D-Link®
Building Networks for People

DAP-2310
Version 2.03

Wireless N
Access Point

User Manual

Business Class Networking

Table of Contents

Product Overview 4
Package Contents 4
System Requirements 4
Introduction 5
Features 7

Wireless Basics 8
Standards-Based Technology 9
Wireless Installation Considerations 10
Hardware Overview 11
LEDs 11
Hardware Overview 12
Connections 12

Five Operational Modes 13

Getting Started 14

Configuration 15
Save and Activate Settings 16
Basic Settings 17
Wireless 17
Access Point mode 17
WDS with AP mode 19
WDS mode 21
Wireless Client mode 23
AP Repeater mode 25
Open System/Shared Key Authentication 26
WPA/WPA2-Personal Authentication 27
WPA/WPA2-Enterprise Authentication 28
802.1x Authentication 29
LAN 30
IPv6 31
Advanced Settings 32
Performance 32
Wireless Resource Control 34
Multi-SSID 36
VLAN 38
VLAN List 38
Port List 39
Add/Edit VLAN 40
PVID Setting 41
Intrusion 42
Schedule 43
Internal RADIUS Server 44
ARP Spoofing Prevention Settings 45
Bandwidth Optimization 46
AP Array 48
AP Array Scan 48
Configuration Settings 49
Auto-RF 50
Load Balance 51
Captive Portal 52
Authentication Settings - Passcode 52

Authentication Settings - Username/Password..53
Authentication Settings - Remote RADIUS.....54
Authentication Settings - LDAP.....55
Authentication Settings - POP3.....56
Login Page Upload.....57
Web Redirection.....58
DHCP Server 59
Dynamic Pool Settings.....59
Static Pool Setting 61
Current IP Mapping List.....63
Filters.....64
Wireless MAC ACL.....64
WLAN Partition 65
Traffic Control.....66
Uplink/Downlink Settings 66
QoS.....67
Traffic Manager.....68
Status 69
Device Information 69
Client Information 70
WDS Information 71
Stats.....72
Ethernet.....72
WLAN Traffic 73
Log 74
View Log.....74
Log Settings.....75
Maintenance 76
Administration Settings 76
Limit Administrator.....77
System Name Settings.....78
Login Settings 79
Console Settings 80
SNMP Settings 81
Central WiFiManager Settings.....82
Firmware and SSL Certification Upload.....83
Configuration File Upload 84
Time and Date 85
System 86
System Settings.....86
Help 87

Troubleshooting 88

Networking Basics 88
Check your IP address.....88
Statically Assign an IP address 90

Technical Specifications 93

Antenna Pattern 95

Central WiFiManager.....96

Package Contents

- D-Link DAP-2310 Wireless N Access Point
- CAT5 Ethernet Cable
- Two Detachable Antennas
- Power Adapter
- CD-ROM with User Manual
- Install Guide

Note: Using a power supply with a different voltage rating than the one included with the DAP-2310 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
- For configuration, the following web browsers are supported:
    - Microsoft® Internet Explorer® 11.0 and higher
    - Mozilla Firefox 28 and higher
    - Google™ Chrome 33 and higher
    - Apple Safari 7 and higher

Introduction

The DAP-2310 802.11n Wireless N Access Point increases productivity by allowing you to work faster and more efficiently. With the DAP-2310, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are now able to move across the network quickly.

The DAP-2310 is capable of operating in one of four different wireless networking modes: Access Point, WDS (Wireless Distribution System) with AP, WDS, Wireless Client mode or AP Repeater mode.

An ideal solution for quickly creating and extending a wireless local area network (WLAN) in offices or other workplaces, hotels, resorts, assist living, trade shows and special events, the DAP-2310 provides data transfer rates up to 300Mbps. (The 802.11n standard is backwards compatible with 802.11g and 802.11b devices.)

WPA/WPA2 is offered in two options: Enterprise (used for corporations) and Personal (used for home users). WPA-Personal and WPA2-Personal are directed towards home users who do not have the server-based equipment required for user authentication. This method of authentication is similar to WEP because you define a "Pre-Shared Key" on the wireless router/AP. Once the pre-shared key is confirmed and satisfied at both the client and access point, access is then granted. The encryption method used is referred to as the Temporal Key Integrity Protocol (TKIP), which offers per-packet dynamic hashing. It also includes an integrity checking feature which ensures that the packets were not tampered with during wireless transmission.

WPA-Enterprise and WPA2-Enterprise are ideal for businesses that already have existing security infrastructures established. Management and security implementation can now be centralized on a server participating on the network. Utilizing 802.1X with a RADIUS (Remote Authentication Dial-in User Service) server, a network administrator can define a list of authorized users who can access the wireless LAN. When attempting to access a wireless LAN with WPA-Enterprise configured, the new client will be requested to enter a username with a password. If the new client is authorized by the administration, and enters the correct username and password, then access is granted. In the case where an employee leaves the company, the network administrator is able to remove the previous employee from the authorized list to avoid compromising the network.

EAP (Extensible Authentication Protocol) is available through the Windows® XP operating system. You will need to use the same type of EAP protocol on all devices in your network when using the 802.1X feature.

*Maximum wireless signal rate derived from IEEE Standard 802.11n and 802.11g 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 throughout rate.

Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA), and automatically switches to a power-saving Network Standby mode within 1 minute of no packets being transmitted. It can also be turned off through a power switch to save energy when it is not needed.
Network Standby: 1.87 watts
Switched Off: 0.11 watts

Features

- **Five different operation modes** - Capable of operating in one of five different operation modes to meet your wireless networking needs: Access Point, WDS with AP, WDS, Wireless Client and Repeater.
- Faster wireless networking with the 802.11n standard to provide a maximum wireless signal rate of up to 300 Mbps*.
- Compatible with the 802.11b standard to provide a wireless data rate of up to 11Mbps, allowing you to migrate your system to the 802.11n and 802.11g standards on your own schedule without sacrificing connectivity.
- Compatible with the 802.11g standard to provide a wireless data rate of up to 54Mbps in the 2.4GHz frequency range.
- Better security with WPA - The DAP-2310 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 than its previous versions.
- **Central WiFiManager 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-2310 supports SNMP v.3 for better network management. Superior wireless AP manager software is bundled with the DAP-2310 for network configuration and firmware upgrade. Systems administrators can also set up the DAP-2310 easily with the Web-based configuration.
- Utilizes OFDM technology (Orthogonal Frequency Division Multiplexing).
- Supports one 10/100/1000M Ethernet port.
- Operates in the 2.4 ~ 2.4835GHz frequency ranges.
- Web-based interface for managing and configuring.

*Maximum wireless signal rate derived from IEEE Standard 802.11n and 802.11g 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 throughout rate.

Wireless Basics

D-Link wireless products are based on industry standards to provide high-speed wireless connectivity that is easy to use within your home, business or public access wireless networks. D-Link wireless products provides you with access to the data you want, whenever and wherever you want it. Enjoy the freedom that wireless networking can bring to you.

WLAN use is not only increasing in both home and office environments, but in public areas as well, such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are allowing people to work and communicate more efficiently. Increased mobility and the absence of cabling and other types of fixed infrastructure have proven to be beneficial to many users.

Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards, allowing wireless users to use the same applications as those used on a wired network.

People use WLAN technology for many different purposes:

Mobility - productivity increases when people can have access to data in any location within the operating range of their WLAN. Management decisions based on real-time information can significantly improve the efficiency of a worker.

Low implementation costs - WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLAN's ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and network expansion - by avoiding the complications of troublesome cables, a WLAN system can be fast and easy during installation, especially since it can eliminate the need to pull cable through walls and ceilings. Wireless technology provides more versatility by extending the network beyond the home or office.

Inexpensive solution - wireless network devices are as competitively priced as conventional Ethernet network devices. The DAP-2310 saves money by providing users with multi-functionality configurable in four different modes.

Scalability - Configurations can be easily changed and range from Peer-to-Peer networks, suitable for a small number of users to larger Infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Standards-Based Technology

The DAP-2310 Wireless Access Point utilizes the 802.11b, 802.11g, and 802.11n standards.

The IEEE 802.11n standard is an extension of the 802.11b and 802.11g standards that came before it. It increases the maximum wireless signal rate up to 300Mbps* within the 2.4GHz bands, utilizing OFDM technology.

This means that in most environments - within the specified range of this device - you will be able to transfer large files quickly, or even watch a movie in MPEG format over your network without noticeable delays. This technology works by transmitting high-speed digital data over a radio wave utilizing OFDM (Orthogonal Frequency Division Multiplexing) technology. OFDM works by splitting the radio signal into multiple smaller sub-signals that are then simultaneously transmitted at different frequencies to the receiver. OFDM reduces the amount of crosstalk (interference) in signal transmissions.

The D-Link DAP-2310 will automatically sense the best possible connection speed to ensure the greatest possible speed and range.

IEEE 802.11n offers the most advanced network security features available today, including WPA.

*Maximum wireless signal rate derived from IEEE Standard 802.11n and 802.11g 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 throughout rate.

Wireless Installation Considerations

The D-Link DAP-2310 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 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 the range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.

4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

5. If you are using 2.4GHz 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.

Hardware Overview
LEDs

1	**Power LED**	This light will be solid green when the unit is powered on.
2	**WLAN LED**	This light will be flickering green when the 2.4GHz frequency is in use.
3	**LAN LED**	This light will be flickering green when there is active LAN traffic.

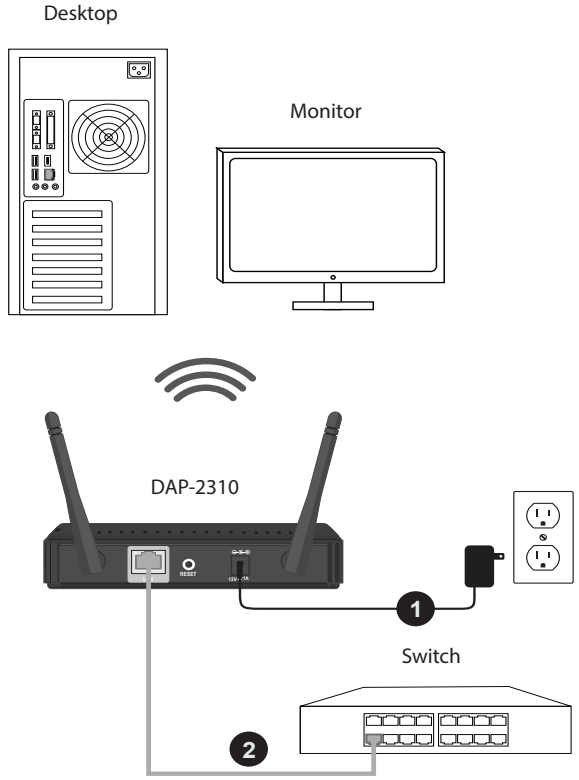
Hardware Overview
Connections

1	**PoE Gigabit**	802.3af complaint switch
2	**Reset**	Reset the Access Point.
3	**Power Receptor**	Receptor for Power Adapter.

Five 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
Wireless Client	AP acts as a wireless network adapter for your Ethernet-enabled device
AP Repeater	AP acts as repeater to extend to wireless coverage.

Getting Started



1. Connect the power adapter to the receptor on the rear panel of the DAP-2310 and then plug the other end of the power adapter to a wall outlet or power strip. The power LED will turn ON to indicate proper operation.

   Note : You can also powered by PoE Switch

2. Using an Ethernet cable, insert one end of the cable to the LAN port on the rear panel of the DAP-2310 and the other end of the cable to a switch or router's LAN port .

   Note: You can also connect the DAP-2310 directly to the computer that will be used for configuration. The LAN LED will illuminate to indicate a proper Ethernet connection.

3. Computers with 802.11 b/g/n wireless adapters can connect to the DAP-2310.

Configuration

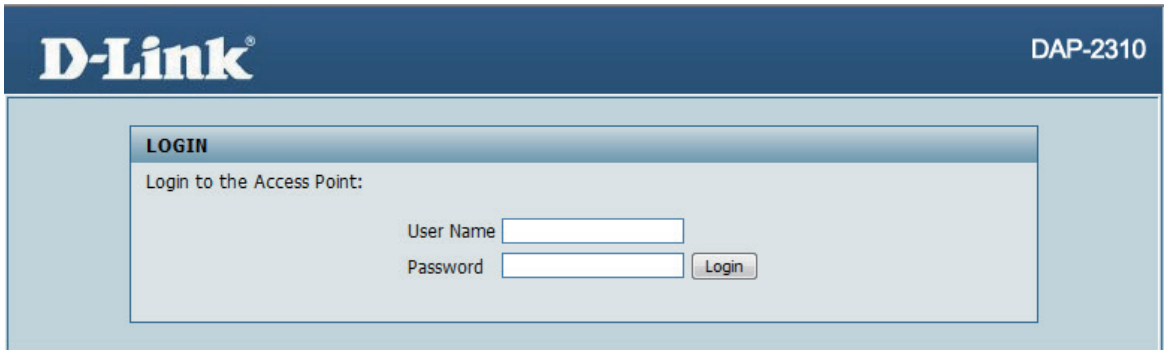
To configure the DAP-2310, use a computer that is connected to the DAP-2310 with an Ethernet cable (see the *Network Layout diagram*).

Launch your web browser.

Type the IP address of the DAP-2310 in the address field (**http://192.168.0.50**) and press **Enter**. Make sure that the IP addresses of the DAP-2310 and your computer are in the same subnet.

Note: *If you have changed the default IP address assigned to the DAP-2310, make sure to enter the correct IP address.*

Enter the user name (**admin**) and your password. Leave the password field blank by default and click **Login**.



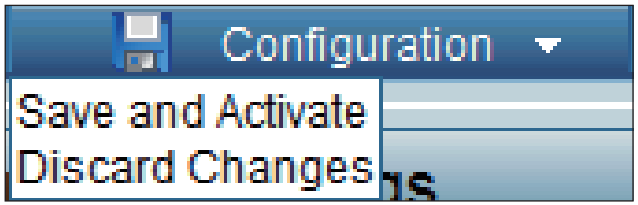
Note: *If you have changed the password, make sure to enter the correct password.*

After successfully logging into the DAP-2310, the following screen will appear:

Save and Activate Settings

When making changes on most of the configuration screens in this section, use the Save button at the bottom of each screen to save (not activate) your configuration changes.

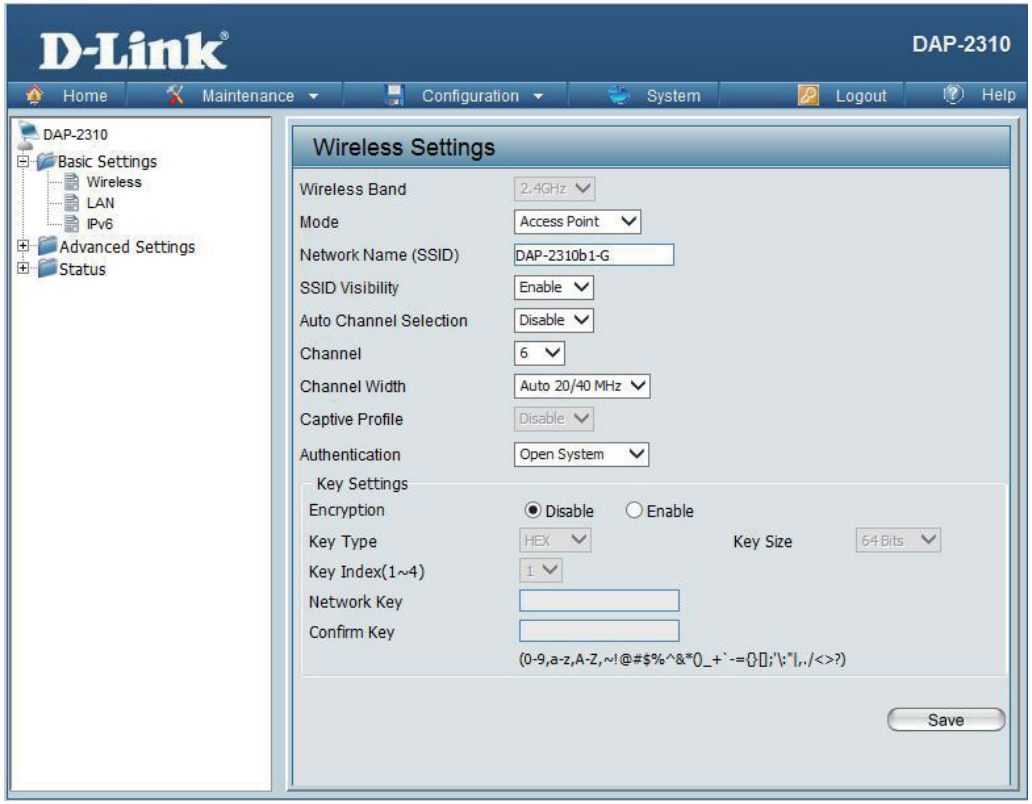
You may change settings to multiple pages before activating. Once you are finished, click the **Configuration** button located at the top of the page and then click **Save and Activate**.



Basic Settings

Wireless

Access Point mode



Wireless Band: Select **2.4GHz** from the drop-down menu.

Mode: Select Access Point from the drop-down menu. The other three choices are WDS with AP, WDS, wireless Client and AP Repeater.

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. The SSID can be up to 32 characters and is case-sensitive.

SSID Visibility: **Enable** or **Disable** SSID visibility. Enabling this feature broadcasts the SSID across the network, thus making it visible to all network users. This feature is enabled by default.

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: *The wireless adapters will automatically scan and match the wireless settings.*

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 you to connect to both 802.11n and 802.11b/g wireless devices on your network.
Captive Profile :	Disable or select a Captive Portal profile for Primary SSID.
Authentication:	Use the drop-down menu to choose **Open System**, **Shared Key**, **WPA-Personal**, **WPA-Enterprise**, or **802.11x**. 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. Select 802.1x to secure your network using 802.1x authentication.

WDS with AP mode

In WDS with AP mode, the DAP-2310 wirelessly connects multiple networks while still functioning as a wireless AP.

Wireless Band: Select **2.4GHz** 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: **Enable** or **Disable** SSID visibility. Enabling this feature broadcasts the SSID across the network, thus making it visible to all network 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: To change the channel, use the drop-down menu to make the desired selection. (**Note:** The wireless adapters will automatically scan and match the wireless settings.)

Channel Width: Indicates whether the device is capable of 20MHz operation only or both 20MHz and 40MHz operation.

Captive Portal:	Disable or select a Captive Portal profile for Primary SSID.
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:	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.

WDS mode

In WDS mode, the DAP-2310 wirelessly connects multiple networks, without functioning as a wireless AP.

Wireless Band: Select **2.4GHz** from the drop-down menu.

Mode: **WDS** 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.

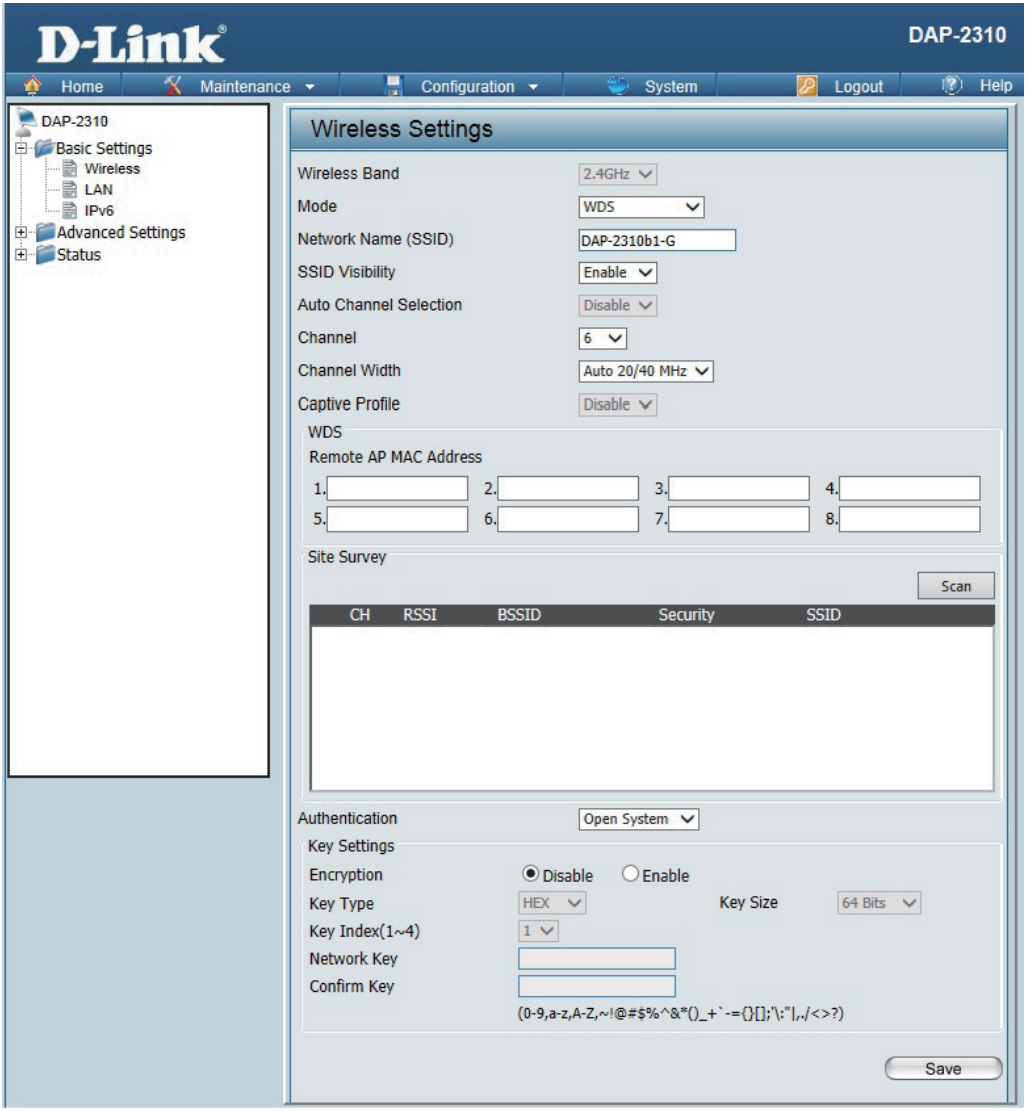
SSID Visibility: **Enable** or **Disable** SSID visibility. Enabling this feature broadcasts the SSID across the network, thus making it visible to all network users.

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, use the drop-down menu to make the desired selection**.**

Channel Width: Use the drop-down menu to choose **20 MHz** or **Auto 20/40 MHz**.

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:	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. Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.

Wireless Client mode

Wireless Band: Select **2.4GHz** from the drop-down menu.

Mode: **Wireless Client** 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.

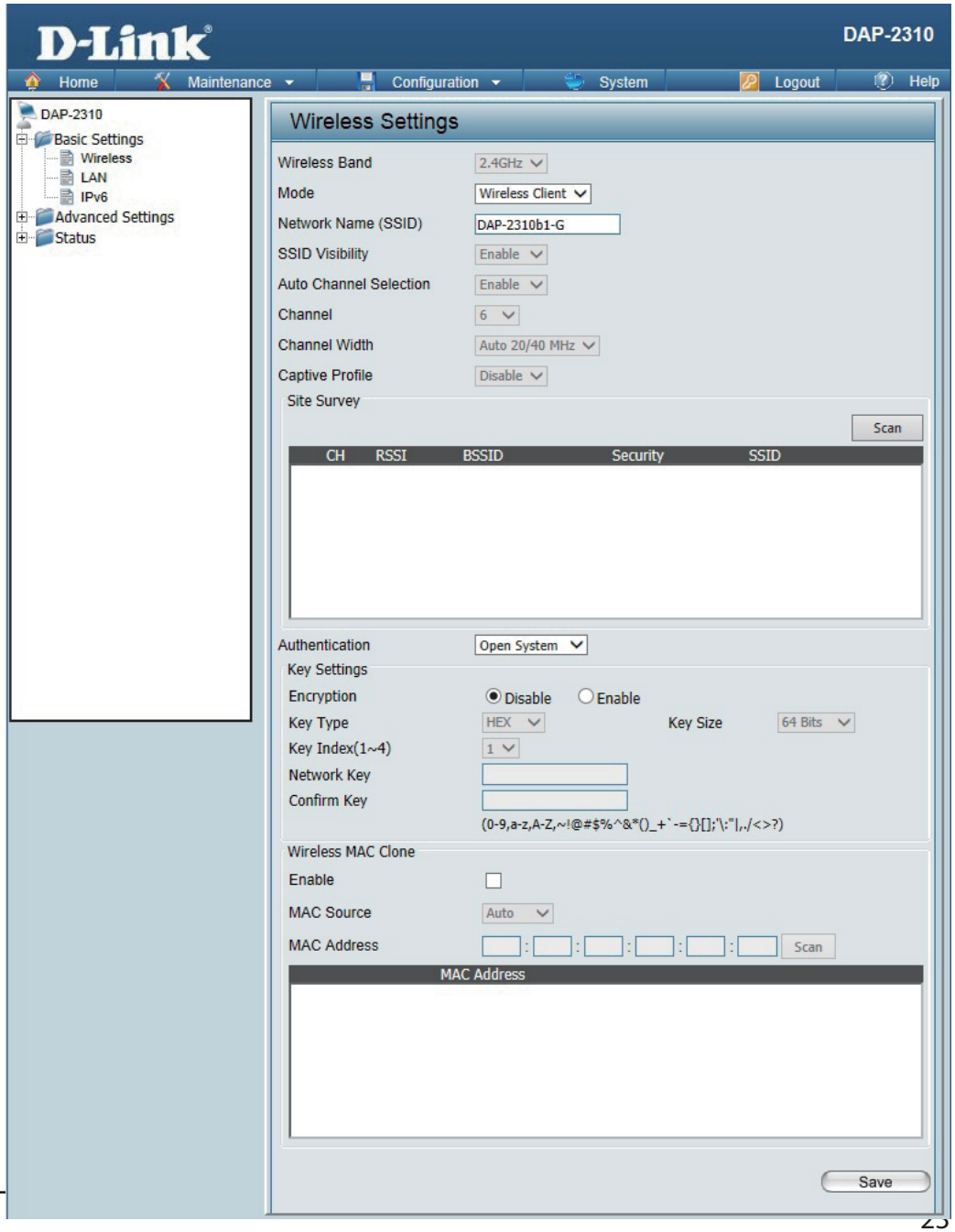
SSID Visibility: This option is unavailable in **Wireless Client** mode.

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 used will be displayed, and matches the AP that the DAP-2310 is connected to when set to **Wireless Client** mode.

Channel Width: Use the drop-down menu to choose **20 MHz** or **Auto 20/40 MHz**.

Site Survey: Click on the **Scan** button to search for available wireless networks, then click on the available network that you want to connect with.
Use the drop-down menu to choose **Open System** or **WPA-Personal**.



