

N
300



User Manual

Wireless Range Extender

Preface

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

Manual Revisions

Revision	Date	Description
1.0	September 5, 2012	• Initial release for Revision A1

Trademarks

D-Link and the D-Link logo are trademarks or registered trademarks of D-Link Corporation or its subsidiaries in the United States or other countries. All other company or product names mentioned herein are trademarks or registered trademarks of their respective companies.

Copyright © 2012 by D-Link Systems, Inc.

All rights reserved. This publication may not be reproduced, in whole or in part, without prior expressed written permission from D-Link Systems, Inc.

Table of Contents

Preface	i	Time.....	27
Manual Revisions.....	i	Status.....	28
Trademarks.....	i	Device Info.....	28
Product Overview	1	Logs.....	29
Package Contents.....	1	Statistics.....	30
System Requirements.....	2	IPv6.....	31
Wireless Installation Considerations.....	3	WPS.....	32
Introduction.....	4	From Client to DAP-1320.....	32
Features.....	5	Windows® 7.....	33
LED.....	6	WPA/WPA2.....	33
Installation	7	Windows Vista®.....	36
Connect your DAP-1320 to your Router.....	7	WPA/WPA2.....	37
Configuration	9	WPS/WCN 2.0.....	39
Setup Wizard.....	9	Windows® XP.....	40
Web-based Configuration Utility.....	14	WPA/WPA2.....	41
Wireless Setup Wizard.....	15	Troubleshooting	43
Setup.....	18	Wireless Basics	45
Wi-Fi Setup.....	19	What is Wireless?.....	46
Extended Wi-Fi Setup.....	21	Tips.....	48
Wireless Security.....	22	Networking Basics	49
What is WPA?.....	22	Statically Assign an IP address.....	50
Configure WPA/WPA2 Personal.....	23	Technical Specifications	51
Maintenance.....	24	Contacting Technical Support	52
Admin.....	24	Warranty	53
System.....	25	Registration	60
Language Pack.....	26		
Firmware.....	26		

Package Contents



Wireless Range Extender (DAP-1320)



Wi-Fi Configuration Note



Quick Install Guide

If any of the above items are missing, please contact your reseller.

System Requirements

Network Requirements	<ul style="list-style-type: none">• IEEE 802.11n or 802.11g wireless clients• IEEE 802.11n or 802.11g wireless router or access point
Web-based Configuration Utility Requirements	<p>Computer with the following:</p> <ul style="list-style-type: none">• Windows®, Macintosh, or Linux-based operating system <p>Browser Requirements:</p> <ul style="list-style-type: none">• Internet Explorer 6 or higher• Safari 4 or higher• Firefox• Chrome <p>Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.</p>

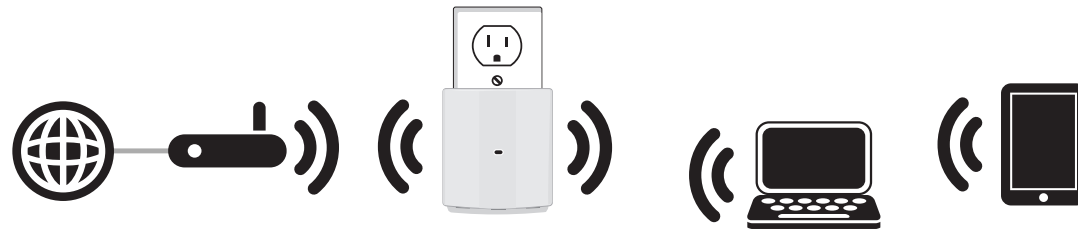
Wireless Installation Considerations

The D-Link wireless device 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 device and other network devices to a minimum - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building Materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone is not in use.

Introduction

The Wireless Range Extender (DAP-1320) enables you to extend your existing wireless network coverage by placing the Wireless Range Extender in between your router and the wireless client devices. This is great for extending wireless coverage to basements, home offices or bedrooms that might be distant from your wireless router. The DAP-1320 increases the range of your wireless network by extending the wireless coverage of an existing wireless network.



Note: Place the DAP-1320 within equal distance of your existing network/router and wireless clients.

Features

- **Faster Wireless Networking** - The DAP-1320 provides up to 300Mbps* wireless connection with other 802.11n wireless clients. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio.
- **Extend Internet access for wireless devices** - Allows you to extend your internet access throughout your home with devices such as laptops, Smartphones, tablets and more.
- **IEEE 802.11n and 802.11g Compliant** - The DAP-1320 is still fully compatible with the IEEE 802.11g standards, so it can connect with existing 802.11g USB and Cardbus adapters.

* 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

LED



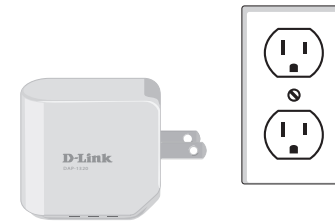
LED Indicator	Color	Status	Description
1. Power/Status	Green	Solid Green	The device is connected to a wireless router or AP
		Blinking Green	The device is processing a connection
		Light off	The device is off
	Amber	Blinking Amber	During boot up or a factory reset
		Light off	The device is powered off

Installation

Connect your DAP-1320 to your Router

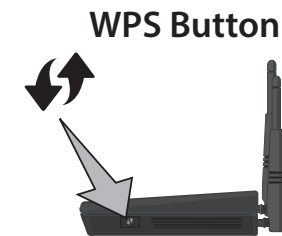
The easiest and most secure way to connect your DAP-1320 to your the router or access point is WPS (Wi-Fi Protected Setup). Please refer to your user manual for information on your router or access point make sure you understand how to enable WPS. Once you know, follow the steps below:

Step 1 - Plug the DAP-1320 into a wall outlet and verify if the power LED has turned from red to a blinking amber.

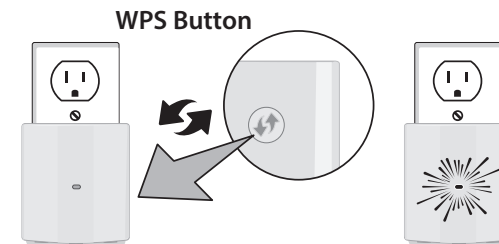


Step 2 - Press the WPS button on your AP/Router.

Note: Usually the WPS LED will blink once it is pressed. Check your router's manual for more information.

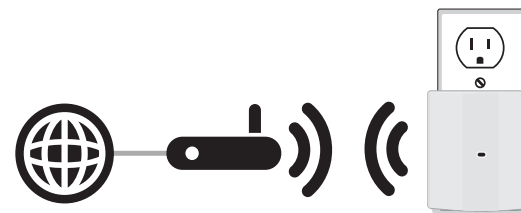


Step 3 - Press and hold the WPS button until the light starts blinking green and then release. Please allow up to two minutes for the WPS process to finish. Once the connection is successful the LED will be solid green.

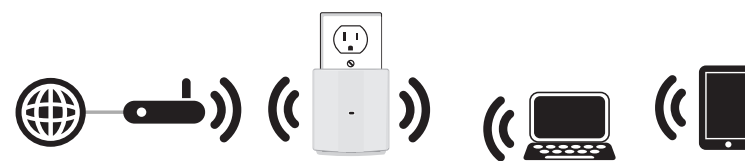


Step 4 - Your AP/Router and DAP-1320 will be connected when the LED light turns solid green.

Note: If connection fails, try moving your DAP-1320 closer to your wireless router/access point and repeat steps 2 and 3.



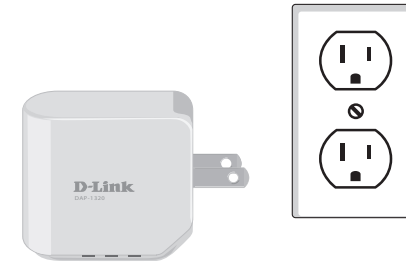
Step 5 - To connect your wireless clients to the DAP-1320, use the Wi-Fi Network SSID and the Wi-Fi Password located on your configuration note. You may also use WPS to connect your clients to the DAP-1320 (refer to page 32).



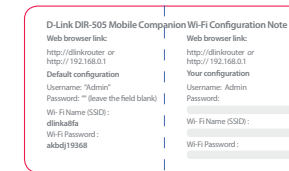
Note: For your wireless client to connect to the DAP-1320, you must use the same Wi-Fi Network Name (SSID) and Wi-Fi password as your DAP-1320 which is also located on the configuration note. If you would like to change your Wi-Fi Network Name (SSID) and Wi-Fi password refer to the configuration section page on 18.

