



User Manual

Wireless N Dual Band MediaBridge[®]

DAP-1513

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Package Contents



DAP-1513 Wireless N Dual Band MediaBridge®



Ethernet Cable



Power Adapter



CD-ROM with Manual

Note: Using a power supply with a different voltage rating than the one included with the DAP-1513 will cause damage and void the warranty for this product.

System Requirements

Network Requirements	<ul style="list-style-type: none">• An Ethernet-based Network• IEEE 802.11n/g wireless access point or wireless router• 10/100 Ethernet
Web-based Configuration Utility Requirements	<p>Computer with the following:</p> <ul style="list-style-type: none">• Windows®, Macintosh, or Linux-based operating system• An installed Ethernet adapter <p>Browser Requirements:</p> <ul style="list-style-type: none">• Internet Explorer® 6.0 and higher• Mozilla Firefox 3.0 and higher• Google™ Chrome 2.0 and higher• Apple Safari 3.0 and higher <p>Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.</p>

Introduction

D-Link, an industry leader in networking, introduces the new D-Link DAP-1513 Wireless N Dual Band MediaBridge®. With the ability to transfer files with a maximum wireless signal rate of up to 300Mbps*, the DAP-1513 gives you high-speed wireless network access for your home or office.

The DAP-1513 is Wi-Fi IEEE 802.11n compliant, meaning that it can connect and interoperate with other 802.11n compatible wireless client devices. The DAP-1513 is also backwards compatible with 802.11b/g and offers dual band support for 802.11a. With its Setup Wizard, the DAP-1513 ensures that you will be up and running on a wireless network in just a matter of minutes.

The DAP-1513 features Wi-Fi Protected Access (WPA-PSK/WPA2-PSK) to provide an enhanced level of security for wireless data communications. The DAP-1513 also includes additional security features to keep your wireless connection safe from unauthorized access.

• 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.

TOTAL PERFORMANCE

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

TOTAL SECURITY

The most complete set of security features including WPA/WPA2 encryption to protect your network against outside intruders.

TOTAL COVERAGE

Provides greater wireless signal rates even at farther distances for best-in-class home coverage.

ULTIMATE PERFORMANCE

The D-Link Wireless N Dual Band MediaBridge® (DAP-1513) is an 802.11n compliant device that delivers real world performance of up to 650% faster than an 802.11g wireless connection (also faster than a 100Mbps wired Ethernet connection). Create a secure wireless network to share photos, files, music, video, printers, and network storage throughout your home. Connect the DAP-1513 to router and share your high-speed Internet access with everyone on the network. In addition, this Range Extender includes a Quality of Service (QoS) engine that keeps digital phone calls (VoIP) and online gaming smooth and responsive, providing a better Internet experience.

TOTAL NETWORK SECURITY

The DAP-1513 supports all of the latest wireless security features to prevent unauthorized access, be it from over the wireless network or from the Internet. Support for WPA and WPA2 standards ensure that you'll be able to use the best possible encryption method, regardless of your client devices.

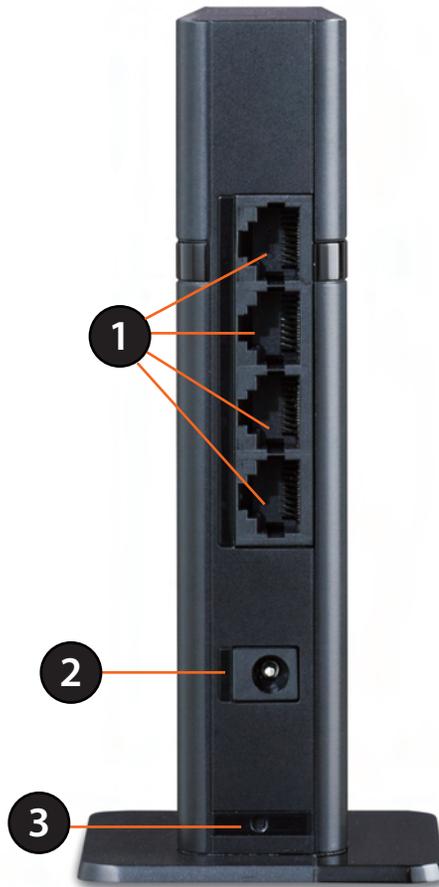
* Maximum wireless signal rate derived from IEEE Standard 802.11g and 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.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

Features

- **Faster Wireless Networking** - The DAP-1513 provides up to 300Mbps* wireless connection with other 802.11n wireless devices. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio.
- **Compatible with IEEE 802.11g Devices** - The DAP-1513 is still fully compatible with the 802.11g standards, so it can connect with existing 802.11g PCI, USB, and FireWire adapters.
- **WPS PBC** - (Wi-Fi Protected Setup Push Button Configuration) Push Button Configuration is a button that can be pressed to add the device to an existing network or to create a new network. A virtual button can be used on the utility while a physical button is placed on the side of the device.
This easy setup method allows you to form a secured wireless link between the DAP-1513 and another WPS enabled device. A PC is no longer needed to log into the Web-based interface.
- **WPS PIN** - (Wi-Fi Protected Setup Personal Identification Number) A PIN is a unique number that can be used to add the access point to an existing network or to create a new network. The default PIN may be printed on the bottom of the access point. For extra security, a new PIN can be generated. You can restore the default PIN at any time. Only the Administrator ("admin" account) can change or reset the PIN.
- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DAP-1513 lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your access point to your specific settings within minutes.

Hardware Overview

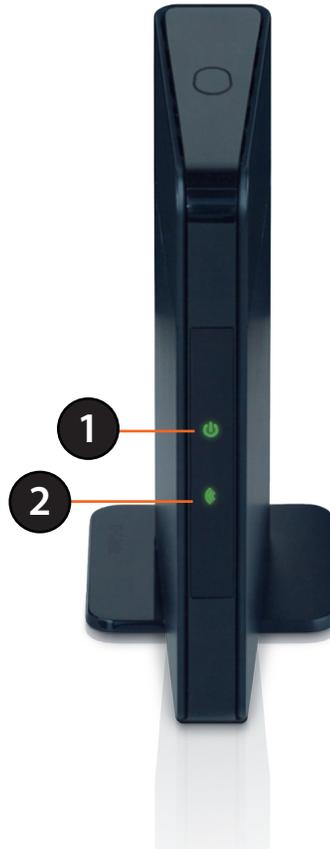
Connections



1	LAN Ports (1-4)	Connect 10/100 Ethernet devices such as computers, switches, and hubs.
2	Power Receptor	Receptor for the supplied power adapter.
3	Reset Button	Hold the reset button for at least 6 seconds to reset the device back to the factory default settings. All the LEDs will turn on for 2 second and then begin the reboot process.

Hardware Overview

LEDs



1	Power LED	A solid green light indicates a proper connection to the power supply.
2	Wireless LED	A blinking green light indicates the wireless function is working. The light will blink fast during data transmission and when WPS is associating. The light will be off during device reboot or if the wireless radio is disabled.

Hardware Overview

WPS Button



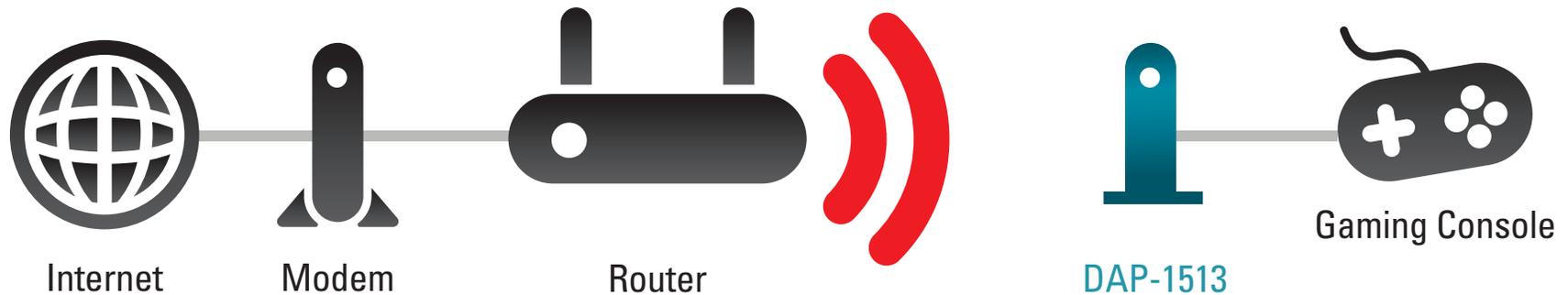
1	WPS Button	Press to start the WPS process. You will have 120 seconds to start the WPS process on another wireless device .
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Installation

In the Wireless Client mode, the DAP-1513 acts as a wireless network adapter for your Ethernet-enabled device (such as a game console or a TV set-top box). Connect your Ethernet-enabled device to the AP using an Ethernet cable. The AP Client mode can support multiple wired clients.

If you are going to connect several Ethernet-enabled devices to your DAP-1513, connect the LAN port of the DAP-1513 to an Ethernet switch, then connect your devices to this switch.

Example: Connect a gaming console using an Ethernet cable to the DAP-1513. The unit is set to Wireless bridge which will wirelessly connect to a wireless router on your network.



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 is not in use.

