



User Manual

Wireless Range Extender N300

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
1.1	14 May, 2013	• Initial release
2.0	May 5th, 2014	• Updated describe the LED behavior
2.01	September 30, 2014	• Add Power Usage

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All rights reserved. This publication may not be reproduced, in whole or in part, without prior expressed written permission from D-Link Systems, Inc. This purpose of this product is to create a constant network connection for your devices. As such, it does not have a standby mode or use a power management mode. If you wish to power down this product, please simply unplug it from the power outlet.

Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA), and automatically switches to a power-saving Network Standby mode within 1 minute of no packets being transmitted. If it is not needed during certain periods of time, it can be unplugged to save energy.

Network Standby: 1.2 watts

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Introduction

Package Contents



DAP-1320 Wireless Range Extender N300



Wi-Fi Configuration Card

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

System Requirements

Network Requirements	<ul style="list-style-type: none">• A wireless router with an active Internet connection.• IEEE 802.11n, 802.11g, or 802.11b wireless clients/devices
Web-based Configuration Utility Requirements	<p>Computer or Mobile Device with the following:</p> <ul style="list-style-type: none">• A Windows®, Macintosh, Android, or Linux-based operating system• Wireless adapter or Wi-Fi functionality <p>Browser Requirements:</p> <ul style="list-style-type: none">• Internet Explorer 7 or later• Firefox 12.0 or later• Safari 4 or later• Google Chrome 20.0 or later

Introduction

Features

Easily Extend Your Existing Network

The DAP-1320 Wireless Range Extender N300 lets you extend a secure wireless network throughout your home. Connect the DAP-1320 to a router and share your high-speed Internet access in more places throughout your home or small office.

High-speed Wireless Performance With Wireless N Technology

Thanks to the latest Wireless N technology, the DAP-1320 provides a wireless connection at up to 300 Mbps* 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 with smooth performance.

Simple Setup

Through its easy-to-use web-based user interface, you can quickly and easily connect the DAP-1320 to an uplink router, configure the extender wireless network, and manage the administrative settings. The setup wizard will even guide you through the setup process, getting your extended wireless network up and running in no time.

Compatibility

The DAP-1320 is still fully compatible with the IEEE 802.11g/b standards, so it can still connect with your older 802.11g/b devices.

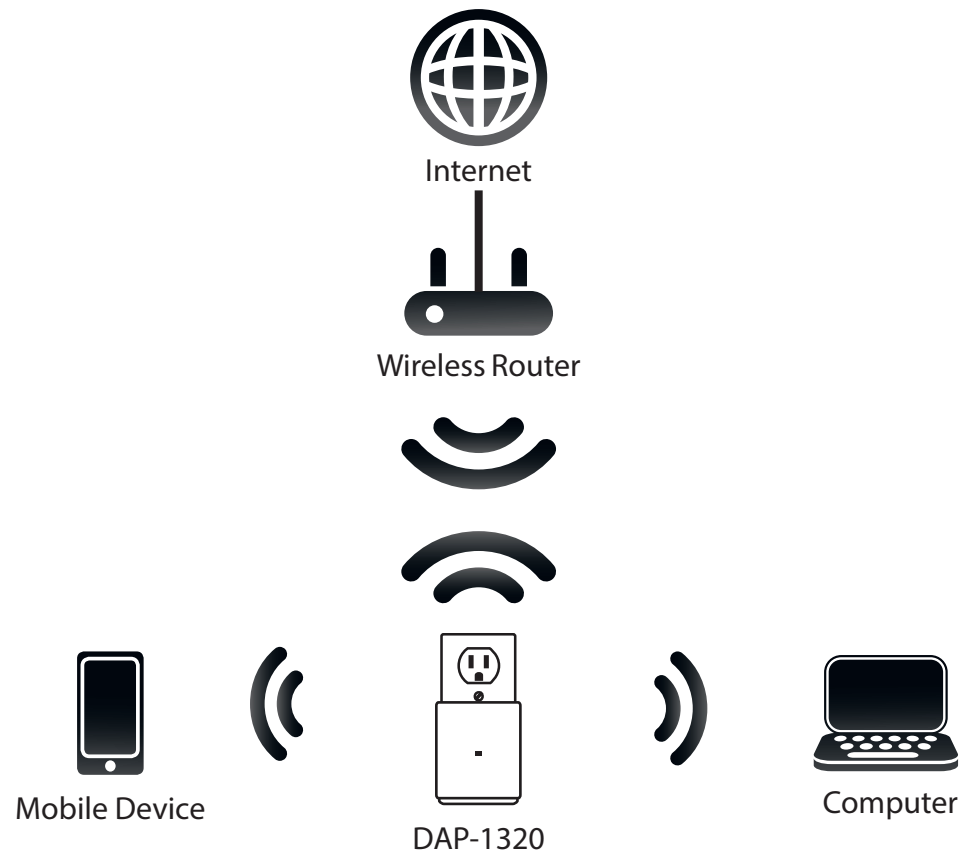
Latest Wireless Network Security and Encryption

