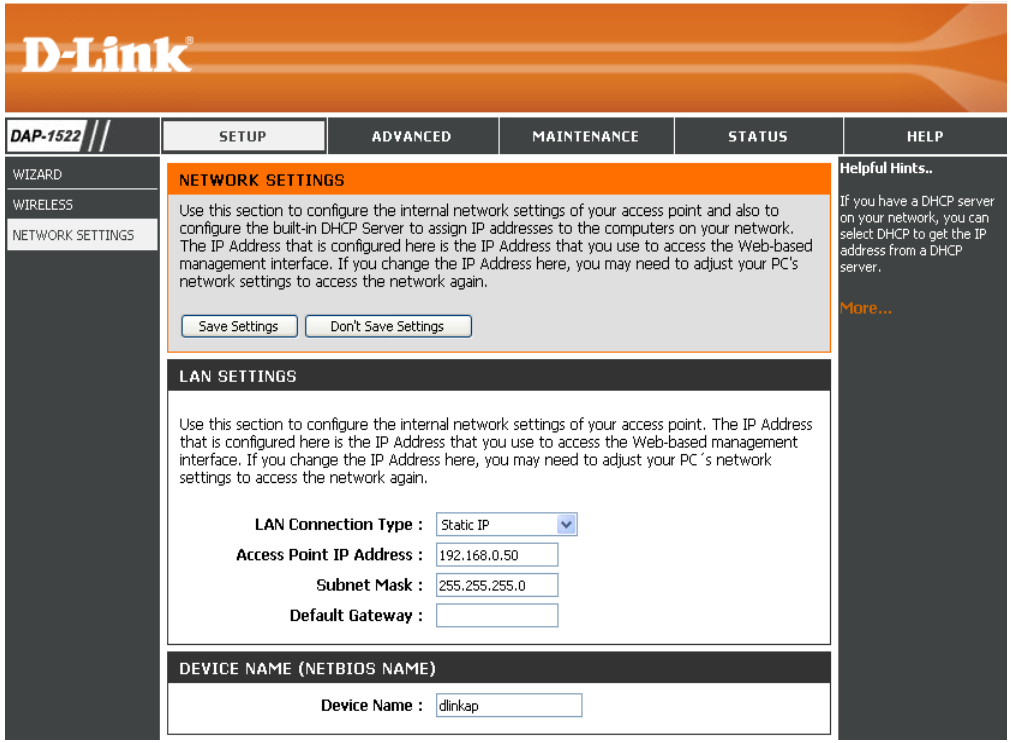
LAN Connection Type: Use the drop-down menu to select Static IP if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses. Select Dynamic IP (DHCP) to automatically assign an IP address to the computers on the LAN/private network.

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

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

Default Gateway: Enter the Gateway assigned by your ISP.

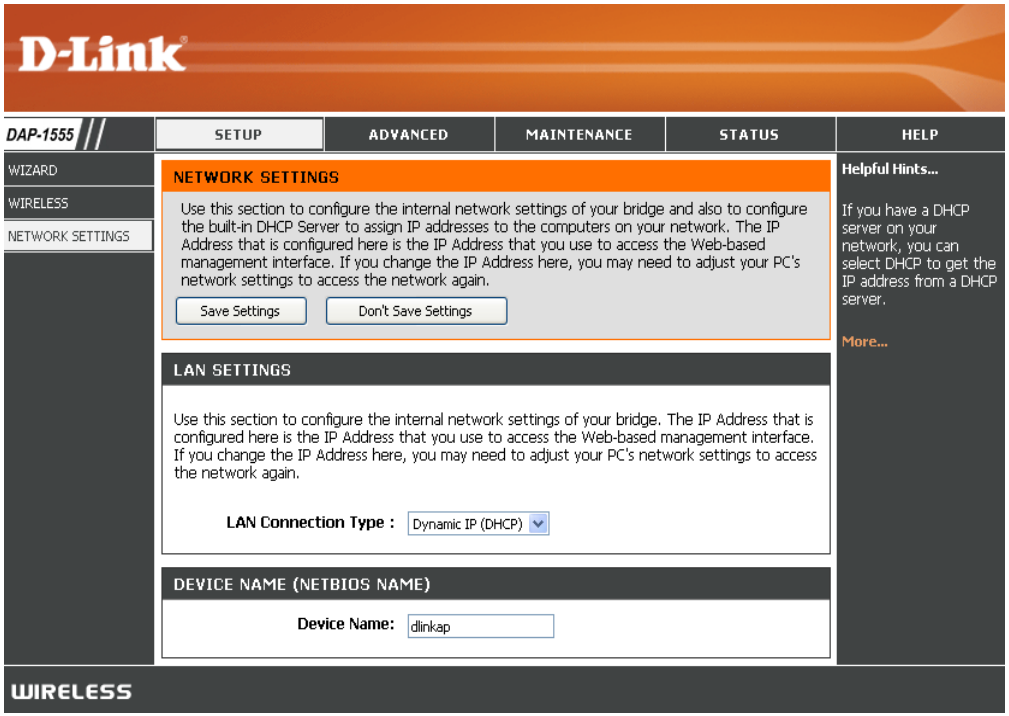
Device Name: Enter the Device Name of the AP and click **Next** to continue. It is recommended to change the Device Name if there is more than one D-Link device within the subnet.



DHCP

LAN Connection Type: Select DHCP to automatically obtain an IP address on the LAN/private network.

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



Advanced

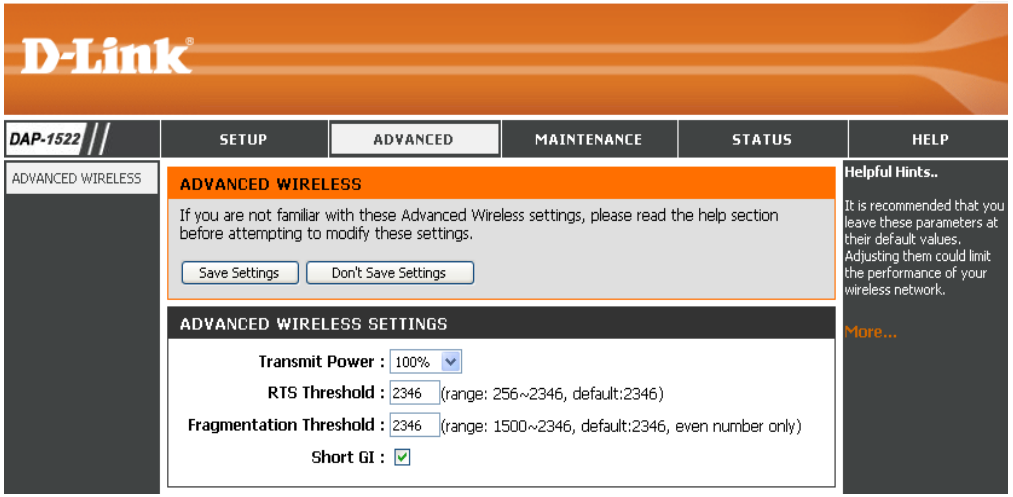
Advanced Wireless

Transmit Power: Set the transmit power of the antennas.

