

DAP-3520

Version 1.1

AirPremier N

Dual Band Exterior PoE Access Point



User Manual

Business Class Networking

Preface

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

Manual Revisions

Revision	Date	Description
1.0	March 3, 2009	DAP-3520 Revision A1 with firmware version 1.00
1.1	January 25, 2011	AP-3520 Revision A1 with firmware version 1.10

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Package Contents

<p>D-Link DAP-3520 Access Point</p>		<p>Mounting Plate</p>	
<p>Power Adapter with Power Cord</p>		<p>Power over Ethernet Base Unit</p>	
<p>4M Ethernet Cable</p>		<p>Grounding Wire</p>	
<p>CD-ROM</p>		<p>Screws</p>	

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

System Requirements

Network Requirements	<ul style="list-style-type: none">• An Ethernet-based Cable or DSL modem• IEEE 802.11n-draft or 802.11g wireless clients• IEEE 802.11a wireless clients• 10/100/1000 Ethernet
Web-based Configuration Utility Requirements	<p>Computer with the following:</p> <ul style="list-style-type: none">• Windows®, Macintosh, or Linux-based operating system• An installed Ethernet adapter <p>Browser Requirements:</p> <ul style="list-style-type: none">• Internet Explorer 7.0 or later• Firefox 3.0 or later• Chrome 1.0.154.36 or later <p>Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.</p>
CD Installation Wizard Requirements	<p>Computer with the following:</p> <ul style="list-style-type: none">• Windows® XP with Service Pack 2 or Vista• An installed Ethernet adapter• CD-ROM drive

Introduction

The DAP-3520 802.11a/n or b/g/n switchable AP increases productivity by allowing you to work faster and more efficiently. With the DAP-3520, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are now able to move across the network quickly.

The DAP-3520 is capable of operating in one of four different wireless networking modes: access point, WDS (Wireless Distribution System) with AP, WDS and Wireless Client.

Use less wiring, enjoy increased flexibility, save time and money with PoE (Power over Ethernet). With PoE, the DAP-3520 shares power and data over the CAT5 cable, making the setup of your network less expensive and more convenient.

An ideal solution for quickly creating and extending a wireless local area network (WLAN) in offices or other workplaces, trade shows, and special events, the DAP-3520 provides data transfer rates up to 300Mbps*. (The 802.11n standard is backwards compatible with 802.11a, 802.11g, and 802.11b 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.

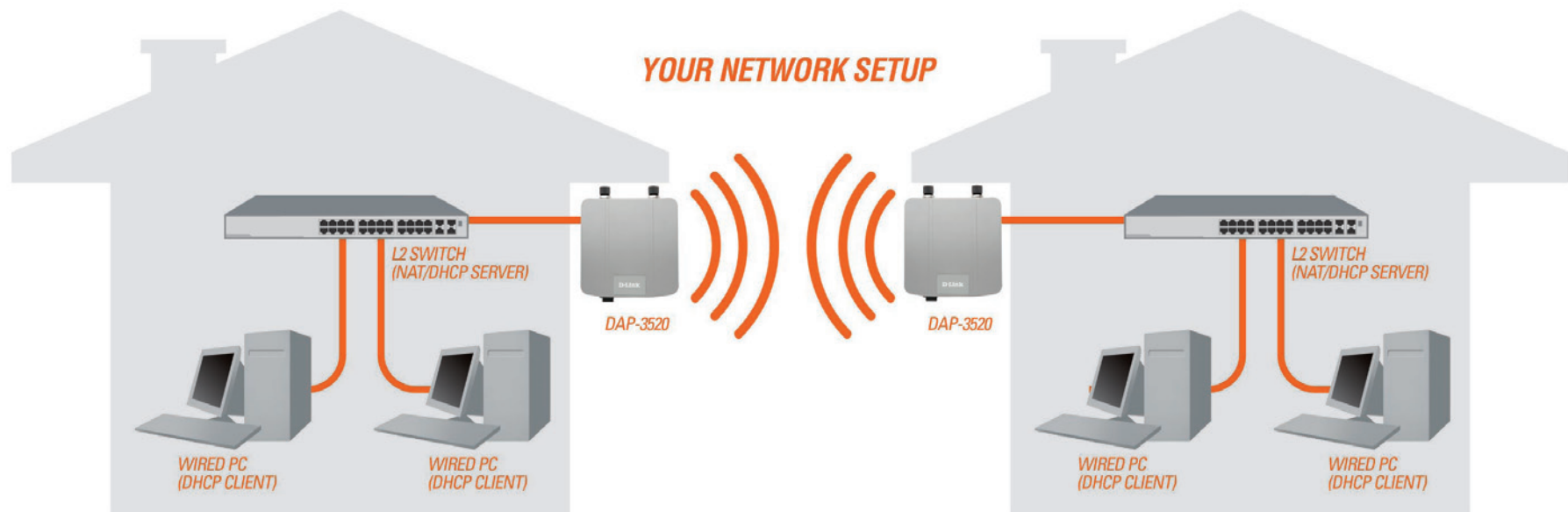
Features

- **Faster Wireless Networking** - The DAP-3520 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 AP gives you the freedom of wireless networking at speeds 14x faster than 802.11g.
- **Compatible with 802.11a and 802.11g Devices** - The DAP-3520 is still fully compatible with the IEEE 802.11a/g standard, so it can connect with existing 802.11a/b/g PCI, USB and Cardbus adapters.
- **Four Different Operation Modes** - Capable of operating in one of four different operation modes to meet your wireless networking needs: **Access Point, WDS with AP, WDS, Wireless Client.**
- **Better security with WPA** - The DAP-3520 can securely connect wireless clients on the network using WPA (Wi-Fi Protected Access) to provide a much higher level of security for your data and communications.
- **AP Manager II Management Software** - The real-time display of the network's topology and AP's information makes network configuration and management quick and simple.
- **SNMP for Management** - The DAP-3520 is not just fast, but also supports SNMP v.3 for better network management. Superior wireless AP manager software is bundled with the DAP-3520 for network configuration and firmware upgrade. Systems administrators can also set up the DAP-3520 easily with the Web-based configuration. A D-Link D-View 6.0 module will be downloadable for network administration and real-time network traffic monitoring with the D-View 6.0 software.

* Maximum wireless signal rate derived from IEEE Standard 802.11a, 802.11g, 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.

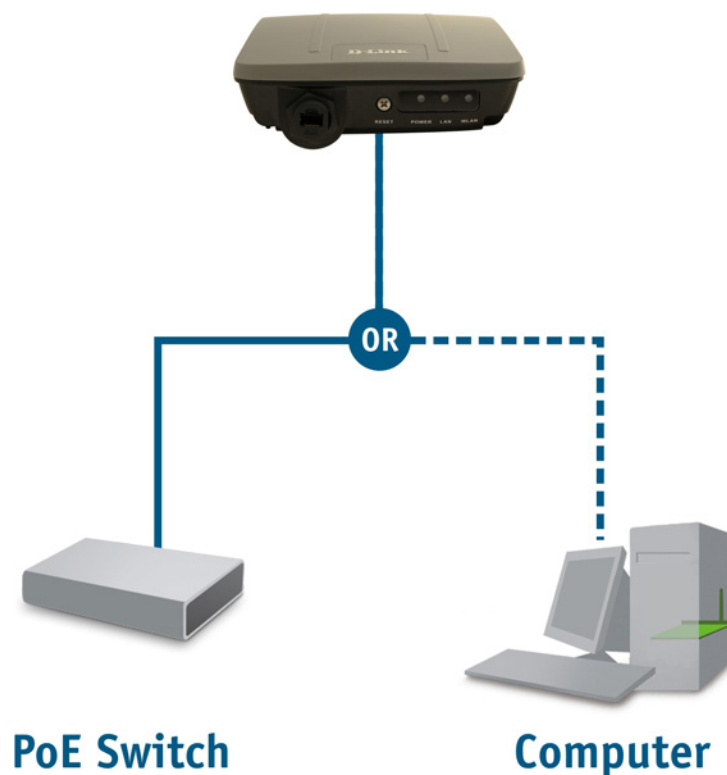
Four Operational Modes

Operation Mode (Only supports 1 mode at a time)	Function
Access Point (AP)	Create a wireless LAN
WDS with AP	Wirelessly connect multiple networks while still functioning as a wireless AP
WDS	Wirelessly connect multiple networks. See the diagram below.
Wireless Client	AP acts as a wireless network adapter for your Ethernet-enabled device



Example of a typical setup using WDS mode.

Connecting PoE (Power over Ethernet)



Connect one end of an Ethernet cable (included with your package) to the LAN port on the DAP-3520 and the other end of the Ethernet cable to either your computer or to your PoE switch. The AP can be powered on by a PoE switch or by the power adapter shipped with the AP.

Hardware Overview

Connections



LED	Color	Status	Description
Power	Green	Solid Green	The device is ready.
		Light Off	The device is powering off.
	Red	Blinking Red	The device is booting up.
LAN	Green	Solid Green	The link is up.
		Blinking Green	Data is being transmitted.
		Light Off	The link is down.

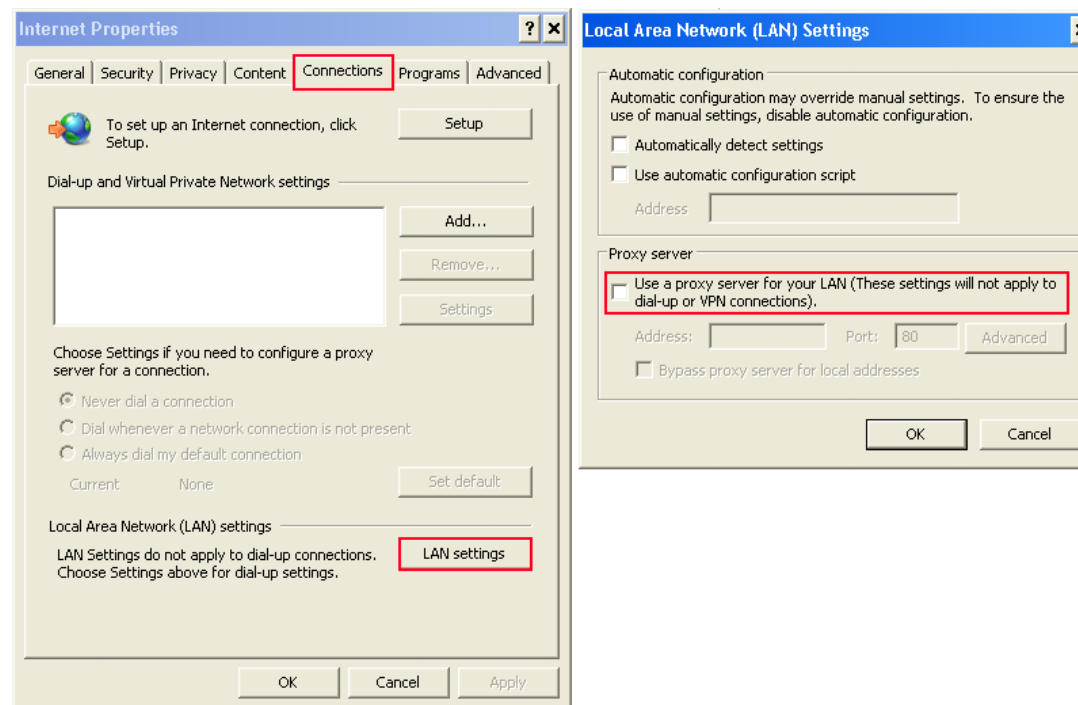
Configuration

This section will show you how to configure your D-Link wireless access point using the web-based configuration utility. If you would like to use the AP Manager II software, please refer to the documentation located on the D-Link CD.

Web-based Configuration Utility

To configure the DAP-3520, use a computer which is connected to the DAP-3520 with an Ethernet cable (see the Network Layout diagram).

First, disable the option of accessing the Internet using a proxy server function. To disable this function, go to **Control Panel > Internet Options > Connections > LAN Settings** and uncheck the enable box. Click **OK**.



Start your web browser (Internet Explorer, Mozilla Firefox).

Type the IP address of the DAP-3520 in the address field (**http://192.168.0.50**) and press **Enter**. Make sure that the IP addresses of the DAP-3520 and your computer are in the same subnet.



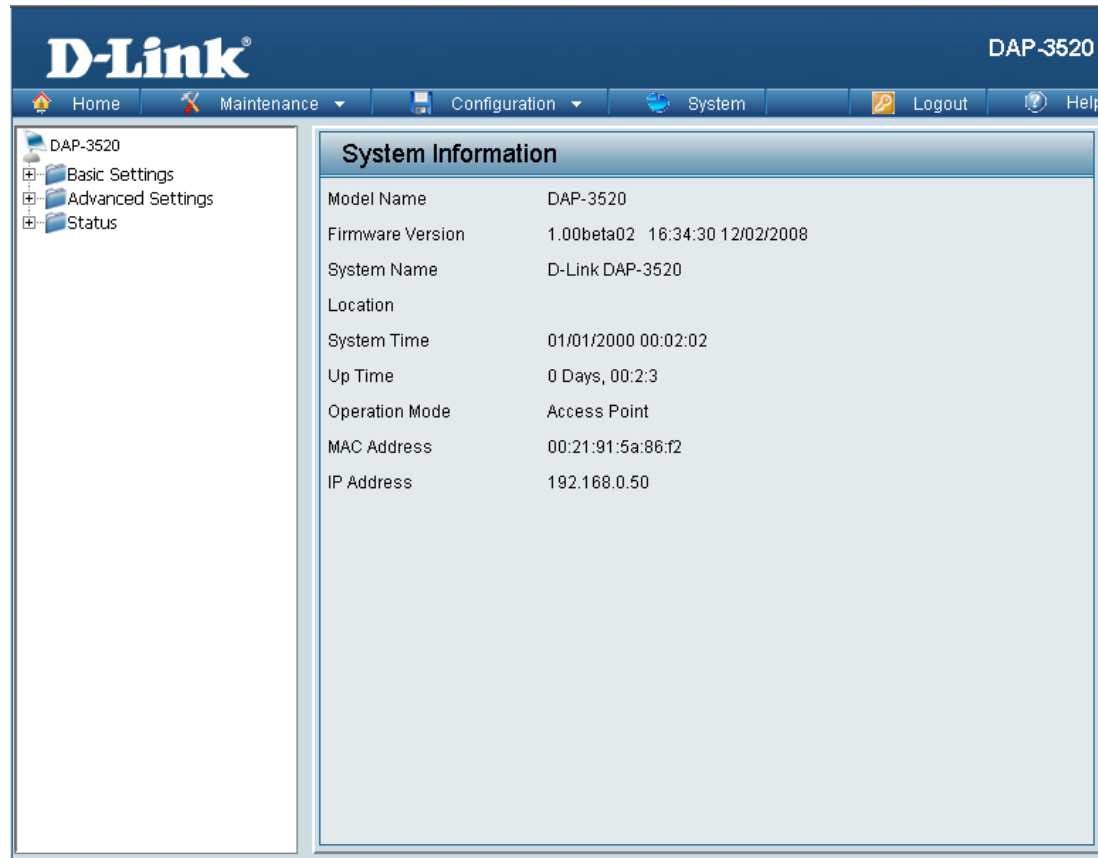
After the connection is established, you will see the user identification window as shown.

Note: If you have changed the default IP address assigned to the DAP-3520, make sure to enter the correct IP address.

- Type “**admin**” in the **User Name** field.
- Leave the **Password** field blank.
- Click the **Login** button.

A screenshot of the D-Link DAP-3520 login page. The page has a dark blue header with the "D-Link" logo on the left and "DAP-3520" on the right. Below the header is a light blue box containing a "LOGIN" section. The text "Login to the Access Point:" is displayed. There are two input fields: "User Name" with "admin" entered, and "Password" which is blank. A "Login" button is located to the right of the password field.

After successfully logging into the DAP-3520, the following screen will appear:



When making changes on most of the configuration screens in this section, use the **Apply** button at the bottom of each screen to save your configuration changes.



Click the **Apply** button to configure changes.

Wireless Settings

Wireless Band:

Select either 2.4GHz or 5.0GHz from the drop-down menu.

Mode:

Select **Access Point** from the drop-down menu. The other four choices are **WDS with AP**, **WDS** and **Wireless Client**.

Network Name (SSID):

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **dlink**. The SSID can be easily changed to establish a new wireless network. The SSID can be up to 32 characters and is case sensitive.

SSID Visibility:

Select **Enable** to broadcast the SSID across the network, thus making it visible to all network users. Select **Disable** to hide the SSID from wireless users.

Auto Channel Selection:

Enabling this feature automatically selects the channel that provides the best wireless performance. **Enable** is set by default. The channel selection process only occurs when the AP is booting up.

Channel:

All devices on the network must share the same channel. To change the channel, first toggle the *Auto Channel Selection* setting to **Disable**, and then use the drop-down menu to make the desired selection.

Note: *Wireless clients will automatically scan and match the wireless channel of the DAP-3520.*

The screenshot displays the D-Link DAP-3520 configuration interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with Basic Settings (Wireless, LAN), Advanced Settings, and Status. The main content area is titled 'Wireless Settings' and contains the following fields:

- Wireless Band: 2.4GHz
- Mode: Access Point
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Enable
- Channel: 1
- Channel Width: 20 MHz
- Authentication: Open System
- Key Settings: Encryption (Disable selected), Key Type (HEX), Key Index (1), Key Size (64 Bits)
- Network Key: [Empty text box]
- Confirm Key: [Empty text box]

A 'Save' button is located at the bottom right of the configuration area.