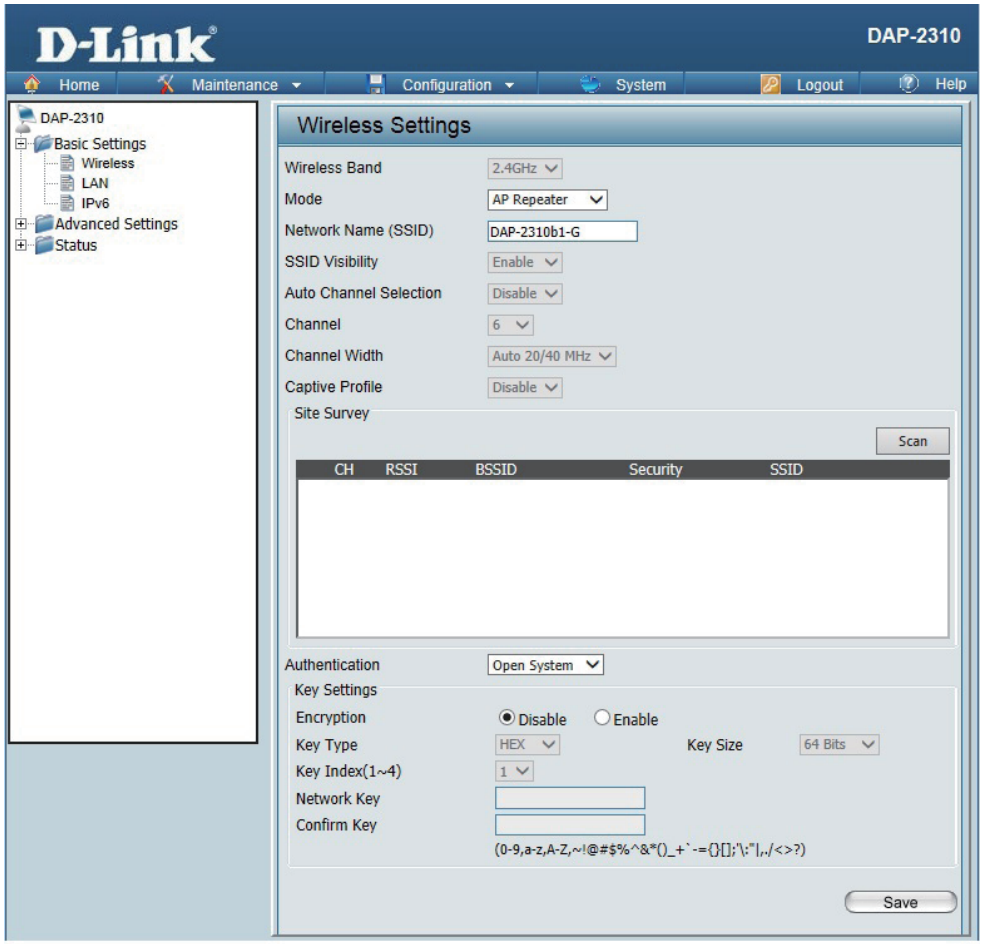
Authentication: Select **Open System** to communicate the key across the network.
Select **WPA-Personal** to secure your network using a password and dynamic key changes. No RADIUS server is required.

Enable: Check to enable clone MAC. This feature will allow you to change the MAC address of the access point to the MAC address of a client.

MAC Source: Select the MAC source from the drop-down menu.

MAC Address: Enter the MAC address that you would like to assign to the access point.

AP Repeater mode



Wireless Band: Select **2.4GHz** from the drop-down menu.

Mode: **AP Repeater** is selected from the pull-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.

SSID Visibility: This option is unavailable in **AP Repeater** mode.

Auto Channel Selection: Enabling this feature automatically selects the channel that will provide the best wireless performance. This feature is not supported in **AP Repeater** mode.

Channel: The channel used will be displayed, and matches the AP that the DAP-2310 is connected to when set to **AP Repeater** mode.

Channel Width: Use the pull-down menu to choose **20 MHz** or **Auto 20/40 MHz**.

Site Survey: 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 pull-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.

Open System/Shared Key Authentication

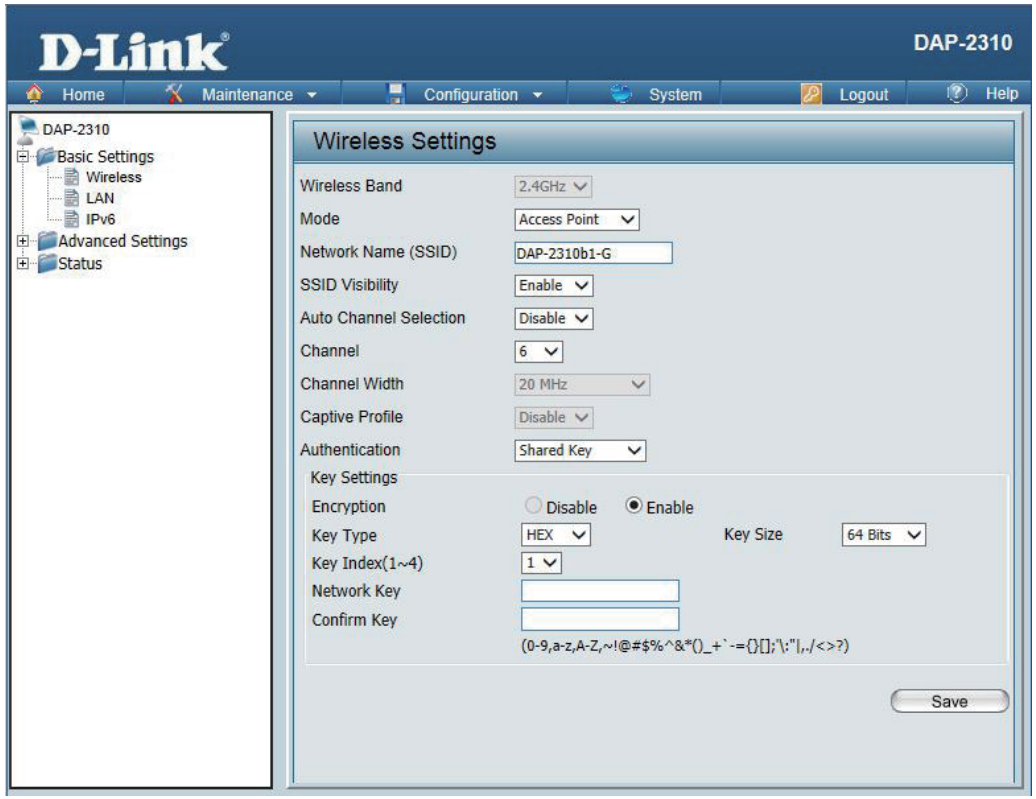
Encryption: Use the radio button to disable or enable encryption.

Key Type*: Select **HEX** or **ASCII**.

Key Size: Select **64 Bits** or **128 Bits**.

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.



***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/WPA2-Personal Authentication

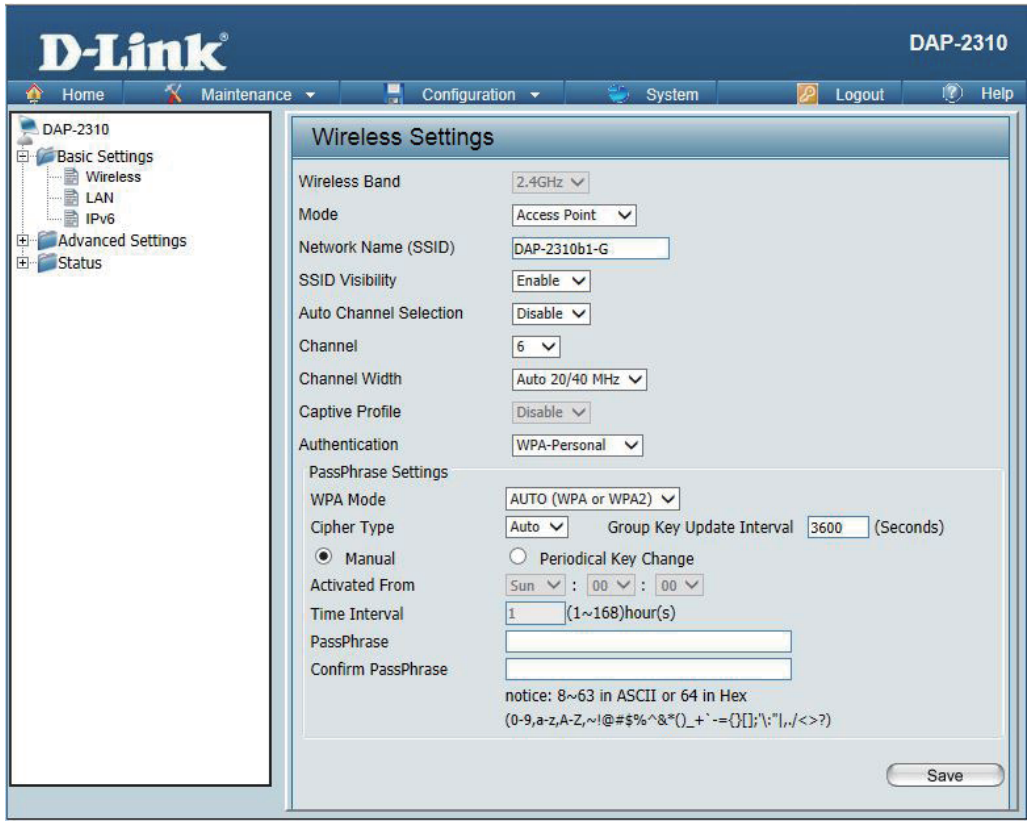
WPA Mode: When **WPA-Personal** is selected for Authentication type, you must also select a WPA mode from the drop-down menu: **AUTO (WPA or WPA2)**, **WPA2 Only**, or **WPA Only**. WPA and WPA2 use different algorithms. **AUTO (WPA or WPA2)** allows you to use both WPA and WPA2.

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

Group Key Update: Select the interval during which the group key will be valid. The default value of **1800** is recommended. Select **Manual** to enter your key (PassPhrase).

Periodical Key Change: You can select **Periodical Key Change** to have the access point automatically change your PassPhrase. Enter the Activate From time and the time in hours to change the key.

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



WPA/WPA2-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**.

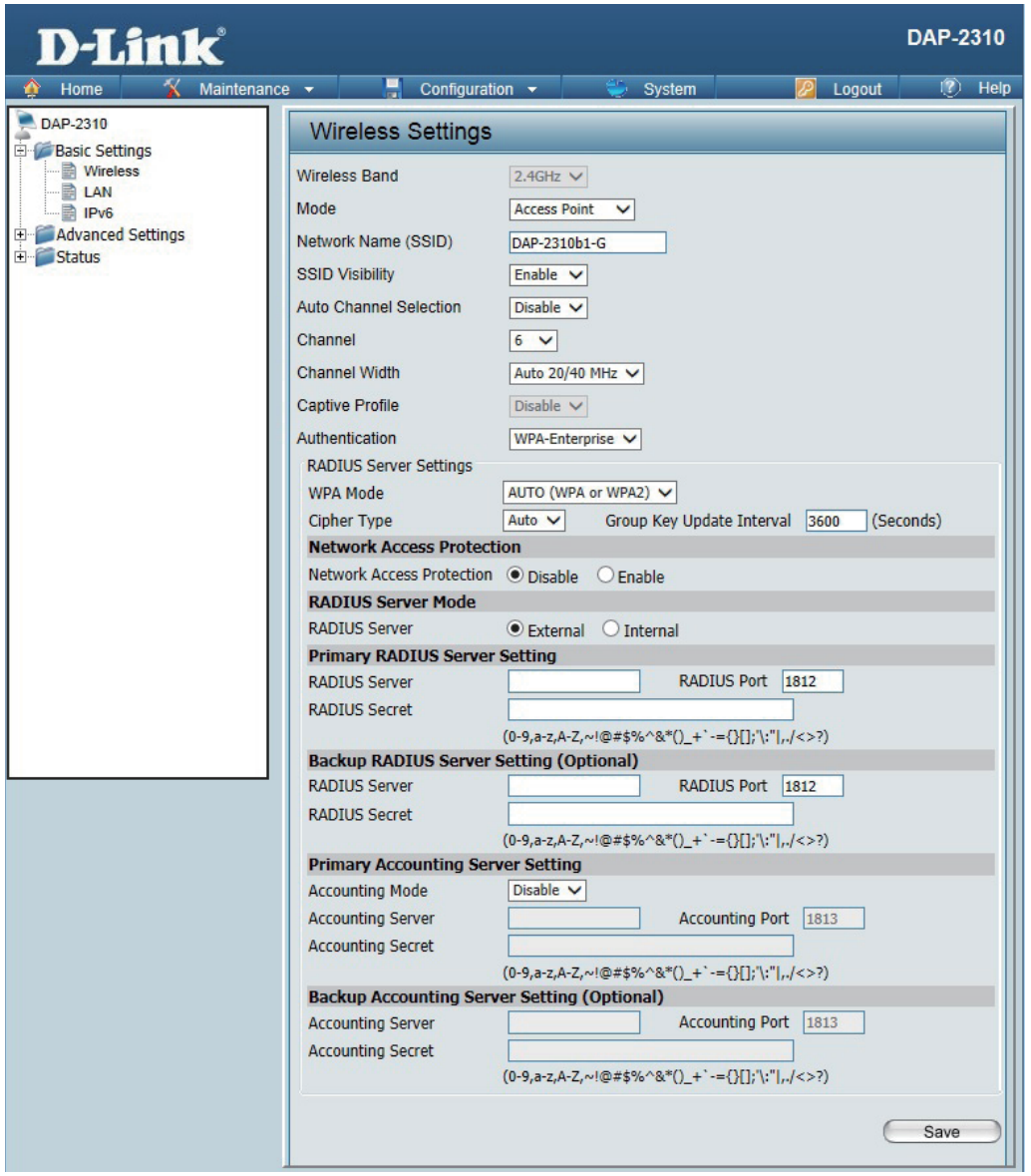
Group Key Update Interval: Select the interval during which the group key will be valid. The recommended value is **1800.** A lower interval may reduce data transfer rates.

Network Access Protection: Enable or disable Microsoft Network Access Protection.

RADIUS Server: Enter the IP address of the RADIUS server.

RADIUS Port: Enter the RADIUS port.

RADIUS Secret: Enter the RADIUS secret.



802.1x Authentication

Key Update Interval: Select the interval during which the group key will be valid (**300** is the recommended value). A lower interval may reduce data transfer rates.

RADIUS Server: Enter the IP address of the RADIUS server.

RADIUS Port: Enter the RADIUS port.

RADIUS Secret: Enter the RADIUS secret.

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-2310. 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.

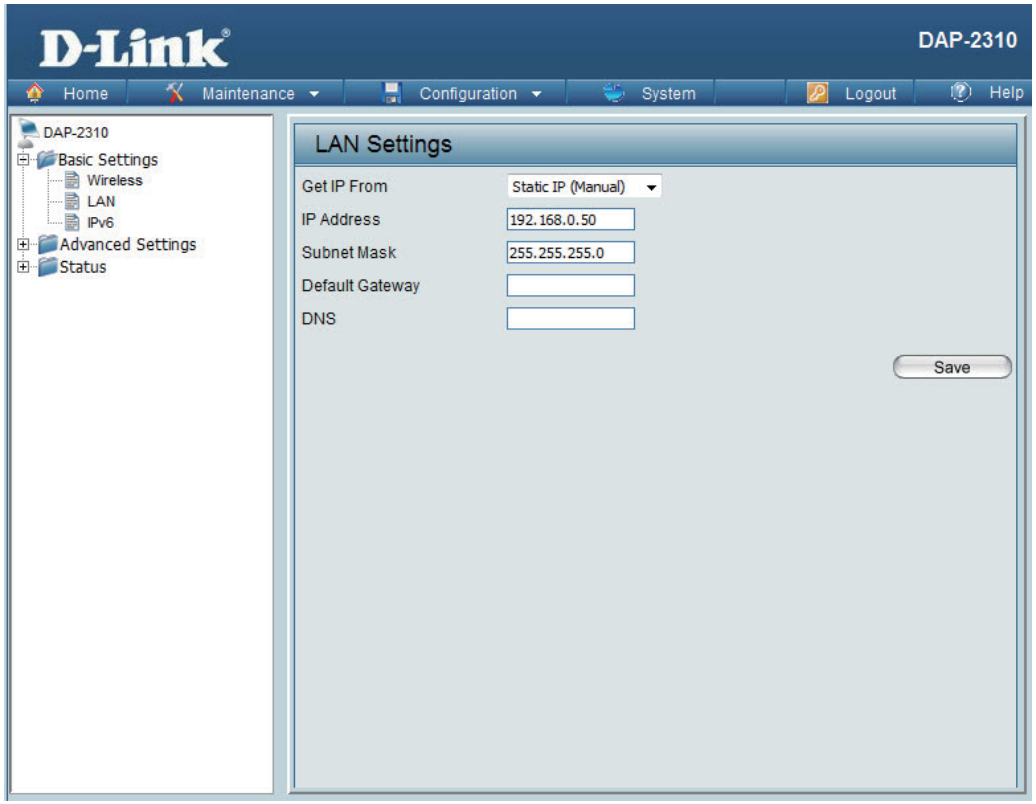
Get IP From: **Static IP (Manual)** is chosen here. Choose this option if you do not have a DHCP server in your network, or if you wish to assign a static IP address to the DAP-2310. When **Dynamic IP (DHCP)** is selected, the other fields here will be grayed out. Please allow about two minutes for the DHCP client to be functional once this selection is made.

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. If there is a gateway in your network, please enter an IP address within the range of your network.

DNS: Enter the DNS IP address used here.



IPv6

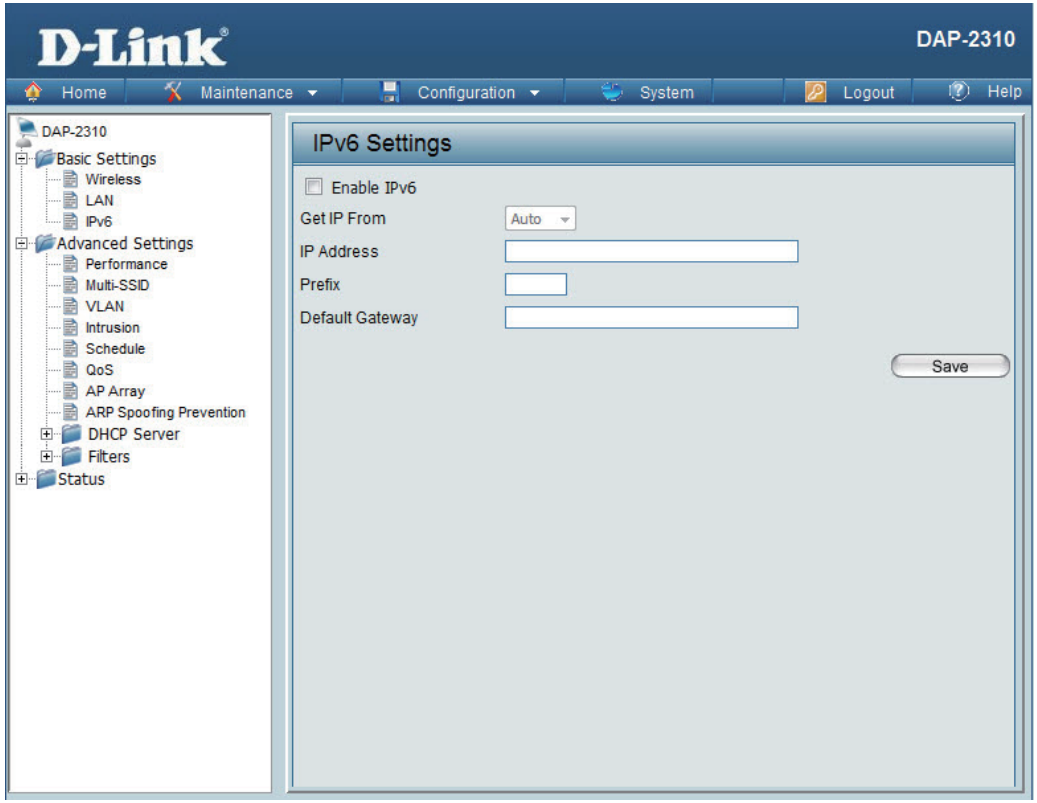
Enable IPv6: Check to enable the IPv6.

Get IP From: Auto is chosen here. Choose this option the DAP-2310 can get IPv6 address automatically or use Static to set IPv6 address manually. DAP-2310. When Auto is selected, the other fields here will be grayed out.

IP Address: Enter the LAN IPv6 address used here.

Prefix: Enter the LAN subnet prefix length value used here.

Default Gateway: Enter the LAN default gateway IPv6 address used here.

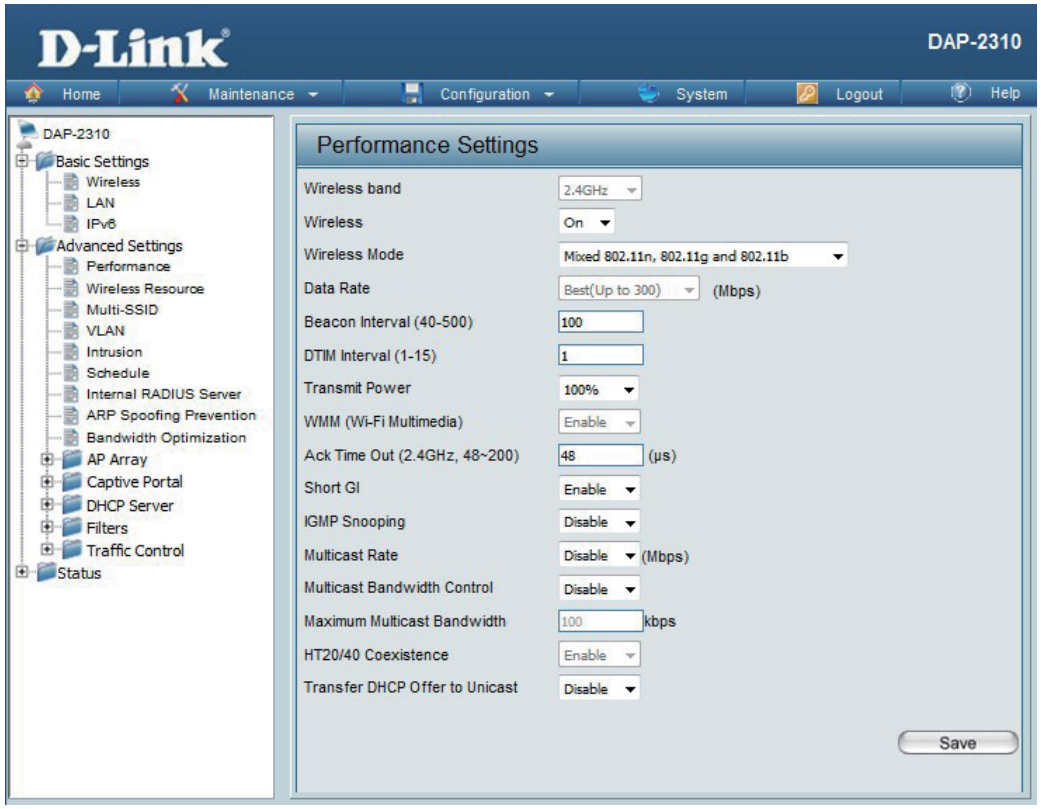


Advanced Settings
Performance

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** and **802.11n Only**. Please note that when backwards compatibility is enabled for legacy (802.11g/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. The choices available are **Best (Up to 54)**, **54**, **48**, **36**, **24**, **18**, **12**, **9**, **6**, **11**, **5.5**, **2** or **1**.

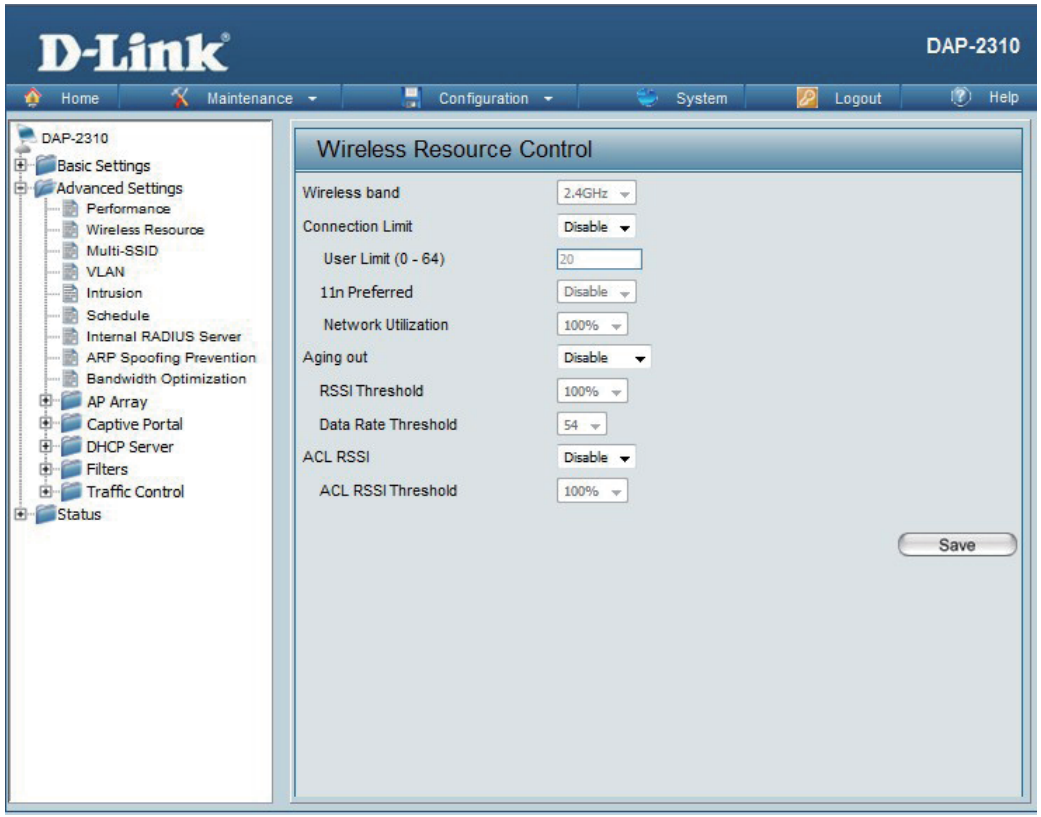


*Maximum wireless signal rate derived from IEEE Standard 802.11n and 802.11g specifications. Actual data throughput may vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead can lower actual data throughout rate.

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.
DTM Interval (1-15):	Select a Delivery Traffic Indication Message setting between **1** and **15**. The default value is **1**. DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.
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) :	To effectively optimize throughput over long distance links, enter a value for Acknowledgement Time Out 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.
Multicast Rate:	Select the multicast rate for 2.4G band.
Multicast Bandwidth Control:	Adjust the multicast packet data rate here. The multicast rate is supported in AP mode and WDS with AP mode, including Multi-SSIDs.
Maximum Multicast Bandwidth :	Set the multicast packets maximum bandwidth pass through rate from the Ethernet interface to the Access Point.
HT20/40 Coexistence :	Enable this option to reduce interference from other wireless networks in your area. If the channel width is operating at 40MHz and there is another wireless network's channel over-lapping and causing interference, the Access Point will automatically change to 20MHz.
Transfer DHCP Offer to Unicast :	Enable to transfer the DHCP Offer to Unicast from LAN to WLAN, suggest to enable this function if stations number is larger than 30.

Wireless Resource Control

The Wireless Resource Control window is used to configure the wireless connection settings so that the device can detect the better wireless connection in your environment.



Wireless band: Select **2.4GHz**.

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 and when the number of users exceeds this value, or the network utilization of this AP exceeds the percentage that has been specified, the DAP-2310 will not allow clients to associate with the AP.

User Limit: Set the maximum amount of users that are allowed access (zero to 64 users) to the device using the specified wireless band. The default setting is 20.

11n Preferred: Use the drop-down menu to **Enable** the 11n Preferred function. The wireless clients with 802.11n protocol will have higher priority to connect to the device.