RTS Threshold: This value should remain at its default setting of 2436. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation Threshold: The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting.

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

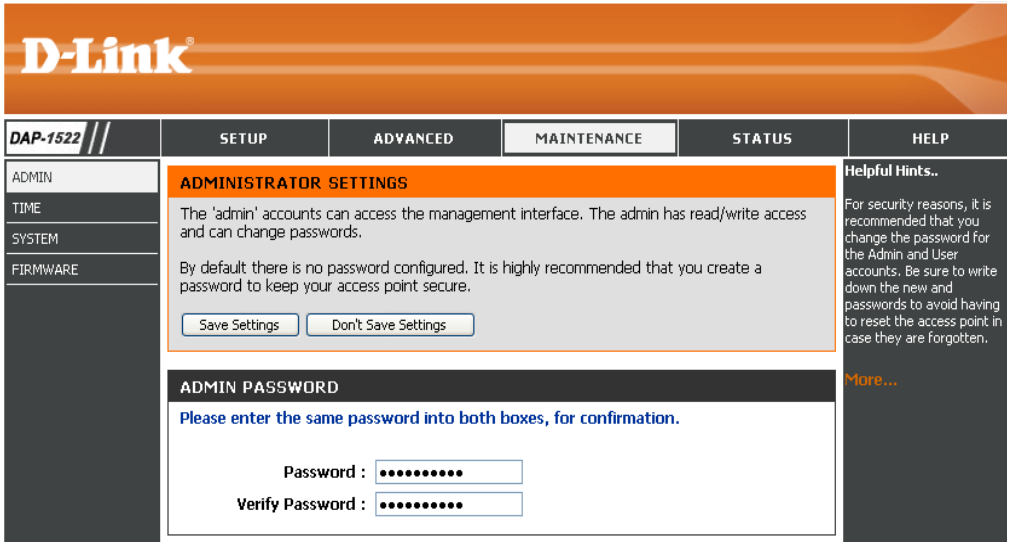


Tools
Admin

This page will allow you to change the Administrator password. Admin 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.



Time

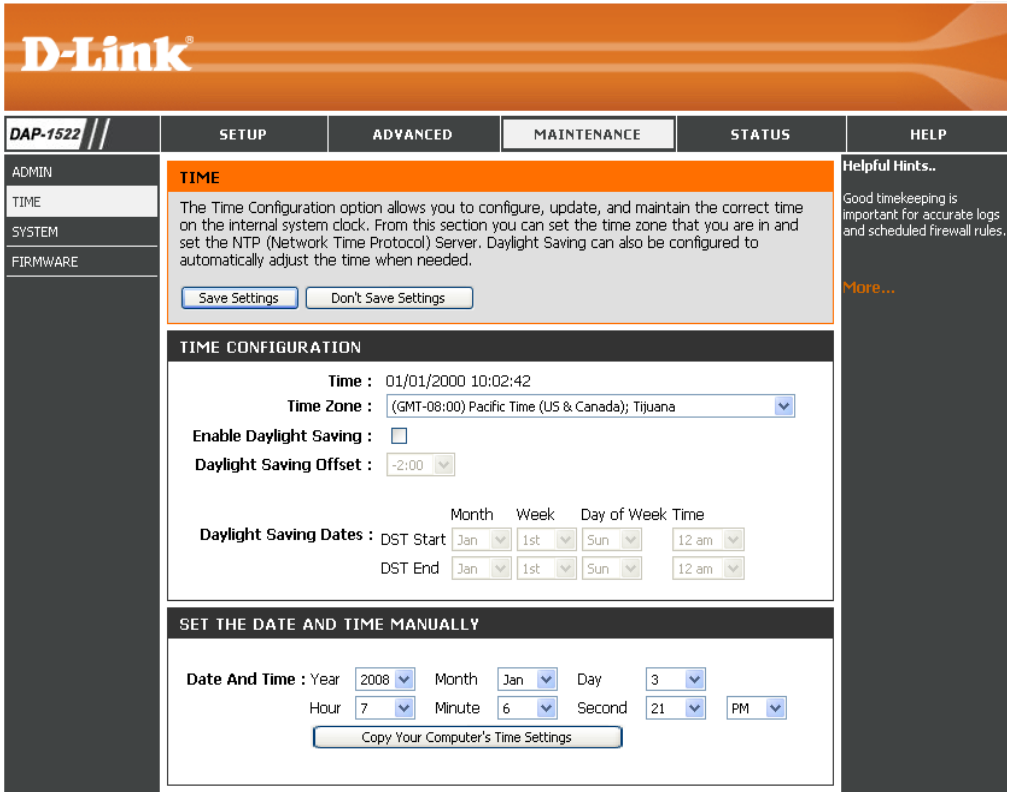
The Time Configuration option allows you to configure, update, and maintain the correct time on the internal system clock. From this section you can set the time zone that you are in. Daylight Saving can also be configured to automatically adjust the time when needed.

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

Daylight Saving: To select Daylight Saving time manually, tick 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.

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**.



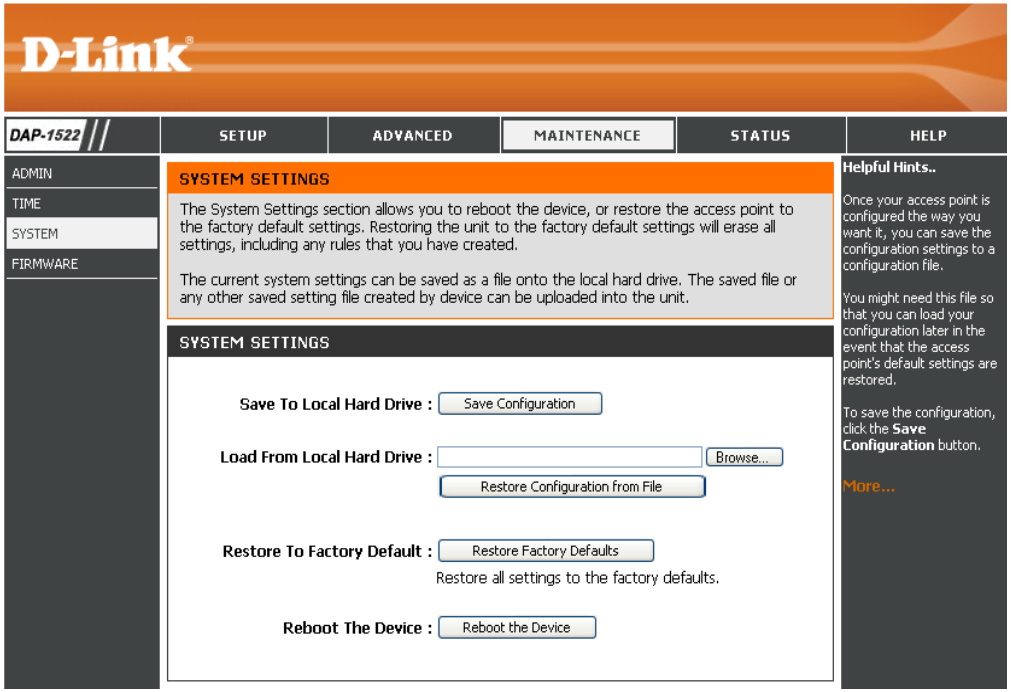
System

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. 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 From Local Hard Drive: Use this option to load previously saved access point configuration settings. First, use the Browse control to find a previously save file of configuration settings. Then, click the Load 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.