Configuration Setup Wizard

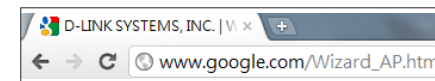
1. Plug the DAP-1320 into a wall outlet and verify if the power LED has turned from red to a blinking amber.



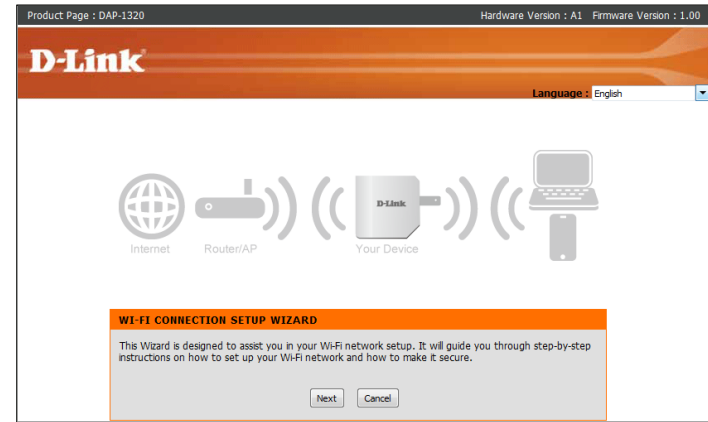
2. From your wireless computer go to the Wireless Utility to display the available wireless networks and select the Wi-Fi Network Name (SSID) that is located on your configuration note (ex: **dlink-a8fa**). Then, enter the Wi-Fi password which is also located on your configuration note. (ex: **akbdj19368**).



3. Open a web browser and type **http://dlinkap.local**. First time users will automatically be directed to the setup wizard. Please follow the on-screen instructions to complete the setup.

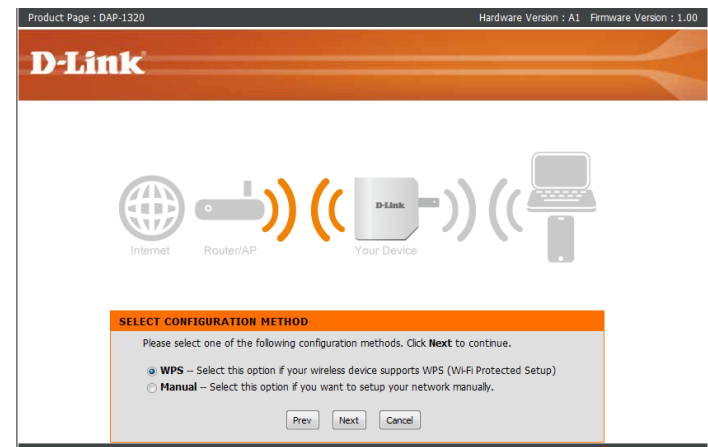


To start the Setup Wizard click **Next**.

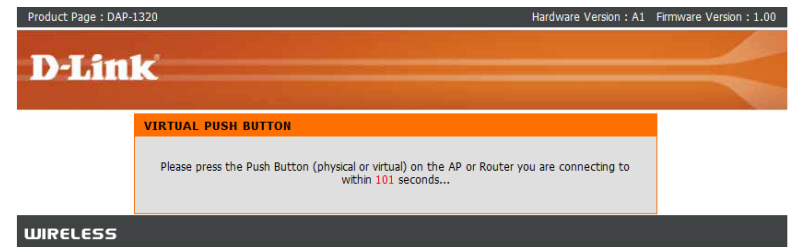


Select **WPS** as the configuration method only if your wireless device supports Wi-Fi Protected Setup (WPS). For manual setup, skip to page 11.

Click **Next** to continue.

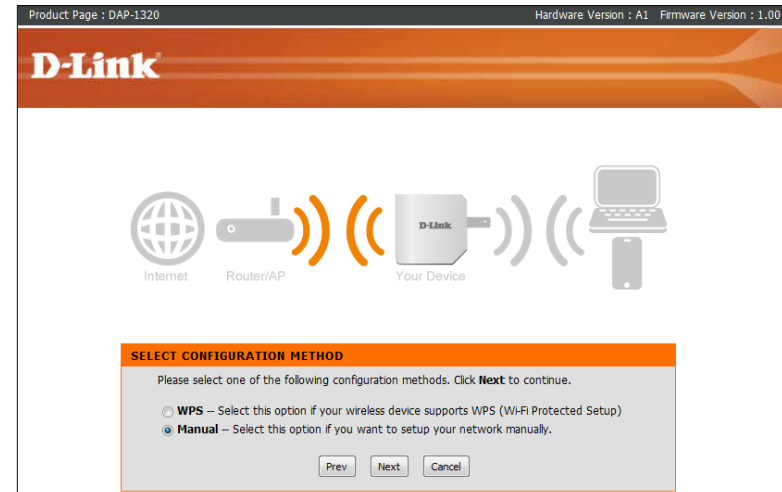


Press and hold the WPS button on your wireless router or access point until the light starts blinking green and then release. Please allow up to two minutes for the WPS process to finish.

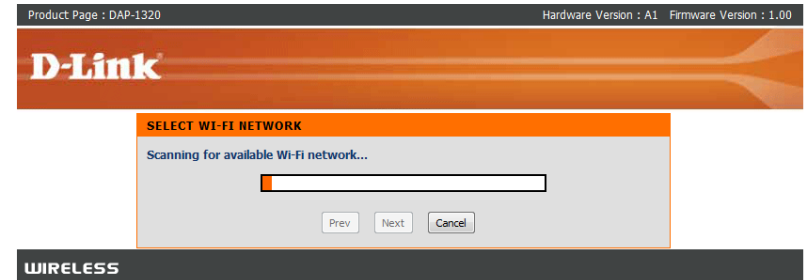


Select **Manual** as the configuration method to set up your network manually.

Click **Next** to continue.



Please wait while your device scans for available Wi-Fi networks.



A list of wireless networks in your area will be listed. Select your wireless network (associated with your wireless router or access point) and click **Connect** to continue.

SELECT WI-FI NETWORK					
ID	Wi-Fi Network Name	Wi-Fi Security Mode	Channel	Signal(%)	Select
1	Apple Network c3af3a	NONE	9	100	<input type="radio"/>
3	00265a493e1e	WPA2-PSK	11	100	<input type="radio"/>
4	vanilla	WEP	11	100	<input type="radio"/>
5	fc75164f5aa9	WPA2-PSK(auto)	1	100	<input type="radio"/>
6	vanilla	WEP	11	100	<input type="radio"/>
7	m-lounge	WPA/WPA2-PSK	11	100	<input type="radio"/>
9	AhhhRealMonsters	WPA-PSK(auto)	11	100	<input type="radio"/>
10	dlink_DIR-506L	WPA-PSK(auto)	11	100	<input type="radio"/>
11	vanilla	WEP	6	100	<input type="radio"/>
13	fc75164f5bc9	WPA2-PSK(auto)	11	100	<input type="radio"/>
14	vanilla	WEP	11	100	<input type="radio"/>
15	telus045	WPA-PSK	1	100	<input type="radio"/>
18	dlink	NONE	8	70	<input type="radio"/>

Enter your Wi-Fi Password for the wireless network you are using to connect and click **Next**.

ENTER WI-FI PASSWORD

Please enter Wi-Fi Password to establish wireless connection

Wi-Fi Password:

You can choose to change the Wi-Fi Network Name (SSID) and the Wi-Fi Password for the DAP-1320 or you can enter the information found on your configuration note. Click **Next** to continue and finish the setup process.

PLEASE ENTER THE SETTINGS FOR THE EXTENDED NETWORK

Give your Extended Wi-Fi network a name.

Extended Wi-Fi Network Name (SSID):
 (Using up to 32 characters)

Give your Extended Wi-Fi network a password.

Wi-Fi Password :
 (Between 8 and 63 characters)

Use the same Wi-Fi Network Name for the Extended Network.

Note: Click the check box to use the same Wi-Fi Network Name (SSID) and the Password for DAP-1320 as your existing network.

The setup is now complete. Please click **Save** to finish.

SETUP COMPLETE

Please take a note of following summary of your Wi-Fi Security settings for future reference.

Wi-Fi Network Name(SSID) : vanilla
Wi-Fi Password : dlink

Extended Wi-Fi Network
Name(SSID) : dlink-79B4
Wi-Fi Password : 79b41234

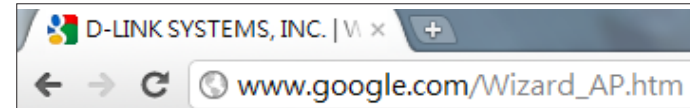
Please wait while the system reboots.