Network Utilization:	Set the maximum utilization of this access point for service. The DAP-2310 will not allow any new clients to associate with the AP if the utilization exceeds the value the user specifies. Select a utilization percentage between 100%, 80%, 60%, 40%, 20%, or 0%. When this network utilization threshold is reached, the device will pause one minute to allow network congestion to dissipate.
Aging out:	Use the drop-down menu to select the criteria of disconnecting the wireless clients. Available options are **RSSI** and **Data Rate**.
RSSI Threshold:	When **RSSI** is selected in the **Aging out** drop-down menu, select the percentage of RSSI here. When the RSSI of wireless clients is lower than the specified percentage, the device disconnects the wireless clients.
Data Rate Threshold:	When **Data Rate** is selected in the **Aging out** drop-down menu, select the threshold of data rate here. When the data rate of wireless clients is lower than the specified number, the device disconnects the wireless clients.
ACL RSSI:	Use the drop-down menu to **Enable** the function. When enabled, the device denies the connection request from the wireless clients with the RSSI lower than the specified threshold below.
ACL RSSI Threshold:	Set the ACL RSSI Threshold.

Multi-SSID

The device supports up to four multiple Service Set Identifiers. In the **Basic** > **Wireless** section, you can set the Primary SSID. 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.

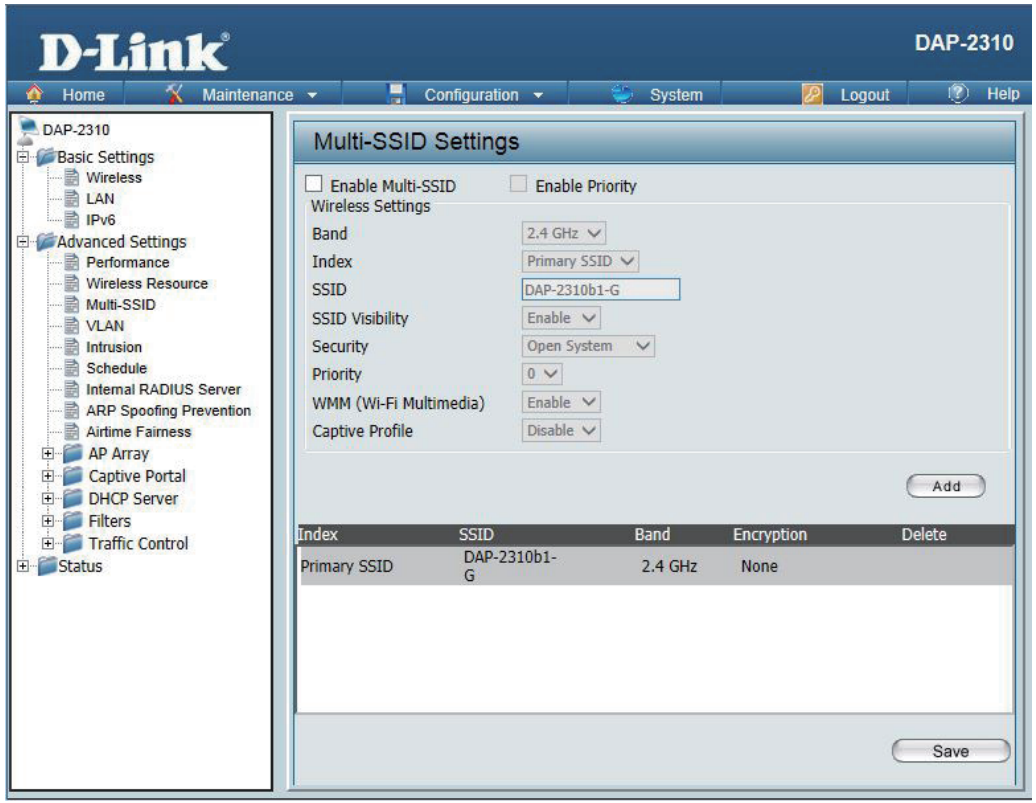
Enable Multi-SSID: Check to enable support for multiple SSIDs.

Band: This read-only value is the current band setting.

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: **Enable** or **Disable** SSID visibility. Enabling this feature broadcasts the SSID across the network, thus making it visible to all network users.



Security: The Multi-SSID security can be **Open System**, **WPA-Personal**, **WPA-Enterprise, or 802.1x**. For a detailed description of the Open System parameters, please go to page 25. For a detailed description of the WPA-Personal parameters, please go to page 26. For a detailed description of the WPA-Enterprise parameters, please go to page 27. For a detailed description of the O802.1x parameters, please go to page 28.

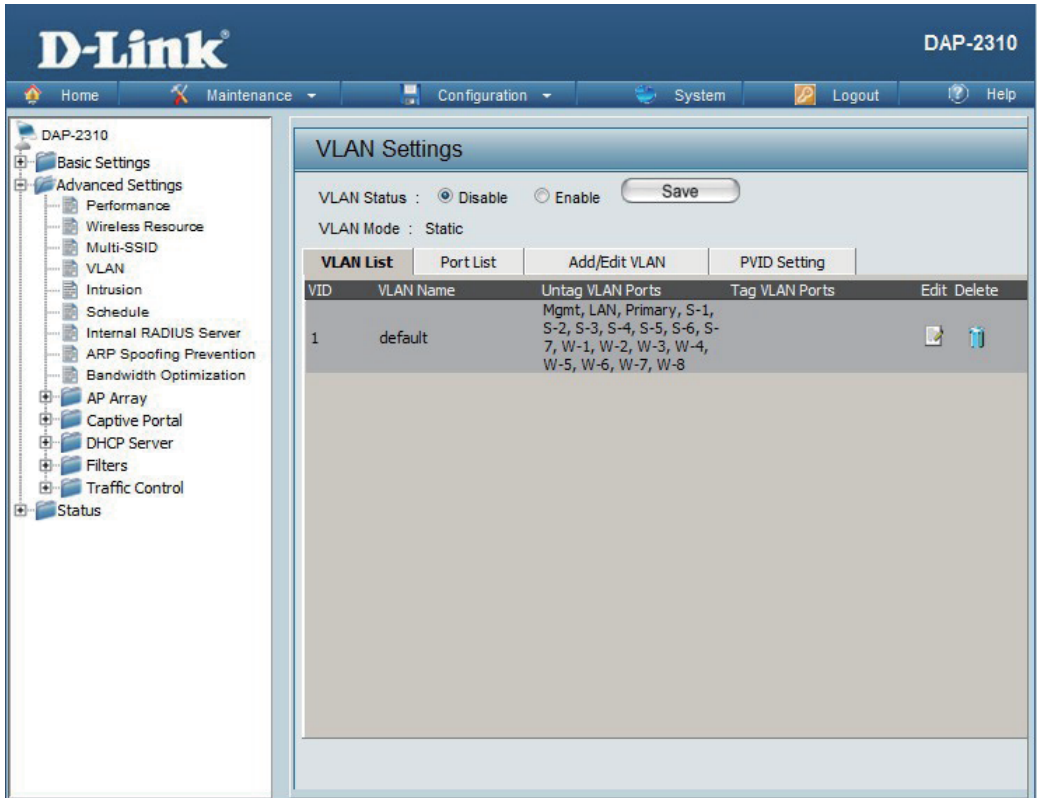
Priority:	Check the **Enable Priority** box at the top of this window to enable. Select the priority from the drop-down menu.
WMM (Wi-Fi Multimedia):	Select **Enable** or **Disable**.
Captive Profile:	Disable or select a Captive Portal profile for Primary SSID.
Encryption:	When you select **Open System**, toggle between **Enable** and **Disable**. If **Enable** is selected, the Key Type, Key Size, Key Index (1~4), 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 4th key to be set as 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.
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 RADIUS server. In addition, you must configure RADIUS Port and RADIUS Secret.
RADIUS Port:	Enter the RADIUS port.
RADIUS Secret:	Enter the RADIUS secret.

VLAN
VLAN List

The DAP-2310 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-2310 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 between **Enable** or **Disable**. Next, go to the **Add/Edit VLAN** tab to add or modify an item on the **VLAN List** tab.



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.

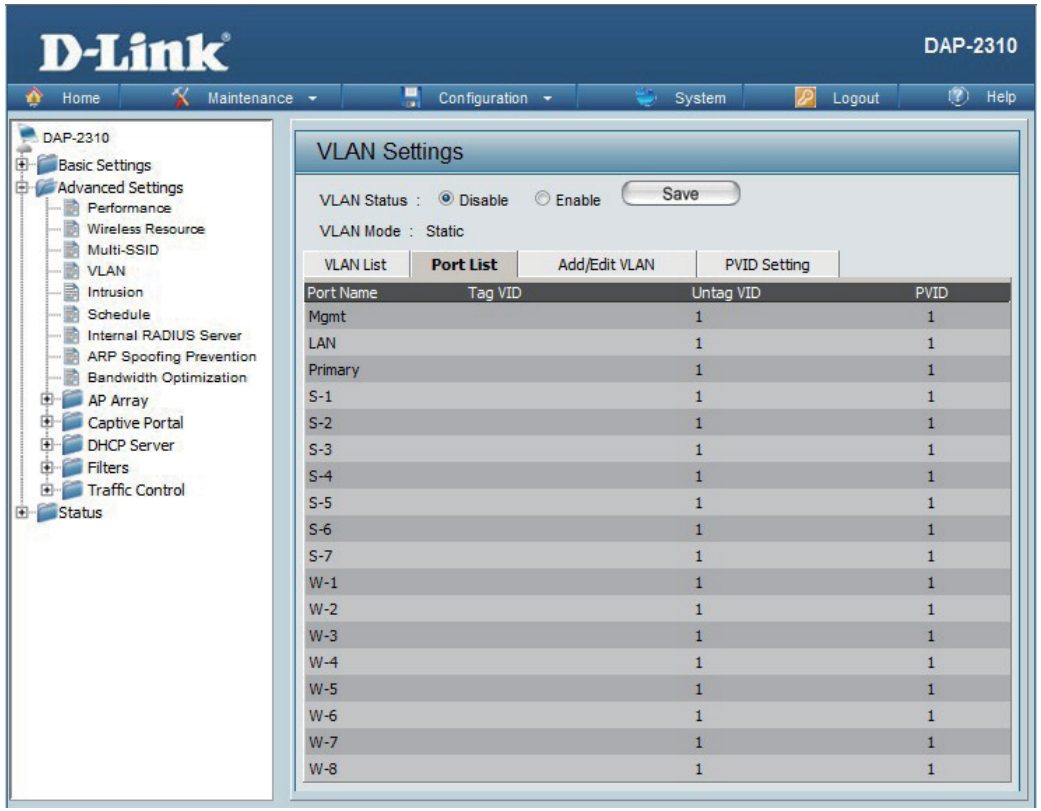
VLAN Status: Use the radio button to toggle to Enable. Next, go to the **Add/Edit VLAN** tab to add or modify an item on the **VLAN List** tab.

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.

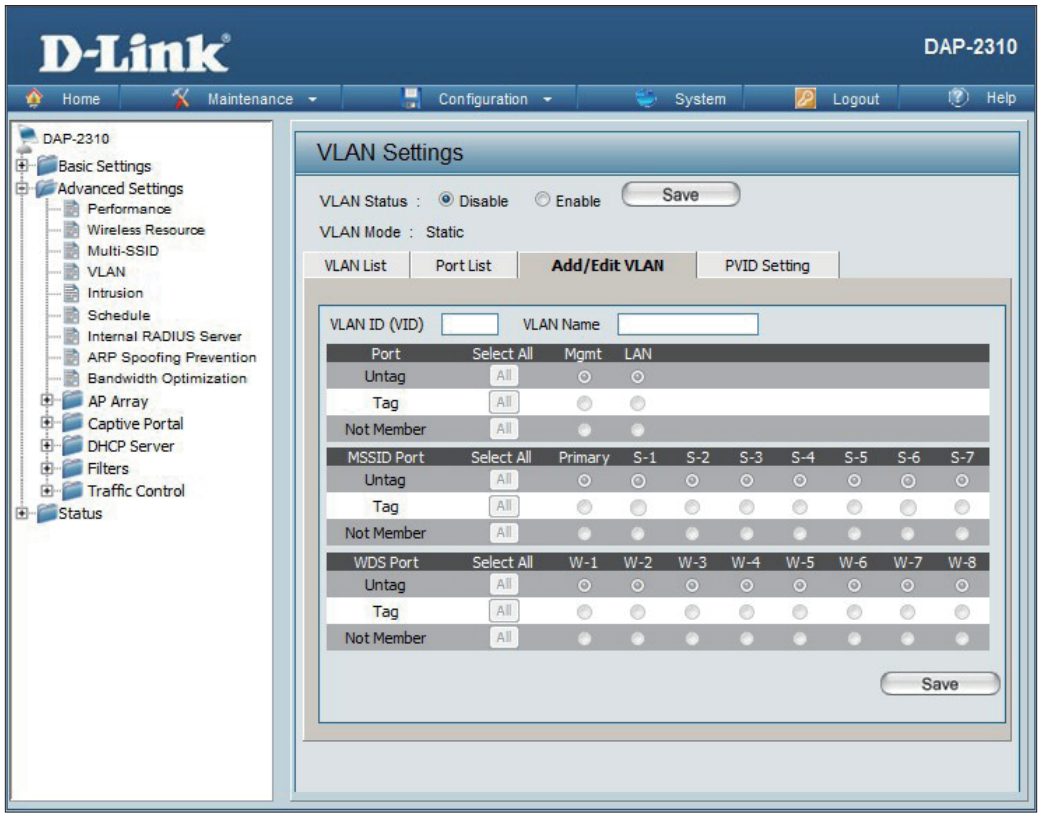
PVID: The Port VLAN Identifier is displayed in this column.



Add/Edit VLAN

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

VLAN Status:	Use the radio button to toggle to Enable.
VLAN ID:	Provide a number between **1** and **4094** for the Internal VLAN.
VLAN Name:	Enter the VLAN to add or modify.

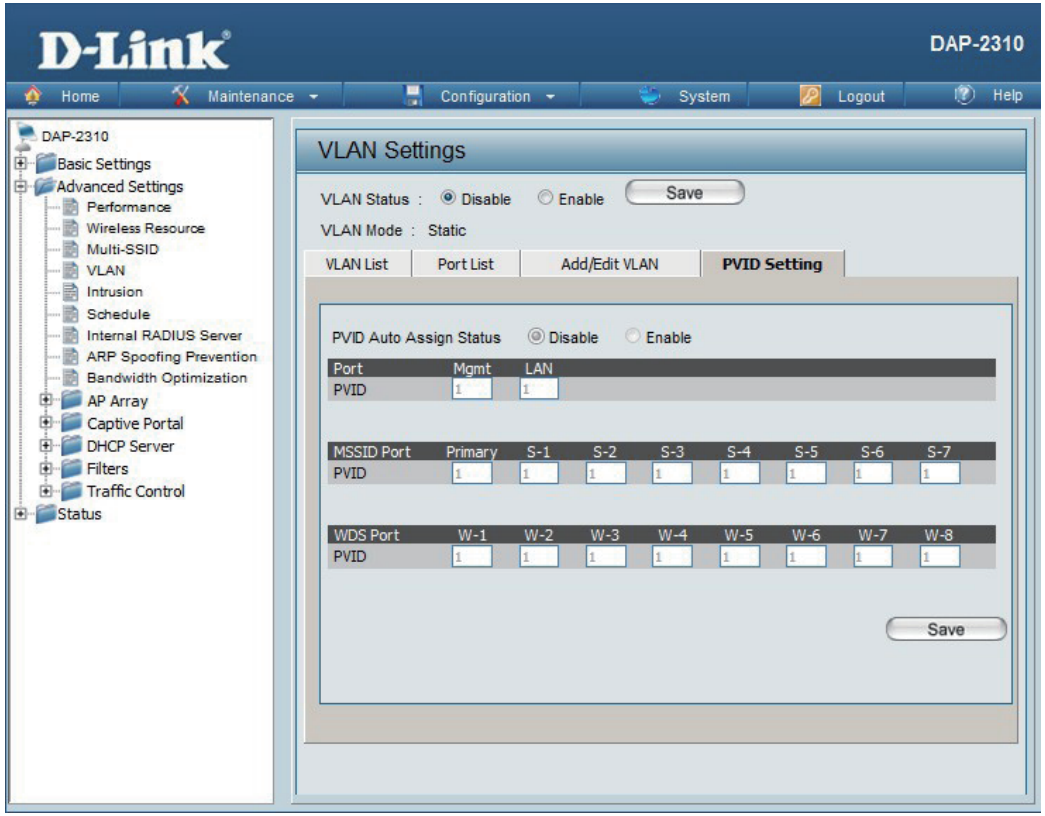


PVID Setting

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 **Save** button to let your changes take effect.

VLAN Status: Use the radio button to toggle between **Enable** and **Disable.**

PVID Auto Assign Status: Use the radio button to toggle PVID auto assign status to Enable.

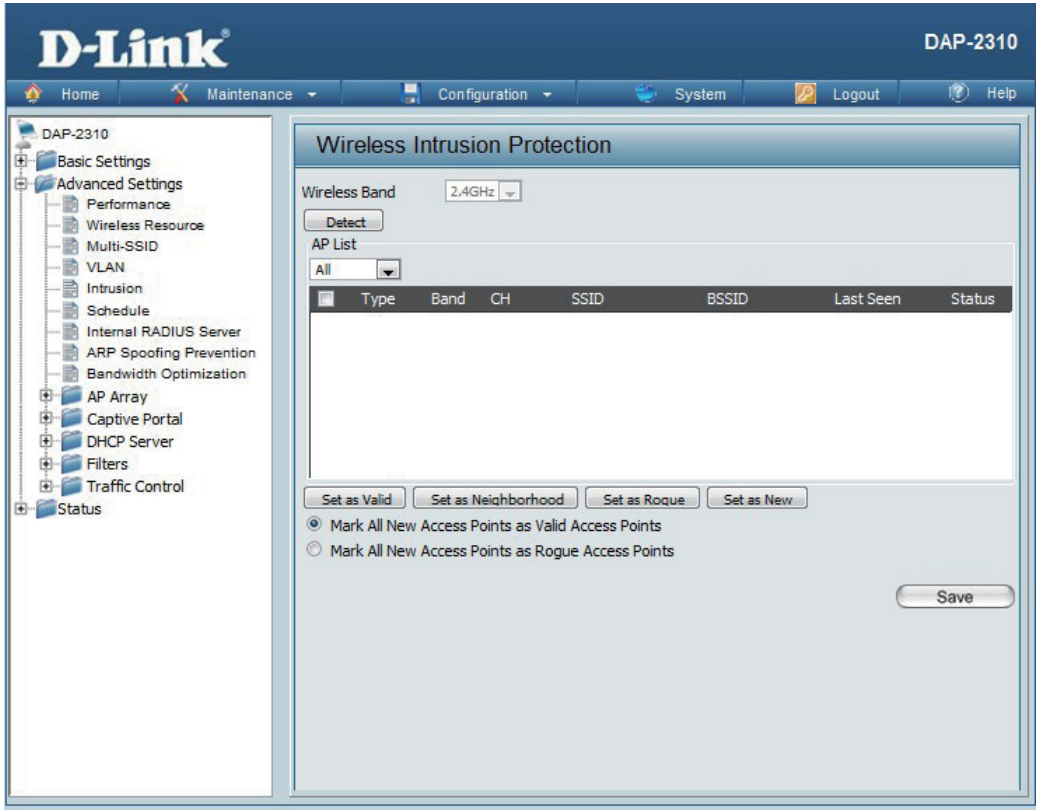


Intrusion

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

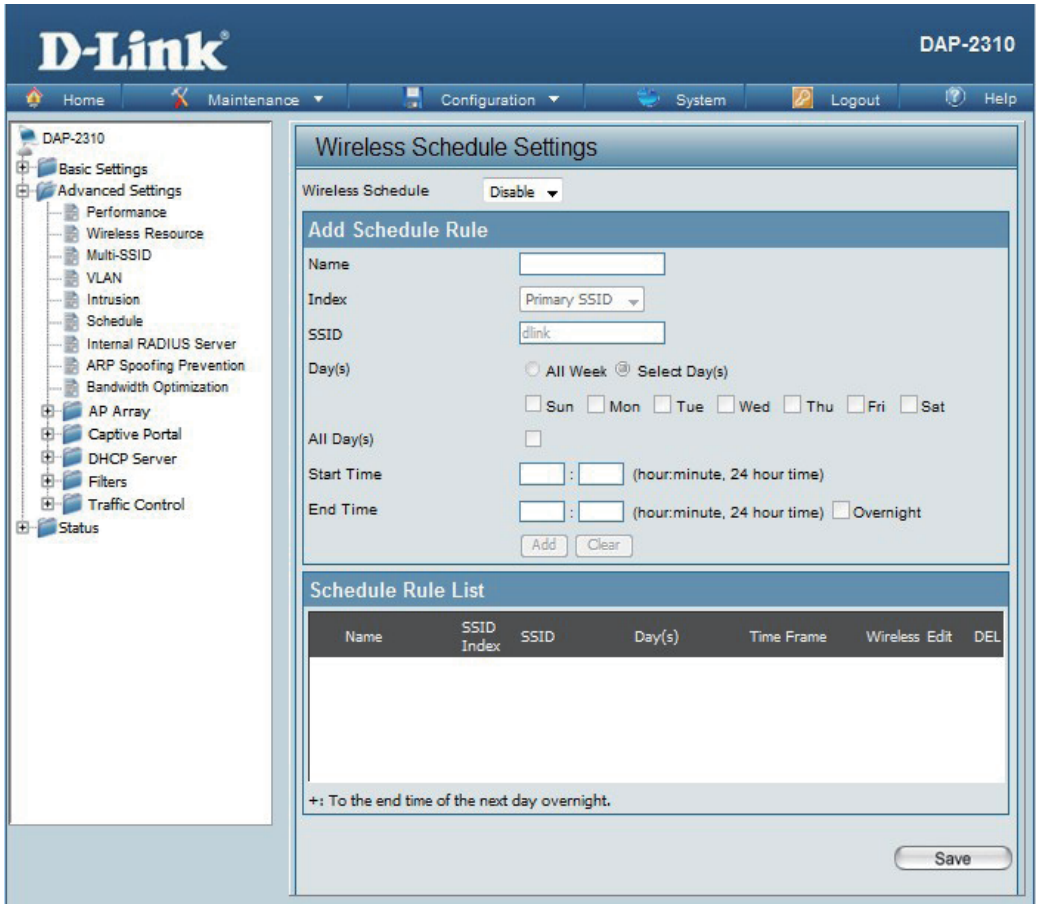
AP List: The choices include **All**, **Valid**, **Neighbor**, **Rogue**, and **New**.

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 **Save** button to let your changes take effect.



Wireless Schedule: Use the drop-down menu to enable the device's scheduling feature.

Name: Enter a name for the new scheduling rule in the field provided.

Index: Select the index from the drop-down menu.

SSID: Enter the name of your wireless network (SSID).

Day(s): Toggle the radio button between **All Week** and **Select Day(s)**. If the second option is selected, check the specific days you want the rule to be effective on.

All Day(s): Check this box to have your settings apply 24 hours a day.

Start Time: Enter the start time for your rule. If you selected **All Day**, this option will be greyed out.

End Time: Enter the end time for your rule.

Add: Click to add the rule to the list.

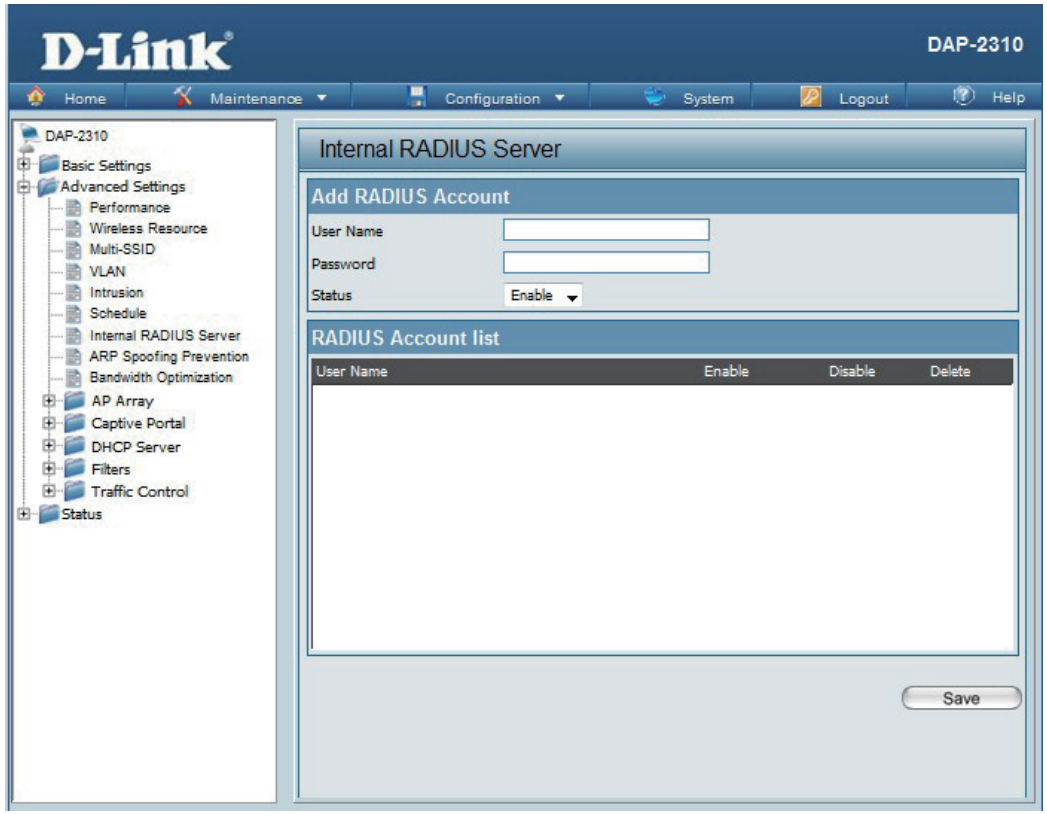
Schedule Rule List: This section will display the list of created schedules.

Save: Click the **Save** button to save your created rules.

Internal RADIUS Server

The DAP-2310 features a built-in RADIUS server. Once you have finished adding a RADIUS account, click the Save button to let your changes take effect. The newly-created account will appear in this RADIUS Account List. The radio buttons allow the user to enable or disable the RADIUS account. Click the icon in the delete column to remove the RADIUS account. We suggest you limit the number of accounts below 30.

User Name:	Enter a name to authenticate user access to the internal RADIUS server.
Password:	Enter a password to authenticate user access to the internal RADIUS server. The length of your password should be 8~64.
Status:	Toggle the drop-down menu between Enable and Disable.
RADIUS Account List:	Displays the list of users.