Reboot The Device: Click to reboot the bridge.

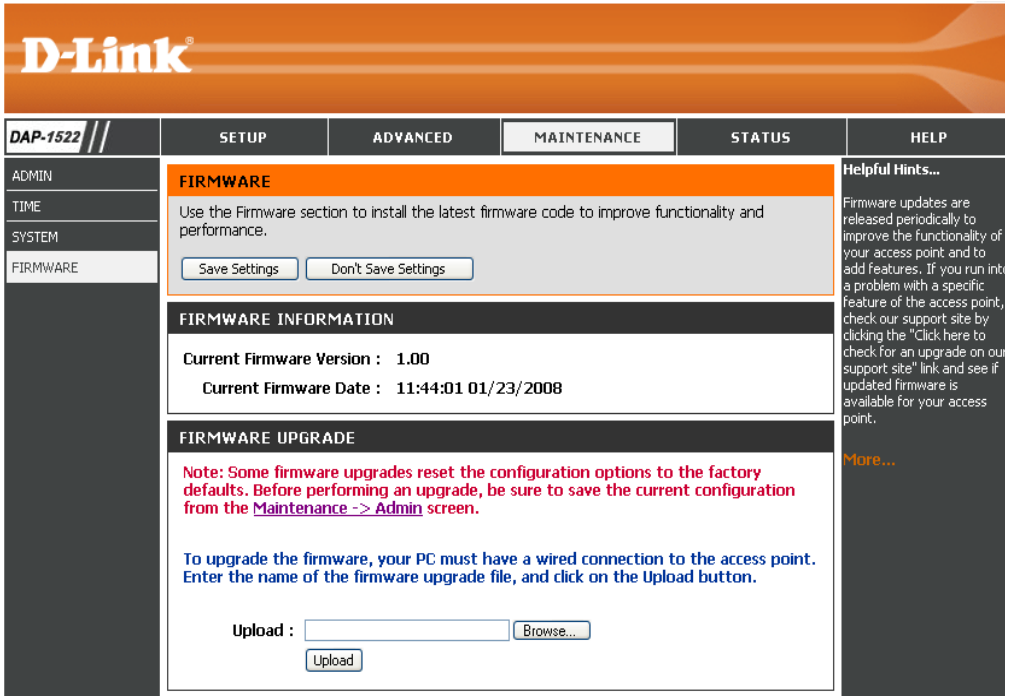


Firmware

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 site for firmware updates at http://support.dlink.com. You can download firmware upgrades to your hard drive from the D-Link support site.

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 bridge.



Status

Device Info

This page displays the current information for the DAP-1522. 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 access point automatically logs (records) events of possible interest in its 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 access point logs. You can define what types of events you want to view and the level of the events to view. This access point 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

What to View: There are three types of logs that can be viewed: System Activity, Wireless Activity, and Notice. Tick the corresponding check box for the type(s) that you want displayed in the log.

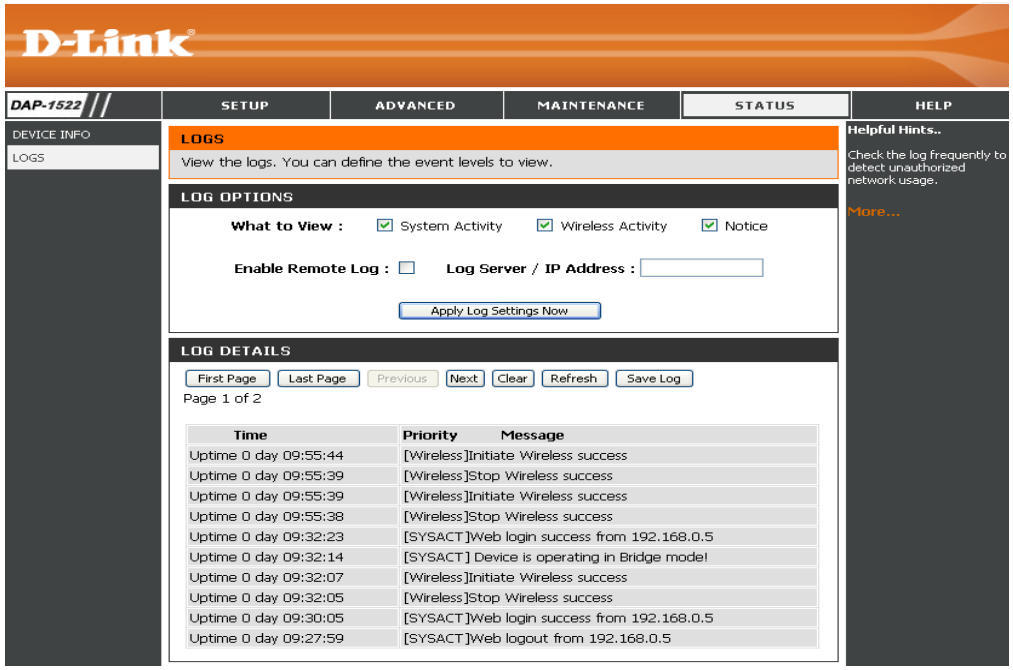
Enable Remote Log: Tick this check box and enter a Log Server name or IP address to enable the remote log feature.

Apply Log Settings Now: Click this button to immediately filter the log results so that only the selected options appear in the Log Details section of this screen.

