USER MANUAL

DAP-1155

VERSION 1.10

D-Link®

WIRELESS

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Package Contents

- D-Link Wireless N 150 Bridge/Access Point
- Power Supply
- Manual on CD
- Quick Installation Guide
- Ethernet Cable

Note: Using a power supply with a different voltage rating than the one included with the DAP-1155 will cause damage and void the warranty for this product.

System Requirements

- Computers with Windows®, Macintosh®, or Linux-based operating systems with an installed Ethernet Adapter
- Internet Explorer or Netscape Navigator version 6.0 or above, with JavaScript enabled

Features

- **Multiple operation modes -** Can be flexibly configured to operate as an Access Point and Bridge.

- **Faster Wireless Networking -** The DAP-1155 provides up to 150Mbps* wireless connection with other 802.11n wireless clients. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio.

- **Compatible with 802.11b and 802.11g Devices -** The DAP-1155 is still fully compatible with the IEEE 802.11b and IEEE 802.11g standard, so it can connect with existing 802.11b and IEEE 802.11g PCI USB and Cardbus adapters.

- **Total security -** Complete set of security features including WEP encryption and WPA/WPA2 to protect network against outside intruders.

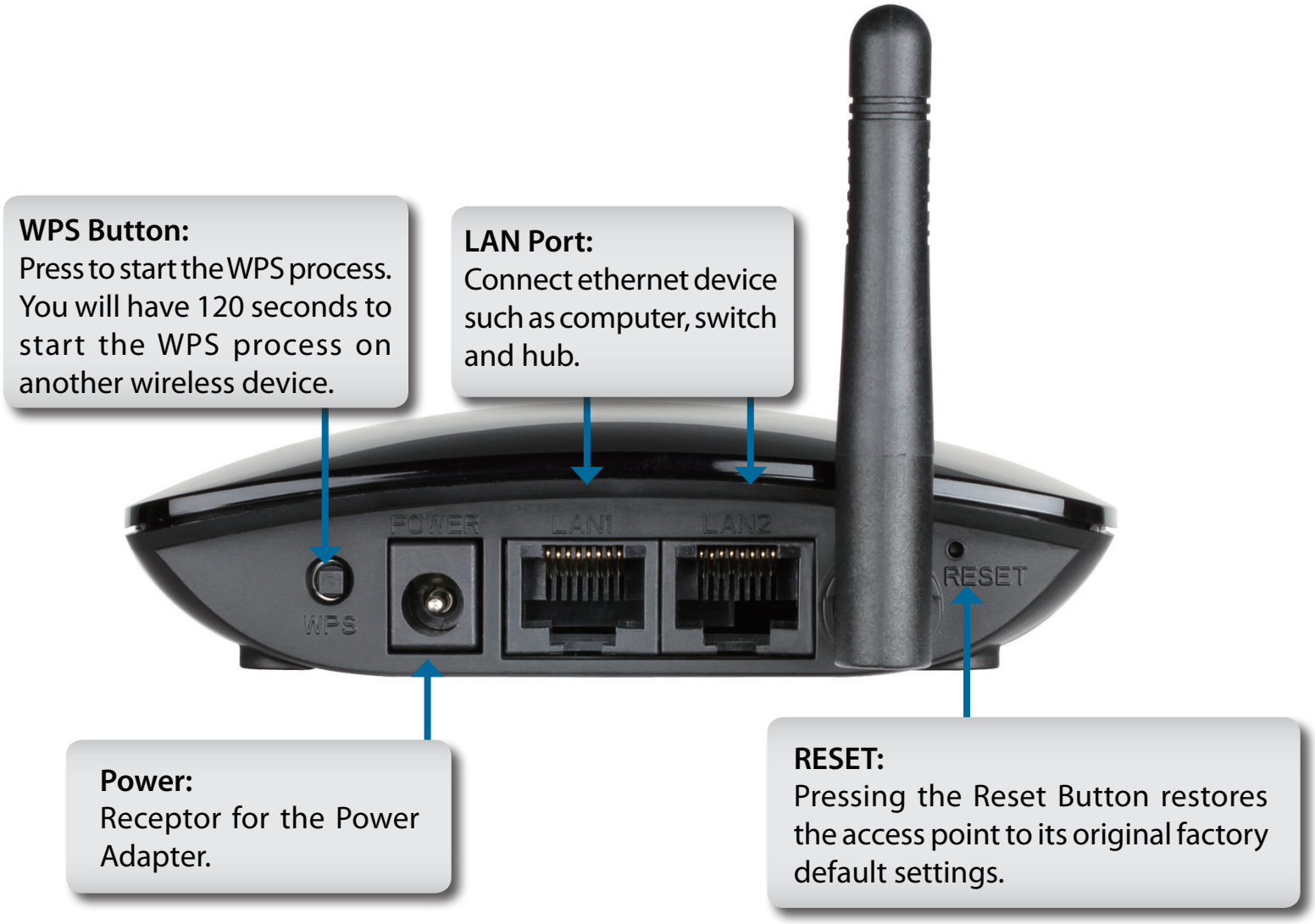
- **Connect home and soho to a wireless network -** Create a wireless network for your home and office using the D-Link DAP-1155 as an 802.11n standard Wireless Access Point. Connect this Access Point to a broadband modem and let others wirelessly access your Internet connection. Enjoy surfing the web, checking e-mail, and chatting with family and friends online.

- **Protect wireless network and data -** The DAP-1155 provides 64/128-bit WEP encryption and WPA/WPA2 security to protect your network and wireless data. In addition, it also provides MAC address filtering and the Disable SSID Broadcast function to limit outsiders' access to your home and office network.

- **Easy to install and use -** Through its easy-to-use Web-based user interface, the DAP-1155 lets you configure your AP to your specific settings within minutes.

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

Hardware Overview
Connections



Hardware Overview

LEDs

Wireless Installation Considerations

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

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

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

3. Building Materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless access points, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.

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

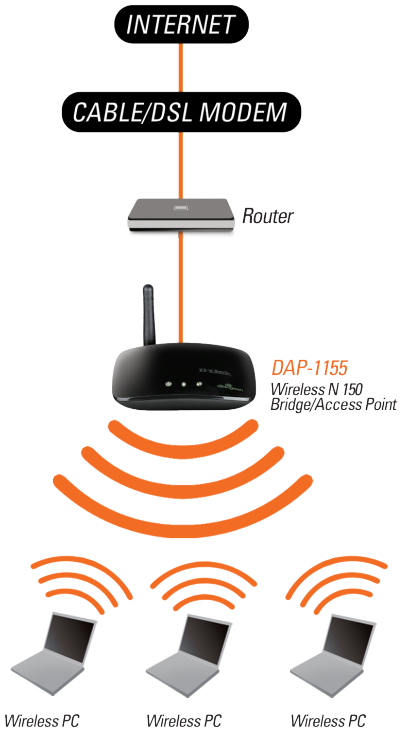
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits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

AP/ Bridge Mode

How you use your DAP-1155 will determine which mode you choose on the DAP-1155. This section will help you figure out which setting works with your setup.

Access Point Mode

In Access Point mode, the DAP-1155 acts as a central connection point for any computer (client) that has a 802.11n or backward-compatible 802.11b/g wireless network adapter and is within range of the AP. Clients must use the same SSID (wireless network name) and channel as the AP in order to connect. If wireless security is enabled on the AP, the client will need to enter a password to connect to the AP. Multiple clients can connect to the AP at the same time in Access Point mode.

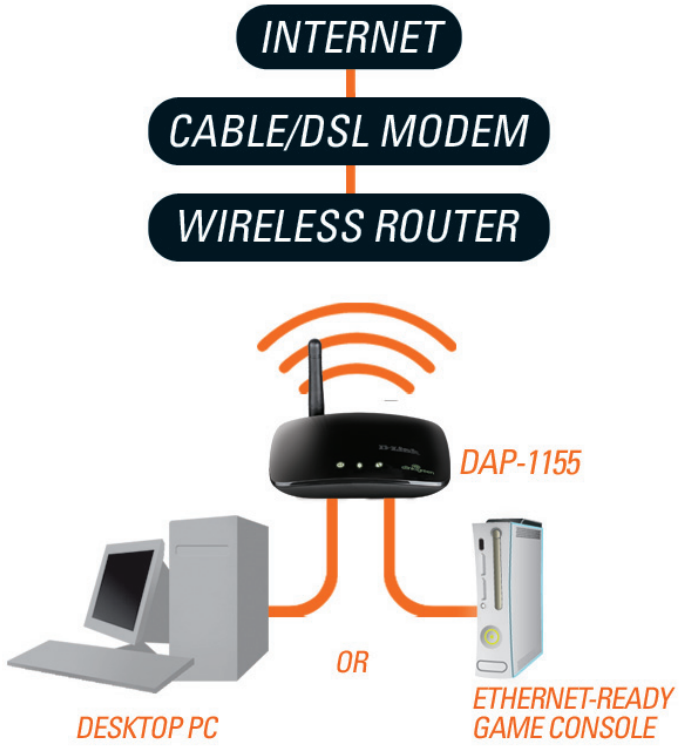


Wireless PCs Using the DAP-1155 as a Central Connection Point

Bridge Mode

In the Wireless Client mode, the DAP-1155 acts as a wireless network adapter for your Ethernet-enabled device (such as a game console or a laptop). Connect your Ethernet-enabled device to the AP using an Ethernet cable. The AP Client mode can support one wired client.

Example: Connect a gaming console using an Ethernet cable to the DAP-1155. The unit is set to Wireless Client mode which will wirelessly connect to a wireless router on your network.



Configuration

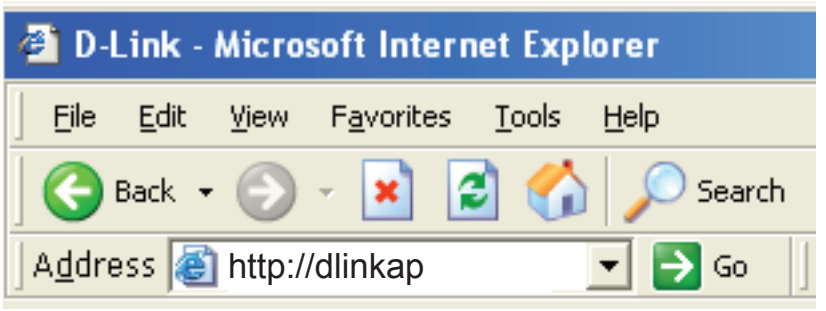
This section will show you how to configure your new D-Link wireless access point using the web-based configuration utility.

Access Point Mode

Change the mode selector to **AP** on the device. Connect an Ethernet cable from the Ethernet port on the DAP-1155 to a computer for configuration.

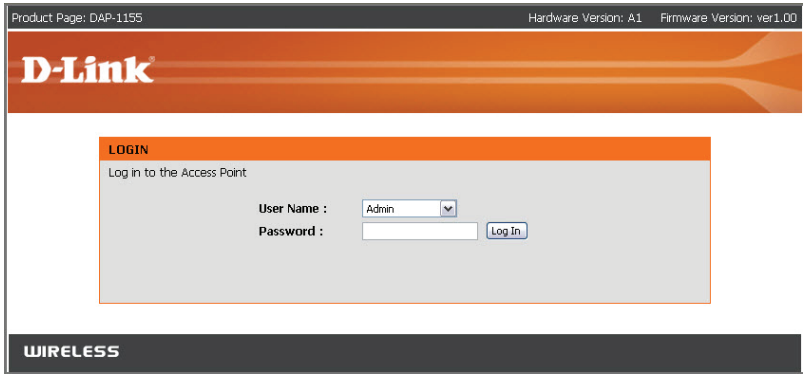
If you wish to change the default settings or optimize the performance of the DAP-1155, you may use the web-based configuration utility.

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



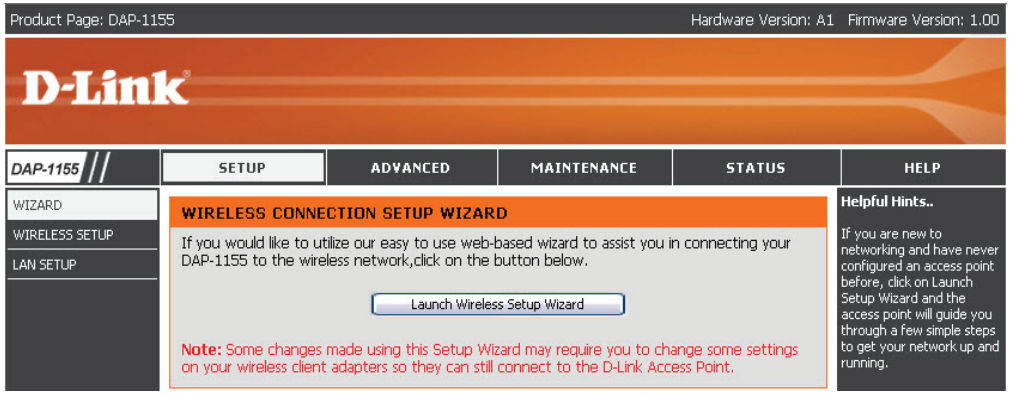
Type **admin** and then enter your password. Leave the password blank by default.

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

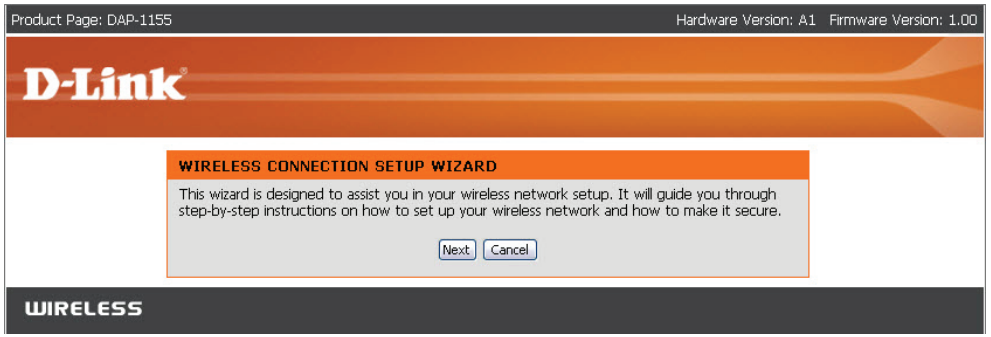


Wireless Setup Wizard

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



Click "Next" to continute.

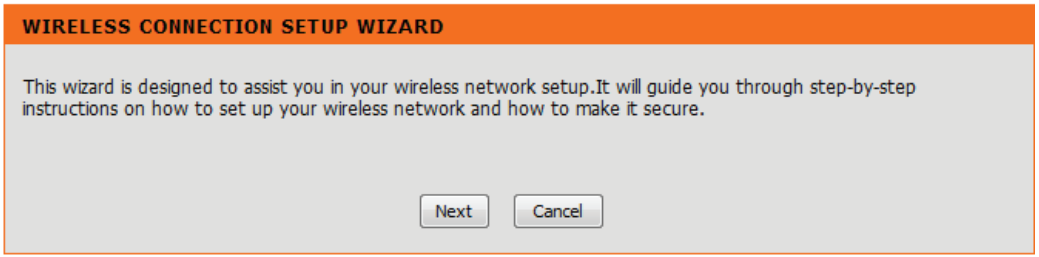


Access Point Mode

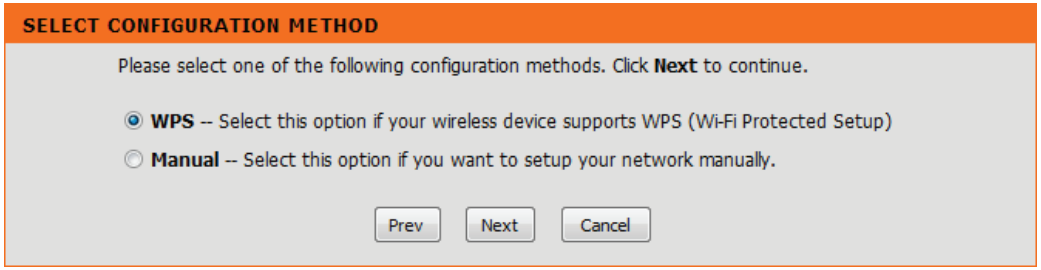
This Wizard is designed to assist you in configuring your DAP-1155 as an access point.

Select **Access Point** from the drop-down menu.

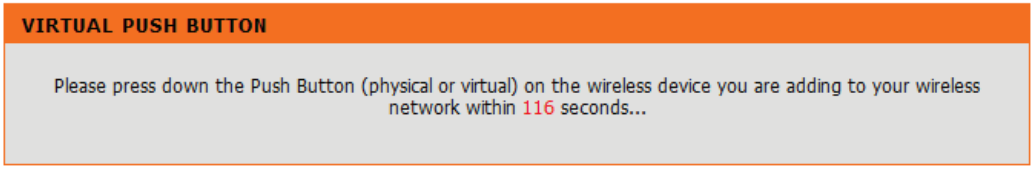
Click **Next** to continue.



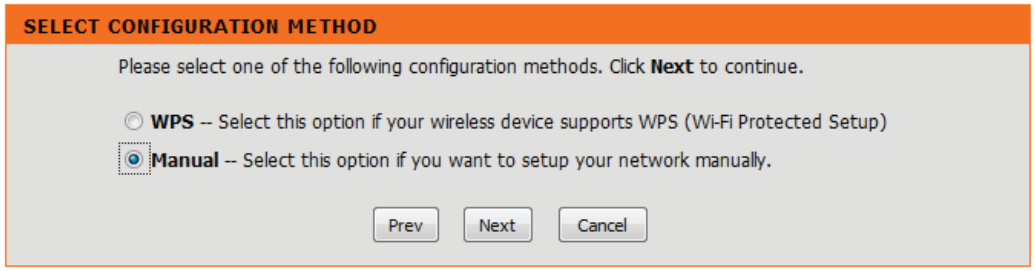
Select **WPS** to connect using WPS (Wi-Fi Protected Setup) and then click **Next**.