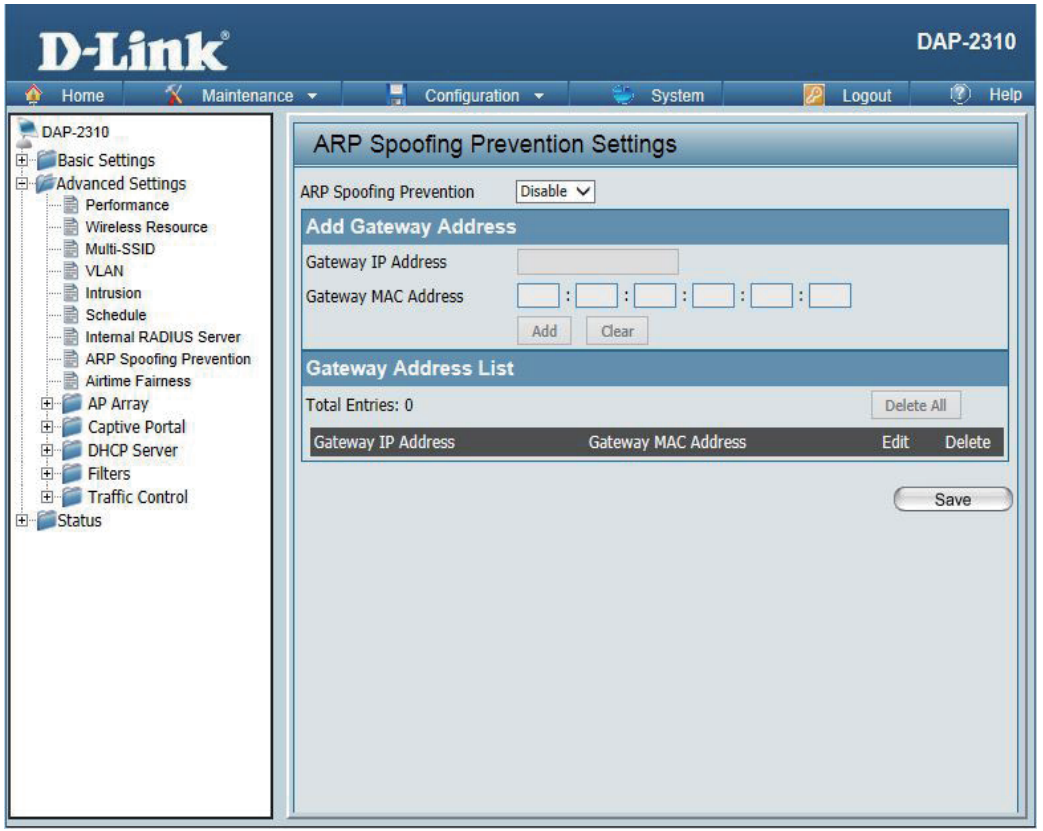
ARP Spoofing Prevention Settings

The ARP Spoofing Prevention feature allows users to add IP/MAC address mapping to prevent arp spoofing attack.

ARP Spoofing Prevention: This check box allows you to enable the arp spoofing prevention function.

Gateway IP Address: Enter a gateway IP address.

Gateway MAC Address: Enter a gateway MAC address.



Bandwidth Optimization

The Bandwidth Optimization window allows the user to manage the bandwidth of the device and arrange the bandwidth for various wireless clients. When the Bandwidth Optimization ruile is finished, click the Add button. To discard the Add Bandwidth Optimization Rule settings, click the Clear button. Click the Save button to let your changes take effect.

Enable Bandwidth Optimization: Use the drop-down menu to Enable the Bandwidth Optimization function.

Downlink Bandwidth: Enter the downlink bandwidth of the device in Mbits per second.

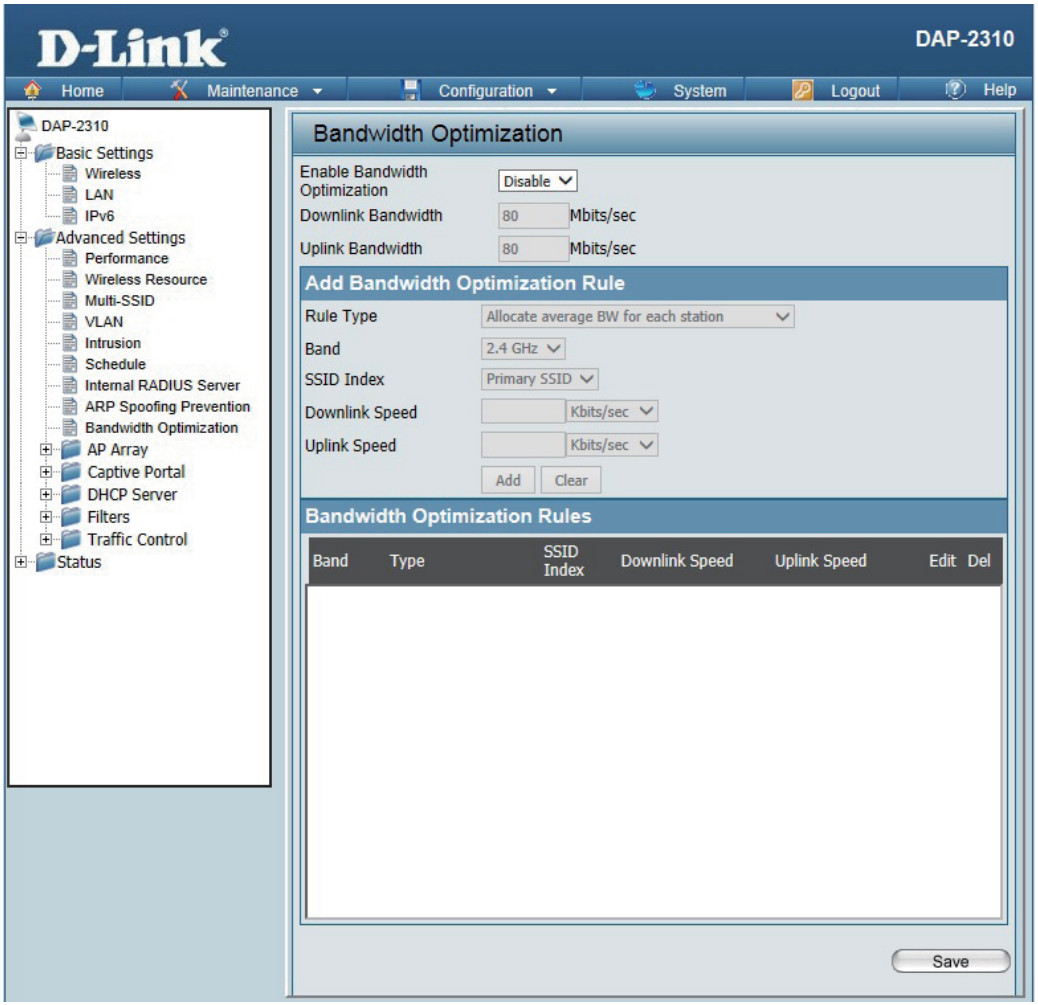
Uplink Bandwidth: Enter the uplink bandwidth of the device in Mbits per second.

Rule Type: Use the drop-down menu to select the type that is applied to the rule. Available options are: Allocate average BW for each station, Allocate maximum BW for each station, Allocate different BW for 11b/g/n stations, and Allocte specific BW for SSID.

Allocate average BW for each station: AP will distribute average bandwidth for each client.

Allocate maximum BW for each station: Specify the maximum bandwidth for each connected client. Reserve certain bandwidth for future clients.

Allocate different BW for b/g/n stations: The weight of 11b/g/n client are 10%/20%/70%. AP will distribute different bandwidth for 11b/g/n clients.



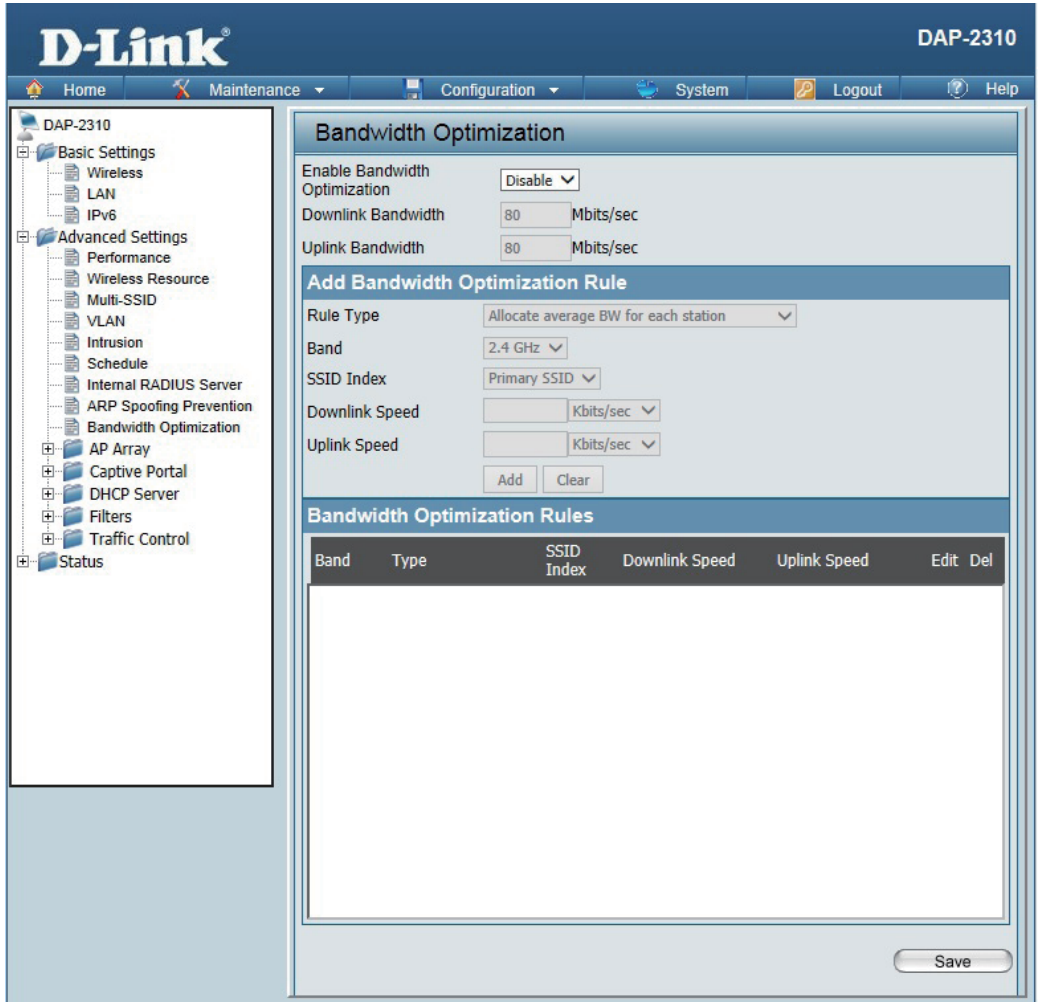
Allocate specific BW for SSID: All clients share the total bandwidth.

Band: Use the drop-down menu to toggle the wireless band 2.4GHz.

SSID Index: Use the drop-down menu to select the SSID for the specified wireless band.

Downlink Speed: Enter the limitation of the downloading speed in either Kbits/sec or Mbits/sec for the rule.

Uplink Speed: Enter the limitation of the uploading speed in either Kbits/sec or Mbits/sec for the rule.



AP Array

AP Array Scan

The AP Array window is used to create up to 32 APs on a local network to be organized into a single group in order to increase ease of management. Click the Save button to let your changes take effect. Central WiFiManager and AP Array are mutually exclusive functions.

Enable AP Array: Select the check box to enable the AP array function. The three modes that are available are Master, Backup Master, and Slave. APs in the same array will use the same configuration. The configuration will sync the Master AP to the Slave AP and the Backup Master AP when a Slave AP and a Backup Master AP join the AP array.

AP Array Name: Enter an AP array name for the group here.

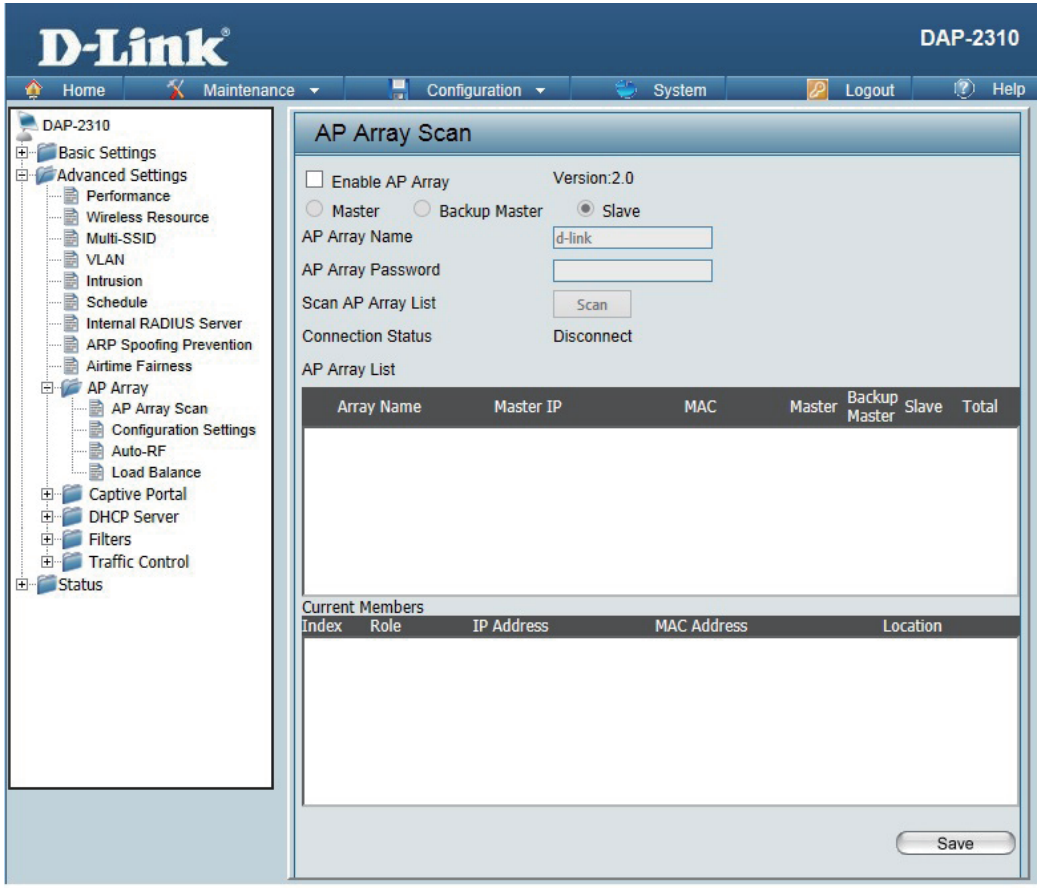
AP Array Password: Enter an AP array password for the group here. This password must be the same on all the APs in the group.

Scan AP Array List: Click this button to initiate a scan of all the available APs currently on the network.

Connection Status: Display the AP array connection status.

AP Array List: This table displays the current AP array status for the following parameters: Array Name, Master IP, MAC, Master, Backup Master, Slave, and Total.

Current Members: This table displays all the current array members. The DAP-2310 AP array feature supports up to eight AP array members.



Configuration Settings

In the AP array configuration settings windows, users can specify which settings all the APs in the group will inherit from the master AP. Make the required selection in this window and click the Save button to accept the changes made.

Enable AP Array Configuration: Select to Enable or Disable the AP array configure feature here.

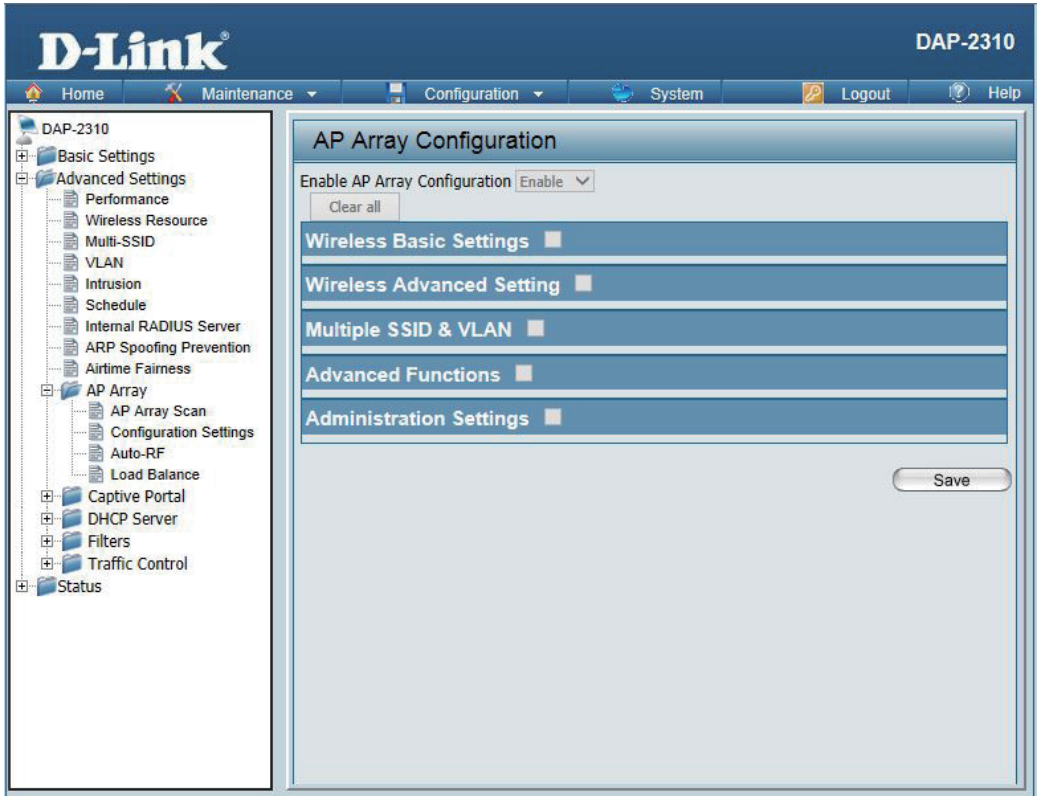
Wireless Basic Settings: Select this option to specify the basic wireless settings that the APs in the group will inherit.

Wireless Advanced Settings: Select this option to specify the advanced wireless settings that the APs in the group will inherit.

Multiple SSID & VLAN: Select this option to specify the multiple SSIDs and VLAN settings that the APs in the group will inherit.

Advanced Functions: Select this option to specify the other advanced settings that the APs in the group will inherit.

Administration Settings: Select this option to specify the administrative settings that the APs in the group will inherit.



Auto-RF

In this windows, users can view and configure the automatic radio frequency settings as well as configure the the auto-initiate period and threshold values. Click the Save button to accept the changes made.

Enable: Auto-RF: Select to Enable or Disable the auto-RF feature here.

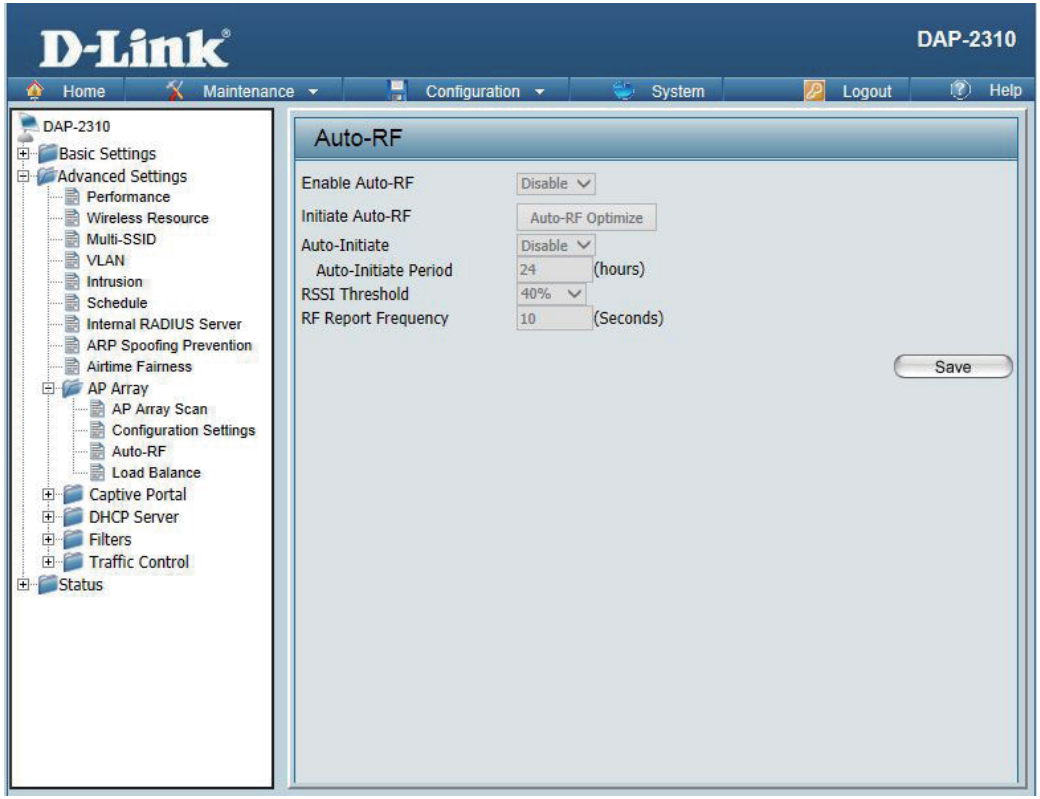
Initiate Auto-RF: Click the Auto-RF Optimize button to initiate the auto-RF optimization feature.

Auto-Initiate: Select the Enable or Disable the auto-initiate feature here.

Auto-Initiate Period: After enabling the auto-initiate option, the auto-initiate period value can be entered here. This value must be between 1 and 24 hours.

RSSI Threshold: Select the RSSI threshold value here. This value is listed in the drop-down menu in increments of 10% from 10% to 100%.

RF Report Frequency: Enter the RF report frequency value here.

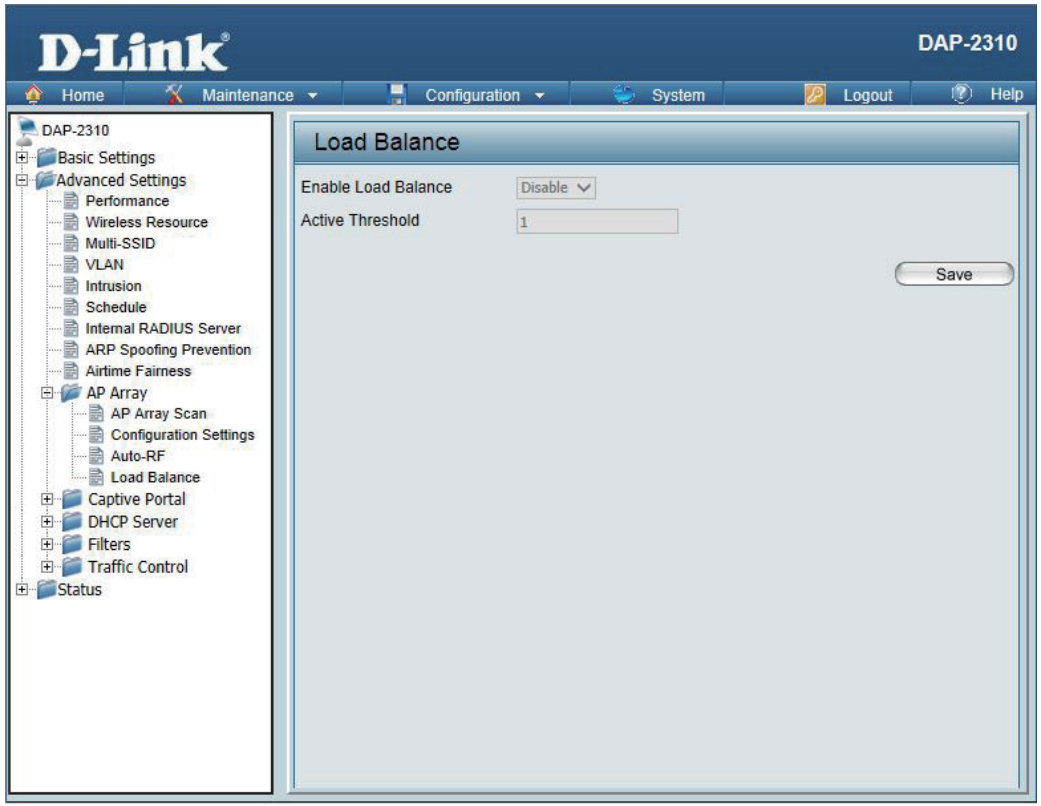


Load Balance

In this window, users can view and configure the AP array's load balancing settings. Click the Save button to accept the changes made.

Enable Load Balance: Select to Enable or Disable the load balance feature here.

Active Threshold: Enter the active threshold value here.



Captive Portal
Authentication Settings - Passcode

The Captive Portal is a built-in web authentication server. When a station connects to an AP, the web brower will be redirected to a web authentication page. In this windows, user can view and configure the Captive Portal settings. Click the Add button to add a new entry. Click the Delete or Delete All button to remove a specific entry or all the entries configured.

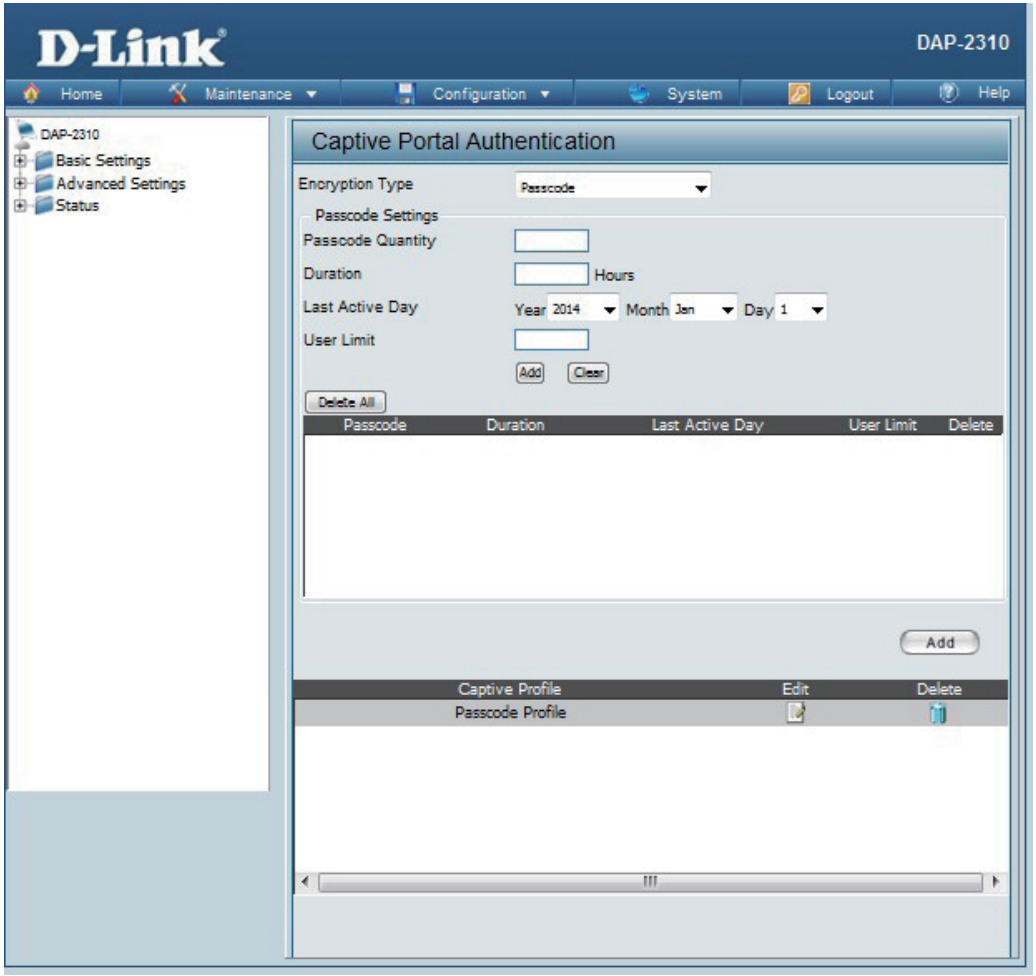
Encryption Type: Select the captive portal encryption type here. Options to choose from are Passcode, Username/ Password, Remote RADIUS, LDAP and POP3. In this section we'll discuss the Passcode option.

