D-Link®
Building Networks for People

DWL-2700AP
Release 2.10

Outdoor AP/Bridge

Wireless G Outdoor AP/Bridge

User Manual

Business Class Networking

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Package Contents

D-Link DWL-2700AP Access Point and 2 Antennas	
Power Adapter and Cable	
3 Ground Wires and Surge Arrestor	
Wall Mounting Kit	
Pole Mounting Kit	
Power over Ethernet Base Unit	
RF Jumper Cable	
8 Screws and Rubber Ring	
30m Ethernet Cable	

Note: Using a power supply with a different voltage rating than the one included with the DGL-4500 will cause damage and void the warranty for this product.

System Requirements

Web-based Configuration Utility Requirements	**Computer with the following:** • Windows®, Macintosh, or Linux-based operating system • An installed Ethernet adapter **Browser Requirements:** • Internet Explorer 6.0 or higher • Mozilla 1.7.12 or higher • Firefox 1.5 or higher • Safari 1.0 or higher (with Java 1.3.1 or higher) • Flock 0.7.14 or higher • Opera 6.0 or higher **Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.

Introduction

The **DWL-2700AP**, a reliable high-performance wireless outdoor solution, is an ideal addition to business networks seeking to extend wireless signal coverage. With the **DWL-2700AP**, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are able to move across the network quickly.

The **DWL-2700AP** is capable of operating in one of 3 different modes to meet your wireless networking needs. The **DWL-2700AP** can operate as an access point, or in WDS (Wireless Distribution System) with AP, or in WDS mode.

Use less wiring, enjoy increased flexibility, save time and money with PoE (Power over Ethernet). With PoE, the **DWL-2700AP** shares power and data over the CAT5 cable, making the setup of your network less expensive and more convenient.

An ideal solution for quickly creating and extending a wireless local area network (WLAN) in offices or other workplaces, trade shows and special events, the **DWL-2700AP** provides data transfers at up to 54Mbps* when used with other D-Link ***Air*** **Premier®** products (The 802.11g standard is backwards compatible with 802.11b devices).

WPA is offered in two flavors: **Enterprise** (used for corporations), and **Personal** (used for home users).

WPA-Personal and **WPA2-Personal** is directed at home users who do not have the server based equipment required for user authentication. The 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 on both the client and access point, then access is 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. **WPA2-Personal** is far superior to **WPA-Personal**, because the encryption of data is upgraded with the Advanced Encryption Standard (AES).

WPA-Enterprise and **WPA2-Enterprise** is ideal for businesses that have existing security infrastructures in place. 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 either **WPA-Enterprise** or **WPA2-Enterprise** configured, the new client will be challenged with a username and password. If the new client is authorized by the administration, and enters the correct username and password, then access is granted. In a scenario where an employee leaves the company, the network administrator can remove the employee from the authorized list and not have to worry about the network being compromised by a former employee. **WPA2-Enterprise** is far superior to **WPA-Enterprise**, because the encryption of data is upgraded with the Advanced Encryption Standard (AES).

802.1x: Authentication which is a first line of defense against intrusion. In the authentication process, the Authentication Server verifies the identity of the client attempting to connect to the network. Unfamiliar clients would be denied access.

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 the devices in your network when using the 802.1x feature.

*Maximum wireless signal rate derived from IEEE Standard 802.11g 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 may adversely affect wireless signal range.

Features

- **3 Different Operation modes -** Capable of operating in one of three different operation modes to meet your wireless networking requirements: Access Point; WDS with AP; or WDS.
- **Easy Installation with PoE (Power over Ethernet).**
- **Faster wireless networking** speeds up to 54Mbps*.
- **Compatible with 802.11b and 802.11g Devices** that is fully compatible with the IEEE 802.11b and 802.11g standards, the **DWL-2700AP** can connect with existing 802.11b or 802.11g compliant wireless network adapter cards.
- **Compatible with the 802.11b standard** to provide a wireless data rate of up to 11Mbps - that means you can migrate your system to the 802.11g standard on your own schedule without sacrificing connectivity.
- **Better security with WPA -** The **DWL-2700AP** can securely connect wireless clients on the network using WPA (Wi-Fi Protected Access) providing a much higher level of security for your data and communications than has previously been available.
- **AP Manager II Management Software -** The real-time display of topology and AP's information makes network configuration and management quick and simple.
- **SNMP for Management -** The **DWL-2700AP** is not just fast but it also supports SNMP v.3 for a better network management. Superior wireless AP manager II software is bundled with the **DWL-2700AP** for network configuration and firmware upgrade. Systems administrators can also setup the **DWL-2700AP** easily with the Web-based configuration. A D-Link D-View module will be downloadable for network administration and real-time network traffic monitoring with D-Link D-View software.
- Utilizes **OFDM** technology (**O**rthogonal **F**requency **D**ivision **M**ultiplexing).
- Operates in the 2.4GHz frequency range for an 802.11b and 802.11g network.
- **Web-based interface** for managing and configuring.

*Maximum wireless signal rate derived from IEEE Standard 802.11g 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 may adversely affect wireless signal range.

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you to access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A Wireless Local Area Network (WLAN) is a computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use WLAN technology for many different purposes:

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

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

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices. The **DWL-2700AP** saves money by providing multi-functionality, configurable in one of three different modes.

Scalability - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are 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 **DWL-2700AP** Wireless Access Point utilizes the **802.11b** and the **802.11g** standards.

The IEEE **802.11g** standard is an extension of the **802.11b** standard. It increases the maximum wireless signal rate of up to 54Mbps* within the 2.4GHz band, 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** (**O**rthogonal **F**requency **D**ivision **M**ultiplexing) technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions.

The D-Link **DWL-2700AP** will automatically sense the best possible connection speed to ensure the greatest speed and range possible.

The **DWL-2700AP** offers the most advanced network security features available today, including WPA and WPA2.

In addition to its compatibility with 802.11g devices, the **DWL-2700AP** is compatible with 802.11b devices. This means that if you have an existing 802.11b network, or a network with a mixture of 802.11g and 802.11b, the devices in that network will be compatible with the **DWL-2700AP**.

*Maximum wireless signal rate derived from IEEE Standard 802.11g 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 may adversely affect wireless signal range.

Wireless Installation Considerations

The D-Link wireless point lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the D-Link router and other network devices to a minimum - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.

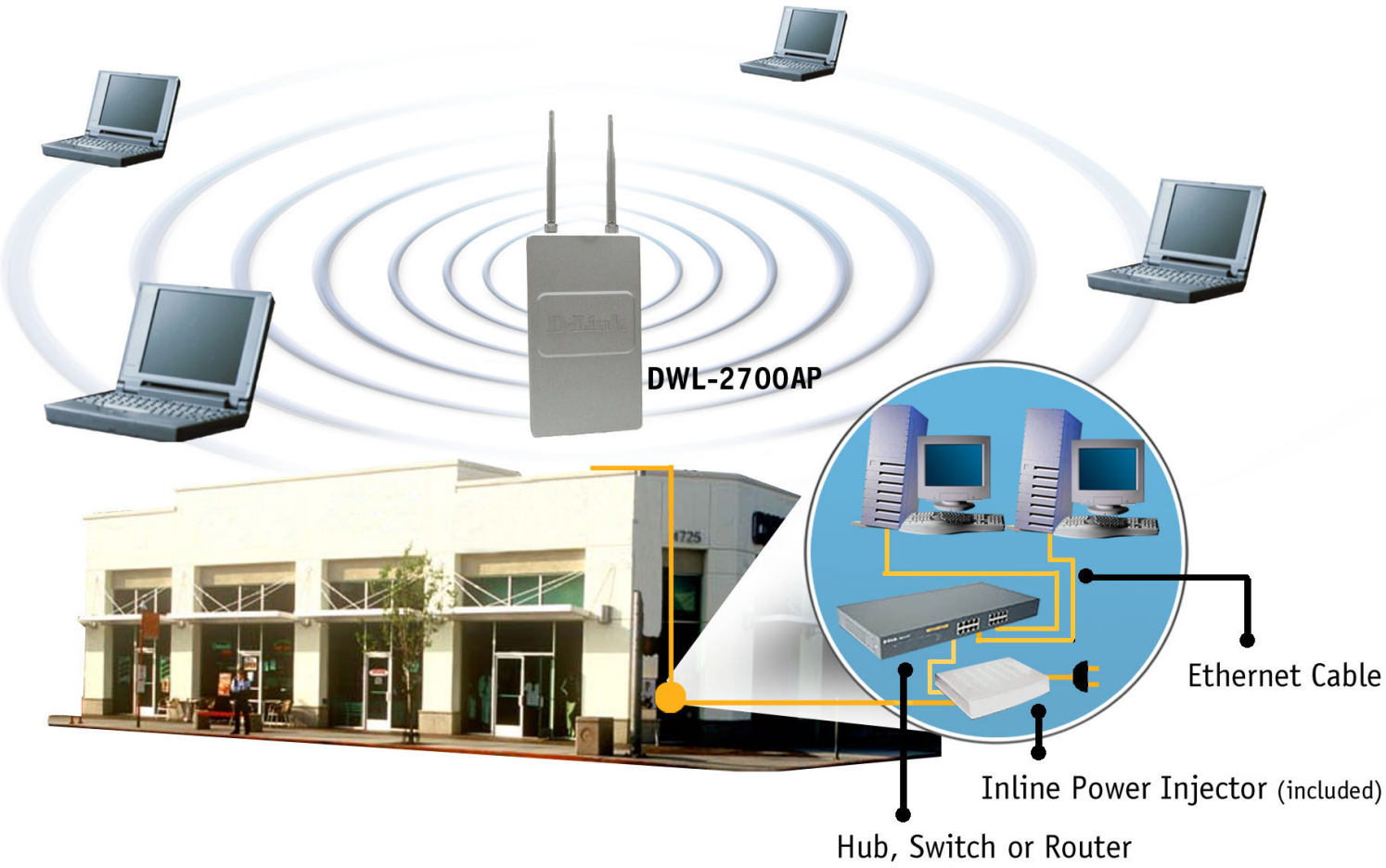
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

3. Building Materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless 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.

Getting Started



1 You will need broadband Internet access.

2 Consult with your Cable or DSL provider for proper installation of the modem.

3 Connect the Cable or DSL modem to a Router.
(*See the printed Hardware Installation Guide included with your router.*)

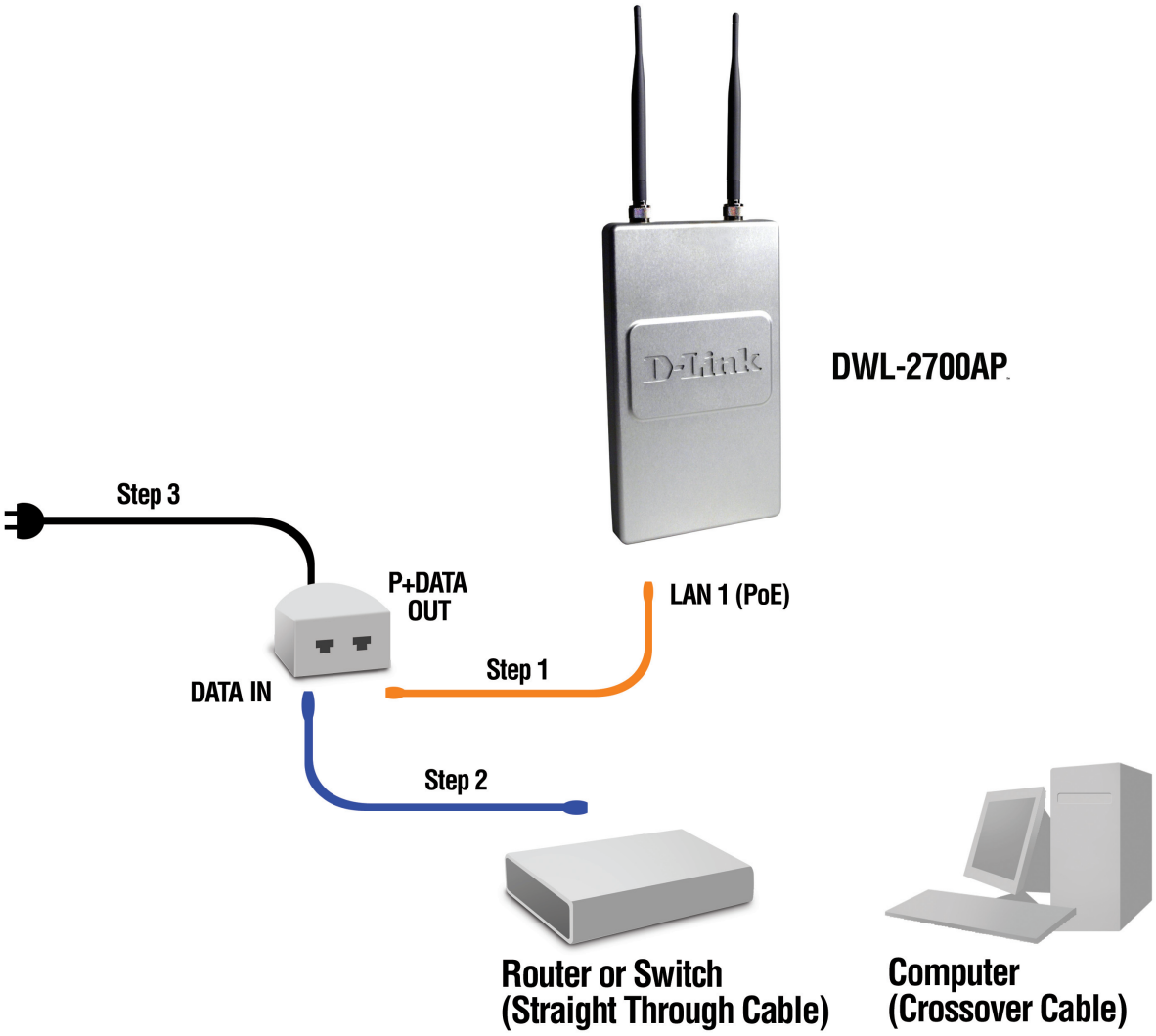
4 Connect the Ethernet Broadband Router to the PoE base unit.
(*See the printed Hardware Installation Guide included with the **DWL-2700AP**.*)

5 Connect the **DWL-2700AP** to the PoE base unit.
(*See the printed Hardware Installation Guide included with the **DWL-2700AP**.*)

6 If you are connecting a desktop computer to your network, install a wireless PCI adapter into an available PCI slot on your desktop computer.

7 Install the drivers for your wireless Cardbus adapter into a laptop computer.

Connecting to a Power over Ethernet Network



Step 1: Connect one end of an Ethernet cable (included with your package) to the **LAN port** on the **DWL-2700AP** and the other end of the Ethernet cable to the port labeled **P+DATA OUT** on the PoE base unit.

Step 2: Connect another Ethernet cable from the **DATA IN** port on the PoE base unit to your router/ switch or to a PC.

Step 3: Attach the power adapter to the connector on the PoE base unit. Attach the power cord to the power adapter and into an electrical outlet.

Configuration

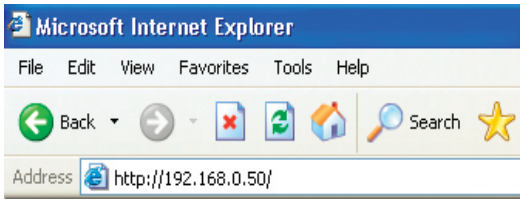
This section will show you how to configure your D-Link wireless access point using the web-based configuration utility. If you would like to use the AP Manager II software, please refer to the documentation located on the D-Link CD.

Web-based Configuration Utility

To configure the DWL-2700AP, use a computer which is connected to the DWL-2700AP with an Ethernet cable (see the *Network Layout* diagram).

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

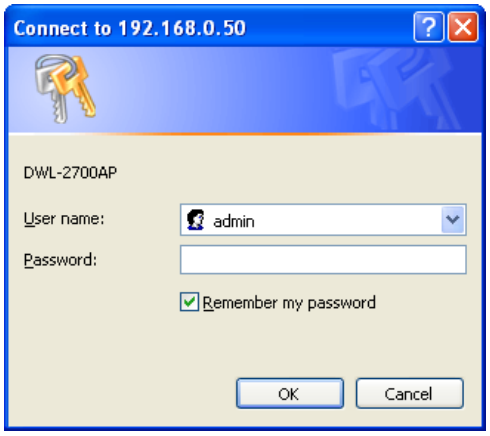
Start your web browser program and type the IP address of the DWL-2700AP in the address field (http://192.168.0.50) and press **Enter**. Make sure that the IP addresses of the DWL-2700AP and your computer are in the same subnet.



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

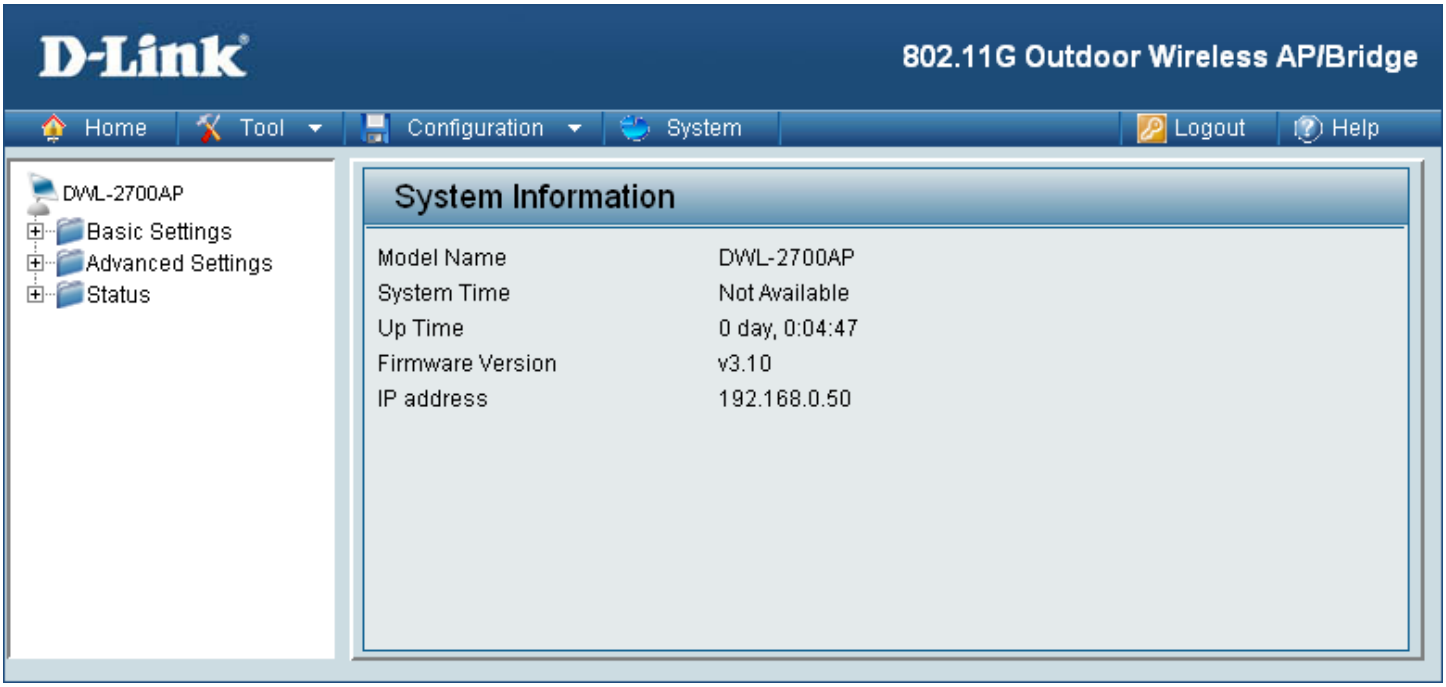
Note: *If you have changed the default IP address assigned to the DWL-2700AP, make sure to enter the correct IP address.*

- Type **admin** in the **User Name** field
- Leave the **Password** field blank
- Click **OK**



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

Save and Activate



Clicking **Configuration** > **Save and Activate** will save and activate all changes made to the configuration and reboot the system.

Clicking **Discard Changes** will discard all changes made to the configuration.

Click the **Apply** button to save changes made to the current page. Please note that you still must select **Save and Activate** under Configuration in order for changes to take effect.

Wireless Modes

AP Mode	Authentication Available
Access Point	Open System Shared Key Open System/Shared Key 802.1x WPA-Enterprise WPA-Personal WPA2-Enterprise WPA2-Personal WPA-Auto-Enterprise WPA-Auto-Personal
WDS with AP	Open System Shared Key Open System/Shared Key WPA-Personal WPA2-Personal WPA-Auto-Personal
WDS	Open System Shared Key Open System/Shared Key WPA2-Personal WPA-Personal WPA-Auto-Personal

Wireless Settings
Access Point Mode

Wireless Band: IEEE 802.11g.

Mode: Access Point is selected from the drop-down menu.

SSID: Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID 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.