REBOOTING

Please wait 46 seconds.

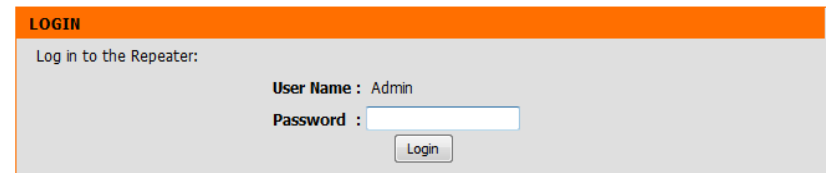
Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter **http://dlinkap.local**.



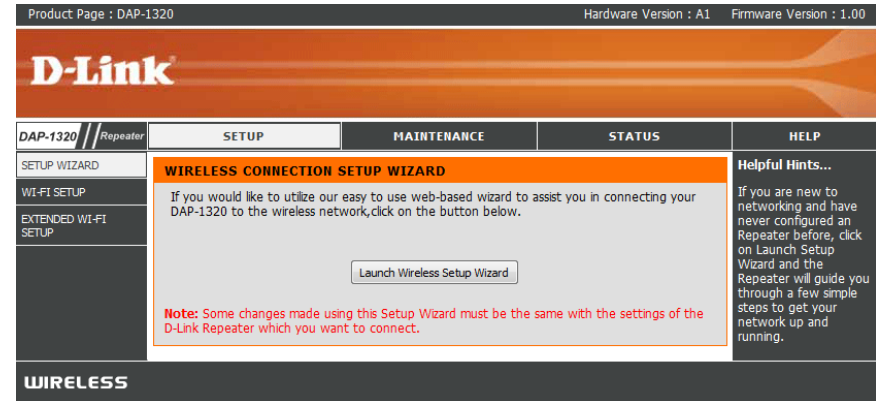
Enter the Password you created when you first logged on during the setup wizard and click **Login**.

Note: *If you did not create a password before, the default should be blank.*

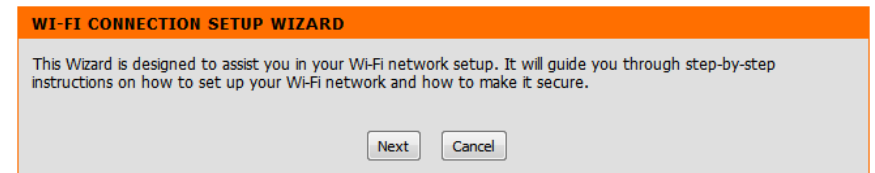
A screenshot of a login page titled 'LOGIN'. The page has an orange header bar. Below the header, it says 'Log in to the Repeater:'. There are two input fields: 'User Name : Admin' and 'Password :'. A 'Login' button is located below the password field.

Wireless Setup Wizard

Click **Launch Wireless Setup Wizard** to begin the Setup Wizard.

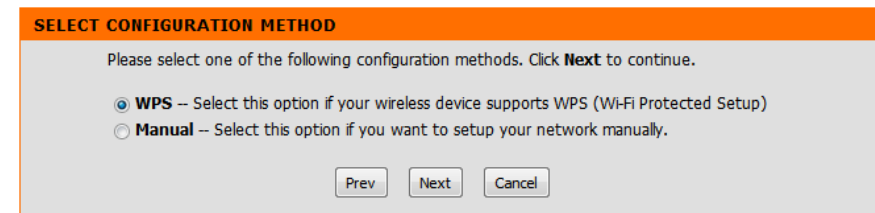


Click **Next** to start the Setup Wizard.

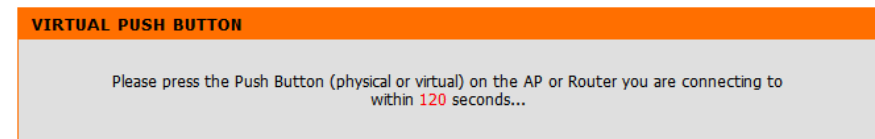


Select **WPS** as the configuration method only if your wireless device supports Wi-Fi Protected Setup (WPS).

Click **Next** to continue.



Press and hold the WPS button on your wireless router or access point until the light starts blinking green and then release. Please allow up to two minutes for the WPS process to finish.



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

Click **Next** to continue.

SELECT CONFIGURATION METHOD

Please select one of the following configuration methods. 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.

SELECT WI-FI NETWORK

Scanning for available Wi-Fi network...

A list of wireless networks in your area will be listed. Select your wireless network (associated with your wireless router or access point) and click **Connect** to continue.

SELECT WI-FI NETWORK

ID	Wi-Fi Network Name	Wi-Fi Security Mode	Channel	Signal(%)	Select
1	Apple Network c3af3a	NONE	9	100	<input type="radio"/>
3	00265a493e1e	WPA2-PSK	11	100	<input type="radio"/>
4	vanilla	WEP	11	100	<input type="radio"/>
5	fc75164f5aa9	WPA2-PSK(auto)	1	100	<input type="radio"/>
6	vanilla	WEP	11	100	<input type="radio"/>
7	m-lounge	WPA/WPA2-PSK	11	100	<input type="radio"/>
9	AhhhRealMonsters	WPA-PSK(auto)	11	100	<input type="radio"/>
10	dlink_DIR-506L	WPA-PSK(auto)	11	100	<input type="radio"/>
11	vanilla	WEP	6	100	<input type="radio"/>
13	fc75164f5bc9	WPA2-PSK(auto)	11	100	<input type="radio"/>
14	vanilla	WEP	11	100	<input type="radio"/>
15	telus045	WPA-PSK	1	100	<input type="radio"/>
18	dlink	NONE	8	70	<input type="radio"/>

Enter the Wi-Fi Password for the router you are using to connect and click **Next**.

You can choose to change the Wi-Fi Network Name (SSID) and the password for the DAP-1320 or you can enter the information found in your configuration card. Click **Next** to continue to finish the setup process.

Note: Click the check box to use the same Wi-Fi Network Name (SSID) and the Password for DAP-1320 as your existing network.

The setup is now complete. Please click **Save** to finish.

Please wait while the system reboots.

The screenshot shows a configuration window with an orange header titled "ENTER WI-FI PASSWORD". Below the header, the text reads "Please enter Wi-Fi Password to establish wireless connection". There is a text input field labeled "Wi-Fi Password:". At the bottom of the window, there are three buttons: "Prev", "Next", and "Cancel".

The screenshot shows a configuration window with an orange header titled "PLEASE ENTER THE SETTINGS FOR THE EXTENDED NETWORK". Below the header, the text reads "Give your Extended Wi-Fi network a name." followed by a text input field for "Extended Wi-Fi Network Name (SSID)" containing "dlink-79B4" and a note "(Using up to 32 characters)". Below that, the text reads "Give your Extended Wi-Fi network a password." followed by a text input field for "Wi-Fi Password" containing "79b41234" and a note "(Between 8 and 63 characters)". At the bottom, there is a checkbox labeled "Use the same Wi-Fi Network Name for the Extended Network." which is currently unchecked. Below the checkbox are three buttons: "Prev", "Next", and "Cancel".

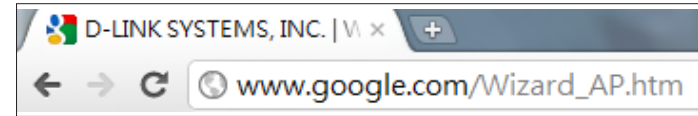
The screenshot shows a configuration window with an orange header titled "SETUP COMPLETE". Below the header, the text reads "Please take a note of following summary of your Wi-Fi Security settings for future reference." Below this, the settings are summarized as follows:
Wi-Fi Network Name(SSID) : vanilla
Wi-Fi Password : dlink

Extended Wi-Fi Network Name(SSID) : dlink-79B4
Wi-Fi Password : 79b41234
At the bottom of the window, there are three buttons: "Prev", "Save", and "Cancel".

The screenshot shows a configuration window with an orange header titled "REBOOTING". Below the header, the text reads "Please wait 46 seconds."

Setup

To access the configuration utility, open a web-browser such as Internet Explorer and enter **http://dlinkap.local**.



Enter the Password you created when you first logged on during the setup wizard and click **Login**.