Passcode Quantity: Enter the number of Passcode that will be used here.

Duration: Enter the duration value, in hours, for this Passcode.

Last Active Day: Select the last active date for this Passcode here. Year, Month and Day selections can be made.

User Limit: Enter the maximum amount of users that can use this Passcode at the same time.



Authentication Settings - Username/Password

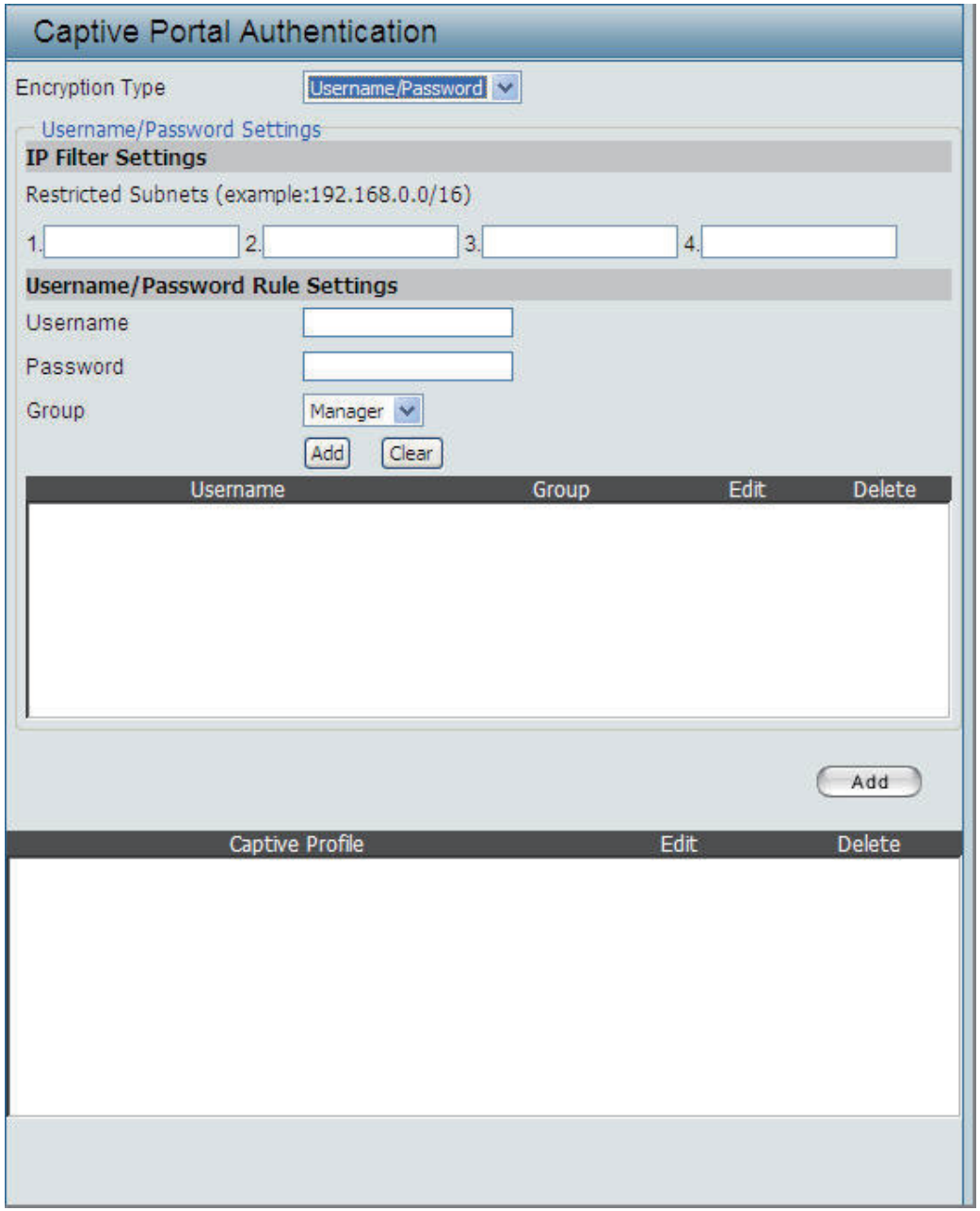
Encryption Type: Select the captive portal encryption type here. Options to choose from are Passcode, Username/Password, Remote RADIUS, LDAP and POP3. In this section we'll discuss the Username/Password option.

Restricted Subnets: Enter the restricted subnets here. Access to these subnets will denied to guest accounts. Up to four restricted subnet entries can be defined.

Username: Enter the username for the new account here.

Password: Enter the password for the new account here.

Group: Select the group for the new account here. Options to choose from are Manager and Guest. Guest accounts will have limited access.



Authentication Settings - Remote RADIUS

Encryption Type: Select the captive portal encryption type here. Options to choose from are Passcode, Username/ Password, Remote RADIUS, LDAP and POP3. In this section we'll discuss the Remote RADIUS option.

Remote RADIUS Type: Select the remote RADIUS server type here. Currently, only SPAP will be used.

RADIUS Server: Enter the RADIUS server's IP address here.

RADIUS Port: Enter the RADIUS server's port number here.

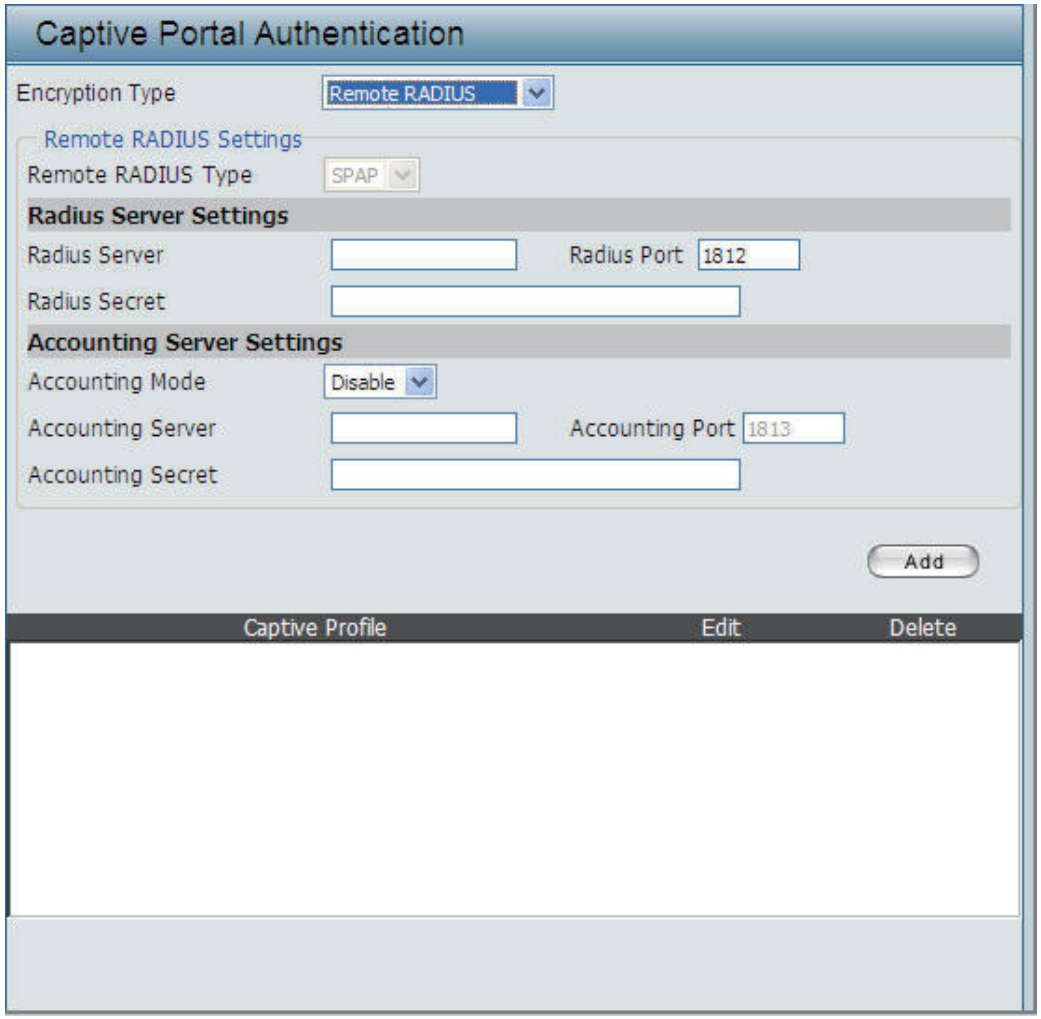
RADIUS Secret: Enter the RADIUS server's shared secret here.

Accounting Mode: Select to Enable or Disable the accounting mode here.

Accounting Server: Enter the accounting server's IP address here.

Accounting Port: Enter the accounting server's port number here.

Accounting Secret: Enter the accounting server's shared serect here.



Authentication Settings - LDAP

Encryption Type: Select the captive portal encryption type here. Options to choose from are Passcode, Username/Password, Remote RADIUS, LDAP and POP3. In this section we'll discuss the LDAP option.

Server: Enter the LDAP server's IP address or domain name here.

Port: Enter the LDAP server's port number here.

Authenticate Mode: Select the authentication mode here. Options to choose from are Simple and TLS.

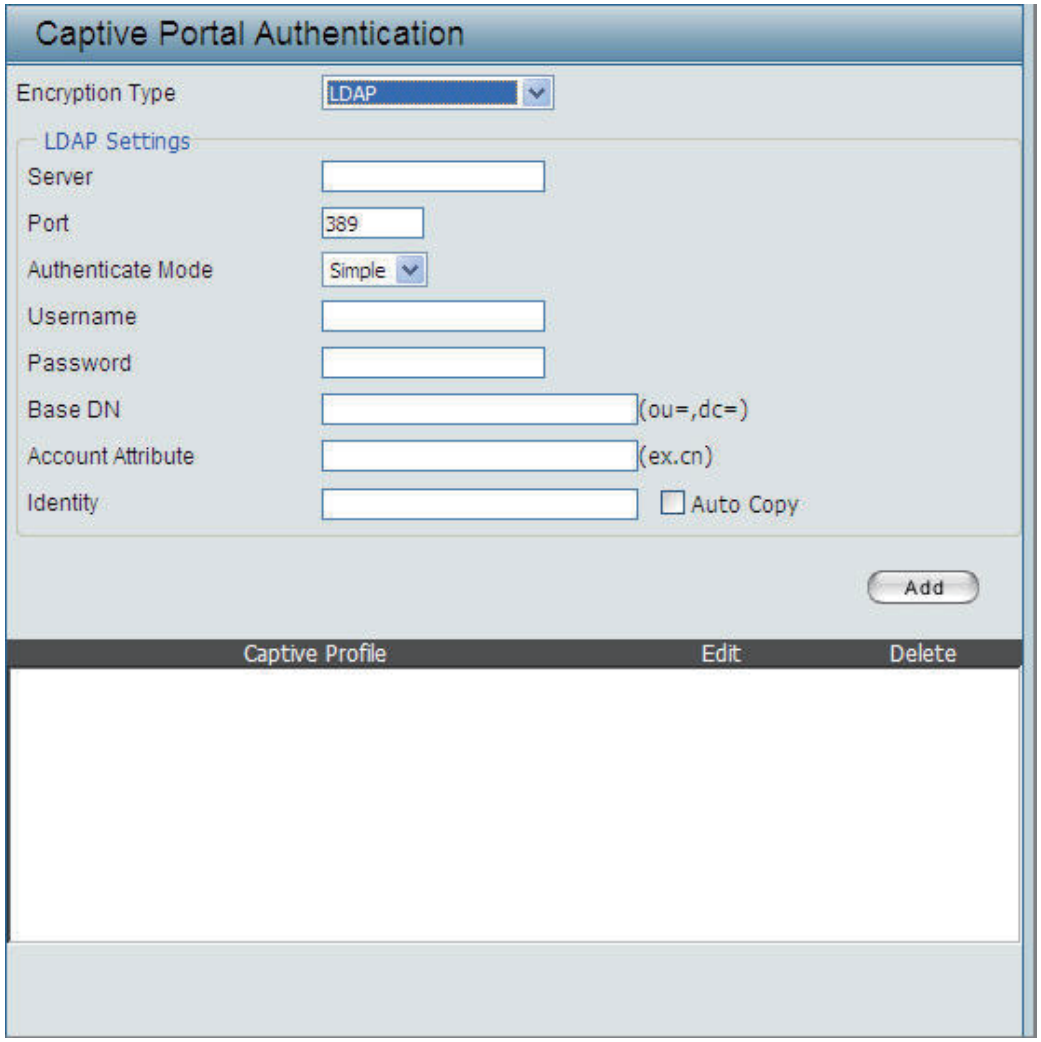
Username: Enter the LDAP server account's username here.

Password: Enter the LDAP server account's password here.

Base DN: Enter the administrator's domain name here.

Account Attribute: Enter the LDAP account attribute string here. This string will be used to search for clients.

Identity: Enter the identity's full path string here. Alternatively, select the Auto Copy checkbox to automatically add the generic full path of the web page in the identity field.



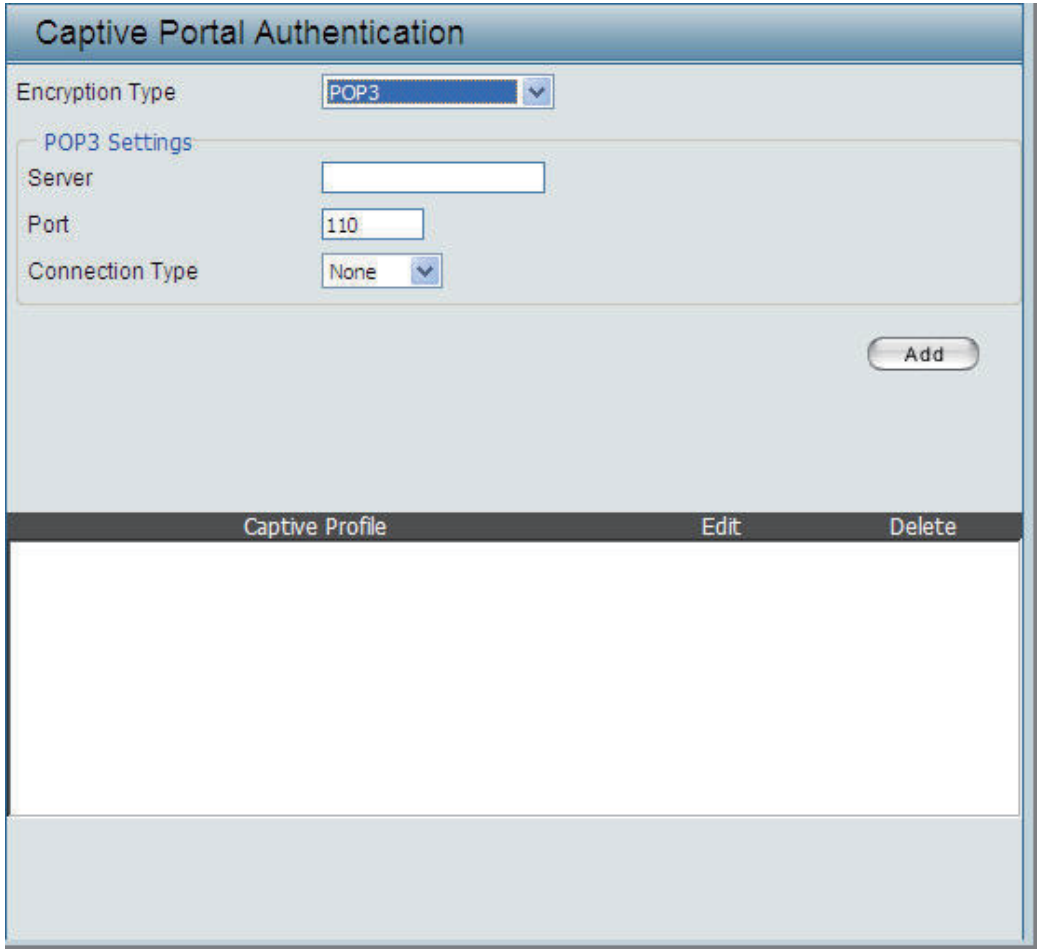
Authentication Settings - POP3

Encryption Type: Select the captive portal encryption type here. Options to choose from are Passcode, Username/Password, Remote RADIUS, LDAP and POP3. In this section we'll discuss the Passcode option.

Server: Enter the POP3 server's IP address or domain name here.

Port: Enter the POP server's port number here.

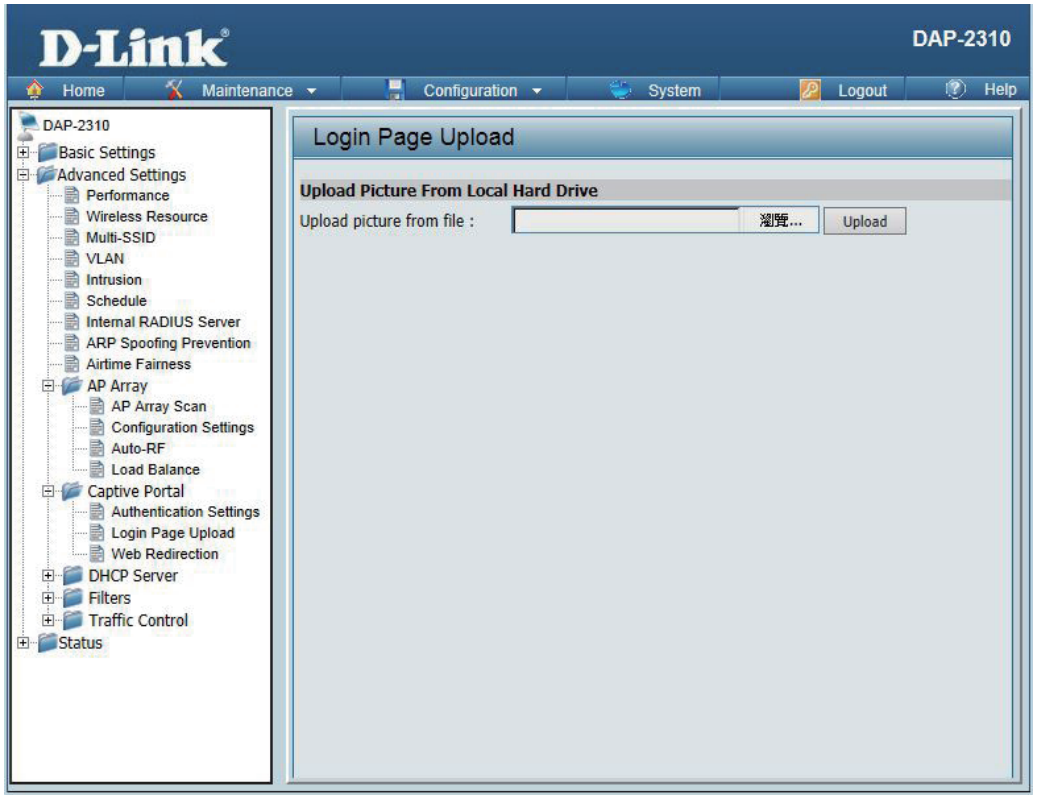
Connection Type: Select the connection type here. Options to choose from are None and SSL/TLS.



Login Page Upload

In this window, users can upload a custom login page picture that will be used by the captive portal feature. Click the Browse button to navigate to the image file, located on the managing computer and then click the Upload button to initiate the upload.

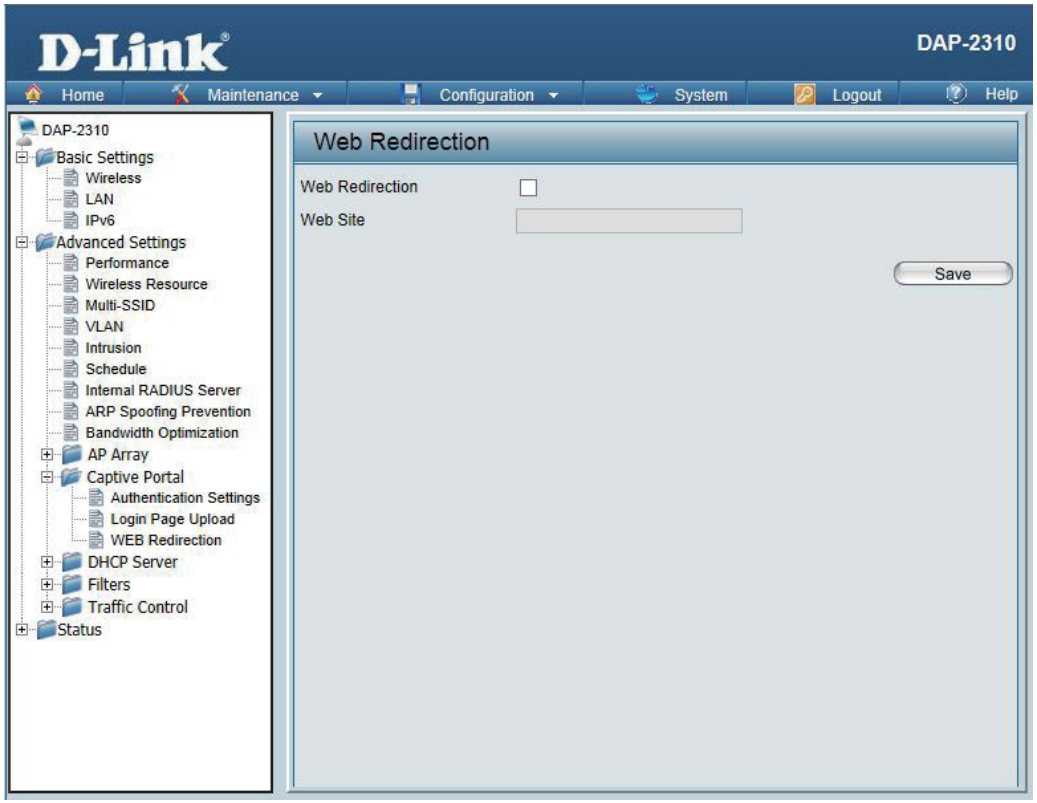
Upload picture from file: In this field the path to the image file, that will be uploaded, will be displayed. Alternatively, the path can be manually entered here.



Web Redirection

In this windows, users can view and configure the Web redirection settings for the captive portal hosted by this access point. Wireless clients will be redirected to this web site prior and after authentication. Click the Save button to accept the changes made.

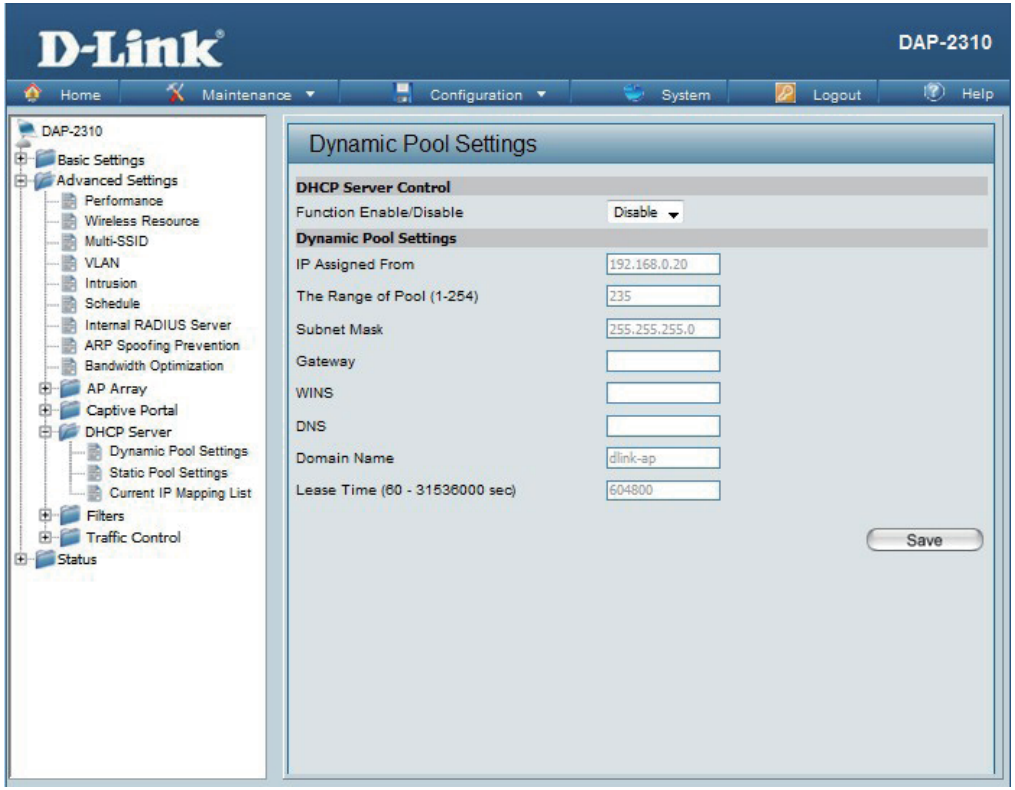
Web Redirection:	Select this checkbox to enable the Web redirection feature.
Web Site:	Enter the destination web site's address here.



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. If needed or required in the network, the DAP-2310 is capable of acting as a DHCP server.

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-2310 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.

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

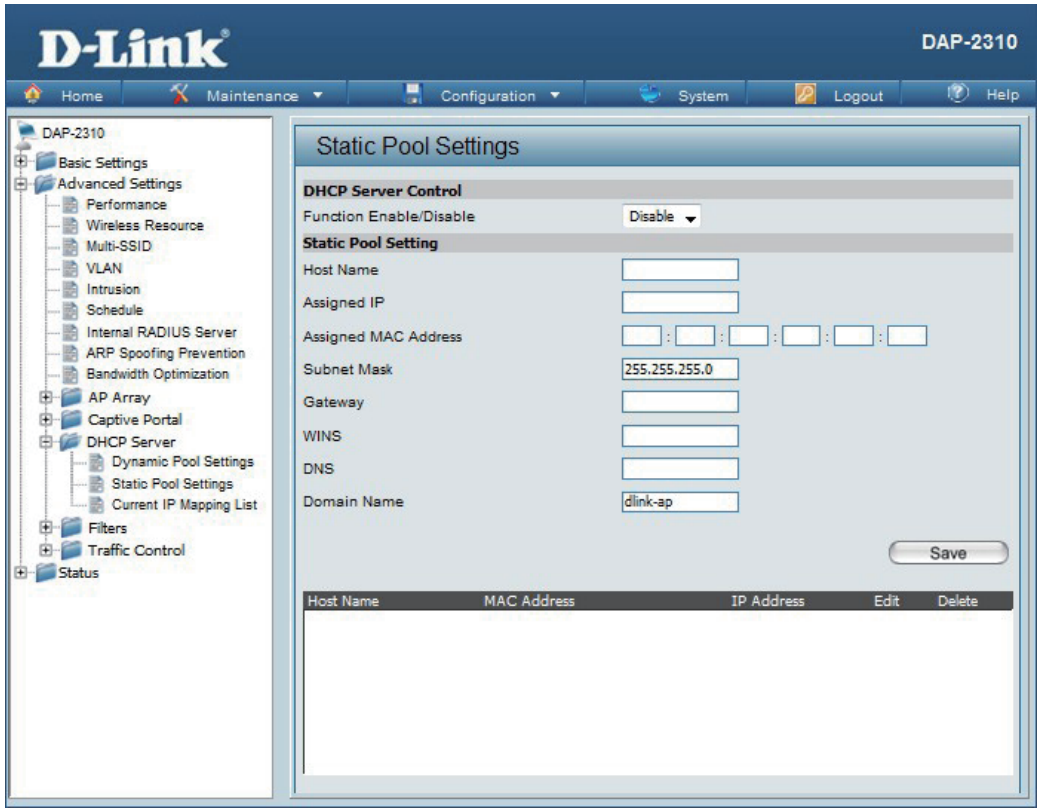
The DHCP address pool defines the range of IP addresses that can be assigned to stations on the network. A static pool allows specific wireless stations to receive a fixed IP without time control.