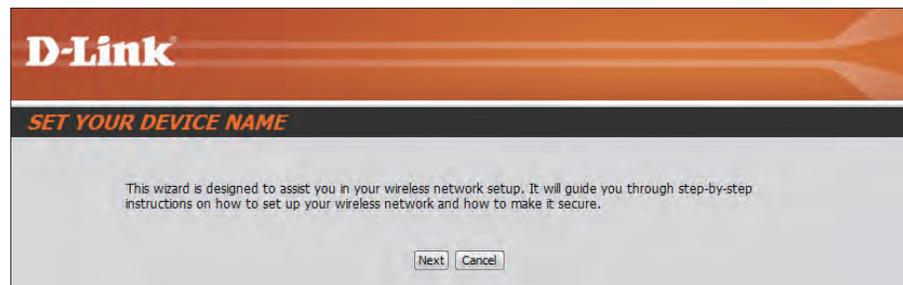
Configuration

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

First Time Setup

When you first connect the DAP-1513 to your computer, the setup wizard will automatically launch.

Click **Next** to continue.



The DAP-1513 is in wireless bridge mode. Click **Next** to continue.



If you have a Wi-Fi Protected Setup (WPS)-enabled wireless router or access point, select **WPS** and click **Next** to continue.

If you want to manually enter the network settings, select **Manual** and click **Next** to continue. Skip to page 17.

For PBC (Push Button Configuration), skip to the next page.

Select **PIN** to connect your wireless device with WPS. You may click **Generate New PIN** to use a different PIN number. Click **Connect** to start the WPS scan.

Within 2 minutes, enter the PIN number into the other device you want to connect to.



D-Link

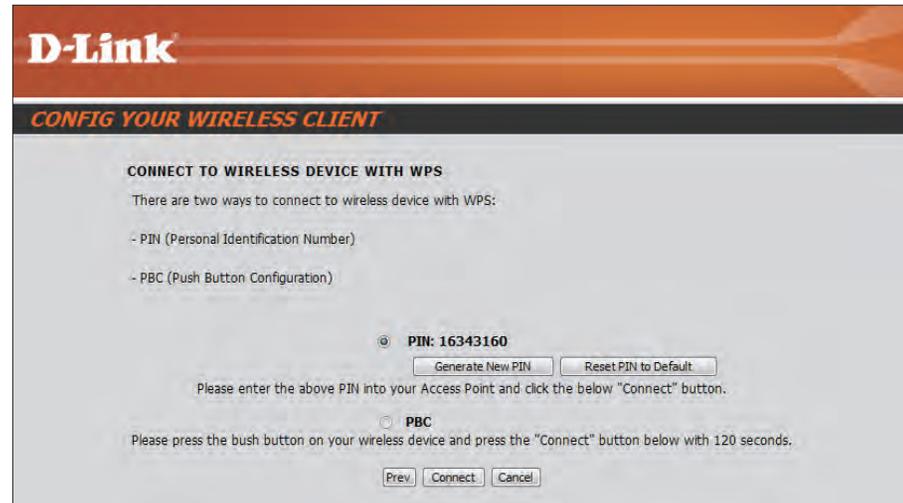
CONFIG YOUR WIRELESS CLIENT

SELECT CONFIGURATION METHOD

Please select one of the following configuration methods and click next to continue.

- WPS** -- Select this option if your wireless device supports WPS (Wi-Fi Protected Setup)
- Manual** -- Select this option if you want to setup your network manually

Prev Next Cancel



D-Link

CONFIG YOUR WIRELESS CLIENT

CONNECT TO WIRELESS DEVICE WITH WPS

There are two ways to connect to wireless device with WPS:

- PIN (Personal Identification Number)
- PBC (Push Button Configuration)

PIN: 16343160

Generate New PIN Reset PIN to Default

Please enter the above PIN into your Access Point and click the below "Connect" button.

PBC

Please press the push button on your wireless device and press the "Connect" button below with 120 seconds.

Prev Connect Cancel

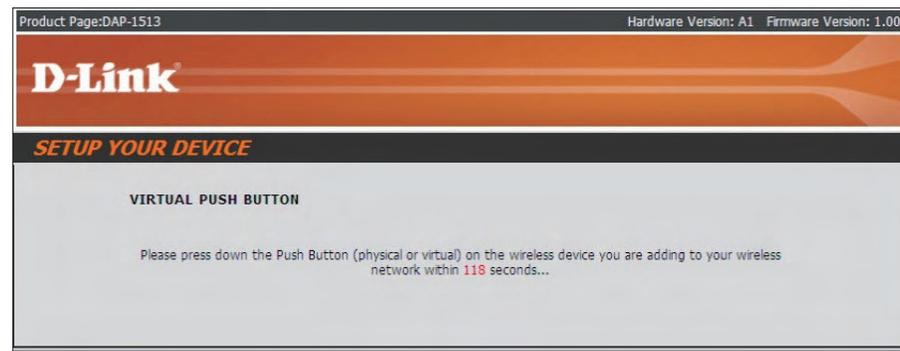
Select **PBC** to use the Push Button Configuration to connect to your network. Click **Connect** to continue.

Note: In the future, you may press the WPS button located on the side of the DAP-1513 instead of running this wizard.



The screenshot shows the D-Link configuration wizard interface. At the top, the D-Link logo is displayed. Below it, the title "CONFIG YOUR WIRELESS CLIENT" is shown. The main section is titled "CONNECT TO WIRELESS DEVICE WITH WPS". It explains that there are two ways to connect: PIN (Personal Identification Number) and PBC (Push Button Configuration). The PIN option is currently selected, showing a PIN of "16343160" and buttons for "Generate New PIN" and "Reset PIN to Default". Below this, the PBC option is also shown, with instructions to press the push button on the wireless device and press the "Connect" button below within 120 seconds. At the bottom, there are "Prev.", "Connect", and "Cancel" buttons.

On the device you want to connect to, start the PBC process on the device. You will have 2 minutes to start the PBC process on both devices.



The screenshot shows the D-Link configuration wizard interface. At the top, the D-Link logo is displayed. Below it, the title "SETUP YOUR DEVICE" is shown. The main section is titled "VIRTUAL PUSH BUTTON". It instructs the user to "Please press down the Push Button (physical or virtual) on the wireless device you are adding to your wireless network within 118 seconds...".

Select **Manual** configuration to setup your network manually.

Click **Next** to continue.



The screenshot shows the 'CONFIG YOUR WIRELESS CLIENT' screen with the 'SELECT CONFIGURATION METHOD' section. It includes instructions to select a method and two radio button options: 'WPS Setup' and 'Manual'. The 'Manual' option is selected. Navigation buttons 'Prev', 'Next', and 'Cancel' are at the bottom.

D-Link

CONFIG YOUR WIRELESS CLIENT

SELECT CONFIGURATION METHOD

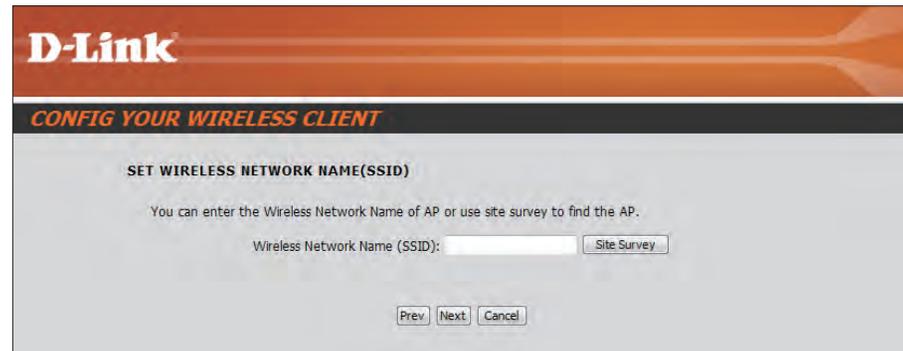
Please select one of the following configuration methods and click next to continue.

WPS Setup -- Select this option if your wireless device supports WPS (Wi-Fi Protected Setup)

Manual -- Select this option if you want to setup your network manually

Prev Next Cancel

Enter the network name (SSID) of the network you want to connect to. If you do not know the exact name or would like to search for the wireless network, click **Site Survey**.



The screenshot shows the 'SET WIRELESS NETWORK NAME(SSID)' screen. It includes instructions to enter the SSID or use site survey. A text input field for 'Wireless Network Name (SSID):' and a 'Site Survey' button are present. Navigation buttons 'Prev', 'Next', and 'Cancel' are at the bottom.

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CONFIG YOUR WIRELESS CLIENT

SET WIRELESS NETWORK NAME(SSID)

You can enter the Wireless Network Name of AP or use site survey to find the AP.

Wireless Network Name (SSID): Site Survey

Prev Next Cancel

Find your access point from the list, click the radio button in the right column, and click **Connect**.



The screenshot shows the 'WIRELESS' screen with a table of detected access points. Each row has a radio button in the 'Select' column. 'Connect' and 'Exit' buttons are at the bottom.