Channel Width:

Allows you to select the channel width you would like to operate in. Select **20 MHz** if you are not using any 802.11n wireless clients or select **Auto 20/40 MHz** to use both 802.11n and non-802.11n wireless devices on your network.

Authentication:

Use the drop-down menu to choose **Open System**, **Shared Key**, **WPA-Personal**, or **WPA-Enterprise**.

- Select **Open System** to communicate the key across the network.
- Select **Shared Key** to limit communication to only those devices that share the same WEP settings. If multi-SSID is enabled, this option is not available.
- Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.
- Select **WPA-Enterprise** to secure your network with the inclusion of a RADIUS server.

WDS with AP mode

In WDS with AP mode, the DAP-3520 wirelessly connects multiple networks while still functioning as a wireless AP at the same time.

Wireless Band:

Select either **2.4 GHz** or **5 GHz** from the drop-down menu.

Mode:

WDS with AP mode is selected from the drop-down menu.

Network Name (SSID):

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **dlink**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Visibility:

Select **Enable** to broadcast the SSID across the network, thus making it visible to all network users. Select **Disable** to hide the SSID from wireless users.

Auto Channel Selection:

Enabling this feature automatically selects the channel that will provide the best wireless performance. This feature is not supported in WDS with AP mode. The channel selection process only occurs when the AP is booting up.

Channel:

All devices on the network must share the same channel. To change the channel, first toggle the *Auto Channel Selection* setting to **Disable**, and then use the drop-down menu to make the desired selection.

Note: *Wireless clients will automatically scan and match the wireless channel of the DAP-3520.*

The screenshot displays the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with Basic Settings, Wireless, LAN, Advanced Settings, and Status. The main content area is titled "Wireless Settings" and contains the following fields:

- Wireless Band: 2.4GHz
- Mode: WDS with AP
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Disable
- Channel: 1
- Channel Width: 20 MHz

Below these fields are sections for WDS (Remote AP MAC Address) and Site Survey (Scan button). The Site Survey table has columns for CH, Signal, BSSID, Security, and SSID. Below the table are sections for Authentication (Open System) and Key Settings (Encryption: Disable, Key Type: HEX, Key Size: 64 Bits, Key Index: 1, Network Key, Confirm Key). A Save button is at the bottom right.

Channel Width:

Allows you to select the channel width you would like to operate in. Select **20 MHz** if you are not using any 802.11n wireless clients or select **Auto 20/40 MHz** to use both 802.11n and non-802.11n wireless devices on your network.

Remote AP MAC Address:

Enter the MAC addresses of the APs on your network that will serve as bridges to wirelessly connect multiple networks.

Site Survey:

Site Survey will display available wireless networks. Click on the **Scan** button to search for available wireless networks, then click on the available network that you want to connect with.

Authentication:

Use the drop-down menu to choose **Open System**, **Shared Key**, or **WPA-Personal**.

- Select **Open System** to communicate the key across the network.
- Select **Shared Key** to limit communication to only those devices that share the same WEP settings. If multi-SSID is enabled, this option is not available.
- Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.

Authentication: Open System

Key Settings: Open System, Shared Key, WPA-Personal

Encryption: Enable

Key Type: HEX

Key Size: 64 Bits

Key Index(1~4): 1

Network Key:

Confirm Key:

WDS mode

In WDS mode, the DAP-3520 wirelessly connects multiple networks, without functioning as a wireless AP.

Wireless Band:

Select either **2.4GHz** or **5GHz** from the drop-down menu.

Mode:

WDS mode is selected from the drop-down menu. Access points using WDS must be on the same channel in order to establish connectivity.

Network Name (SSID):

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **dlink**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Visibility:

Select **Enable** to broadcast the SSID across the network, thus making it visible to all network users. Select **Disable** to hide the SSID from wireless users.

Auto Channel Selection:

Enabling this feature automatically selects the channel that will provide the best wireless performance. This feature is not supported in WDS mode.

Channel:

All devices on the network must share the same channel. To change the channel, first toggle the *Auto Channel Selection* setting to **Disable**, and then use the drop-down menu to make the desired selection.

The screenshot shows the D-Link DAP-3520 configuration interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings, Wireless, LAN, Advanced Settings, and Status. The main content area is titled "Wireless Settings" and contains the following fields:

- Wireless Band: 2.4GHz
- Mode: WDS
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Disable
- Channel: 1
- Channel Width: 20 MHz
- WDS: Remote AP MAC Address (fields 1, 2, 3, 4)
- Site Survey: Scan button and a table with columns CH, Signal, BSSID, Security, and SSID.
- Authentication: Open System
- Key Settings: Encryption (Disable selected), Key Type (HEX), Key Size (64 Bits), Key Index (1), Network Key, and Confirm Key.

A Save button is located at the bottom right of the configuration area.

Channel Width:

Allows you to select the channel width you would like to operate in. Select **20 MHz** if you are not using any 802.11n wireless clients or select **Auto 20/40 MHz** to use both 802.11n and non-802.11n wireless devices on your network.

Remote AP MAC Address:

Enter the MAC addresses of the APs on your network that will serve as bridges to wirelessly connect multiple networks.

Site Survey:

Site Survey will display available wireless networks. Click on the **Scan** button to search for available wireless networks, then click on the available network that you want to connect with.

Authentication:

Use the drop-down menu to choose **Open System**, **Shared Key**, or **WPA-Personal**.

- Select **Open System** to communicate the key across the network.
- Select **Shared Key** to limit communication to only those devices that share the same WEP settings. If multi-SSID is enabled, this option is not available.
- Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.

Authentication: Open System

Key Settings: Open System, Shared Key, WPA-Personal

Encryption: Enable

Key Type: HEX

Key Size: 64 Bits

Key Index(1~4): 1

Network Key:

Confirm Key:

Save

Wireless Client Mode

Wireless Band:

Select either **2.4GHz** or **5GHz** from the drop-down menu.

Mode:

Wireless Client mode is selected from the drop-down menu.

Network Name (SSID):

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **dlink**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Visibility:

This option is unavailable in wireless client mode.

Auto Channel Selection:

Enabling this feature automatically selects the channel that will provide the best wireless performance. This feature is not supported in Wireless Client mode.

Channel:

The channel will be determined by the access point that the DAP-3520 is connected to.

Channel Width:

Allows you to select the channel width you would like to operate in. Select **20 MHz** if you are not using any 802.11n wireless clients. **Auto 20/40 MHz** allows both 802.11n and non-802.11n wireless devices on your network.

The screenshot shows the D-Link DAP-3520 configuration interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings, Wireless, LAN, Advanced Settings, and Status. The main content area is titled "Wireless Settings" and contains the following fields and sections:

- Wireless Band:** 2.4GHz
- Mode:** Wireless Client
- Network Name (SSID):** dlink
- SSID Visibility:** Enable
- Auto Channel Selection:** Disable
- Channel:** 1
- Channel Width:** 20 MHz
- Site Survey:** A table with columns CH, Signal, BSSID, Security, and SSID. A Scan button is present.
- Clone MAC Address:** A section with an Enable checkbox (unchecked), MAC Source set to Auto, and MAC Address input fields with a Scan button.
- Authentication:** Open System
- Key Settings:** Encryption set to Disable, Key Type set to HEX, Key Index set to 1, and Key Size set to 64 Bits. Network Key and Confirm Key input fields are present.

A Save button is located at the bottom right of the configuration area.

Site Survey:

Site Survey will display available wireless networks. Click on the **Scan** button to search for available wireless networks, then click on the name of the wireless network that you want to connect to.

Clone MAC Address:

Click **Enable** to allow you to clone a MAC address to the access point. If you select **Auto** from the *MAC Source* drop-down, it will copy the first MAC address found in the LAN port.

Next to **MAC Address**, enter the MAC address you would like to clone.

Authentication:

Use the drop-down menu to choose **Open System** or **WPA-Personal**.

- Select **Open System** to communicate the key across the network.
- Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.

Authentication: Open System

Key Settings

Encryption: Disable Enable

Key Type: HEX Key Size: 64 Bits

Key Index(1~4): 1

Network Key:

Confirm Key:

Save

WEP Encryption

Authentication:

Select either **Open System** or **Shared Key**.

Encryption:

Click to Enable or Disable Encryption.

Key Type:

Select **HEX*** or **ASCII****.

Key Size:

Select **64-bit** or **128-bit** Encryption.

Key Index (1-4):

Select the 1st through the 4th key to be the active key.

Key:

Input up to four keys for encryption. You will select one of these keys in the Key Index drop-down menu.

Network Key:

Enter the WEP encryption key.

Confirm Key:

Retype the network key.

The screenshot displays the D-Link DAP-3520 configuration interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings (Wireless, LAN), Advanced Settings, and Status. The main content area is titled 'Wireless Settings' and contains the following fields:

- Wireless Band: 2.4GHz
- Mode: Access Point
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Disable
- Channel: 1
- Channel Width: 20 MHz
- Authentication: Open System
- Key Settings:
 - Encryption: Disable Enable
 - Key Type: HEX
 - Key Size: 64 Bits
 - Key Index(1~4): 1
 - Network Key: [Empty text box]
 - Confirm Key: [Empty text box]

A 'Save' button is located at the bottom right of the settings area.

*Hexadecimal (HEX) digits consist of the numbers 0-9 and the letters A-F.

**ASCII (American Standard Code for Information Interchange) is a code that represents English letters using numbers ranging from 0-127.

WPA-Personal Authentication

WPA Mode:

When **WPA-Personal** is selected for Authentication type, you must also select a WPA mode from the drop-down menu: **AUTO (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. WPA and WPA2 use different algorithms. **AUTO (WPA or WPA2)** allows you to use both WPA and WPA2.

Cipher Type:

When you select **WPA-Personal**, you must also select **AUTO**, **AES**, or **TKIP** from the drop-down menu.

Group Key Update Interval:

Select the interval during which the group key will be valid. The default value of **1800** is recommended.

PassPhrase:

When you select **WPA-Personal**, please enter a PassPhrase in the corresponding field.

Confirm PassPhrase:

Retype the PassPhrase in the corresponding field.

The screenshot shows the D-Link DAP-3520 configuration interface. The 'Wireless Settings' section is active, showing the following configuration:

- Wireless Band: 2.4GHz
- Mode: Access Point
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Enable
- Channel: 1
- Channel Width: 20 MHz
- Authentication: WPA-Personal
- PassPhrase Settings:
 - WPA Mode: AUTO (WPA or WPA2)
 - Cipher Type: Auto
 - Group Key Update Interval: 1800 (Seconds)
 - PassPhrase: [Empty field]
 - Confirm PassPhrase: [Empty field]

A 'Save' button is located at the bottom right of the configuration area.

WPA-Enterprise Authentication

WPA Mode:

When **WPA-Enterprise** is selected, you must also select a WPA mode from the drop-down menu: **AUTO (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. WPA and WPA2 use different algorithms. **AUTO (WPA or WPA2)** allows you to use both WPA and WPA2.

Cipher Type:

When WPA-Enterprise is selected, you must also select a cipher type from the drop-down menu: **Auto**, **AES**, or **TKIP**.

Group Key Update Interval:

Select the interval during which the group key will be valid. The default value of **1800** is recommended.

Network Access Protection:

Enable or disable Microsoft Network Access Protection.

RADIUS Server:

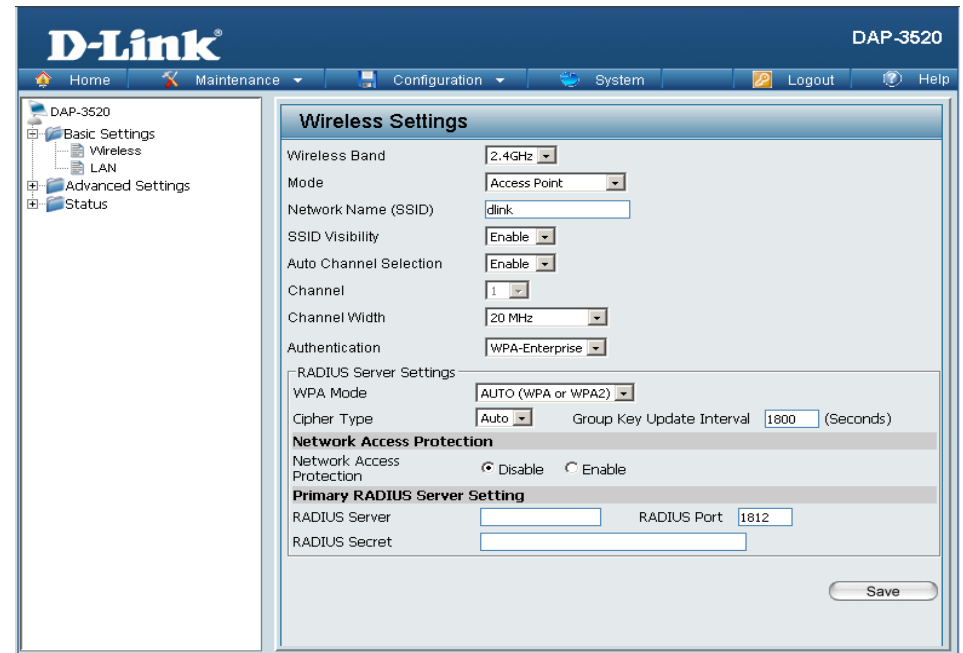
Enter the IP address of the primary RADIUS server. You must also configure RADIUS port and RADIUS secret. In addition to a primary RADIUS server, the AP allows you to set up an optional backup RADIUS server.

RADIUS Port:

Enter the RADIUS port.

RADIUS Secret:

Enter the RADIUS secret.



The screenshot shows the D-Link DAP-3520 configuration interface. The main content area is titled "Wireless Settings". The settings are as follows:

- Wireless Band: 2.4GHz
- Mode: Access Point
- Network Name (SSID): dlink
- SSID Visibility: Enable
- Auto Channel Selection: Enable
- Channel: 1
- Channel Width: 20 MHz
- Authentication: WPA-Enterprise
- RADIUS Server Settings**
 - WPA Mode: AUTO (WPA or WPA2)
 - Cipher Type: Auto
 - Group Key Update Interval: 1800 (Seconds)
- Network Access Protection**
 - Network Access Protection: Disable Enable
- Primary RADIUS Server Setting**
 - RADIUS Server: [Empty field]
 - RADIUS Port: 1812
 - RADIUS Secret: [Empty field]

A "Save" button is located at the bottom right of the configuration area.

LAN

LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DAP-3520. These settings may be referred to as private settings. You may change the LAN IP address if needed. The LAN IP address is private to your internal network and cannot be seen on the Internet.

Get IP From:

Static IP (Manual) is chosen here. Choose this option if you do not have a DHCP server in your network, or if you wish to assign a static IP address to the DAP-3520.

IP Address:

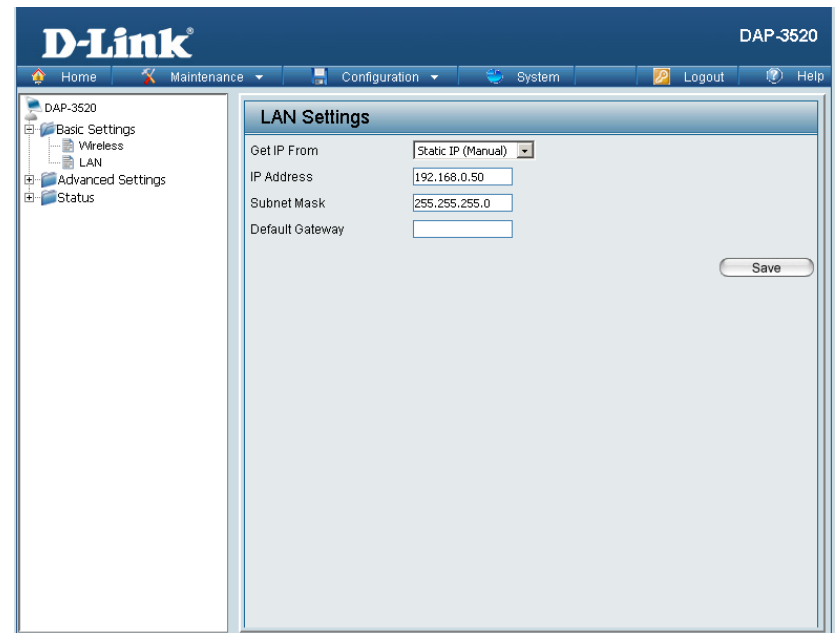
The default IP address is **192.168.0.50**. Assign a static IP address that is within the IP address range of your network.

Subnet Mask:

Enter the subnet mask. All devices in the network must share the same subnet mask.

Default Gateway:

Enter the IP address of the gateway in your network.



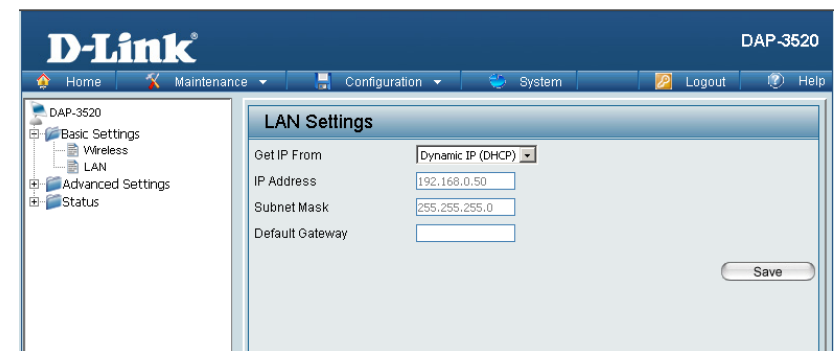
The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with Basic Settings (Wireless, LAN), Advanced Settings, and Status. The main content area is titled "LAN Settings" and contains the following fields:

Get IP From	Static IP (Manual)
IP Address	192.168.0.50
Subnet Mask	255.255.255.0
Default Gateway	

A "Save" button is located at the bottom right of the form.