The DAP-1320 supports wireless security features to prevent unauthorized access, be it from over the wireless network or from the Internet. Support for WPA/WPA2 standards ensure that you'll be able to use the best possible encryption methods with your compatible wireless devices.

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

What is a Wireless Extender?

The DAP-1320 acts as a repeater to extend the range of an existing wireless network to provide better signal for parts of your home or office that may have poor or no reception. Your existing wireless signal will be re-broadcast by the DAP-1320, allowing you to reach the farthest corners of your home or office. The extended network can simply use the same network credentials as the existing network, or you can specify a different network name and password, giving you the flexibility to control network access.



Hardware Overview

Front/Top



1	LED Indicator	This indicates the current status of the DAP-1320, as detailed in the table below.
---	---------------	--

LED Indicator	Color	Status	Description
Power/Status	Green	Solid Green	The device is powered ON and operating normally
		Blinking Green	The device is processing WPS
	Red	Solid Red	Device is powering ON or system is defective
		Blinking Red	The device is in recovery mode or the device has malfunctioned
	Orange	Blinking Orange	Cannot connect or provision an IP address from the uplink router
		Solid Orange	Connection quality is poor due to poor reception
	None	Off	Device is not receiving power. Check the power outlet.

Hardware Overview

Side and Bottom



1	WPS Button	Pressing the WPS button for 1 second allows you to connect with Wi-Fi clients using Wi-Fi Protected Setup.
2	Reset Button	Pressing the reset button will reset the DAP-1320 to the factory default settings.

Wireless Installation Factors

The Wireless Range Extender N300 lets you extend the reach of your existing wireless network, allowing you to work wirelessly from more places in your home or office. 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 extender and other network devices to a minimum - each wall or ceiling can reduce your adapter's range by up to 98 feet (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. At a 45-degree angle, a wall that is 0.5 meters thick (1.5 feet) appears to be almost 1 meter (3 feet) thick. At a 2-degree angle it can appear over 14 meters (45 feet) 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 can 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 2.4 GHz 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 2.4 GHz 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.

Setting Up Your DAP-1320

Plug in the DAP-1320 to a power outlet. Verify that the power LED is blinking orange before continuing.



Locate the Wi-Fi name (SSID) and password for your DAP-1320 device. These details are printed on the specification sticker on the underside of the device. Using your computer or mobile device's Wi-Fi connection utility, connect to the SSID of your DAP-1320 and enter the password. If you are unsure of how to connect to a wireless network, please refer to "Connect to a Wireless Network" on page 32, or consult your device's user manual. Once connected, you are ready to begin the setup process.



There are two ways to configure your DAP-1320; using the QRS Mobile app on your smartphone or tablet device, or using the web GUI on your computer.

For detailed information on either of the methods for configuring your DAP-1320, refer to the following sections of the manual:

- "QRS Mobile App Setup" on page 9
- "Web-based Configuration" on page 13

QRS Mobile App Setup

The DAP-1320 can be set up from your iOS or Android smartphone or tablet device using the QRS Mobile app.

Search for “QRS Mobile” in the App Store or Google Play, or use your mobile device to scan the QR codes on the right to download the QRS Mobile app from the App Store (left) for your iOS device, or from Google Play (right) for your Android device.