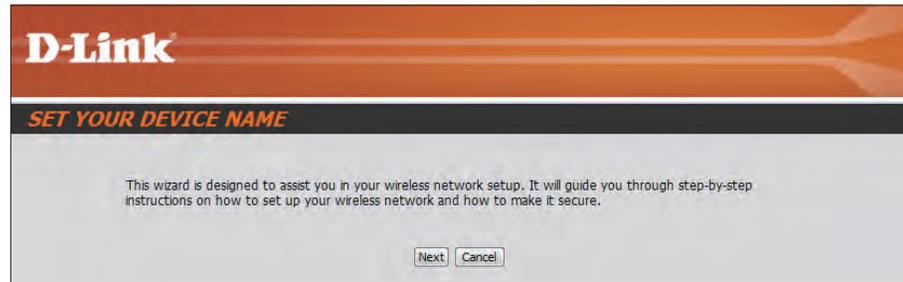
D-Link

SSID	BSSID	Channel	Type	Encrypt	Signal	Select
m-Lounge	001cf0efe6d6	2 (B+G+N)	AP	WPA-PSK/WPA2-PSK	51	<input type="radio"/>
alpha	001346aaadc8	1 (B+G)	AP	WPA-PSK/WPA2-PSK	41	<input type="radio"/>
DAP-2590-3	002191af25c3	6 (B+G+N)	AP	no	15	<input type="radio"/>

Connect Exit

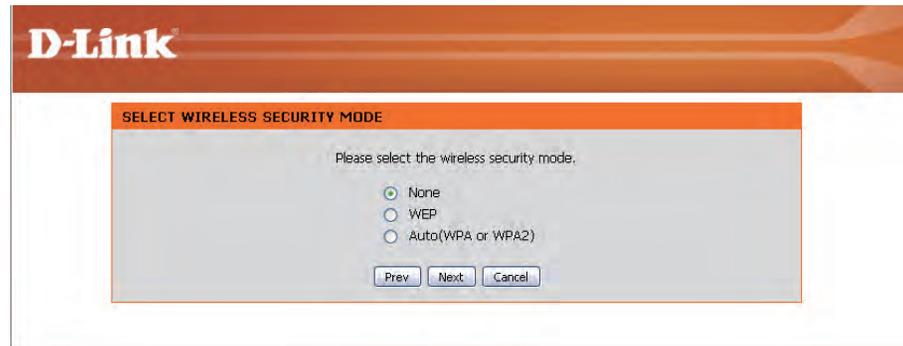
WIRELESS

Click **Next** to continue.



The screenshot shows the 'SET YOUR DEVICE NAME' step of the D-Link Setup Wizard. The page has an orange header with the D-Link logo. Below the header, the title 'SET YOUR DEVICE NAME' is displayed in orange. The main content area is grey and contains the text: 'This wizard is designed to assist you in your wireless network setup. It will guide you through step-by-step instructions on how to set up your wireless network and how to make it secure.' At the bottom right, there are two buttons: 'Next' and 'Cancel'.

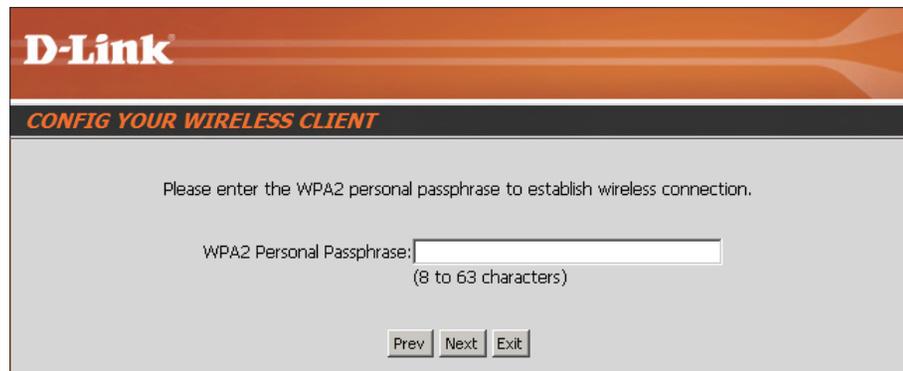
Select the wireless security mode you would like to use.



The screenshot shows the 'SELECT WIRELESS SECURITY MODE' step of the D-Link Setup Wizard. The page has an orange header with the D-Link logo. Below the header, the title 'SELECT WIRELESS SECURITY MODE' is displayed in orange. The main content area is grey and contains the text: 'Please select the wireless security mode.' Below this text are three radio button options: 'None' (selected), 'WEP', and 'Auto(WPA or WPA2)'. At the bottom right, there are three buttons: 'Prev', 'Next', and 'Cancel'.

If you select **WPA** or **WPA2**, enter the wireless security password. Click **Next** to complete the Setup Wizard.

The Setup Wizard is complete. Click **Finish** to reboot the device.



The screenshot shows the 'CONFIG YOUR WIRELESS CLIENT' step of the D-Link Setup Wizard. The page has an orange header with the D-Link logo. Below the header, the title 'CONFIG YOUR WIRELESS CLIENT' is displayed in orange. The main content area is grey and contains the text: 'Please enter the WPA2 personal passphrase to establish wireless connection.' Below this text is a text input field with the label 'WPA2 Personal Passphrase:' and a note '(8 to 63 characters)' below it. At the bottom right, there are three buttons: 'Prev', 'Next', and 'Exit'.

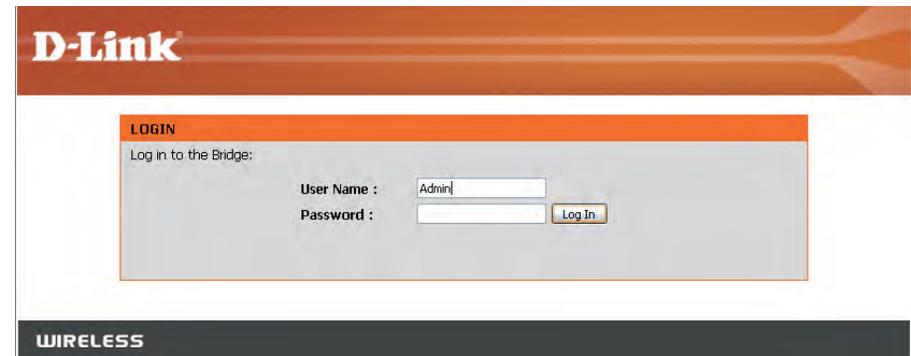
Web-based Configuration Utility

If you wish to change the default settings or optimize the performance of the DAP-1513, you may use the web-based configuration utility.

To access the configuration utility, open a web browser such as Internet Explorer and enter **dlinkap** or **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 configure your wireless bridge. Refer to the **First Time Setup** section for the Wireless Setup Wizard.

If you want to enter your settings without running the wizard, click **Wireless Setup** on the left side and skip to the next page.

The screenshot displays the D-Link configuration web interface for the DAP-1513. At the top, it shows 'Product Page: DAP-1513', 'Hardware Version: A1', and 'Firmware Version: 1.00'. The D-Link logo is prominently displayed. Below the logo is a navigation menu with tabs for 'DAP-1513', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' tab is selected. On the left side, there is a sidebar menu with options for 'WIZARD', 'WIRELESS SETUP', and 'LAN SETUP'. The main content area is titled 'WIRELESS CONNECTION SETUP WIZARD' and contains the following text: 'If you would like to utilize our easy to use web-based wizard to assist you in connecting your DAP-1513 to the wireless network, click on the button below.' Below this text is a button labeled 'Launch Wireless Setup Wizard'. A red-bordered note box contains the text: 'Note: Some changes made using this Setup Wizard may require you to change some settings on your bridge adapters so they can still connect to the D-Link Access Point.' On the right side, there is a 'Helpful Hints...' section with text: 'If you are new to networking and have never configured an access point before, click on Launch Setup Wizard and the access point will guide you through a few simple steps to get your network up and running.'

Manual Configuration

Wireless Setup

Wireless Mode: Bridge Mode only.

Site Survey: Click **Site Survey** to display a list of wireless networks in your area. You may select the wireless access point to connect to.

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. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule.

Wireless Type: Select **Infrastructure** if connecting to an access point or wireless router, or select **Ad-Hoc** if connecting to another wireless client.

Wireless Network Name: Enter the SSID of the access point or wireless router you want to connect to. If you do not know for sure, click **Site Survey** and select it from the list, if available.

Wireless Channel: The channel will automatically change to the channel of the AP you are connected to.

802.11 Mode: Select the appropriate 802.11 mode based on the wireless clients in your network. The drop-down menu options are **802.11g Only**, **Mixed 802.11b/g**, **802.11b Only**, **802.11n Only**, or **Mixed 802.11b/g/n**.

Channel Width: Select the appropriate channel width between **20MHz** or **Auto 20/40MHz** from the drop-down menu.

D-Link

DAP-1513 //

SETUP ADVANCED MAINTENANCE STATUS HELP

WIZARD

WIRELESS SETUP

LAN SETUP

WIRELESS NETWORK

Function wireless mode include Bridge. Function Bridge is designed to support bridge infrastructure and Ad-Hoc mode.

To protect your privacy you can configure wireless security features. This device supports three wireless security modes including: WEP or WPA and WPA2.

Save Settings Don't Save Settings

WIRELESS NETWORK SETTINGS :

Wireless Type : Infrastructure Site Survey

Wireless Network Name : dlink (Also called the SSID)

802.11 Band : 2.4GHz 5GHz

802.11 Mode : 802.11n only

Wireless Channel : []

Channel Width : 20MHz

WIRELESS MAC CLONE :

Enable :

MAC Source : Auto

MAC Address : []

Scan

MAC Address

[]

WIRELESS SECURITY MODE :

Security Mode : None

WIFI PROTECTED SETUP (ALSO CALLED WCN 2.0 IN WINDOWS VISTA) :

Enable :

Current PIN : 65695944

Generate New PIN Reset PIN to Default

Helpful Hints..

Wireless Mode :
Function wireless mode include Bridge. Function Bridge is designed to support bridge infrastructure and Ad-Hoc mode.

Wireless Network Name :
Changing your Wireless Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar name that does not contain any personal information.