Get IP From:

Dynamic IP (DHCP) is chosen here. Choose this option if you have a DHCP server in your network. When **Dynamic** is selected, the other fields here will be grayed out. Please allow about two minutes for the DHCP client to be functional once this selection is made.



The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with Basic Settings (Wireless, LAN), Advanced Settings, and Status. The main content area is titled "LAN Settings" and contains the following fields:

Get IP From	Dynamic IP (DHCP)
IP Address	192.168.0.50
Subnet Mask	255.255.255.0
Default Gateway	

The IP Address, Subnet Mask, and Default Gateway fields are grayed out. A "Save" button is located at the bottom right of the form.

Advanced Settings

Performance

Wireless:

Use the drop-down menu to turn the wireless function **On** or **Off**.

Wireless Mode:

The different combination of clients that can be supported include **Mixed 802.11n, 802.11g and 802.11b**, **Mixed 802.11g and 802.11b** in the 2.4 GHz band and **Mixed 802.11n, 802.11a and 802.11a only** in the 5 GHz band. Please note that when backwards compatibility is enabled for legacy (802.11a/g/b) clients, degradation of 802.11n wireless performance is expected.

Data Rate*:

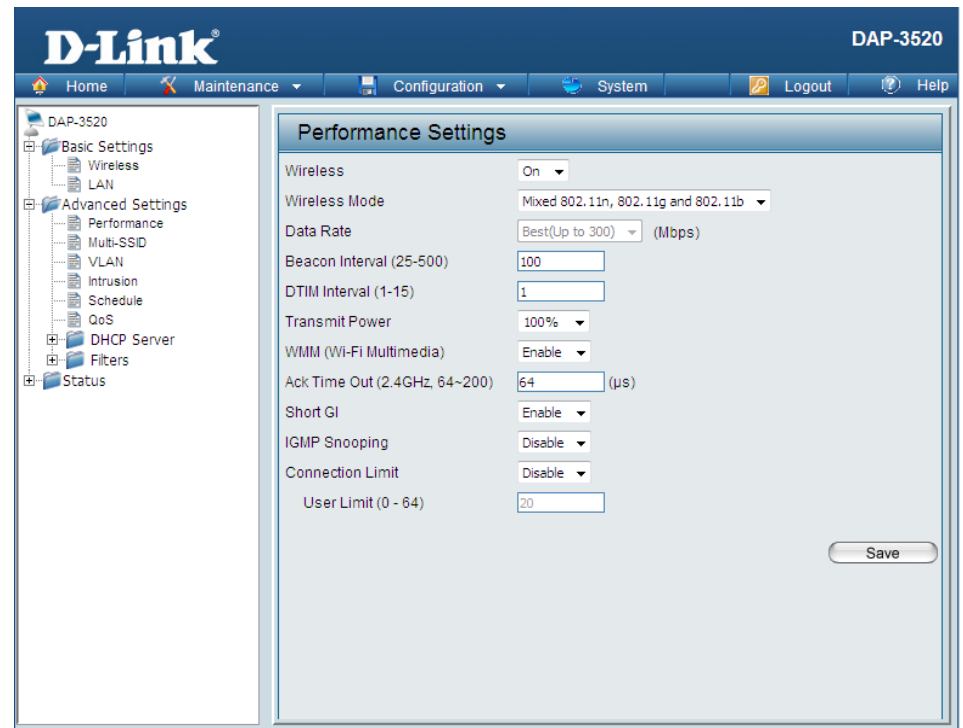
Indicate the base transfer rate of wireless adapters on the wireless LAN. The AP will adjust the base transfer rate depending on the base rate of the connected device. If there are obstacles or interference, the AP will step down the rate. This option is enabled in **Mixed 802.11g and 802.11b** mode (for 2.4 GHz) and **802.11a only** mode (for 5 GHz). The choices available are **Best (Up to 54)**, **54**, **48**, **36**, **24**, **18**, **12**, **9**, **6** for 5 GHz and **Best (Up to 54)**, **54**, **48**, **36**, **24**, **18**, **12**, **9**, **6**, **11**, **5.5**, **2** or **1** for 2.4 GHz.

Beacon Interval (25-500):

Beacons are packets sent by an access point to synchronize a wireless network. Specify a value in milliseconds. The default (**100**) is recommended. Setting a higher beacon interval can help to save the power of wireless clients, while setting a lower one can help a wireless client connect to an access point faster.

DTIM Interval (1-15):

Select a Delivery Traffic Indication Message setting between **1** and **15**. The default setting is **1**. DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.



*Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual data throughput may vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead can lower actual data throughput rate.

Transmit Power:

This setting determines the power level of the wireless transmission. Transmitting power can be adjusted to eliminate overlapping of wireless area coverage between two access points where interference is a major concern. For example, if wireless coverage is intended for half of the area, then select **50%** as the option. Use the drop-down menu to select **100%**, **50%**, **25%**, or **12.5%**.

WMM (Wi-Fi Multimedia):

WMM stands for Wi-Fi Multimedia. Enabling this feature will improve the user experience for audio and video applications over a Wi-Fi network.

Ack Time Out (2.4 GHz, 64~200) or Ack Time Out (5 GHz, 50~200):

To effectively optimize throughput over long distance links enter a value for Acknowledgement Time Out between **50** and **200** microseconds for 5 GHz or from **64** to **200** microseconds in the 2.4 GHz in the field provided.

Short GI:

Select **Enable** or **Disable**. Enabling a short guard interval can increase throughput. However, be aware that it can also increase the error rate in some installations due to increased sensitivity to radio-frequency installations.

IGMP Snooping:

Select **Enable** or **Disable**. Internet Group Management Protocol allows the AP to recognize IGMP queries and reports sent between routers and an IGMP host (wireless STA). When IGMP snooping is enabled, the AP will forward multicast packets to an IGMP host based on IGMP messages passing through the AP.

Connection Limit:

Select **Enable** or **Disable**. This is an option for load balancing. This determines whether to limit the number of users accessing this device. The exact number is entered in the User Limit field below. This feature allows the user to share the wireless network traffic and the client using multiple APs. If this function is enabled, when the number of users exceeds this value, the DAP-3520 will not allow clients to associate with the AP.

User Limit (0 - 64):

Set the maximum amount of users that are allowed access (**0-64** users). To use this feature, the Connection Limit above must be enabled. For most users, a limit of **10** is recommended. The default setting is **20**.

Multi-SSID

The device supports up to four multiple Service Set Identifiers. You can set the Primary SSID in the **Basic > Wireless** section. The SSID's factory default setting is **dlink**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

Enable Multi-SSID:

Check to enable support for multiple SSIDs.

Band:

Displays the current band.

Index:

You can select up to three multi-SSIDs. With the Primary SSID, you have a total of four multi-SSIDs.

SSID:

Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **dlink**. The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Visibility:

Select **Enable** to broadcast the SSID across the network, thus making it visible to all network users. Select **Disable** to hide the SSID from wireless users.

Security:

The Multi-SSID security can be **Open System**, **Shared Key**, **WPA-Personal**, or **WPA-Enterprise**. For a detailed description of the Open System parameters, please go to page 26. For a detailed description of the WPA-Personal parameters please go to page 27. For a detailed description of the WPA-Enterprise parameters, please go to pages 28-29.

The screenshot shows the D-Link DAP-3520 Multi-SSID Settings page. The interface includes a navigation menu on the left with categories like Basic Settings, Advanced Settings, and DHCP Server. The main content area is titled 'Multi-SSID Settings' and contains several sections:

- Wireless Settings:** Includes checkboxes for 'Enable Multi-SSID' (checked) and 'Enable Priority'. Below are dropdown menus for 'Band' (2.4 GHz), 'Index' (Primary SSID), 'SSID' (dlink), 'SSID Visibility' (Enable), 'Security' (Open System), 'Priority' (0), and 'WMM (Wi-Fi Multimedia)' (Enable).
- Key Settings:** Includes radio buttons for 'Encryption' (Disable selected, Enable unselected), 'Key Type' (HEX), 'Key Size' (64 Bits), 'Key Index(1~4)' (1), 'Network Key', and 'Confirm Key'.
- Table:** A table with columns for Index, SSID, Band, Encryption, and Delete. It contains one row for the Primary SSID with values: Primary SSID, dlink, 2.4 GHz, None.

Buttons for 'Add' and 'Save' are located at the bottom right of the settings area.

Priority:

Select the desired priority from the drop-down menu.

WMM (Wi-Fi Multimedia):

Select **Enable** or **Disable**.

Encryption:

When you select **Open System** or **Shared Key**, toggle between **Enable** and **Disable**. If **Enable** is selected, the Key Type, Key Size, Key Index (1~4), Network Key, and Confirm Keys must also be configured.

Key Type:

Select **HEX** or **ASCII**.

Key Size:

Select **64 Bits** or **128 Bits**.

Key Index (1~4):

Select from the 1st to the 4th key to be set as the active key.

Network Key:

Enter a network key, otherwise known as a password.

Confirm Key:

Retype the network key.

WPA Mode:

When you select either **WPA-Personal** or **WPA-Enterprise**, you must also choose a WPA mode from the drop-down menu: **AUTO (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. WPA and WPA2 use different algorithms. **AUTO (WPA or WPA2)** allows you to use both WPA and WPA2. In addition, you must configure Cipher Type, and Group Key Update Interval.

Cipher Type:

Select **Auto**, **AES**, or **TKIP** from the drop-down menu.

Group Key Update Interval: Select the interval during which the group key will be valid. The default value of **1800** seconds is recommended.

PassPhrase:

When you select **WPA-Personal**, please enter a PassPhrase in the corresponding field.

Confirm PassPhrase:

When you select **WPA-Personal**, please re-enter the PassPhrase entered in the previous item in the corresponding field.

RADIUS Server:

When you select **WPA-Enterprise**, enter the IP address of the primary RADIUS server. You must also configure RADIUS port and RADIUS secret. In addition to a primary RADIUS server, the AP allows you to set up an optional backup RADIUS server.

RADIUS Port:

Enter the RADIUS port.

RADIUS Secret:

Enter the RADIUS secret.

The screenshot shows a configuration panel titled "RADIUS Server Settings". It contains the following fields and controls:

- WPA Mode:** A dropdown menu set to "AUTO (WPA or WPA2)".
- Cipher Type:** A dropdown menu set to "Auto".
- Group Key Update Interval:** A text input field containing "1800" with the unit "Seconds" to its right.
- Primary RADIUS Server Setting:** A sub-section with a grey header containing:
 - RADIUS Server:** An empty text input field.
 - RADIUS Port:** A text input field containing "1812".
 - RADIUS Secret:** An empty text input field.
- Add:** A button located at the bottom right of the panel.

VLAN

The DAP-3520 supports VLANs. VLANs can be created with a Name and VID. Mgmt (TCP stack), LAN, Primary/Multiple SSID, and WDS connection can be assigned to VLANs as they are physical ports. Any packet which enters the DAP-3520 without a VLAN tag will have a VLAN tag inserted with a PVID. The VLAN List tab displays the current VLANs.

VLAN Status:

Use the radio button to toggle to Enable. Next, go to the **Add/Edit VLAN** tab to add or modify an item on the **VLAN List** tab.

D-Link DAP-3520

Home Maintenance Configuration System Logout Help

DAP-3520

- Basic Settings
- Advanced Settings
 - Performance
 - Multi-SSID
 - VLAN
 - Intrusion
 - Schedule
 - QoS
- DHCP Server
- Filters
- Status

VLAN Settings

VLAN Status : Disable Enable

VLAN Mode : Static

VLAN List Port List Add/Edit VLAN PVID Setting

VID	VLAN Name	Untag VLAN Ports	Tag VLAN Ports	Edit	Delete
1	default	Mgmt, LAN, Primary, S-1, S-2, S-3, W-1, W-2, W-3, W-4			

Port List

The Port List tab displays the current ports. If you want to configure the guest and internal networks on a Virtual LAN (VLAN), the switch and DHCP server you are using must also support VLANs. As a prerequisite step, configure a port on the switch for handling VLAN tagged packets as described in the IEEE 802.1Q standard.

VLAN Status:

Use the radio button to toggle to **Enable**. Next, go to the **Add/Edit VLAN** tab to add or modify an item on the **VLAN List** tab.

Port Name:

The name of the port is displayed in this column.

Tag VID:

The Tagged VID is displayed in this column.

Untag VID:

The Untagged VID is displayed in this column.

PVID:

The Port VLAN Identifier is displayed in this column.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view of settings categories: Basic Settings, Advanced Settings (Performance, Multi-SSID, VLAN, Intrusion, Schedule, QoS), DHCP Server, Filters, and Status. The main content area is titled 'VLAN Settings' and features a 'VLAN Status' section with radio buttons for 'Disable' (selected) and 'Enable'. Below this is a 'VLAN Mode' section set to 'Static'. A tabbed interface shows 'VLAN List', 'Port List' (selected), 'Add/Edit VLAN', and 'PVID Setting'. The 'Port List' tab contains a table with the following data:

Port Name	Tag VID	Untag VID	PVID
Mgmt		1	1
LAN		1	1
dlink		1	1
dlink1		1	1
dlink2		1	1
dlink3		1	1
W-1		1	1
W-2		1	1
W-3		1	1
W-4		1	1

Add/Edit VLAN

The Add/Edit VLAN tab is used to configure VLANs. Once you have made the desired changes, click the **Apply** button to let your changes take effect.

VLAN Status:

Use the radio button to toggle to Enable.

VLAN ID (VID):

Provide a number between **1** and **4094** for the Internal VLAN.

VLAN Name:

Enter the VLAN to add or modify.

D-Link DAP-3520

Home Maintenance Configuration System Logout Help

DAP-3520

- Basic Settings
- Advanced Settings
 - Performance
 - Multi-SSID
 - VLAN
 - Intrusion
 - Schedule
 - QoS
- DHCP Server
- Filters
- Status

VLAN Settings

VLAN Status : Disable Enable
VLAN Mode : Static

VLAN List Port List **Add/Edit VLAN** PVID Setting

VLAN ID (VID) VLAN Name

Port	Select All	Mgmt	LAN
Untag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>
Tag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>
Not Member	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>

MSSID Port	Select All	Primary	S-1	S-2	S-3
Untag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not Member	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

WDS Port	Select All	W-1	W-2	W-3	W-4
Untag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tag	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not Member	<input type="button" value="All"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PVID Setting

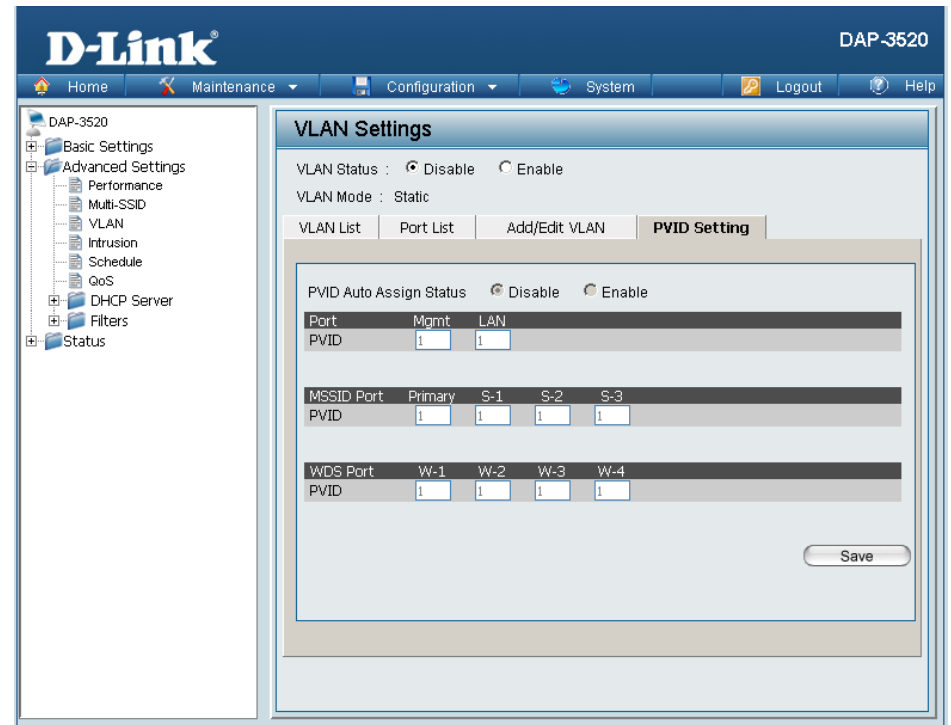
The PVID Setting tab is used to enable/disable the Port VLAN Identifier Auto Assign Status as well as to configure various types of PVID settings. Click the **Apply** button to let your changes take effect.

VLAN Status:

Use the radio button to toggle to Enable.

PVID Auto Assign Status:

Use the radio button to toggle PVID auto assign status to Enable.