A screenshot of a web page titled "LOGIN" with an orange header bar. Below the header, the text "Log in to the Repeater:" is displayed. To the right, there are two labels: "User Name : Admin" and "Password :". The "Password :" label is followed by a text input field. Below the input field is a "Login" button.

Wi-Fi Setup

Use this section to manually configure the wireless settings for your D-Link Repeater.

Product Page : DAP-1320 Hardware Version : A1 Firmware Version : 1.00

D-Link

DAP-1320 // Repeater SETUP MAINTENANCE STATUS HELP

SETUP WIZARD

WI-FI SETUP

EXTENDED WI-FI SETUP

WI-FI

Use this section to configure the Wi-Fi settings for your D-Link Repeater. Please note that changes made on this section will also need to be duplicated to your wireless clients and PC.

Save Settings Don't Save Settings

WI-FI NETWORK SETTINGS

Wireless Mode : Repeater Mode Site Survey

Wi-Fi Network Name : vanilla (Also called the SSID)

Channel Width : Auto 20/40 MHz

WIRELESS SECURITY MODE

Security Mode : WEP

WEP

WEP is the wireless encryption standard. To use it you must enter the same key(s) into the router and the wireless stations. For 64 bit keys you must enter 10 hex digits into each key box. For 128 bit keys you must enter 26 hex digits into each key box. A hex digit is either a number from 0 to 9 or a letter from A to F. For the most secure use of WEP set the authentication type to "Shared Key" when WEP is enabled.

You may also enter any text string into a WEP key box, in which case it will be converted into a hexadecimal key using the ASCII values of the characters. A maximum of 5 text characters can be entered for 64 bit keys, and a maximum of 13 characters for 128 bit keys.

If you choose the WEP security option this device will **ONLY** operate in Legacy Wireless mode (802.11B/G). This means you will **NOT** get 11N performance due to the fact that WEP is not supported by the Draft 11N specification.

WEP Key Length : 64 bit (5 ascii characters) (length applies to all keys)

Wep Key 1 : *****

Authentication : Both

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

Enable :

Process WPS

WIRELESS

Helpful Hints...

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

Enable Auto Channel Scan so that the Repeater can select the best possible channel for your wireless network to operate on.

Visibility Status is another way to secure your network. With invisible option enabled, no wireless clients 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 Repeater, you will need to manually enter the Wireless Network Name on each device.

If you have enabled Wireless Security, make sure you write down the 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.

Wireless Mode: This will automatically be **Repeater Mode**.

Site Survey: Scans and displays available Wi-Fi networks.

Wi-Fi 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.

Channel Width: Select the Channel Width:
Auto 20/40 - This is the default setting. 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.

Security Mode: Select **WEP** or **WPA Personal**. Refer to page 22.

WI-FI NETWORK SETTINGS

Wireless Mode : **Repeater Mode**

Wi-Fi Network Name : (Also called the SSID)

Channel Width :

WIRELESS SECURITY MODE

Security Mode :

WEP

WEP is the wireless encryption standard. To use it you must enter the same key(s) into the router and the wireless stations. For 64 bit keys you must enter 10 hex digits into each key box. For 128 bit keys you must enter 26 hex digits into each key box. A hex digit is either a number from 0 to 9 or a letter from A to F. For the most secure use of WEP set the authentication type to "Shared Key" when WEP is enabled.

You may also enter any text string into a WEP key box, in which case it will be converted into a hexadecimal key using the ASCII values of the characters. A maximum of 5 text characters can be entered for 64 bit keys, and a maximum of 13 characters for 128 bit keys.

If you choose the WEP security option this device will **ONLY** operate in **Legacy Wireless mode (802.11B/G)**. This means you will **NOT** get 11N performance due to the fact that WEP is not supported by the Draft 11N specification.

WEP Key Length : (length applies to all keys)

Wep Key 1 :

Authentication :

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

Enable :

SELECT WI-FI NETWORK					
ID	Wi-Fi Network Name	Wi-Fi Security Mode	Channel	Signal(%)	Select
1	Apple Network c3af3a	NONE	9	100	<input type="radio"/>
3	00265a493e1e	WPA2-PSK	11	100	<input type="radio"/>
4	vanilla	WEP	11	100	<input type="radio"/>
5	fc75164f5aa9	WPA2-PSK(auto)	1	100	<input type="radio"/>
6	vanilla	WEP	11	100	<input type="radio"/>
7	m-lounge	WPA/WPA2-PSK	11	100	<input type="radio"/>
9	AhhhRealMonsters	WPA-PSK(auto)	11	100	<input type="radio"/>
10	dlink_DIR-506L	WPA-PSK(auto)	11	100	<input type="radio"/>
11	vanilla	WEP	6	100	<input type="radio"/>
13	fc75164f5bc9	WPA2-PSK(auto)	11	100	<input type="radio"/>
14	vanilla	WEP	11	100	<input type="radio"/>
15	telus045	WPA-PSK	1	100	<input type="radio"/>
18	dlink	NONE	8	70	<input type="radio"/>

Extended Wi-Fi Setup

This page allows you to configure the wireless LAN settings for your DAP-1320. You have the option of creating a new Wi-Fi Network Name for your DAP-1320 or you may use the same Wi-Fi Network Name as your wireless router or AP.

Wi-Fi Network Name: Displays the current Wi-Fi Network Name you are connected to.

Extended Wi-Fi Network Name: Select **Same as Wi-Fi Network Name** or **Create a new Wi-Fi Network Name**.

Channel Width: Select the Channel Width:
Auto 20/40 - This is the default setting. 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.

Security Mode: Select **WEP** or **WPA Personal**. Refer to page 22.

Product Page : DAP-1320 Hardware Version : A1 Firmware Version : 1.00

D-Link

DAP-1320 // Repeater

SETUP MAINTENANCE STATUS HELP

SETUP WIZARD

WI-FI SETUP

EXTENDED WI-FI SETUP

EXTENDED WI-FI

Use This Section to configure the wireless LAN settings for you D-Link AP. You can create a new Wi-Fi Network Name(SSID) for your Extended Wi-Fi Network or use the same Wi-Fi Network Name(SSID) as the joined Repeater for your Extended Wi-Fi Network. Please note that changes made on this section will also need to be duplicated to your wireless clients and PC.

Save Settings Don't Save Settings

EXTENDED WI-FI NETWORK SETTINGS

Wi-Fi Network Name : vanilla

Extended Wi-Fi Network Name : Same as Wi-Fi Network Name Create a new Wi-Fi Network Name

dlmk-79B4

Channel Width : Auto 20/40 MHz

WIRELESS SECURITY MODE

Security Mode : WPA/WPA2-Personal

Helpful Hints...

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

Enable Auto Channel Scan so that the Repeater can select the best possible channel for your wireless network to operate on.

Visibility Status is another way to secure your network. With invisible option enabled, no wireless clients 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

Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DAP-1320 offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA (Wi-Fi Protected Access)
- WEP (Wired Equivalent Privacy)
- WPA2-PSK (Pre-Shared Key)
- WPA-PSK (Pre-Shared Key)

What is WPA?

WPA (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 router 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 wireless security on your DAP-1320 before your wireless clients. Please establish wireless connectivity before enabling. 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 **http://dlinkap.local**. Click **Setup** and then click **Wireless Settings** on the left side.
2. Next to *Security Mode*, select **WPA-Personal**.
3. Next to *Pre-Shared Key*, enter a key (Wi-Fi password). The Wi-Fi password must be between 8-63 characters and is case-sensitive.
4. Click **Save Settings** at the top of the window to save your settings. You will lose connectivity until you enable WPA-PSK on the device you are working from and enter the same Wi-Fi password as you did on the DAP-1320.

The screenshot displays the configuration interface for wireless security. It is divided into three main sections:

- WIRELESS SECURITY MODE:** A dropdown menu labeled "Security Mode" is set to "WPA/WPA2-Personal".
- WPA:** This section contains explanatory text: "Use **Auto WPA or WPA2 (TKIP and AES)** mode to achieve a balance of strong security and best compatibility. This mode uses WPA for legacy clients while maintaining higher security with stations that are WPA2 capable." Below this, it instructs the user to "Enter an 8 to 63 character alphanumeric pass-phrase. For good security it should be of ample length and should not be a commonly known phrase." A "Pre-Shared Key" field is shown with a masked password of seven dots.
- WIFI PROTECTED SETUP (ALSO CALLED WCN 2.0 IN WINDOWS VISTA):** An "Enable" checkbox is checked. A "Process WPS" button is located below the checkbox.