Hidden Wireless :
Enabling Hidden Mode is another way to secure your network. With this option enabled, no bridges will be able to see your wireless network when they perform scan to see what's available. In order for your wireless devices to connect to your AP, you will need to manually enter the Wireless Network Name on each device.

Security Keys :
If you have enabled Wireless Security, make sure you write down WEP Key or Passphrase that you have configured. You will need to enter this information on any wireless device that you connect to your wireless network.

Bridge setting :
If you want to bridge with the other Bridge AP, please write down the MAC address of the Bridge AP. Besides, you also need to write down the MAC address of your Bridge AP to the other one.

Bridge Security :
If you have enabled the Bridge Security, make sure you write down WEP Key or Passphrase that you have configured. You will need to enter this information on any Bridge AP that you want to bridge with.

Wireless MAC Clone: You can clone the wireless MAC address to connect the device.

Wireless Security Mode: Select a wireless security setting. Options are **None**, **WEP**, **WPA**, or **WPA2**. See the Wireless Security section in this manual for a detailed explanation of the wireless security options.

WPS: Select enable if you want to configure the DAP-1513 with Wi-Fi Protection setup.

LAN Settings

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

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

Device Name: Enter the Device Name of the DAP-1513. It is recommended to change the Device Name if there is more than one D-Link device within the subnet.

The screenshot shows the D-Link web interface for the DAP-1513. The top navigation bar includes 'DAP-1513 //', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar contains 'WIZARD', 'WIRELESS SETUP', and 'LAN SETUP'. The main content area is titled 'NETWORK SETTINGS' and contains the following sections:

- NETWORK SETTINGS :** A text block explaining the purpose of the section and two buttons: 'Save Settings' and 'Don't Save Settings'.
- LAN CONNECTION TYPE :** A section with the instruction 'Choose the mode to be used by the Access Point.' and a dropdown menu labeled 'My LAN Connection is :' with 'Dynamic IP(DHCP)' selected.
- DYNAMIC IP (DHCP) LAN CONNECTION TYPE :** A section titled 'IP Address Information.' with three input fields: 'IP Address : 192.168.0.50', 'Subnet Mask : 255.255.255.0', and 'Gateway Address : 0.0.0.0'.
- DEVICE NAME (NETBIOS NAME) :** A section with an input field labeled 'Device Name :' containing the text 'dlinkap'.

On the right side of the interface, there is a 'Helpful Hints..' section with the following text:

LAN Settings :
LAN Connection type :
 The Factory default setting is "Static IP" which allows the IP address of the DAP-1355 to be manually configured in accordance to the applied local area network. Enable Dynamic (DHCP) to allow the DHCP host to automatically assign the Access Point an IP address that conforms to the applied local area network.

IP Address :
 The default IP address is 192.168.0.50. It can be modified to conform to an existing local area network. Please note that the IP address of each device in the wireless local area network must be within the same IP address range and subnet mask. Take default DAP-1355 IP address as an example, each station associated to the AP must be configured with a unique IP address falling in the range of 192.168.0.*. **n** ranges from 1 to 254 but 50 in this case.

Static IP

Select Static IP Address if all the Internet port's IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Access point will not accept the IP address if it is not in this format.

LAN Connection Type: Select **Static IP** from the drop-down menu.

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

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

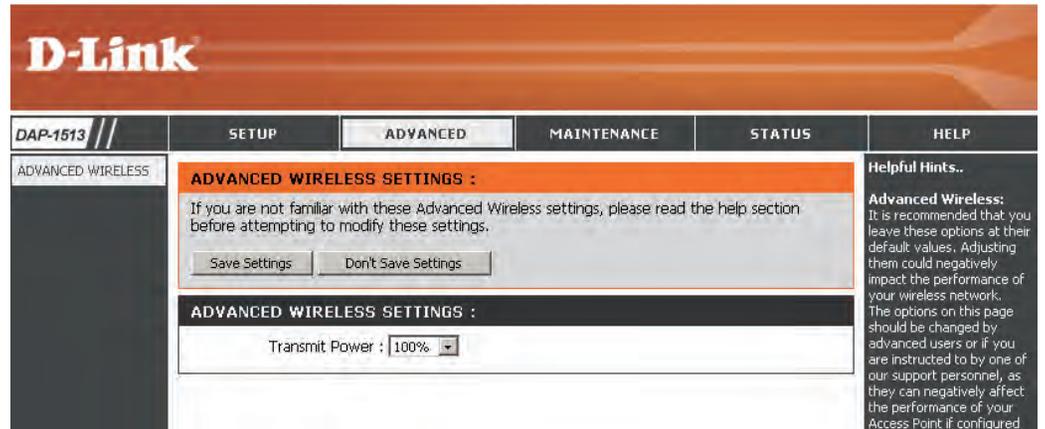
Default Gateway: Enter the Gateway assigned by your ISP.

Device Name: Enter the Device Name of the DAP-1513. It is recommended to change the Device Name if there is more than one D-Link device within the subnet. You can enter the device name of the AP into your web browser to access the instead of IP address for configuration. If you are using the device name to connect, ensure that your PC and your DAP-1513 are on the same network.

The screenshot shows the D-Link DAP-1513 web-based configuration utility. The interface is in English and features a navigation menu with tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The current page is the NETWORK SETTINGS page, which is used to configure the internal network settings of the AP and the built-in DHCP server. The page includes a sidebar with navigation options (WIZARD, WIRELESS SETUP, LAN SETUP) and a 'Helpful Hints..' section on the right. The main content area is divided into several sections: NETWORK SETTINGS (with a description and 'Save Settings'/'Don't Save Settings' buttons), LAN CONNECTION TYPE (with a dropdown menu set to 'Static IP'), STATIC IP ADDRESS LAN CONNECTION TYPE (with input fields for IP Address (192.168.0.50), Subnet Mask (255.255.255.0), and Gateway Address (0.0.0.0)), and DEVICE NAME (NETBIOS NAME) (with an input field containing 'dlinkap').

Advanced Advanced Wireless

Transmit Power: Sets the transmit power of the antennas.



Maintenance Admin

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

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

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

Enable Graphical Authentication: Enables a challenge-response test to require users to type letters or numbers from a distorted image displayed on the screen to prevent online hackers and unauthorized users from gaining access to your router's network settings.

The screenshot shows the D-Link DAP-1513 Maintenance Admin page. The page has a dark orange header with the D-Link logo. Below the header is a navigation bar with tabs for SETUP, ADVANCED, MAINTENANCE (selected), STATUS, and HELP. On the left side, there is a sidebar menu with options: ADMIN (selected), SYSTEM, FIRMWARE, and TIME. The main content area is titled "DEVICE ADMINISTRATION :" and contains the following text: "Enter the new password in the 'New Password' field and again in the next field to confirm. Click on 'Save Settings' to execute the password change. The Password is case-sensitive, and can be made up of any keyboard characters. The new password must be between 0 and 15 characters in length." Below this text are two buttons: "Save Settings" and "Don't Save Settings". Underneath the buttons is a section titled "PASSWORD :" with two input fields: "New Password : *****" and "Confirm Password : *****". At the bottom of the main content area is a section titled "ADMINISTRATION :" with a checkbox labeled "Enable Graphical Authentication :". On the right side of the page, there is a "Helpful Hints.." section with the following text: "Passwords: For security reasons, it is recommended that you change the Password for the Administrator accounts. Be sure to write down the Passwords to avoid having to reset the AP in the event that they are forgotten."

System

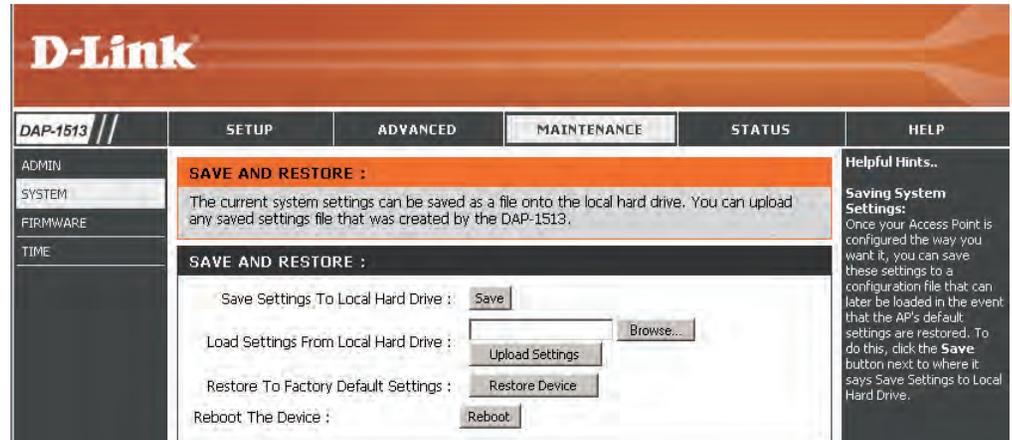
Save to Local Hard Drive: Use this option to save the current access point configuration settings to a file on the hard disk of the computer you are using. Click the **Save** button. You will then see a file dialog where you can select a location and file name for the settings.

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

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

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

Reboot the Device: Click to reboot the DAP-1513.



Firmware

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

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

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

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.