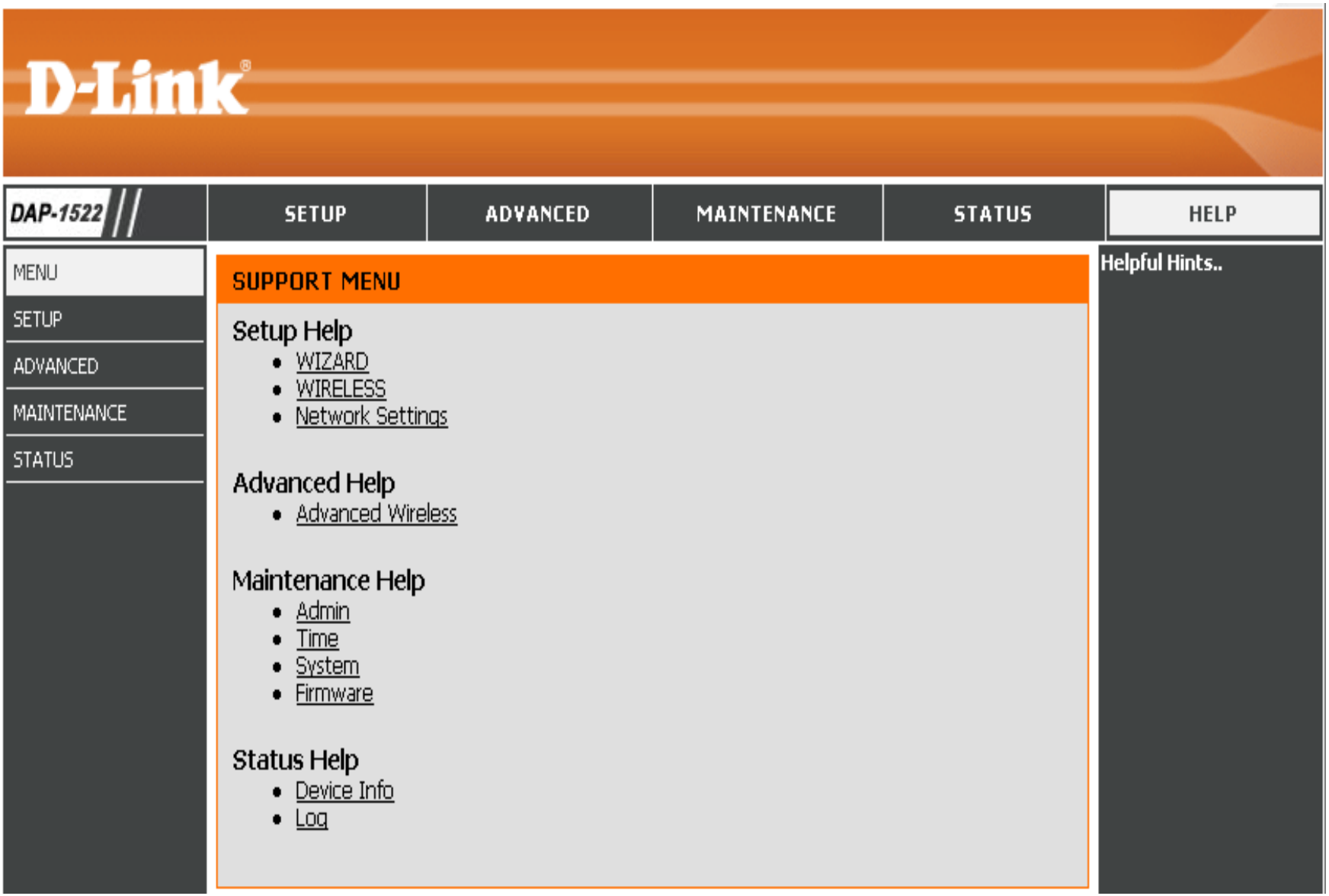
Refresh: Updates the log details on the screen so it displays any recent activity.

Clear: Clears all of the log contents.

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



Help


D-Link
DAP-1522
SETUP
ADVANCED
MAINTENANCE
STATUS
HELP
MENU
SETUP
ADVANCED
MAINTENANCE
STATUS
SUPPORT MENU
Setup Help
WIZARD
WIRELESS
Network Settings
Advanced Help
Advanced Wireless
Maintenance Help
Admin
Time
System
Firmware
Status Help
Device Info
Log
Helpful Hints..

Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DAP-1522 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.

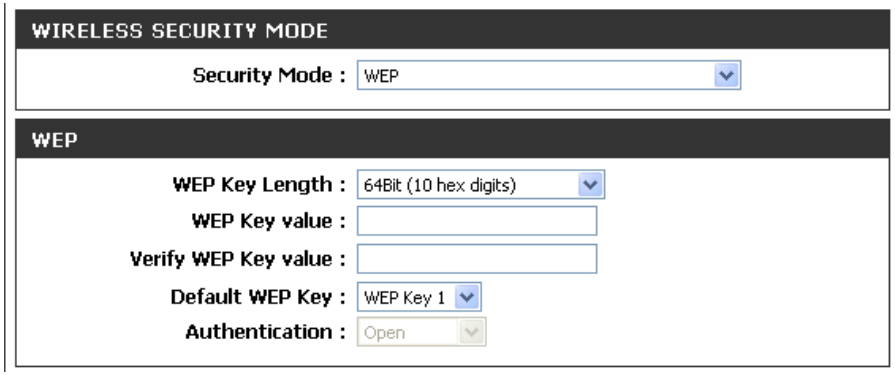
WPA/WPA2 incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

Configure WEP in AP Mode

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

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

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



3. Next to *WEP Key Length in the WEP section*, select both the type of input (hexidecimal or ASCII) and the level of encryption (64-bit or 128-bit). **Hex** - (recommended) Letters A-F and numbers 0-9 are valid.

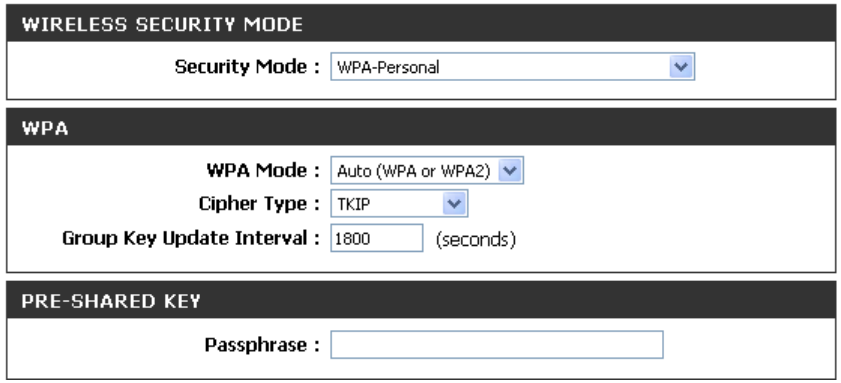
4. Next to Default WEP Key and the first selection on the drop-down menu, *WEP Key 1. E*nter a WEP key that you create in the WEP Key value and Verify WEP Key value fields. Make sure you enter this key exactly on all your wireless devices. You may enter up to 4 different keys using the Default WEP Key drop-down menu.

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

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

Configure WPA-Personal (PSK) in AP Mode

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 **WPA-Personal**.

3. Next to *WPA Mode in the WPA section*, select **Auto (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. Use **Auto** if you have wireless clients using both WPA and WPA2.

4. Next to Cipher Type, select TKIP, AES, or TKIP and AES.

5. Next to *Group Key Update Interval*, enter the amount of time before the group key used for broadcast and multicast data is changed.