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-2310 to function as a DHCP server.

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 **Save**; 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.

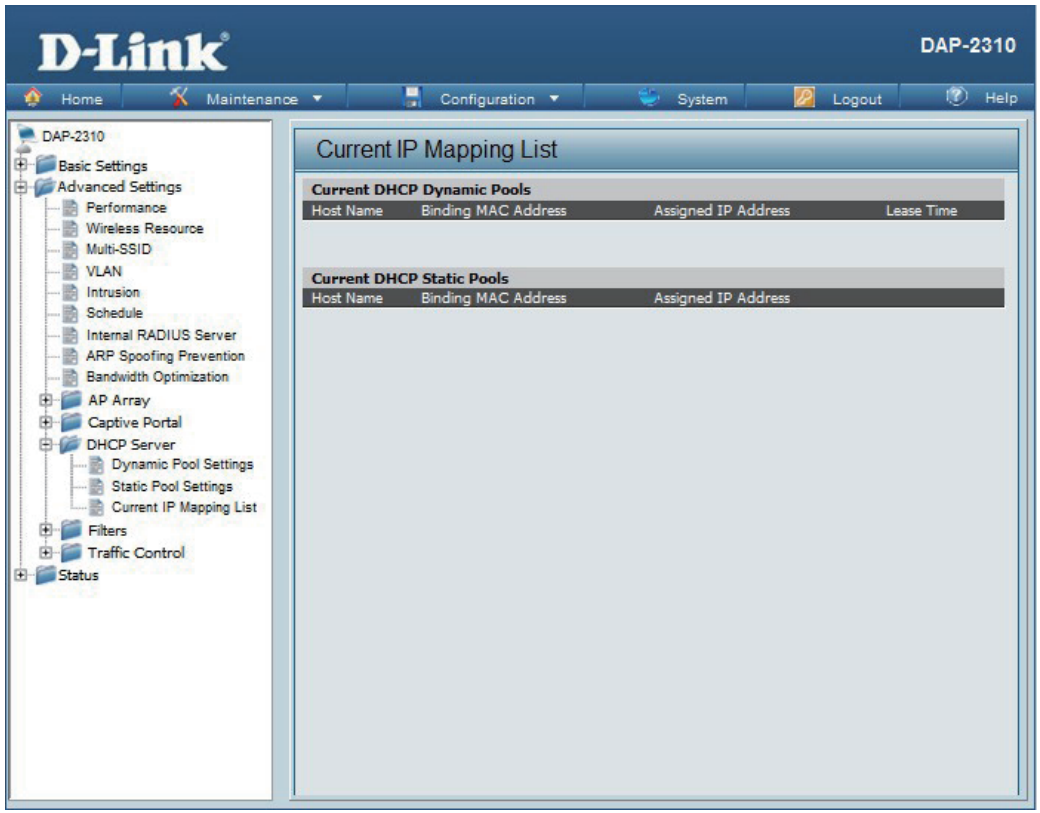
Subnet Mask: Define the submask of the IP address specified in the "IP Assigned From" field.



Gateway:	Specify the Gateway address for the wireless network.
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 Profile: These are IP address pools the DHCP server has assigned using the dynamic pool setting.

Host Name: The host name of a device on the network that is assigned an IP address from the DHCP dynamic pool.

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

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.

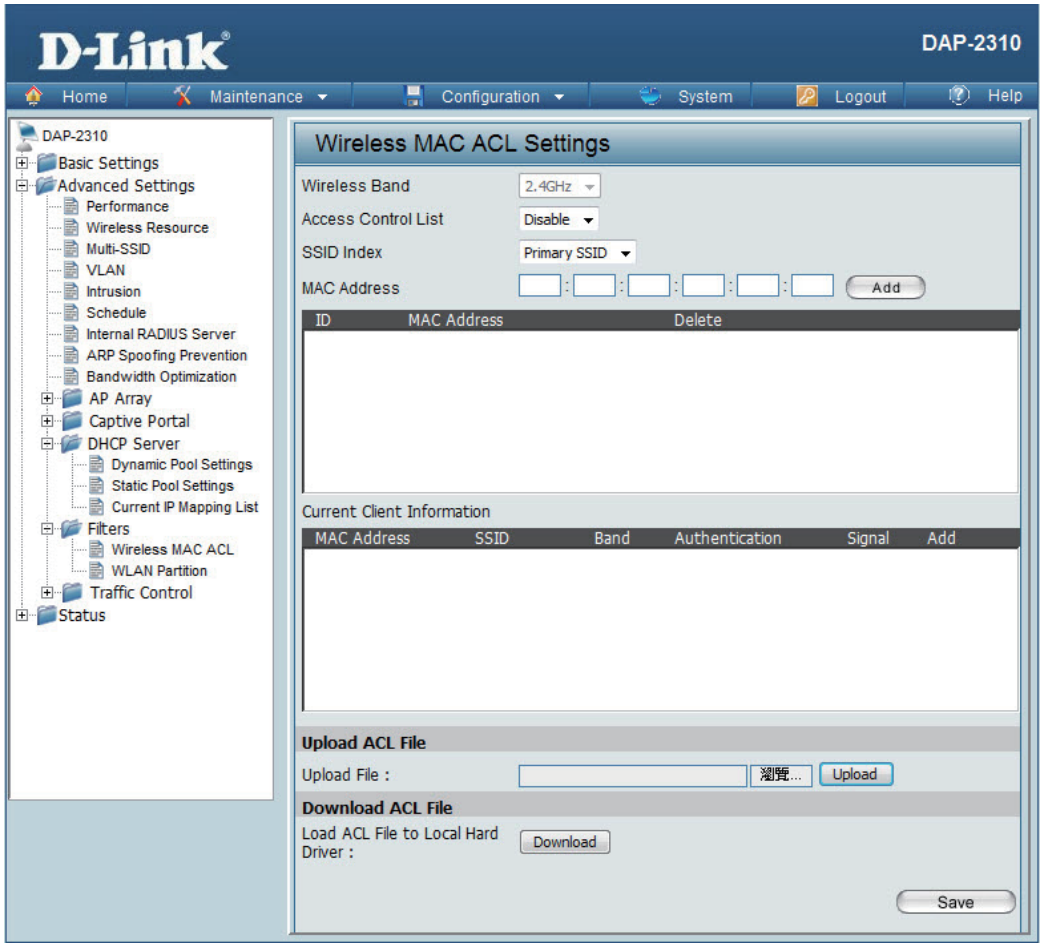
Select **Reject** to reject the devices with MAC addresses on the Access Control List. All other devices not on the list will be accepted.

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

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.

Upload ACL File: You may create an ACL list and upload it to the access point instead of manually entering the information. Once created, click the **Browse** button and locate your file. Select it and then click **Upload**.

Download ACL File: Click **Download** to export the ACL to a file on your computer.



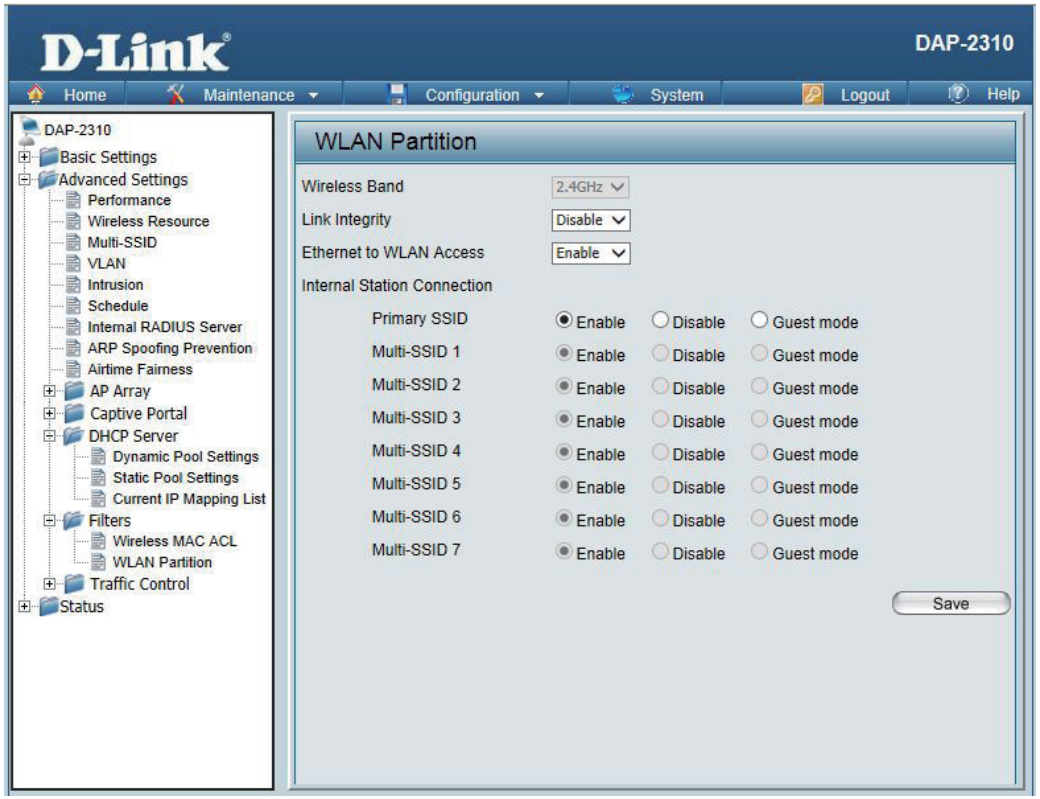
WLAN Partition

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.

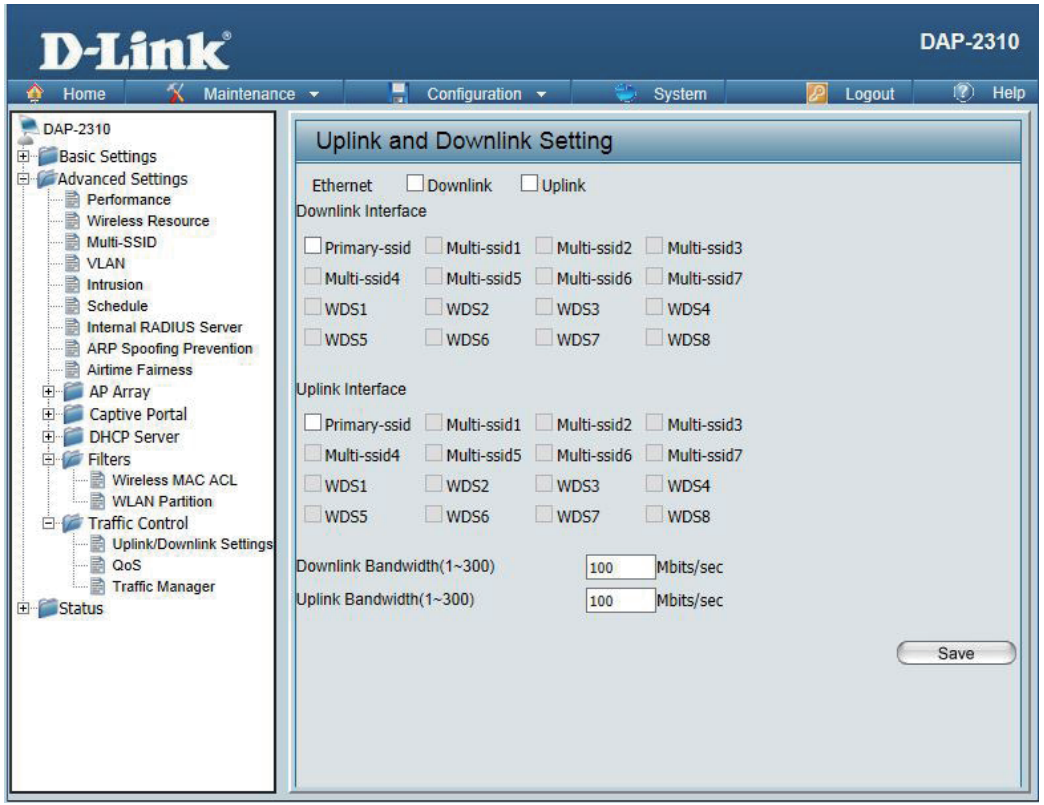


Traffic Control
Uplink/Downlink Settings

The uplink/downlink setting allows users to customize the downlink and uplink interfaces including specifying downlink/uplink bandwidth rates in Mbits per second. These values are also used in the QoS and Traffic Manager windows. Once the desired uplink and downlink settings are finished, click the Save button to let your changes take effect.

Downlink Bandwidth: The downlink bandwidth in Mbits per second.

Uplink Bandwidth: Uplink Bandwidth: The uplink bandwidth in Mbits per second.



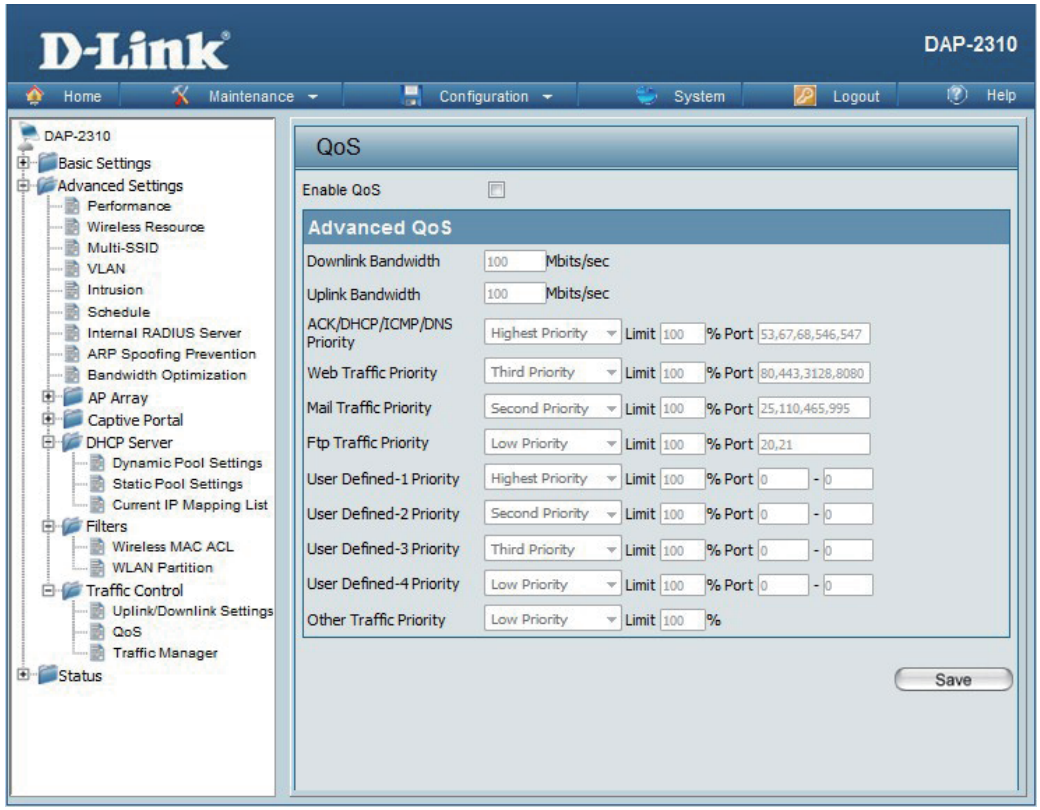
QoS

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.



Traffic Manager

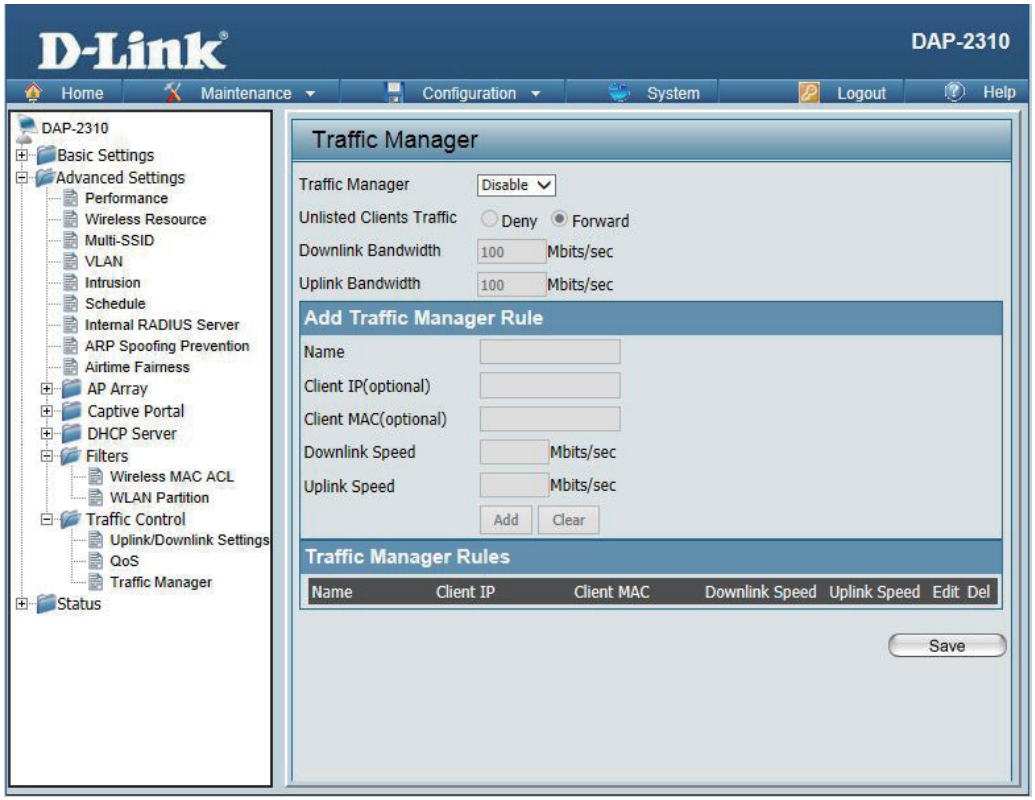
The traffic manager feature allows users to create traffic management rules that specify how to deal with listed client traffic and specify downlink/ uplink speed for new traffic manager rules. Click the Save button to let your changes take effect.

Traffic Manager: Use the drop-down menu to Enable the traffic manager feature.

Unlisted Client Traffic: Select Deny or Forward to determine how to deal with unlisted client traffic.

Downlink Bandwidth: The downlink bandwidth in Mbits per second. This value is entered in the Uplink/Downlink Setting window.

Uplink Bandwidth: Uplink Bandwidth:The uplink bandwidth in Mbits per second. This value is entered in the Uplink/Downlink Setting window.



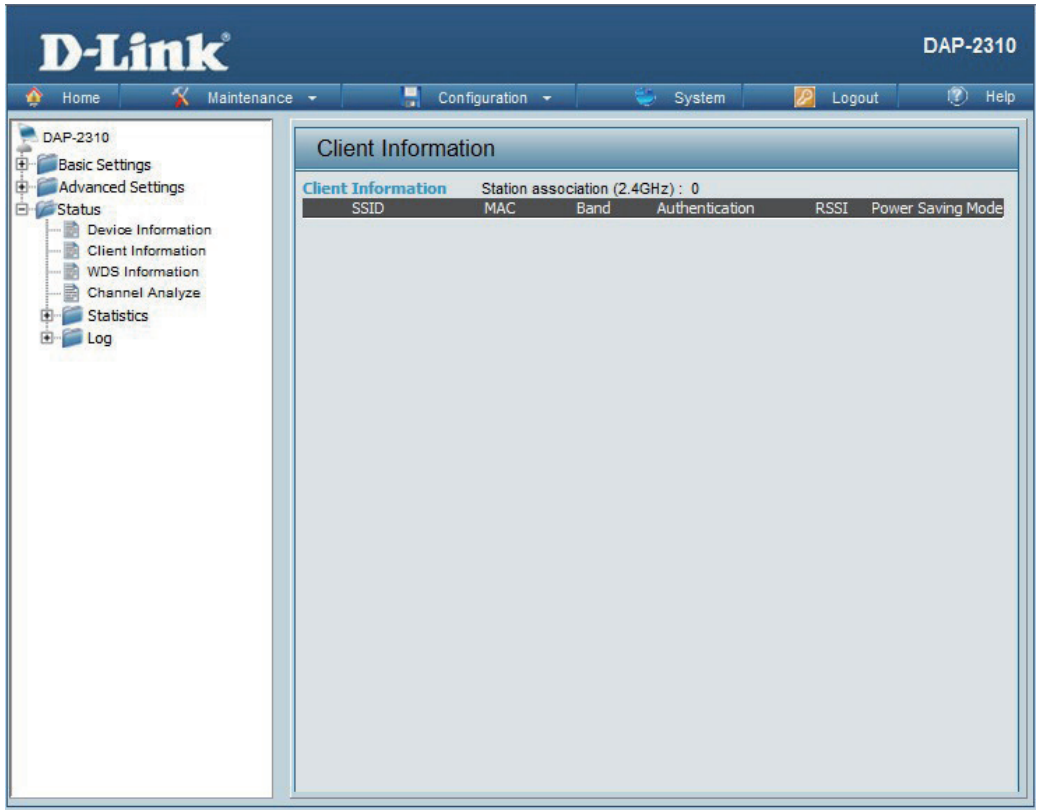
Status

Device Information

Device Information: This read-only window displays the configuration settings of the DAP-2310, including the firmware version and the device's MAC address.

Client Information

Client Information: This window displays the wireless client information for clients currently connected to the DAP-2310.



The following information is available for each client communicating with the DAP-2310.

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.

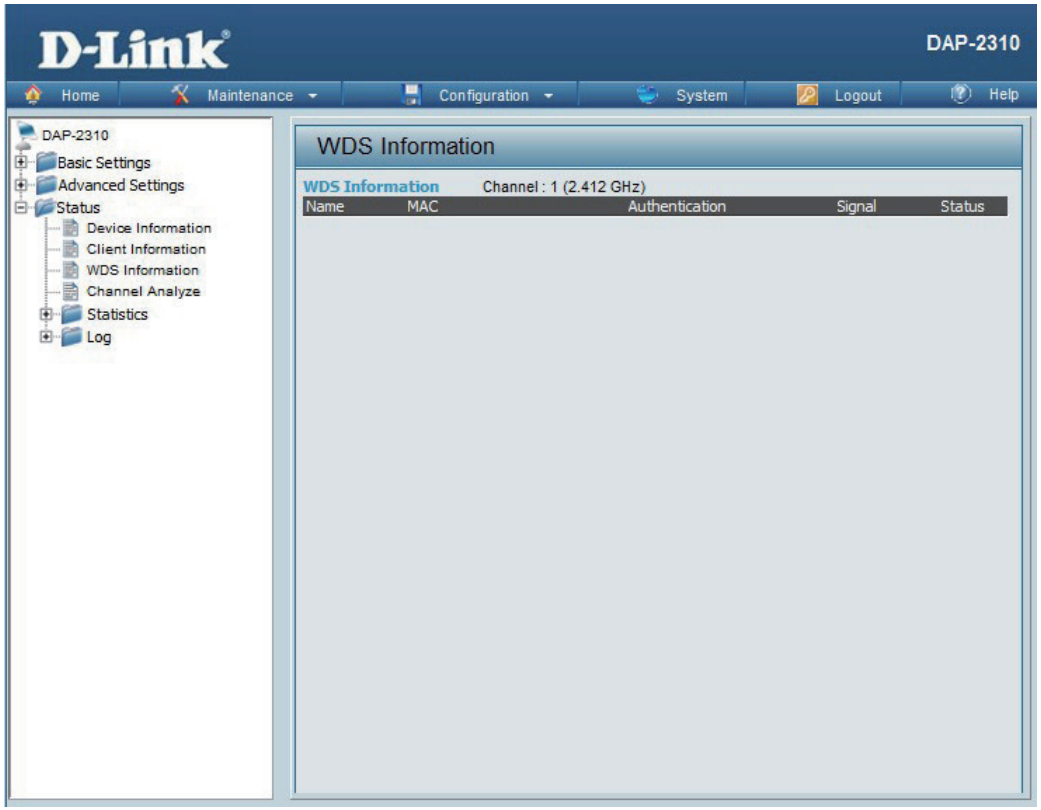
Authentication: Displays the type of authentication being used.

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-2310.



The following information is available for each client communicating with the DAP-2310.

Name: Displays the SSID of the client.

MAC: Displays the MAC address of the client.

Authentication: Displays the type of authentication being used.

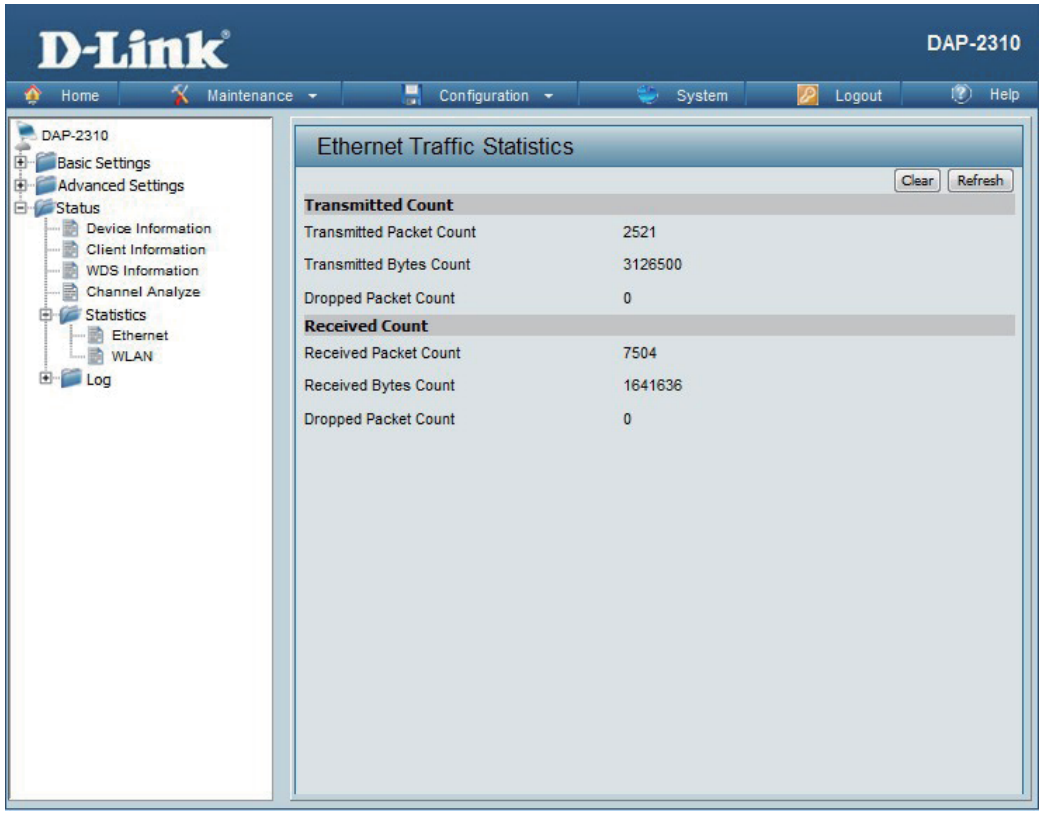
Signal: Displays the client's signal strength.