Intrusion

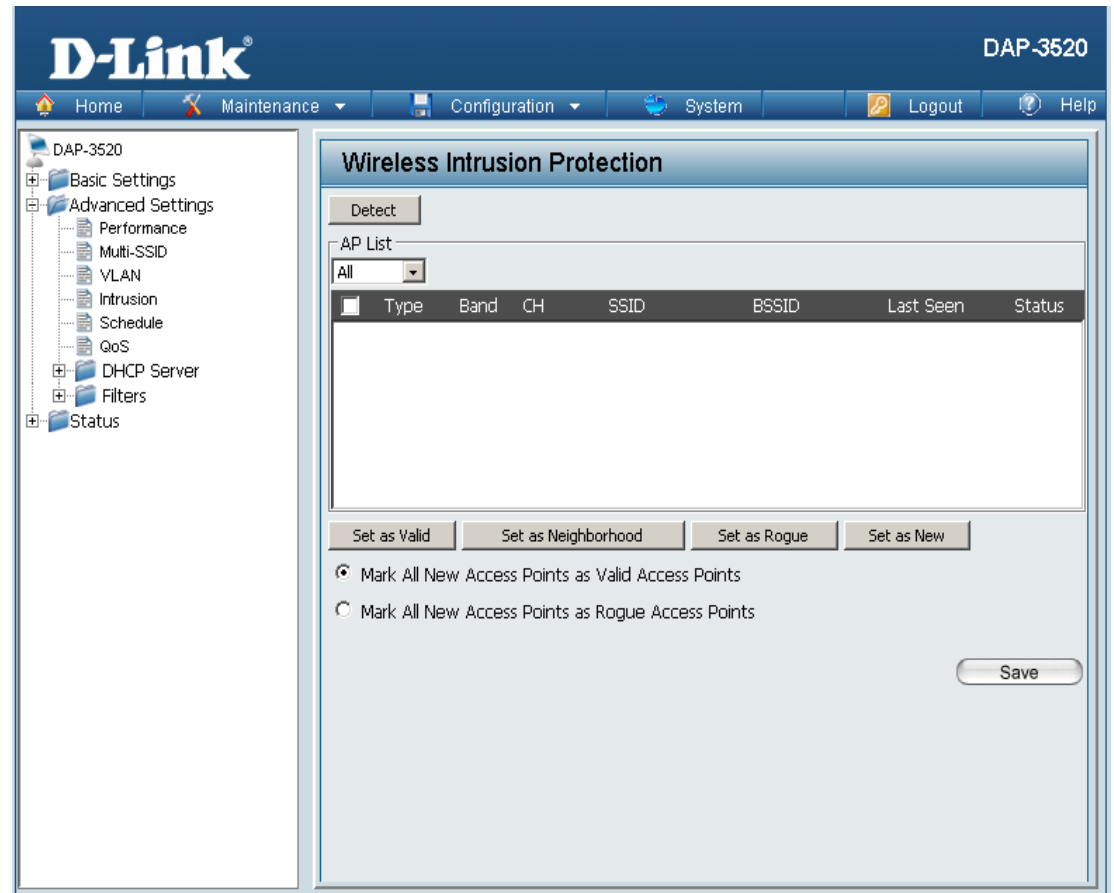
The Wireless Intrusion Protection window is used to set APs as **All**, **Valid**, **Neighborhood**, **Rogue**, and **New**. Click the **Apply** button to let your changes take effect.

AP List:

The choices include **All**, **Valid**, **Neighbor**, **Rogue**, and **New**.

Detect:

Click this button to initiate a scan of the network.



Schedule

The Wireless Schedule Settings window is used to add and modify scheduling rules on the device. Click the **Apply** button to let your changes take effect.

Wireless Schedule:

Select **Enable** or **Disable** from the drop-down menu.

Name:

Enter a name for your schedule rule.

Day(s):

Select **All Week** or **Select Day(s)**. If **Select Day(s)** is selected, check the specific days you want the rule to be effective on.

All Days(s):

Check this box to select all days.

Start Time:

Enter the start time for the rule.

End Time:

Enter the end time for the rule.

Wireless:

Select **Off** and **On**.

The screenshot shows the D-Link DAP-3520 configuration page. The left sidebar contains a tree view with categories: Basic Settings, Advanced Settings (Performance, Multi-SSID, VLAN, Intrusion, Schedule, QoS), DHCP Server, Filters, and Status. The main content area is titled "Wireless Schedule Settings". At the top, "Wireless Schedule" is set to "Disable". Below this is the "Add Schedule Rule" section with fields for Name, Day(s) (radio buttons for All Week and Select Day(s)), checkboxes for days of the week (Sun-Sat), an All Day(s) checkbox, Start Time and End Time (hour:minute, 24 hour time), and a Wireless dropdown menu (currently set to Off). There are Add and Clear buttons. Below the form is a "Schedule Rule List" table with columns: Name, Day(s), Time Frame, Wireless, Edit, and Delete. The table is currently empty. A Save button is located at the bottom right of the page.

QoS

Quality of Service (QoS) enhances the experience of using a network by prioritizing the traffic of different applications.

A QoS Rule identifies a specific message flow and assigns a priority to that flow. For most applications, the priority classifiers ensure the right priorities and specific QoS Rules are not required.

QoS supports overlaps between rules. If more than one rule matches a specific message flow, the rule with the highest priority will be used.

QoS (Quality of Service):

Enable this option if you want to allow QoS to prioritize your traffic Priority Classifiers.

HTTP:

Allows the access point to recognize HTTP transfers for many common audio and video streams and prioritize them above other traffic. Such streams are frequently used by digital media players.

Automatic:

When enabled, this option causes the access point to automatically attempt to prioritize traffic streams that it does not otherwise recognize, based on the behavior that the streams exhibit. This acts to de-prioritize streams that exhibit bulk transfer characteristics, such as file transfers, while leaving interactive traffic, such as gaming or VoIP, running at a normal priority.

Name:

Enter a name for the new QoS rule in the field provided.

Priority:

Use the drop-down menu to select the desired priority: **Background (BK)**, **Best Effort (BE)**, **Video (VI)**, or **Voice (VO)**.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes 'Home', 'Maintenance', 'Configuration', 'System', 'Logout', and 'Help'. The left sidebar shows a tree view with 'DAP-3520' expanded, containing 'Basic Settings', 'Advanced Settings', 'Performance', 'Multi-SSID', 'VLAN', 'Intrusion', 'Schedule', 'QoS', 'DHCP Server', 'Filters', and 'Status'. The main content area is titled 'QoS Settings' and features a 'QoS(Quality of Service)' dropdown menu set to 'Disable'. Below this is the 'Priority Classifiers' section with checkboxes for 'HTTP' and 'Automatic' (with a note: '(default if not matched by anything else)'). The 'Add QoS Rule' section contains input fields for 'Name', 'Priority' (dropdown menu), 'Protocol' (dropdown menu), 'Host 1 IP Range', 'Host 1 Port Range', 'Host 2 IP Range', and 'Host 2 Port Range', along with 'Add' and 'Clear' buttons. At the bottom is the 'QoS Rules List' table with columns for Name, Priority, Host 1 IP Range, Host 2 IP Range, Protocol / Ports, Edit, and Del. A 'Save' button is located at the bottom right of the page.

Protocol:

Use the drop-down menu to choose the appropriate protocol used by the messages: **Any**, **TCP**, **UDP**, **Both**, **IMCP**, or **Other**.

Host 1 IP Range:

The rule applies to a flow of messages for which one computer's IP address falls within the range set here.

Host 1 Port Range:

The rule applies to a flow of messages for which host 1's port number is within the range set here when the Protocol is set to **TCP**, **UDP**, or **Both**.

Host 2 IP Range:

The rule applies to a flow of messages for which the other computer's IP address falls within the range set here.

Host 2 Port Range:

The rule applies to a flow of messages for which host 2's port number is within the range set here when the Protocol is set to **TCP**, **UDP**, or **Both**.

Add QoS Rule

Name

Priority (dropdown menu open with options: Background(BK), Best Effort(BE), Video(VI), Voice(VO))

Protocol

Host 1 IP Range

Add QoS Rule

Name

Priority (dropdown menu)

Protocol (dropdown menu open with options: Any, TCP, UDP, Both, ICMP, Other)

Host 1 IP Range -

Host 1 Port Range -

Host 2 IP Range -

DHCP Server

Dynamic Pool Settings

The DHCP address pool defines the range of the IP address that can be assigned to stations in the network. A Dynamic Pool allows wireless stations to receive an available IP with lease time control.

Function Enable/Disable:

Dynamic Host Configuration Protocol (DHCP) assigns dynamic IP addresses to devices on the network. This protocol simplifies network management and allows new wireless devices to receive IP addresses automatically without the need to manually assign new IP addresses. Select **Enable** to allow the DAP-3520 to function as a DHCP server.

IP Assigned From:

Input the first IP address available for assignment on your network.

The Range of Pool (1-254):

Enter the number of IP addresses available for assignment. IP addresses are increments of the IP address specified in the “IP Assigned From” field.

Subnet Mask:

All devices in the network must have the same subnet mask to communicate. Enter the submask for the network here.

The screenshot displays the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with categories: Basic Settings, Advanced Settings (Performance, Multi-SSID, VLAN, Intrusion, Schedule, QoS), DHCP Server (Dynamic Pool Setting, Static Pool Setting, Current IP Mapping List), Filters, and Status. The main content area is titled "Dynamic Pool Settings" and contains the following configuration fields:

DHCP Server Control	
Function Enable/Disable	<input type="text" value="Disable"/>
Dynamic Pool Settings	
IP Assigned From	<input type="text" value="192.168.0.20"/>
The Range of Pool (1-254)	<input type="text" value="235"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text"/>
WINS	<input type="text"/>
DNS	<input type="text"/>
Domain Name	<input type="text" value="dlink-ap"/>
Lease Time (60 - 31536000 sec)	<input type="text" value="604800"/>

A "Save" button is located at the bottom right of the configuration area.

Gateway:

Enter the IP address of the gateway on the network.

WINS:

Specify the Windows Internet Naming Service (WINS) server address for the wireless network. WINS is a system that determines the IP address of a network computer that has a dynamically assigned IP address.

DNS:

Enter the IP address of the Domain Name System (DNS) server. The DNS server translates domain names such as www.dlink.com into IP addresses.

Domain Name:

Enter the domain name of the network, if applicable. (An example of a domain name is: www.dlink.com.)

Lease Time (60-31536000 sec):

The lease time is the period of time before the DHCP server will assign new IP addresses.

Static Pool Setting

The DHCP address pool defines the range of IP addresses that can be assigned to stations on the network. A static pool allows specific wireless stations to receive a fixed IP without time control.

Function Enable/Disable:

Dynamic Host Configuration Protocol (DHCP) assigns IP addresses to wireless devices on the network. This protocol simplifies network management and allows new wireless devices to receive IP addresses automatically without the need to manually assign IP addresses. Select **Enable** to allow the DAP-3520 to function as a DHCP server.

Host Name:

Enter a name for the assigned client.

Assigned IP:

Use the Static Pool Settings to assign the same IP address to a device every time you start up. The IP addresses assigned in the Static Pool list must NOT be in the same IP range as the Dynamic Pool. After you have assigned a static IP address to a device via its MAC address, click **Apply**; the device will appear in the Assigned Static Pool at the bottom of the screen. You can edit or delete the device in this list.

Assigned MAC Address:

Enter the MAC address of the device requesting association here.

Subnet Mask:

Define the submask of the IP address specified in the "IP Assigned From" field.

Gateway:

Specify the Gateway address for the wireless network.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with categories like Basic Settings, Advanced Settings, Performance, Multi-SSID, VLAN, Intrusion, Schedule, QoS, DHCP Server, Filters, and Status. The DHCP Server section is expanded, showing Dynamic Pool Setting, Static Pool Setting, and Current IP Mapping List. The main content area is titled "Static Pool Settings" and contains the following fields:

- DHCP Server Control**: Function Enable/Disable (Dropdown menu set to "Disable")
- Static pool setting**:
 - Host Name: [Text input field]
 - Assigned IP: [Text input field]
 - Assigned MAC Address: [Text input field with format: [] : [] : [] : [] : [] : []]
 - Subnet Mask: [Text input field with value: 255.255.255.0]
 - Gateway: [Text input field]
 - Wins: [Text input field]
 - DNS: [Text input field]
 - Domain Name: [Text input field with value: dlink-ap]

A "Save" button is located at the bottom right of the form. Below the form is a table with the following columns: Host Name, MAC Address, IP Address, Edit, and Delete. The table is currently empty.

WINS:

Specify the Windows Internet Naming Service (WINS) server address for the wireless network. WINS is a system that determines the IP address of a network computer with a dynamically assigned IP address, if applicable.

DNS:

Enter the Domain Name System (DNS) server address for the wireless network. The DNS server translates domain names such as www.dlink.com into IP addresses.

Domain Name:

Specify the domain name for the network.

Current IP Mapping List

This window displays information about the current assigned DHCP dynamic and static IP address pools. This information is available when you enable DHCP server on the AP and assign dynamic and static IP address pools.

Current DHCP Dynamic Pools:

These are IP address pools the DHCP server has assigned using the dynamic pool setting.

Host Name:

The host name of the client.

Binding MAC Address:

The MAC address of a device on the network that is assigned an IP address from the DHCP dynamic pool.

Assigned IP Address:

The current corresponding DHCP-assigned IP address of the device.

Lease Time:

The length of time that the dynamic IP address will be valid.

Current DHCP Static Pools:

These are the IP address pools of the DHCP server assigned through the static pool settings.

Host Name:

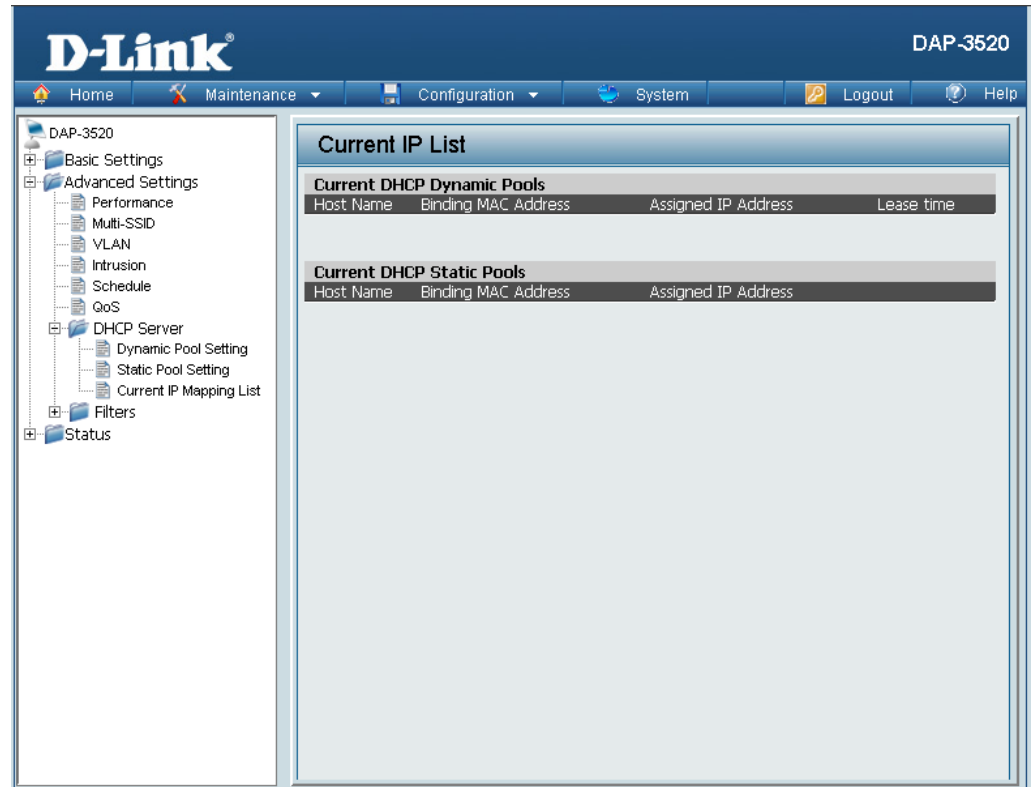
The host name of the client.

Binding MAC Address:

The MAC address of a device on the network that is within the DHCP static IP address pool.

Assigned IP Address:

The current corresponding DHCP-assigned static IP address of the device.



Filters

Wireless MAC ACL

Wireless Band:

Displays the current wireless band rate.

Access Control List:

Select **Disable** to disable the filters function.

Select **Accept** to accept only those devices with MAC addresses in the Access Control List. All other devices not on the list will be rejected.