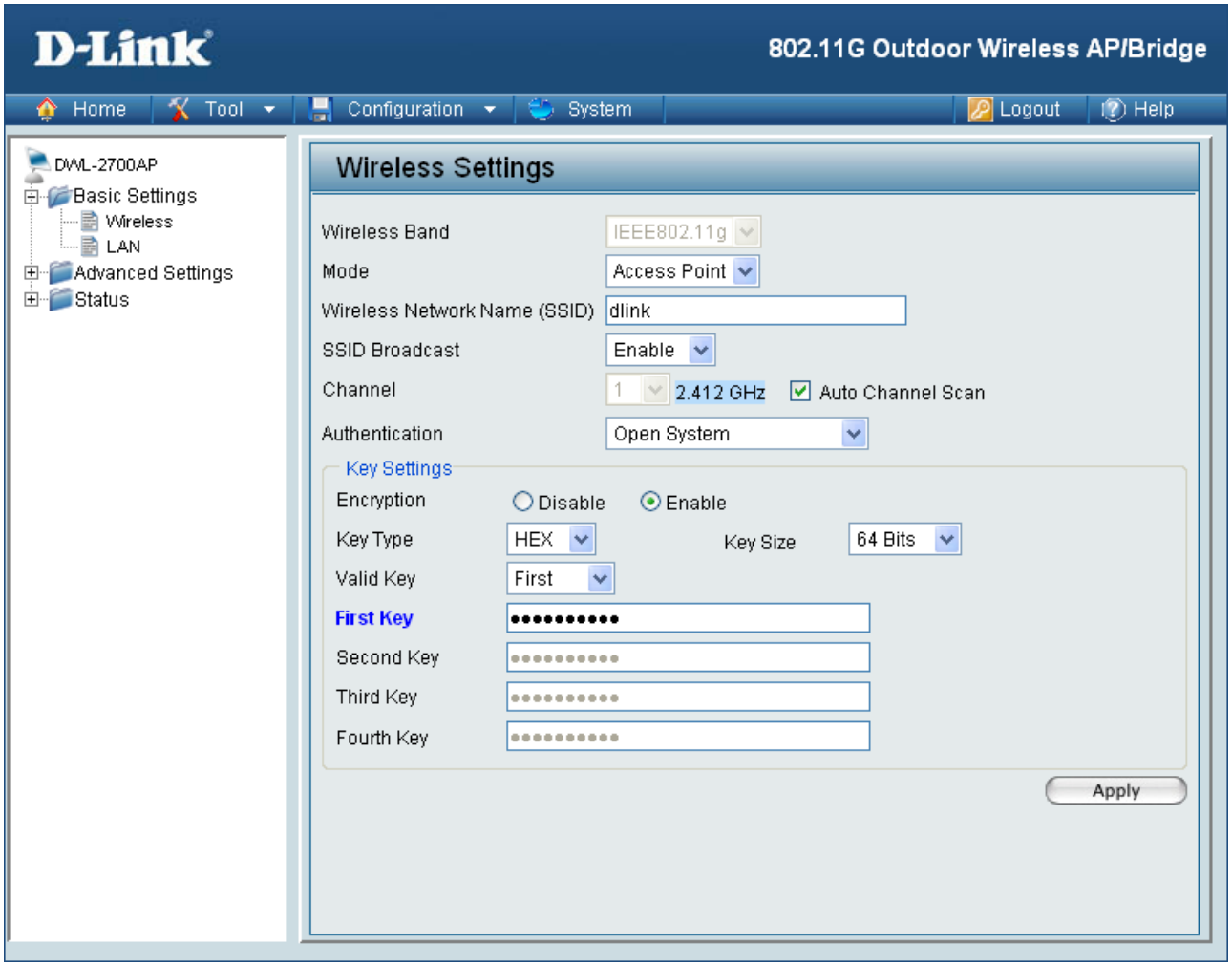
SSID Broadcast: **Enable** or **Disable** SSID broadcast. Enabling this feature broadcasts the SSID across the network.

Channel: **Auto Channel Scan** is selected by default. All devices on the network must share the same channel.

Radio Frequency: The radio frequency will vary depending on the wireless channel that is chosen. The frequency in channel 6 is 2.437GHz.

Auto Channel Scan:	Select **Enable** or **Disable**. Enable this feature to auto-select the channel for best wireless performance.
Authentication:	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 **Open System/Shared Key** to allow either form of data encryption.
	Select **WPA-Enterprise** to secure your network with the inclusion of a RADIUS server.
	Select **WPA-Personal** to secure your network using a password and dynamic key changes (No RADIUS server required).
	Select **WPA2-Enterprise** to secure your network with the inclusion of a RADIUS server and upgrade the encryption of data with the Advanced Encryption Standard (AES).
	Select **WPA2-Personal** to secure your network using a password and dynamic key changes. No RADIUS server required and encryption of data is upgraded with the Advanced Encryption Standard (AES).
	Select **WPA-Auto-Enterprise** to allow the client to either use **WPA-Enterprise** or **WPA2-Enterprise**.
	Select **WPA-Auto-Personal** to allow the client to either use **WPA-Personal** or **WPA2-Personal**.

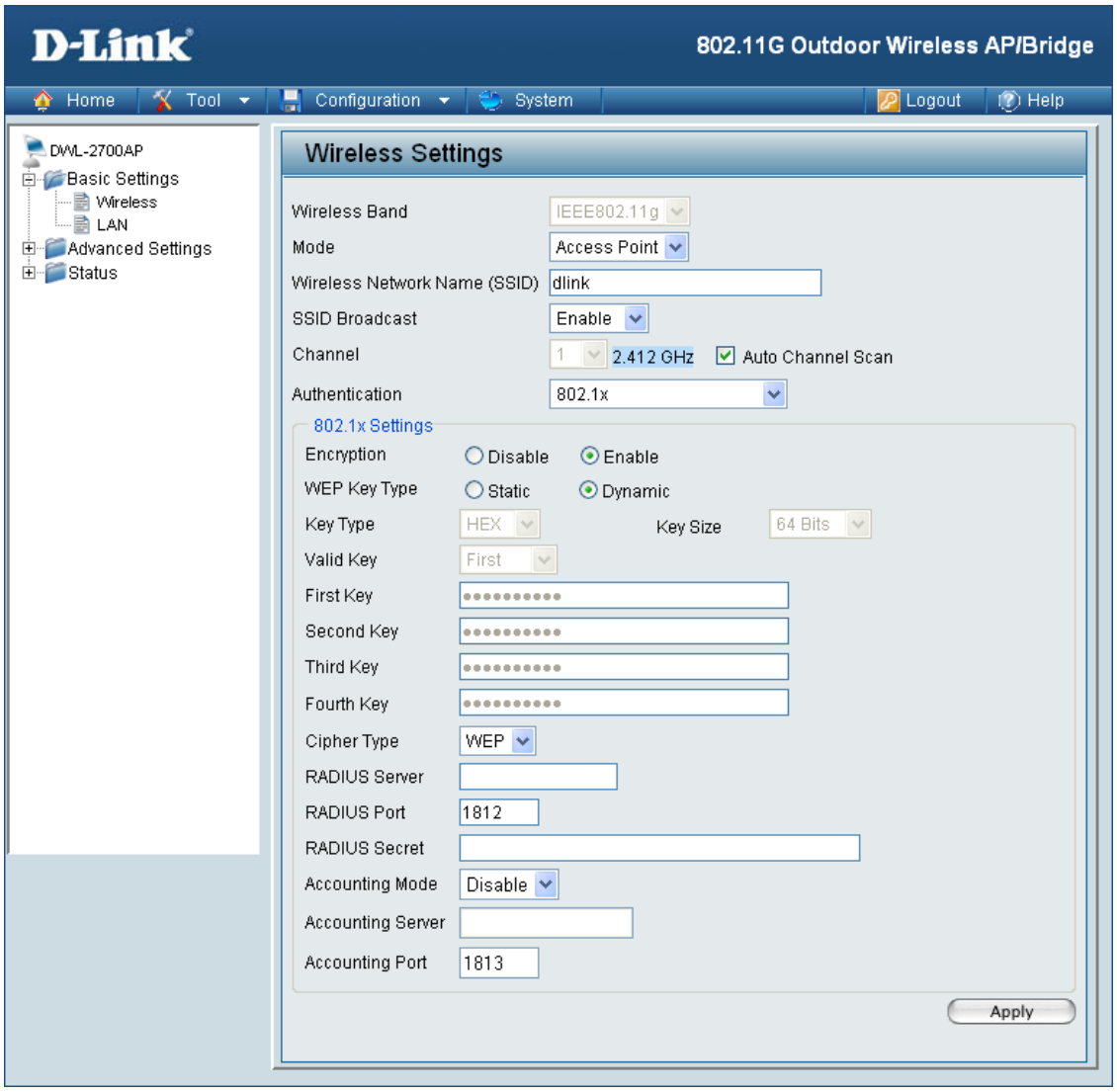
WEP Encryption



Encryption:	Select **Disabled** or **Enabled**. (**Disabled** is selected here).
Key Type:	Select **HEX** or **ASCII.**
Key Size:	Select **64-bit, 128-bit,** or **152 bits.**
Valid Key:	Select the **1st** through the **4th** key to be the active key.
First through Fourth keys:	Input up to four keys for encryption. You will select one of these keys in the valid key field.

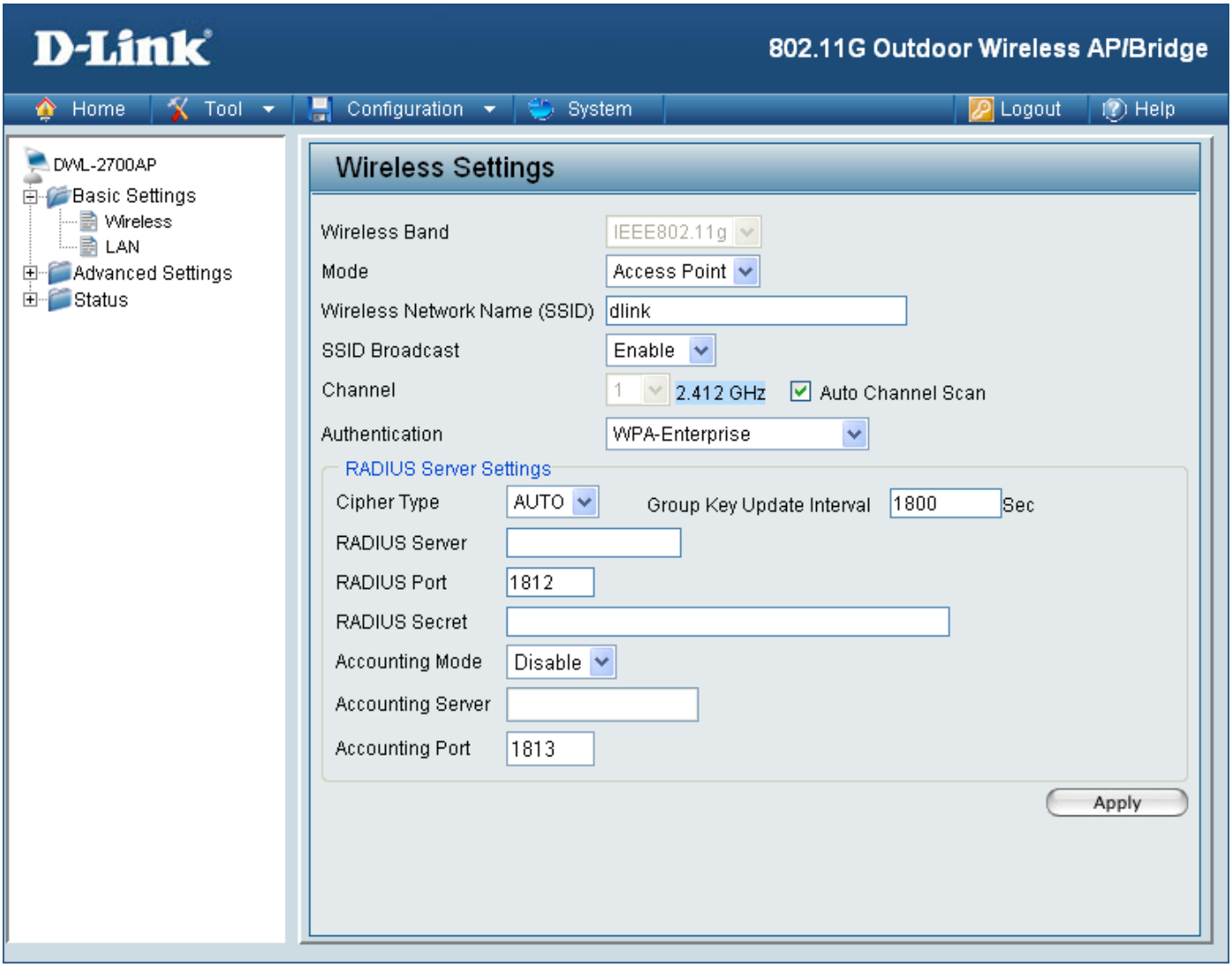
* **Hexadecimal** digits consist of the numbers 0-9 and the letters A-F.
ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers 0-127.

802.1x (RADIUS) Security



Cipher Type:	WEP is selected.
Group Key Update Interval:	Select the interval during which the group key will be valid. 1800 is the recommended value. A lower interval may reduce transfer data rate.
RADIUS Server:	Enter the IP address of the RADIUS server.
RADIUS Port:	Enter the RADIUS port.
RADIUS Secret:	Enter the RADIUS secret.

WPA/WPA2 Enterprise Encryption



Cipher Type: When you select **WPA-Enterprise**, **WPA2-Enterprise** or **WPA-Auto-Enterprise**, you must select **AUTO**, **AES**, or **TKIP** from the pull-down menu.

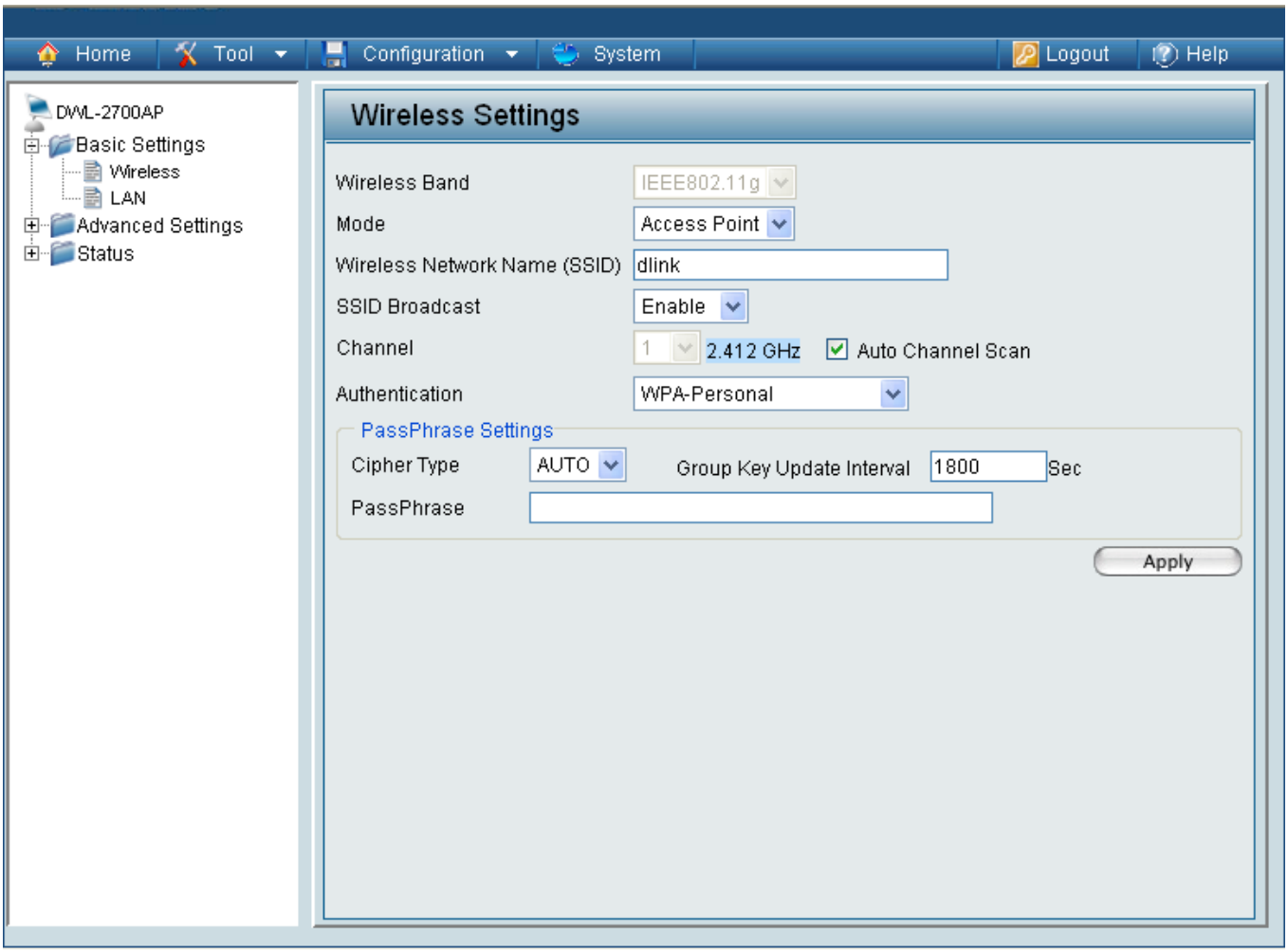
Group Key Update Interval: Select the interval during which the group key will be valid. 1800 is the recommended value. A lower interval may reduce transfer data rate.

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

RADIUS Port: Enter the RADIUS port.

RADIUS Secret: Enter the RADIUS secret.

WPA/WPA2 Personal Encryption

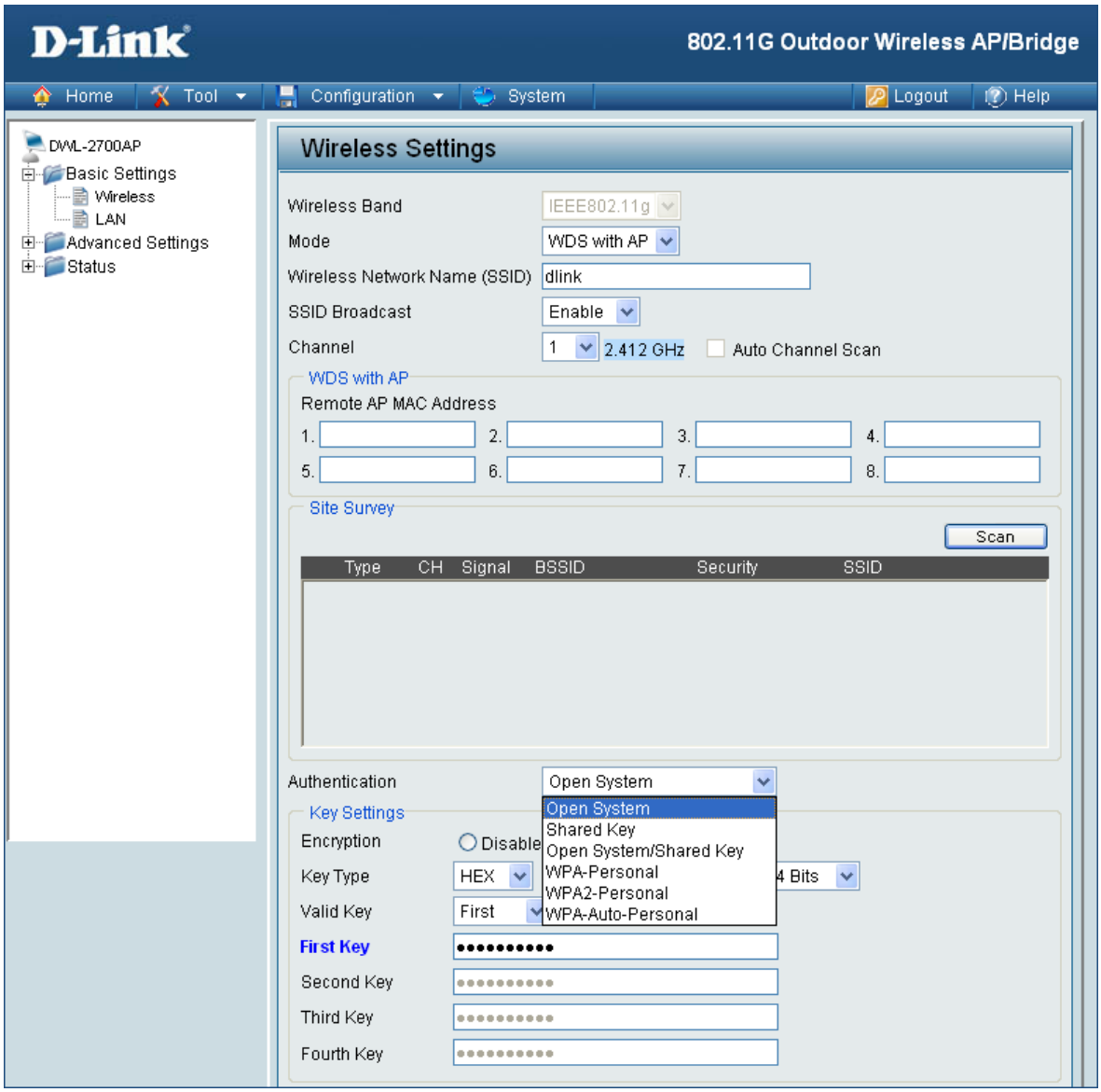


Cipher Type: When you select **WPA-Personal**, **WPA2-Personal,** or **WPA-Auto-Personal,** you must select **AUTO**, **AES**, or **TKIP** from the pull-down menu.

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

PassPhrase: Enter a passphrase. The passphrase is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. Make sure you enter this key exactly the same on all other wireless clients.

WDS with AP Mode



In WDS with AP mode, the **DWL-2700AP** wirelessly connects multiple networks, while still functioning as a wireless AP. WDS (Wireless Distribution System) allows access points to communicate with one another wirelessly in a standardized way. It can also simplify the network infrastructure by reducing the amount of cabling required. Basically the access points will act as a client and an access point at the same time.