Maintenance Admin

This page will allow you to change the Administrator password.

Password: Enter a new password for the Admin login name. The administrator can make changes to the settings.

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

Enable Graphical Authentication: Checking this box enables a challenge-response test to require users to type letters or numbers from a distorted image displayed on the screen. This prevents online hackers and unauthorized users from gaining access to your network settings on your DAP-1320.

Product Page : DAP-1320 Hardware Version : A1 Firmware Version : 1.0

D-Link

DAP-1320 // Repeater

SETUP MAINTENANCE STATUS HELP

ADMIN

SYSTEM

FIRMWARE

TIME

ADMINISTRATOR SETTINGS

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.

Save Settings Don't Save Settings

ADMIN PASSWORD

Please enter the same password into both boxes, for confirmation.

New Password :

Verify Password :

ADMINISTRATION

Enable Graphical Authentication :

Helpful Hints...

Passwords:
For security reasons, it is recommended that you change the Password for the Administrator account. Be sure to write down the Passwords to avoid having to reset the Repeater in the event that they are forgotten.

WIRELESS

System

Save to Local Hard Drive: Use this option to save the current DAP-1320 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 DAP-1320 configuration settings. Click **Browse** to find a previously saved configuration file. Then, click the **Upload Settings** button to transfer those settings to the DAP-1320.

Restore to Factory Default: This option will restore the DAP-1320 back to the factory default settings.

Reboot the Device: Click to reboot the DAP-1320.

The screenshot displays the web interface for the D-Link DAP-1320 Repeater. At the top, it shows 'Product Page : DAP-1320', 'Hardware Version : A1', and 'Firmware Version : 1.00'. The D-Link logo is prominently displayed. Below the logo, there are navigation tabs for 'DAP-1320 Repeater', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' tab is active, and within it, the 'SAVE AND RESTORE' section is highlighted in orange. This section contains the following text and controls:

The current system settings can be saved as a file onto the local hard drive. You can upload any save settings file that was created by the DAP-1320.

SAVE AND RESTORE

Save Settings To Local Hard Drive :

Load Settings From Local Hard Drive :

Restore To Factory Default Settings :

Reboot The Device :

Clear Language Pack :

On the right side of the interface, there is a 'Helpful Hints...' section titled 'Saving System Settings:' which provides instructions on how to save and restore settings.

At the bottom of the page, the word 'WIRELESS' is displayed.

Firmware

You can upgrade the firmware of the DAP-1320 here. Make sure the firmware you want to use is on the local hard drive of the computer. Please check the D-Link support website for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your computer 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 computer.

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, click **Upload** and begin the firmware upgrade

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 computer. Click **Upload** to complete the language pack upgrade.

The screenshot shows the D-Link web interface for a DAP-1320 Repeater. The top navigation bar includes 'D-Link', 'DAP-1320 Repeater', and tabs for 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. A left sidebar contains 'ADMIN', 'SYSTEM', 'FIRMWARE', and 'TIME'. The main content area is divided into several sections:

- FIRMWARE:** A notification box stating: "There may be new firmware for your DAP-1320 to improve functionality and performance. [Click here to check for an upgrade on our support site.](#) 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 Upload button to update the firmware on the DAP-1320. **Do not update firmware through wireless network!!**"
- FIRMWARE AND LANGUAGE PACK INFORMATION:** Displays "Current Firmware Version : 1.00" and "Date : 2012/8/1". It also shows "Current Language Pack Version : No Language Pack" and a "Check Online Now for Latest Firmware and Language pack version" button with a "Check Now" sub-button.
- FIRMWARE UPGRADE:** Includes a red 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 — System](#) screen." Below this, it instructs: "To upgrade the firmware, your PC must have a wired connection to the Repeater. Enter the name of the firmware upgrade file, and click on the Upload button." There is an "Upload:" text box with a "Browse..." button and an "Upload" button.
- LANGUAGE PACK UPGRADE:** Similar to the firmware section, it has an "Upload:" text box with a "Browse..." button and an "Upload" button.
- Helpful Hints...:** A sidebar section titled "Firmware Updates:" explaining that updates are released periodically to improve functionality and add features, and advising users to check the support site for updates.

The bottom of the page features a "WIRELESS" banner.

Time

The Time Configuration page 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 your Time Zone from the drop-down menu.

Enable 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. 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 to use your computer's settings.

Product Page : DAP-1320 Hardware Version : A1 Firmware Version : 1.00

D-Link

DAP-1320 Repeater SETUP MAINTENANCE STATUS HELP

ADMIN SYSTEM FIRMWARE TIME

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 and set the NTP (Network Time Protocol) Server. Daylight Saving can also be configured to automatically adjust the time when needed.

Save Settings Don't Save Settings

TIME CONFIGURATION

Current Time : Jan/01/2011 00:29:21

Time Zone : (GMT-08:00) Pacific Time (US/Canada), Tijuana

Enable Daylight Saving :

Daylight Saving Offset : +1:00

Daylight Saving Dates :

	Month	Week	Day of Week	Time
DST Start	Mar	3rd	Sun	1 AM
DST End	Nov	2nd	Sun	1 AM

AUTOMATIC TIME CONFIGURATION

Enable NTP Server :

NTP Server Used : << Select NTP Server

SET THE DATE AND TIME MANUALLY

Date And Time : Year 2011 Month Jan Day 01

Hour 00 Minute 00 Second 00

Copy Your Computer's Time Settings

WIRELESS

Helpful Hints...

System Time Settings: This section allows admins to configure, update, and maintain the correct time on the Repeater's internal system clock.

Status

Device Info

This page displays the current information for the DAP-1320. It will display the Wi-Fi network and Extended Wi-Fi Network information.

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

Wi-Fi Network: Displays the MAC address and the private (local) IP settings for the access point.

Extended Wi-Fi Network: Displays the wireless MAC address and your wireless settings such as SSID, Channel, and IP Settings.

The screenshot shows the D-Link DAP-1320 Repeater web interface. The top navigation bar includes 'D-Link', 'DAP-1320 Repeater', and tabs for 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'STATUS' tab is active, displaying 'DEVICE INFORMATION'. A sidebar on the left contains links for 'DEVICE INFO', 'LOGS', 'STATISTICS', and 'IPV6'. A 'Helpful Hints...' sidebar on the right provides additional context. The main content area is divided into sections: 'GENERAL' (Time: Jan/01/2011 00:29:47, Firmware Version: 1.00, Wed, 1 Aug 2012), 'WI-FI NETWORK' (MAC Address: 02:18:e7:95:79:b4, Network Name (SSID): vanilla, Security Mode: Both / WEP 64bits, Channel Width: Auto 20/40 MHz, Channel: 6), and 'EXTENDED WI-FI NETWORK' (MAC Address: 00:18:e7:95:79:b4, Extended Wi-Fi Network Name (SSID): dlink-79B4, Connection: DHCP, IP Address: 192.168.0.147, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.0.1, Primary DNS Server: 192.168.0.1, Secondary DNS Server: 0.0.0.0). A 'Wi-Fi Client list' table is partially visible at the bottom.

Wi-Fi Client list		
IP Address	MAC Address	Name (if any)

Logs

The DAP-1320 keeps a running log of events and activities. If the device is rebooted, the logs are automatically cleared. You can save the log files by clicking the **Save Log** button.

Log Options: There are several types of logs that can be viewed: **System Activity, Debug Information, Attacks, Dropped Packets** and **Notice**. Check the Log Options you want to view and click **Apply Log Settings Now**.

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

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

Clear: This button clears all current log content.

Save Log: Click to **Save** the log to your computer.