For iOS

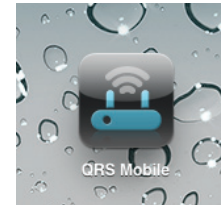


For Android

Connect to the Wi-Fi network that is displayed on the Wi-Fi Configuration Card included in your package (ex: **dlink-a8fa**). Then, enter the Wi-Fi password also printed on the Wi-Fi Configuration Card (**akbdj1936**).



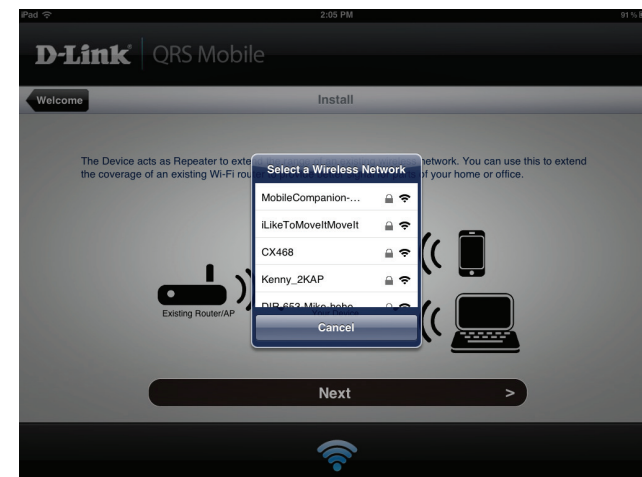
Once your mobile device is connected, tap on the **QRS Mobile** icon.



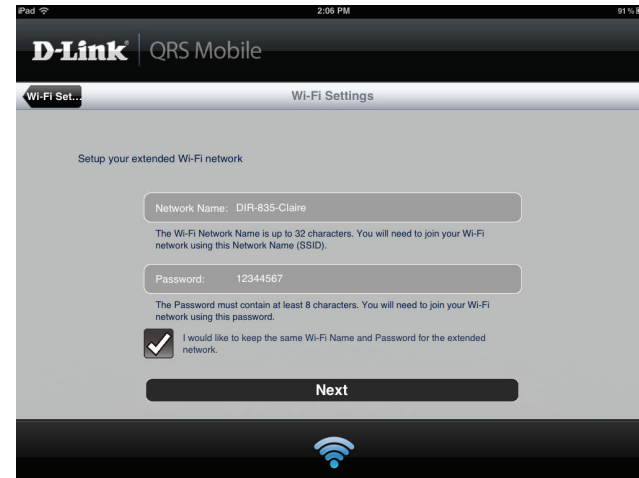
Click **Start** to continue.



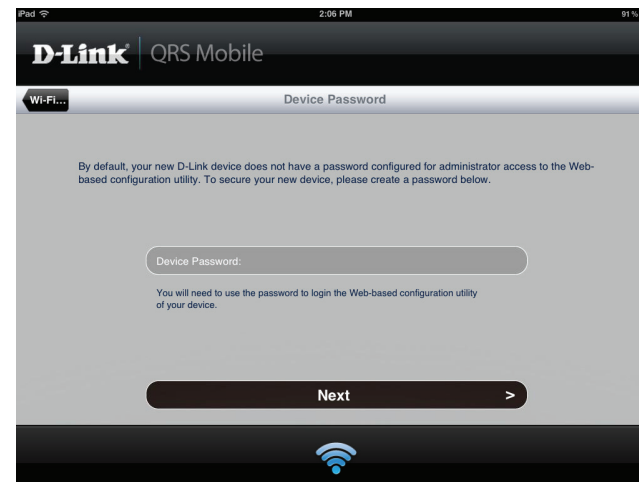
QRS Mobile will first detect your DAP-1320, then scan for available Wi-Fi networks. Select the network you wish to extend and enter the password if required.