Wireless Band:	IEEE 802.11g
Mode:	**WDS with AP** is selected from the pull-down menu.
SSID:	Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID 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 Broadcast:	Enable or Disable SSID broadcast. Enabling this feature broadcasts the SSID across the network.
Channel:	**6** is the default channel for IEEE 802.11g. All devices on the network must share the same channel. ***Note:*** *The wireless adapters will automatically scan and match the wireless setting.*
Auto Channel Scan:	This option is unavailable in WDS with AP mode.
Remote AP MAC Address:	Enter the MAC addresses of the APs in your network that will serve as bridges to wirelessly connect multiple networks.
Scan:	Click Scan to view available APs in your network that will serve as bridges.
Authentication:	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 **Open System/Shared Key** to allow either form of data encryption. Select **WPA-Personal, WPA2-Personal or WPA-Auto-Personal** to secure your network using a password and dynamic key changes (No RADIUS server required).

Note: *WDS is not completely specified in WiFi or IEEE standards. Communication with other vendor's access points is not guaranteed.*

WEP Encryption

Encryption: Select **Disabled** or **Enabled**. (**Disabled** is selected here).

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

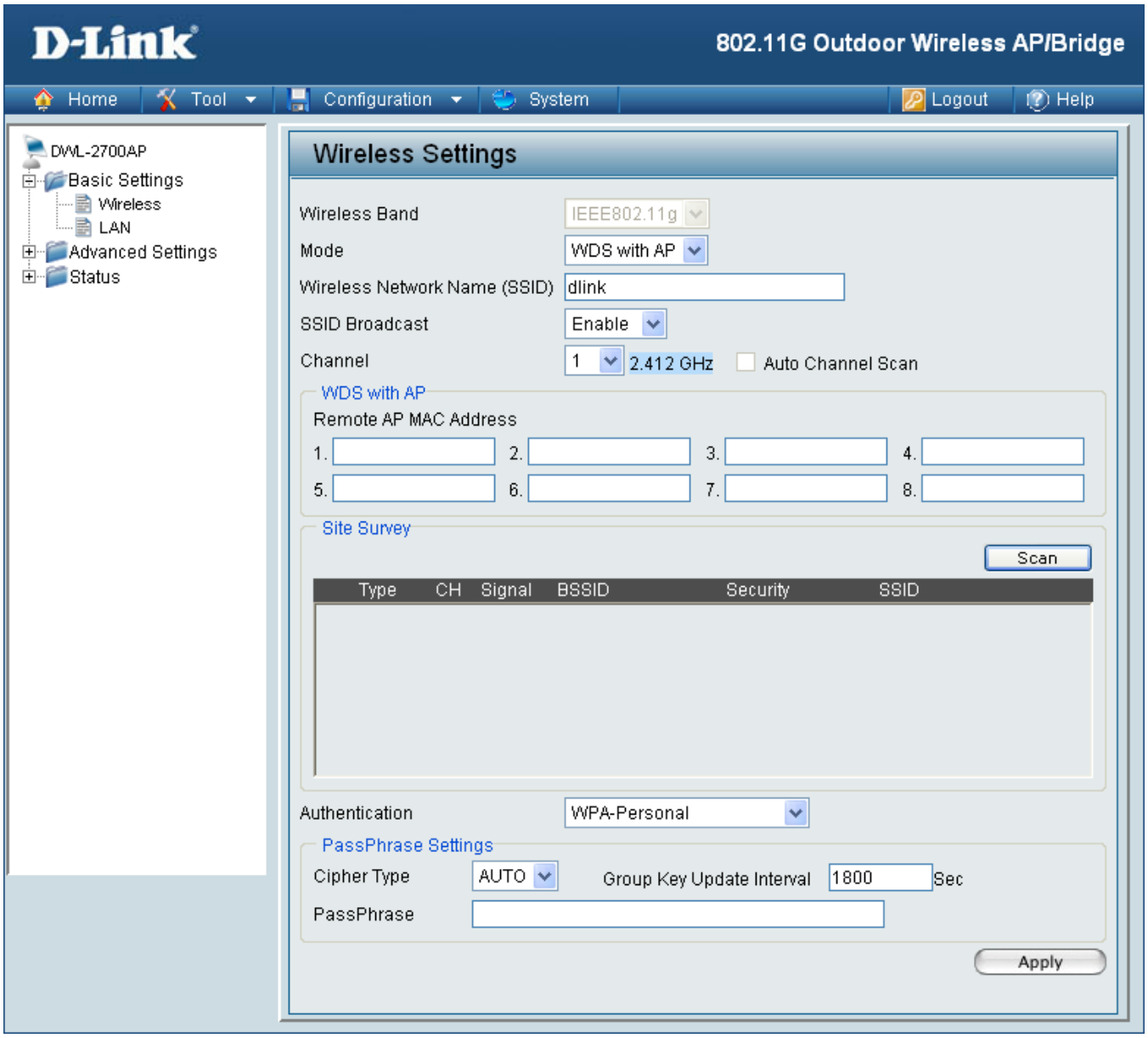
Key Size: Select **64-bit, 128-bit,** or **152 bits.**

Valid Key: Select the **1st** through the **4th** key to be the active key.

First through Fourth keys: Input up to four keys for encryption. You will select one of these keys in the valid key field.

* **Hexadecimal** digits consist of the numbers 0-9 and the letters A-F.
ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers 0-127.

WPA/WPA2 Personal Encryption

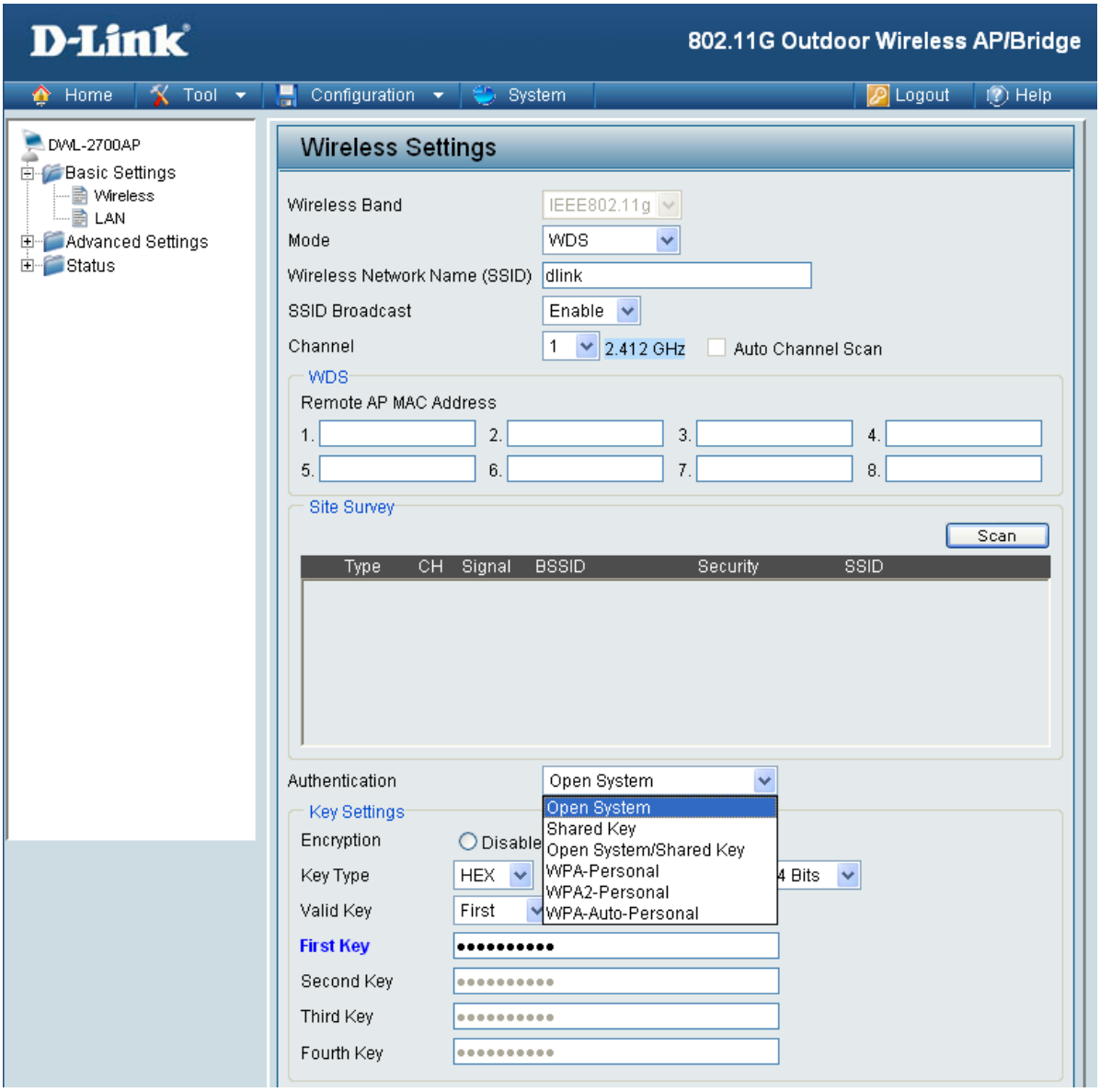


Cipher Type: When you select **WPA-Personal, WPA2-Personal or WPA-Auto-Personal** you must select **AUTO** or **AES** from the pull-down menu.

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

PassPhrase: Enter a passphrase. The passphrase is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. Make sure you enter this key exactly the same on all other wireless clients.

WDS Mode

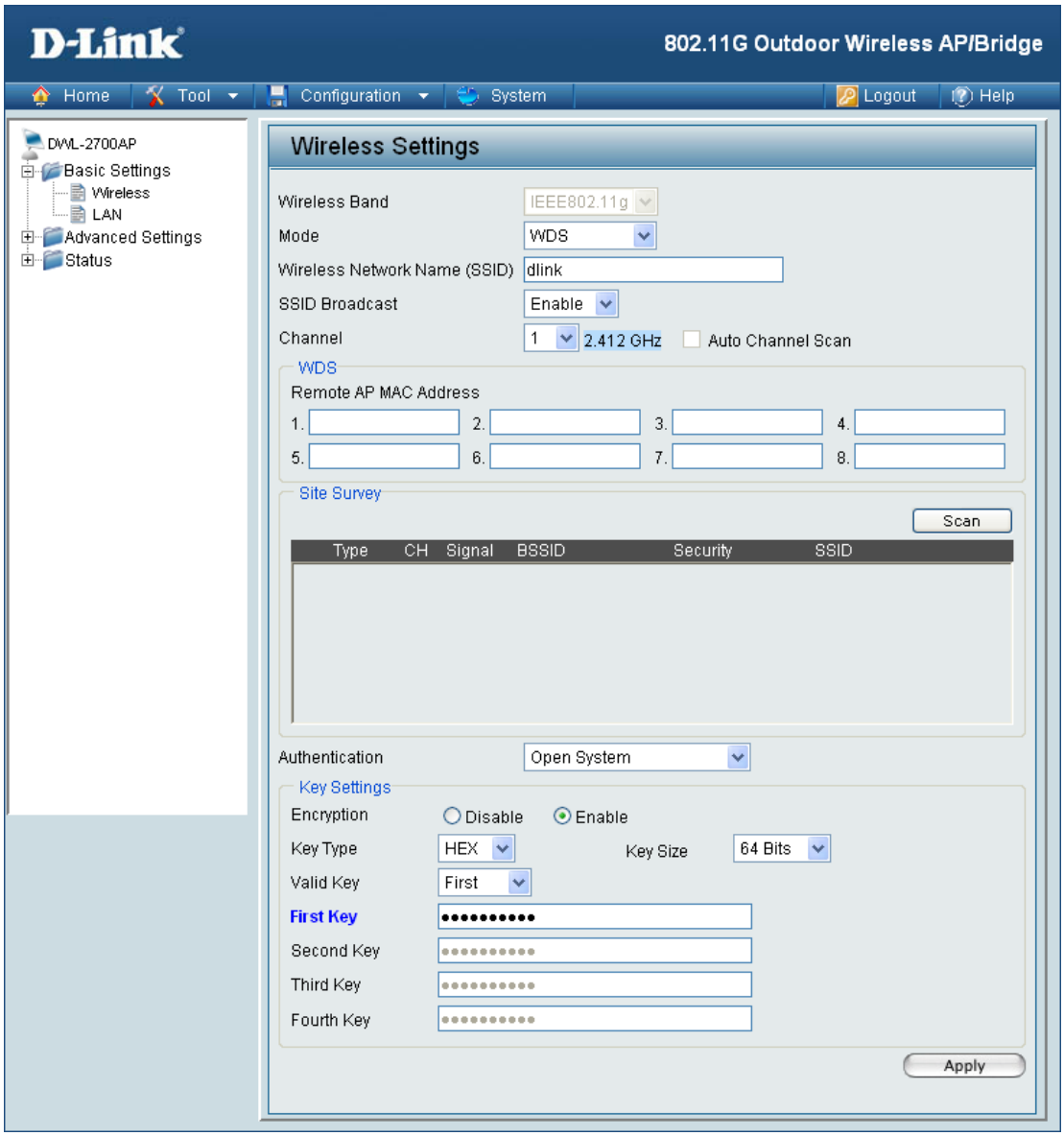


In WDS, the **DWL-2700AP** wirelessly connects multiple networks, without functioning as a wireless AP.

Wireless Band:	IEEE 802.11g
Mode:	**WDS** is selected from the pull-down menu.
SSID:	Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID factory default setting is default. The SSID can be easily changed to connect to an existing wireless network, or to establish a new wireless network.

SSID Broadcast:	Enable or Disable SSID broadcast. Enabling this feature broadcasts the SSID across the network.
Channel:	**6** is the default channel for IEEE 802.11g. All devices on the network must share the same channel. ***Note:*** *The wireless adapters will automatically scan and match the wireless setting.*
Auto Channel Scan:	This option is unavailable in WDS.
Remote AP MAC Address:	Enter the MAC addresses of the APs in your network that will serve as bridges to wirelessly connect multiple networks.
Scan:	Click **Scan** to view available APs in your network that will serve as bridges.
Authentication:	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 **Open System/Shared Key** to allow either form of data encryption. Select **WPA-Personal**, **WPA2-Personal,** or **WPA-Auto-Personal** to secure your network using a password and dynamic key changes (No RADIUS server required).

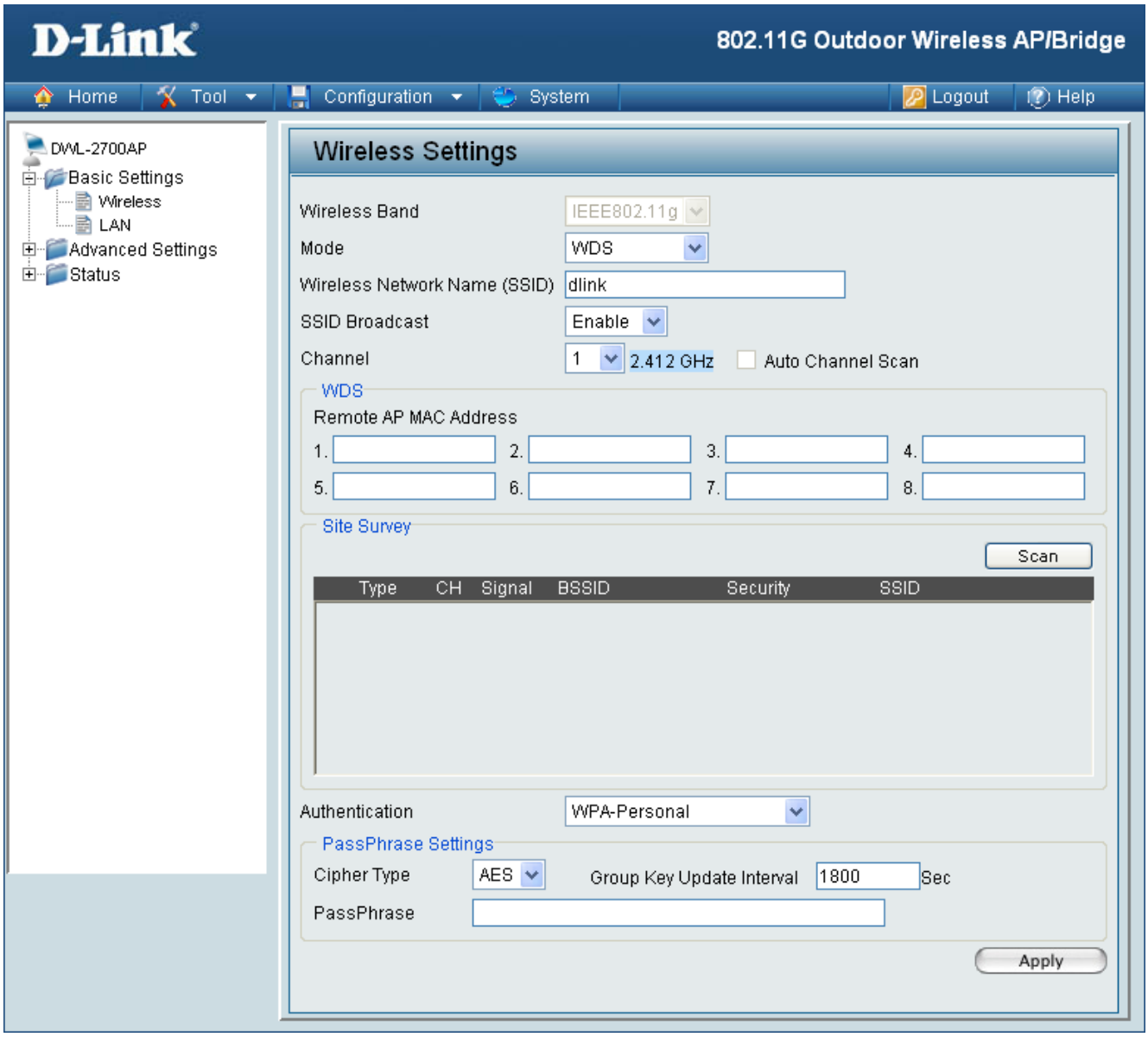
WEP Encryption



Encryption:	Select **Disabled** or **Enabled**. (**Disabled** is selected here).
Key Type:	Select **HEX** or **ASCII.**
Key Size:	Select **64-bit, 128-bit,** or **152 bits.**
Valid Key:	Select the **1st** through the **4th** key to be the active key.
First through Fourth keys:	Input up to four keys for encryption. You will select one of these keys in the valid key field.

* **Hexadecimal** digits consist of the numbers 0-9 and the letters A-F.
ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers 0-127.

WPA/WPA2 Personal Encryption

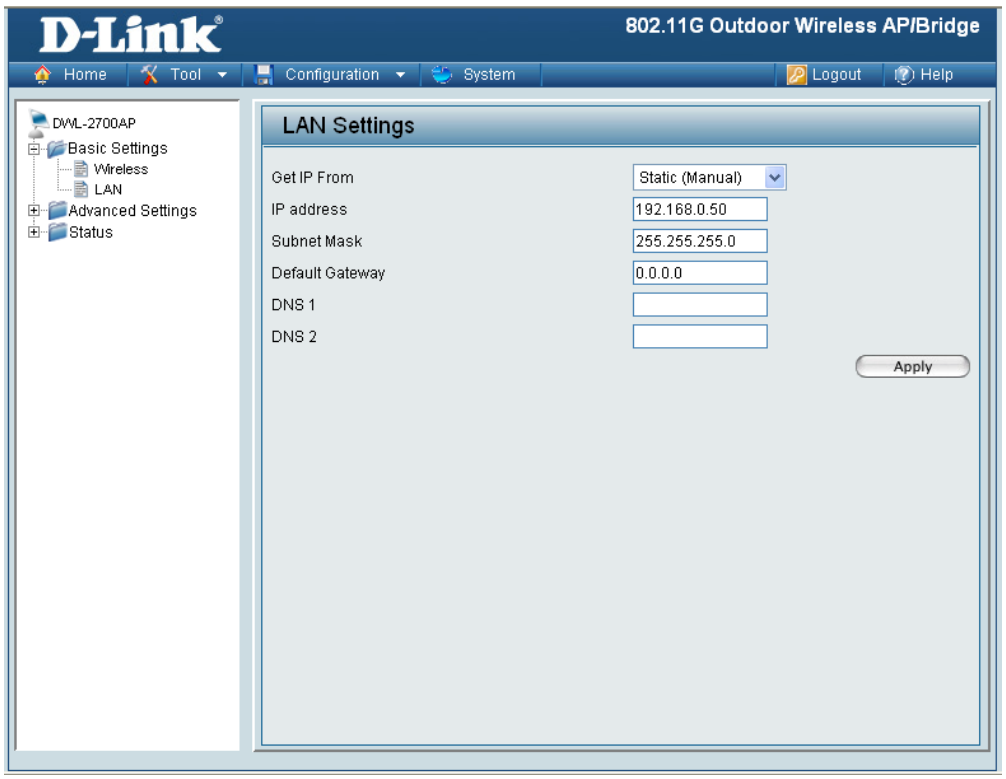


Cipher Type: When you select **WPA-Personal, WPA2-Personal or WPA-Auto-Personal, AES** is selected as the Cipher Type.

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

PassPhrase: When you select **WPA-Personal, WPA2-Personal or WPA-Auto-Personal**, please enter a **PassPhrase** in the corresponding field.