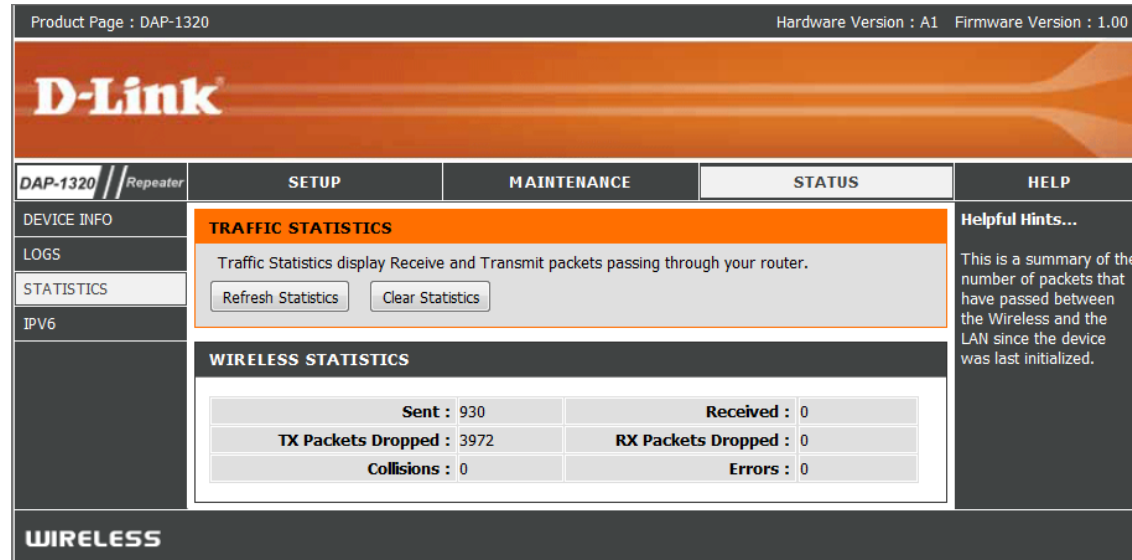
Refresh: This button refreshes the log.

The screenshot shows the D-Link web interface for a DAP-1320 Repeater. The main navigation bar includes 'DAP-1320 // Repeater', 'SETUP', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar contains 'DEVICE INFO', 'LOGS', 'STATISTICS', and 'IPv6'. The 'LOGS' section is active, displaying a description: '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.' Below this is the 'LOG OPTIONS' section, which has checkboxes for 'System Activity' (checked), 'Debug Information', 'Attacks' (checked), 'Dropped Packets', and 'Notice' (checked). An 'Apply Log Settings Now' button is present. The 'LOG DETAILS' section features navigation buttons: 'First Page', 'Last Page', 'Previous', 'Next', 'Clear', 'Save Log', and 'Refresh'. A log entry list shows 1/12 entries with columns for 'Time' and 'Message'. The messages include system startup events, IPv6 address registration and withdrawal, and mDNS group joining.

Time	Message
Jan 1 00:17:54	Service D-Link DAP-1320 Configuration Utility (/var/etc/avahi/services/http.service) successfully established.
Jan 1 00:17:53	Registering new address record for fe80::218:e7ff:fe95:79b4 on br0.*.
Jan 1 00:17:53	Registering new address record for fe80::218:e7ff:fe95:79b4 on br0.*.
Jan 1 00:17:53	New relevant interface br0.IPv6 for mDNS.
Jan 1 00:17:53	Joining mDNS multicast group on interface br0.IPv6 with address fe80::218:e7ff:fe95:79b4.
Jan 1 00:17:52	Server startup complete. Host name is dlinkap.local. Local service cookie is 3434309714.
Jan 1 00:17:52	Interface br0.IPv6 no longer relevant for mDNS.
Jan 1 00:17:52	Withdrawing address record for fe80::218:e7ff:fe95:79b4 on br0.
Jan 1 00:17:52	Withdrawing address record for fe80::218:e7ff:fe95:79b4 on br0.
Jan 1 00:17:51	using nameserver 192.168.0.1#53

Statistics

The DAP-1320 keeps statistics of wireless traffic that passes through it. The wireless statistics will reset if the DAP-1320 is rebooted.



Product Page : DAP-1320 Hardware Version : A1 Firmware Version : 1.00

D-Link

DAP-1320 // Repeater

SETUP MAINTENANCE STATUS HELP

DEVICE INFO

LOGS

STATISTICS

IPV6

TRAFFIC STATISTICS

Traffic Statistics display Receive and Transmit packets passing through your router.

Refresh Statistics Clear Statistics

WIRELESS STATISTICS

Sent : 930	Received : 0
TX Packets Dropped : 3972	RX Packets Dropped : 0
Collisions : 0	Errors : 0

Helpful Hints...

This is a summary of the number of packets that have passed between the Wireless and the LAN since the device was last initialized.

WIRELESS

IPv6

This page displays all your IPv6 connection information.

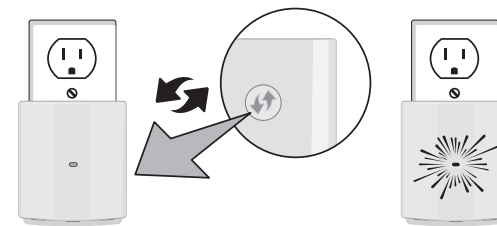
Product Page : DAP-1320		Hardware Version : A1		Firmware Version : 1.00
D-Link				
DAP-1320 // Repeater	SETUP	MAINTENANCE	STATUS	HELP
DEVICE INFO	IPv6 NETWORK INFORMATION			Helpful Hints... This is a summary of the number of packets that have passed between the Wireless and the LAN since the device was last initialized.
LOGS	All of your IPv6 Internet and network connection details are displayed on this page.			
STATISTICS				
IPv6	IPv6 CONNECTION INFORMATION			
	<p>IPv6 CONNECTION TYPE : Link-local only</p> <p>LAN IPv6 Link-Local Address : FE80::218:E7FF:FE95:79B4/64</p>			
WIRELESS				

WPS

From Client to DAP-1320

The easiest and most secure way to connect your wireless devices to the DAP-1320 is WPS (Wi-Fi Protected Setup). Most wireless devices such as wireless adapters, media players, Blu-ray DVD players, wireless printers and cameras will have a WPS button (or a software utility with WPS) that you can press to connect to the DAP-1320. Please refer to your user manual for the wireless device you want to connect to make sure you understand how to enable WPS. Once you know, follow the steps below:

Step 1 - Press and release the WPS button on the DAP- 1320. The LED will blink green during the WPS process.



Step 2 - Within two minutes, press the WPS button on your wireless client (or launch the software utility and start the WPS process).



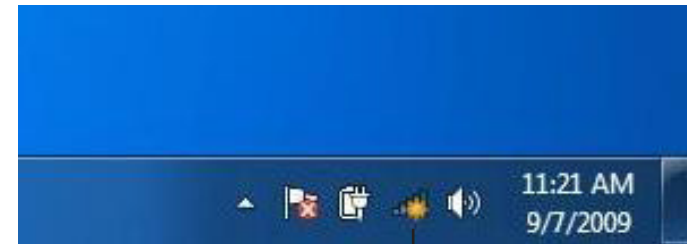
Step 3 - Allow up to two minutes to connect. Once the connection is successful the LED will be solid green.

Windows® 7

WPA/WPA2

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.



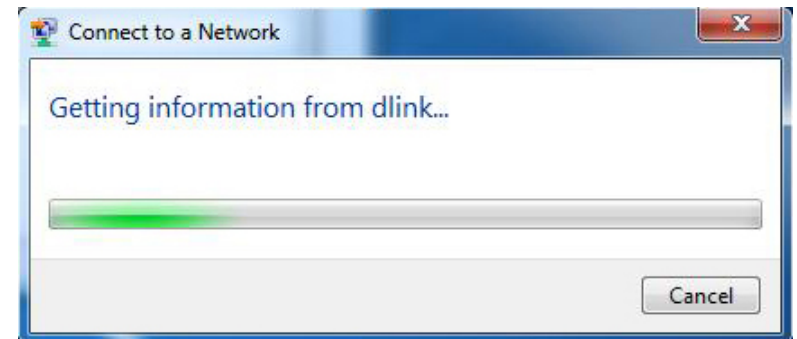
3. Highlight the wireless network (SSID) you would like to connect to and click the **Connect** button.

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.

Note: You can find the SSID and password on the configuration card.

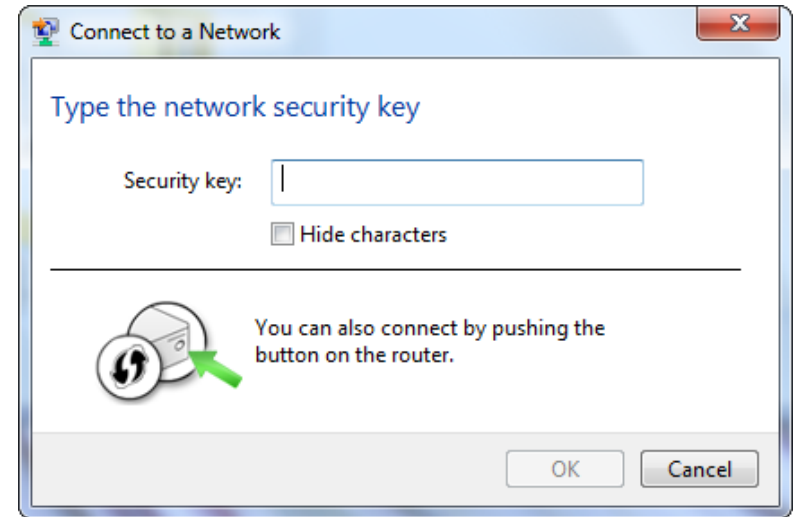


4. The following window appears while your computer tries to connect to the router.



5. Enter the security key or passphrase that is on your configuration card and click **Connect**. You can also connect by pushing the WPS button on the DAP-1320.