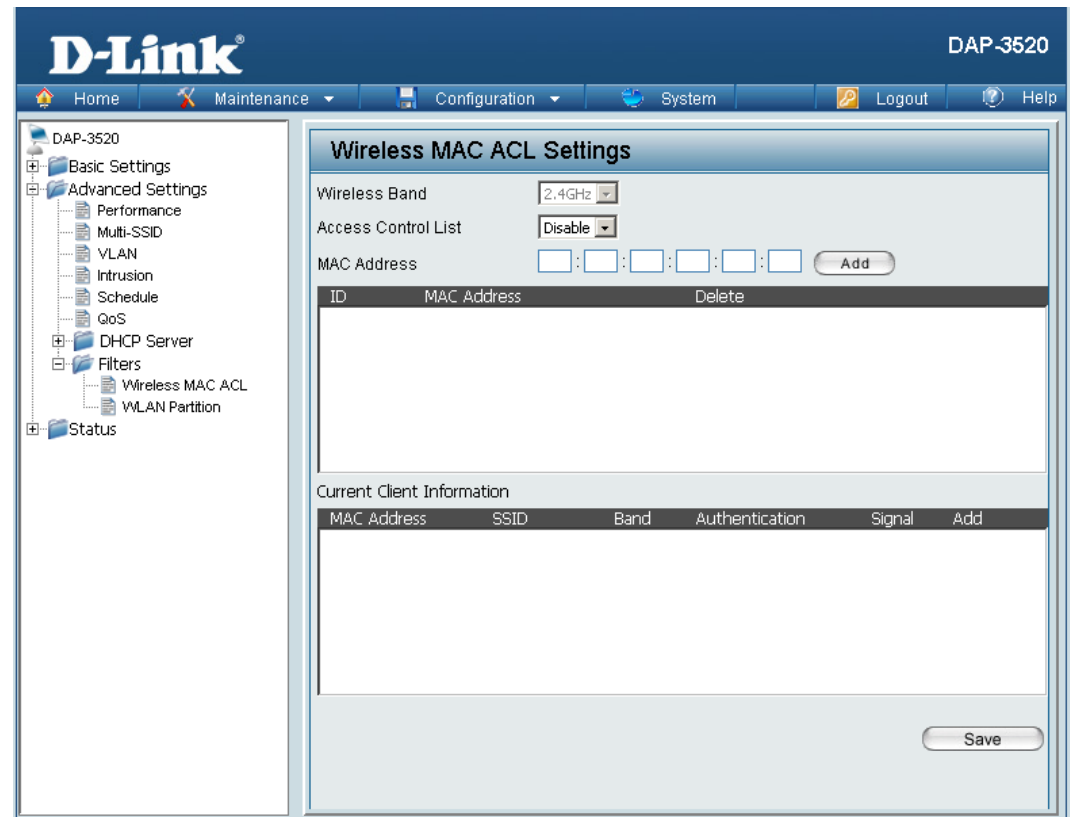
Select **Reject** to reject the devices with MAC addresses on the Access Control List. All other devices not on the list will be accepted.

MAC Address:

Enter each MAC address that you wish to include in your filter list, and click **Apply**.

MAC Address List:

When you enter a MAC address, it appears in this list. Highlight a MAC address and click **Delete** to remove it from this list.



WLAN Partition

Wireless Band:

Displays the current wireless band rate.

Link Integrity:

Select **Enable** or **Disable**.

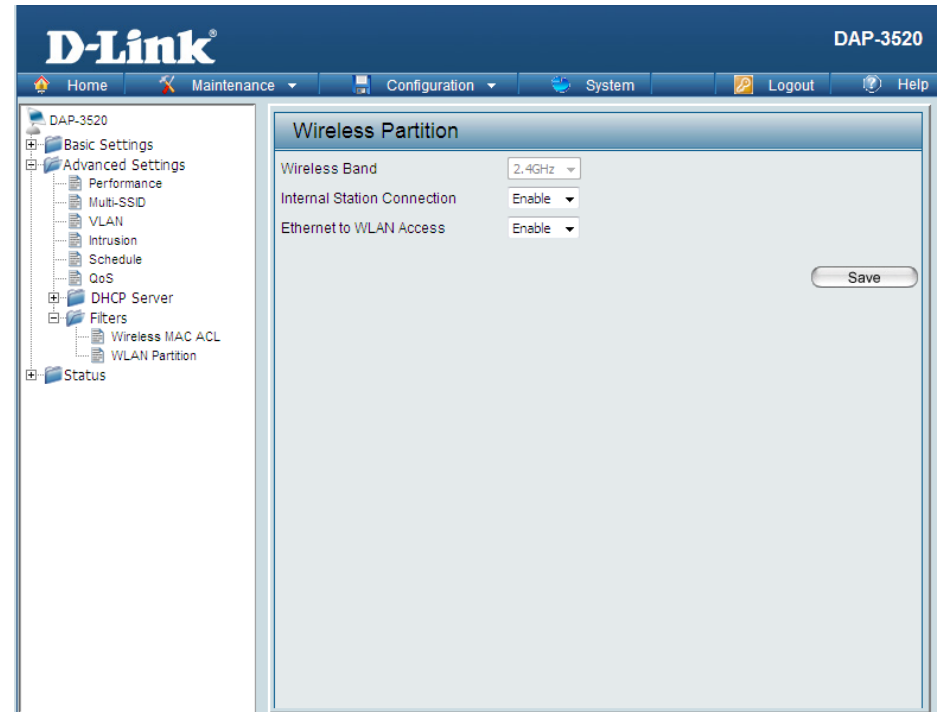
Ethernet to WLAN Access:

The default is **Enable**. When disabled, all data from the Ethernet to associated wireless devices will be blocked. Wireless devices can still send data to the Ethernet.

Internal Station Connection:

The default value is **Enable**, which allows stations to inter-communicate by connecting to a target AP. When disabled, wireless stations cannot exchange data through the AP.

Guest mode is for creating a hotspot. Clients connecting to this SSID will not be able to see other wireless devices on this wireless network. They will only be able to network to devices connected via the Ethernet port on the DAP-3520.

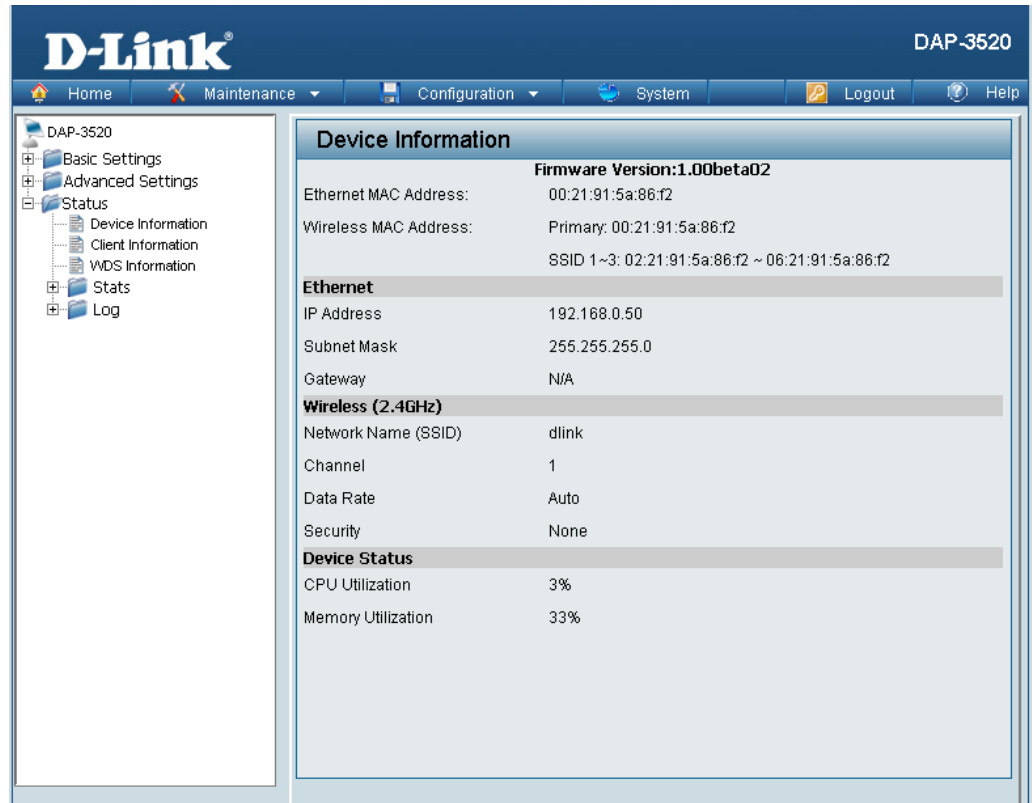


Status

Device Information

Device Information:

This read-only window displays the configuration settings of the DAP-3520, including the firmware version and the device's MAC address.



The screenshot shows the D-Link web interface for the DAP-3520. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with categories: Basic Settings, Advanced Settings, Status, Device Information, Client Information, WDS Information, Stats, and Log. The main content area is titled "Device Information" and displays the following data:

Device Information	
Firmware Version: 1.00beta02	
Ethernet MAC Address:	00:21:91:5a:86:f2
Wireless MAC Address:	Primary: 00:21:91:5a:86:f2 SSID 1~3: 02:21:91:5a:86:f2 ~ 06:21:91:5a:86:f2
Ethernet	
IP Address	192.168.0.50
Subnet Mask	255.255.255.0
Gateway	N/A
Wireless (2.4GHz)	
Network Name (SSID)	dlink
Channel	1
Data Rate	Auto
Security	None
Device Status	
CPU Utilization	3%
Memory Utilization	33%

Client Information

Client Information:

This window displays the wireless client information for clients currently connected to the DAP-3520.

The following information is available for each client communicating with the DAP-3520.

SSID:

Displays the SSID of the client.

MAC:

Displays the MAC address of the client.

Band:

Displays the wireless band that the client is connected to.

Authentication:

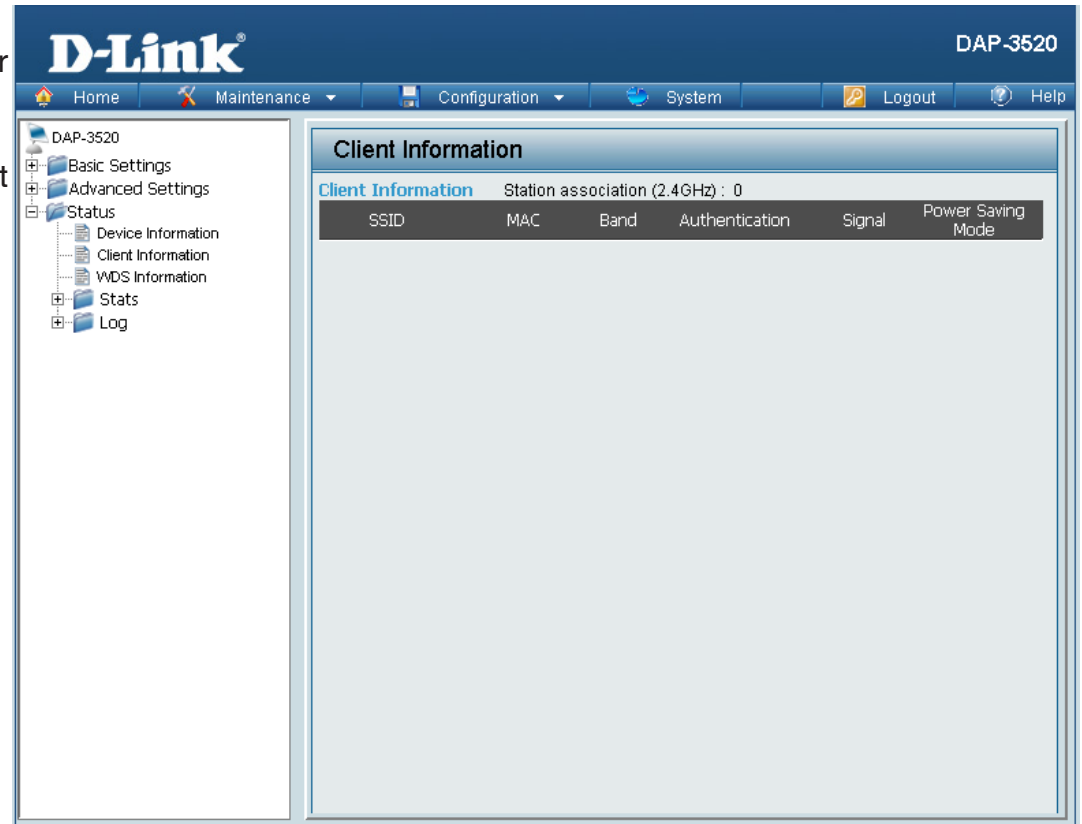
Displays the type of authentication being used.

Signal:

Displays the client's signal strength.

Power Saving Mode:

Displays the status of the power saving feature.



WDS Information

WDS Information:

This window displays the Wireless Distribution System information for clients currently connected to the DAP-3520.

The following information is available for each client communicating with the DAP-3520.

Name:

Displays the name of the client.

MAC:

Displays the MAC address of the client.

Authentication:

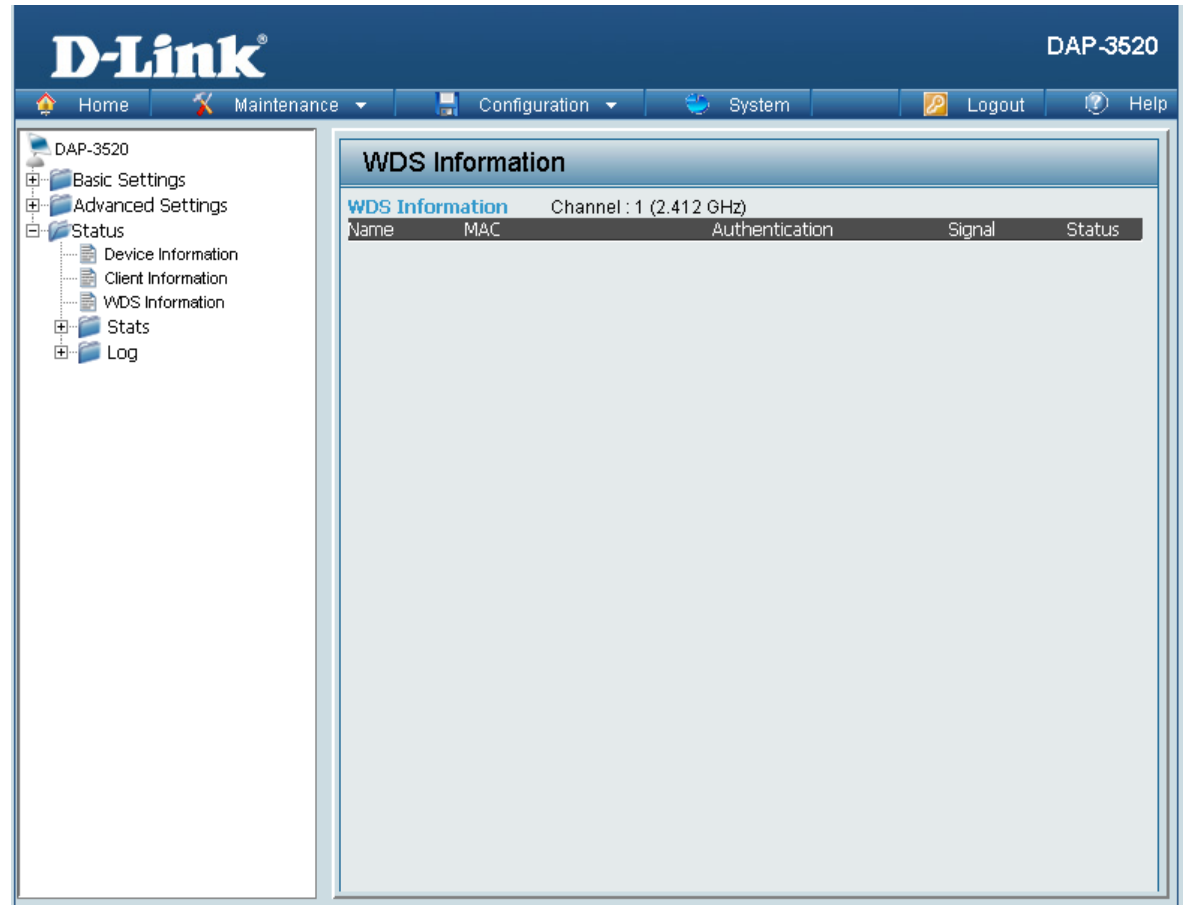
Displays the type of authentication being used.

Signal:

Displays the WDS link signal strength.

Status:

Displays the status of the power saving feature.



Stats

Ethernet

Ethernet Traffic Statistics:

This page displays transmitted and received count statistics for packets and bytes.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with categories: Basic Settings, Advanced Settings, Status (expanded), Device Information, Client Information, WDS Information, Stats (expanded), Ethernet, WLAN, and Log. The main content area is titled "Ethernet Traffic Statistics" and contains a table with the following data:

Transmitted Count	
Transmitted Packet Count	3546
Transmitted Bytes Count	2440339
Dropped Packet Count	0

Received Count	
Received Packet Count	1475
Received Bytes Count	125603
Dropped Packet Count	0

WLAN

WLAN Traffic Statistics:

This page displays wireless network statistics for data throughput, transmitted and received frames, and frame errors.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with categories: Basic Settings, Advanced Settings, Status (Device Information, Client Information, WDS Information), Stats (Ethernet, WLAN), and Log. The main content area is titled 'WLAN Traffic Statistics' and contains a table of statistics. There are 'Clear' and 'Refresh' buttons in the top right of the statistics area.