The screenshot displays the D-Link web interface for a DAP-1513 access point. The interface is divided into several sections:

- Navigation Bar:** Includes the D-Link logo and tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP.
- Left Sidebar:** Contains navigation links for ADMIN, SYSTEM, FIRMWARE, and TIME.
- FIRMWARE UPDATE Section:**
 - Header: **FIRMWARE UPDATE :**
 - Text: "There may be new firmware for your DAP-1513 to improve functionality and performance. [Click here to check for an upgrade on our support site.](#)"
 - Text: "After you have download the new firmware file from our support site, click the Browse button below to find the firmware file on your local hard drive. Click the Save Settings button to update the firmware on the DAP-1513."
 - Warning: "Do not update firmware through wireless network!!"
 - Header: **FIRMWARE INFORMATION :**
 - Fields: "Current Firmware Version : 1.00", "Date : 2011/01/05", "Current Language Pack Version : [Remove]", "Check Online Now for Latest Firmware : [Check Now]"
 - Header: **FIRMWARE UPGRADE**
 - Note: "Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration from the Maintenance -> Admin screen."
 - Text: "To upgrade the firmware, your PC must have a wired connection to the access point. Enter the name of the firmware upgrade file, and click on the Upload button."
 - Form: "Upload : [Text Box] [Browse...]" and "Upload" button.
- LANGUAGE PACKAGE INFORMATION Section:**
 - Header: **LANGUAGE PACKAGE INFORMATION**
 - Note: "Note: Update language package will make changes language display on web page. Before performing an upgrade, be sure to do it!"
 - Text: "To upgrade the language package, your PC must have a wired connection to the access point. Enter the name of the language package upgrade file, and click on the Upload button."
 - Form: "Upload : [Text Box] [Browse...]" and "Upload" button.
- Right Sidebar:** "Helpful Hints.. Firmware Updates: Firmware updates are released periodically to improve the functionality of your Access Point and also to add features. If you run into a problem with a specific feature of the Access Point, check our support site by clicking on the [Click here to check for an upgrade on our support site](#) link and see if an updated firmware is available for your Access Point."
- Footer:** WIRELESS

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** check box. Next use the drop-down menu to select a Daylight Saving Offset and then enter a start date and an end date for daylight saving time.

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.

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

The screenshot shows the D-Link web interface for the DAP-1513. The top navigation bar includes 'DAP-1513', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar lists 'ADMIN', 'SYSTEM', 'FIRMWARE', and 'TIME'. The main content area is titled 'TIME' and contains the following sections:

- Time Configuration:** Includes a description of the Time Configuration option, a 'Save Settings' button, and a 'Don't Save Settings' button.
- TIME CONFIGURATION:** Contains fields for 'Time', 'Time Zone' (set to '(GMT-08:00) Pacific Time (US & Canada); Tijuana'), 'Enable Daylight Saving' (checkbox), 'Daylight Saving Offset' (set to '-2:00'), and 'Daylight Saving Dates' (DST Start: Jan 1st Sun 12 am, DST End: Jan 1st Sun 12 am).
- AUTOMATIC TIME CONFIGURATION:** Contains 'Enable NTP server' (checkbox) and 'NTP Server Used' (text field with a 'Select NTP Server' dropdown).
- SET THE DATE AND TIME MANUALLY:** Contains 'Current DAP-1513 Time' (Year, Month, Day, Hour, Minute, Second dropdowns) and a 'Copy Your Computer's Time Settings' button.

On the right side, there is a 'Helpful Hints..' section titled 'System Time Settings:' which states: 'Once your Access Point is configured the way you want it, you can save these settings to a configuration file that can later be loaded in the event that the AP's default settings are restored. To do this, click the Save button next to where it says Save Settings to Local Hard Drive.'

Status

Device Info

This page displays the current information for the DAP-1513. 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.

The screenshot shows the D-Link web interface for the DAP-1513. The top navigation bar includes tabs for SETUP, ADVANCED, MAINTENANCE, STATUS (selected), and HELP. The left sidebar contains links for DEVICE INFO (selected), LOGS, and STATISTICS. The main content area is titled 'DEVICE INFORMATION' and contains the following sections:

- GENERAL:**
 - Time : 2011/01/05
 - Firmware Version : 1.00
- LAN:**
 - MAC Address : 00:E0:4C:81:96:99
 - Connection : Dynamic IP
 - IP Address : 192.168.0.50
 - Subnet Mask : 255.255.255.0
 - Default Gateway : 0.0.0.0
- WIRELESS LAN:**
 - MAC Address : 00:E0:4C:81:98:C1
 - Network Name(SSID) :
 - Channel : 100
 - Security Type : Open / Disabled

On the right side, there is a 'Helpful Hints..' section with the following information:

- Device Information:** This page displays the current information of the DAP-1365. The page will show the firmware currently loaded, wired and wireless settings applied on the unit.
- LAN:** The MAC address of the Ethernet LAN connection, Connection Type being used (DHCP or Static), Subnet Mask and Default Gateway are displayed in this section.
- WAN:** The MAC address of the WAN connection, Connection Type being used (DHCP, Static, PPPoE or PPTP), Subnet Mask and Default Gateway are displayed in this section.
- WIRELESS LAN:** The Wireless MAC address, Wireless Network Name (SSID), Wireless Channel and Wireless Security Type are displayed in this section.

Logs

The DAP-1513 keeps a running log of events and activities occurring on the AP. If the AP is rebooted, the logs are automatically cleared. You can save the log files under Log Setting.

First Page: This button directs you to the first page of the log.

Last Page: This button directs you to the last page of the log.

Previous Page: This button directs you to the previous page of the log.

Next Page: This button directs you to the next page of the log.

Clear Log: This button clears all current log content.

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

Refresh: This button refreshes the log.

D-Link

DAP-1513 // SETUP ADVANCED MAINTENANCE STATUS HELP

DEVICE INFO
LOGS
STATISTICS

LOGS :
Use this option to view the device logs. You can define what types of events you want to view and the event levels to view.

LOG OPTIONS

Log Type : System Activity Debug Information Attacks
 Dropped Packets Notice
Apply Log Settings Now

LOG DETAILS :

First Page Last Page Previous Page Next Page Clear Log Save log
Refresh

page 2 of 23

Time	Message
Jan 20 12:18:27	NET: Registered protocol family 2
Jan 20 12:18:27	IP route cache hash table entries: 1024 (order: 0, 4096 bytes)
Jan 20 12:18:27	TCP established hash table entries: 512 (order: 0, 4096 bytes)
Jan 20 12:18:27	TCP bind hash table entries: 512 (order: -1, 2048 bytes)
Jan 20 12:18:27	TCP: Hash tables configured (established 512 bind 512)
Jan 20 12:18:27	TCP reno registered
Jan 20 12:18:27	NET: Registered protocol family 1
Jan 20 12:18:27	squashfs: version 4.0 (2009/01/31) Philip Lougher
Jan 20 12:18:27	io scheduler noop registered
Jan 20 12:18:27	io scheduler cfq registered (default)

Helpful Hints..
First Page
The first page of the log.
Last Page
The last page of the log.
Previous Page
Moves back one log page.
Next Page
Moves forward one log page.
Clear Log
Clears the logs completely.

Statistics

The DAP-1513 keeps statistics of the traffic that passes through it. You can view the amount of packets that pass through the LAN and wireless portions of the network. The traffic counter will reset if the access point is rebooted.

The screenshot shows the D-Link web interface for the DAP-1513. The main navigation bar includes 'DAP-1513', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar contains 'DEVICE INFO', 'LOGS', 'STATISTICS', and 'WIRELESS'. The main content area is titled 'TRAFFIC STATISTICS' and includes a description, 'Refresh' and 'Clear' buttons, and two tables: 'LAN STATISTICS' and 'WIRELESS STATISTICS'. A 'Helpful Hints..' section on the right explains the 'Stats' function.

TRAFFIC STATISTICS :			
Traffic Statistics display Receive and Transmit packets passing through the DAP-1513.			
<input type="button" value="Refresh"/>		<input type="button" value="Clear"/>	
LAN STATISTICS			
Sent:	1118	Received:	4299
TX Packets Dropped:	0	RX Packets Dropped:	0
Collisions:	0	Errors:	0
WIRELESS STATISTICS			
Sent:	16	Received:	593
TX Packets Dropped:	0	RX Packets Dropped:	0
Collisions:	0	Errors:	0

Helpful Hints..
Stats:
 Displays data packet statistics of both transmitted frame and received frame for the DAP-1155 network.

Help

The screenshot displays the D-Link web interface for the DAP-1513 device. At the top, the D-Link logo is visible on an orange background. Below the logo is a navigation bar with tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The HELP tab is currently selected. The main content area is divided into two columns. The left column contains a 'HELP MENU' with the following sections and links:

- Setup**
 - [Wizard](#)
 - [Wireless Setup](#)
 - [LAN Setup](#)
- Advanced**
 - [Advanced Wireless](#)
- Maintenance**
 - [Device Administration](#)
 - [Save and Restore](#)
 - [Firmware Update](#)
 - [Time](#)
- Status**
 - [Device Info](#)
 - [Log](#)
 - [Statistics](#)

The right column is titled 'Helpful Hints..' and contains the text: 'Click on the links for more informations of each section in the GUI.'

Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DAP-1513 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 of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.
- User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

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

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

Configure WPA/WPA2 Personal

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 Setup** on the left side.
2. Next to *Security Mode*, select **WPA Personal**.
3. Next to *WPA Mode*, select **Auto WPA** or **WPA2**.
4. Next to *Cipher Type*, select **TKIP** or **AES**.
5. Next to *Pre-Shared Key*, enter a key. 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.
6. Click **Save Settings** at the top of the window to save your settings. If you are configuring the access point with a wireless adapter, you will lose connectivity until you enable WPA-PSK on your adapter and enter the same passphrase as you did on the access point.