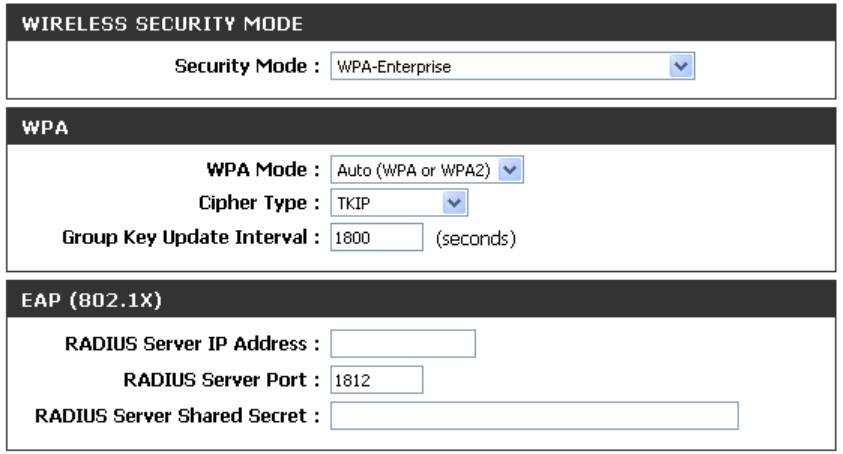
6. Next to the *Pre-Shared Key section*, enter a key in the Passphrase field. The key is entered as a passphrase in ASCII format at both ends of the wireless connection. The passphrase must be between 8-63 characters.

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 WPA-PSK on your adapter and enter the same passphrase as you did on the access point.

Configure WPA-Enterprise (RADIUS) in AP Mode

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 **WPA-Enterprise**.

3. Next to *WPA Mode in the WPA section*, select **Auto (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. Use **Auto** if you have wireless clients using both WPA and WPA2.

4. Next to Cipher Type, select TKIP, AES, or TKIP and AES

5. Next to *Group Key Update Interval*, enter the amount of time before the group key used for broadcast and multicast data is changed.

6. Next to *RADIUS Server IP Address* in the EAP (802.1X) section, enter the IP Address of your RADIUS server.

7. Next to *RADIUS Server Port*, enter the port you are using with your RADIUS server. 1812 is the default port.

8. Next to *RADIUS Server Shared Secret*, enter the security key.

9. Click **Save Settings** at the top of the window to save your settings.

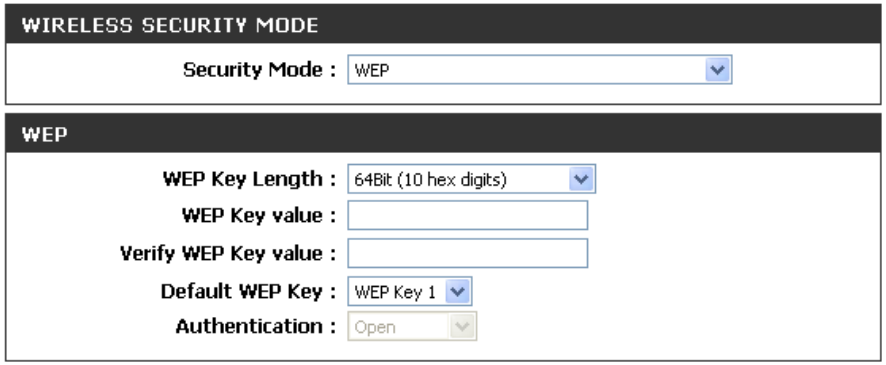
Configure WEP in Bridge Mode

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 bridge (192.168.0.50). Click on **Setup** and then click **Wireless Settings** on the left side.

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

3. Next to *WEP Key Length in the WEP section*, select both the type of input (hexidecimal or ASCII) and the level of encryption (64-bit or 128-bit). **Hex** - (recommended) Letters A-F and numbers 0-9 are valid.



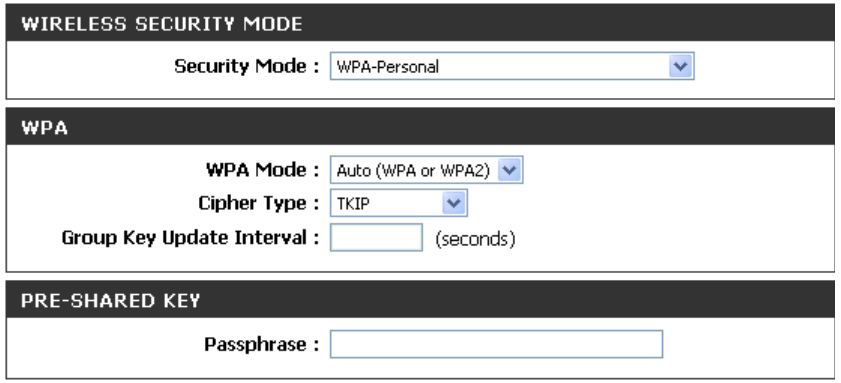
4. Next to Default WEP Key and the first selection on the drop-down menu, *WEP Key 1. E*nter a WEP key that you create in the WEP Key value and Verify WEP Key value fields. Make sure you enter this key exactly on all your wireless devices. You may enter up to 4 different keys using the Default WEP Key drop-down menu.

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

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

Configure WPA-Personal (PSK) in Bridge Mode

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 bridge (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 **WPA-Personal**.

3. Next to *WPA Mode in the WPA section*, select **Auto (WPA or WPA2), WPA2 Only**, or **WPA Only**. Use **Auto** if you have wireless clients using both WPA and WPA2.

4. Next to Cipher Type, select TKIP, AES, or TKIP and AES.

5. Next to *Group Key Update Interval*, enter the amount of time before the group key used for broadcast and multicast data is changed.

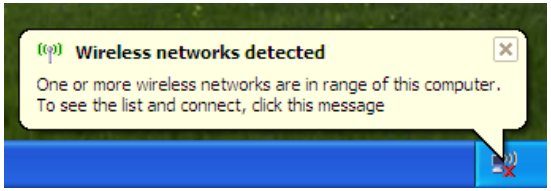
6. Next to the *Pre-Shared Key section*, enter a key in the Passphrase field. The key is entered as a passphrase in ASCII format at both ends of the wireless connection. The passphrase must be between 8-63 characters.

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 WPA-PSK on your adapter and enter the same passphrase as you did on the access point.

Connect to a Wireless Network Using Windows® XP

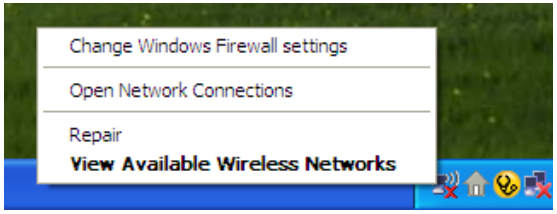
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network.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