Transmitted Count	
Transmitted Packet Count	247
Transmitted Bytes Count	40227
Dropped Packet Count	61
Transmitted Retry Count	0

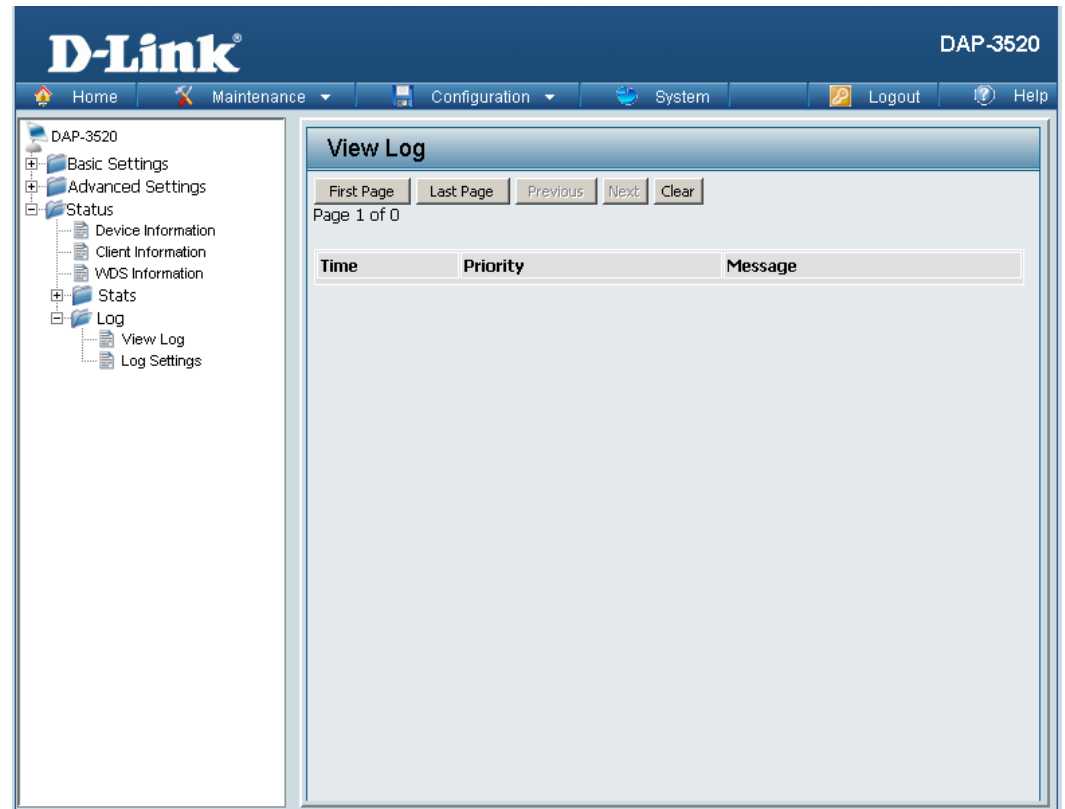
Received Count	
Received Packet Count	1506
Received Bytes Count	83889
Dropped Packet Count	0
Received CRC Count	0
Received Decryption Error Count	
Received MIC Error Count	
Received PHY Error Count	

Log

View Log

View Log:

The AP's embedded memory displays system and network messages including a time stamp and message type. The log information includes but is not limited to the following items: cold start AP, upgrading firmware, client associate and disassociate with AP, and web login. The web page holds up to 500 logs.



Log Settings

Log Server/IP Address:

Enter the IP address of the server you would like to send the DAP-3520 log to.

Log Type:

Check the box for the type of activity you want to log. There are three types: System Activity, Wireless Activity, and Notice.

Email Notification:

Click to Enable email notification.

From Email Address:

Enter the sender's e-mail address. This field does not require a valid e-mail address. However, if your e-mail client is filtering spam, make sure you allow this address to be received.

To Email Address:

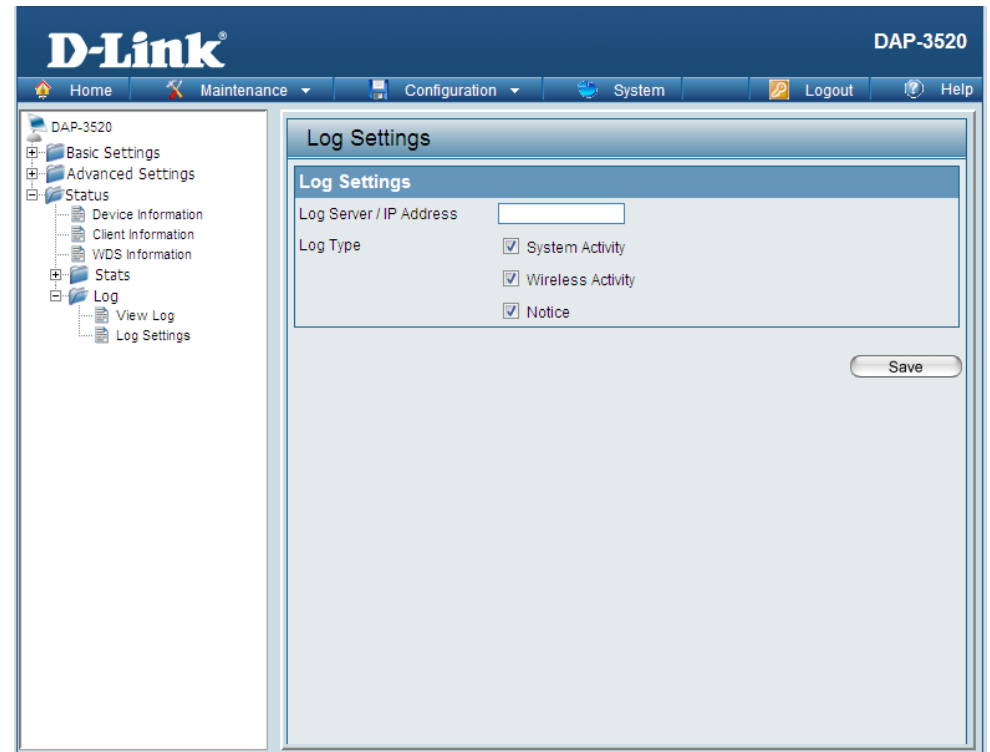
Enter the e-mail address you want to send alerts to. This address must correspond with the SMTP server configured above.

Email Server Address:

Enter the IP address of the server you would like to send the DAP-3520 log to.

SMTP Port:

Enter a TCP port number to relay outbound mail to your mail server. The default port is **25**.



User Name:

Enter an appropriate user name for your e-mail account.

Password:

Enter an appropriate password for your e-mail account.

Confirm Password:

Retype the password for your e-mail account.

Schedule:

Use the drop-down menu to select the number of hours before mail will be sent to the server. For example, if a value of **2** is selected, mail will be sent to the server every two hours. However, if the log entry is full between 0 and 2 hours, mail will also be sent to the server and then the log entry will be automatically cleared.

Email Notification

Email Notification Enable

From Email Address

To Email Address

Email Server Address

SMTP Port

User Name

Password

Confirm Password

Email Log Schedule

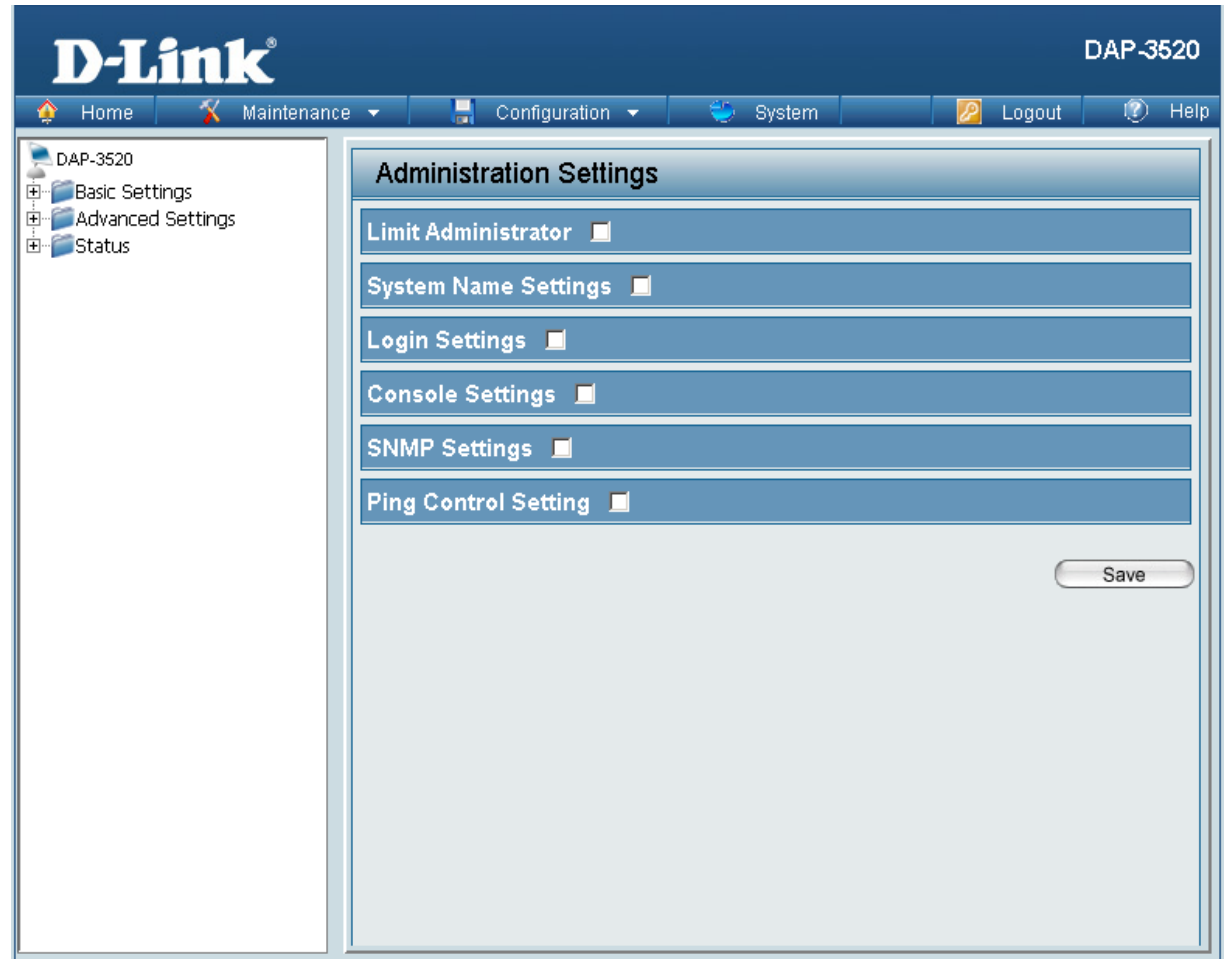
Schedule hours or when Log is full

Save

Maintenance

Administrator Settings

Check one or more of the six main categories to display the various hidden administrator parameters and settings displayed on the next five pages.



Limit Administrator

Limit Administrator VLAN ID:

Check the box provided and then enter the specific VLAN ID that the administrator will be allowed to log in from.

Limit Administrator IP:

Check to enable the Limit Administrator IP address.

IP Range:

Enter the IP address range that the administrator will be allowed to log in from and then click the **Add** button.

The screenshot shows the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings, Advanced Settings, and Status. The main content area is titled "Administration Settings" and contains several sections:

- Limit Administrator** (checked):
 - Limit Administrator VLAN ID: Enable
 - Limit Administrator IP: Enable
 - IP Range: From: To:
 - Table with columns: Item, From, To, Delete
- System Name Settings**
- Login Settings**
- Console Settings**
- SNMP Settings**
- Ping Control Setting**

A "Save" button is located at the bottom right of the page.

System Name Settings

System Name Settings:

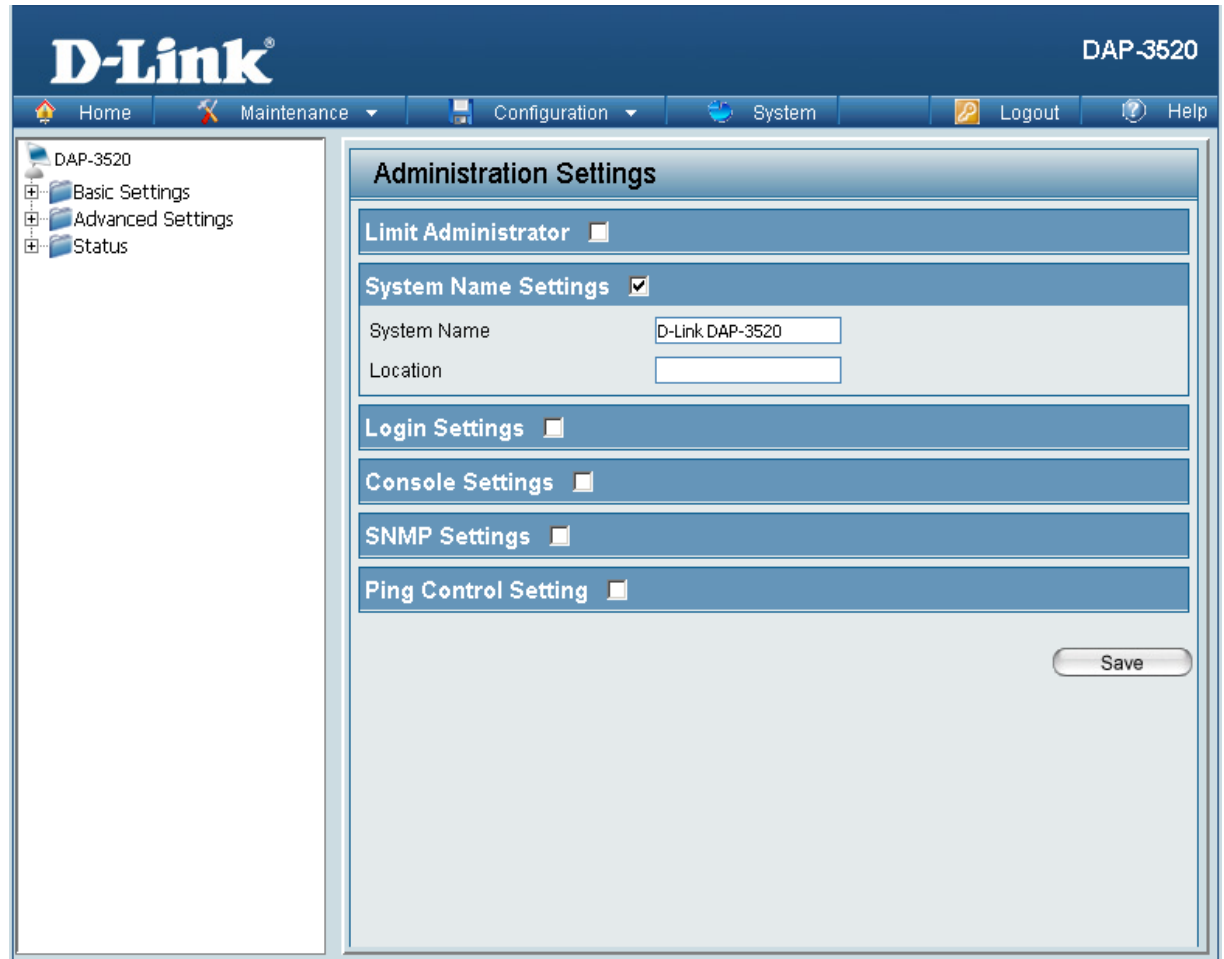
Each of the six main categories display various hidden administrator parameters and settings.

System Name:

The name of the device. The default name is **D-Link DAP-3520**.

Location:

The physical location of the device, e.g. office.



The screenshot displays the D-Link DAP-3520 web management interface. The top navigation bar includes the D-Link logo, the device model 'DAP-3520', and menu items: Home, Maintenance, Configuration, System, Logout, and Help. A left sidebar shows a tree view with 'DAP-3520' expanded to show 'Basic Settings', 'Advanced Settings', and 'Status'. The main content area is titled 'Administration Settings' and contains several sections, each with a checkbox:

- Limit Administrator
- System Name Settings
- Login Settings
- Console Settings
- SNMP Settings
- Ping Control Setting

Under the 'System Name Settings' section, there are two input fields: 'System Name' with the value 'D-Link DAP-3520' and 'Location' which is empty. A 'Save' button is located at the bottom right of the main content area.

Login Settings

Each of the six main categories display various hidden administrator parameters and settings.

User Name:

Enter a user name. The default is **admin**.

Old Password:

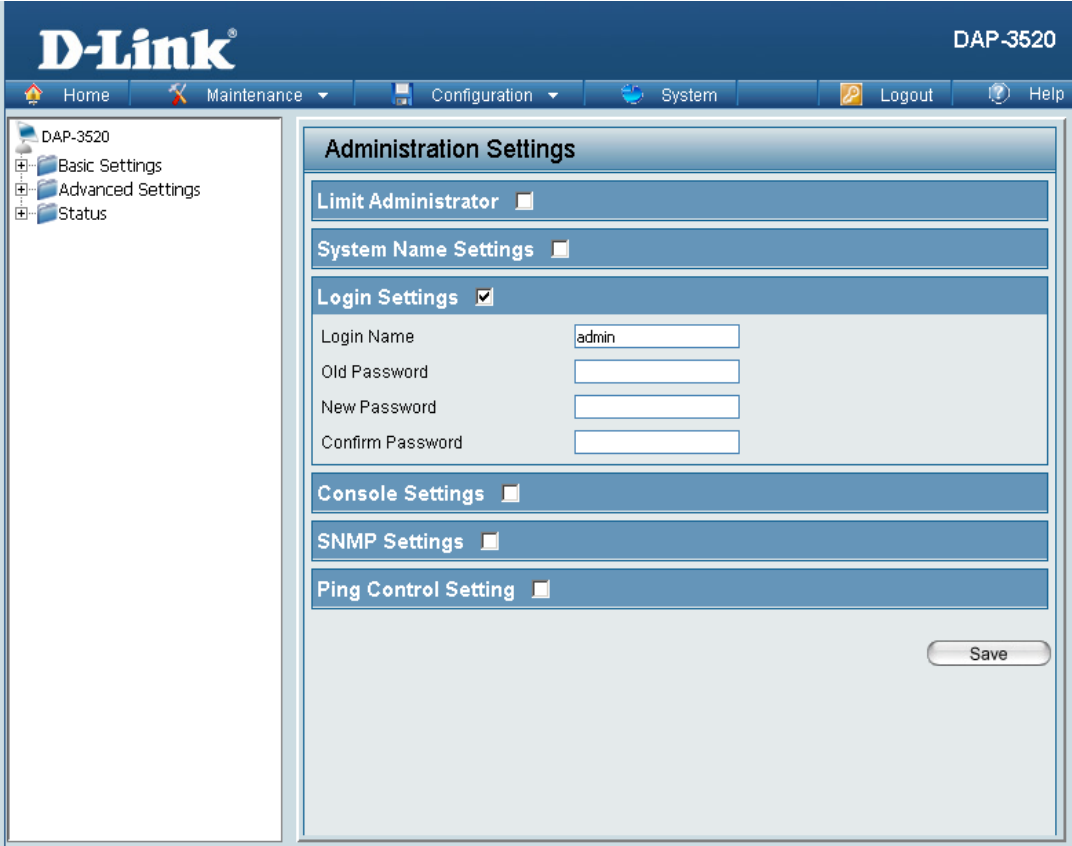
When changing your password, enter the old password here.