Press the WPS button on your wireless device you want to connect with. You will have a 2 minute (120 seconds) time limit.



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

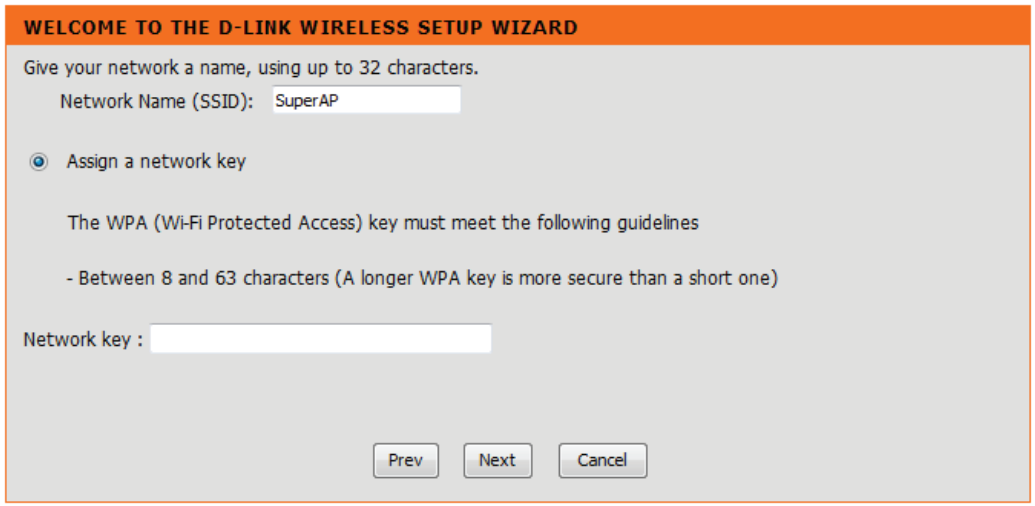


Enter the wireless network name (SSID). The SSID can be up to 32 characters and is case-sensitive.

Next, enter an encryption key (Network Key). The key can be between 8 and 63 characters and is case-sensitive.

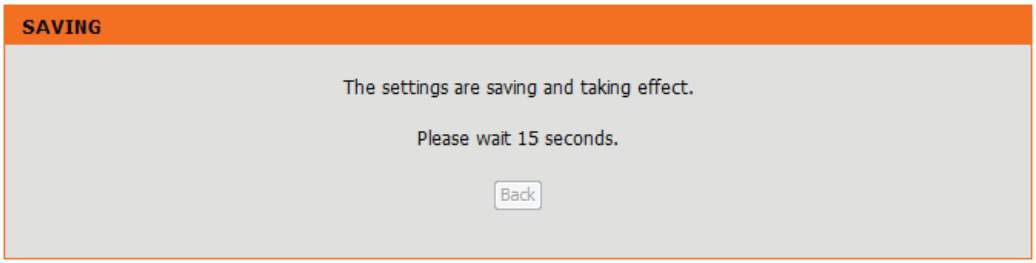
You must enter this key on any wireless device that will connect to the DAP-1155.

Click **Next** to continue.



Click **Save** to save your settings.

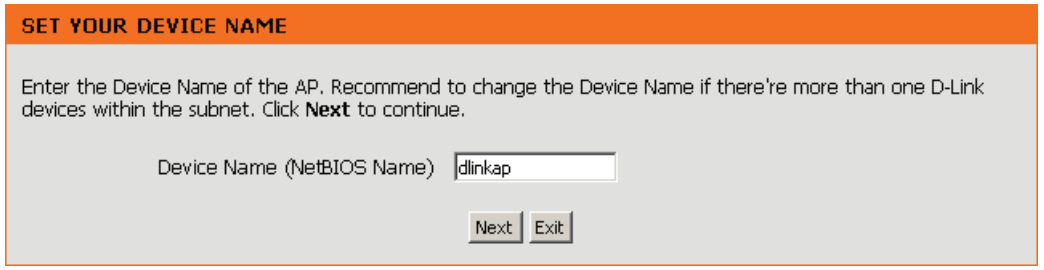
The DAP-1155 will reboot.



Bridge Mode

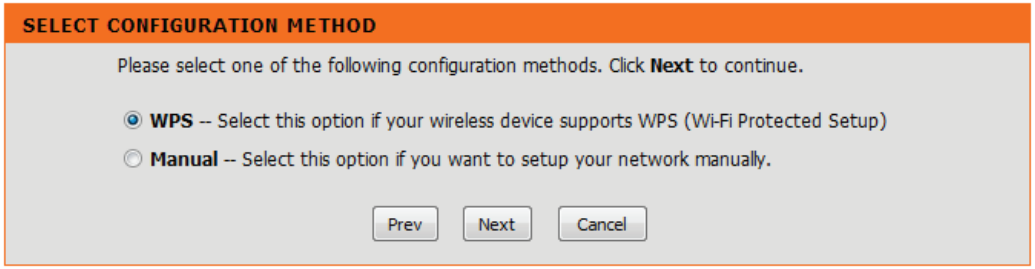
This Wizard is designed to assist you in configuring your DAP-1155 as a wireless client.

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

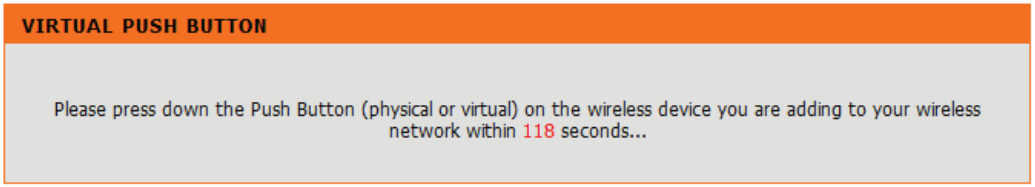


Select **Bridge** from the drop-down menu.

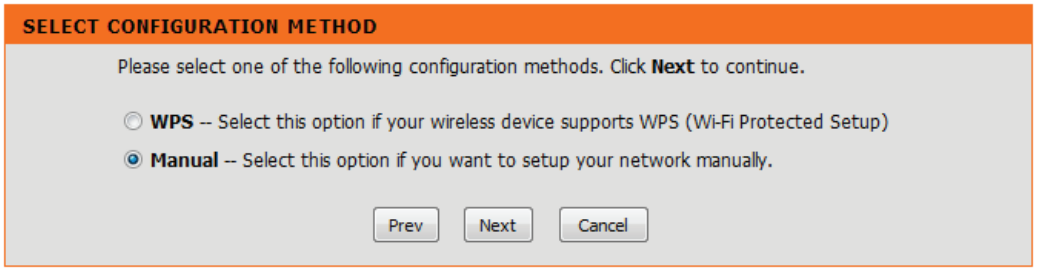
Select WPS to connect using WPS (Wi-Fi Protected Setup) and then click Next.



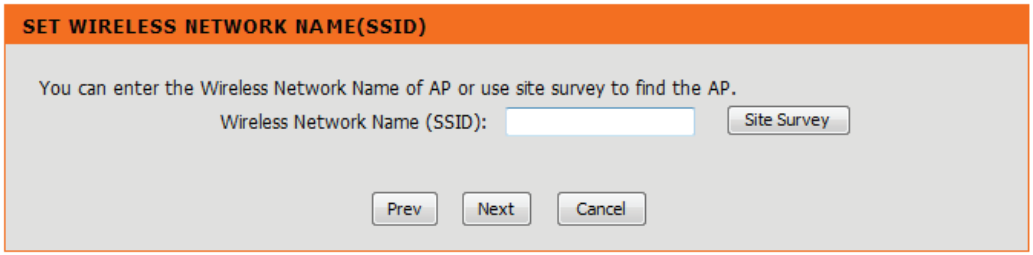
Press the WPS button on your wireless device you want to connect with. You will have a 2 minute (120 seconds) time limit.



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

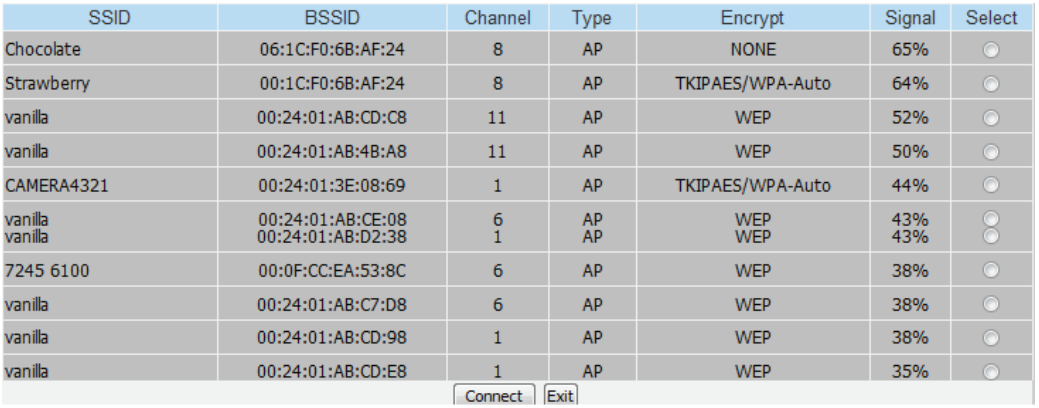


Enter the wireless network name (SSID) of the network you want to connect to. The SSID is case-sensitive. Click **Next** to continue.



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

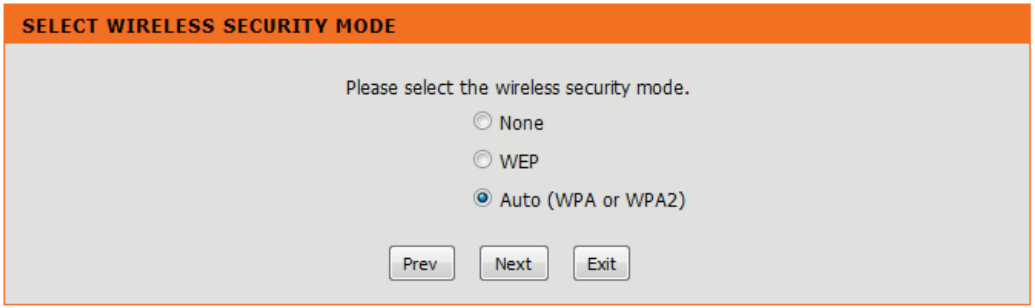
Find your wireless network from the list, click the Select radio button and click **Connect**.



SSID	BSSID	Channel	Type	Encrypt	Signal	Select
Chocolate	06:1C:F0:6B:AF:24	8	AP	NONE	65%	
Strawberry	00:1C:F0:6B:AF:24	8	AP	TKIPAES/WPA-Auto	64%	
vanilla	00:24:01:AB:CD:C8	11	AP	WEP	52%	
vanilla	00:24:01:AB:4B:A8	11	AP	WEP	50%	
CAMERA4321	00:24:01:3E:08:69	1	AP	TKIPAES/WPA-Auto	44%	
vanilla vanilla	00:24:01:AB:CE:08 00:24:01:AB:D2:38	6 1	AP AP	WEP WEP	43% 43%	
7245 6100	00:0F:CC:EA:53:8C	6	AP	WEP	38%	
vanilla	00:24:01:AB:C7:D8	6	AP	WEP	38%	
vanilla	00:24:01:AB:CD:98	1	AP	WEP	38%	
vanilla	00:24:01:AB:CD:E8	1	AP	WEP	35%	

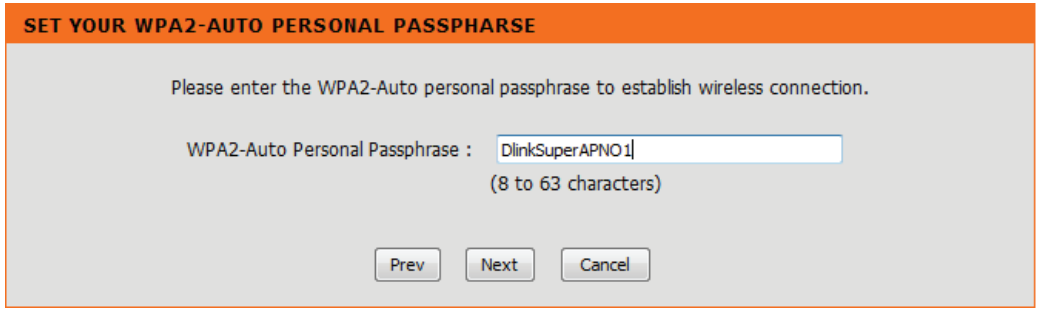
Connect Exit

Select the type of wireless security you would like to use and click **Connect** to continue.

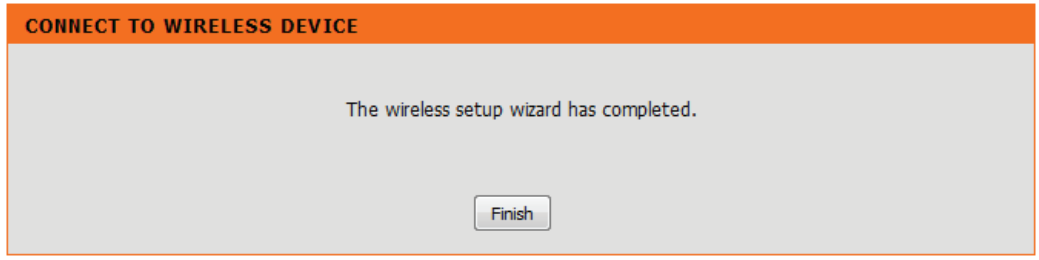


If you choose **WEP**, enter the wireless security password and click **Next** to complete the Setup Wizard.

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



Click **Finish** to complete the Setup Wizard.

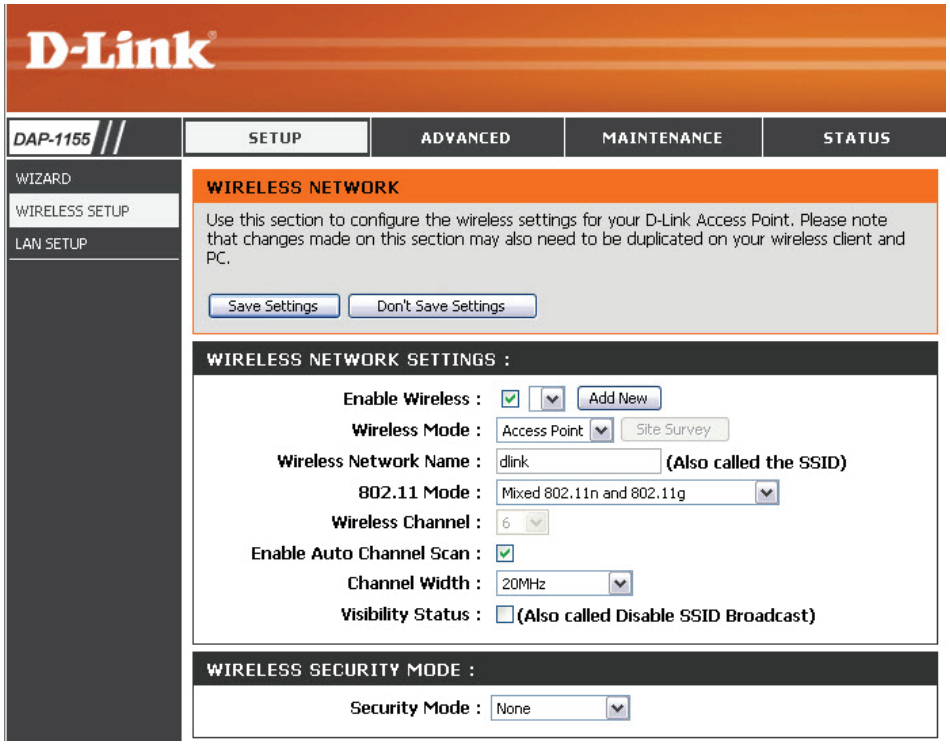


Manual Configuration
Wireless Settings

You may manually configure your DAP-1155 instead of running the setup wizard.

- Access Point mode - page 21
- Bridge mode - page 39

Access Point Mode
Wireless Settings



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

Wireless Mode: Selec **Access Point** fron the drop-down menu

Wireless Network Name: When you are browsing for available wireless networks, this is the name that will appear in the list (unless Visibility Status is set to Invisible, see below). This name is also referred to as the SSID. For security purposes, it is highly recommended to change from the default network name.

802.11 mode: **802.11n Only** - Select only if all of your wireless clients are 802.11n.
Mixed 802.11n and 802.11g - Select if you are using both 802.11n and 802.11g wireless clients.
Mixed 802.11n, 802.11g, and 802.11b - Select if you are using 802.11n, 802.11g, and 802.11b wireless clients.

Enable Auto Channel Scan: The Auto Channel Scan setting can be selected to allow the DAP-1155 to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1155. If you enable Auto Channel Scan, this option will be grayed out.

Channel Width: Select the Channel Width:
Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.
20MHz - Select if you are not using any 802.11n wireless clients.

Enable Hidden Wireless: Check this box if you do not want the SSID of your wireless network to be broadcasted by the DAP-1155. If enabled, the SSID of the DAP-1155 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DAP-1155 in order to connect to it.

Security Mode: Refer to page 51 for more information regarding the wireless security.