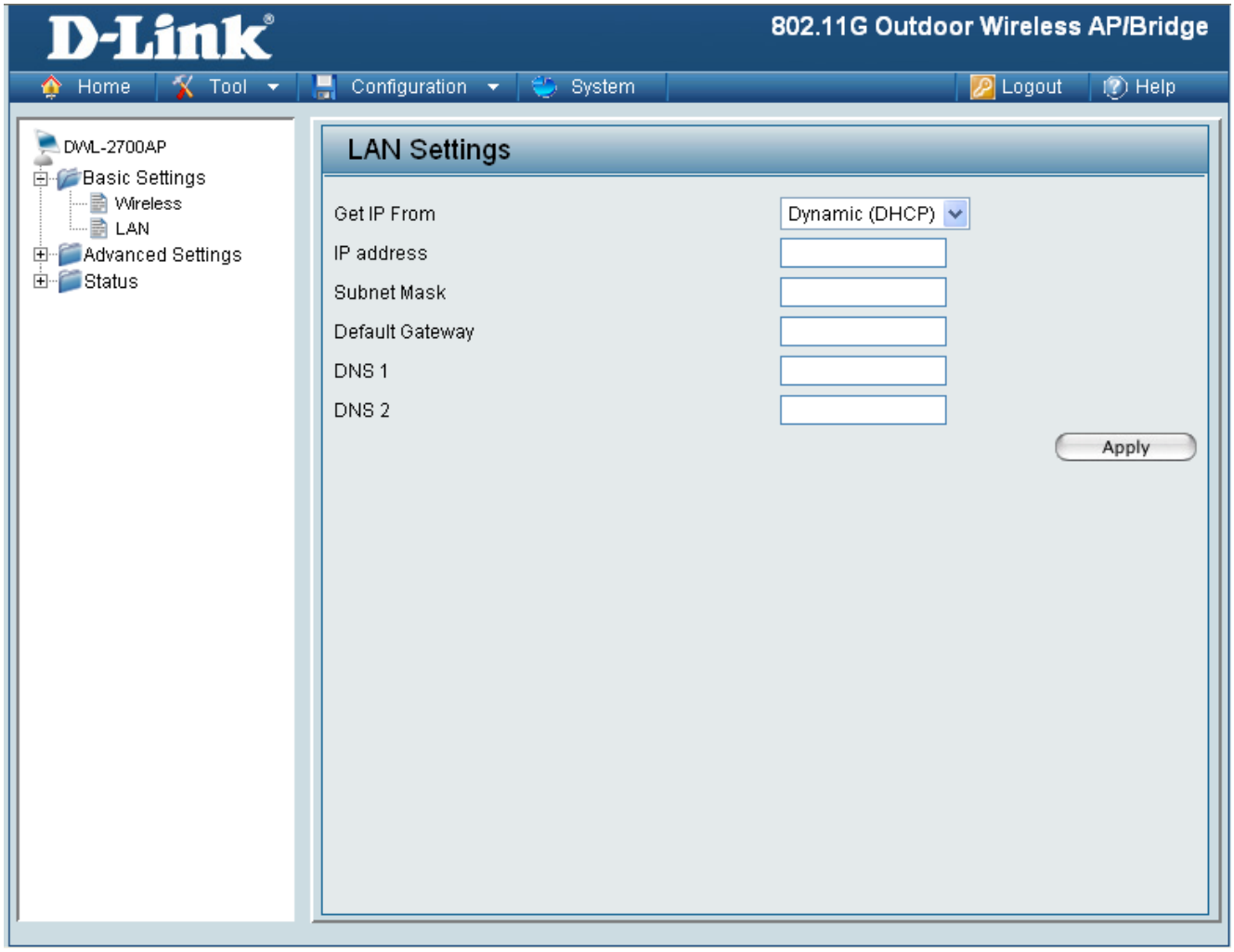
LAN Settings
Static



LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DWL-2700AP. 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.

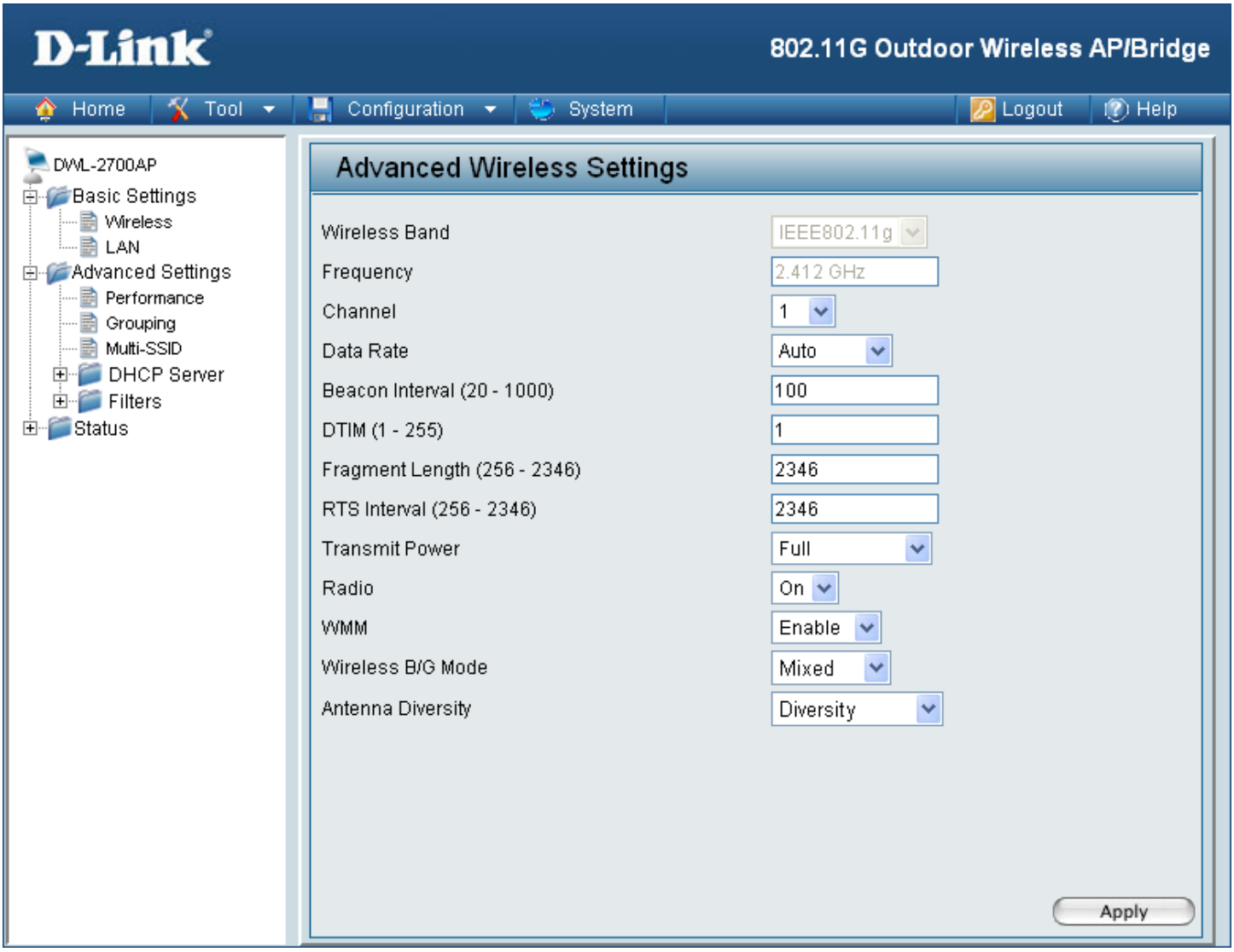
Get IP From:	Static (Manual) is chosen here. Choose this option if you do not have a DHCP server in your network, or if you wish to assign a static IP address to the DWL-2700AP.
IP Address:	The default IP address is 192.168.0.50. Assign a static IP address that is within the IP address range of your 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 isn't a gateway in your network, please enter an IP address within the range of your network.
DNS 1:	Enter your primary DNS IP address.
DNS 2:	Enter your secondary DNS IP address.

Dynamic



Get IP From:	Dynamic (DHCP) is chosen here. Choose Dynamic IP Address to obtain an IP Address automatically from a DHCP server in your network.
IP Address:	This field is unavailable when DHCP is selected.
Subnet Mask:	This field is unavailable when DHCP is selected
Default Gateway:	This field is unavailable when DHCP is selected.
DNS 1:	This field is unavailable when DHCP is selected.
DNS 2:	This field is unavailable when DHCP is selected.

Advanced Settings
Performance



Wireless Band: IEEE 802.11g.

Frequency: The frequency reflects the choice of the wireless channel. When IEEE 802.11g is chosen the frequency is 2.437GHz for channel 6.

Channel: The default channel for IEEE 802.11g is 6.

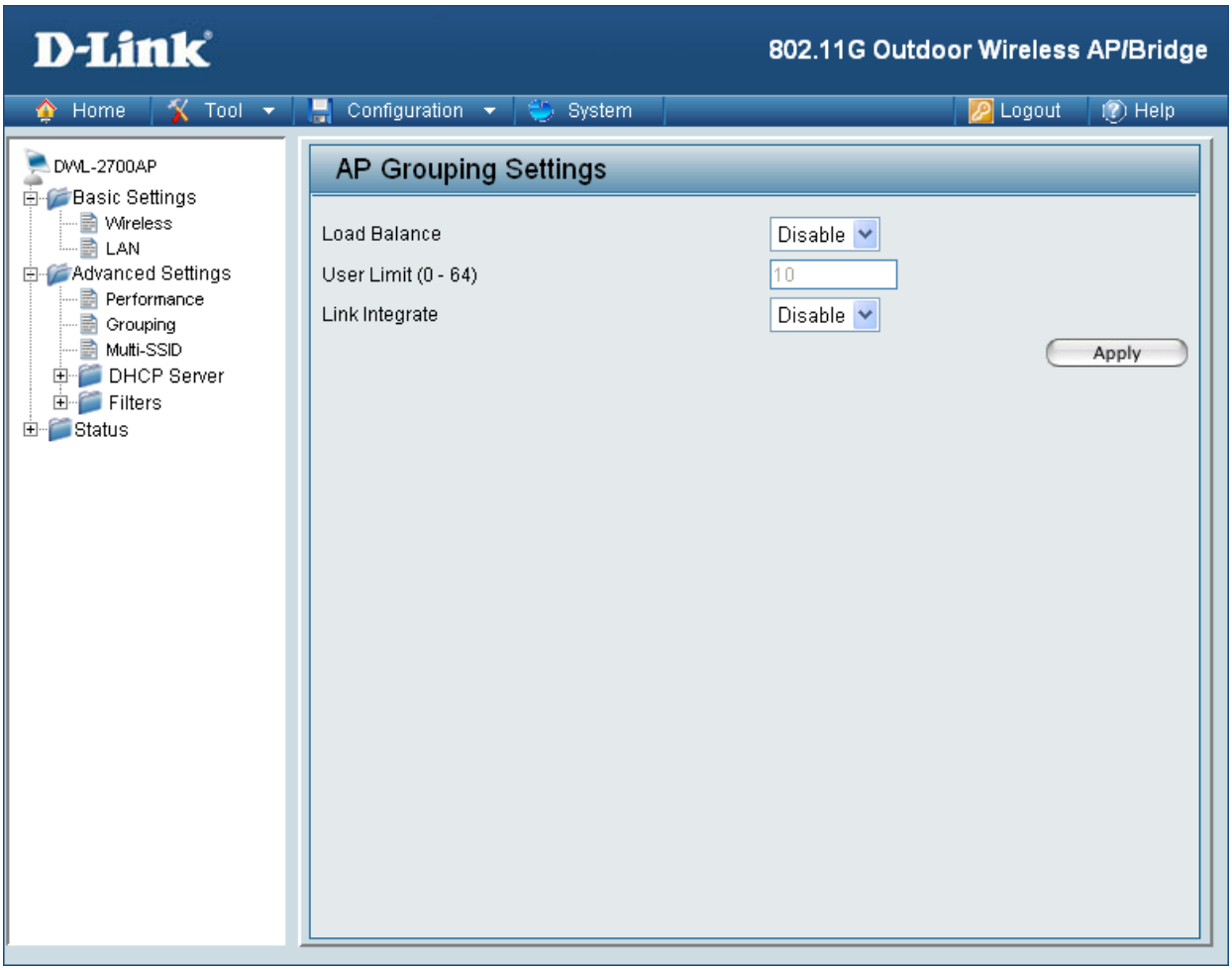
Data Rate: The **Data Rates** are Auto, 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps.

Beacon Interval: Beacons are packets sent by an access point to synchronize a network. Specify a beacon interval value. The default (100) is recommended.

DTIM:	*(Delivery Traffic Indication Message)* - Select a setting between 1 and 255. **1** is the default setting. DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.
Fragment Length:	The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting.
RTS Length:	This value should remain at its default setting of 2346. If you encounter inconsistent data flow, only minor modifications to the value range between 256 and 2346 are recommended.
Radio:	Select **ON** or **OFF**.
WMM:	(Wi-Fi Multimedia) Improves the user experience for audio, video, and voice applications over a Wi-Fi network. This feature is enabled by default, uncheck to disable.
Wireless B/G:	Select **Mixed** for both 802.11b and 802.11g, **11b** for 802.11b only, or **11g** for 802.11g only.
Antenna Diversity:	Select **Diversity** to allow the DWL-2700AP to automatically switch to the antenna with the better RSSI value. Selecting **Left Antenna** will not allow the DWL-2700AP to switch antenna and the radio will use the left antenna (facing the AP) to transmit and receive packets. Selecting **Right Antenna** will not allow the DWL-2700AP to switch antenna and the radio will only use the right antenna (facing the AP) to transmit and receive packets.

*Maximum wireless signal rate derived from IEEE Standard 802.11g 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 may adversely affect wireless signal range.

AP Grouping Settings

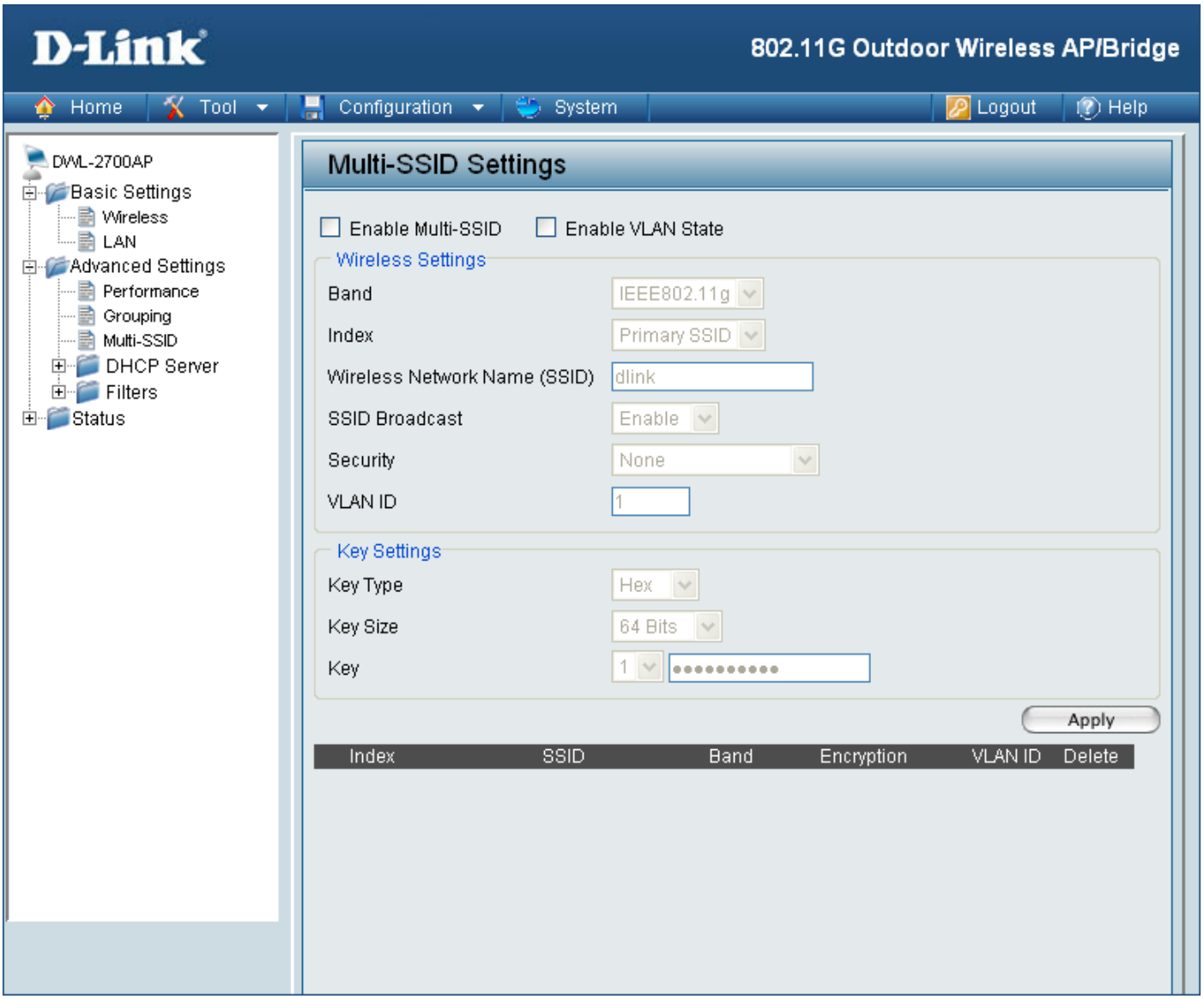


Load Balance: Load Balancing allows you to balance and share the wireless network traffic and clients using multiple DWL-2700APs. Select **Enable** or **Disable**.

User Limit: Sets the maximum amount of users allowed (0-64).

Link Integrate: If the Ethernet connection between the LAN and the DWL-2700AP is disconnected, the Link Integrate option will cause the wireless segment associated with the AP to be disconnected from the AP. Select **Enable** or **Disable**.

Multi-SSID Settings



Enable Multi-SSID: Check to enable Multi-SSID

Enable VLAN State: Check to enable VLANs.

Band: IEEE802.11g.

Index: Select the Index you want to configure, **Primary** or **Multi-SSID 1** through **Multi-SSID 7**. Primary SSID and security cannot be configured here, as those values follow the settings configured on the Home > Basic Settings > Wireless page.

SSID: Service Set Identifier (SSID) is the unique name designated for the Index being configured.

SSID Broadcast: Enabled by default, disabling SSID Broadcast will make the SSID invisible. Select **Enable** or **Disable**.

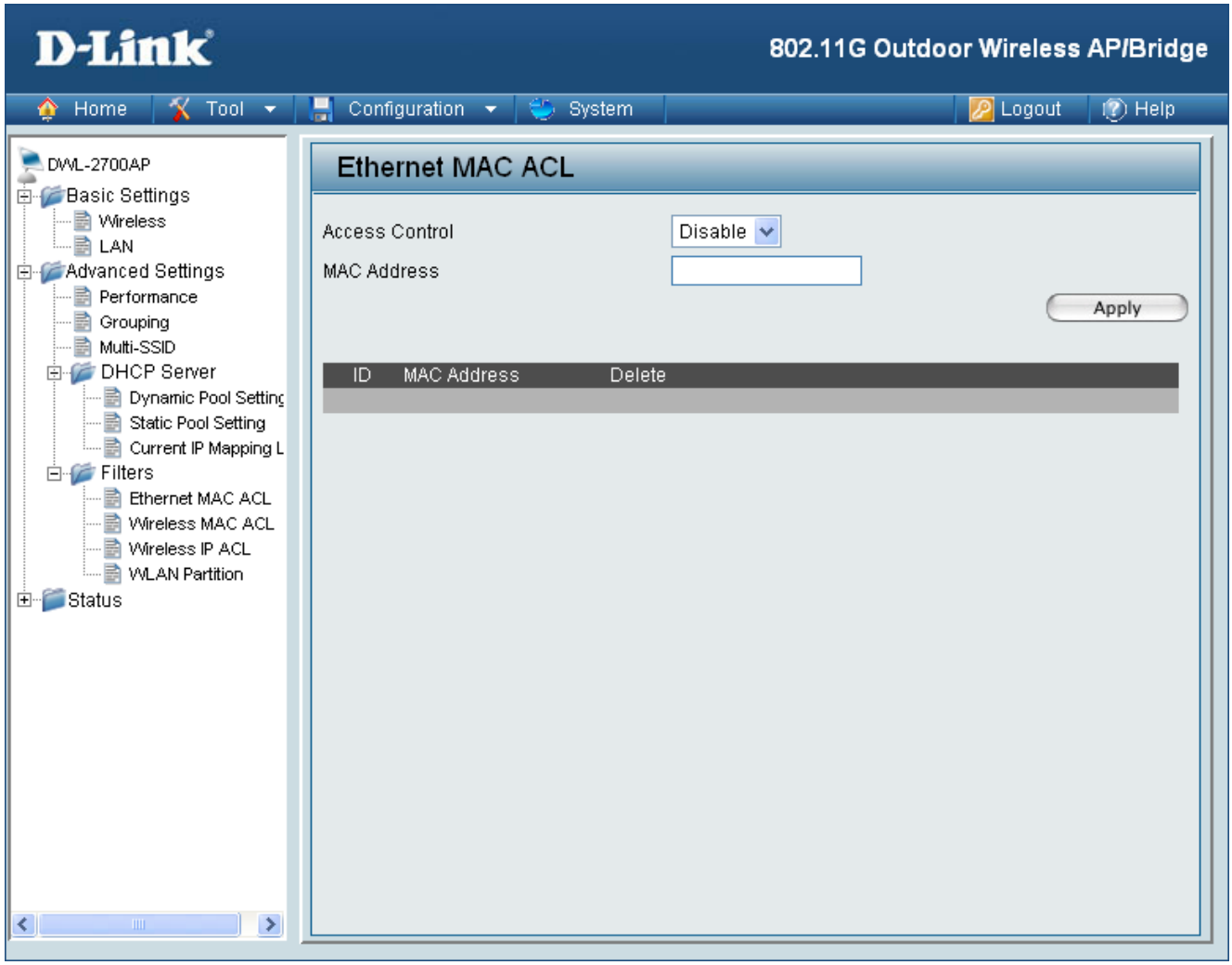
Security: The Security options available are **Open-System**, **Shared Key**, **WPA-Personal**, **WPA2-Personal**, or **WPA-Auto-Personal**.

Note: *Security Setting Limit:*
When the Primary SSID is set to use one key index for WEP, you can use the 3 other key indexes for Guest SSIDs.