New Password:

When changing your password, enter the new password here. The password is case-sensitive. "A" is a different character than "a." The length should be between 0 and 12 characters.

Confirm Password:

Enter the new password a second time for confirmation purposes.



The screenshot displays the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings, Advanced Settings, and Status. The main content area is titled "Administration Settings" and contains several sections: "Limit Administrator" (unchecked), "System Name Settings" (unchecked), "Login Settings" (checked), "Console Settings" (unchecked), "SNMP Settings" (unchecked), and "Ping Control Setting" (unchecked). The "Login Settings" section is active and contains four input fields: "Login Name" (with "admin" entered), "Old Password", "New Password", and "Confirm Password". A "Save" button is located at the bottom right of the form.

Console Settings

Each of the six main categories display various hidden administrator parameters and settings.

Status:

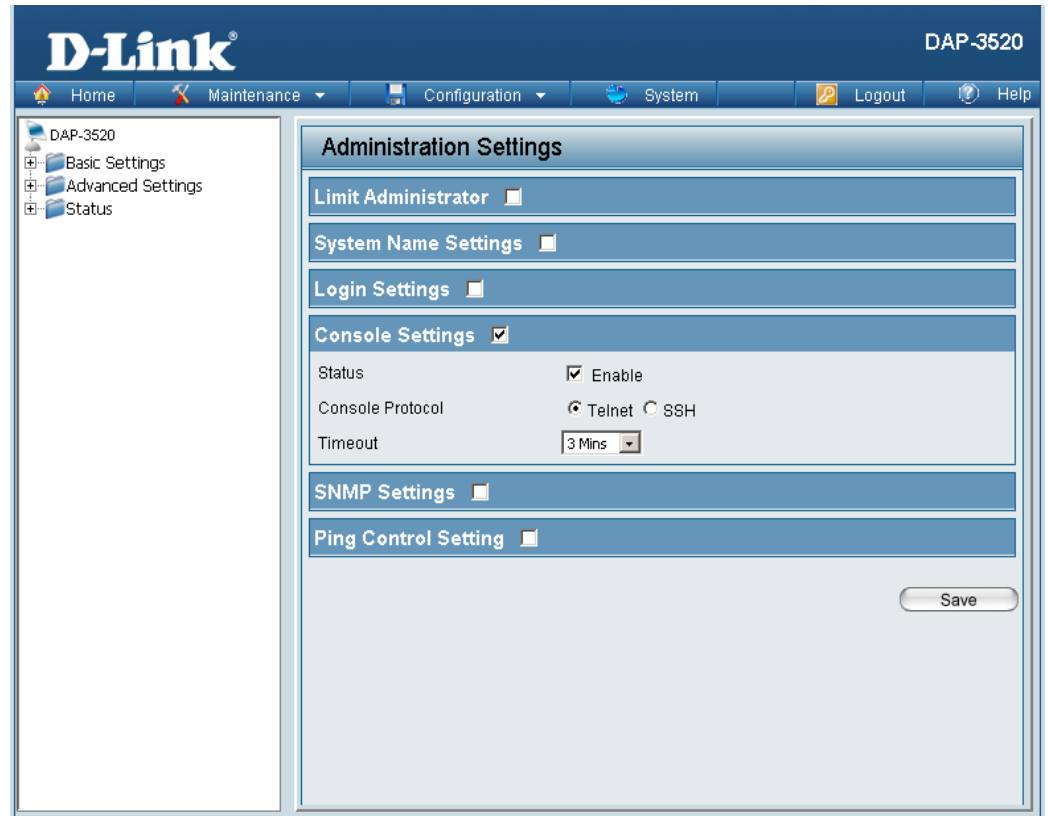
Status is enabled by default. Uncheck the box to disable the console.

Console Protocol:

Select the type of protocol you would like to use, **Telnet** or **SSH**.

Timeout:

Set to **1 Min**, **3 Mins**, **5 Mins**, **10 Mins**, **15 Mins** or **Never**.



SNMP Settings

Each of the six main categories display various hidden administrator parameters and settings.

Status:

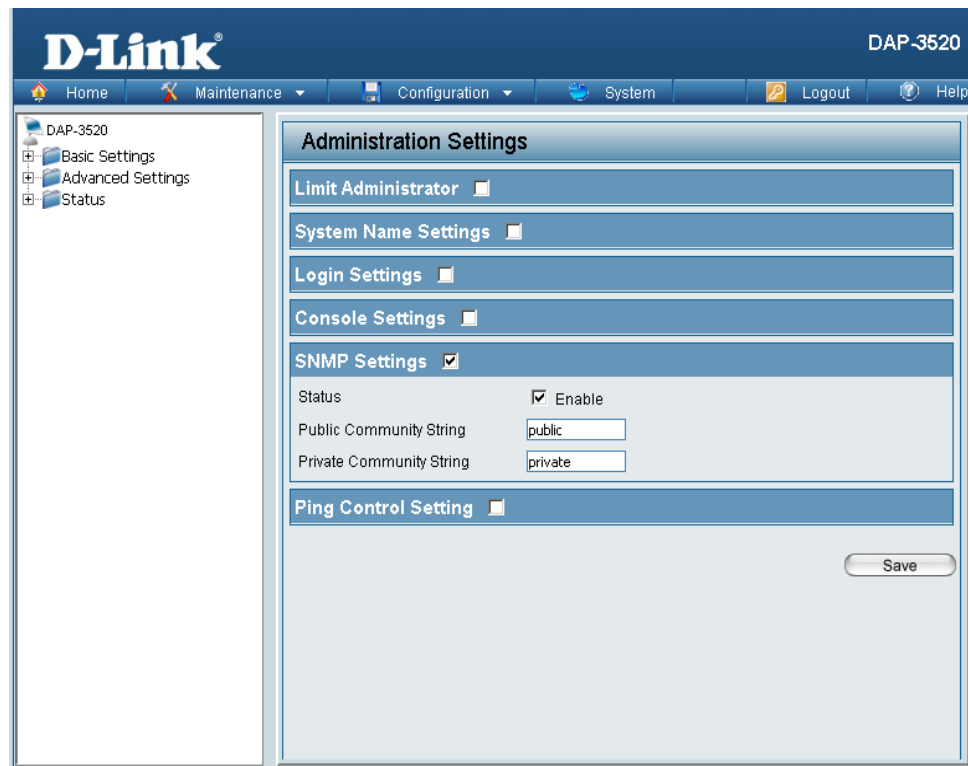
Check the box to enable the SNMP functions. This is enabled by default.

Public Community String:

Enter the public SNMP community string.

Private Community String:

Enter the private SNMP community string.

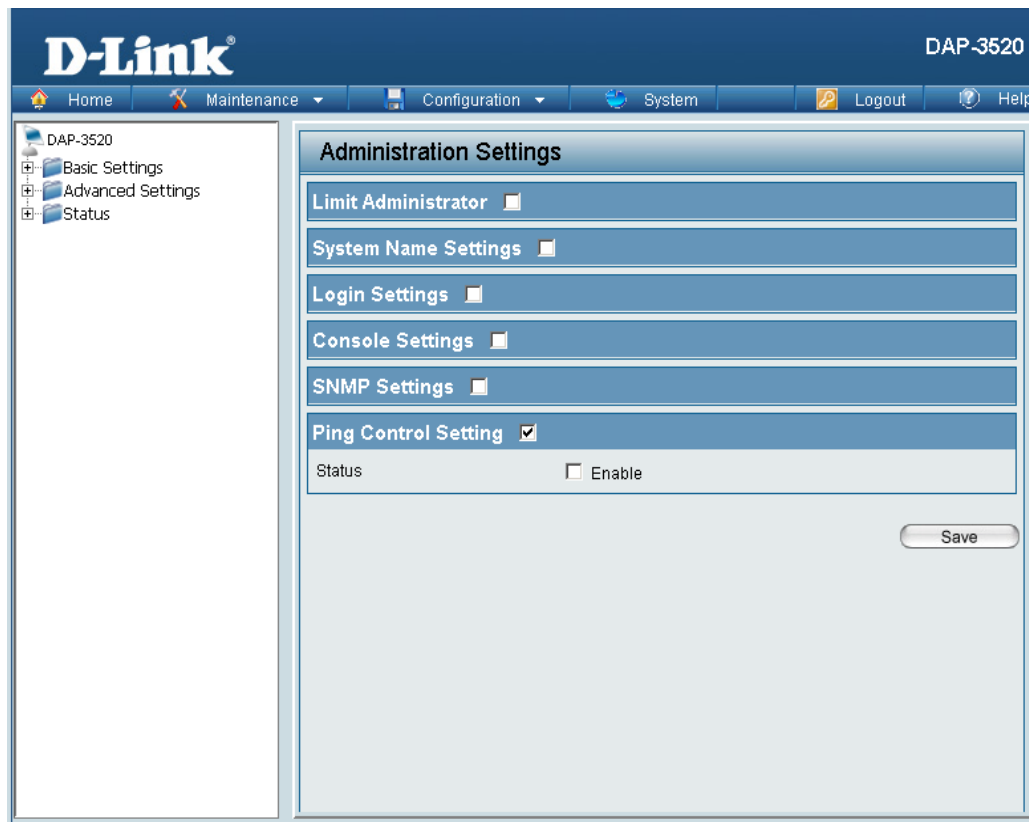


Ping Control Setting

Each of the six main categories display various hidden administrator parameters and settings.

Status:

Check the box to enable Ping control.



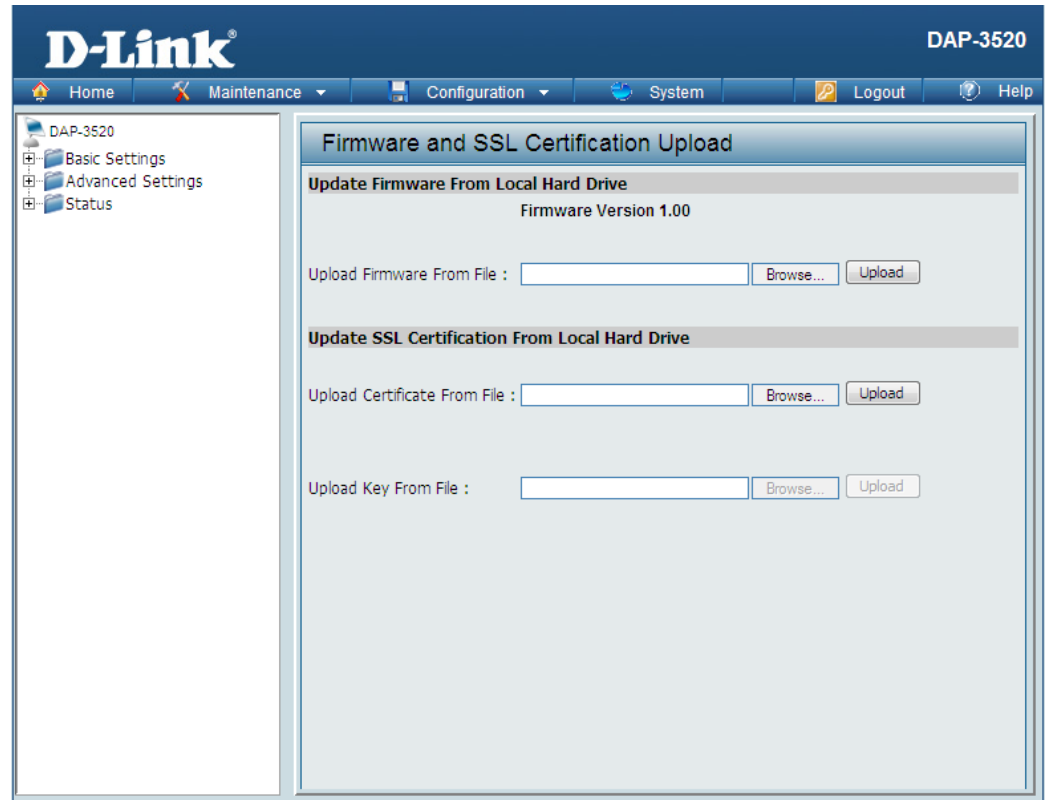
Firmware and SSL Certification Upload

Upload Firmware From Local Hard Drive:

The current firmware version is displayed above the file location field. After downloading the most recent version of firmware for the DAP-3520 from <http://support.dlink.com> to your local computer, use the **Browse** button to locate the firmware file on your computer. Click **Upload** to update the firmware version. Please do not turn the power off while upgrading.

Upload SSL Certification From Local Hard Drive:

Click **Browse** to locate the SSL Certification file on your local computer. After selecting and opening the file, click **Upload** to upload the file to the DAP-3520.



Configuration File

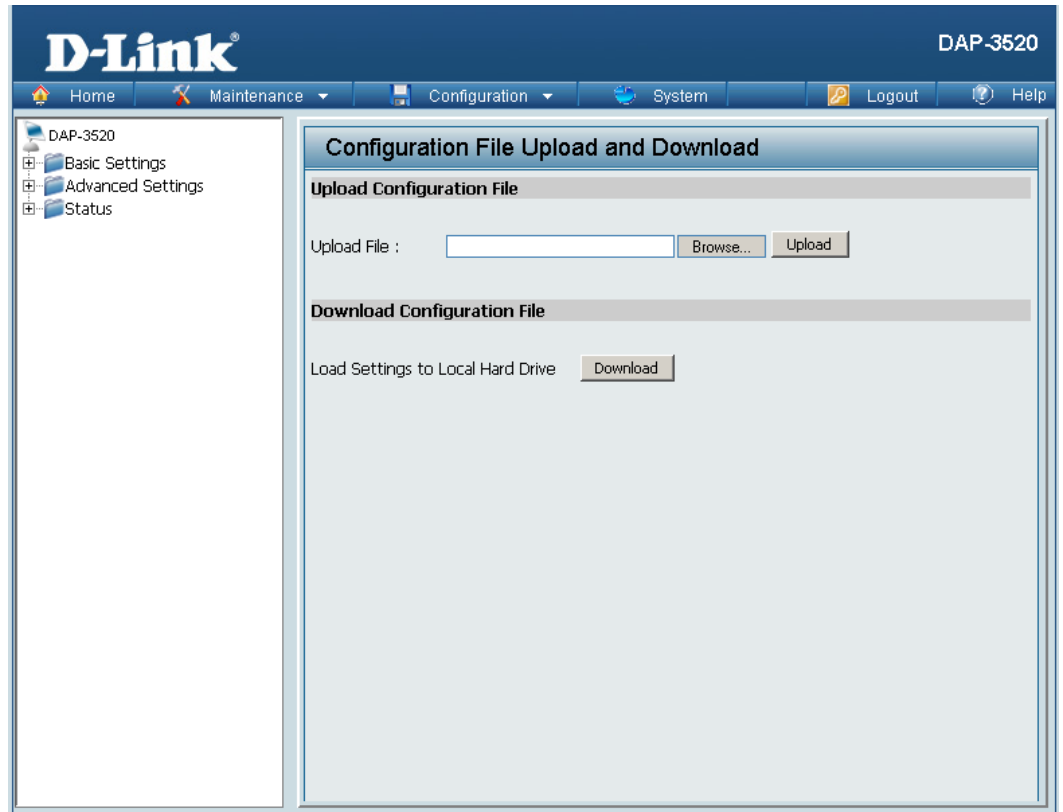
Upload File:

Click the **Browse** button to locate a previously saved configuration file on your local computer. After selecting the file, click **Upload** to apply the configuration settings to the DAP-3520.

Download Configuration File:

Click **Download** to save the current DAP-3520 configuration to your local computer.

Note that if you save one configuration with the administrator's password now, after resetting your DAP-3520, and then updating to this saved configuration file, the password will be gone.



Time and Date

Current Time:

Displays the current time and date settings.

Time Zone:

Use the drop-down menu to select your correct Time Zone.

Enable Daylight Saving:

Check the box to Enable Daylight Saving Time.

Daylight Saving Offset:

Use the drop-down menu to select the correct Daylight Saving offset.

Daylight Saving Dates:

Use the drop-down menu to select the correct Daylight Saving offset.

Enable NTP Server:

Check to enable the AP to get system time from an NTP server.

NTP Server:

Enter the NTP server IP address.

Set the Date and Time Manually:

You can either manually set the time for your AP here, or you can click the **Copy Your Computer's Time Settings** button to copy the time from the computer you are using (Make sure that the computer's time is set correctly).