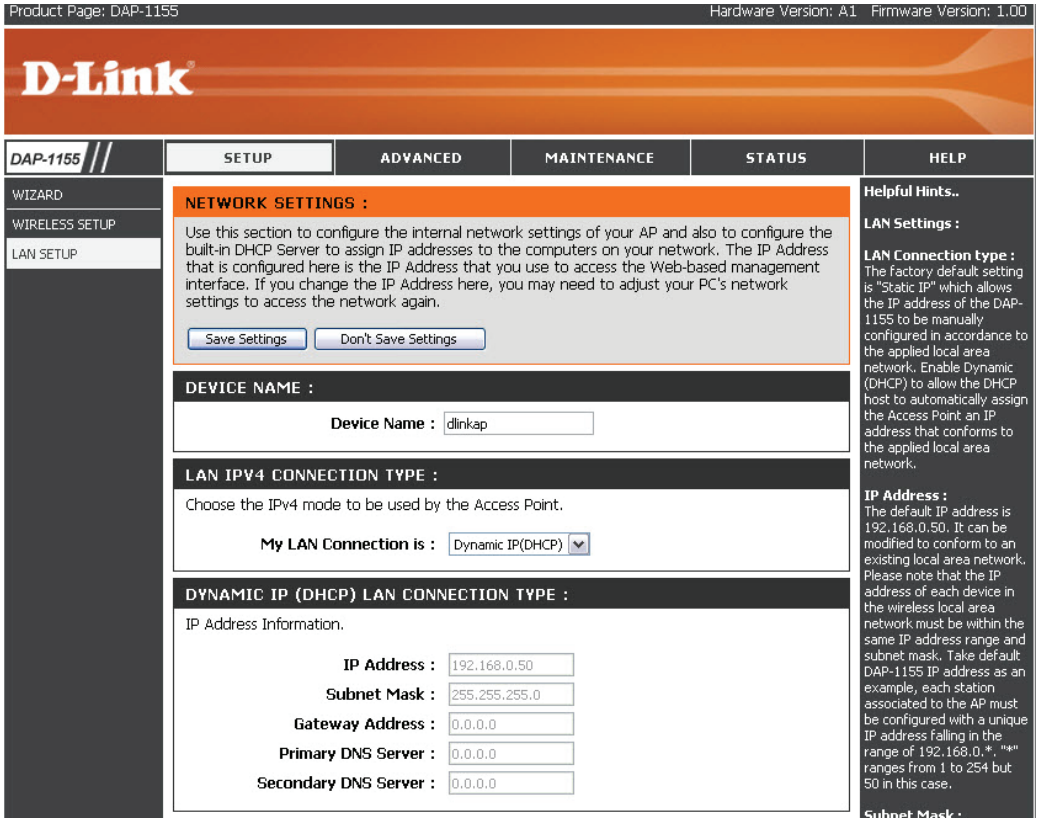
LAN Settings

DHCP

DHCP stands for Dynamic Host Control Protocol. The DHCP Server (usually your router) will automatically assign an IP address to the DAP-1155 . When you turn your DAP-1155 on, it will automatically receive the proper TCP/IP settings provided by the DHCP Server.

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

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



Static IP

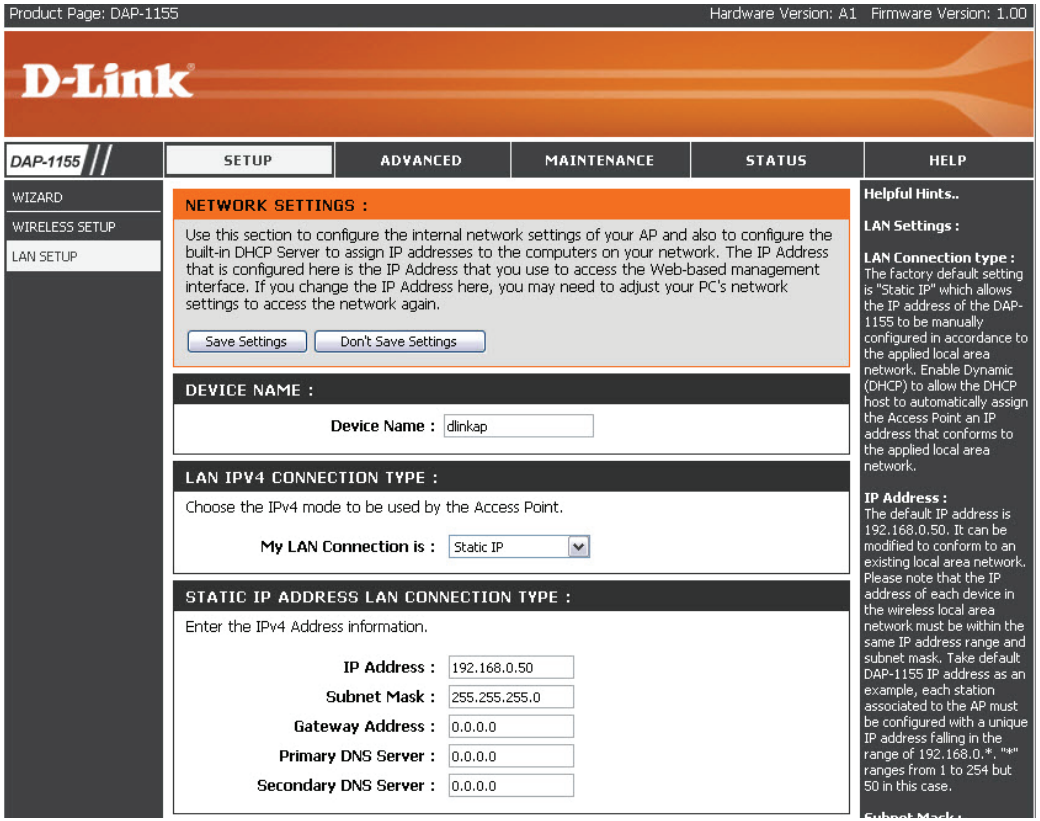
LAN Connection Type: Use the drop-down menu to select **Static IP**.

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

Subnet Mask: Enter the Subnet Mask of your network.

Default Gateway: Enter the Gateway of your network (usually the IP address of your router).

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

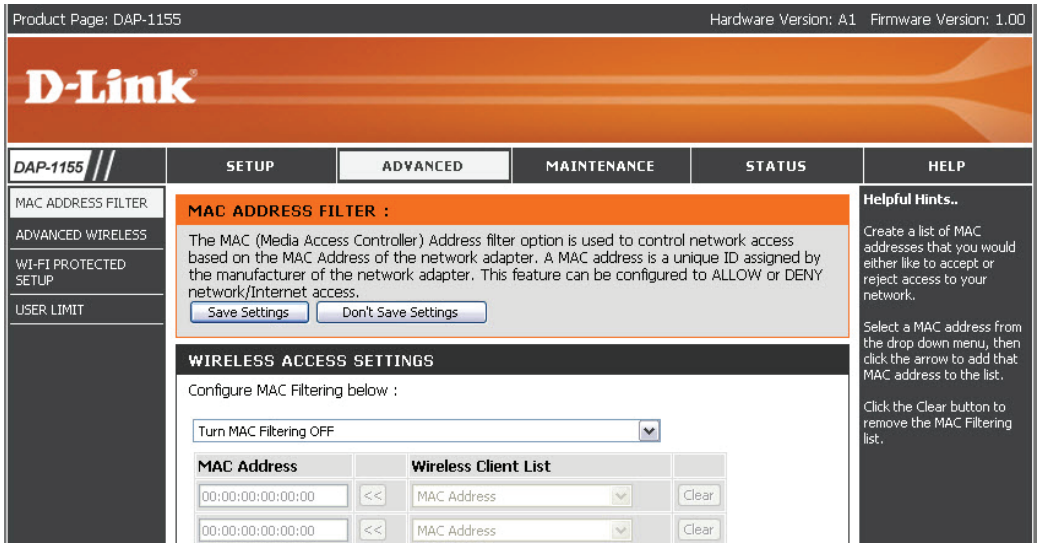


Advanced
MAC Address Filter

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

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

MAC Address: Enter the MAC address of the adapter (client) that you want to filter. Click **Save Settings** at the top to save the filter rule.



Advanced Wireless

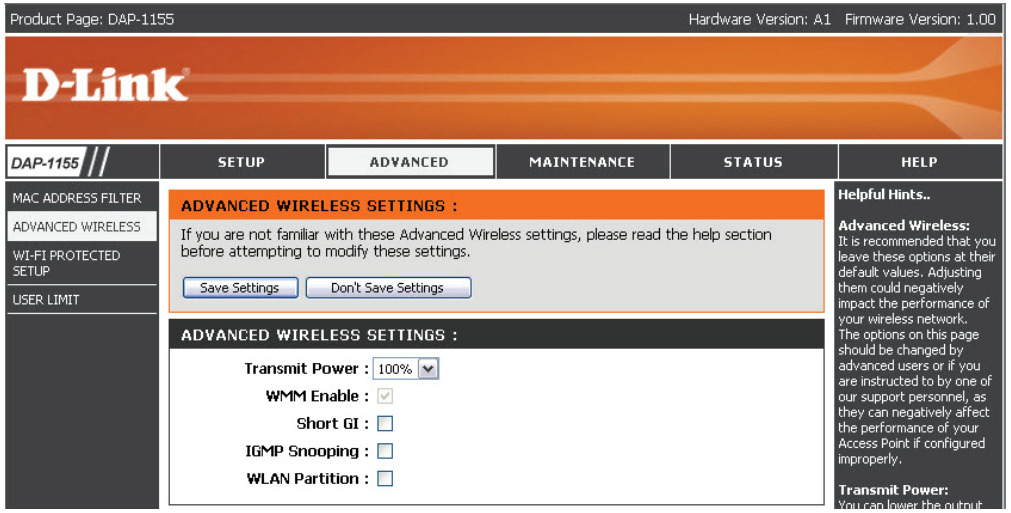
Transmit Power: Sets the transmit power of the antennas (**100%, 50%, 25%, 10% or 5%**).

WMM Enable: WMM is QoS for your wireless network. This will improve the quality of video and voice applications for your wireless clients.

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

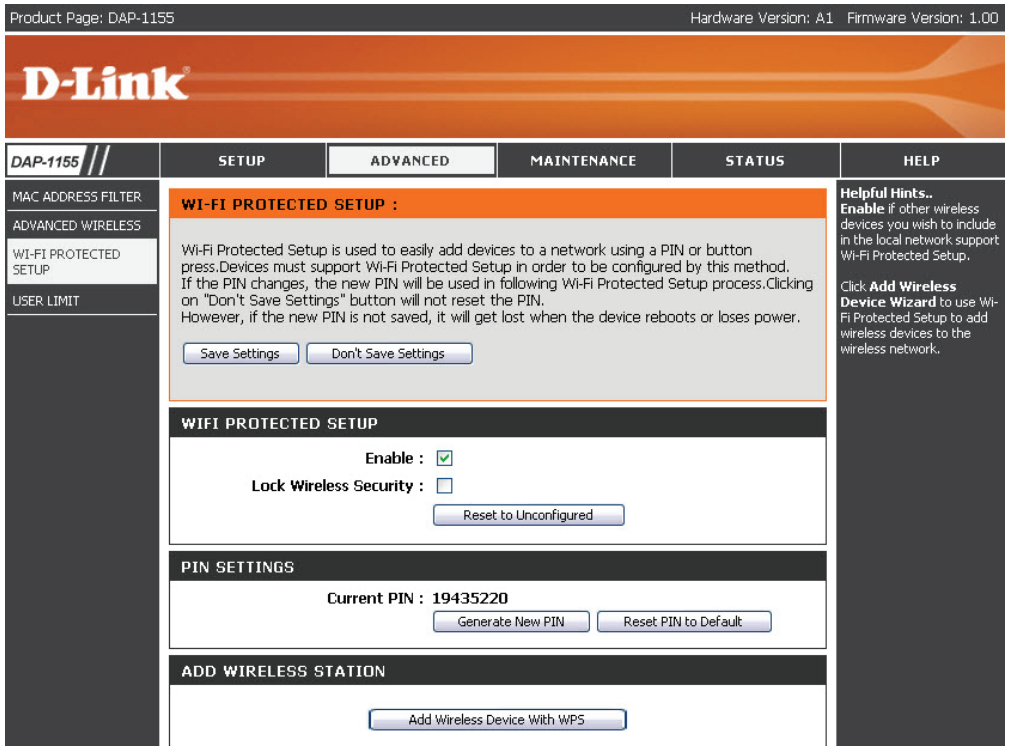
IGMP Snooping: This enables IGMP snooping for the wireless connection. We recommend enabling this if you often use multicast services such as video conferencing and streaming audio/video.

WLAN Partition: Check to enable WLAN Partition.



Wi-Fi Protected Setup (WPS)

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



Enable: Enable the Wi-Fi Protected Setup feature.

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

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

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

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

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

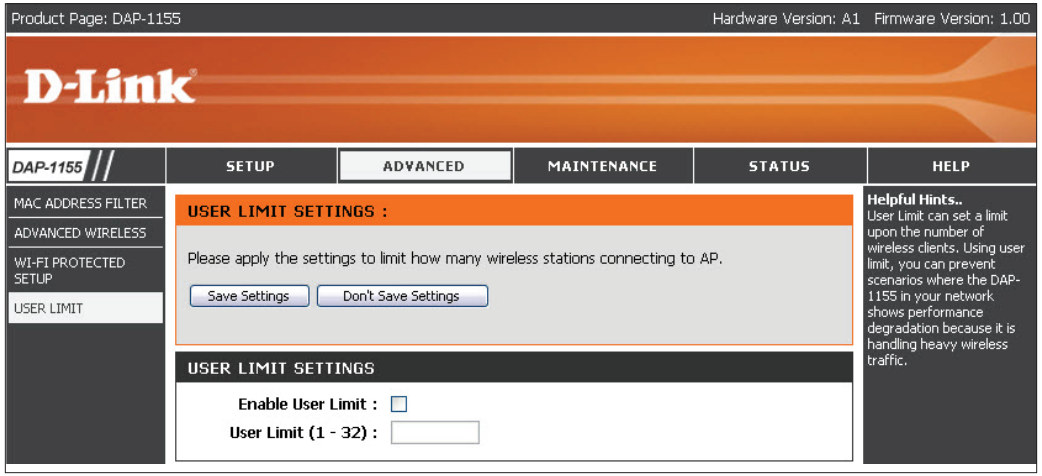
User Limit

Enter the maximum number of wireless clients that can connect at one time to your access point.

Enable User Limit: Check the **Enable User Limit** box to enable this feature.

User Limit: Enter the maximum number of clients, between 1 and 32.

Save Settings: Click **Save Settings** to save and activate the new changes.



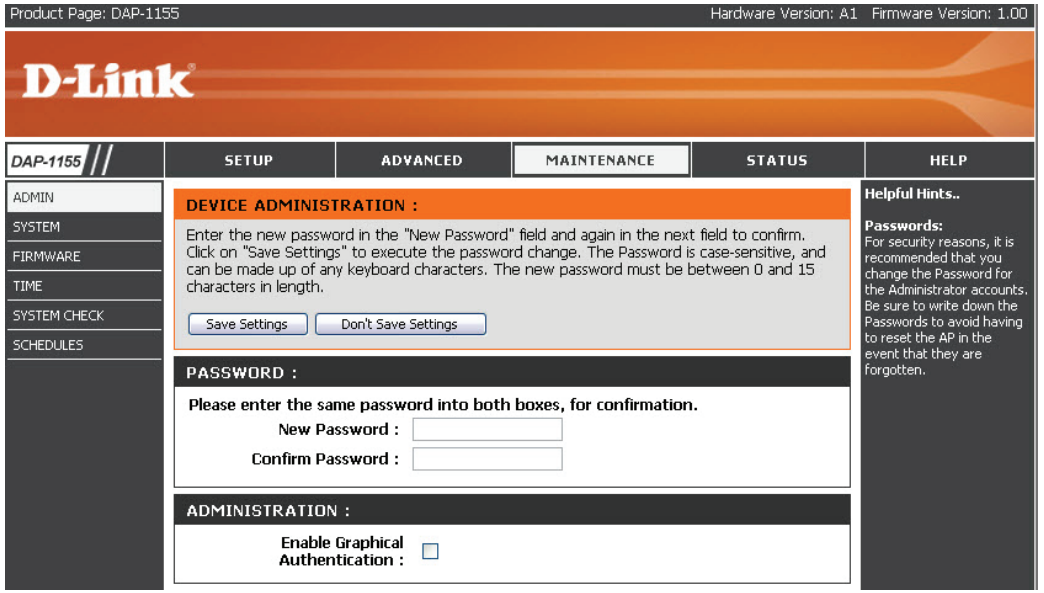
Maintenance
Admin

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

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

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

Enable Graphical Authentication: Check this box to require users to type letters or numbers from a distorted image displayed on the login screen to prevent online hackers and unauthorized users from gaining access to your router's network settings.



System

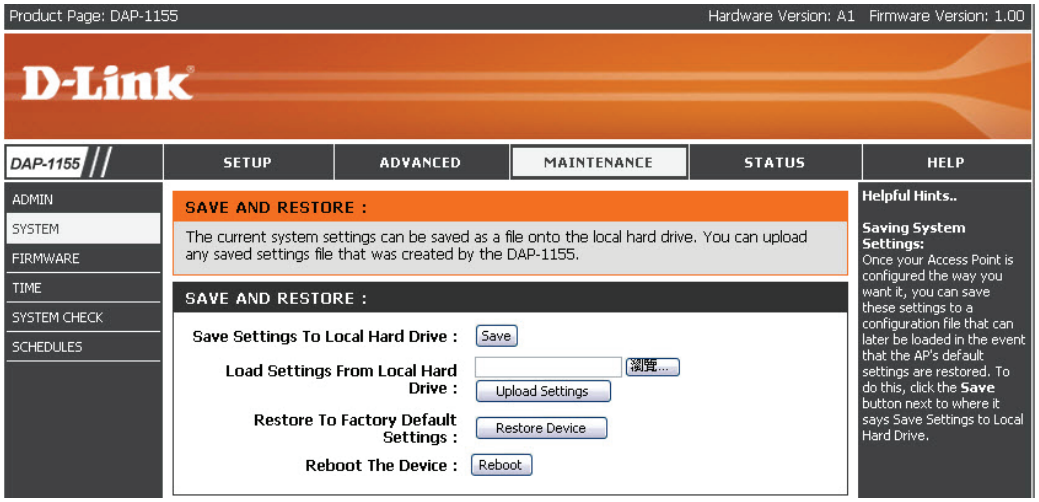
Save Settings to Local Hard Drive: Use this option to save the current access point configuration settings to a file on the hard disk of the computer you are using. First, click the **Save** button. You will then see a file dialog, where you can select a location and file name for the settings.