If the Primary SSID is set to WPA/WPA2-Personal, or WPA-Auto-Personal, you can only use WEP key index 1 and 4 for Guest SSIDs.

Key Type:	Select **HEX** or **ASCII**. (Only when Open System or Shared Key Security is selected.)
Key Size:	Select **64-bit**, **128-bit** or **152-bit**. (Only when Open System or Shared Key is selected for Security.)
Key:	Select from 1 of 4 Keys to be the active key. (Only when Open System or Shared Key is selected for Security.)
Cipher Type:	When using WPA-Personal, WPA2-Personal, or WPA-Auto-Personal, you must select a cipher type. Available options are **Auto**, **AES**, or **TKIP**.
Group Key Update Interval:	Select the interval during which the group key will remain valid. 1800 is the recommended value, as a lower value may reduce the transfer rate.
PassPhrase:	The passphrase is an alpha-numeric password that must be between 8-63 characters long. The password can include symbols (!?*_) and spaces. Make sure to enter the passphrase exactly the same on all wireless clients.

Filters
Ethernet MAC ACL

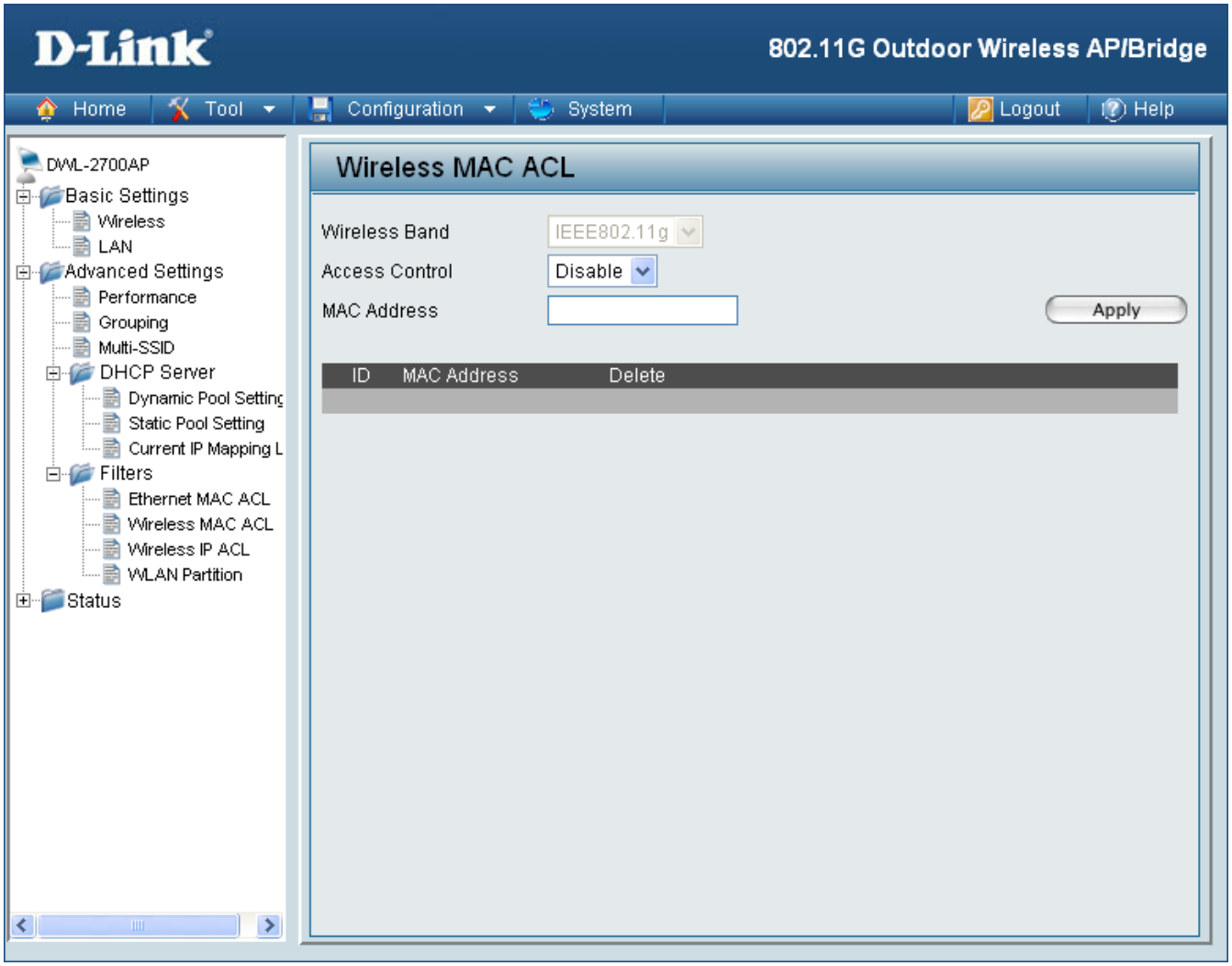


Access Control: Select **Off** to disable MAC address filtering. Select **Accept** to allow association between the DWL-2700AP and the MAC addresses listed. Select **Reject** to reject devices with the MAC address listed.

MAC Address: Enter the MAC address you want to include in the Access Control List and click **Apply**.

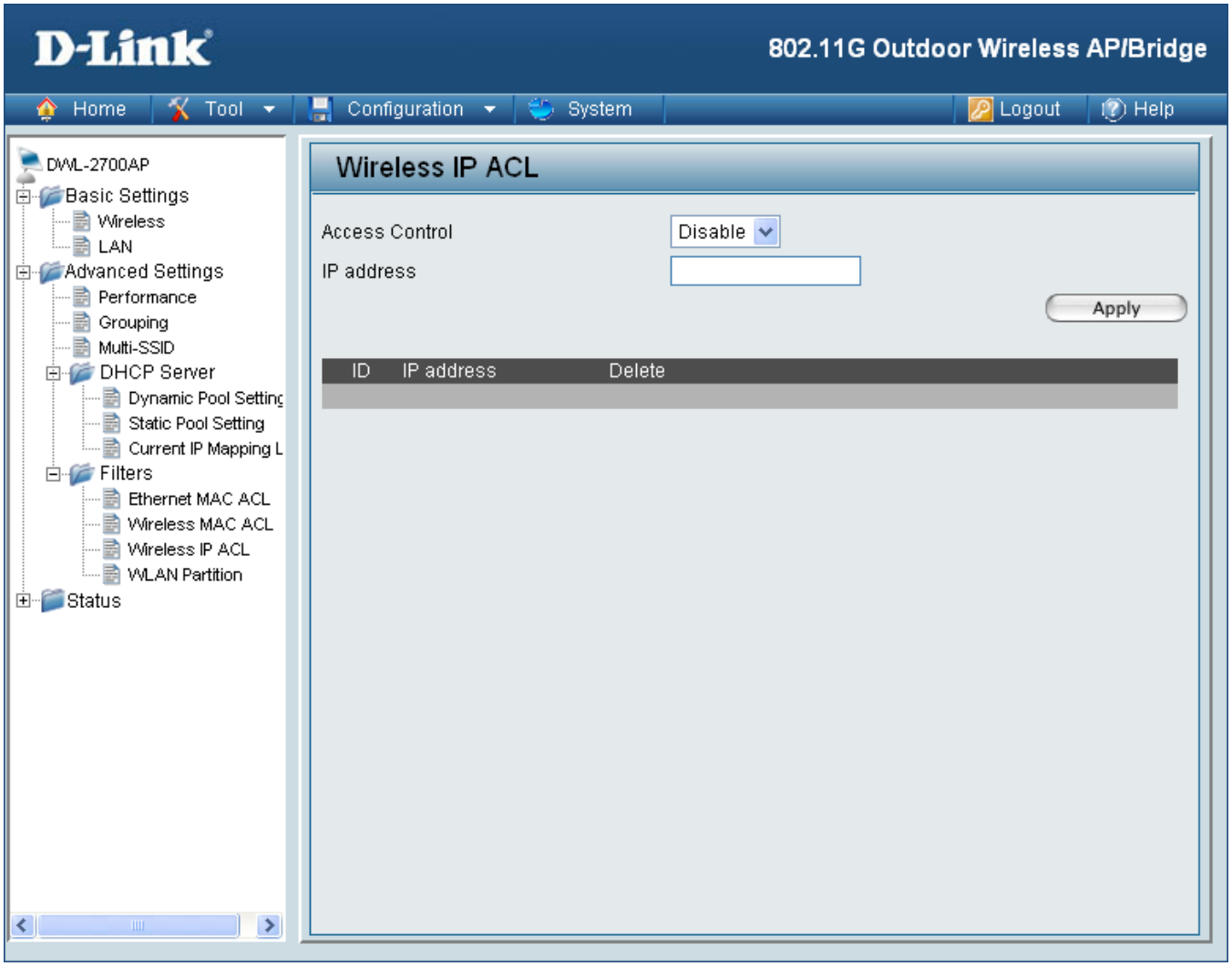
MAC Address List: MAC addresses added to the Access Control List will appear in this list. Click Delete next to a MAC address to remove it from the list.

Wireless MAC ACL



Wireless Band:	IEEE 802.11g
Access Control:	Select **Off** to disable MAC address filtering. Select **Accept** to allow association between the DWL-2700AP and the MAC addresses listed. Select **Reject** to reject devices with the MAC addresses listed.
MAC Address:	Enter the MAC address you want to include in the Access Control List and click **Apply**.
MAC Address List:	MAC addresses added to the Access Control List will appear in this list. Click Delete next to a MAC address to remove it from the list.

Wireless IP ACL

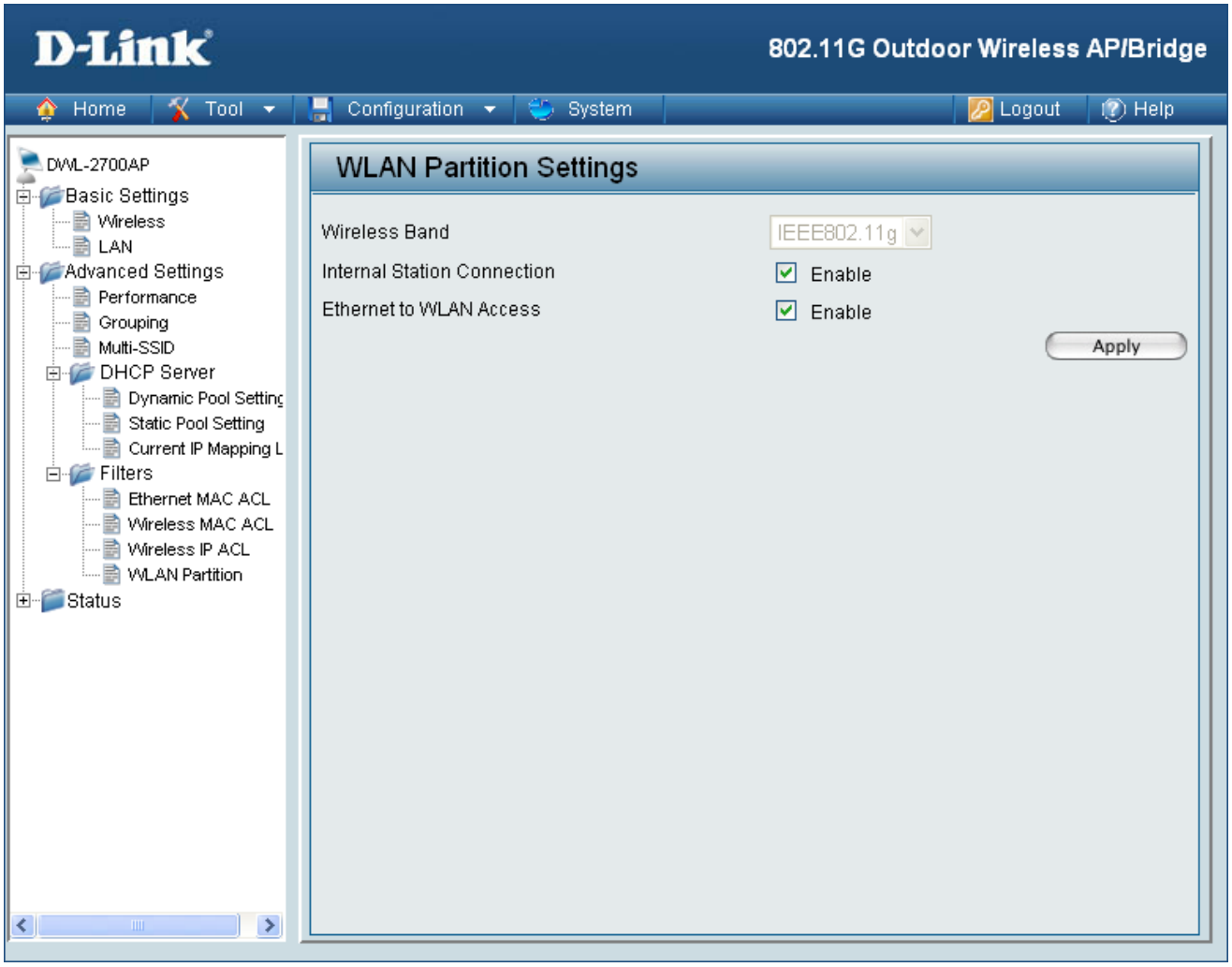


Access Control: Select **Off** to disable IP address filtering. Select **Accept** to allow association between the DWL-2700AP and the IP addresses listed. Select **Reject** to reject devices with the IP addresses listed.

IP Address: Enter the IP address you want to include in the Access Control List and click **Apply**.

IP Address List: IP addresses added to the Access Control List will appear in this list. Click Delete next to an IP address to remove it from the list.

WLAN Partition Settings

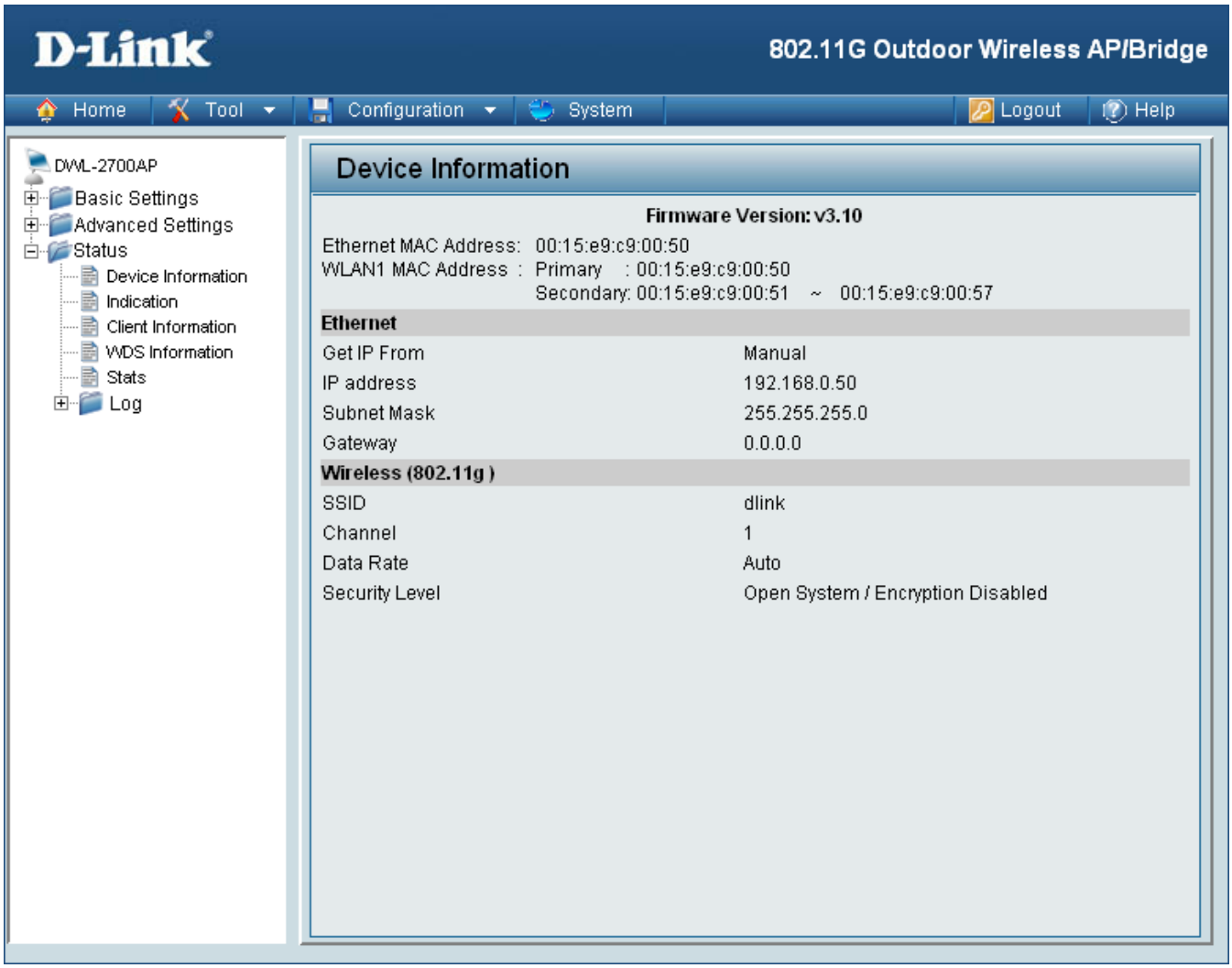


Wireless Band: **IEEE 802.11g.**

Internal Station Connection: Enabling this feature allows wireless clients to communicate with each other. If this feature is disabled, wireless stations on the selected band are not allowed to exchange data through the access point.

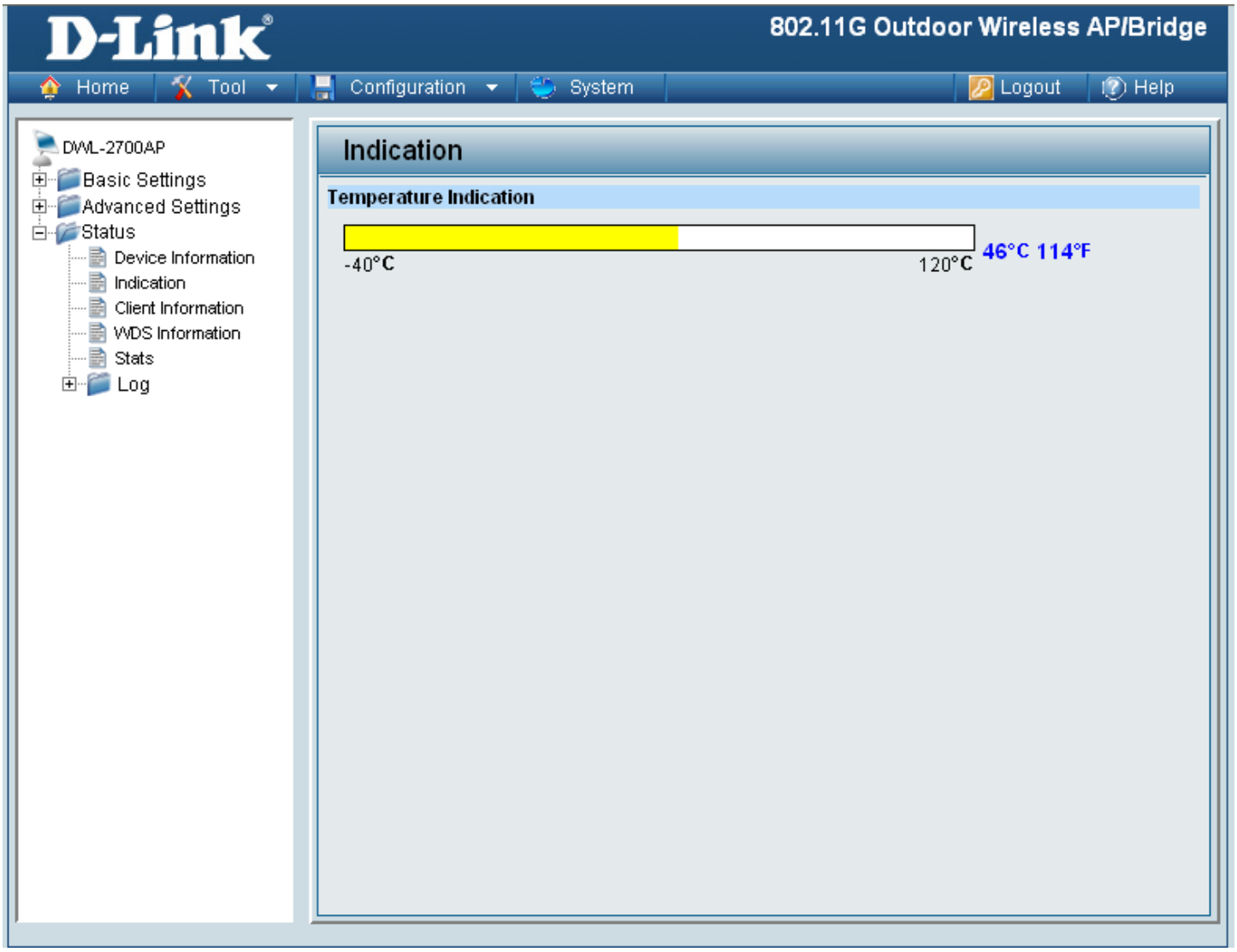
Ethernet to WLAN Access: Enabling this feature allows Ethernet devices on the LAN to communicate with wireless clients on the WLAN. If this feature is disabled, all data from Ethernet devices to wireless clients is blocked. Wireless devices can still send data to Ethernet devices.