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.



Windows Vista®

Windows Vista® users may use the built-in wireless utility. 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 Vista® utility as seen below.

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

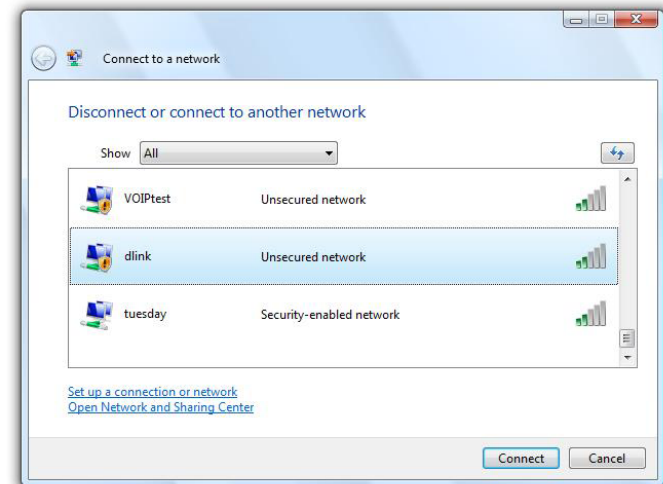
or

Right-click on the wireless computer icon in your system tray (lower-right corner next to the time). Select **Connect to a network**.



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

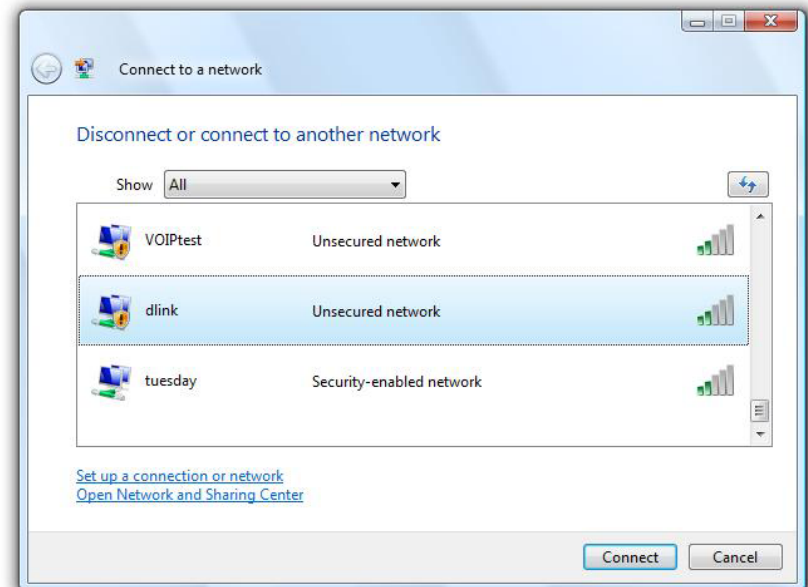
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



WPA/WPA2

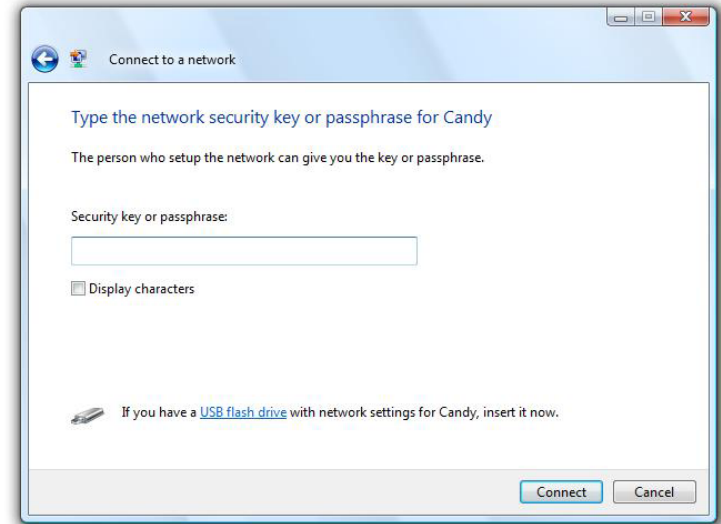
It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Open the Windows Vista® Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower right corner of screen). Select **Connect to a network**.
2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. Enter the same security key or passphrase that is on your router and click **Connect**.

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.



WPS/WCN 2.0

The router supports Wi-Fi protection, referred to as WCN 2.0 in Windows Vista®. The following instructions for setting this up depends on whether you are using Windows Vista® to configure the router or third party software.

When you first set up the router, Wi-Fi protection is disabled and unconfigured. To enjoy the benefits of Wi-Fi protection, the router must be both enabled and configured. There are three basic methods to accomplish this: use Windows Vista's built-in support for WCN 2.0, use software provided by a third party, or manually configure.

If you are running Windows Vista®, log into the router and click the **Enable** checkbox in the **Basic > Wireless** section. Use the Current PIN that is displayed on the **Advanced > Wi-Fi Protected Setup** section or choose to click the **Generate New PIN** button or **Reset PIN to Default** button.



If you are using third party software to set up Wi-Fi Protection, carefully follow the directions. When you are finished, proceed to the next section to set up the newly-configured router.

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, 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.

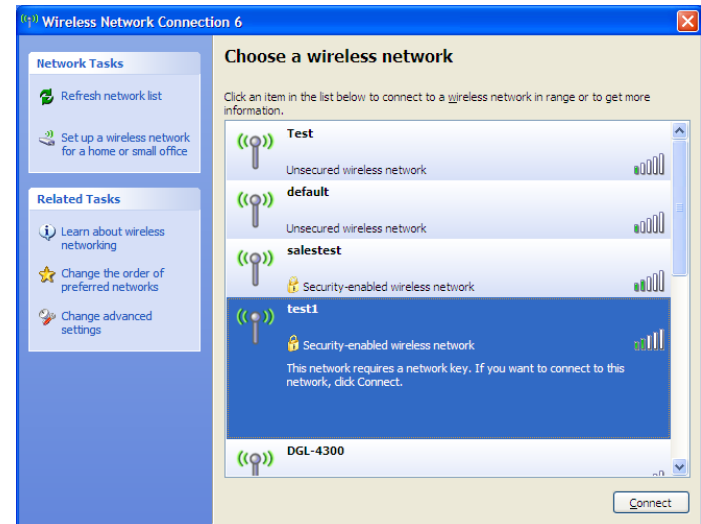
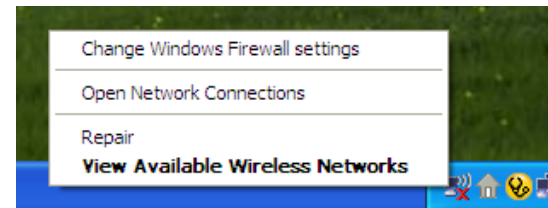
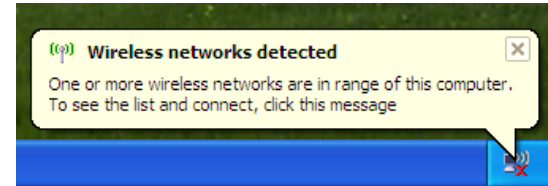
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