The screenshot displays a web-based configuration interface for wireless security. It is divided into several sections:

- WIRELESS SECURITY MODE :** A dropdown menu is set to "WPA-Personal".
- WPA :** A text block explains the security modes. Below it, "WPA Mode" is set to "AUTO" and "Cipher Type" is set to "AES".
- PRE-SHARED KEY:** A text box for entering a passphrase, with instructions to use an 8-63 character alphanumeric string.
- WIFI PROTECTED SETUP (ALSO CALLED WCN 2.0 IN WINDOWS VISTA) :** A checkbox for "Enable" is checked. The "Current PIN" is "65695944". There are buttons for "Generate New PIN" and "Reset PIN to Default".

Connect to a Wireless Network Using Windows® XP

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

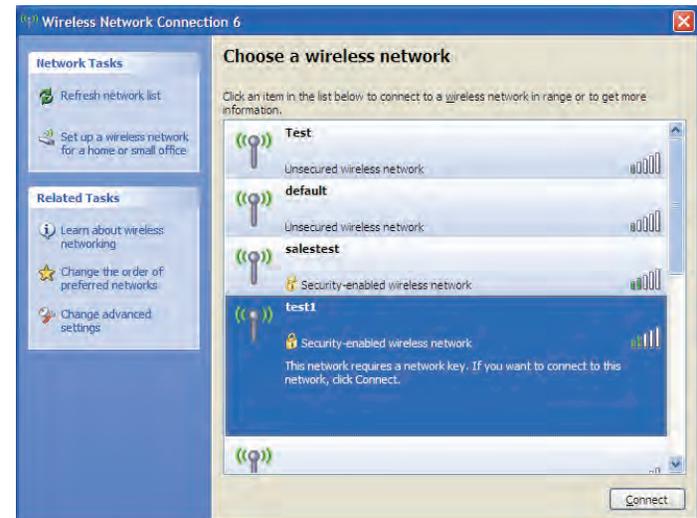
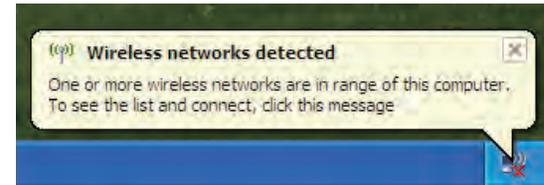
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

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

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

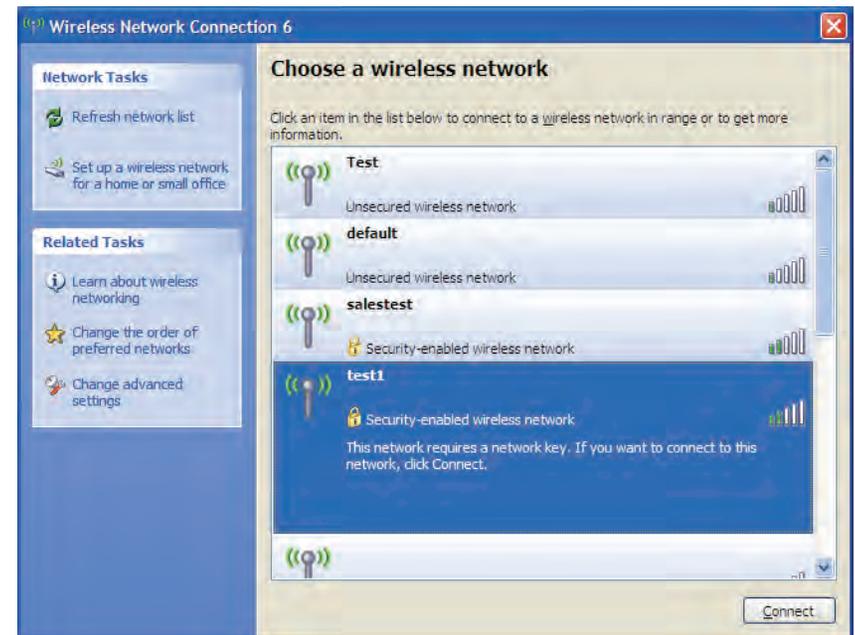
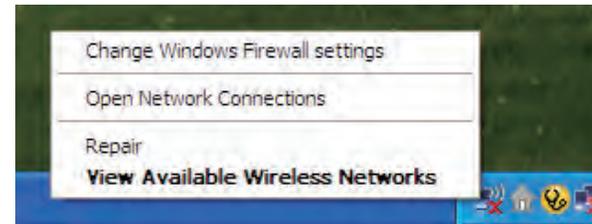
If you get a good signal, but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



Configure WPA-PSK

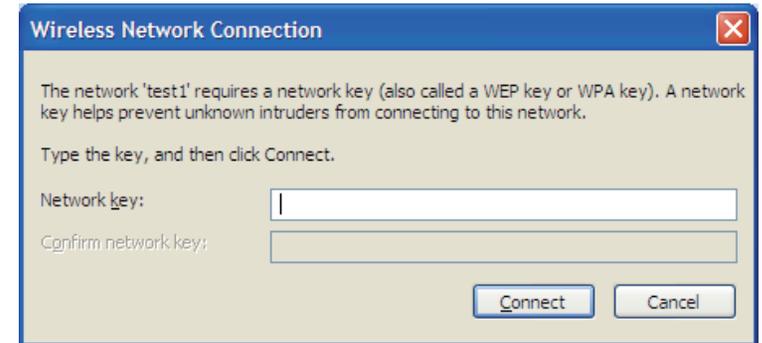
It is recommended to enable WEP on your wireless bridge before configuring your wireless adapter. If you are joining an existing network, you will need to know the WEP key being used.

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.



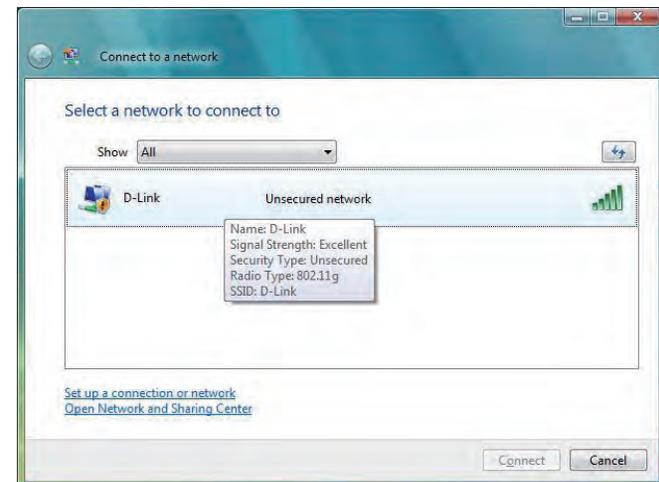
Using Windows Vista®

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

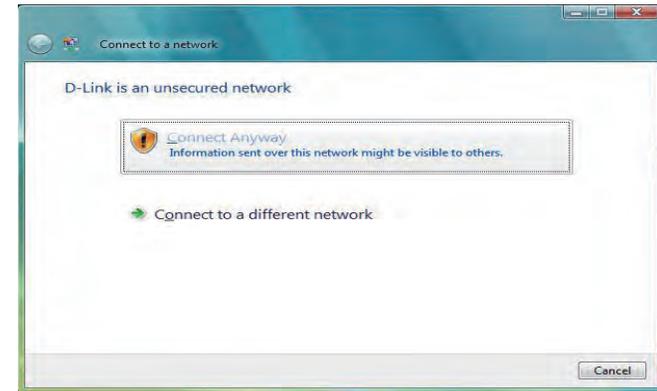
From the Start menu, go to Control Panel, and then click on **Network and Sharing Center**.



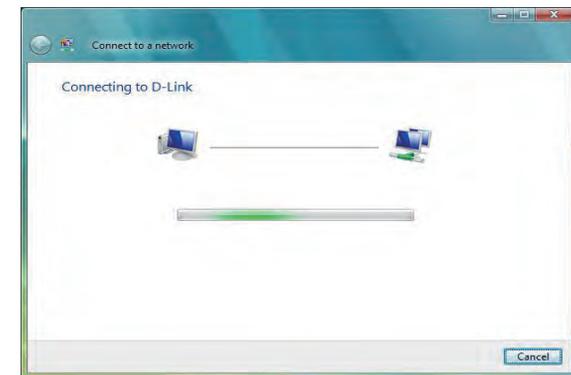
The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) under Select a network to connect to and then click the **Connect** button.



Click **Connect Anyway** to continue.

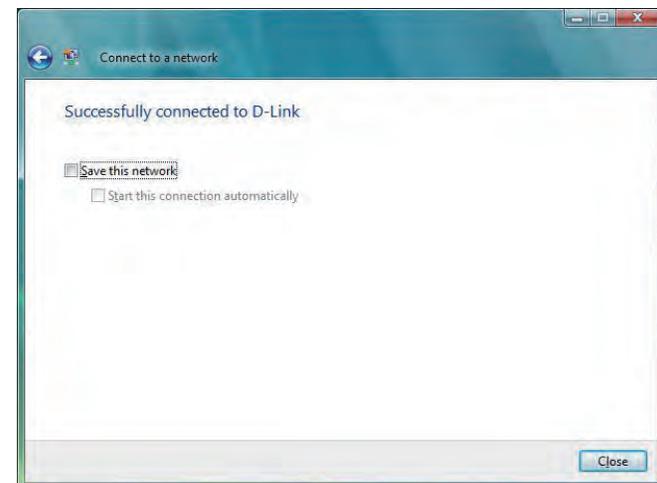


The utility will display the following window to indicate a connection is being made.