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

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

Note: Restoring the factory default settings will not reset the Wi-Fi Protected Status to Not Configured.

Reboot the Device: Click to reboot the access point.



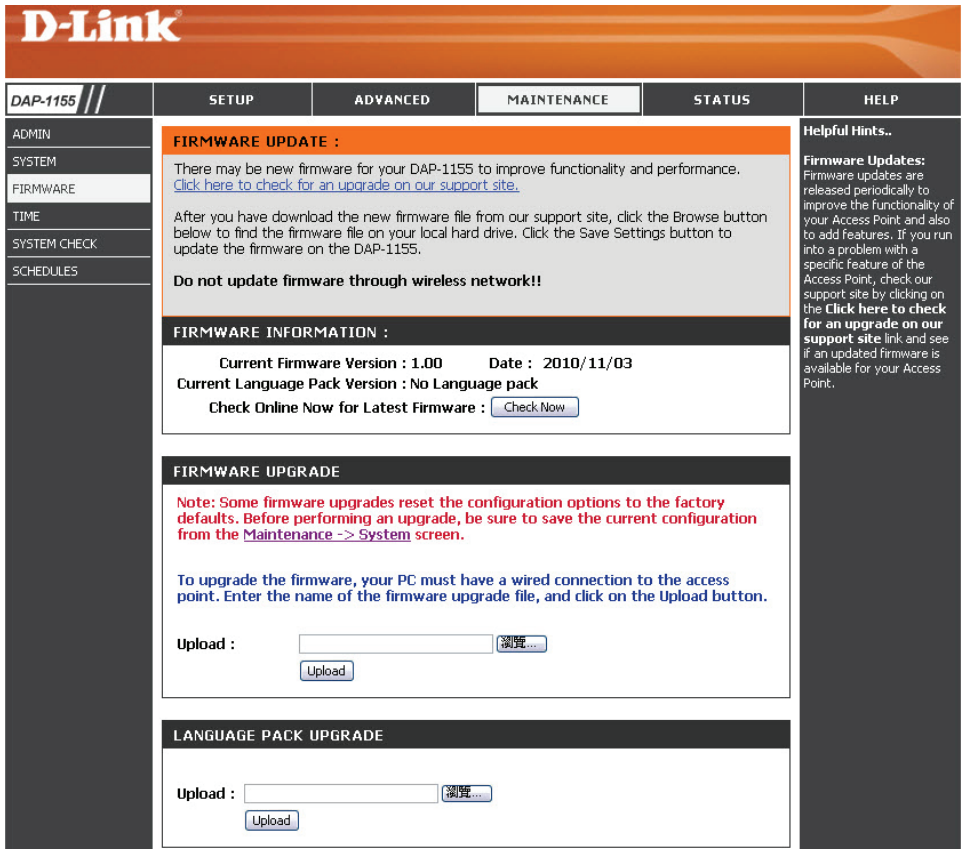
Firmware

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

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

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

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



Language Pack

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

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

Time

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

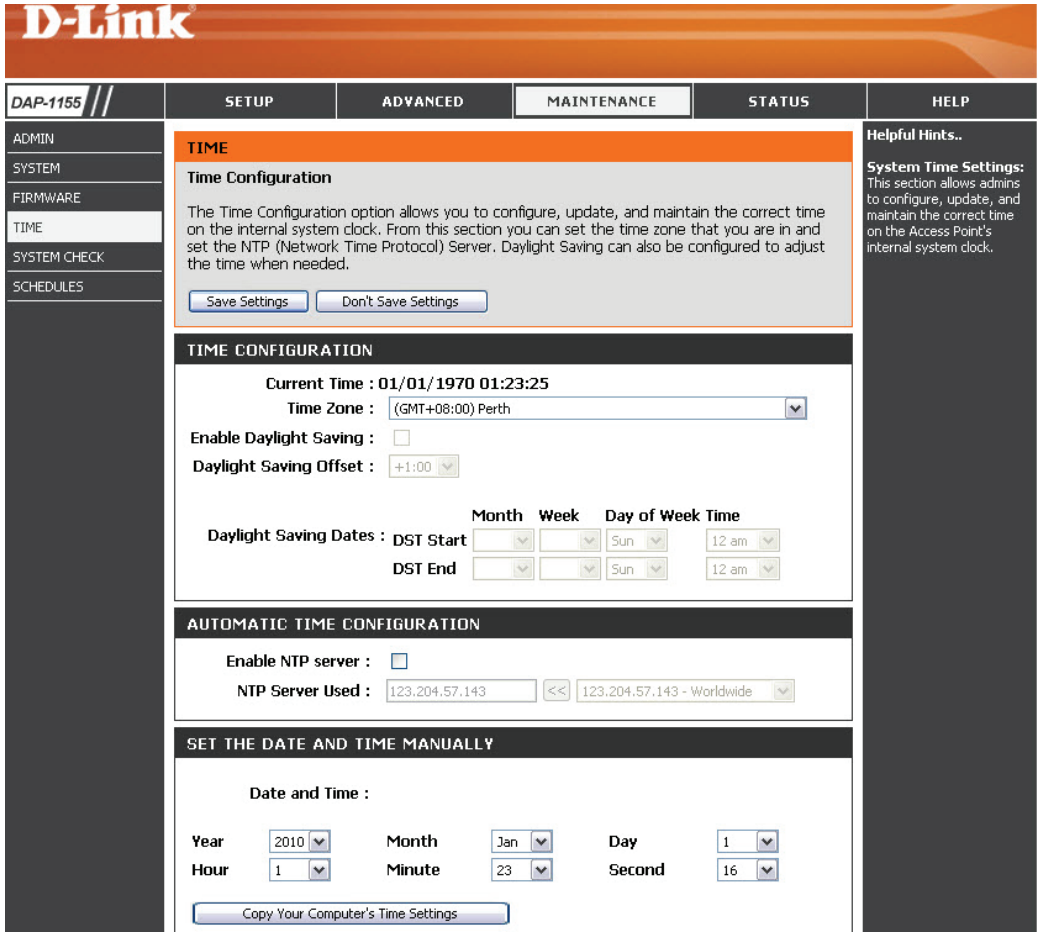
Time Zone: Select the Time Zone from the drop-down menu.

Daylight Saving: To select Daylight Saving time manually, click the **Enable Daylight Saving** box. Next, use the drop-down menu to select a Daylight Saving Offset and then enter a start date and an end date for daylight saving time.

Enable NTP Server: NTP is short for Network Time Protocol. NTP synchronizes computer clock times in a network of computers. Check this box to use a NTP server. This will only connect to a server on the Internet, not a local server.

NTP Server Used: Enter the NTP server or select one from the drop-down menu.

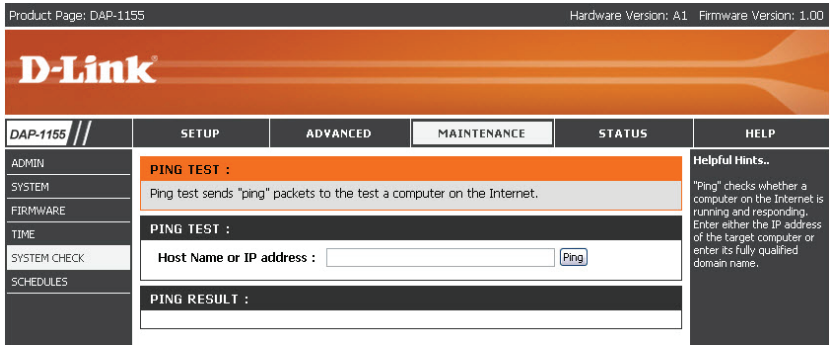
Manual: To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second and then click **Save Settings**. You can also click the **Copy Your Computer's Time Settings** button at the bottom of the screen.



System Check

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

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



Schedules

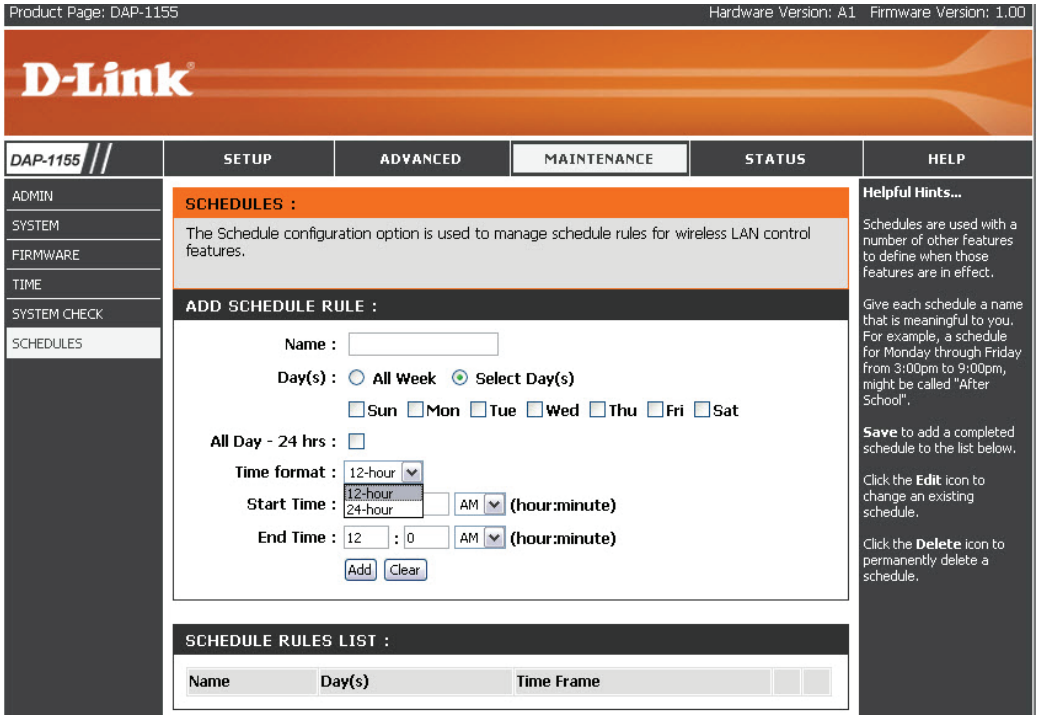
Name: Enter a name for your new schedule.

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

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

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

Schedule Rules List: The list of schedules will be listed here. Click the **Edit** icon to make changes or click the **Delete** icon to remove the schedule.



Status

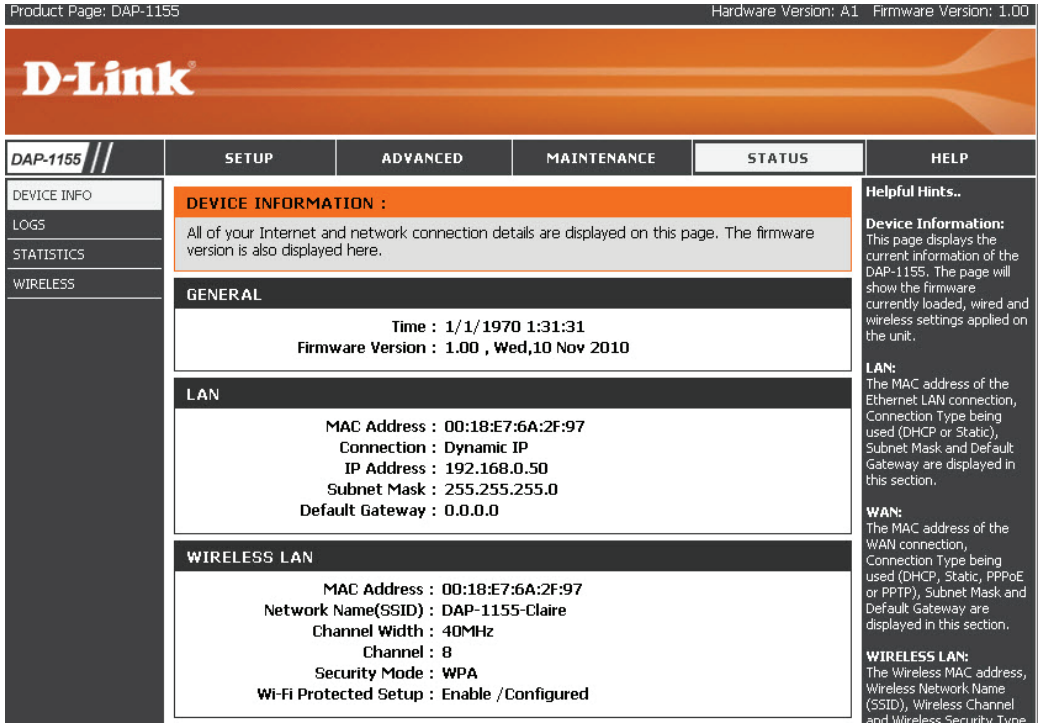
Device Info

This page displays the current information for the DAP-1155. It will display the LAN and wireless LAN information.

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

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

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



Logs

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

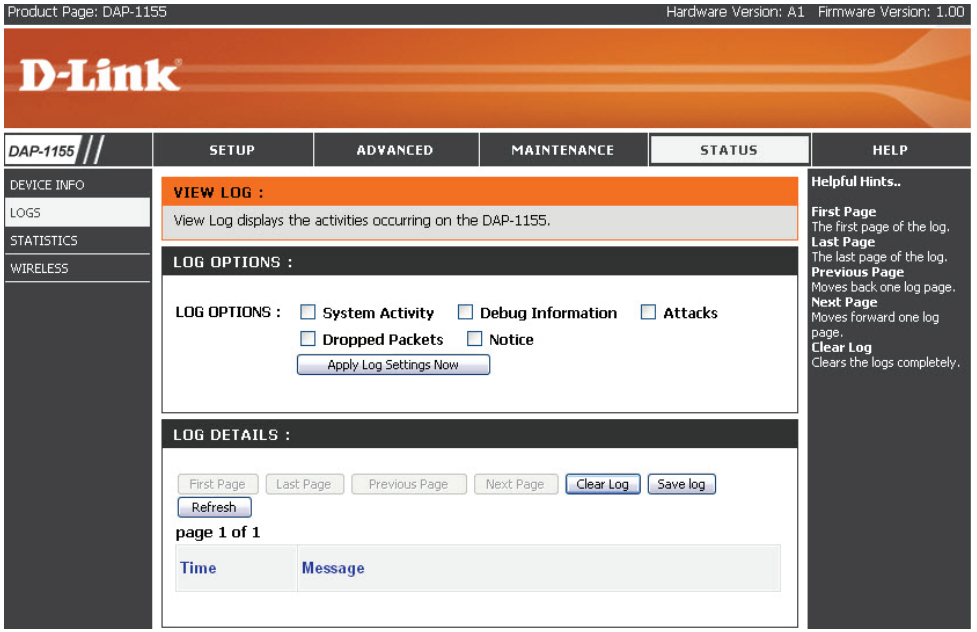
Log Type: There are five types of logs that can be viewed: **System Activity**, **Debug Information**, **Attacks**, **Dropped Packets**, and **Notice**. Click the corresponding check box for the type(s) that you want displayed in the log.

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

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

Clear: Clear all of the log contents.

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



Statistics

The Statistics page displays all of the LAN (Ethernet port) and Wireless packets transmit and receive statistics.

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

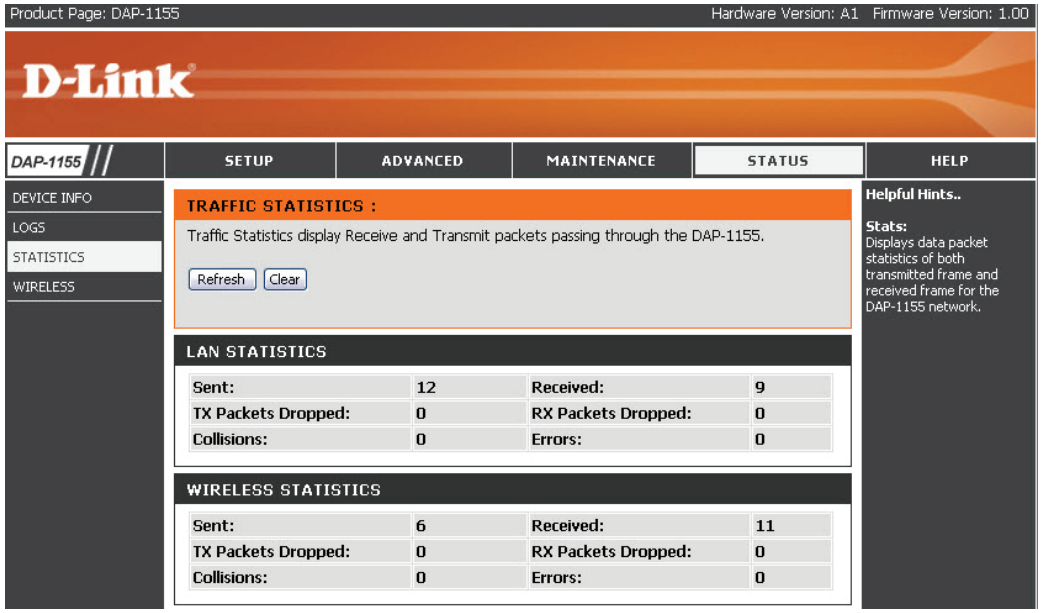
Received: The total number of packets received by the access point.

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

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

Collisions: Displays the number of collisions.

Errors: Displays the number of errors.