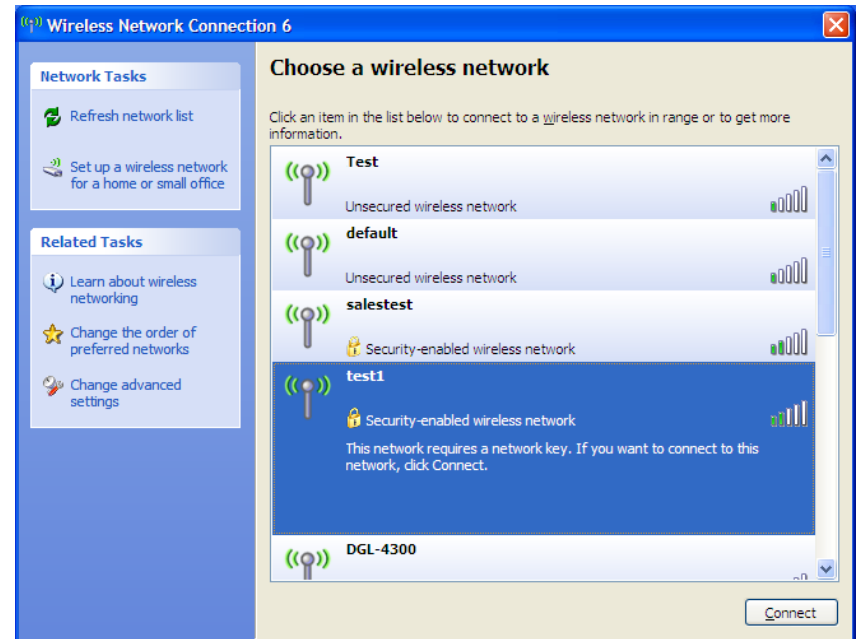
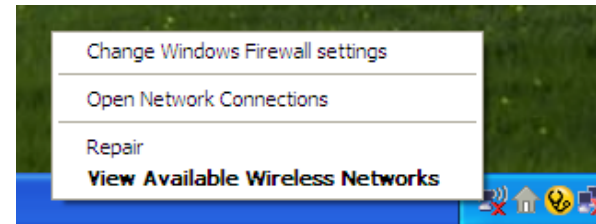
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



WPA/WPA2

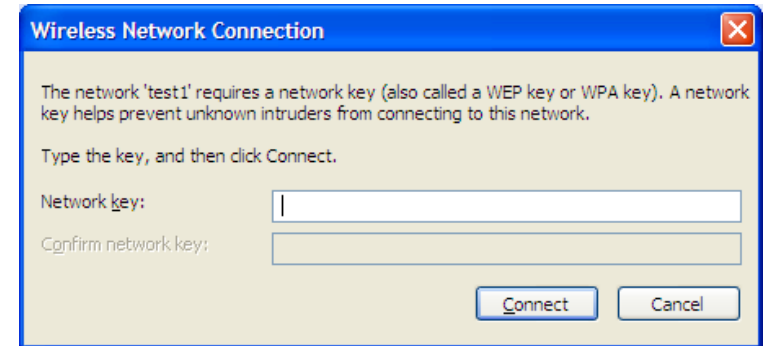
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

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 router.



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1320. 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 router (192.168.0.1 for example), you are not connecting to a website nor do you 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® 7 and higher
 - Mozilla Firefox
 - Google™ Chrome
 - Apple Safari 4 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 router in the address bar. This should open the login page for your web management.
- If you still cannot access the configuration, unplug the power to the router 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 router. Unfortunately this process will change all your settings back to the factory defaults.

To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 30 seconds to access the router. 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 Router 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 network.

Why D-Link Wireless?

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 router or Access Point

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/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, and televisions as far away as possible from the router/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security

Don't let you 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 router. Refer to product manual for detail information on how to set it up.

Networking Basics

Check your IP address

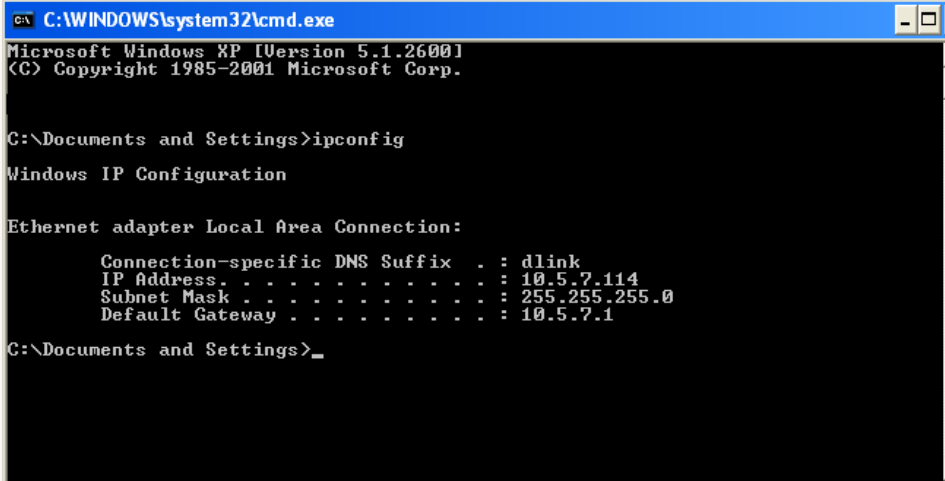
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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]
(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.**
 - 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.**

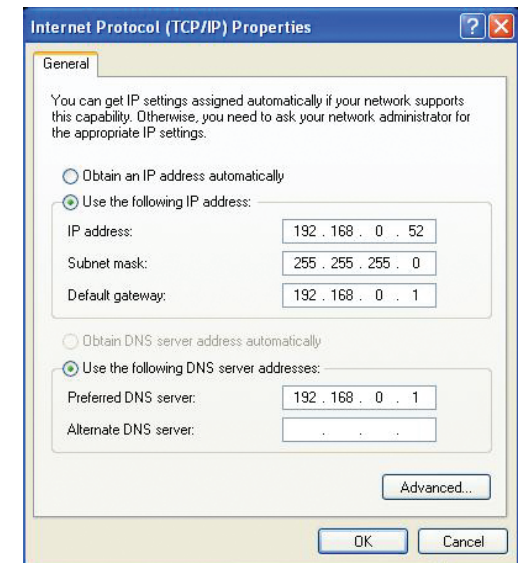
Step 3
Highlight **Internet Protocol (TCP/IP)** and click **Properties.**

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 the Default Gateway the same as the LAN IP address of your router (I.E. 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 802.3

Wireless Frequency Range

- 2.4 GHz to 2.4835 GHz

Antennas

- Internal Antenna

Security

- Wi-Fi Protected Access (WPA/WPA2)
- WPS™ (PBC)

Advanced Features

- Quick Router Setup app for iOS

Device Management

- Web UI

Diagnostic LEDs

- Power/ Status

Operating Temperature

- 32 to 104 °F (0 to 40 °C)

Operating Humidity

- 0% to 90% non-condensing

Certifications

- Wi-Fi Certified
- FCC

Dimensions

- 2.11" x 1.65" x 1.89" (53.5 x 42 x 48mm)

Weight

- 2.56 oz. (72.57g)

Warranty

- 1-Year Limited Warranty

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 factors will adversely affect wireless signal range.

2 Frequency Range 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-1320)
- Hardware Revision (located on the label on the bottom of the router (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the router).

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 D-Link 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 (USA):

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. D-Link 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.

Submitting A Claim (Canada):

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:

- Customers need to provide their receipt (proof of purchase) even if the product is registered. Without a receipt, no warranty service will be done. The registration is not considered a proof of purchase.
- 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 D-Link 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 1-800-361-5265, 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.ca/>.
- 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. D-Link 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 be rejected by D-Link. Products shall be fully insured by the customer and shipped to D-Link Networks, Inc., 2525 Meadowvale Boulevard Mississauga, Ontario, L5N 5S2 Canada. 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 Purolator Canada or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in Canada, 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.
- RMA phone number: 1-800-361-5265 Hours of Operation: Monday-Friday, 9:00AM – 9:00PM EST

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:

D-Link is a registered trademark of D-Link Corporation/D-Link Systems, Inc. Other trademarks or registered trademarks are the property of their respective owners.

Copyright Statement:

No part of this publication or documentation accompanying this product may be reproduced in any form or by any means or used to make any derivative such as translation, transformation, or adaptation without permission from D-Link Corporation/D-Link Systems, Inc., as stipulated by the United States Copyright Act of 1976 and any amendments thereto. Contents are subject to change without prior notice.

Copyright ©2012 by D-Link Corporation/D-Link Systems, Inc. All rights reserved.

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.

FCC Statement:

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.

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.

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

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

Note: The country code selection is for non-US model only and is not available to all US model. Per FCC regulation, all WiFi product marketed in US must fixed to US operation channels only.

IMPORTANT NOTICE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.to match the intended destination. The firmware setting is not accessible by the end user.

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 harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

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

Declaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Registration

Register your product online at registration.dlink.com



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

Version 1.0
September 5, 2012