Status: Displays the status of the power saving feature.

Stats

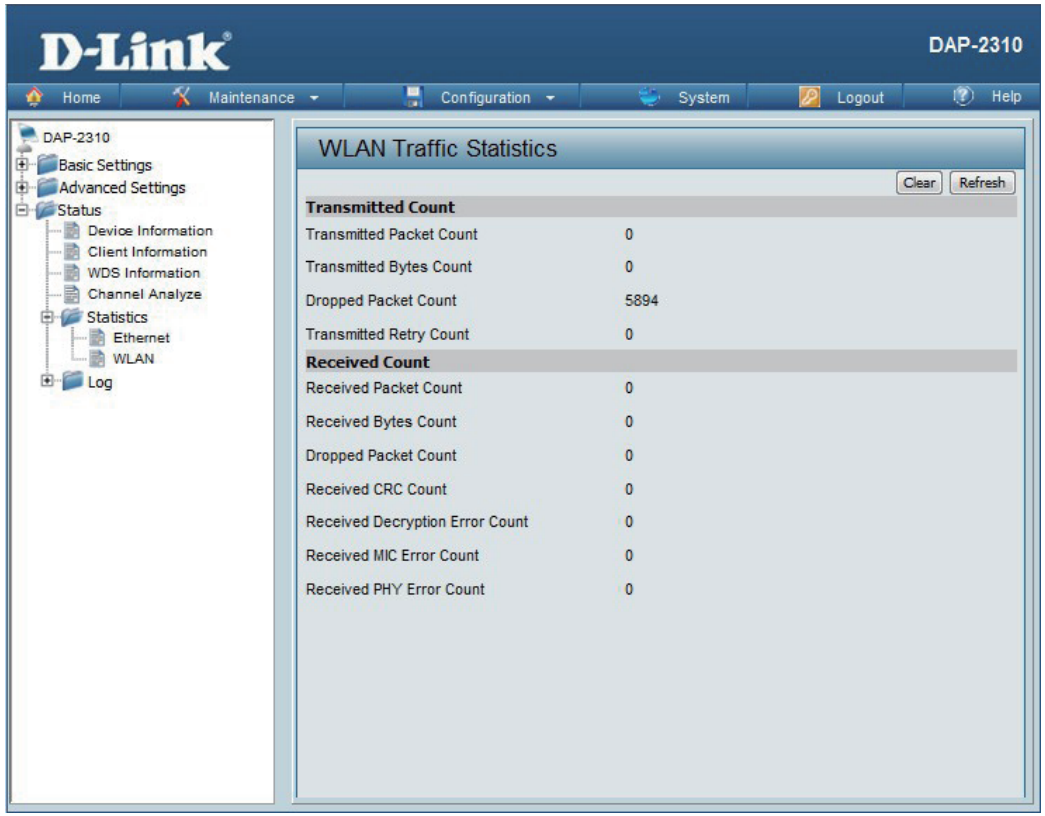
Ethernet

Ethernet Traffic Statistics: This page displays transmitted and received count statistics for packets and bytes.



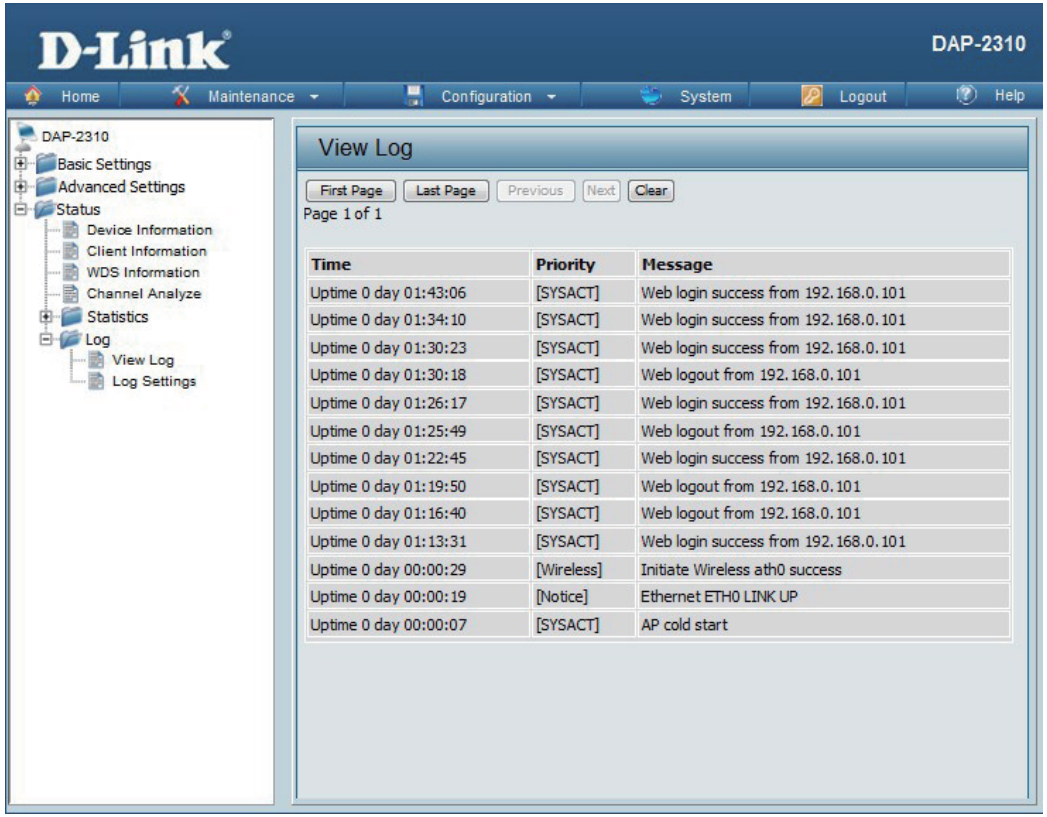
WLAN Traffic

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



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-2310 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: Check to enable Email notification.

Outgoing Mail Server (SMTP): Select the SMTP server from the drop-down menu.

Authentication: Check to enable authentication.

SSL / TLS: Check to enable SSL/TLS authentication.

From Email Address: Enter the "From" email address.

To Email Address: Enter the destination email address.

Email Server Address: Enter the Email Server Address.

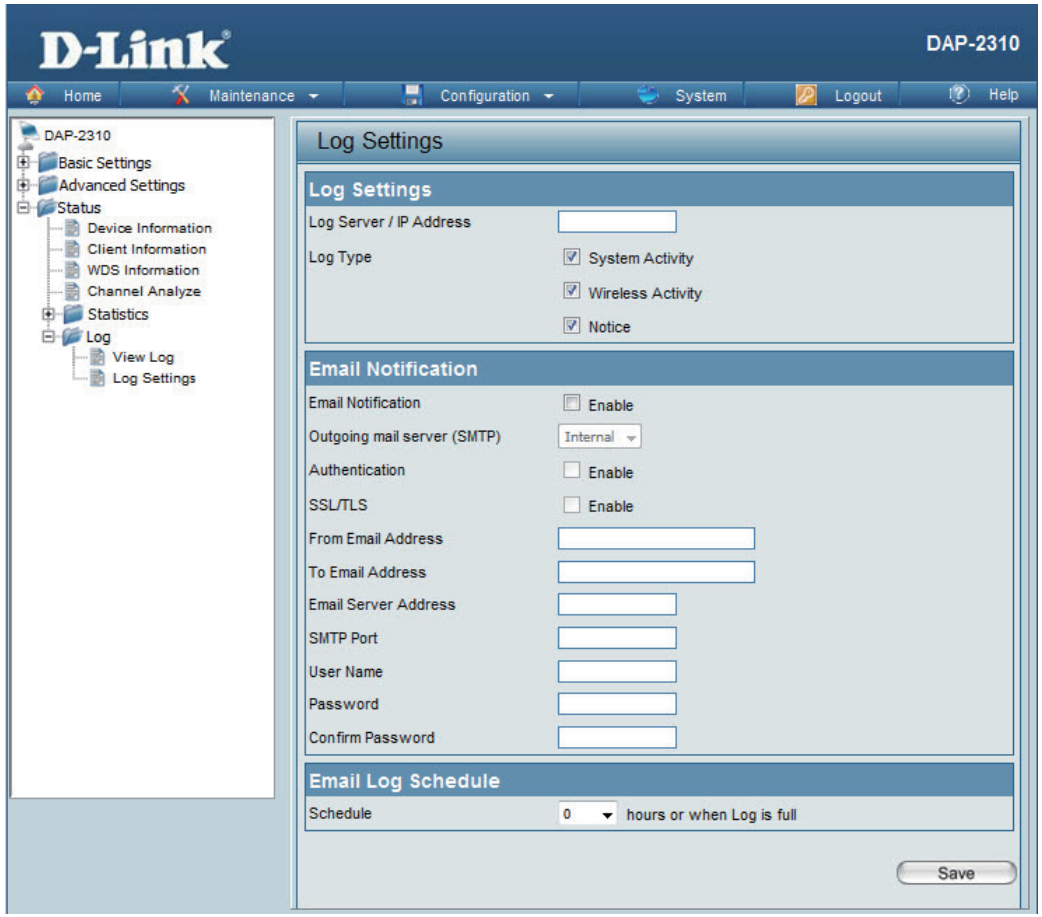
SMTP Port: Enter the SMTP port.

Username: Enter your email username.

Password: Enter your email password.

Confirm Password: Enter your email password again.

Schedule: Select when to send the log to your email (in hours). You will receive an email when the log is full too.



Maintenance

Administration Settings

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

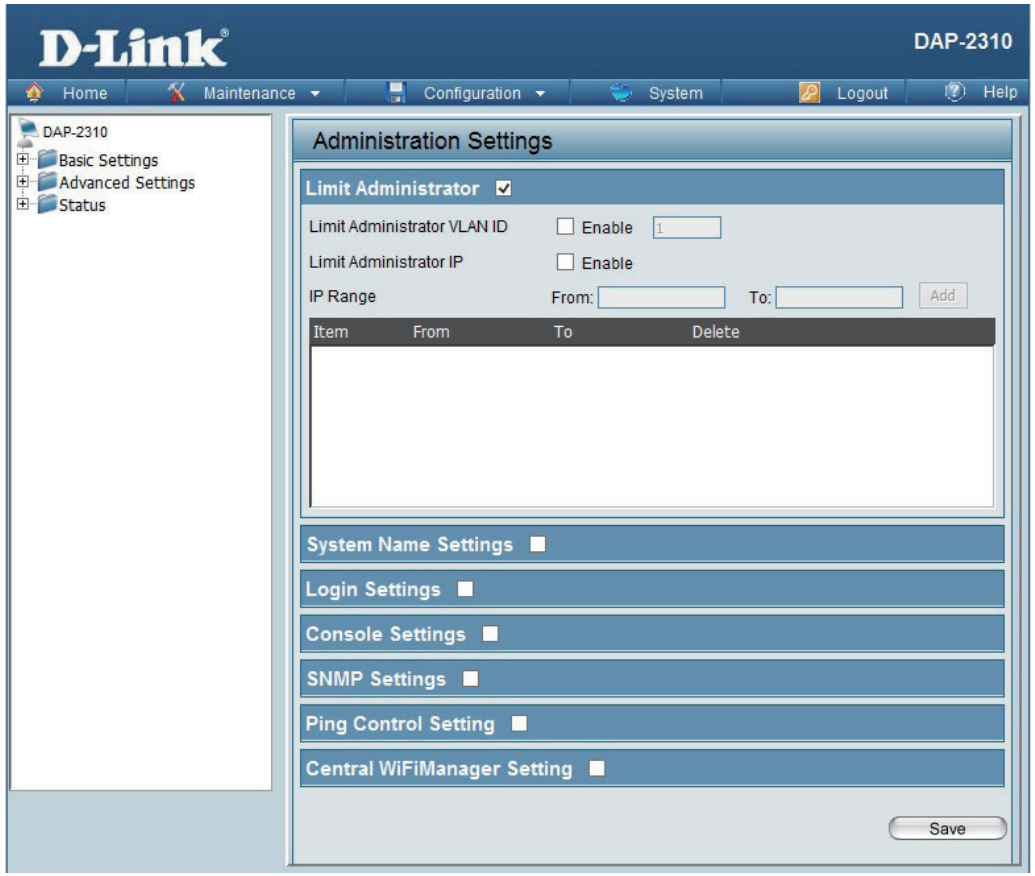
Limit Administrator

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

Limit Administrator VLAN ID: Check the box provided and the 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.

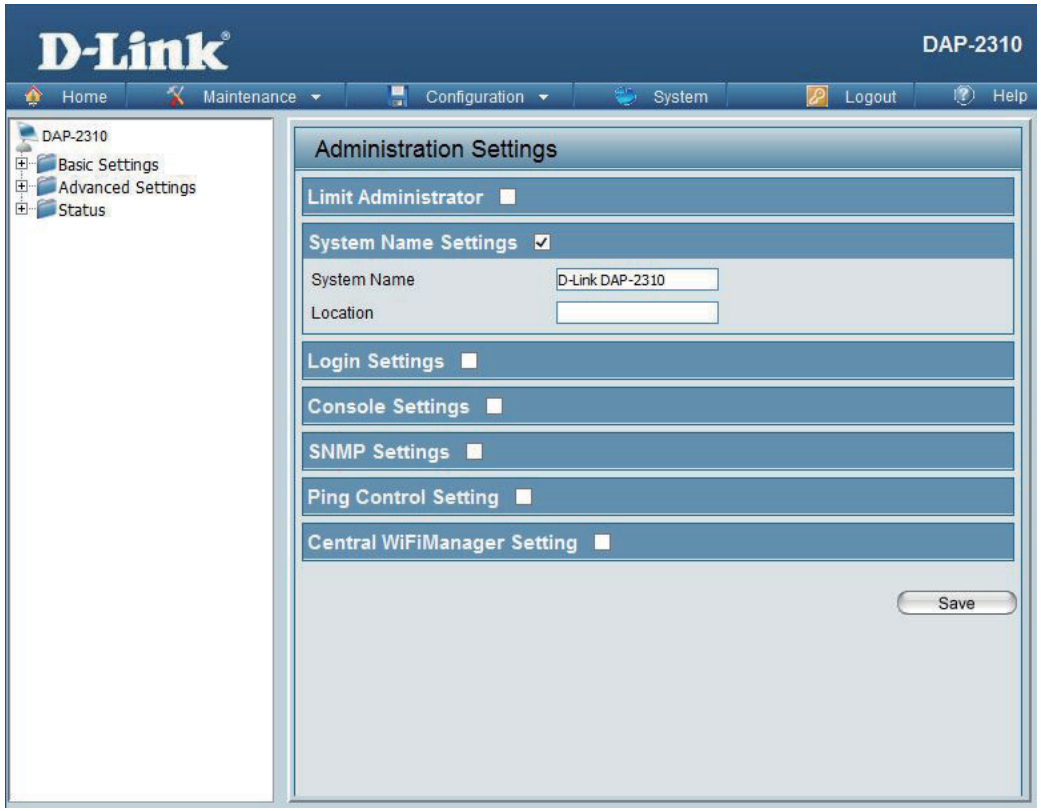


System Name Settings

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

System Name: The name of the device. The default name is **D-Link DAP-2310**.

Location: The physical location of the device, e.g. 72nd Floor, D-Link HQ.



Login Settings

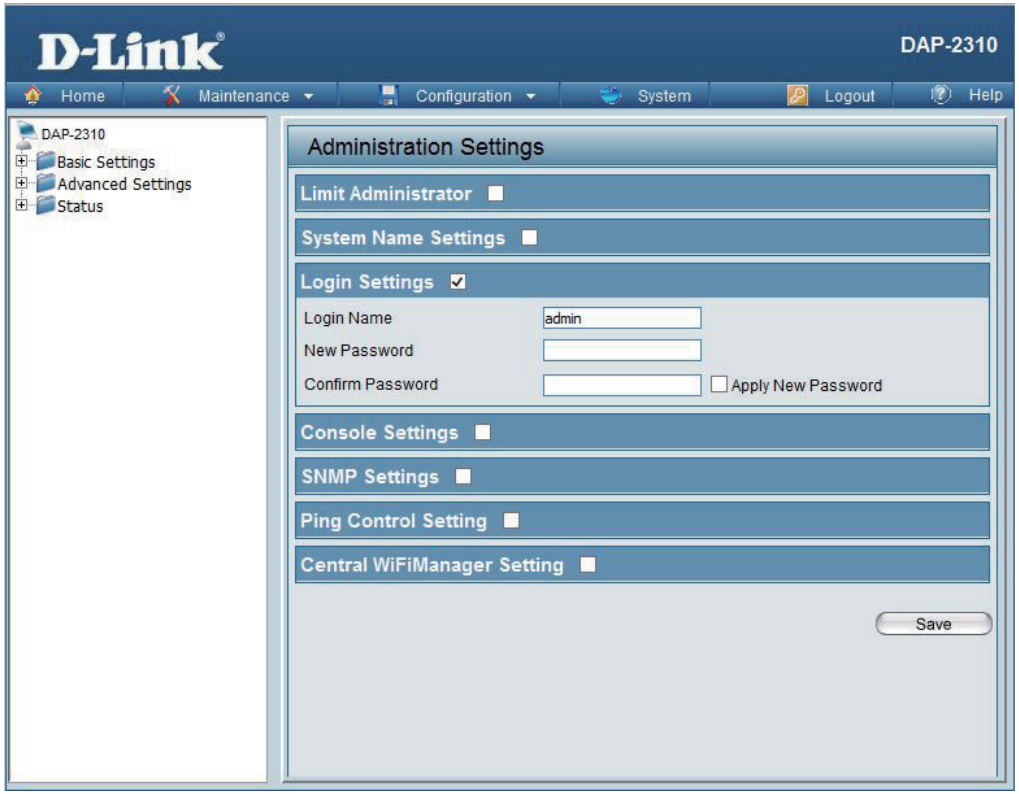
Each of the five main categories display various hidden administrator parameters and settings.

Login 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.



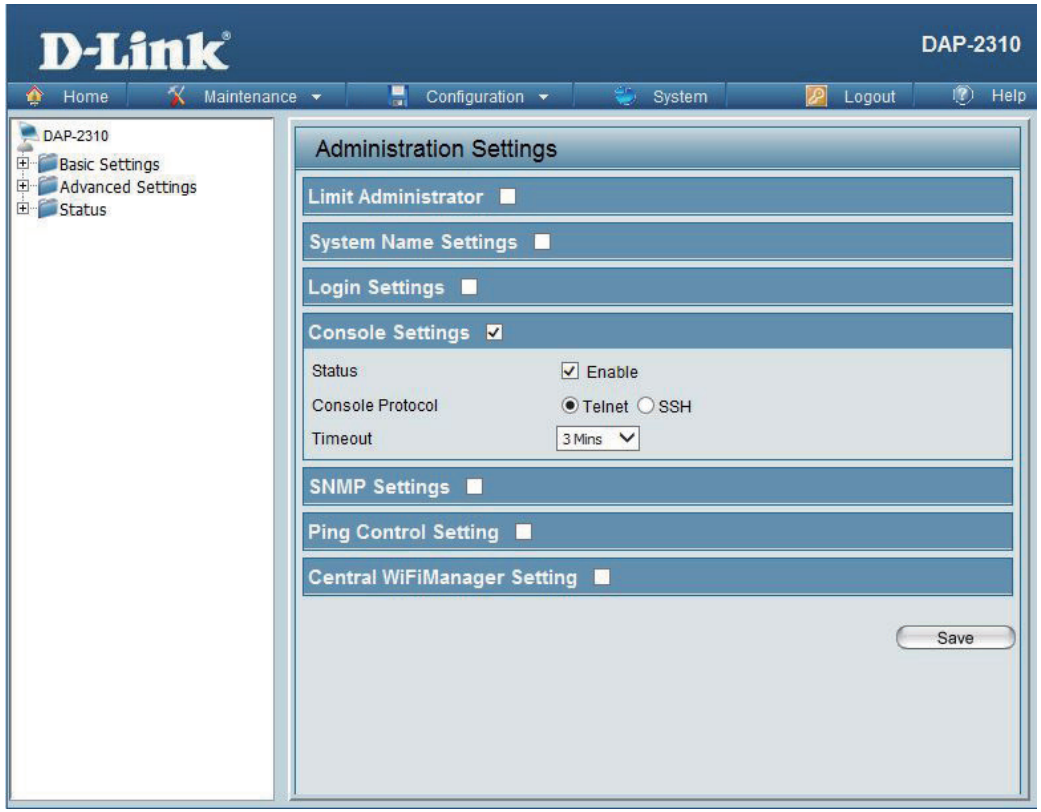
Console Settings

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

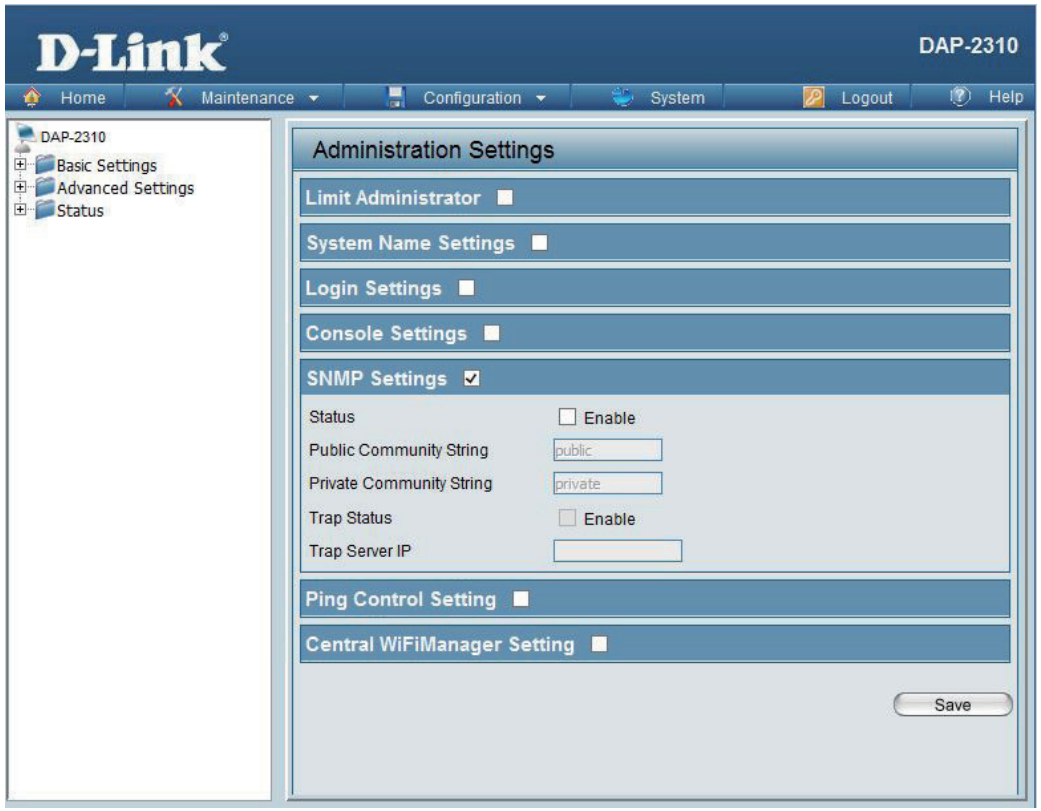
Status: Check the box to enable the SNMP functions. This option is disabled by default.

Public Community String: Enter the public SNMP community string.

Private Community String: Enter the private SNMP community string.

Trap Status: Check the box to enable Trap Status.

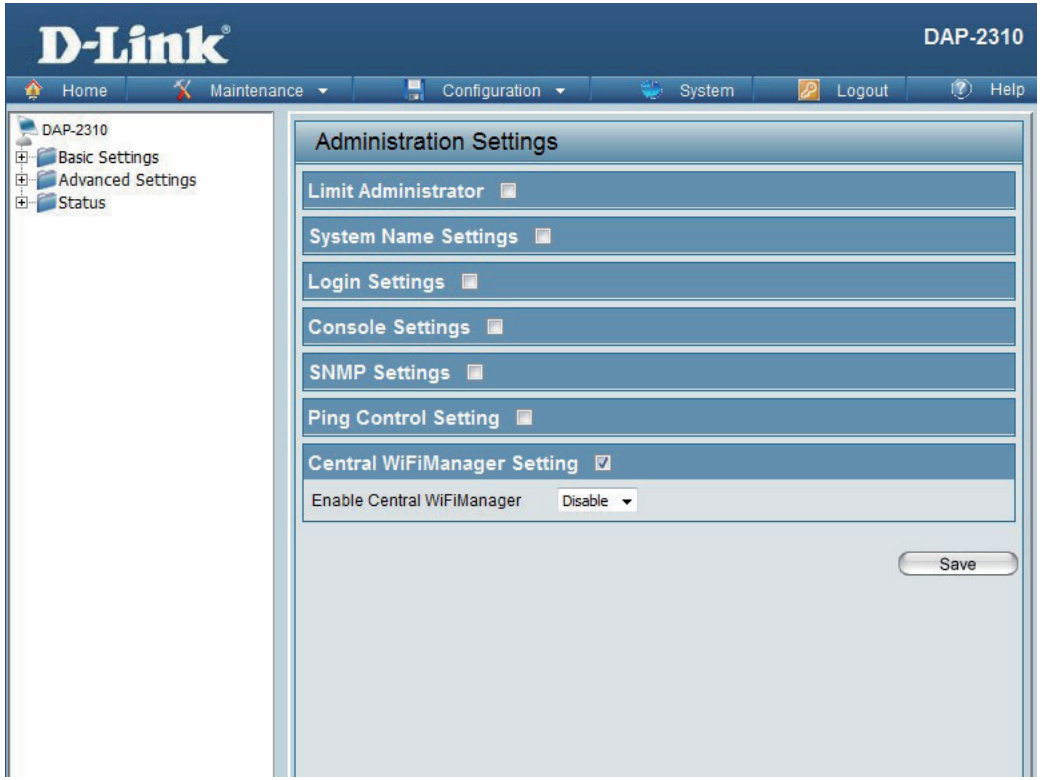
Trap Server IP: Enter the Trap Server IP address.



Central WiFiManager Settings

The Central WiFiManager section is used to configure and managed a set of APs on the Internet to into a single group in order to increase ease of management. Central WiFiManager and AP Array are mutually exclusive functions.

Enable Central WiFiManager: Select to enable or disable the Central WiFiManager.