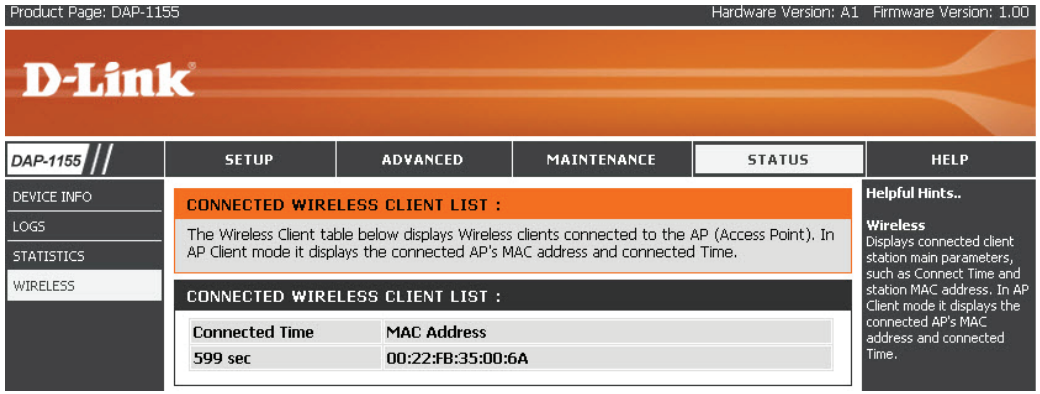


Wireless

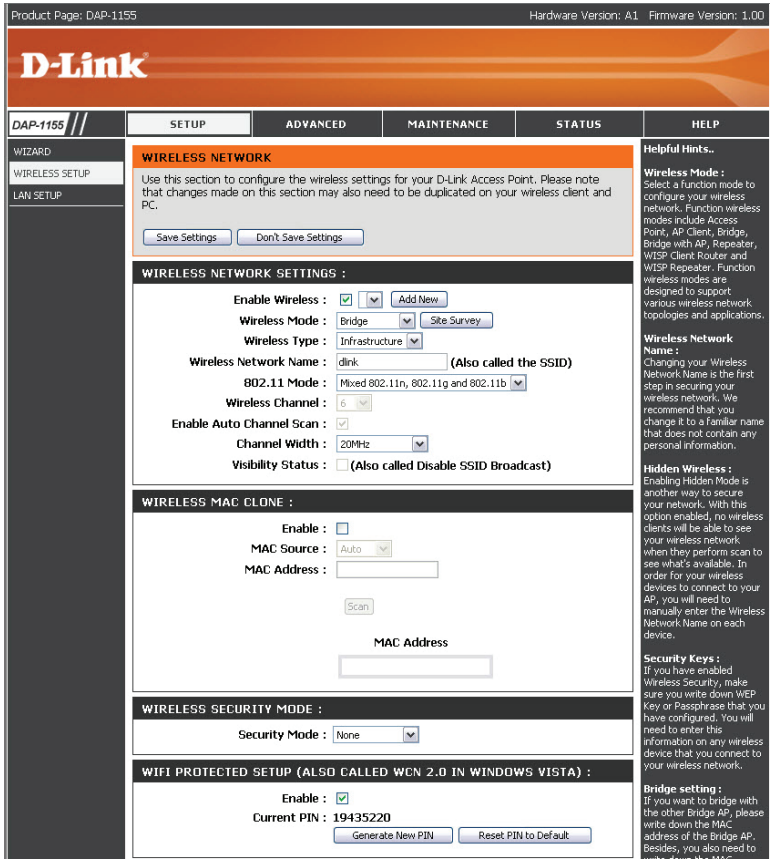
The wireless section allows you to view the wireless clients that are connected to your wireless access point.

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

MAC Address: Displays the MAC address of the wireless client.



Wireless Setting Bridge Mode



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

Wireless Mode: Select **Bridge** from the drop-down menu.

Wireless Network Name: When you are browsing for available wireless networks, this is the name that will appear in the list (unless Visibility Status is set to invisible, see below). This name is also referred to as the SSID. For security purposes, it is highly recommended to change from the default network name.

802.11 Mode: **802.11n only** – Select only if all of your wireless clients are 802.11n.
Mixed 802.11n and 802.11g – Select if you are using both 802.11n and 892.1g wireless clients.
Mixed 802.11n, 802.11g, and 802.11b – Select if you are using 802.11n, 802.11g and 802.11b wireless clients.

Wireless Type: Select **Infrastructure** if connecting to a wireless router or access point (most common) or **Ad-Hoc** if connecting directly to another wireless client in Ad-Hoc mode.

Site Survey: Click to display available wireless networks within range of the DAP-1155. Select the network you want to connect to and enter any security settings required.

Wireless Network Name: If you did not use the Site Survey option, enter the SSID or network name exactly as it is set on your wireless router or access point.

Wireless MAC Clone: Enabling this option allows the user to manually assign the source MAC address to packets forward by the DAP-1155. If not manually assigned, the packet's source MAC address field will be automatically selected as the DAP-1155 MAC.

MAC Address: Enter the desired MAC address connected to your DAP-1155 to enable the clone function.

Security Mode: Refer to page 51 for more information regarding wireless security.

Enable: Enable the Wi-Fi Protected Setup feature.

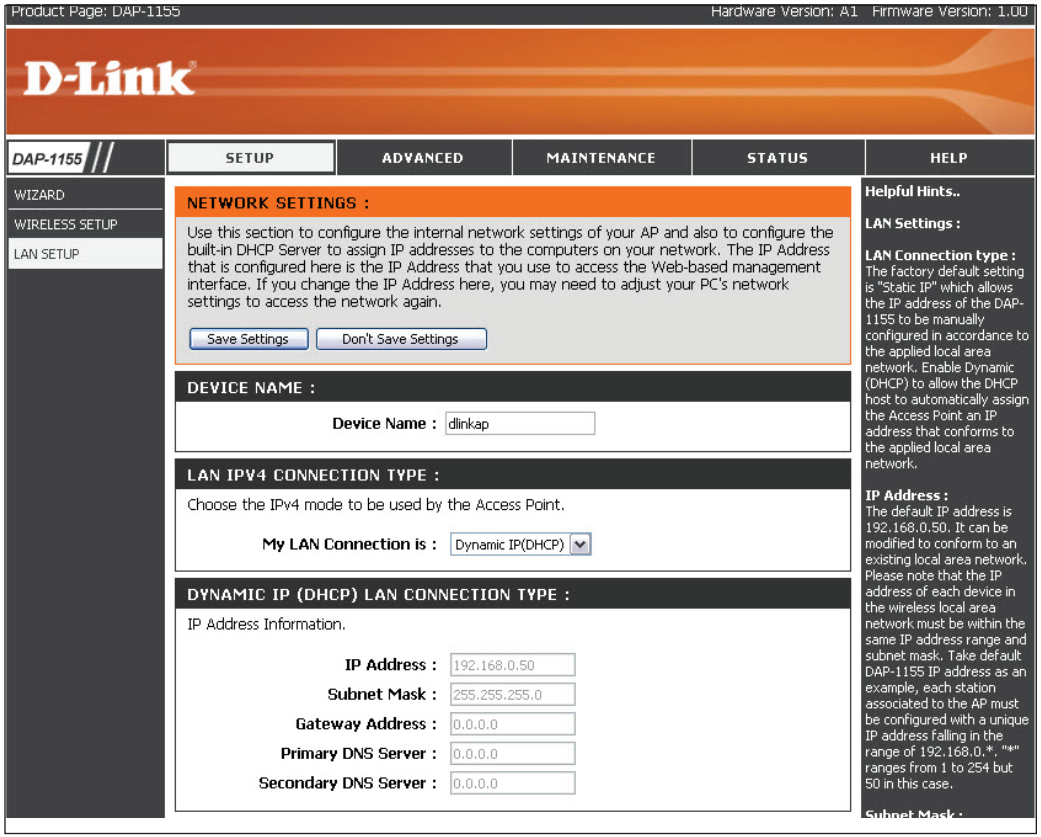
LAN Setting

DHCP

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

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

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



Static IP

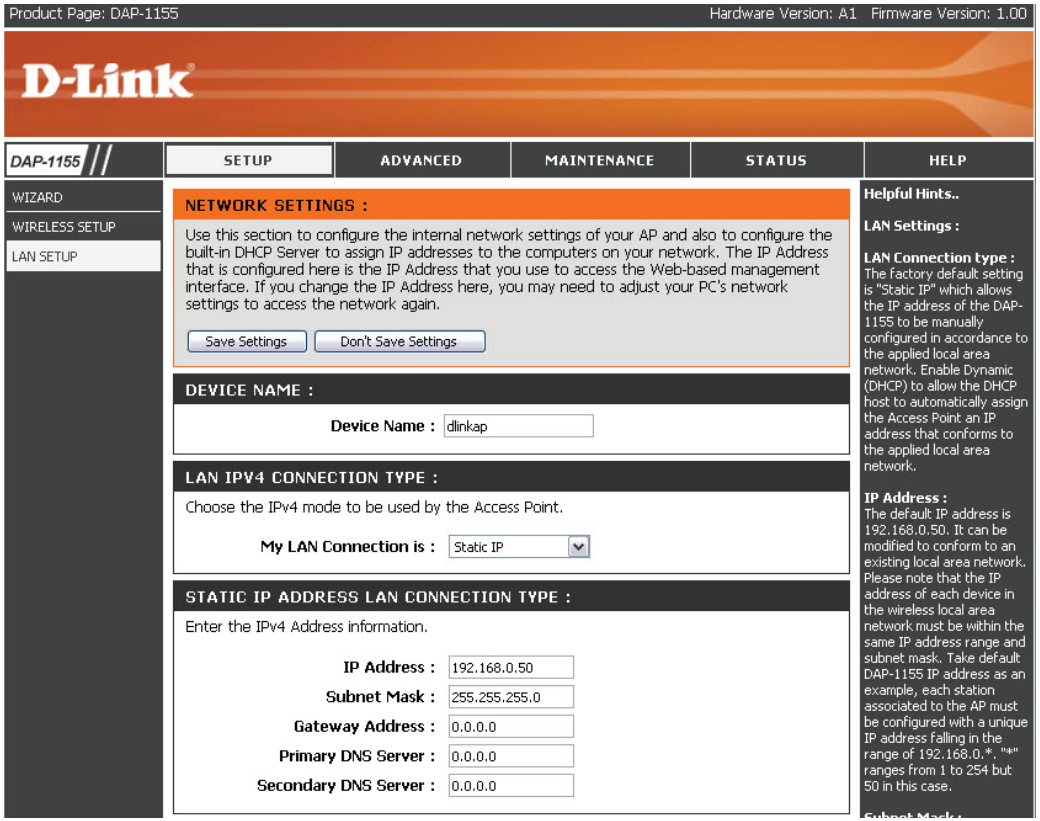
LAN Connection Type: Use the drop-down menu to select **Static IP** if you want to manually assign the IP address, subnet mask, and gateway addresses.

Access Point IP Address: Enter the IP address you want to assign the bridge.

Subnet Mask: Enter the Subnet Mask you want to assign the bridge.

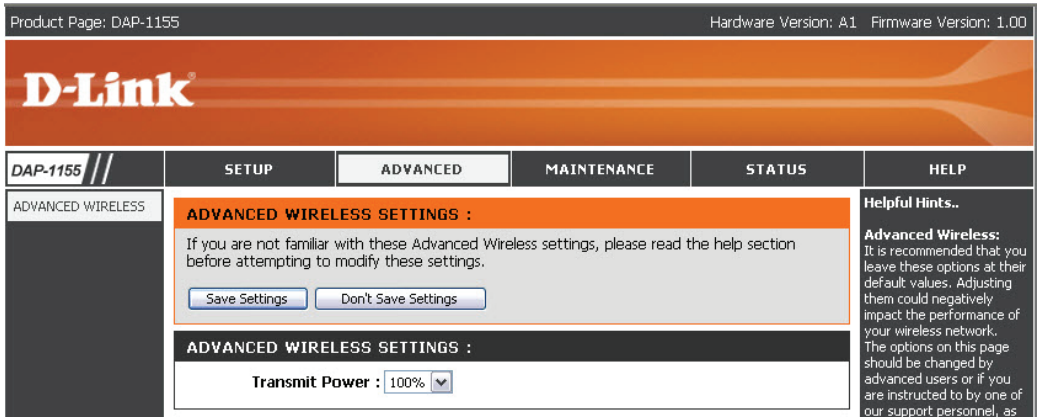
Gateway Address: Enter the Gateway you want to assign the bridge.

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



Advanced
Advanced Wireless

Transmit Power: Set the transmit power of the antennas.



Maintenance

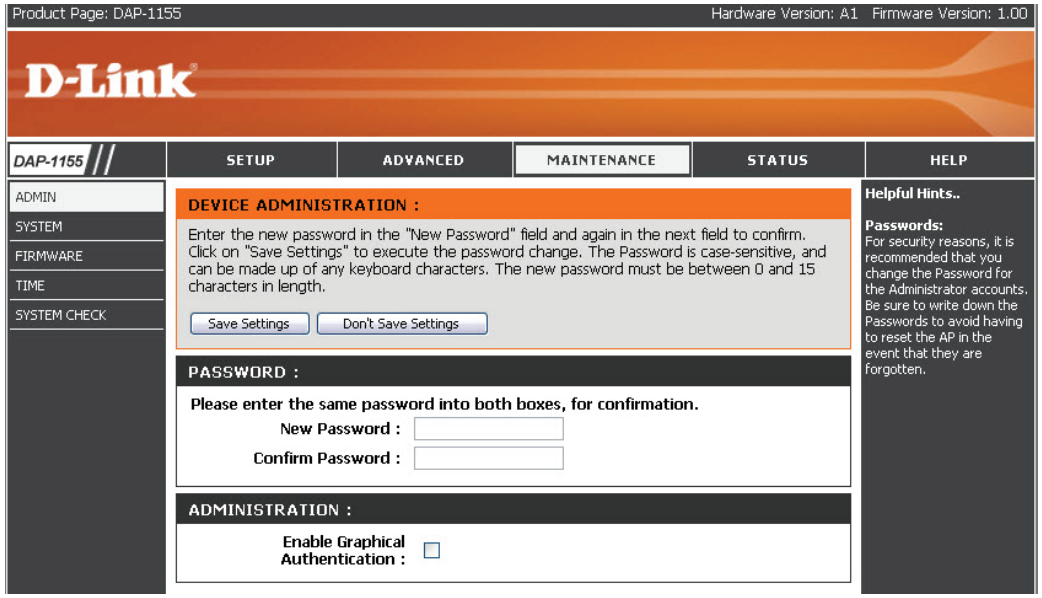
Admin

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

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

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

Enable Graphical Authentication: Check this box to require users to type letters or numbers from a distorted image displayed on the login screen to prevent online hackers and unauthorized users from gaining access to your router's network settings.



System

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

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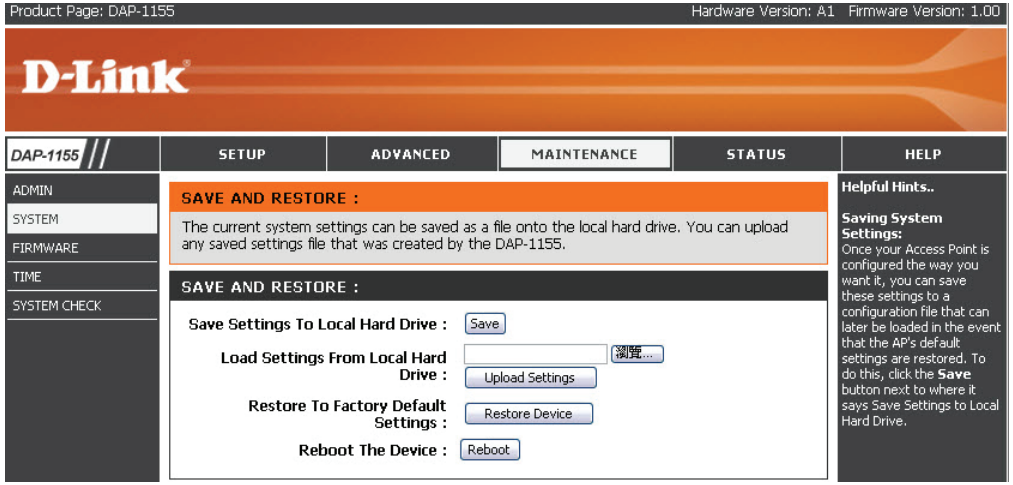
Reboot The Device: Click to reboot the bridge.

Clear Language Pack: Click to clear the language pack. This will put the web UI back to English.