The final window indicates the establishment of a successful connection.

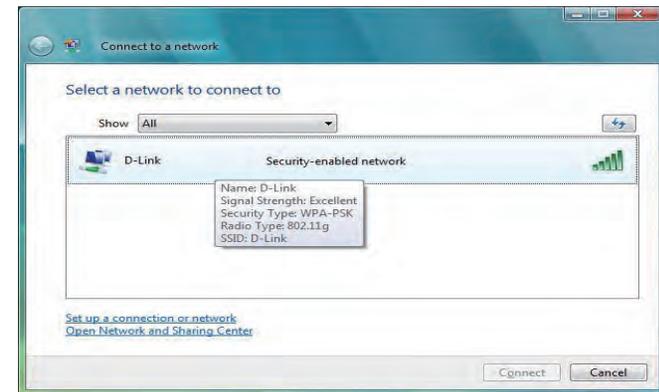
The next two pages display the windows used to connect to either a WEP or a WPA-PSK wireless network.



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® 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).



Wireless Icon

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

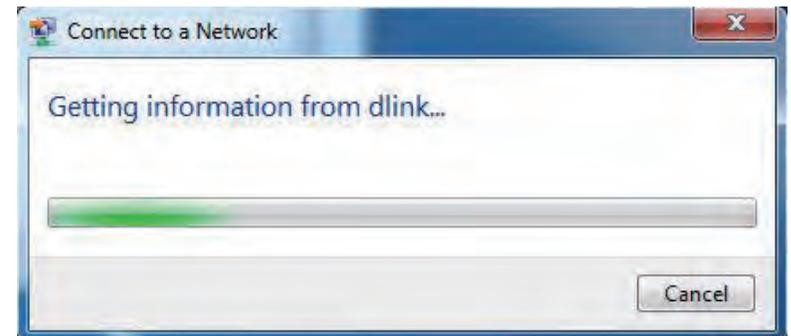


3. Highlight the wireless network (SSID) you would like to connect to and click the **Connect** button.

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.

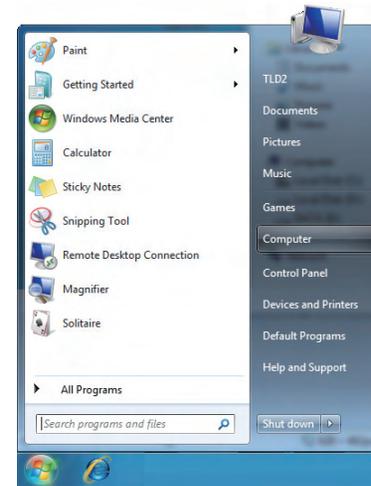
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



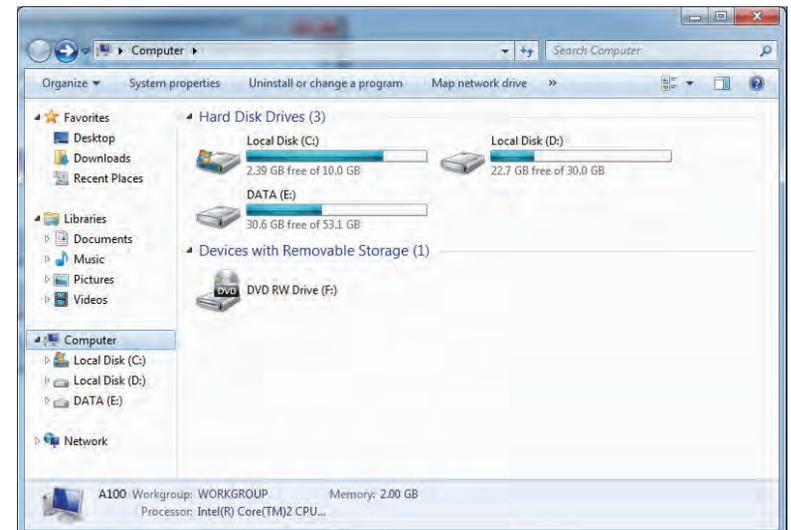
Configure WPS

The WPS feature of the DAP-1513 can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature of the DAP-1513:

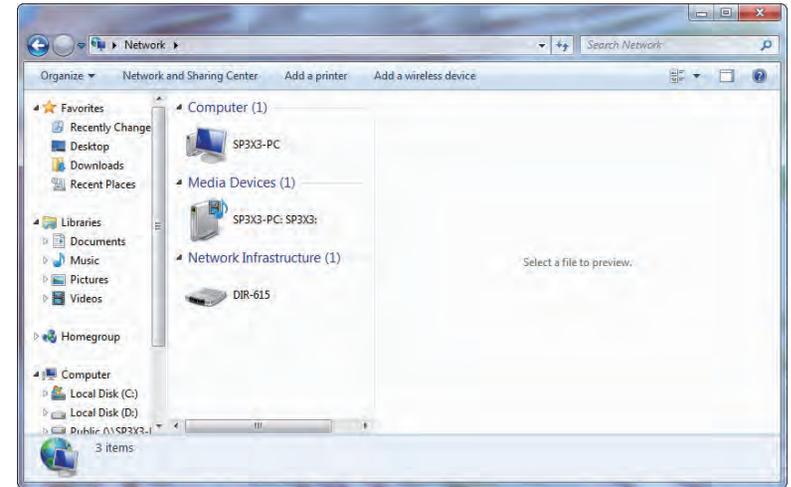
1. Click the **Start** button and select **Computer** from the Start menu.



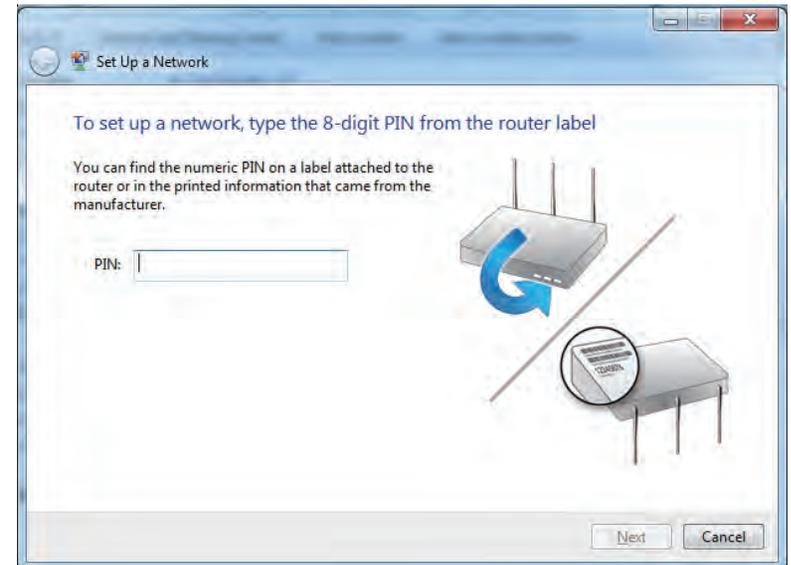
2. Click the **Network** option.



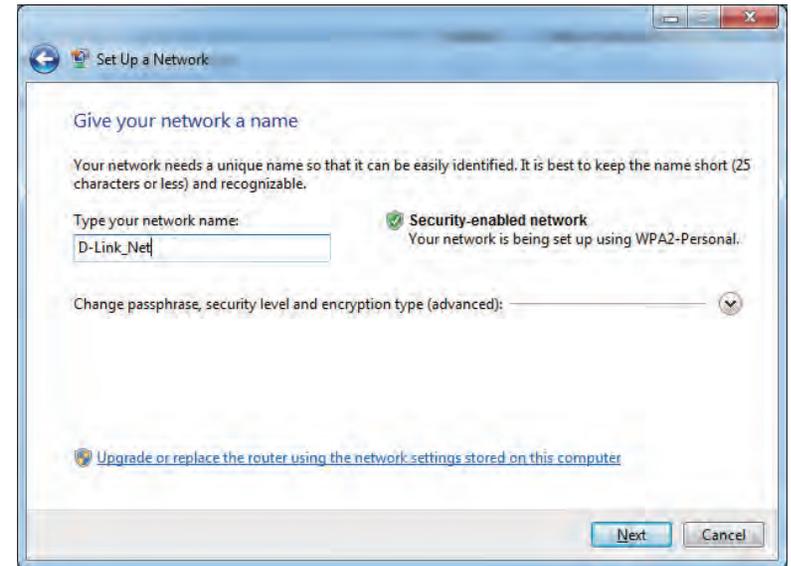
3. Double-click the DAP-1513.



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**.