Status
Device Information



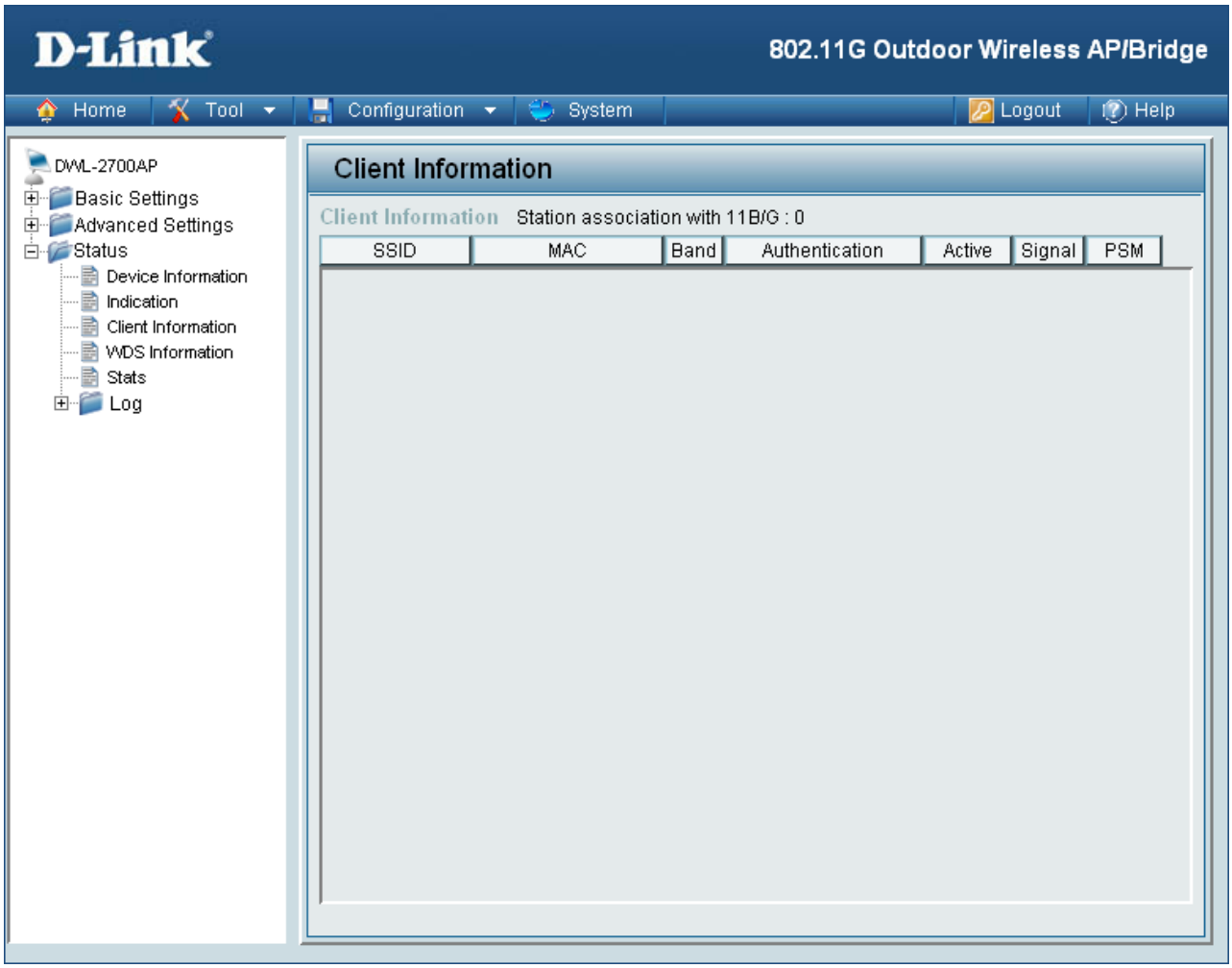
Device Information: This window displays the configuration settings of the DWL-2700AP, including the firmware version and device MAC address.

Indication



Temperature Indication: This window displays the current operating temperature of the DWL-2700AP.

Client Information

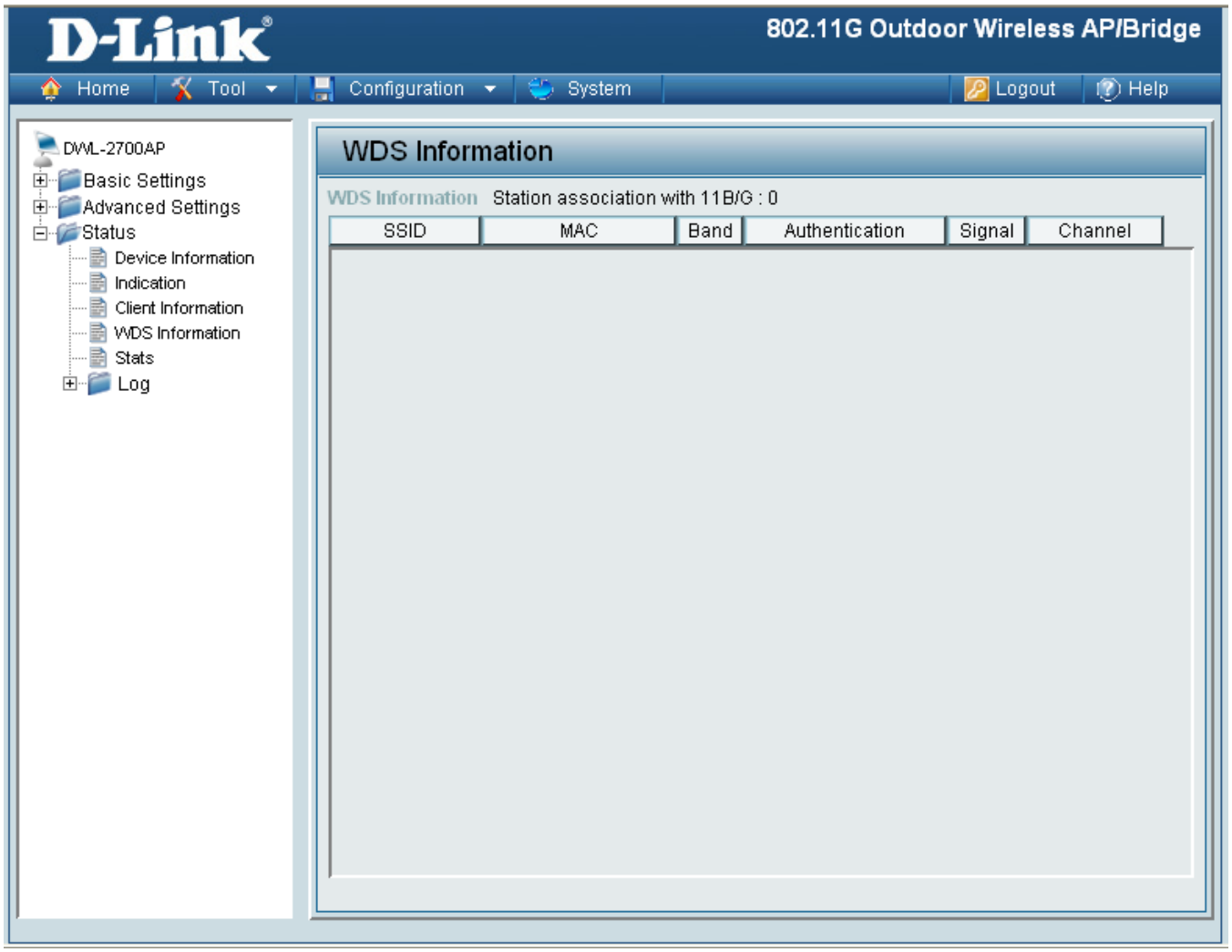


Client Information:	The Client Information page provides information about the wireless clients connected to the DWL-2700AP.

The following information is available for each client communicating with the DWL-2700AP.

MAC:	Displays the MAC address of the client.
Band:	Displays the wireless band the client is connected on.
Authentication:	Displays the type of authentication being used.
Signal:	Displays the strength of the clients signal.
Power Saving Mode:	Displays the status of the power saving feature.

WDS Information



MAC: Displays the MAC address of the client.

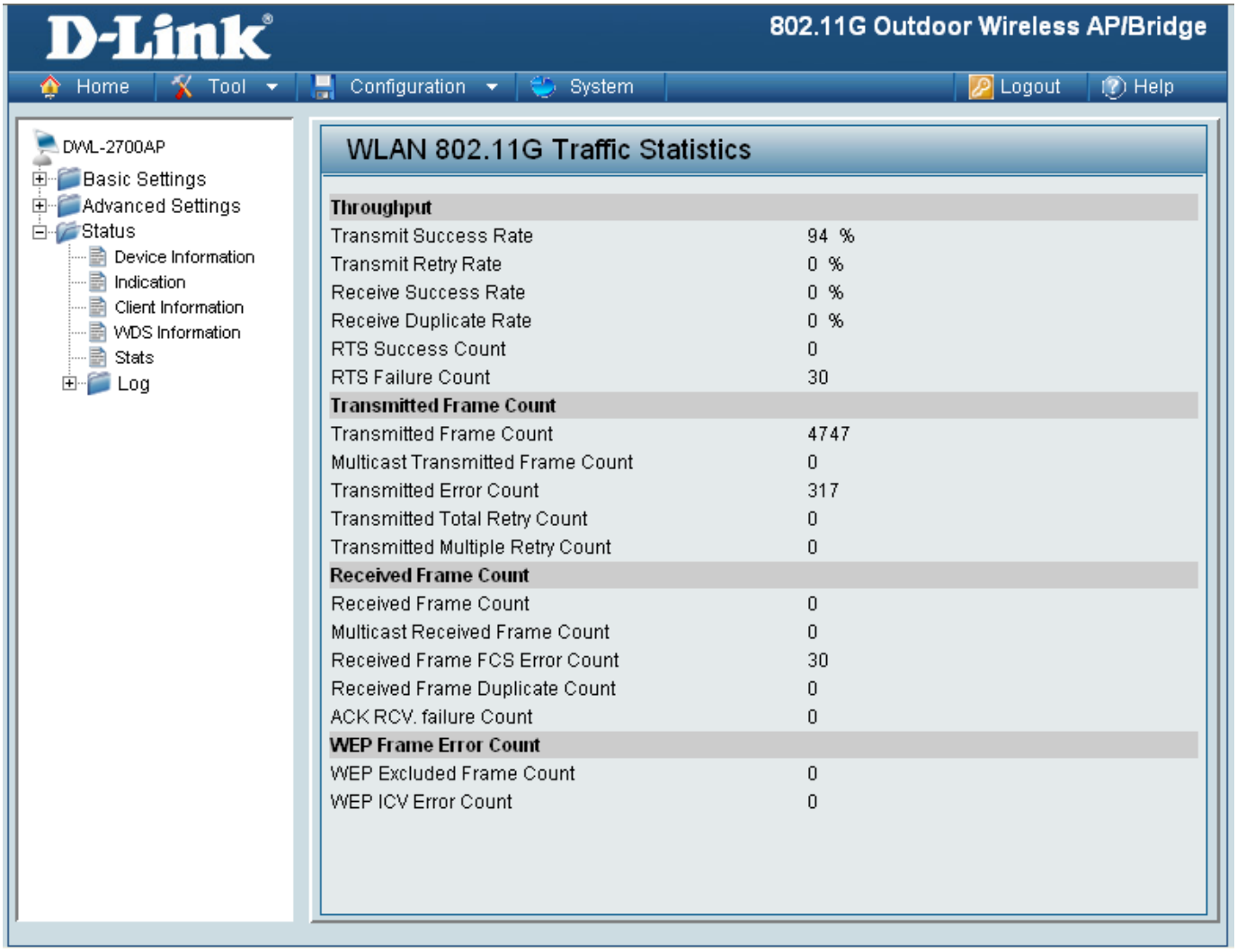
Band: Displays the wireless band the client is connected on.

Authentication: Displays the type of authentication being used.

Signal: Displays the strength of the clients signal.

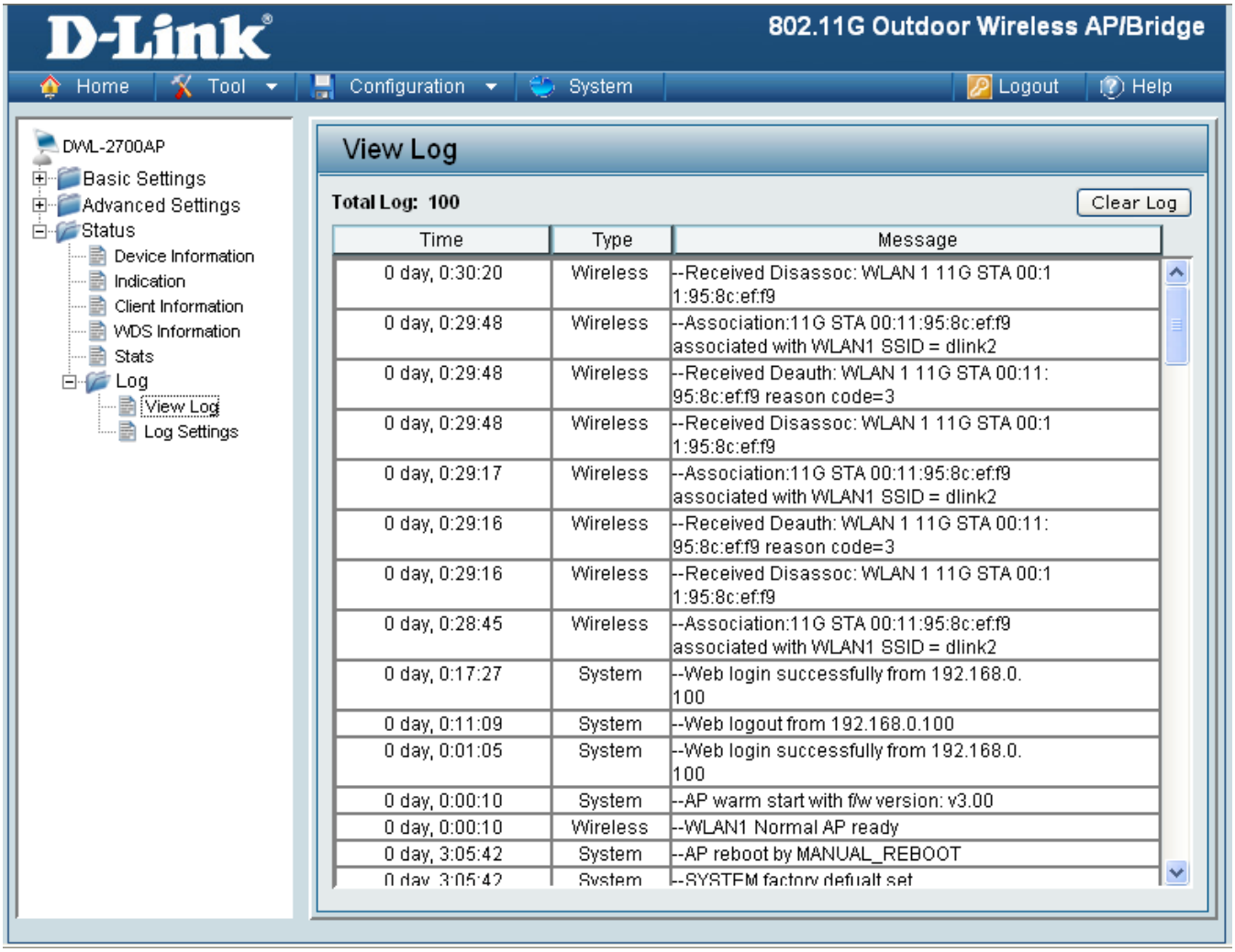
Channel: Displays the wireless channel being used.

WLAN 802.11G Traffic Statistics



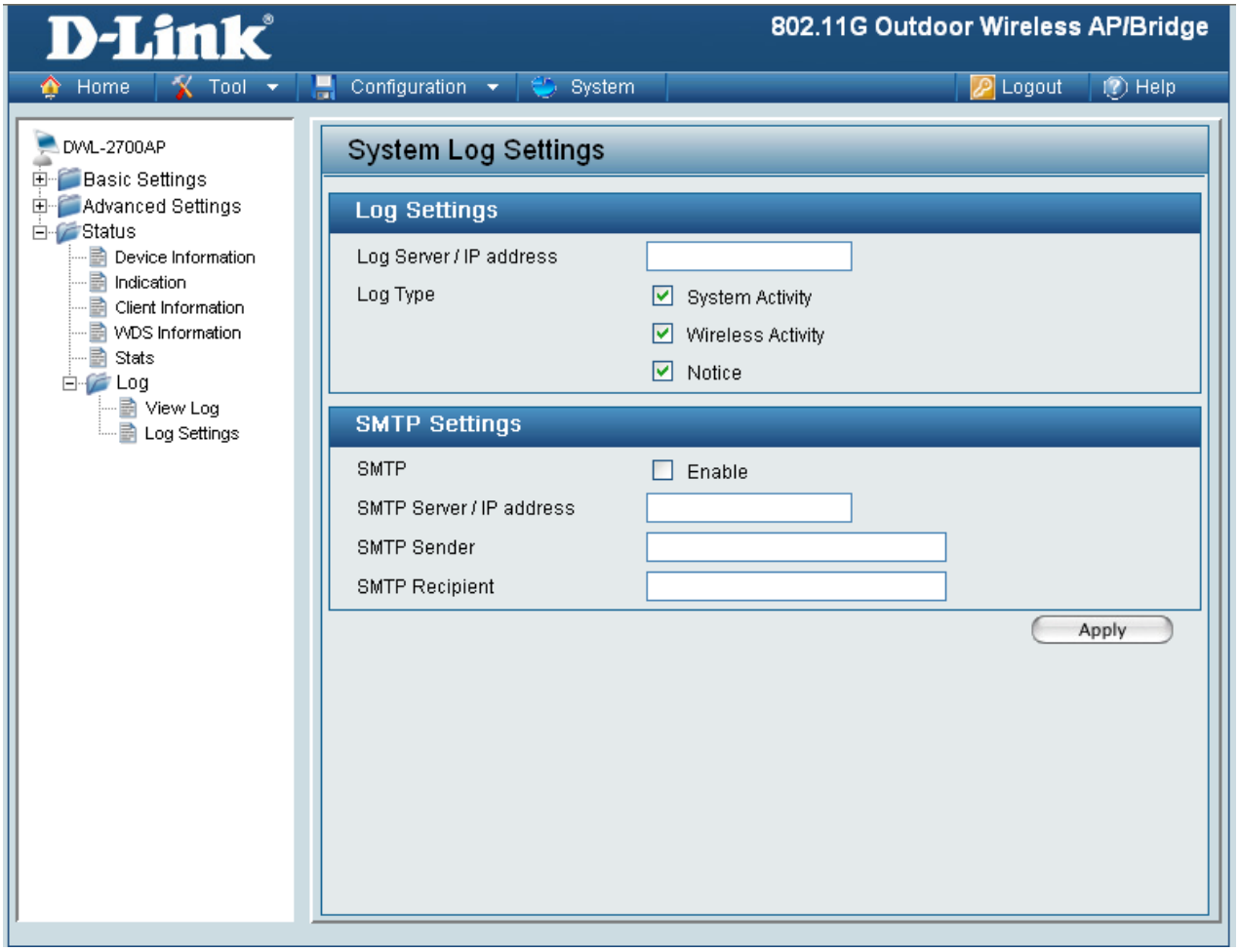
WLAN 802.11g Traffic Statistics: This page displays statistics for data throughput, transmitted and received frames, and WEP frame errors for the 802.11g wireless network.

Log
View Log



View Log: The log displays system and network messages including a time stamp and message type.

System Log Settings



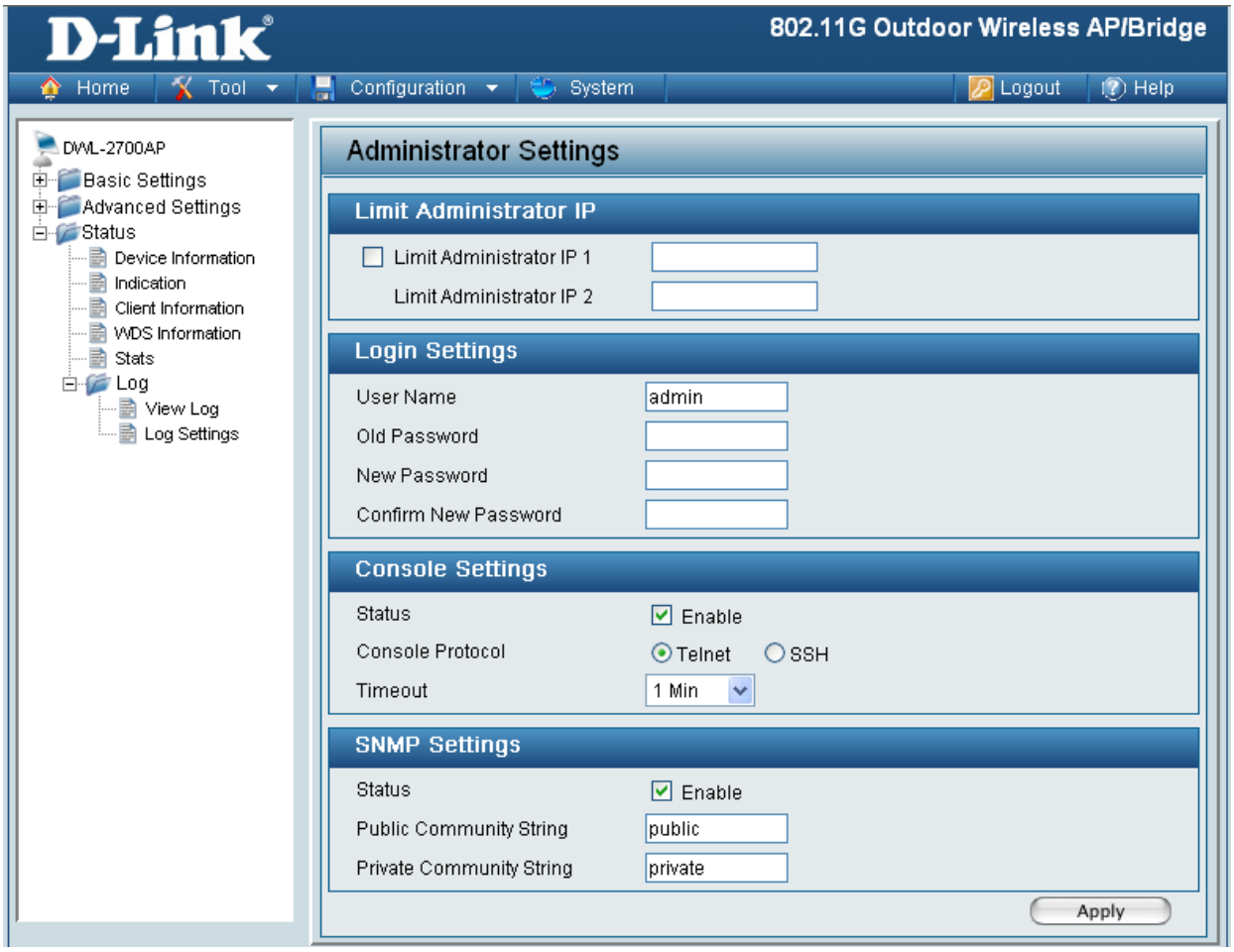
Log Settings

Log Server / IP Address:	Enter the IP address of the server you would like to send the DWL-2700APs log to.
Log Type:	Check the box for the type of activity you want to log. There are three types: **System**, **Wireless** and **Notice**.