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



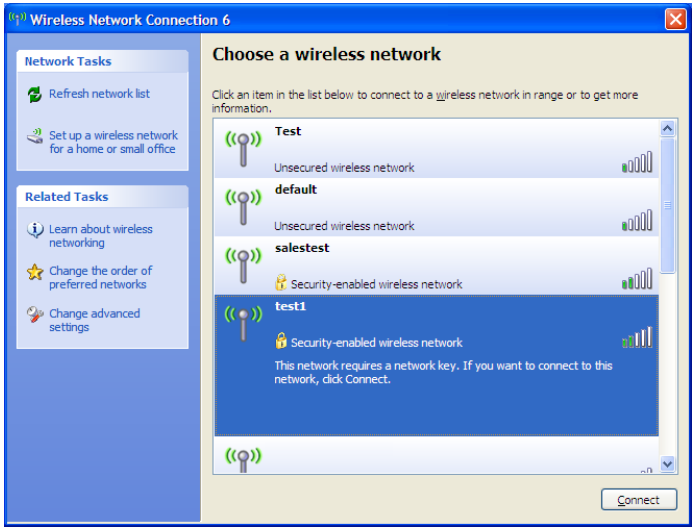
or

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



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

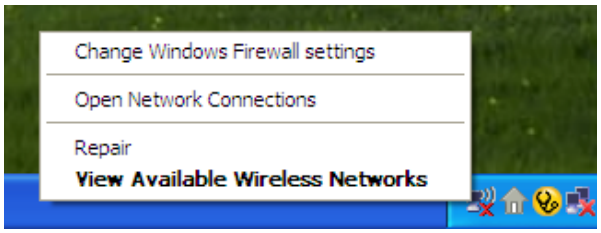
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



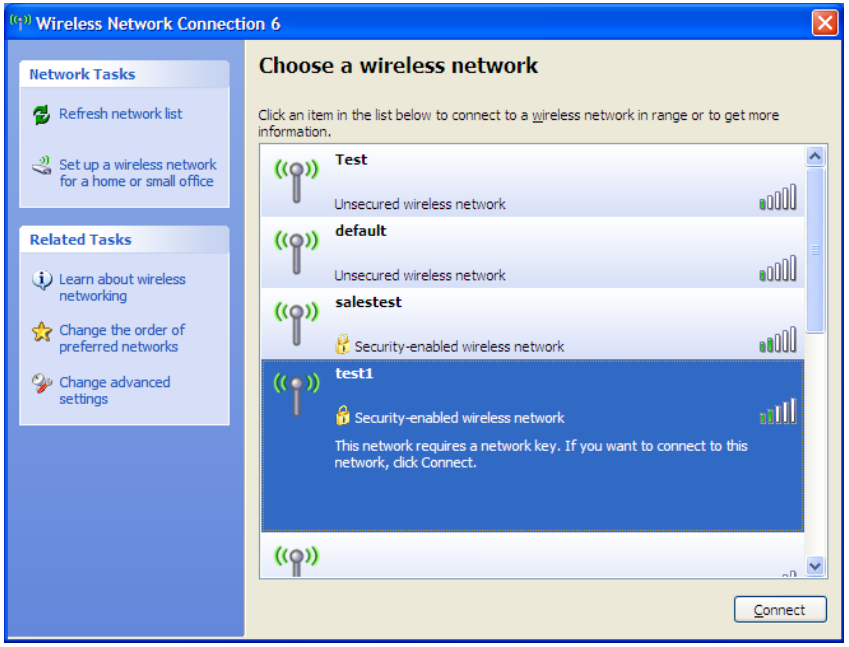
Configure WEP

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.

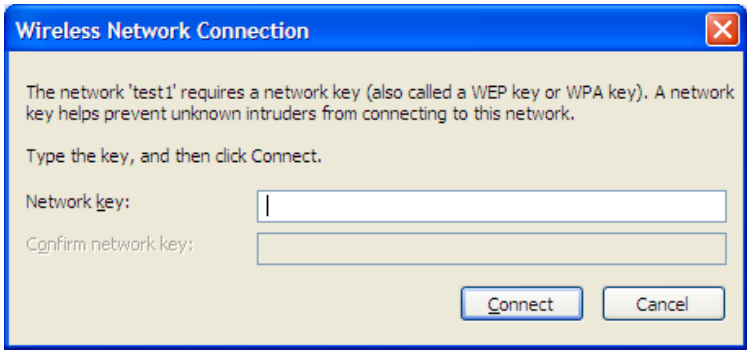
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.



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**.

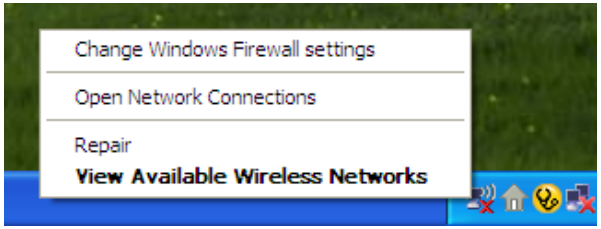


It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WEP settings are correct. The WEP key must be exactly the same as on the wireless access point.

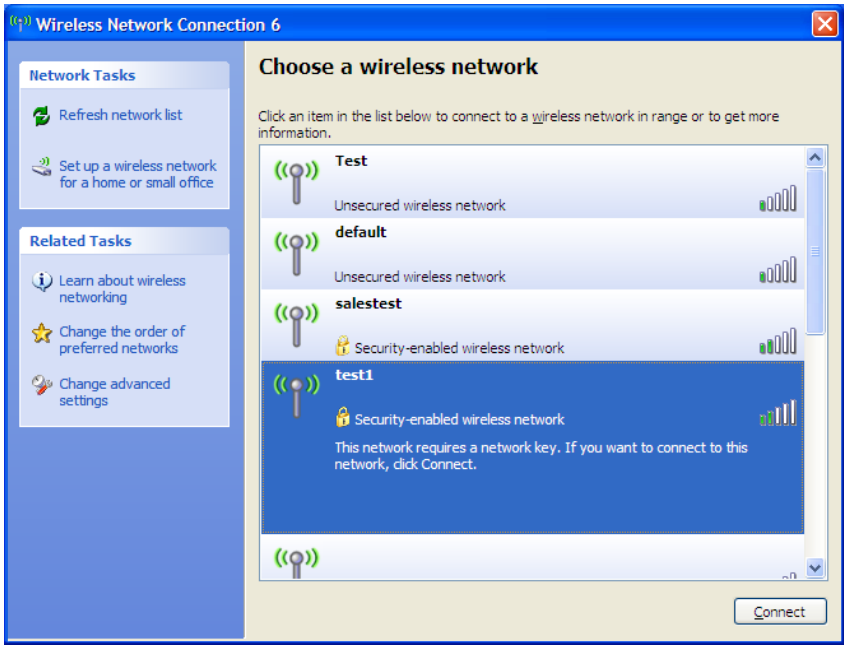
Configure WPA-PSK

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.

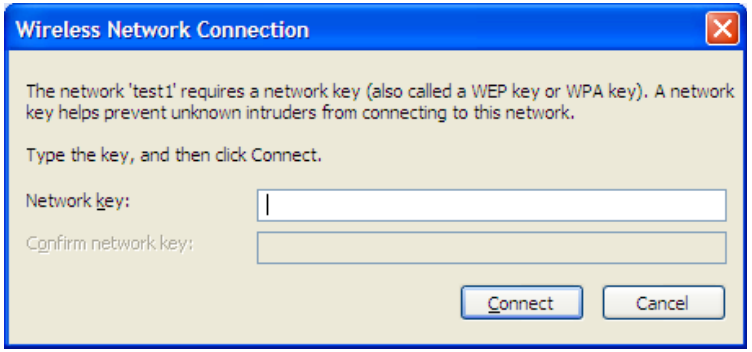
1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.