The screenshot displays the D-Link DAP-3520 web interface. The top navigation bar includes Home, Maintenance, Configuration, System, Logout, and Help. The left sidebar shows a tree view with DAP-3520, Basic Settings, Advanced Settings, and Status. The main content area is titled "Time and Date Settings" and is divided into three sections:

- Time Configuration:** Shows the current time as 01/01/2000 01:40:31. The Time Zone is set to "(GMT-08:00) Pacific Time (US & Canada); Tijuana". There is an unchecked checkbox for "Enable Daylight Saving" and a dropdown for "Daylight Saving Offset" set to "+1:00". Below this, "Daylight Saving Dates" are configured with DST Start and DST End both set to Jan 1st Sun at 12 am.
- Automatic Time Configuration:** Features an unchecked checkbox for "Enable NTP Server" and an "NTP Server" field with a "Select NTP Server" dropdown.
- Set the Date and Time Manually:** Provides fields for Year (2008), Month (Dec), Day (5), Hour (12), Minute (18), and Second (36). A "Copy Your Computer's Time Settings" button is located below these fields.

A "Save" button is positioned at the bottom right of the settings area.

System

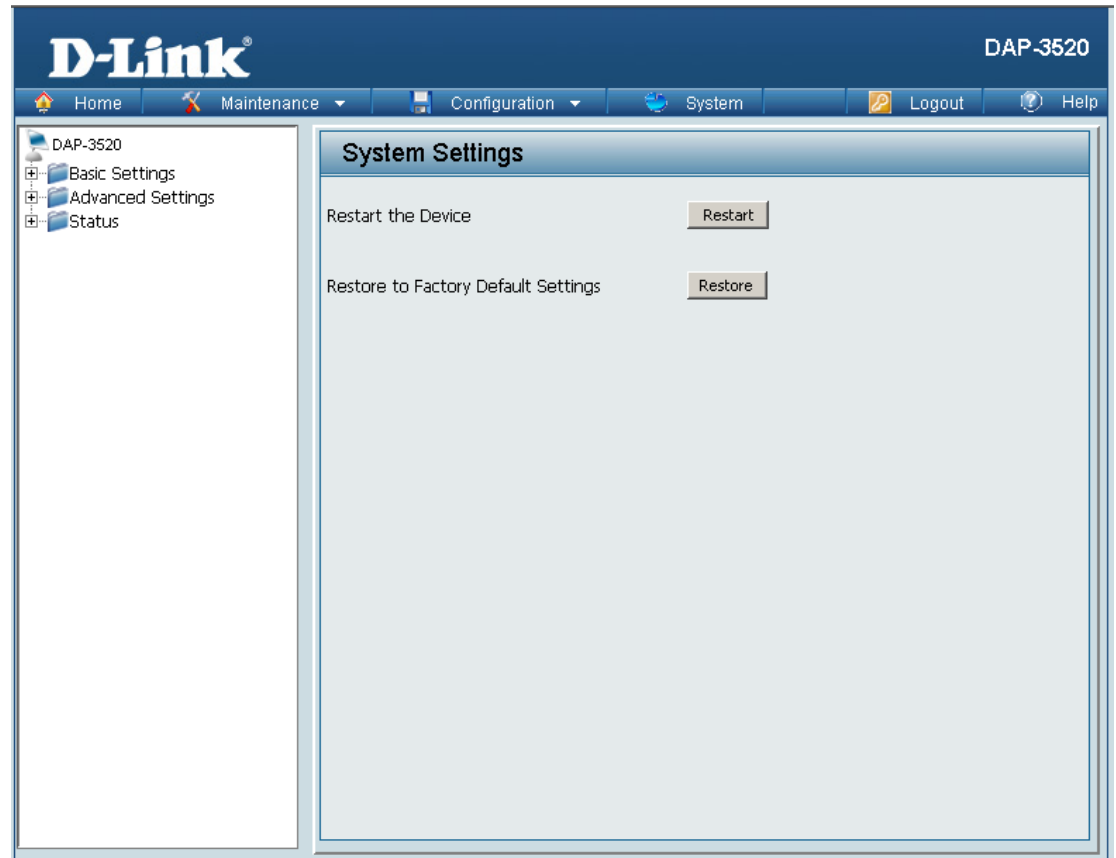
System Settings

Restart the Device:

Click **Restart** to restart the DAP-3520.

Restore to Factory Default Settings:

Click **Restore** to restore the DAP-3520 back to factory default settings.



Help

Help:
Scroll down the Help page for topics and explanations.

Basic Settings

Wireless Settings

Allow you to change the wireless settings to fit an existing wireless network or to customize your wireless network.

Wireless Band

Operating frequency band. Choose 2.4GHz for visibility to legacy devices and for longer range. Choose 5GHz for least interference; interference can hurt performance. This AP will operate one band at a time.

Mode

Select a function mode to configure your wireless network. Function modes include AP, WDS (Wireless Distribution System) with AP, WDS and Wireless Client. Function modes are designed to support various wireless network topology and applications.

Network Name (SSID)

Also known as the Service Set Identifier, this is the name designated for a specific wireless local area network (WLAN). The factory default setting is "dlink". The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Visibility

Indicate whether or not the SSID of your wireless network will be broadcasted. The default value of SSID Visibility is set to "Enable," which allow wireless clients to detect the wireless network. By changing this setting to "Disable," wireless clients can no longer detect the wireless network and can only connect if they have the correct SSID entered.

Auto Channel Selection

If you check Auto Channel Scan, everytime when AP is booting up, the AP will automatically find the best channel to use. This is enabled by default.

Channel

Indicate the channel setting for the DAP-3520. By default, the AP is set to Auto Channel Scan. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network.

Channel Width

Allows you to select the channel width you would like to operate in. Select 20MHz if you are not using any 802.11n wireless clients. Auto 20/40MHz allows you to use both 802.11n and non-802.11n wireless devices in your network.

Authentication

For added security on a wireless network, data encryption can be enabled. There are several available Authentications type can be selected. The default value for Authentication is set to "Open System".

Open System

For Open System authentication, only the wireless clients with the same WEP key will be able to communicate on the wireless network. The Access Point will remain visible to all devices on the network.

Shared Key

For Shared Key authentication, the Access Point cannot be seen on the wireless network except to the wireless clients that share the same WEP key.

WPA-Personal/ WPA2-Personal/ WPA-Auto-Personal

Wi-Fi Protected Access authorizes and authenticates users onto the wireless network. It uses TKIP encryption to protect the network through the use of a pre-shared key. WPA and WPA2 uses different algorithm. WPA-Auto allows both WPA and WPA2.

WPA-Enterprise/ WPA2-Enterprise/ WPA-Auto-Enterprise

Wi-Fi Protected Access authorizes and authenticates users onto the wireless network. WPA uses stronger security than WEP and is based on a key that changes automatically at a regular interval. It requires a RADIUS server in the network. WPA and WPA2 uses different algorithm. WPA-Auto allows both WPA and WPA2.

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-3520 Wireless Access Point. We will cover various aspects of the network setup, especially the network adapters. Please read the following if you are having any technical difficulties.

Note: It is recommended that you use an Ethernet connection to configure the DAP-3520.

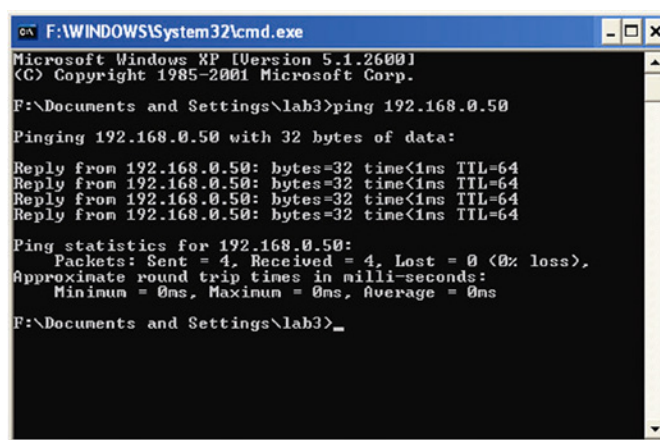
1. The computer used to configure the DAP-3520 cannot access the Configuration menu.

- Check if the LAN LED on the DAP-3520 is ON. If the LED is not ON, check if the cable for the Ethernet connection is securely inserted.
- Check if the Ethernet adapter is working properly. Please see item 3 of this Troubleshooting section to check that the drivers for the network adapters are loaded properly.
- Check if the IP address is in the same range and subnet as the DAP-3520.

Note: The default IP address of the DAP-3520 is 192.168.0.50. All the computers on the network must have a unique IP address in the same range, e.g. 192.168.0.x. Any computers that have identical IP addresses will not be visible on the network. They must all have the same subnet mask, e.g. 255.255.255.0.

- Do a Ping test to make sure that the DAP-3520 is responding. Go to **Start>Run>Type Command>Type ping 192.168.0.50**. A successful ping will show four replies.

Note: If you have changed the default IP address, make sure to ping the correct IP address assigned to the DAP-3520.



```
ca F:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

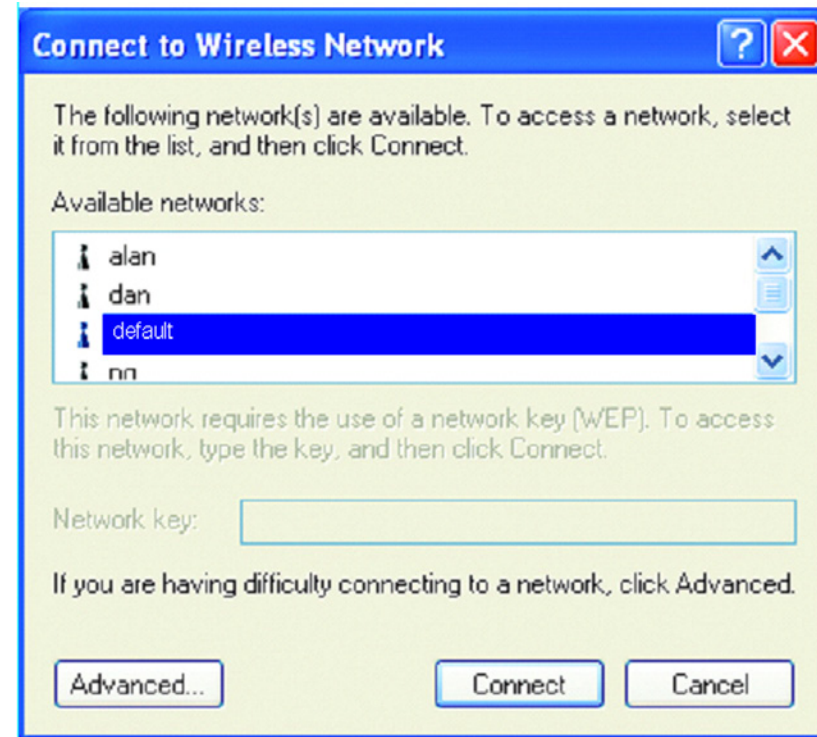
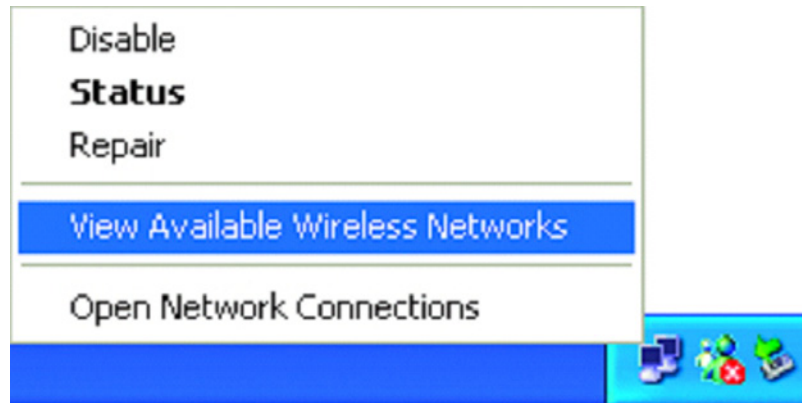
F:\Documents and Settings\lab3>ping 192.168.0.50
Pinging 192.168.0.50 with 32 bytes of data:
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.0.50:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

F:\Documents and Settings\lab3>
```

2. The wireless client cannot access the Internet within Infrastructure mode.

Make sure the wireless client is associated and joined with the correct access point. To check this connection, right-click on the **Local Area Connection** icon in the taskbar and select **View Available Wireless Networks**. The **Connect to Wireless Network** screen will appear. Please make sure you have selected the correct available network, as shown in the illustrations below.



- Check that the IP address assigned to the wireless adapter is within the same IP address range as the access point and gateway. Since the DAP-3520 has an IP address of 192.168.0.50, wireless adapters must have an IP address in the same range, e.g. 192.168.0.x. Each device must have a unique IP address; there may be no two devices with the same IP address. The subnet mask must be the same for all the computers on the network. To check the IP address assigned to the wireless adapter, double-click the **Local Area Connection** icon in the taskbar, then select the **Support** tab and the IP address will be displayed.
- If it is necessary to assign a Static IP Address to the wireless adapter. If you are entering a DNS Server address, you must also enter the Default Gateway Address. *Remember that if you have a DHCP-capable router, you will not need to assign a static IP address.*

3. What variables may cause my wireless products to lose reception?

D-Link products let you access your network from virtually anywhere you want, however, the positioning of the products within your environment will affect its wireless range.

4. Why does my wireless connection keep dropping?

- Antenna Orientation - try different antenna orientations for the DAP-3520. Try to keep the antenna at least 6 inches away from the wall or other objects.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, or lights, your wireless connection will degrade dramatically or even drop. Try changing the channel of your router, access point and wireless adapter to a different channel to avoid interference.
- Keep your product away - at least 3-6 feet - from electrical devices that generate RF noise like microwaves, monitors, electric motors, etc.

5. Why can't I get a wireless connection?

If you have enabled encryption on the DAP-3520, you must also enable encryption on all wireless clients in order to establish a wireless connection.

- Make sure that the SSID on the AP and the wireless client are exactly the same. If they are not, wireless connection cannot be established.
- Move the DAP-3520 and the wireless client into the same room and then test the wireless connection.
- Disable all security settings.
- Turn off your DAP-3520 and the client. Turn the DAP-3520 back on again, and then turn on the client.
- Check that the LED indicators are indicating normal activity. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network.
- If you are using 2.4 GHz cordless phones, X-10 equipment, or other home security systems, ceiling fans, or lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your DAP-3520, and on all the devices in your network to avoid interference.
- Keep your product away - at least 3-6 feet - from electrical devices that generate RF noise like microwaves, monitors, electric motors, etc.

Technical Specifications

Standards

- IEEE 802.11a
- IEEE 802.11b
- IEEE 802.11g
- IEEE 802.11n
- IEEE 802.3
- IEEE 802.3u
- IEEE 802.3ab
- IEEE 802.3af

Network Management

- Web Browser interface
 - HTTP
 - Secure HTTP (HTTPS)
- AP Manager II
- SNMP Support
 - D-View Module
 - Private MIB
- Command Line Interface
 - Telnet
 - Secure SSH Telnet

Data Rates*

For 802.11a:

- 54, 48, 36, 24, 18, 12, 9, and 6 Mbps

For 802.11b:

- 11, 5.5, 2, and 1 Mbps

For 802.11g:

- 54, 48, 36, 24, 18, 12, 9, and 6 Mbps

For 802.11n (draft): HT20/HT40

- 144.4/300, 130/270, 117/243, 104/216, 78/162, 66/135, 58.5/121.5, 52/108, 39/81, 26/54, 19.5/40.5, 12/27, and 6.5/13.5 Mbps

Security

- WPA™ Personal/Enterprise
- WPA2™ Personal/Enterprise
- WEP™ 64 / 128 bit
- SSID Broadcast Disable
- MAC Address Access Control

Operating Modes

- Access Point (AP)
- WDS with AP
- WDS
- Wireless Client

LAN Port Speed

- 10/100/1000 Mbps

Wireless Frequency Range**

For 802.11a:

- 5.15 ~ 5.85GHz

For 802.11b/g:

- 2.4 ~ 2.4835GHz

For 802.11n:

- 2.4GHz Band: 2.4 ~ 2.4835GHz
- 5GHz Band: 5.15 ~ 5.85GHz

Operating Voltage

- PoE 48VDC +/-10%

Maximum Power Consumption

- 12.95 Watts

*Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual data throughput may vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead can lower actual data throughput rate.

**Please note that operating frequency ranges vary depending on the regulations of individual countries and jurisdictions. The DAP-3520 is not supported in the 5.25~5.35GHz and 5.47 ~ 5.725GHz frequency ranges in some regions.

Radio and Modulation Type

For 802.11a/g/n:

- BPSK, QPSK, 16QAM, and 64QAM with OFDM

For 802.11b:

- DQPSK, DBPSK, DSSS, and CCK

Embedded Directional Antenna Peak Gain

- 8dBi Gain @2.4GHz
- 10dBi Gain @5GHz

Maximum Transmit Output Power

- 17 dBm@ 2.4 GHz
- 16 dBm @5 GHz

Maximum Effective Isotropic Radiated Power (EIRP)

- 28dBm @ 2.4 GHz
- 29dBm @5 GHz

LEDs

- Power
- LAN
- WLAN

Temperature

- Operating: -20°C to 60°C
- Storing: -20°C to 65°C

Humidity

- Operating: 10%~90% (non-condensing)
- Storing: 5%~95% (non-condensing)

Certifications

- FCC Class B
- CE
- UL 60950
- IC
- C-Tick
- CSA
- Wi-Fi®

Ingress Protection Rating

- IP65

Weight

- 1.58 lbs (717g)

Dimensions

- L = 198 mm
- W = 163 mm
- H = 58 mm

Trademarks:

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