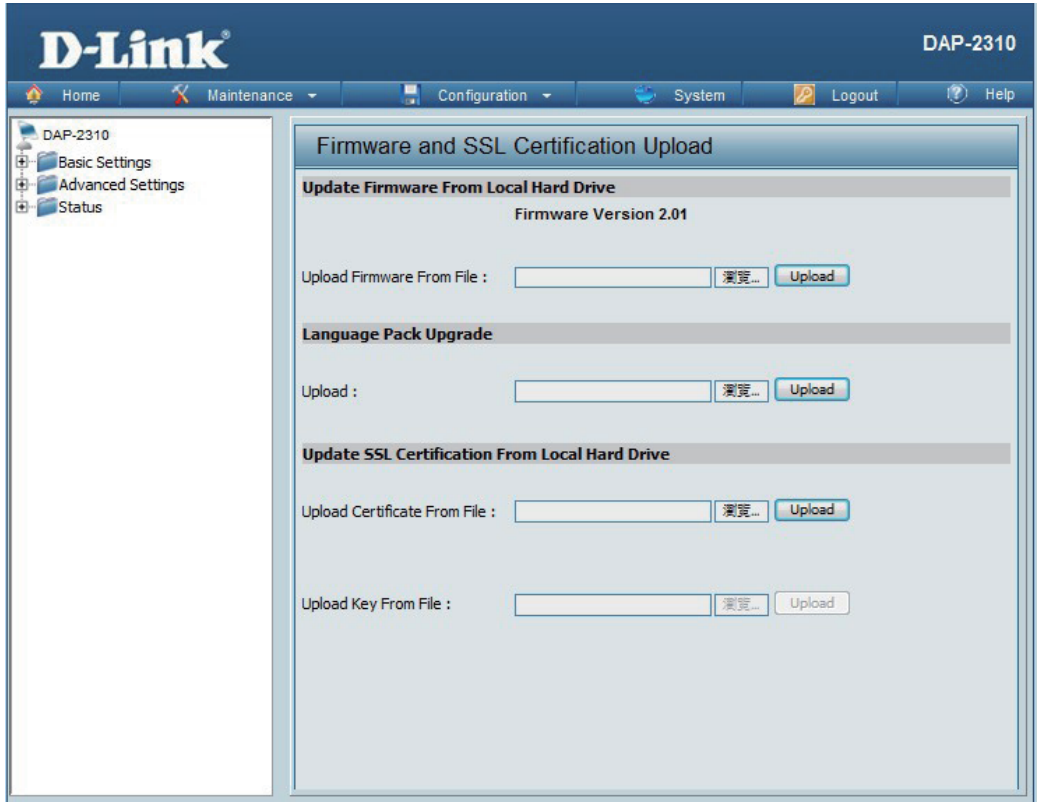
Firmware and SSL Certification Upload

This page allows the user to perform a firmware upgrade. A Firmware upgrade is a function that upgrade the running software used by the access point. This is a useful feature that prevents future bugs and allows for new features to be added to this product. Please go to your local D-Link website to see if there is a newer version firmware available.

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-2310 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 don't turn the power off while upgrading.

Language Pack Upgrade: You may load a language pack to display the utility in another language. Click **Browse** to locate the language pack file on your local computer. After selecting and opening the file, click **Upload** to upload the file to the DAP-2310.

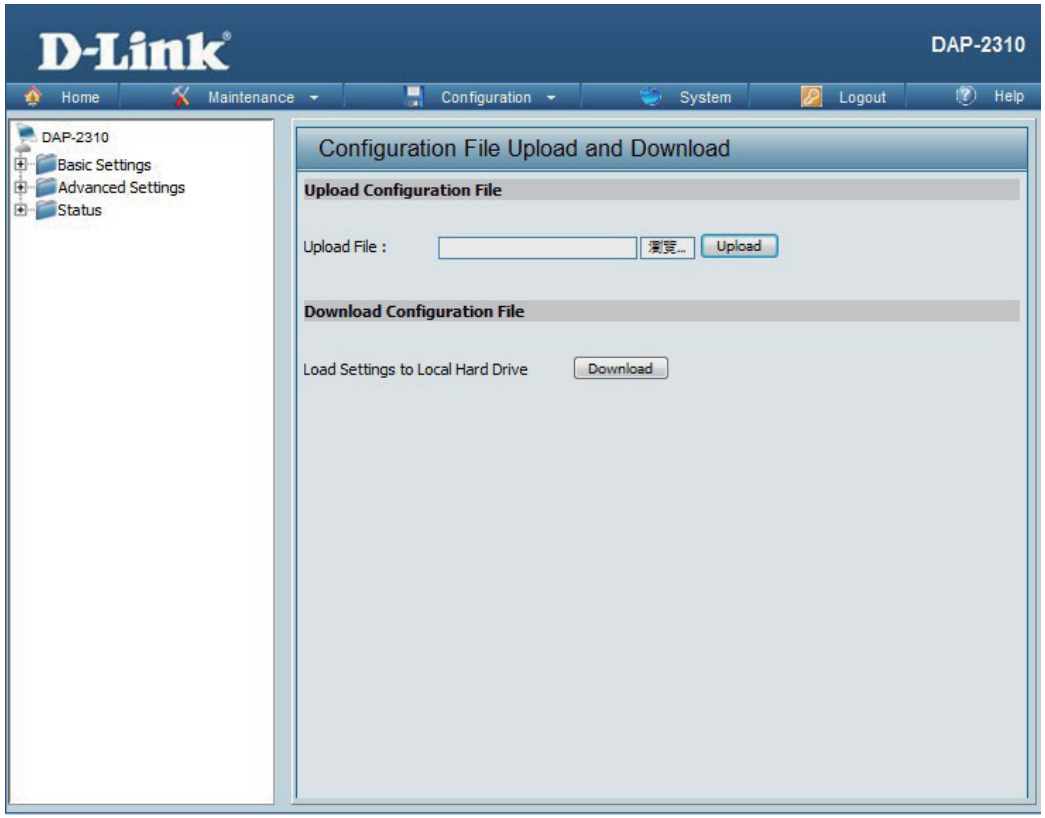
Upload SSL Certification From Local Hard Drive: Click **Browse** to locate the SSL Certification file on your local computer. After selecting and opening the file, click **Upload** to upload the file to the DAP-2310.



Configuration File Upload

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-2310.

Download Configuration File: Click **Download** to save the current DAP-2310 configuration to your local computer. Note that if you save one configuration with the administrator's password now, after resetting your DAP-2310, 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.

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

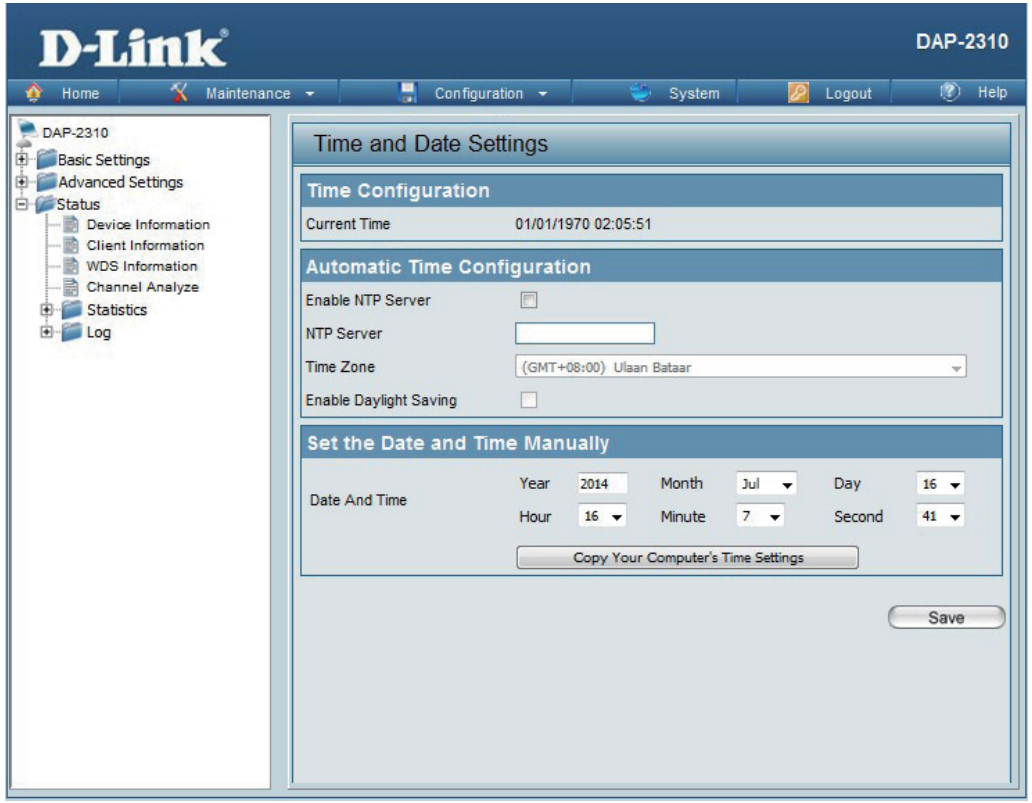
NTP Server: Enter the NTP server URL or IP address.

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

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).

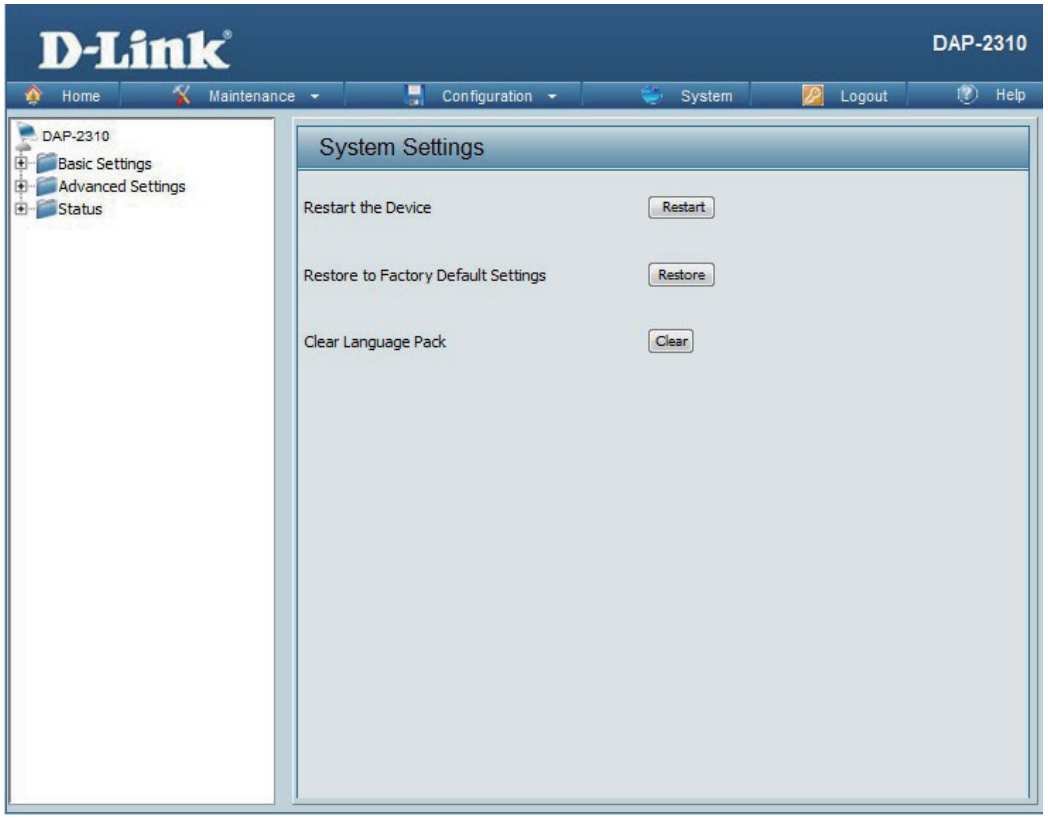


System
System Settings

Restart the Device: Click **Restart** to restart the DAP-2310.

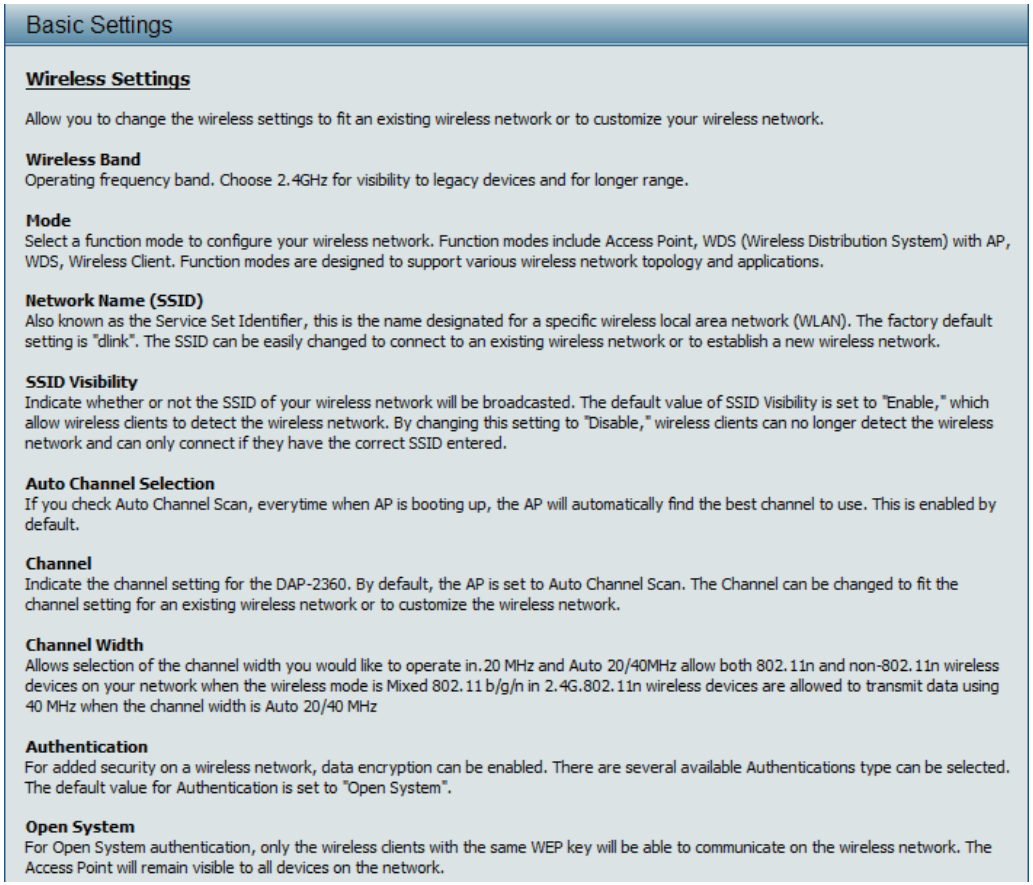
Restore to Factory Default Settings: Click **Restore** to restore the DAP-2310 back to factory default settings.

Clear Language Pack: Click **Clear** to remove any loaded language packs.



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.

Mode
Select a function mode to configure your wireless network. Function modes include Access Point, WDS (Wireless Distribution System) with AP, WDS, 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-2360. 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 selection of the channel width you would like to operate in. 20 MHz and Auto 20/40MHz allow both 802.11n and non-802.11n wireless devices on your network when the wireless mode is Mixed 802.11 b/g/n in 2.4G.802.11n wireless devices are allowed to transmit data using 40 MHz when the channel width is Auto 20/40 MHz

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.

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-2310. 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 nor do you have to be connected to the Internet.

Networking Basics

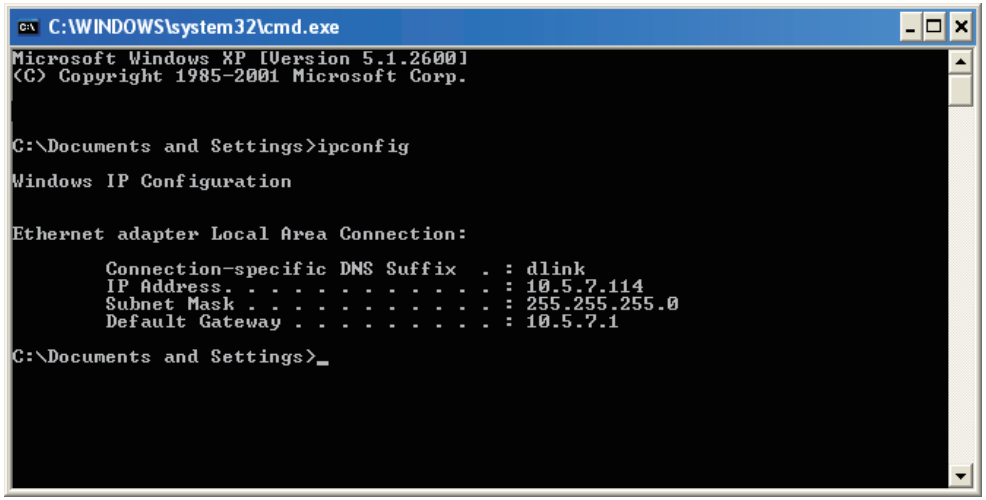
Check your IP address

After you install your network 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 router. Some firewall software programs may block a DHCP request on newly installed adapters.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
  - Microsoft Internet Explorer® 11.0 and higher
  - Mozilla Firefox 28 and higher
  - Google™ Chrome 33 and higher
  - Apple Safari 7 and higher

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

- Disable any internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

Statically Assign an IP address

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

Step 1

Windows® 2000: Click on **Start** > **Settings** > **Control Panel > Network Connections**

Windows® XP: Click on **Start** > **Control Panel > Network Connections**

Windows Vista®: Click on **Start** > **Control Panel > Network and Internet > Network and Sharing Center > Manage network connections**

Step 2

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

Step 3

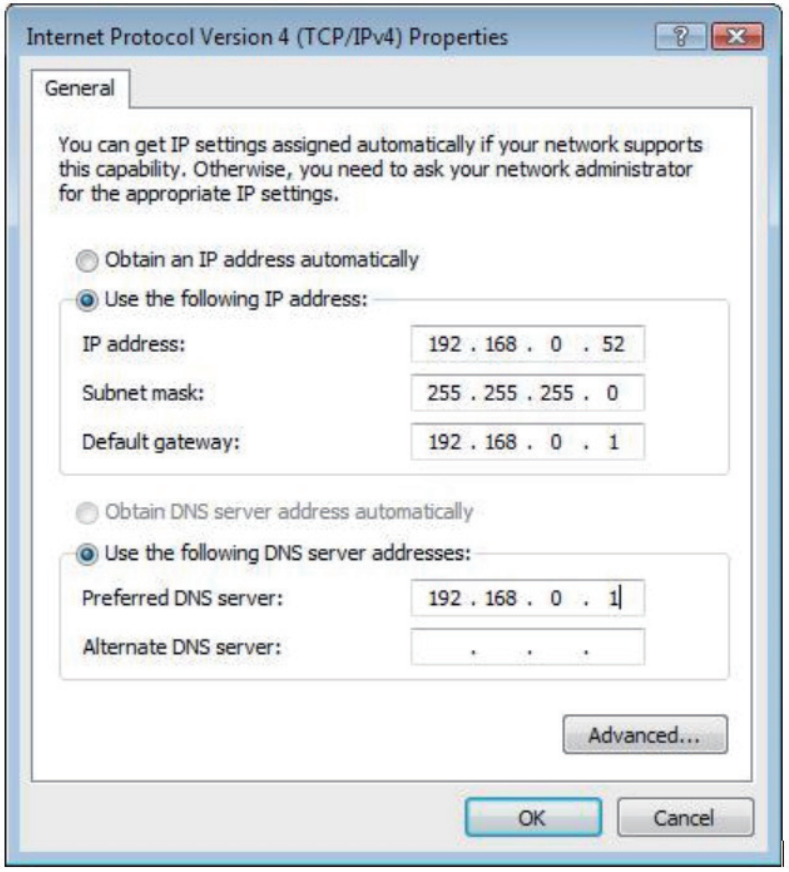
Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

Step 4

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

Example: If the router's LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.



Step 5

Click **OK** twice to save your settings.

- 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 192.168.0.50. When logging in, the username is **admin** and leave the password box empty.

Technical Specifications

Standards

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

Network Management

- Web Browser interface
  - HTTP
  - Secure HTTP (HTTPS)
- Central WiFiManager
- AP Array Tool
- SNMP Support
  - Private MIB
- Command Line Interface
  - Telnet
  - Secure SSH Telnet

Data Rates*

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:

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
- 802.1x
- WEP™ 64-/128-bit
- SSID Broadcast Disable
- MAC Address Access Control

Wireless Frequency Range

- 2.4 to 2.4835 GHz

Operating Voltage

- 48V DC +/- 10% for PoE*** or 12V/1A

Radio and Modulation Type

For 802.11g/n:

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

For 802.11b:

DQPSK, DBPSK, DSSS, and CCK

Operating Frequency**

For 802.11b/g:

2.4 ~ 2.4835 GHz

For 802.11n:

2.4 GHz Band: 2.4 ~ 2.4835 GHz

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

**Please note that operating frequency ranges vary depending on the regulations of individual countries and jurisdictions.

*** Please note that PoE support depending on specific part number.

Dipole Antenna
- 2dBi Gain @2.4 GHz

Max Transmit Output Power (Dual Chain)
- FCC: 26dBm
- ETSI: 17dBm

Max Power Consumption
- Max. 8W with 12V/DC
- Max. 9W with PoE***

LEDs
- Power
- LAN
- 2.4 GHz

Temperature
- Operating: 0˚C to 40˚C
- Storing: -20˚C to 65˚C

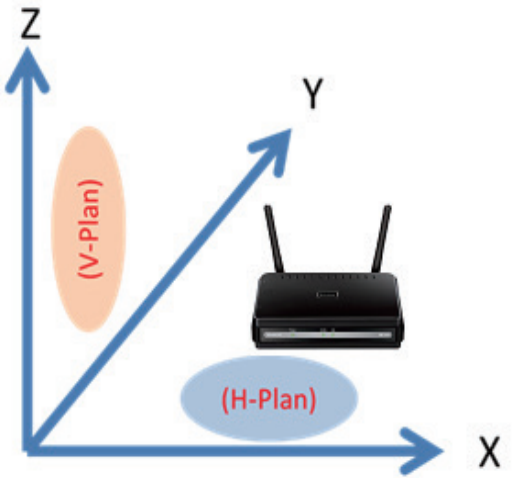
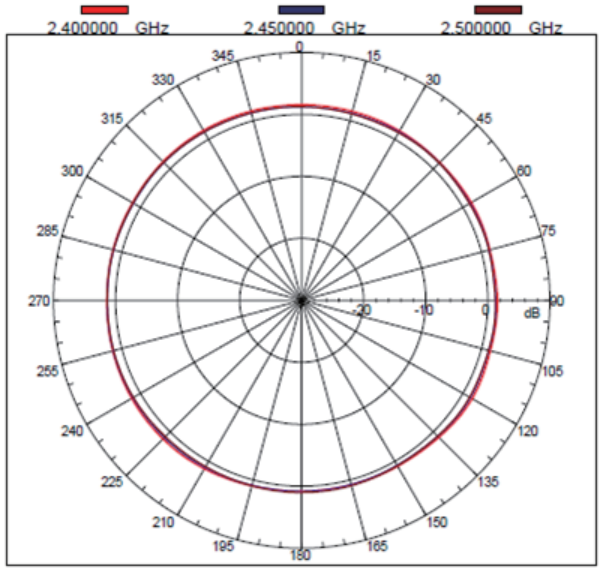
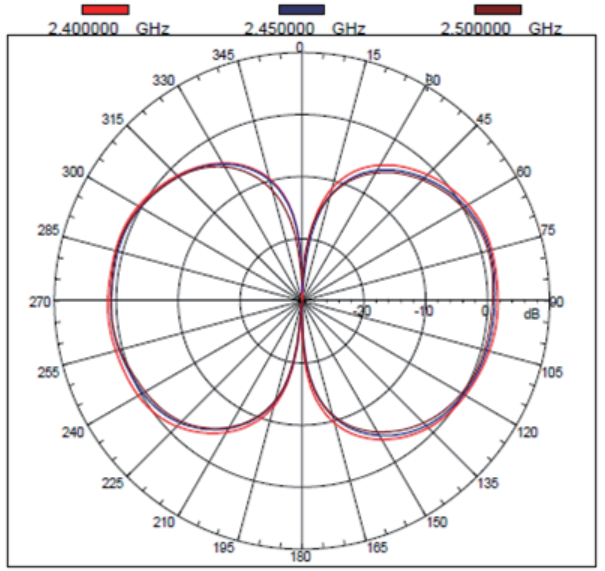
Humidity
- Operating: 10%~90% (non-condensing)
- Storing: 5%~95% (non-condensing)

Certifications
- FCC Class B
- CE
- IC
- UL
- C-Tick
- WiFi

Dimensions
- L = 111mm
- W = 148mm
- H = 28mm

Weight
- 227g

Antenna Pattern

Antenna Pattern		
Orientation	H-Plane	V-Plane
2.4GHz 		

FREE Central WiFiManager Software

DOWNLOAD NOW

DLINK.COM/WIFIDOWNLOAD

With the easy-to-use web-based interface you can...

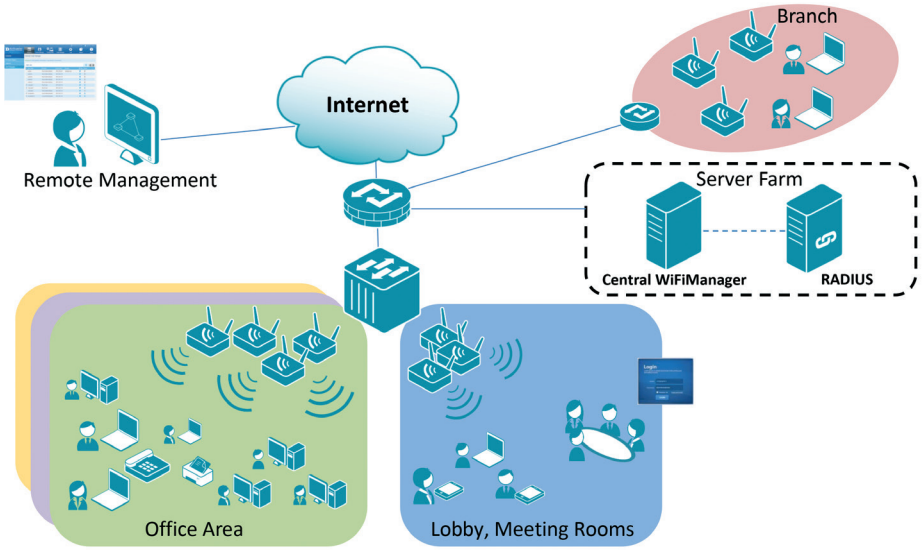
- Configure once and apply to multiple Access Points
- Install on Windows PC
- Access on any device using a web-browser, e.g. smartphone or notebook
- Utilise user authentication and access control
- Monitor your entire wireless network in real time[1]
- Access detailed reports
- Optimise your bandwidth

FREE Central WiFiManager User Interface

Supports multiple languages

1. see overleaf for selected product information.

FREE Central WiFiManager



Available on the following products[2]:

DAP-2695

Wireless AC1750 Indoor Access Point

Designed to support small to medium business or enterprise environments. Secure, manageable dual-band wireless LAN options.

DAP-2660

Wireless AC1200 Indoor Ceiling Access Point

Providing enhanced speeds of Wireless AC as well as dual-band connectivity to reduce interference, for a faster and more efficient network.

DAP-2310

Wireless N Indoor Access Point

Ideal for creating or expanding capacity of a wireless network; mainly used in high-traffic areas such as airports, coffee shops, sports venues, and university campus deployments.

DAP-2360

Wireless N PoE Access Point

For advanced indoor installations, this high-speed Access Point has integrated PoE support, allowing installation in areas where power outlets are not readily available.

DAP-2690

Wireless N Simultaneous Dual-Band PoE Access Point

Designed for indoor installation where power outlets are not readily available. Enables deployment of a highly manageable, robust and secure wireless network.

DAP-2330

Wireless N PoE Access Point

Ideal for wireless networks in high- traffic areas such as airports, coffee shops, shopping centres, sporting venues, hotels and campus deployments. PoE offers installation where power outlets are not available.

2. Visit dlink.com for selected Hardware & Software versions.