SMTP Settings

SMTP:	Check the box to enable SMTP.
SMTP Server / IP Address:	Enter the IP address of the SMTP server.
SMTP Sender:	Enter the e-mail address of the SMTP sender.
SMTP Recipient:	Enter the e-mail address of the SMTP recipient.

Administrator Settings



Limit Administrator IP: Check the box to enable the feature.

Limit Administrator IP 1: Enter the IP address that the administrator will be allowed to log in from.

Limit Administrator IP 2: Enter a secondary IP address that the administrator will be allowed to log in from.

Login Settings

User Name: Enter a user name. The default is admin.

Old Password: When changing your password, enter the old password here.

New Password: When changing your password, enter the new password here.

Confirm New Password: Confirm your new password here.

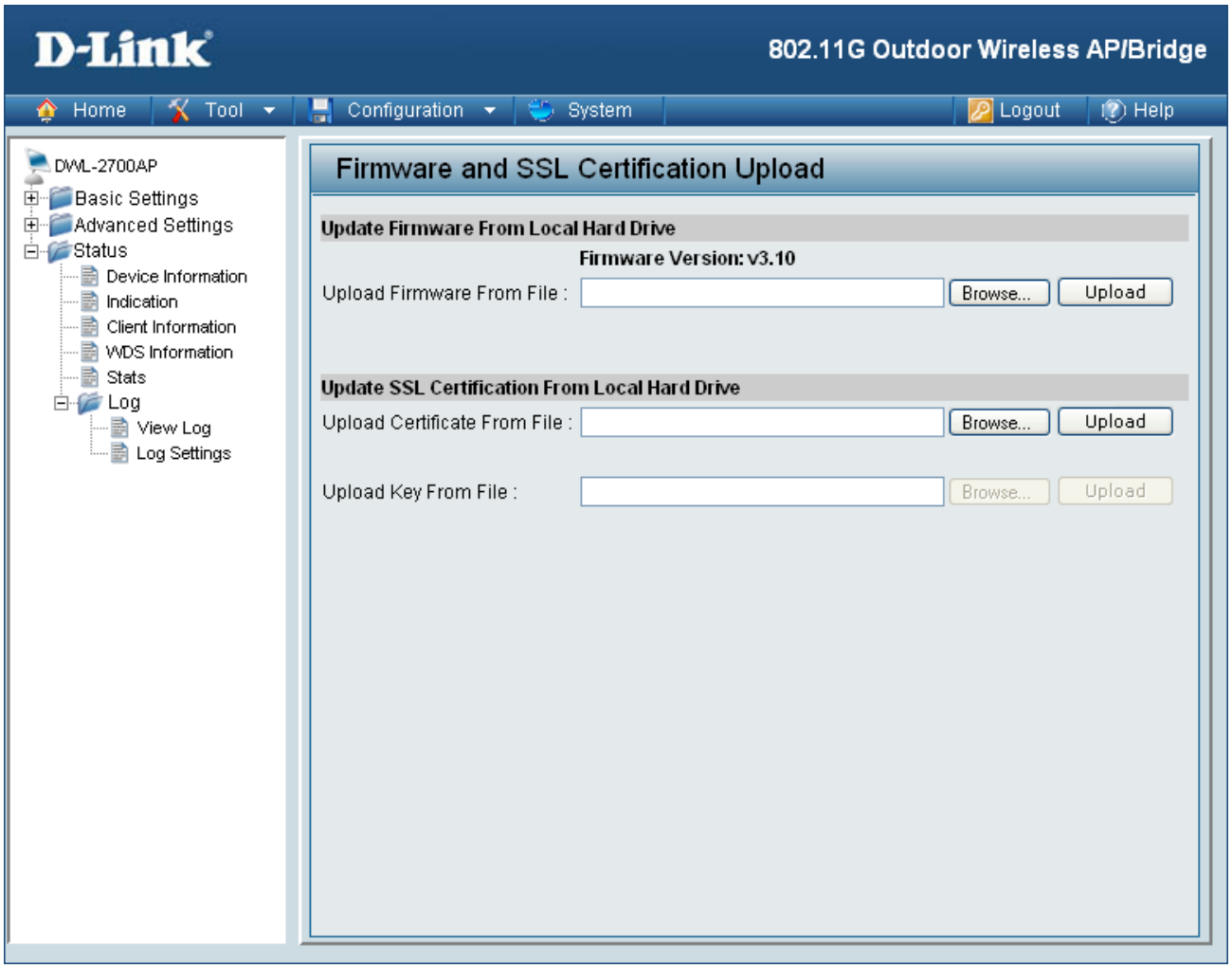
Console Settings

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**.

SNMP Settings

Status:	Status is Enabled by default. Uncheck the box to disable the SNMP functions.
Public Community String:	Enter the public SNMP community string.
Private Community String:	Enter the private SNMP community string.

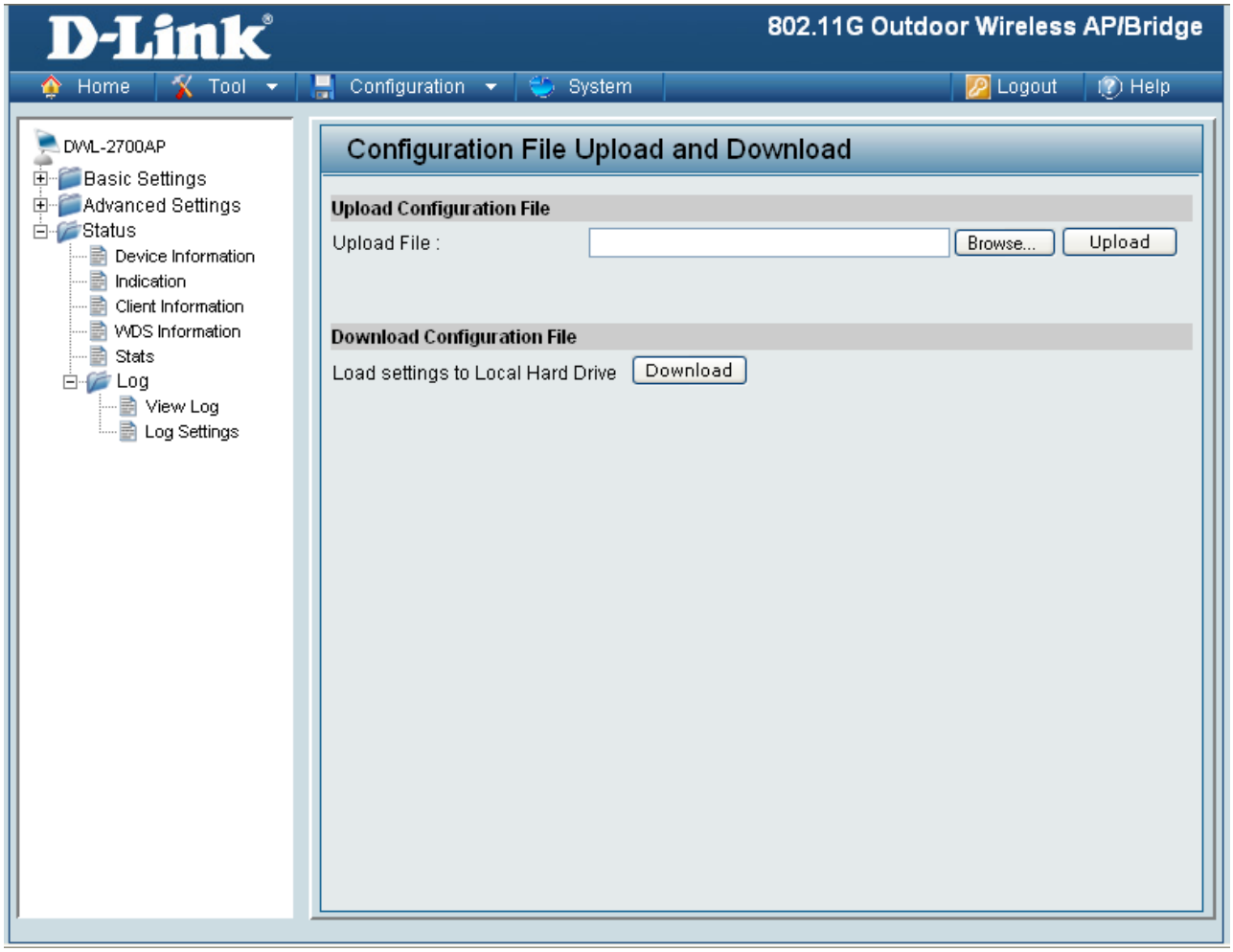
Firmware and SSL Certification Upload



Upload Firmware After downloading the most recent version of firmware for the DWL-2700AP 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.

Upload SSL Certification: 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 DWL-2700AP.

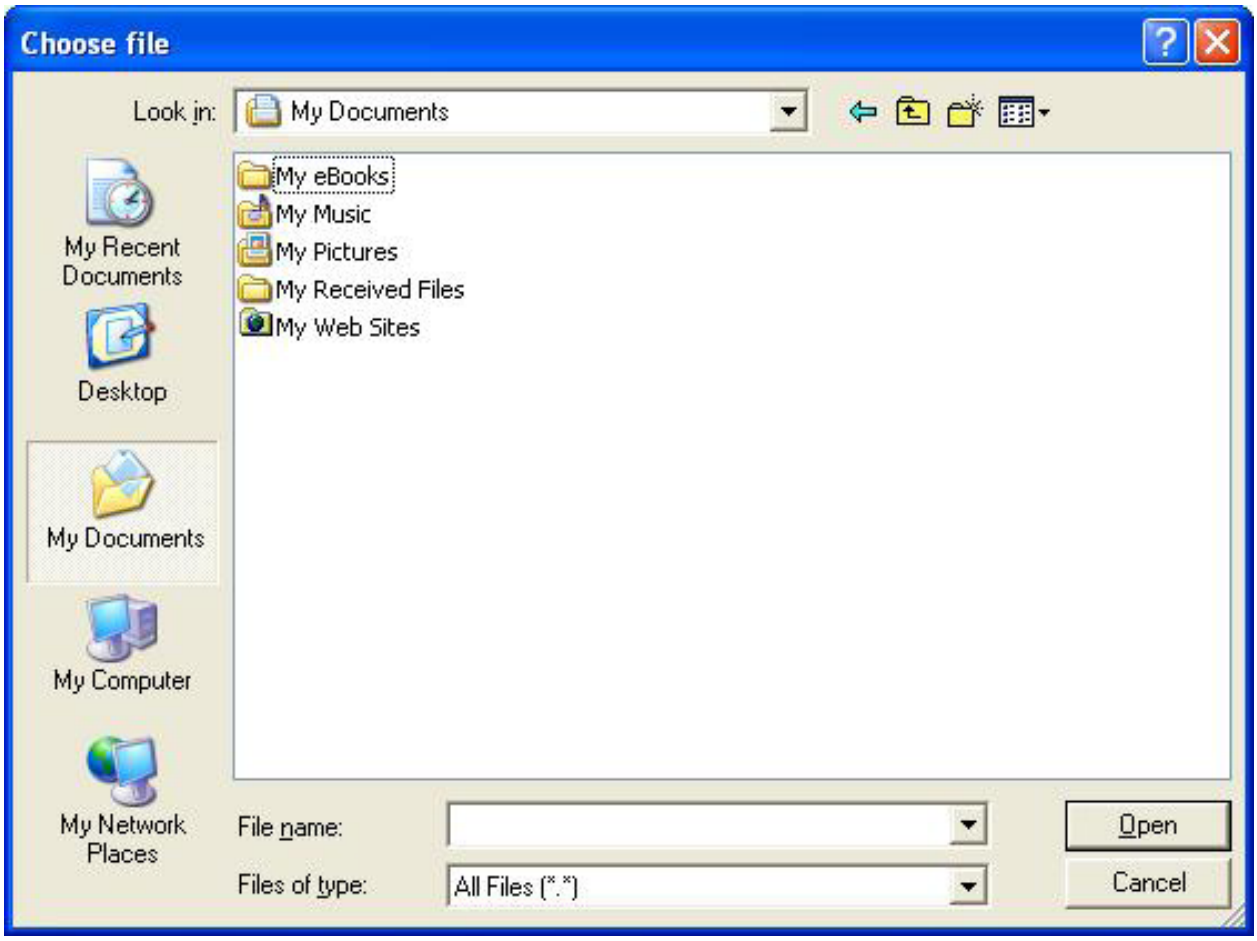
Configuration File Upload and Download



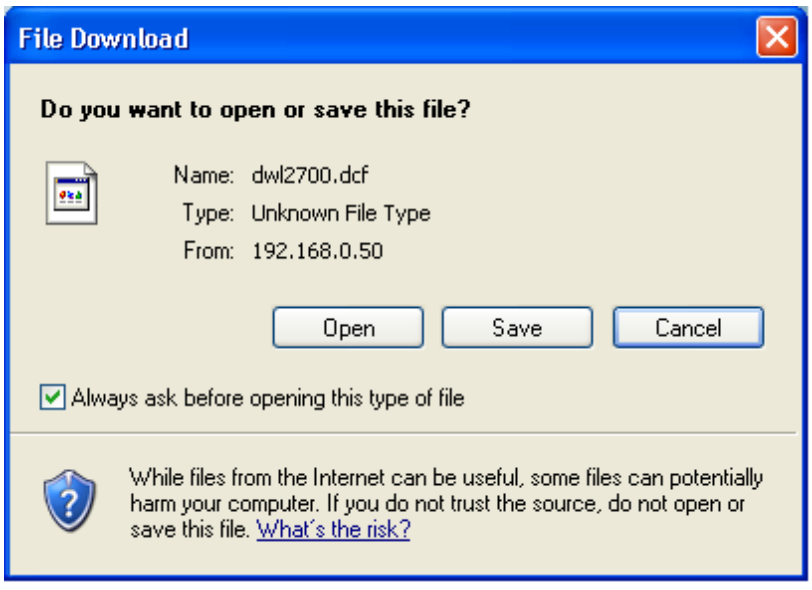
Upload File: Click **Browse** to locate a previously saved configuration file on your local computer. After selecting the file, click **Upload** to apply the configuration settings to the DWL-2700AP.

Download Configuration File: Click **Download** to save the current DWL-2700AP configuration to your local computer.

Select File

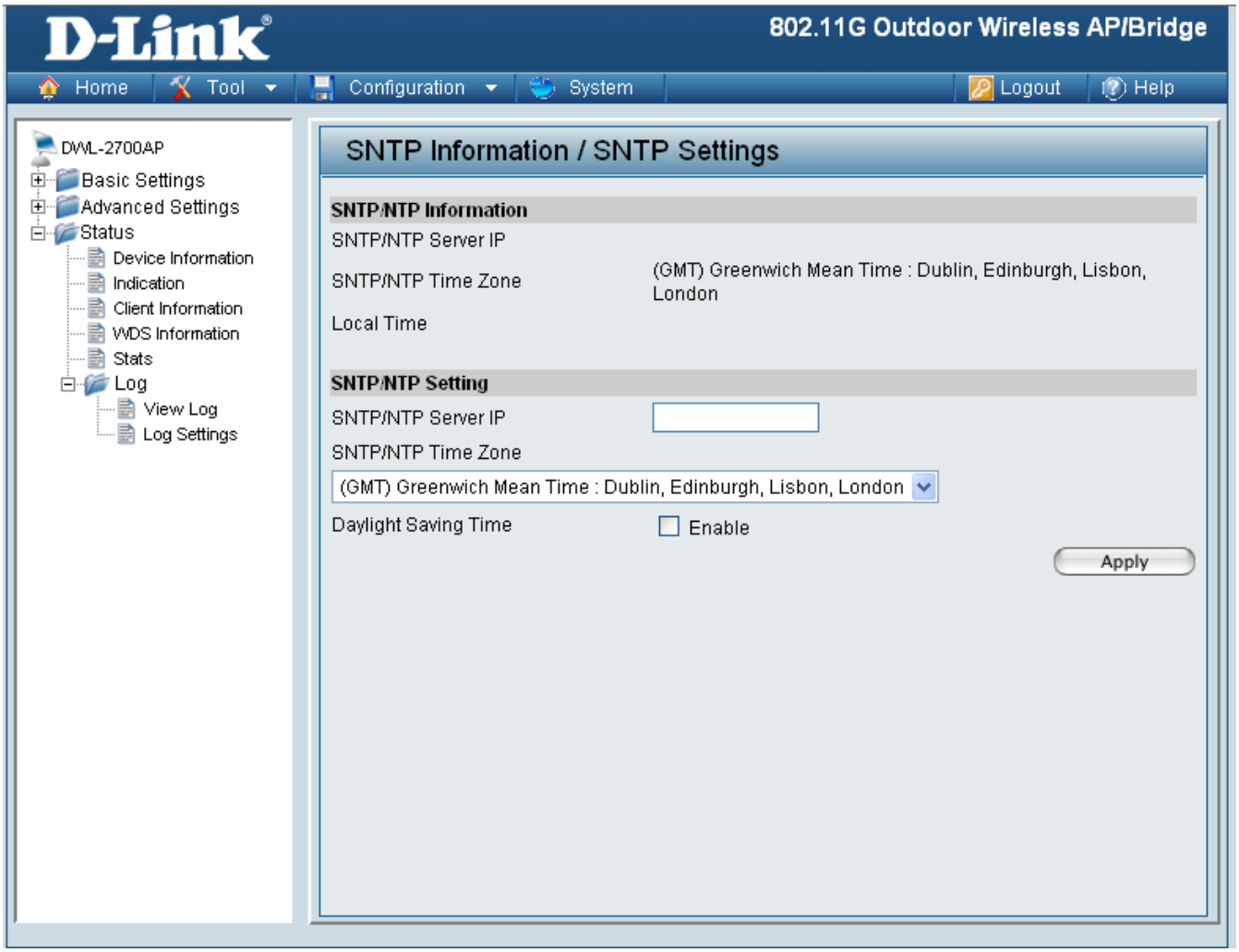


When you click **Browse** in the previous screen, the dialog box shown above appears. Select the file you wish to download and click **Open**.



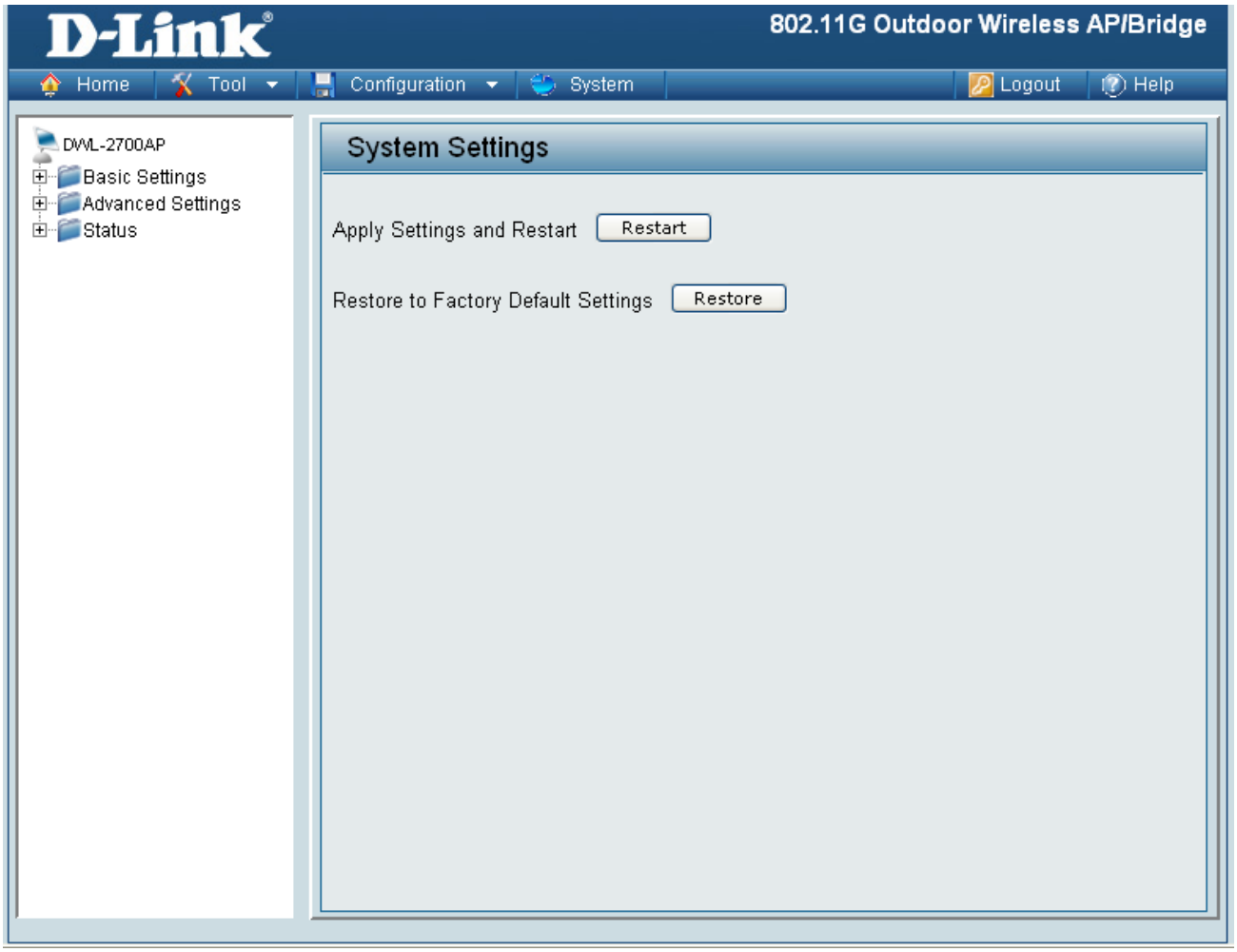
When this dialog box appears, click **Save** and select a location to save the configuration file.