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

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

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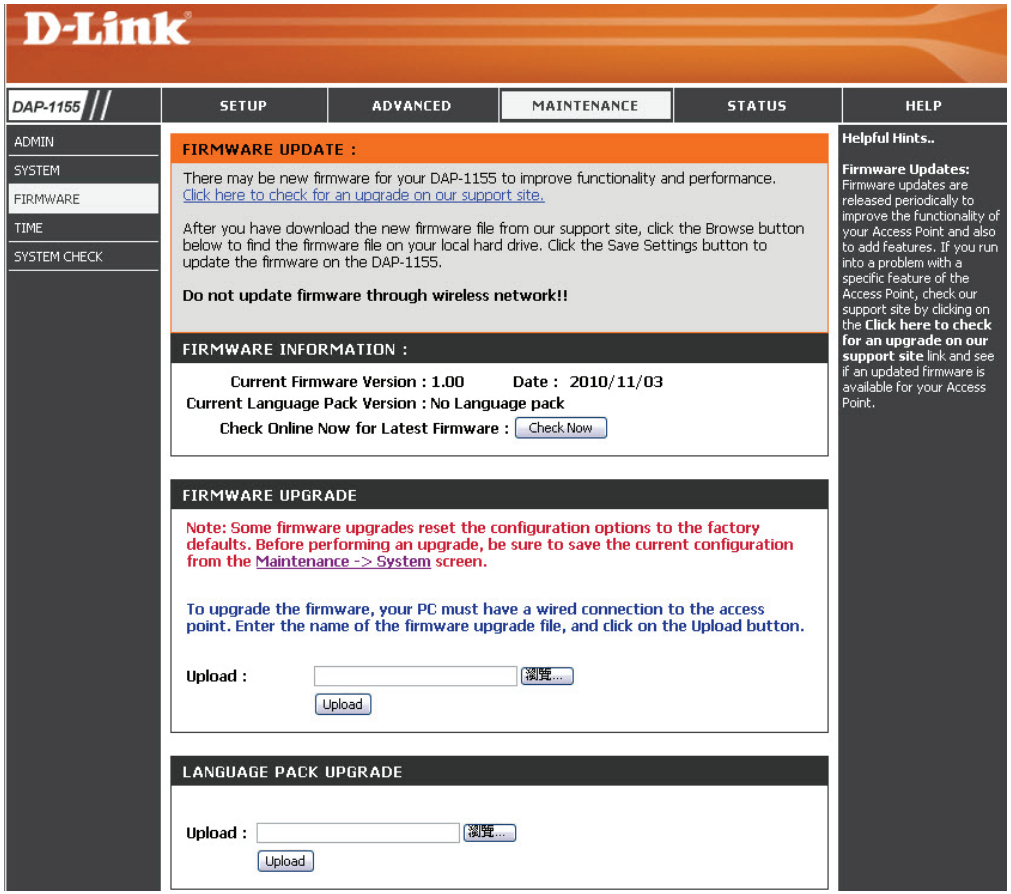

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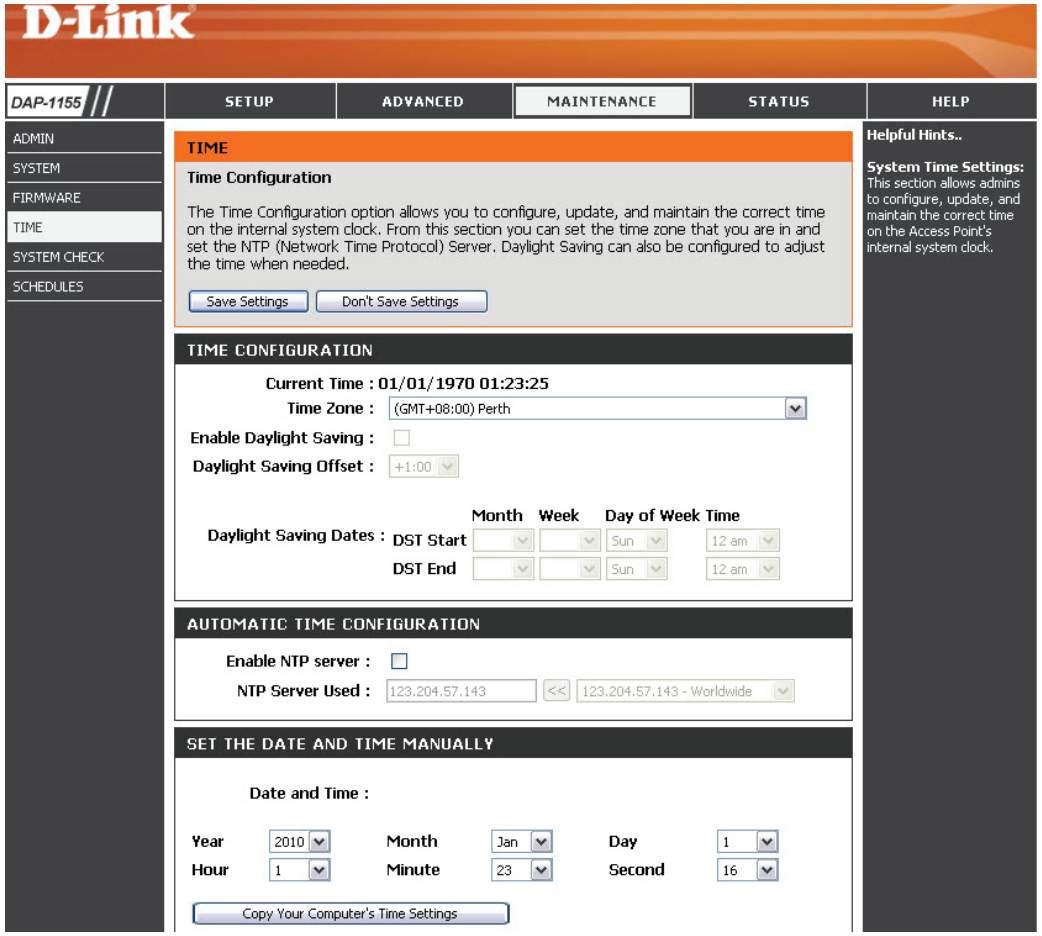

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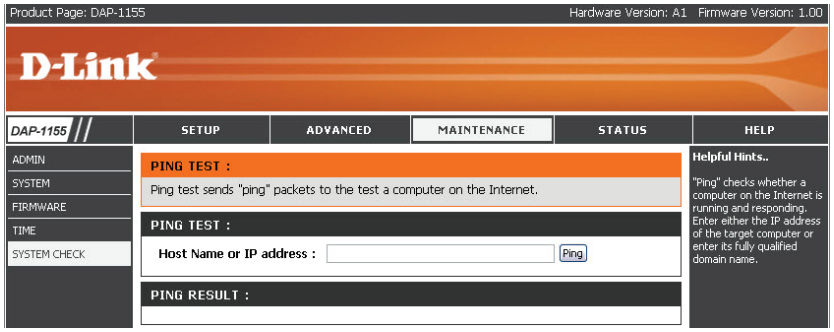

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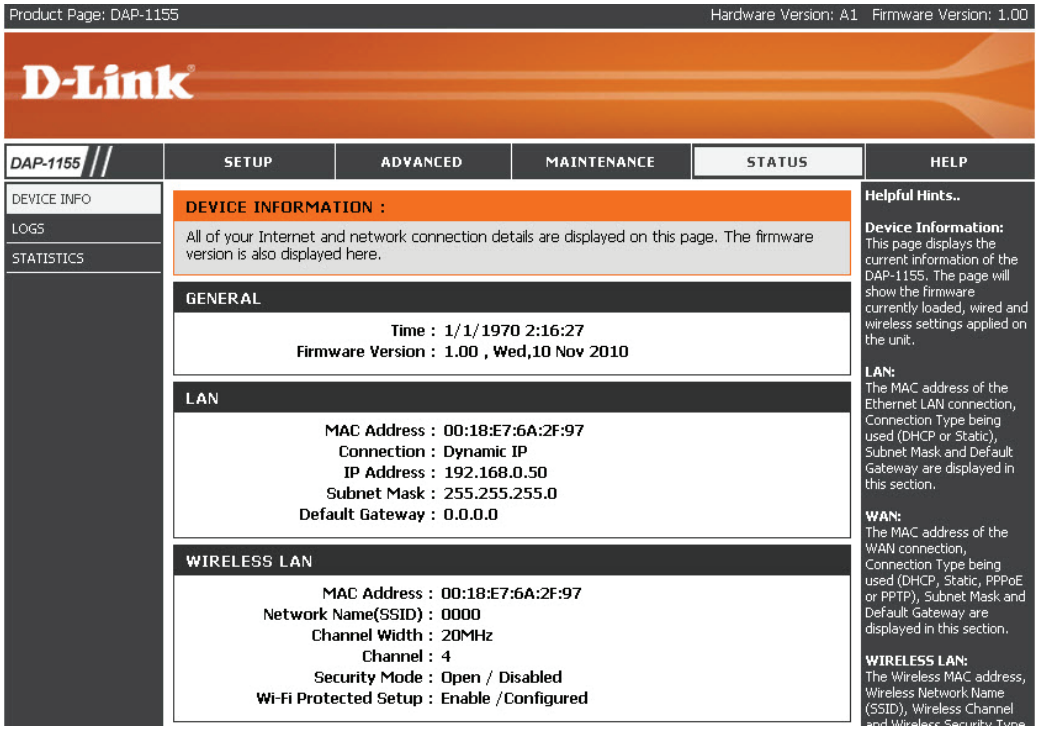

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Log Type: There are five types of logs that can be viewed: **System Activity**, **Debug Information**, **Attacks**, **Dropped Packets**, and **Notice**. Click the corresponding check box for the type(s) that you want displayed in the log.

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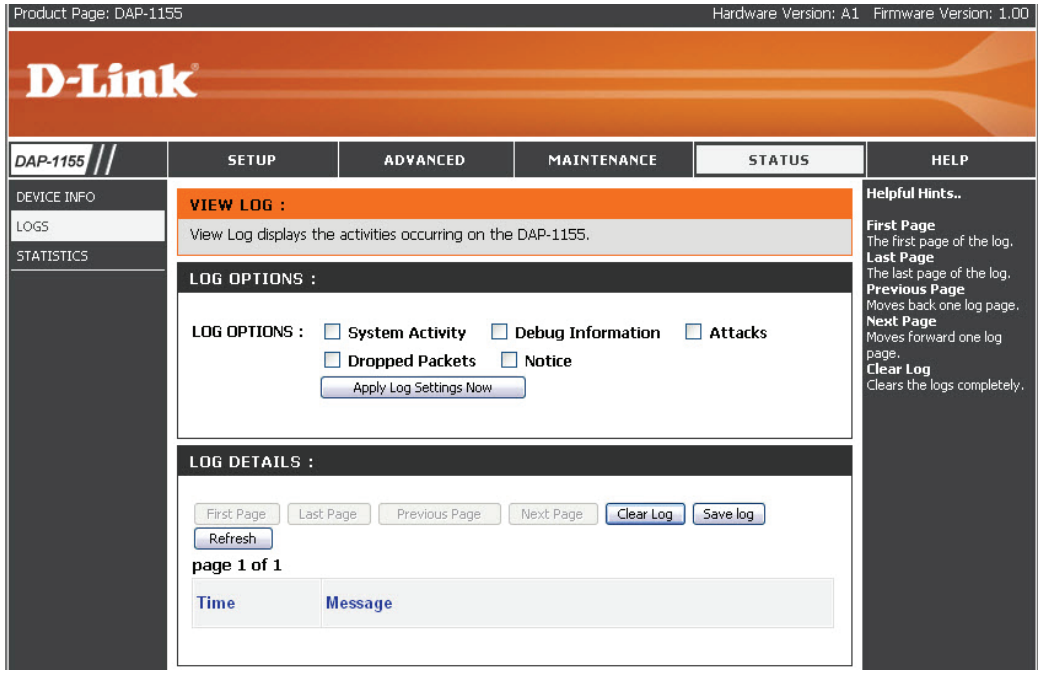

Statistics

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

Sent: The total number of packets sent from the bridge.

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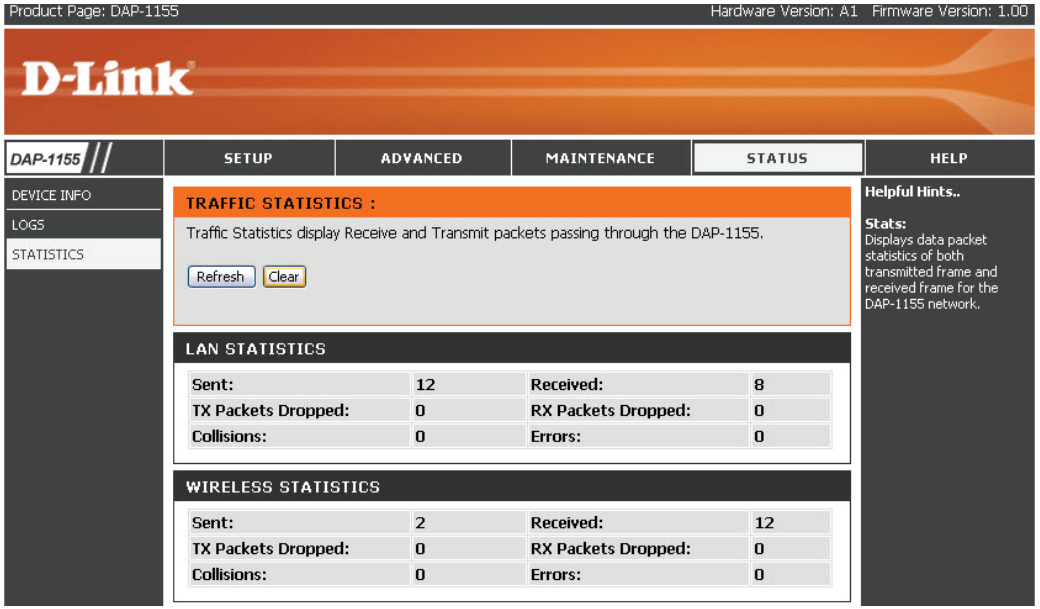


Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DAP-1155 offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA (Wi-Fi Protected Access)
- WPA2-PSK (Pre-Shared Key)
- WPA-PSK (Pre-Shared Key)

What is WPA?

WPA, or Wi-Fi Protected Access, is a Wi-Fi standard that was designed to improve the security features.

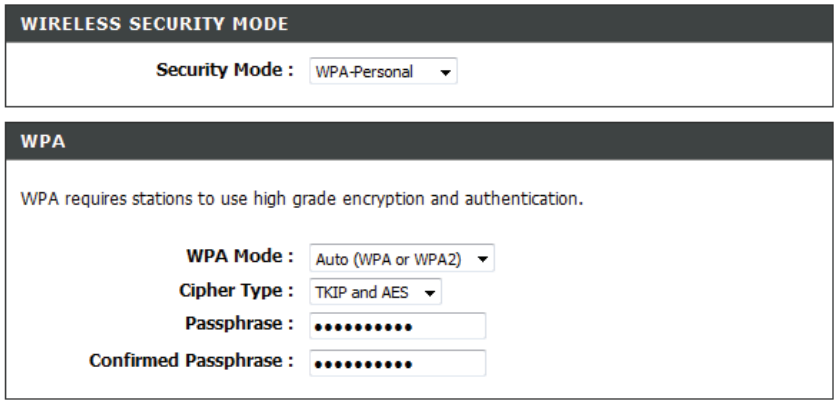
WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless bridge or access point.

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

Configure WPA-Personal (AP Mode)

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

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



2. Next to *Security Mode in the Wireless Security Mode section*, select **WPA-Personal.**

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

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

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

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

7. Click **Save Settings** at the top of the window to save your settings. If you are configuring the access point with a wireless adapter, you will lose connectivity until you enable WPA-PSK on your adapter and enter the same passphrase as you did on the access point.

Configure WPA-Enterprise (AP Mode)

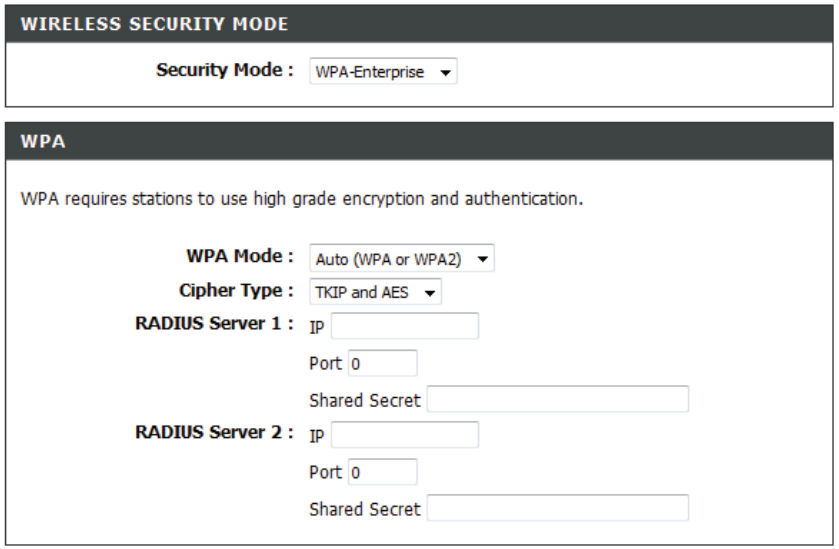
It is recommended to enable encryption on your wireless access point before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

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

2. Next to *Security Mode in the Wireless Security Mode section*, select **WPA-Enterprise.**

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

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



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

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

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

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

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

Configure WEP (Bridge Mode)

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

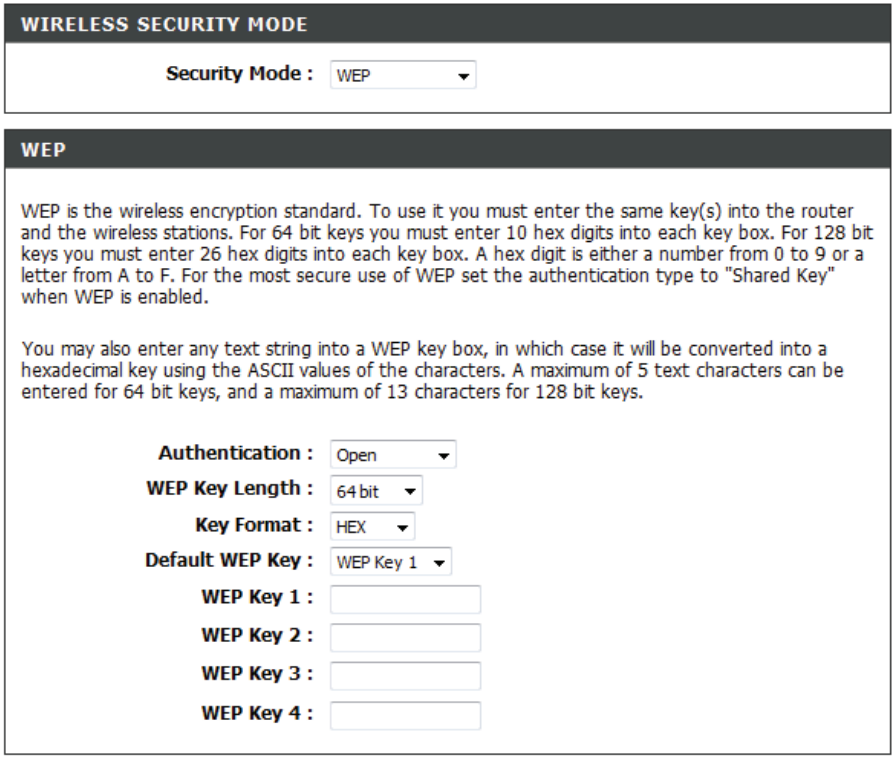
1. Log into the web-based configuration by opening a web browser and entering the IP address of the bridge (192.168.0.50). Click on **Setup** and then click **Wireless Settings**.