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**.

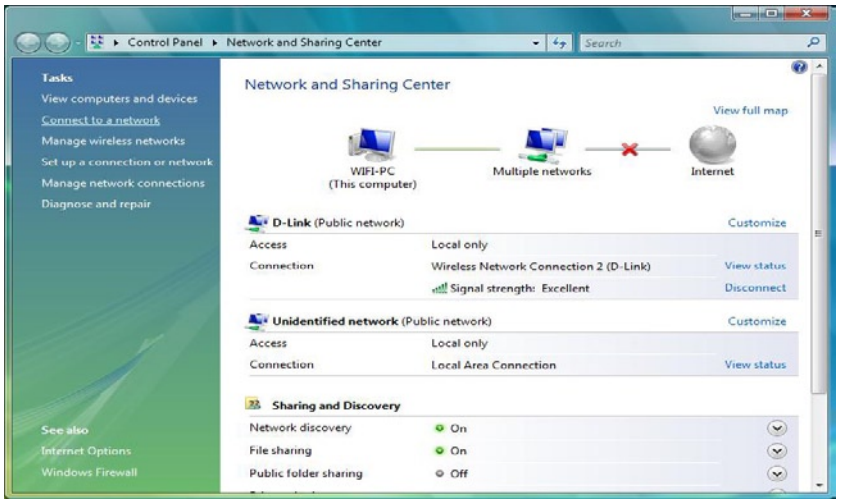


It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WPA-PSK settings are correct. The WPA-PSK passphrase must be exactly the same as on the wireless access point.

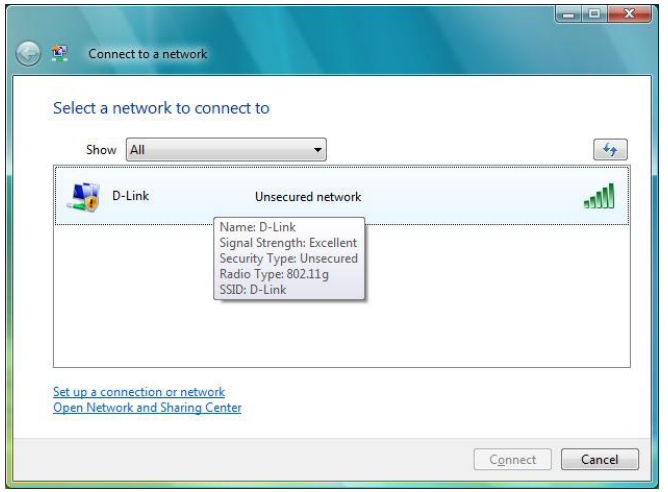
Connect to a Wireless Network
Using Windows® Vista

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

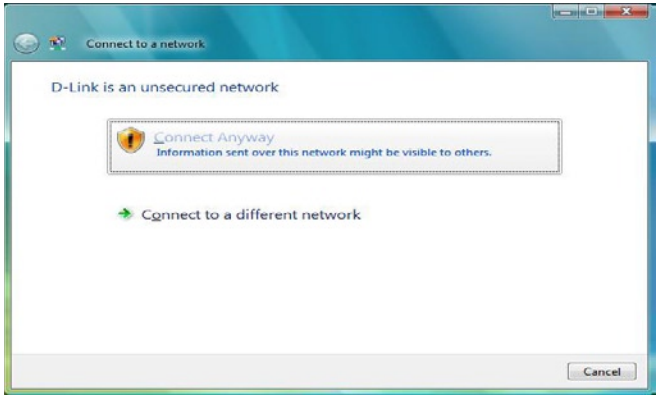
From the Start menu, go to Control Panel, and then click on Network and Sharing Center.



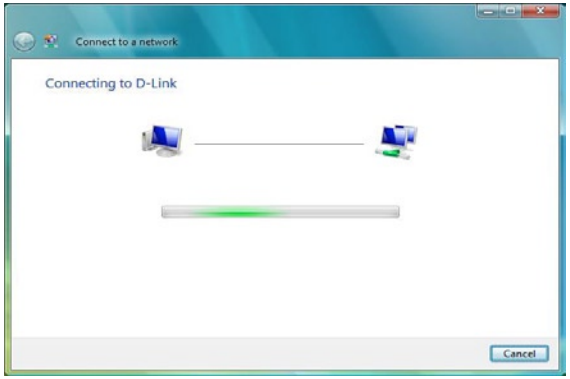
The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) under Select a network to connect to and then click the **Connect** button.



Click Connect Anyway to continue.

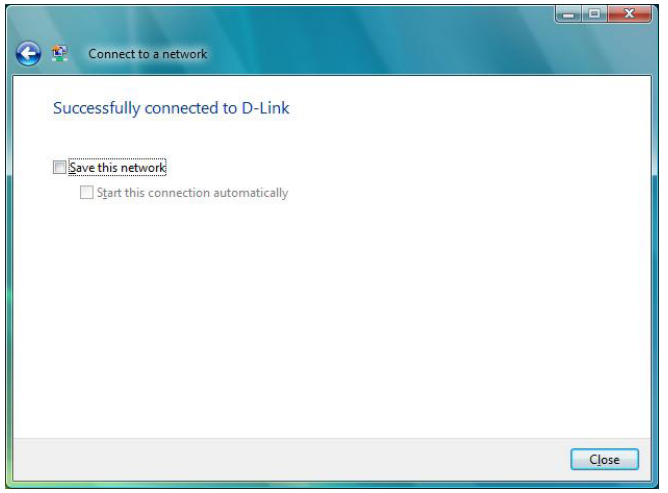


The utility will display the following window to indicate a connection is being made.



The final window indicates the establishment of a successful connection.

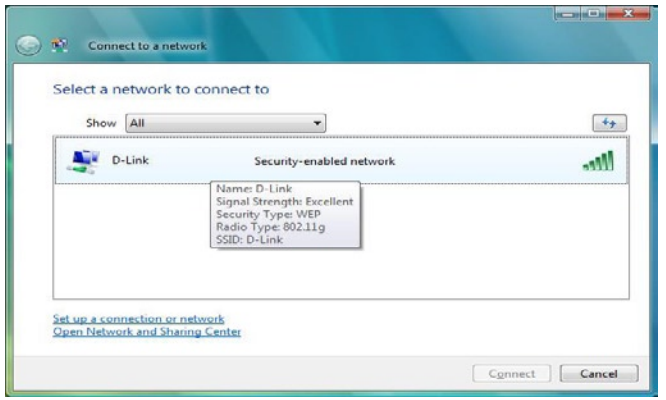
The next two pages display the windows used to connect to either a WEP or a WPA-PSK wireless network.