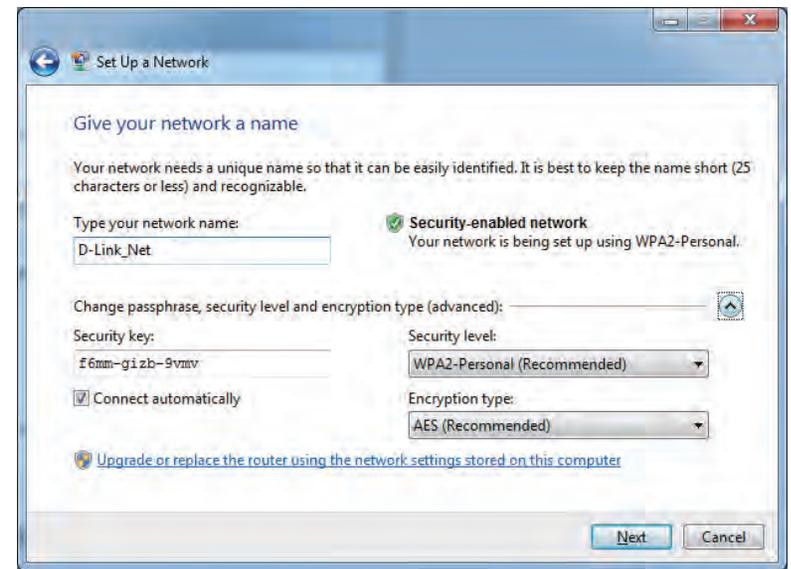


5. Type a name to identify the network.



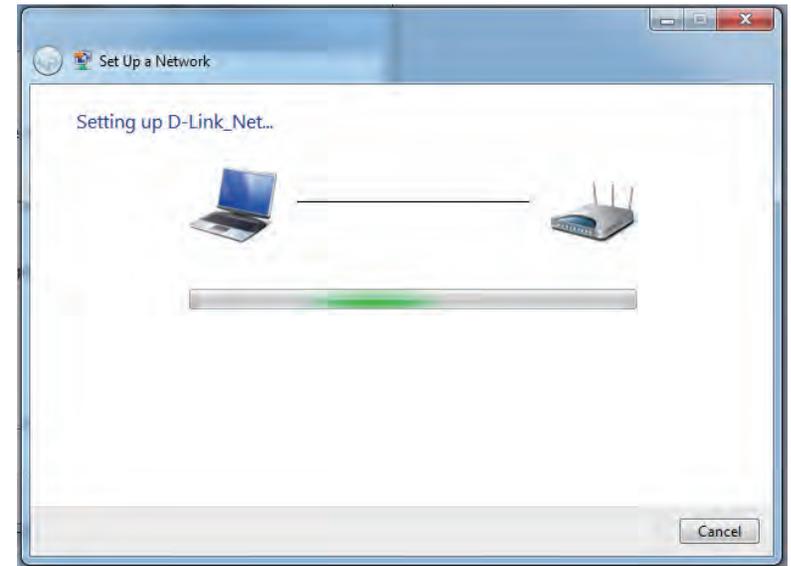
6. To configure advanced settings, click the  icon.

Click **Next** to continue.



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

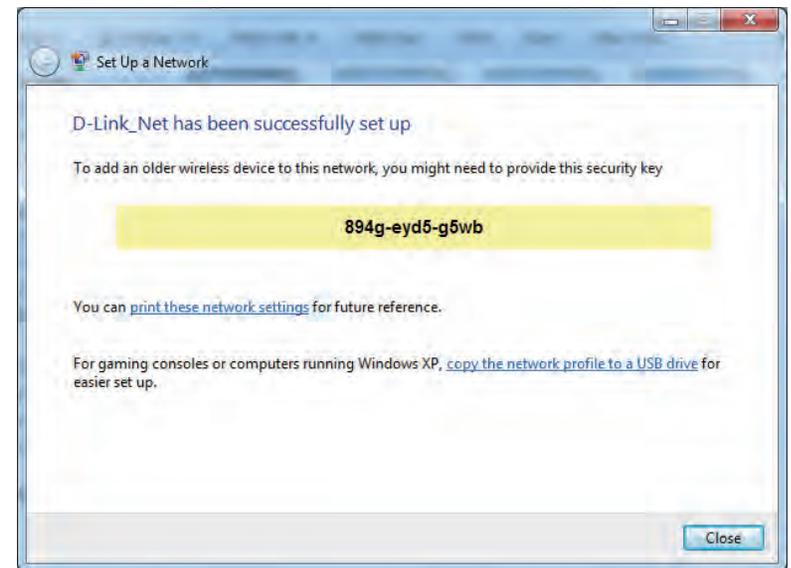
Wait for the configuration to complete.



- The following window informs you that WPS on the DAP-1513 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.

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



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1513. 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.

3. Why can't I connect to certain sites or send and receive emails when connecting through my access point?

If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Ex. 1492, 1482, 1472, etc).

Note: AOL DSL+ users must use MTU of 1400.

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

- Click on **Start** and then click **Run**.
- Windows® 95, 98, and Me users type in command (Windows® NT, 2000, and XP users type in **cmd**) and press **Enter** (or click **OK**).
- Once the window opens, you'll need to do a special ping. Use the following syntax:

```
ping [url] [-f] [-l] [MTU value]
```

Example: **ping yahoo.com -f -l 1472**

```
C:\>ping yahoo.com -f -l 1482
Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:
Packet needs to be fragmented but DF set.

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 93ms, Maximum = 203ms, Average = 132ms

C:\>
```

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, lets say that 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network we're working with (1452+28=1480).

Once you find your MTU, you can now configure your access point with the proper MTU size.

To change the MTU rate on your access point follow the steps below:

- Open your browser, enter the IP address of your access point (192.168.0.50) and click **OK**.
- Enter your username (admin) and password (blank by default). Click **OK** to enter the web configuration page for the device.
- Click on **Setup** and then click **Manual Configure**.
- To change the MTU enter the number in the MTU field and click **Save Settings** to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Wireless Basics

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

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

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

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

What is Wireless?

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

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 has 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

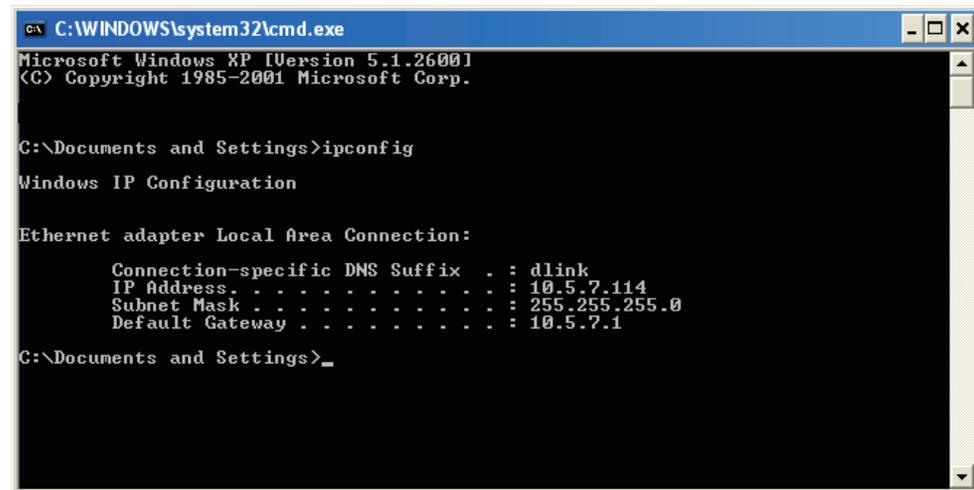
After you install your adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600.1
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink
    IP Address . . . . . : 10.5.7.114
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.5.7.1

C:\Documents and Settings>_
```

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

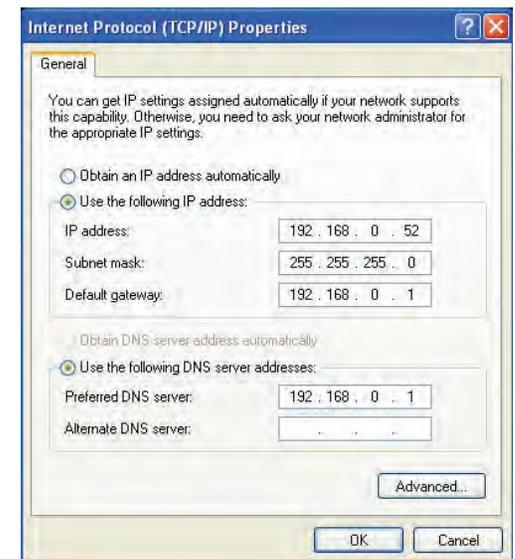
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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 802.11n
- IEEE 802.11g
- IEEE 802.11a
- IEEE 802.3
- IEEE 802.3u

Security

- WPA-Personal
- WPA2-Personal

Wireless Signal Rates¹

- 300Mbps
- 54Mbps
- 36Mbps
- 18Mbps
- 11Mbps
- 6Mbps
- 2Mbps
- 108Mbps
- 48Mbps
- 24Mbps
- 12Mbps
- 9Mbps
- 5.5Mbps
- 1Mbps

Maximum Operating Voltage

- 3.3V

Maximum Operating Current

- 1435 mA

Modulation

- DQPSK
- DBPSK
- CCK
- OFDM

Frequency Range²

- 2.4GHz to 2.483GHz
- 5.15GHz to 5.25GHz & 5.725GHz to 5.825GHz

LEDs

- Power
- Wireless

Operating Temperature

- 32°F to 131°F (0°C to 55°C)

Humidity

- 90% maximum (non-condensing)

Safety & Emissions

- FCC
- IC

Dimensions

- 142(W) x 122(D) x 29(W) mm (5.6 x 4.8 x 1.14 inches)

¹Maximum 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.

²Range varies depending on country's regulation.

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. DAP-1513)
- Hardware Revision (located on the label on the bottom of the access point (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the access point).

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) 453-5465

Internet Support:

<http://support.dlink.com>

For customers within Canada:

Phone Support:

(800) 361-5265

Internet Support:

<http://support.dlink.ca>

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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CE Mark Warning:

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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.

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

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

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

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

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.

Registration

Register your product online at www.onlineregister.com/dlink



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

Version 1.0
January 25, 2011