SNTP Settings



SNTP/NTP Information:	Displays the current SNTP/NTP settings.
SNT/NTP Server IP Address:	Enter the SNTP/NTP server IP address.
SNTP/NTP Time Zone:	Select your correct Time Zone.
Daylight Saving Time:	Check the box to **Enable** Daylight Saving Time.

System Settings



Click **Restart** to restart the DWL-2700AP.

Click **Restore** to restore the DWL-2700AP back to factory default settings.

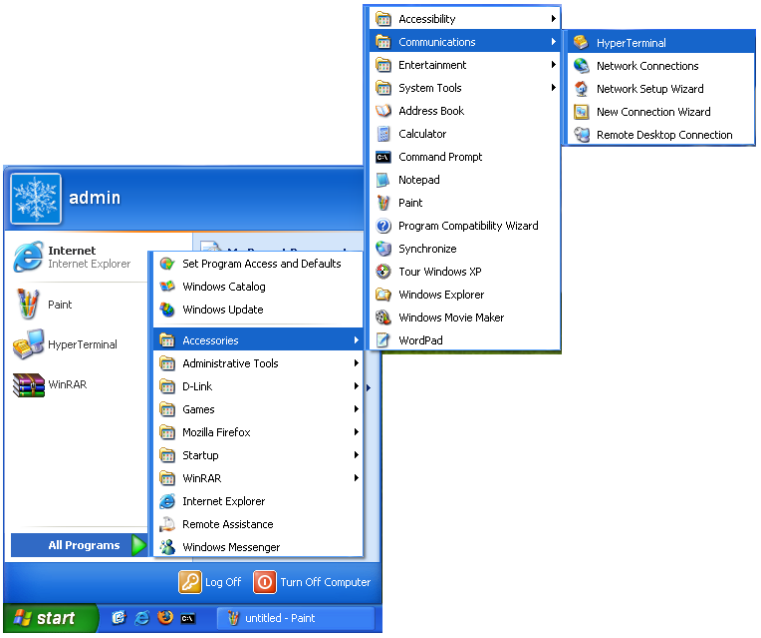
Using the Console Port

You can connect to the DWL-2700AP console port to configure device settings via the command line.

1. Connect one end of the provided serial console cable to the console port on the DWL-2700AP, and the other to an available serial port on the PC you wll use to connect to the device.

2. Run HyperTerminal on the PC:

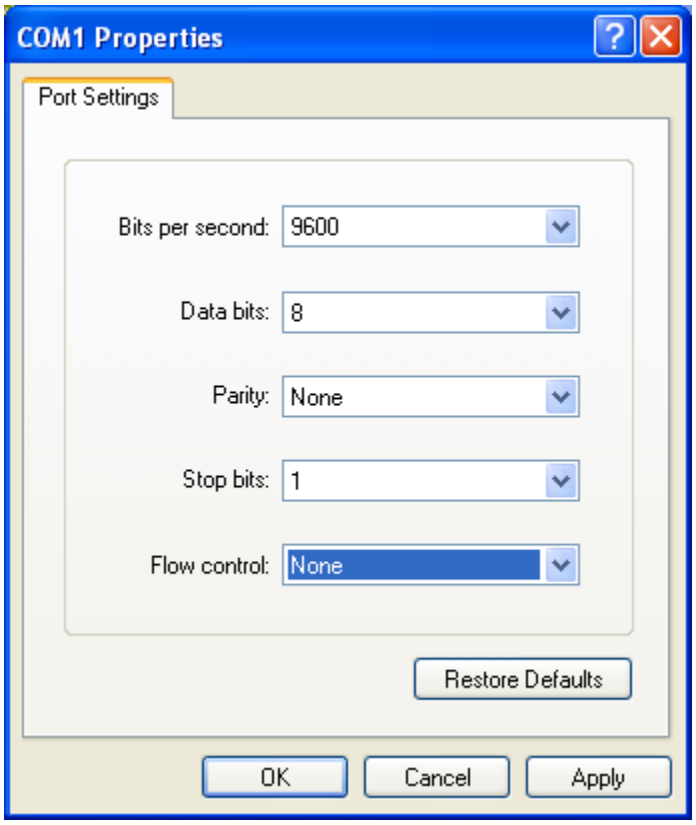
   - Go to the **Start Menu**
   - Select **All Programs**
   - Select **Accessories**
   - Select **Communications**
   - Select **HyperTerminal**



3. Enter a New Connection name:

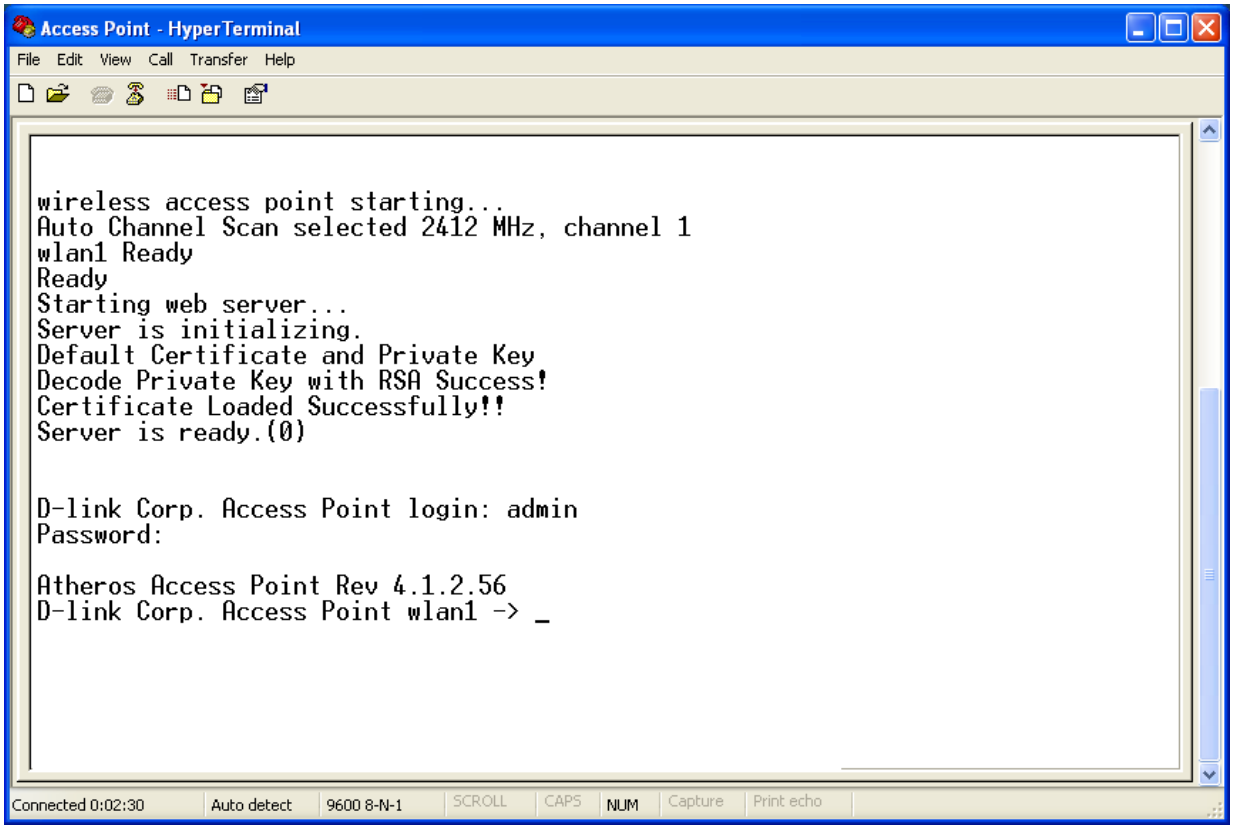
4. Select the appropriate COM port:

5. Configure the Port Settings:



Note: Your terminal emulation must be set to 9600 bits per second.

6. Enter Login Name and Password:



Once logged in, you will be able to run configuration commands from the command line prompt.

Troubleshooting

This Chapter provides solutions to problems that can occur during the installation and operation of the DWL-2700AP Wireless Access Point. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

Note: *It is recommended that you use an Ethernet connection to configure the DWL-2700AP.*

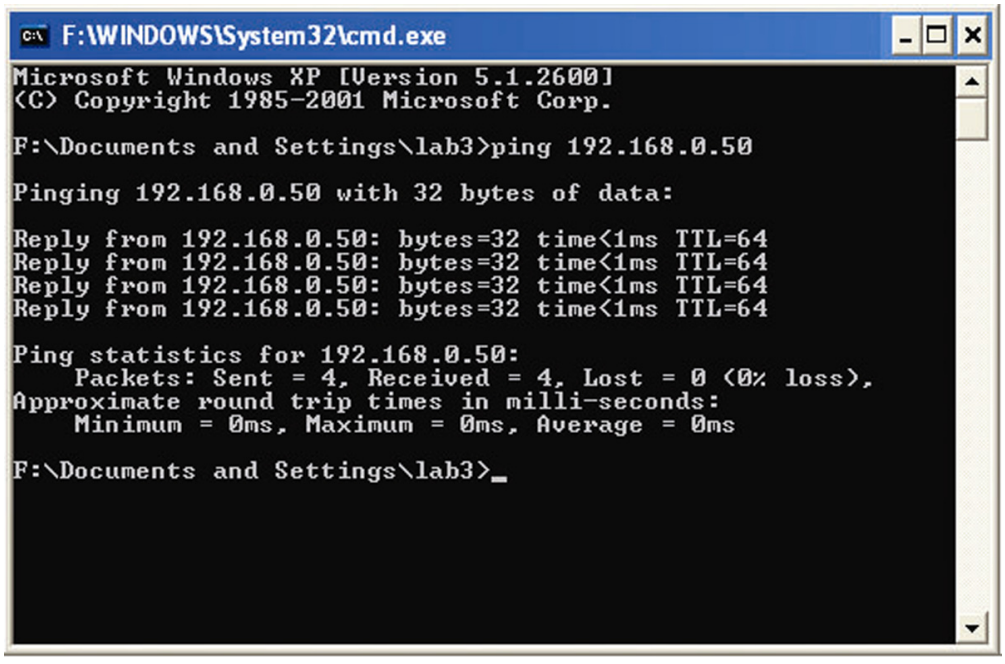
1. The computer used to configure the DWL-2700AP cannot access the Configuration menu.

- Check that the **Ethernet LED** on the DWL-2700AP is **ON**. If the **LED** is not **ON**, check that the cable for the Ethernet connection is securely inserted.
- Check that the Ethernet Adapter is working properly. Please see item 3 (***Check that the drivers for the network adapters are installed properly***) in this **Troubleshooting** section to check that the drivers are loaded properly.
- Check that the **IP address** is in the same range and subnet as the DWL-2700AP. Please see ***Checking the IP Address in Windows® XP*** in the **Networking Basics** section of this manual.

Note: *The IP address of the DWL-2700AP is 192.168.0.50. All the computers on the network must have a unique IP address in the same range, e.g., 192.168.0.x. Any computers that have identical IP addresses will not be visible on the network. They must all have the same subnet mask, e.g., 255.255.255.0.*

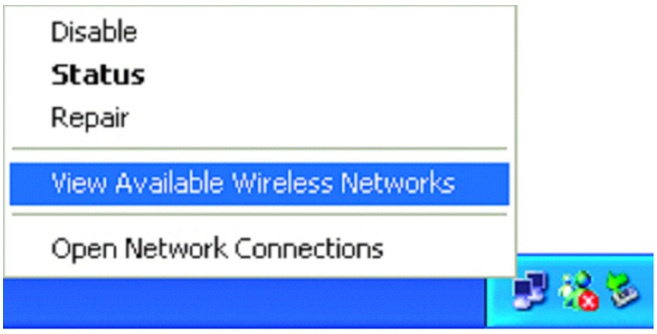
- Do a **Ping test** to make sure that the DWL-2700AP is responding. Go to **Start**>**Run**>Type **Command**>Type **ping 192.168.0.50.** A successful ping will show four replies.

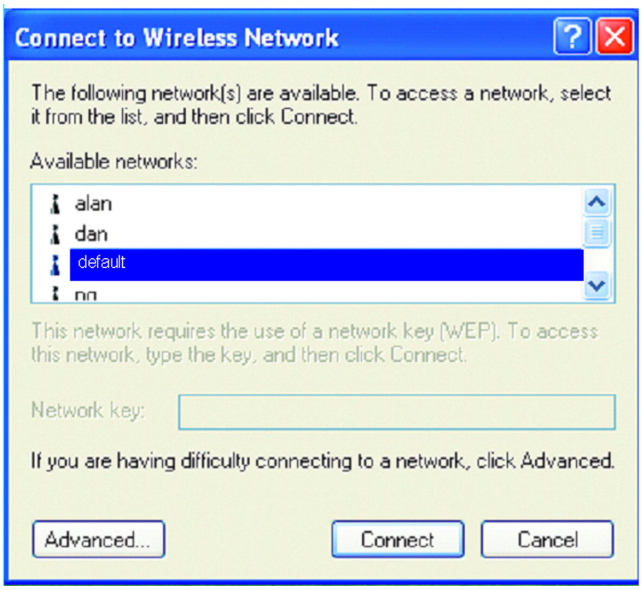
Note: *If you have changed the default IP address, make sure to ping the correct IP address assigned to the DWL-2700AP.*



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

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





- Check that the **IP address** assigned to the wireless adapter is within the same **IP address range** as the access point and gateway. *Since the DWL-2700AP has an IP address of 192.168.0.50, wireless adapters must have an IP address in the same range, e.g., 192.168.0.x. Each device must have a unique IP address; no two devices may have the same IP address. The subnet mask must be the same for all the computers on the network.)* To check the **IP address** assigned to the wireless adapter, **double-click** on the **Local Area Connection icon** in the taskbar > select the **Support tab** and the **IP address** will be displayed. *Please refer to **Checking the IP Address** in the **Networking Basics** section of this manual.)*

- If it is necessary to assign a **Static IP Address** to the wireless adapter, please refer to the appropriate section in **Networking Basics**. If you are entering a **DNS Server address** you must also enter the **Default Gateway Address.** *(Remember that if you have a DHCP capable router, you will not need to assign a static IP address. See **Networking Basics: Assigning a Static IP Address**.)*

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

D-Link products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advantageous placement of your D-Link wireless products.

4. Why does my wireless connection keep dropping?

- Antenna Orientation- Try different antenna orientations for the DWL-2700AP. Try to keep the antenna at least 6 inches away from the wall or other objects.

- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your router, access point and wireless adapter to a different channel to avoid interference.

- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

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

If you have enabled encryption on the DWL-2700AP, you must also enable encryption on all wireless clients in order to establish a wireless connection.

- Make sure that the SSID on the router and the wireless client are exactly the same. If they are not, wireless connection will not be established.

- Move the DWL-2700AP and the wireless client into the same room and then test the wireless connection.

- Disable all security settings.

- Turn off your DWL-2700AP and the client. Turn the DWL-2700AP back on again, and then turn on the client.

- Make sure that all devices are set to **Infrastructure** mode.

- Check that the LED indicators are indicating normal activity. If not, check that the AC power and Ethernet cables are firmly connected.

- Check that the IP address, subnet mask, gateway and DNS settings are correctly entered for the network.

- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your DWL-2700AP, and on all the devices in your network to avoid interference.

- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

Technical Specifications

Standards
- IEEE 802.11b
- IEEE 802.11g
- IEEE 802.3
- IEEE 802.3u
- IEEE 802.3x

Network Management
- Web Browser interface
  - HTTP
- AP Manager II
- SNMP Support
  - D-View Module
  - Private MIB
- Command Line Interface
  - Telnet

Data Rate
For 802.11b:
- 11, 5.5, 2, and 1Mbps

For 802.11g:
- 54, 48, 36, 24, 18, 12, 9 and 6Mbps

Security
- WPA-Personal
- WPA-Enterprise
- WPA2-Personal
- WPA2-Enterprise
- 64/128/152-bit WEP
- SSID Broadcast Disable
- MAC Address Access Control List

Wireless Frequency Range
- 2.4GHz to 2.4835GHz

Radio and Modulation Type
For 802.11b:

DSSS:
- DBPSK @ 1Mbps
- DQPSK @ 2Mbps
- CCK @ 5.5 and 11Mbps

For 802.11g:

OFDM:
- BPSK @ 6 and 9Mbps
- QPSK @ 12 and 18Mbps
- 16QAM @ 24 and 36Mbps
- 64QAM @ 48 and 54Mbps

DSSS:
- DBPSK @ 1Mbps
- DQPSK @ 2Mbps
- CCK @ 5.5 and 11Mbps

Antenna Type
- Monopole antennas with 5dBi gain

Receiver Sensitivity
For 802.11b:
- 1Mbps: -92dBm
- 2Mbps: -89dBm
- 5.5Mbps: -88dBm
- 11Mbps: -83dBm

For 802.11g:
- 1Mbps: -92dBm
- 2Mbps: -89dBm
- 5.5Mbps: -88dBm
- 6Mbps: -87dBm
- 9Mbps: -86dBm
- 11Mbps: -85dBm
- 12Mbps: -88dBm
- 18Mbps: -83dBm
- 24Mbps: -80dBm
- 36Mbps: -76dBm
- 48Mbps: -71dBm
- 54Mbps: -66dBm

Transmit Output Power
For 802.11b:
- 100mW (20dBm)
- 50mW (17dBm)
- 30mW (15dBm)
- 20mW (13dBm)
- 10mW (10dBm)
- 5mW (7dBm)
- 1mW (0dBm)

For 802.11g:
- 200mW (23dBm)
- 63mW (18dBm)
- 30mW (15dBm)
- 20mW (13dBm)
- 10mW (10dBm)
- 5mW (7dBm)
- 1mW (0dBm)

Wireless Operating Range*
802.11g (Full power with 5dBi gain diversity dipole antenna)

Indoor:
- 98ft (30m) @ 54Mbps
- 112ft (34m) @ 48Mbps
- 128ft (39m) @ 36Mbps
- 154ft (47m) @ 24Mbps
- 184ft (56m) @ 18Mbps
- 217ft (66m) @ 12Mbps
- 259ft (79m) @ 9Mbps
- 325ft (99m) @ 6Mbps

Outdoor:
- 367ft (112m) @ 54Mbps
- 820ft (250m) @ 18Mbps
- 1,640ft (500m) @ 6Mbps

LEDs
- Power
- 10/100M
- RSSI level
- 802.11b/g

Operating Voltage
- 48VDC +/- 10% for PoE

Current Consumption
- Max.8.5W (without heater)
- Max.28.5W (with heater)

Temperature
- Operating: -40°F to 140°F (-40°C to 60°C)
- Storing: -4°F to 149°F (-40°C to 65°C)

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

Certifications
- FCC Part 15
- CSA international

Dimensions
- L = 10.93 inches (277.7mm)
- W = 6.10 inches (155mm)
- H = 1.77 inches (45mm)

Warranty
- 1 Year

Contacting Technical Support

U.S. and Canadian customers can contact D-Link technical support through our web site or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DWL-2700AP)
- Hardware Revision (located on the label on the bottom of the device (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the device).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:
(877) 354-6555

Internet Support:
http://support.dlink.com

For customers within Canada:

Phone Support:
(877) 354-6560

Internet Support:
http://support.dlink.com

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. (“D-Link”) provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below (“Hardware”) will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below (“Warranty Period”), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty:

D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days (“Software Warranty Period”), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link’s functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software.

Except as otherwise agreed by DLink in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty:

The Limited Warranty provided hereunder for Hardware and Software portions of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim:

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow DLink to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.

- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization ("RMA") number by completing the RMA form and entering the assigned Case ID Number at https://rma.dlink.com/.
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. DLink will only replace the defective portion of the product and will not ship back any accessories.

- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer.

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:
Products that, in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties:

EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability:

TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NONCONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law:

This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

Trademarks:

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Copyright Statement:

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FCC Statement:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the
following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

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

IMPORTANT NOTICE:

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

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

Industry Canada Notice:

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

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

This device has been designed to operate with an antenna having a maximum gain of 2 dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Registration

Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

Version 2.10
August 23, 2007