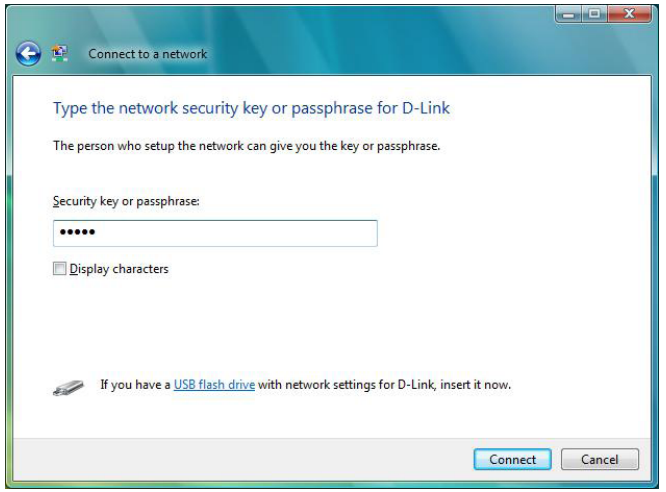
Configure WEP

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.



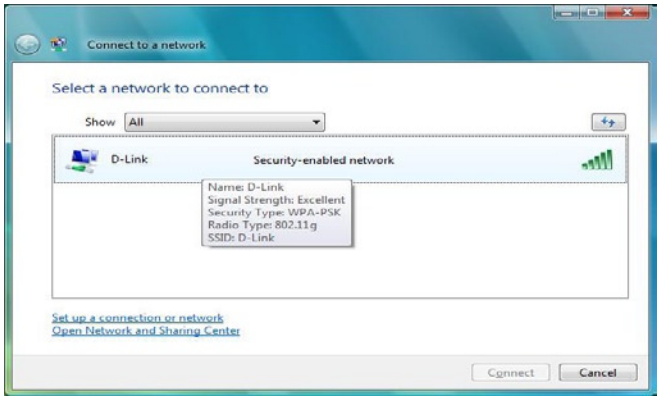
Enter the appropriate security key or passphrase in the field provided and then click the **Connect** button.



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.

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1522. 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:
  - Internet Explorer 6.0 or higher
  - Netscape 8 or higher
  - Mozilla 1.7.12 (5.0) or higher
  - Opera 8.5 or higher
  - Safari 1.2 or higher (with Java 1.3.1 or higher)
  - Camino 0.8.4 or higher
  - Firefox 1.5 or 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 10 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 192.168.0.1. 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 access point?

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, and XP 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 network.

Why D-Link Wireless?

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

How does wireless work?

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

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point 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 as become so popular in recent years that almost everyone is using it, whether it's for home, office, business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the web, check email, instant message, and 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, 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 you next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the 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 DAP-1522 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

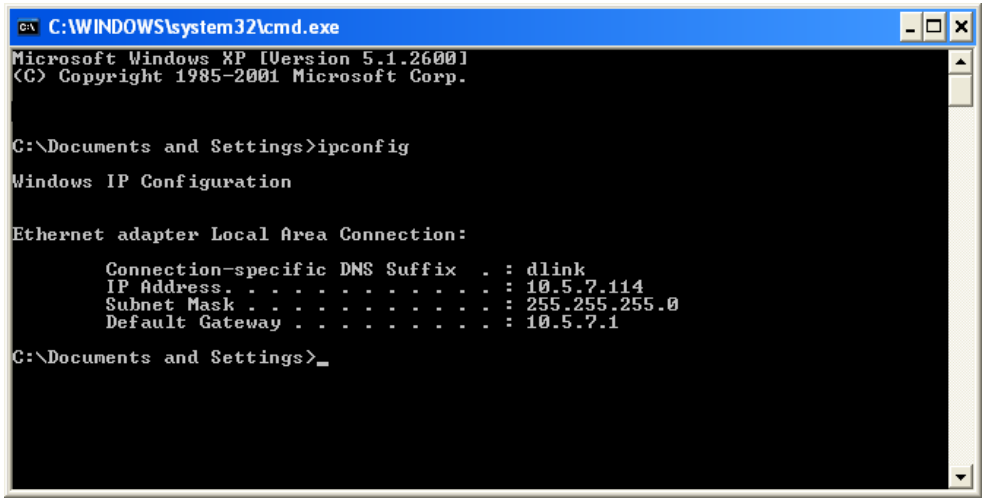
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start** > **Run**. In the run box type ***cmd*** and click **OK**.

At the prompt, type ***ipconfig*** and press **Enter**.

This will display the IP address, subnet mask, and the default gateway of your adapter.

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



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

Statically Assign an IP address

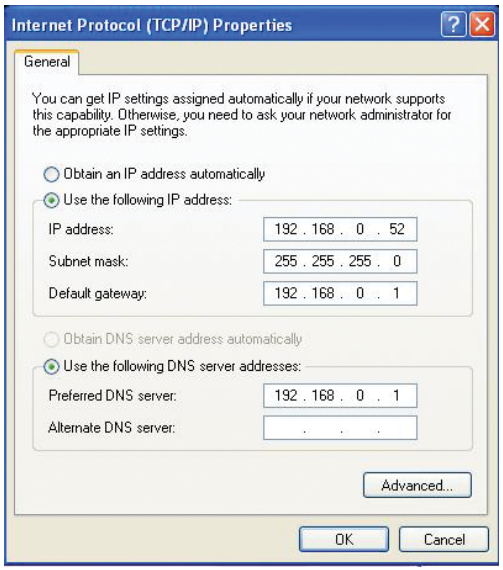
If you are not using a DHCP capable gateway/access point, or you need to assign a static IP address, please follow the steps below:

Step 1
Windows® XP - Click on **Start** > **Control Panel** > **Network Connections**.
Windows® 2000 - From the desktop, right-click **My Network Places** > **Properties**.

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

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

Step 4
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your access point.



Example: If the access point´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 access point (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your access point (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 (draft)
- IEEE 802.11a
- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.3
- IEEE 802.3u

Security
- WPA-Personal
- WPA2-Personal
- WPA-Enterprise
- WPA2-Enterprise
- 64/128-bit WEP

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

Maximum Operating Voltage
3.3V

Maximum Power Consumption
1435 mA

Modulation
- 11b: DQPSK, DBPSK and CCK
- 11a/g: BPSK, QPSK, 16QAM, 64QAM, OFDM
- 11n: BPSK, QPSK, 16QAM, 64QAM, OFDM, MCS

Frequency Range[2]
- 2.4GHz to 2.483GHz
- 5.15GHz~5.825GHz[3]

LEDs
- Power
- Bridge
- AP
- LAN

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

Humidity
90% maximum (non-condensing)

Safety & Emissions
- FCC
- CE
- IC
- C-Tick
- CSA

Dimensions
- L = 5.75 inches
- W = 4.5 inches
- H = 1.25 inches

[1]Maximum wireless signal rate derived from IEEE Standard 802.11g, 802.11a and Draft 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.
[3]The DAP-1522 doesn't include 5.25-5.35GHz & 5.47~5.725GHz.