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

3. For *Authentication*, select **Open** or **Shared Key**.

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

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

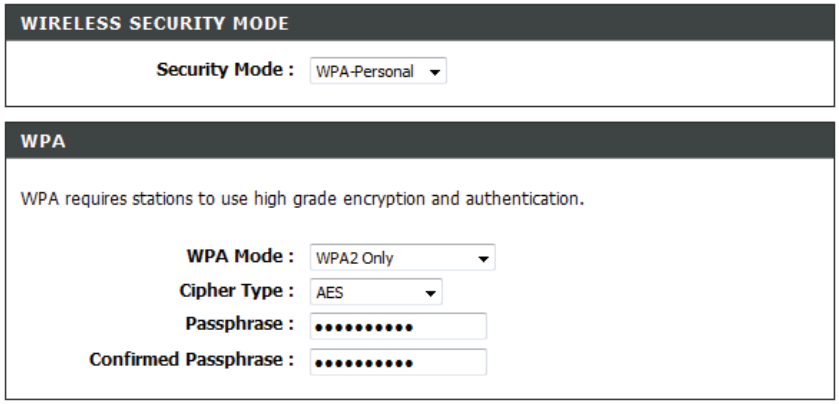


6. Click **Save Settings** to save your settings. If you are configuring the access point with a wireless adapter, you will lose connectivity until you enable WEP on your adapter and enter the same WEP key as you did on the access point.

Configure WPA-Personal (Bridge Mode)

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

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



2. Next to *Security Mode in the Wireless Security Mode section*, select **WPA-Personal.**

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

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

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

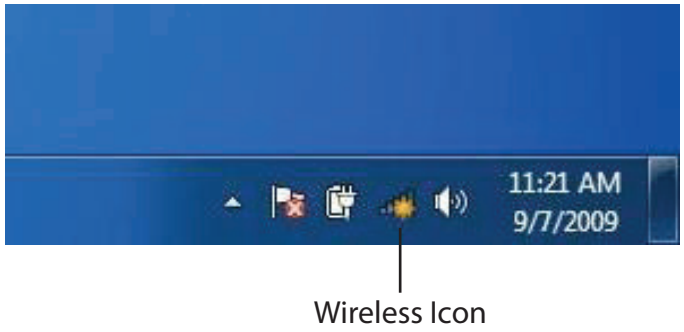
6. Next to the *Pre-Shared Key section*, enter a key in the Passphrase field. The key is entered as a passphrase in ASCII format at both ends of the wireless connection. The passphrase must be between 8-63 characters.

7. Click **Save Settings** at the top of the window to save your settings. If you are configuring the access point with a wireless adapter, you will lose connectivity until you enable WPA-PSK on your adapter and enter the same passphrase as you did on the access point.

Connect to a Wireless Network Using Windows® 7

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Click on the wireless icon in your system tray (lower-right corner).

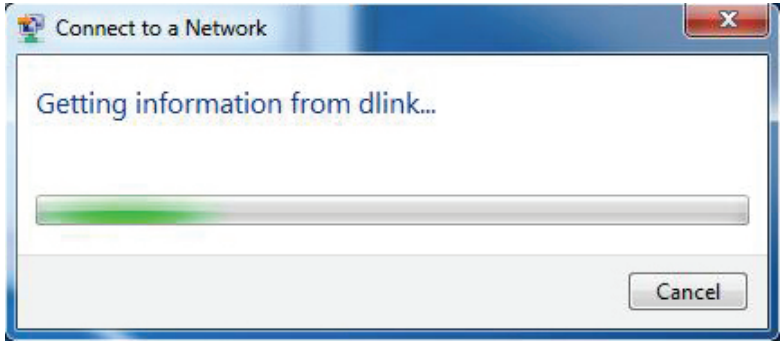


2. The utility will display any available wireless networks in your area.

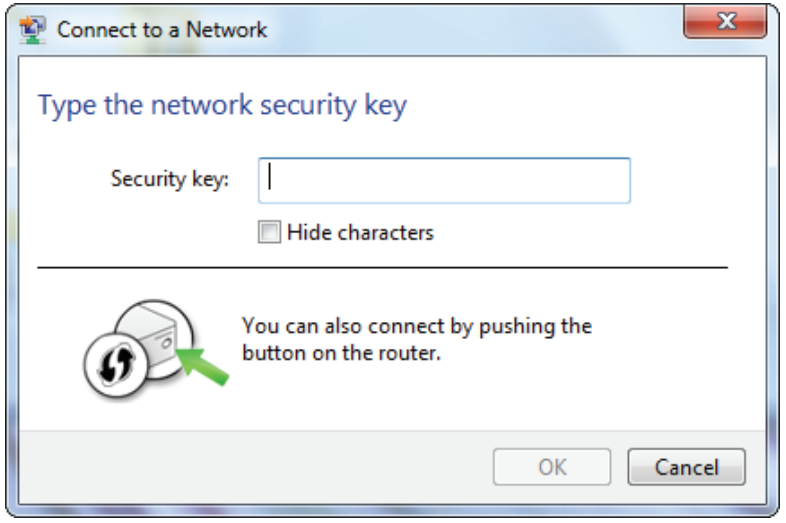
3. Highlight the wireless network (SSID) you would like to connect to and click the **Connect** button.

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

4. The following window appears while your computer tries to connect to the router.



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

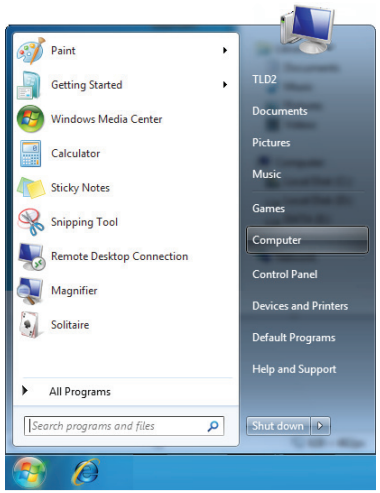


It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.

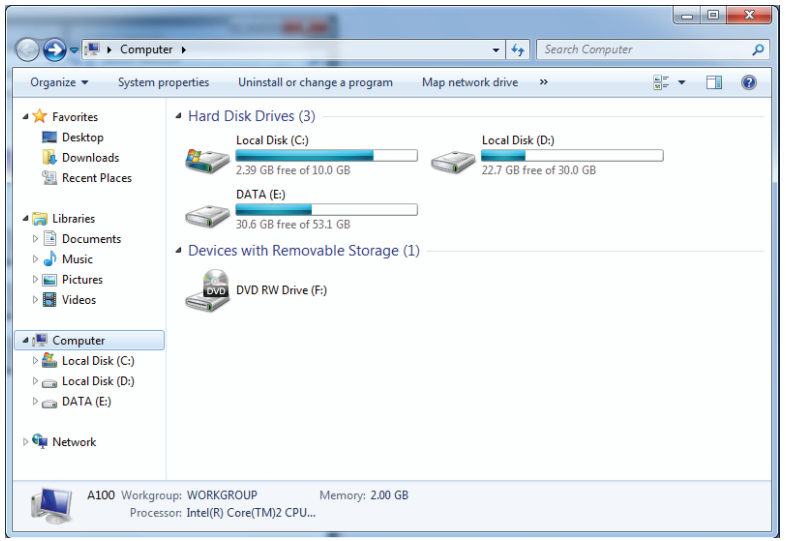
Configure WPS

The WPS feature of the DAP-1155 can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature of the DAP-1155:

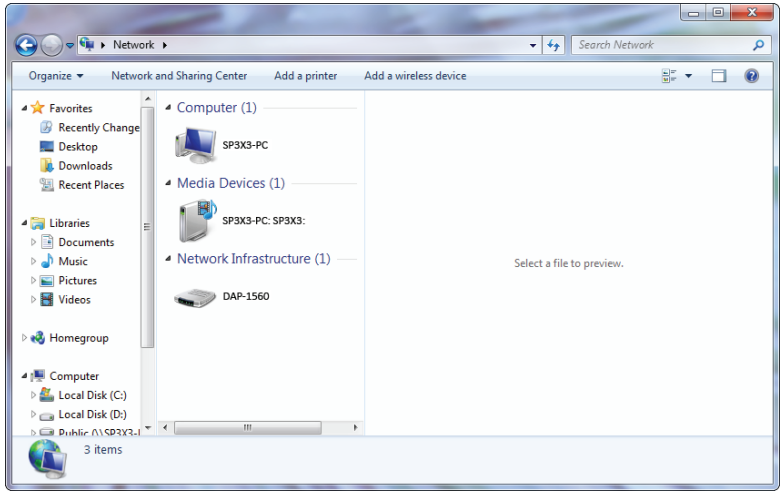
1. Click the **Start** button and select **Computer** from the Start menu.



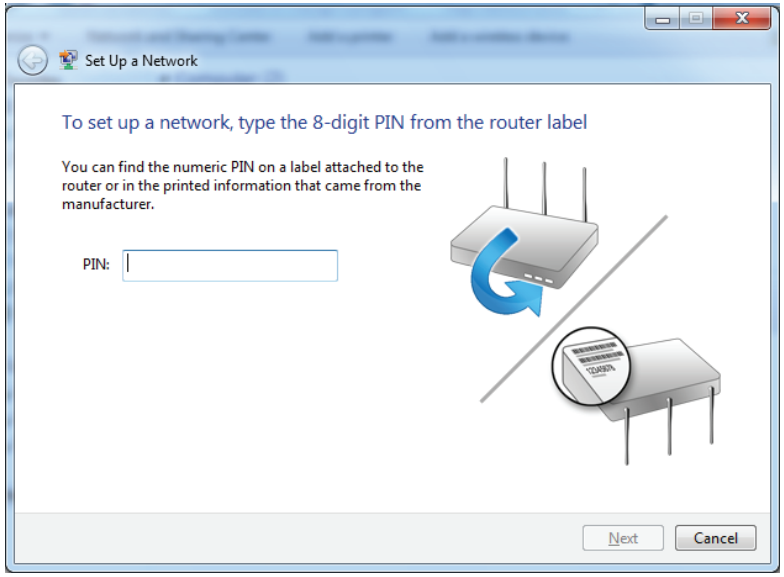
2. Click the **Network** option.



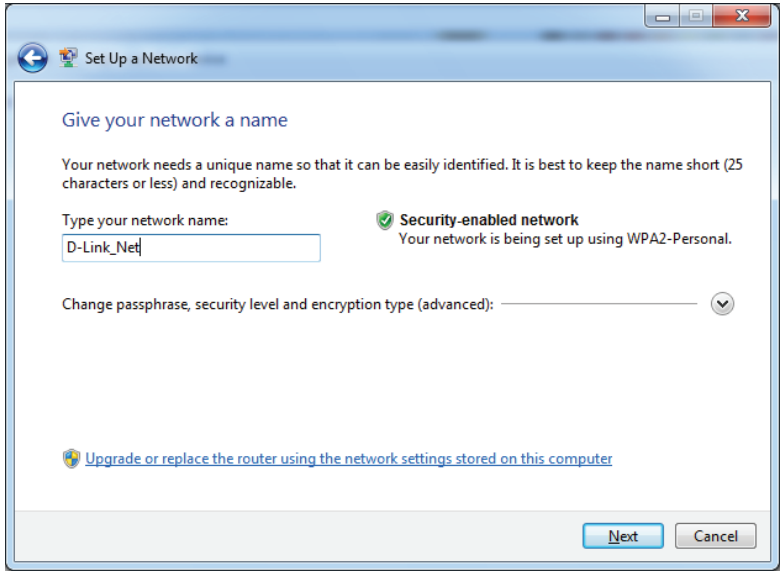
3. Double-click the DAP-1155.



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

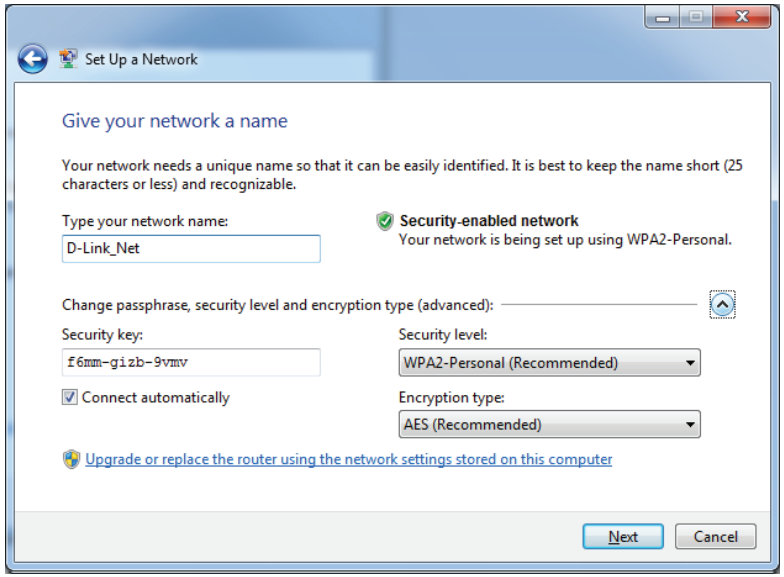


5. Type a name to identify the network.



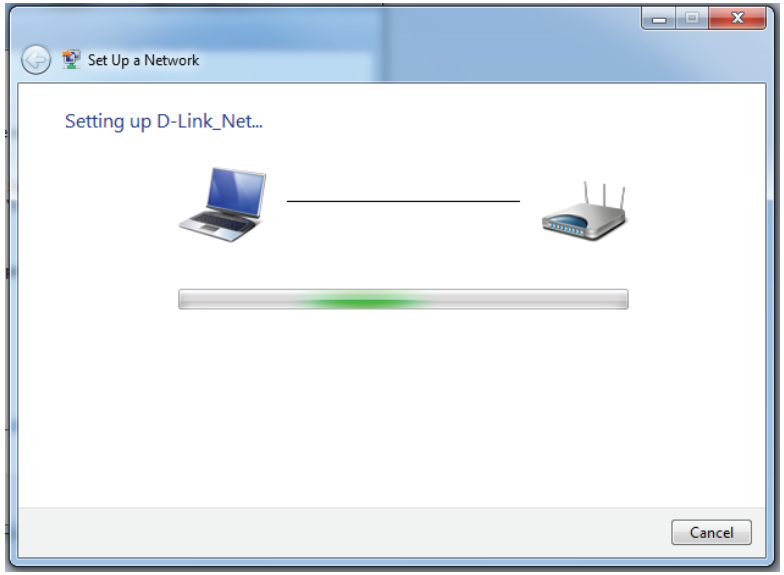
6. To configure advanced settings, click the icon.

Click **Next** to continue.



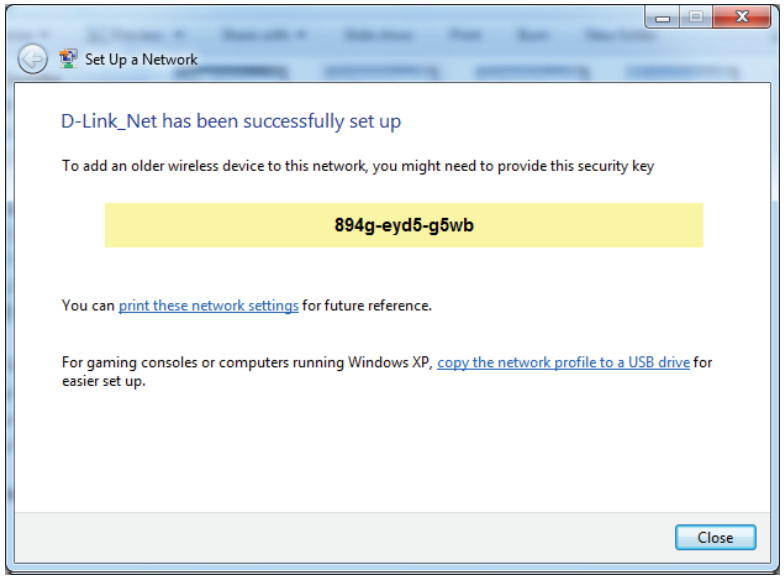
7. The following window appears while the Router is being configured.

   Wait for the configuration to complete.



8. The following window informs you that WPS on the DAP-1155 has been setup successfully.

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

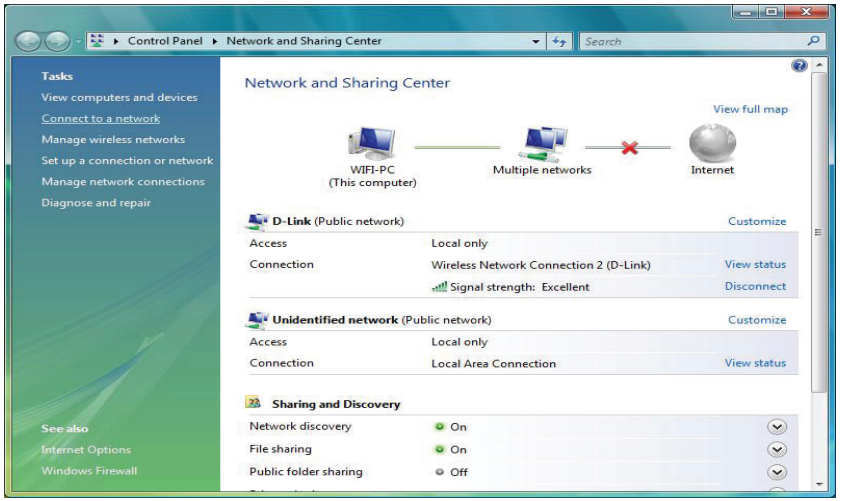


9. Click **Close** to complete WPS setup.

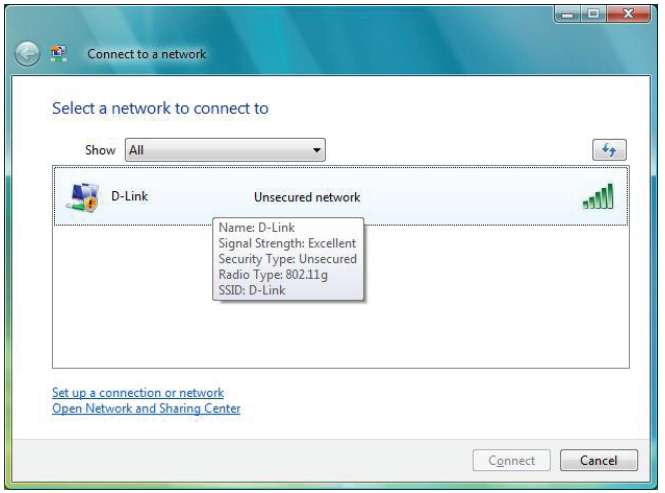
Using Windows Vista®

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

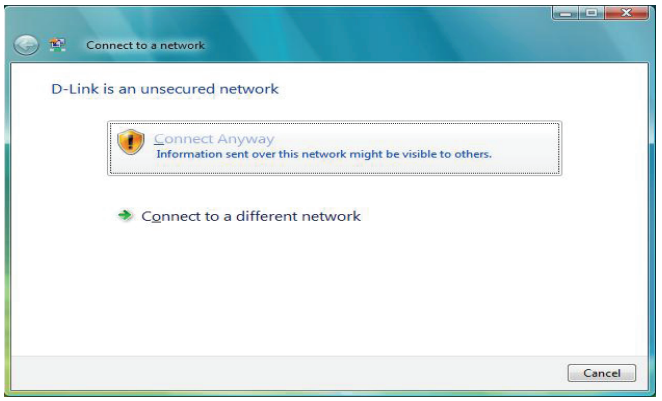
From the Start menu, go to Control Panel, and then click on **Network and Sharing Center**.



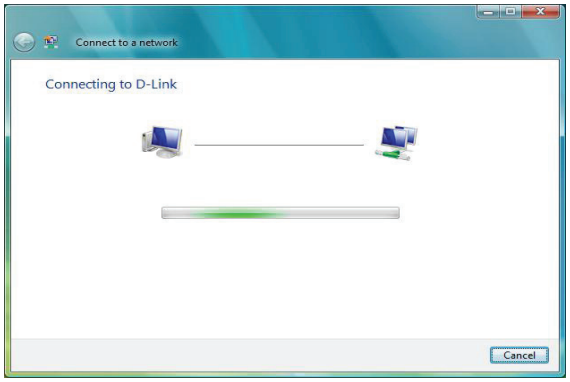
The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) under Select a network to connect to and then click the **Connect** button.



Click **Connect Anyway** to continue.

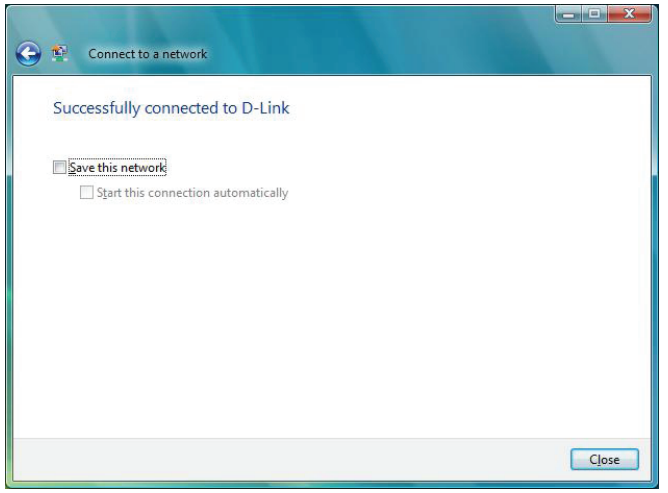


The utility will display the following window to indicate a connection is being made.



The final window indicates the establishment of a successful connection.

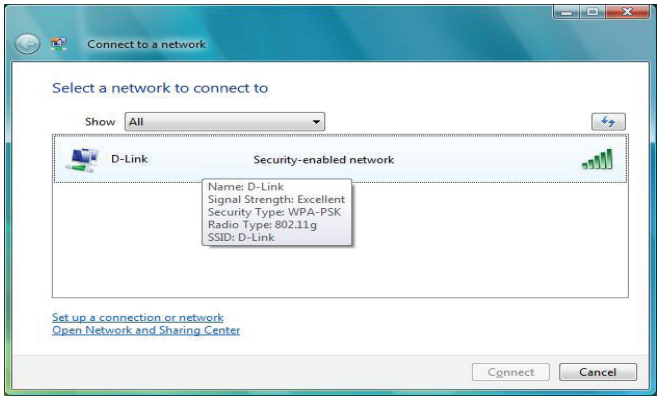
The next two pages display the windows used to connect to either a WEP or a WPA-PSK wireless network.



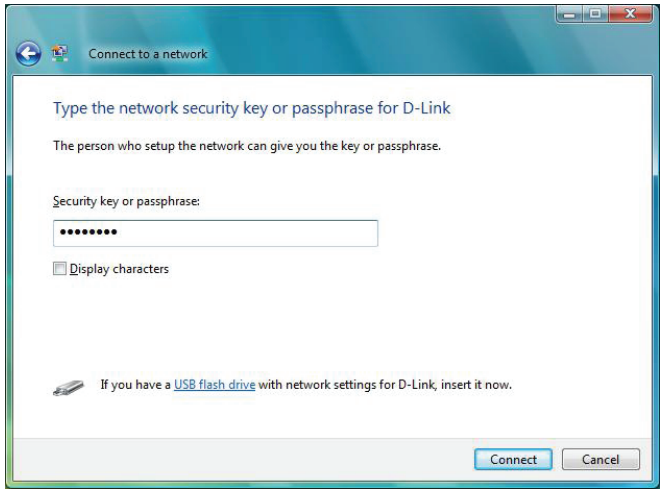
Configure WPA-PSK

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

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



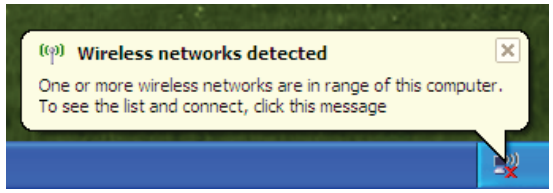
Enter the appropriate security key or passphrase in the field provided and then click the **Connect** button.



Using Windows® XP

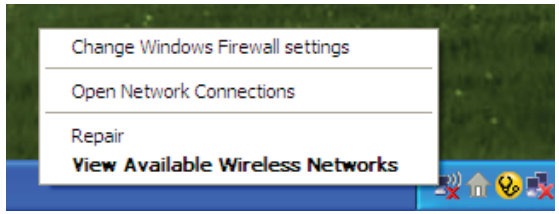
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility or Windows 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network.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

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



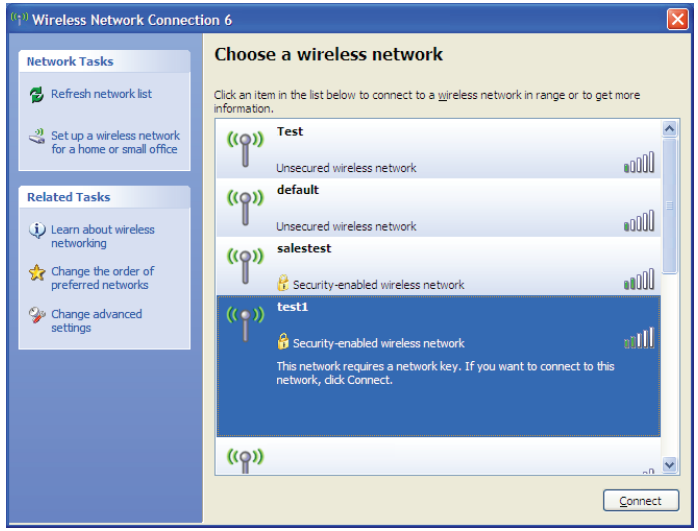
or

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



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

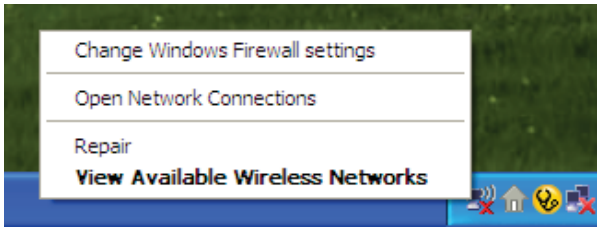
If you get a good signal, but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



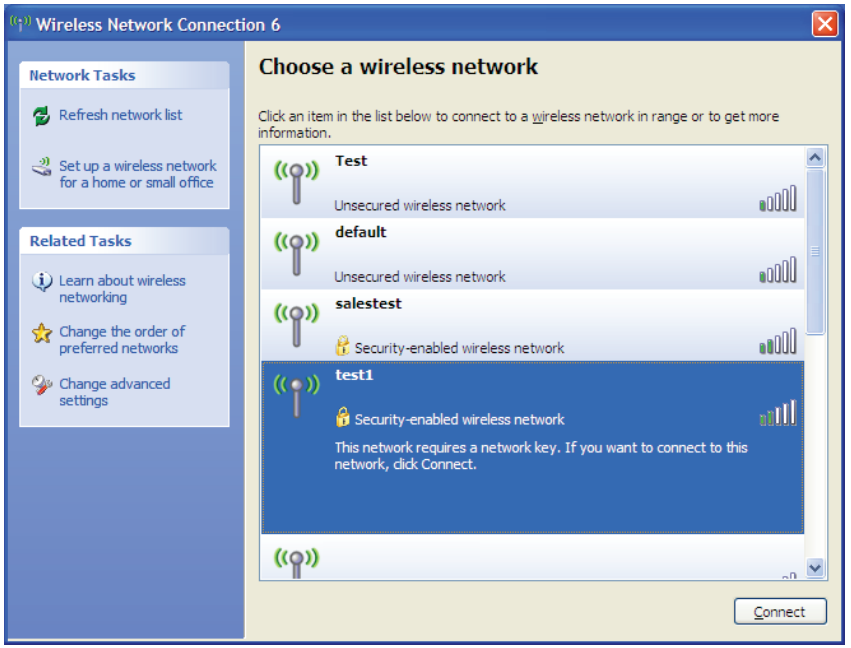
Configure WPA-PSK

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

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

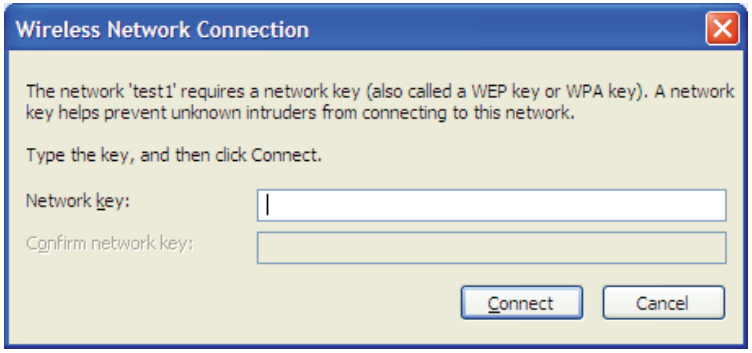


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect.**



3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK passphrase and click **Connect.**

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



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1155. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. Why can't I access the web-based configuration utility?

When entering the IP address of the D-Link access point (192.168.0.50 for example), you are not connecting to a website on the Internet or have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:

  - Microsoft Internet Explorer® 6.0 and higher
  - Mozilla Firefox 3.0 and higher
  - Google Chrome 2.0 and higher
  - Apple Safari 3.0 and higher

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

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

- Configure your Internet settings:
    - Go to **Start** > **Settings** > **Control Panel**. Double-click the **Internet Options** Icon. From the Security tab, click the button to restore the settings to their defaults.
    - Click the Connection tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click OK.
    - Go to the Advanced tab and click the button to restore these settings to their defaults. Click OK three times.
    - Close your web browser (if open) and open it.
- Access the web management. Open your web browser and enter the IP address of your D-Link access point in the address bar. This should open the login page for your the web management.
- If you still cannot access the configuration, unplug the power to the access point for 10 seconds and plug back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

2. What can I do if I forgot my password?

If you forgot your password, you must reset your access point. Unfortunately this process will change all your settings back to the factory defaults.

To reset the access point, locate the reset button (hole) on the rear panel of the unit. With the access point powered on, use a paperclip to hold the button down for 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.

Wireless Basics

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

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

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

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Access point is a device used to provide this link.

What is Wireless?

Wireless or Wi-Fi technology is another way of connecting your computer to the network without using wires. Wi-Fi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office.

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

How does wireless work?

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

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point as seen in the picture, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)

Bluetooth is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate in a range up to 30 feet away.

Compared to WLAN the speed and wireless operation range are both less than WLAN, but in return it doesn't use nearly as much power which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

Who uses wireless?

Wireless technology as become so popular in recent years that almost everyone is using it, whether it's for home, office, business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the web, check email, instant message, etc.
- Gets rid of the cables around the house
- Simple and easy to use

Small Office and Home Office

- Stay on top of everything at home as you would at office
- Remotely access your office network from home
- Share Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere not just at home or office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless network is easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips

Here are a few things to keep in mind, when you install a wireless network.

Centralize your access point or Access Point

Make sure you place the bridge/access point in a centralized location within your network for the best performance. Try to place the bridge/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference

Place home appliances such as cordless telephones, microwaves, wireless speakers, and televisions as far away as possible from the bridge/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security

Don't let your next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the access point. Refer to product manual for detail information on how to set it up.

Wireless Modes

There are basically two modes of networking:

- **Infrastructure –** All wireless clients will connect to an access point or wireless bridge.
- **Ad-Hoc –** Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more wireless network Cardbus adapters.

An Infrastructure network contains an Access Point or wireless bridge. All the wireless devices, or clients, will connect to the wireless bridge or access point.

An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

Networking Basics

Check your IP address

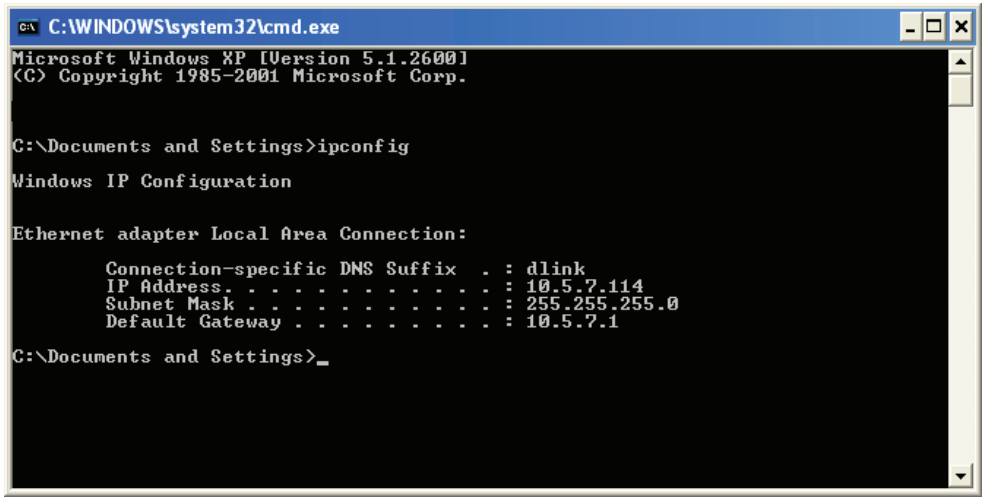
After you install your adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start** > **Run**. In the run box type ***cmd*** and click **OK.** (Windows® 7/Vista® users type *cmd* in the **Start Search** box.)

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

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

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



Statically Assign an IP address

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

Step 1

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

Windows Vista® - Click on **Start** > **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Manage Network Connections.**

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

Windows® 2000 - From the desktop, right-click **My Network Places** > **Properties**.

Step 2

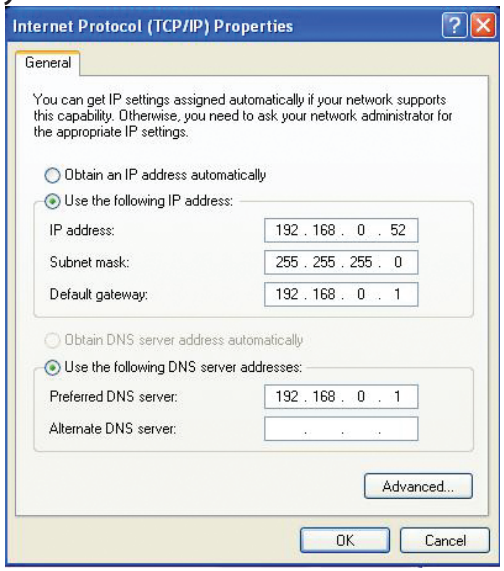
Right-click on the **Local Area Connection** which represents your network adapter and select **Properties**.

Step 3

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

Step 4

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



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

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

Step 5

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

Technical Specifications

Standards
- IEEE 802.11g
- IEEE 802.3
- IEEE 802.3u

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

Interface Type
- 2 10/100 LAN/WAN Port
- 1 Push-Button (for Wi-Fi Protected Setup™)

Antenna Type
- 2dBi Dipole Antenna

Maximum Operating Voltage
- 5V 1A

Modulation
- DQPSK
- DBPSK
- CCK
- OFDM

Frequency Range[2]
- 2.4GHz to 2.483GHz

LEDs
- Power
- WLAN
- WPS

Operating Temperature
- 32°F to 131°F (0°C to 55°C)

Humidity
- 90% maximum (non-condensing)

Safety & Emissions
- FCC Class B
- CE
- C-Tick
- IC
- Wi-Fi®

Dimensions
- W82 x D27 x L102 mm

Weight
- 79g

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

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

Warranty

Federal Communication Commission Interference Statement

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

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

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

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

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

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

Industry Canada Statement

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

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

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

Caution:
The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

Because high power radars are allocated as primary users (meaning they have priority) in 5250-5350 MHz and 5650-5850 MHz, these radars could cause interference and/or damage to license exempt LAN devices.

IMPORTANT NOTE:
IC Radiation Exposure Statement:

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

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

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