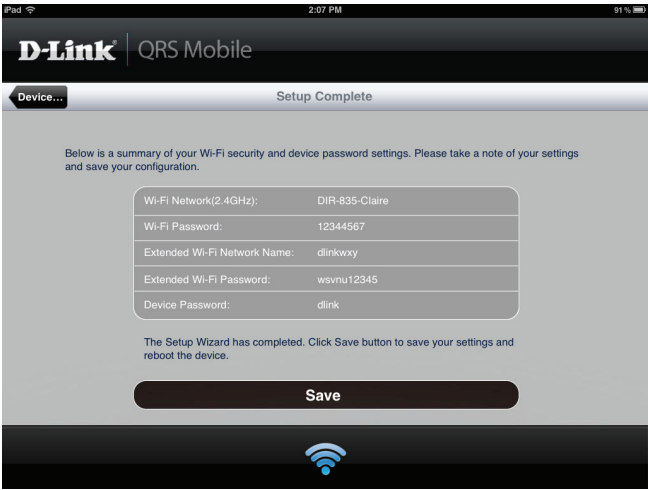
Enter a network name (SSID) and password for the extended Wi-Fi network. You may keep the existing SSID and password if you wish. Click **Next** to continue.



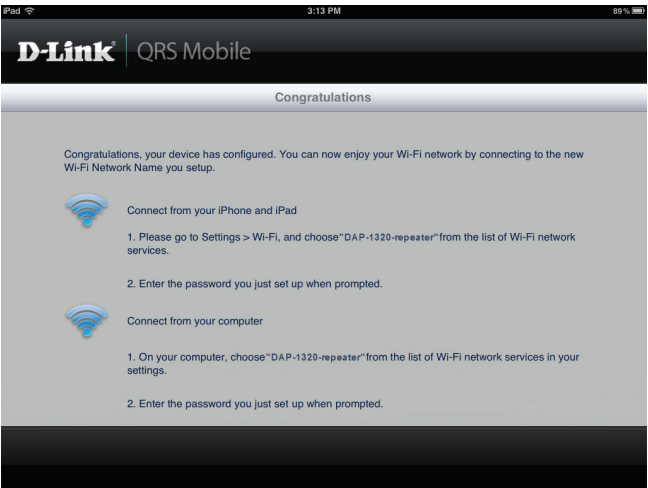
Create an admin password for the DAP-1320's Web-based configuration utility. Click **Next** to continue.



A summary of your settings will be displayed. Click **Save** to reboot the device and to complete the setup.



After the setup wizard is complete, the following screen will appear. You can now change your mobile device and laptop Wi-Fi settings to the wireless network name and password you just created.



Web-based Configuration

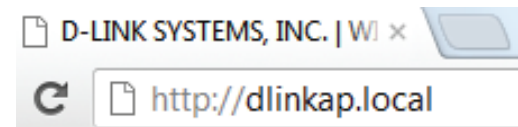
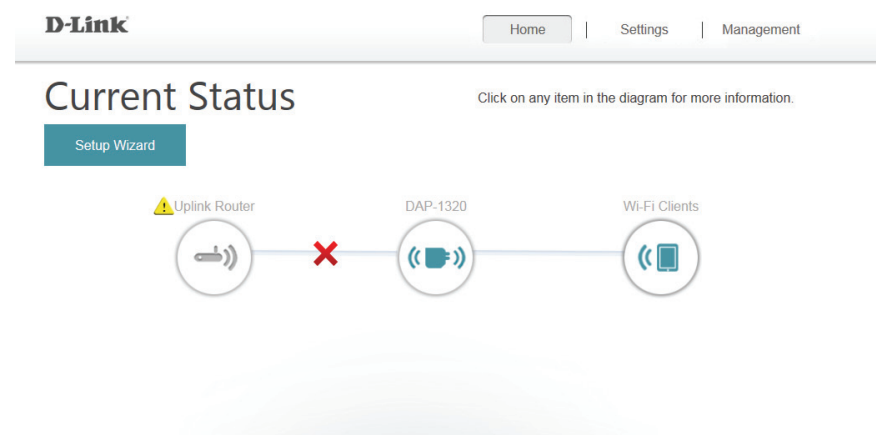
To access the configuration utility for the DAP-1320 on your PC, first connect to the DAP-1320 wirelessly using the Wi-Fi name (SSID) and password located on your Wi-Fi Configuration Card. Then open a web browser and enter **http://dlinkap.local** in the address bar. You can also use the IP address **http://192.168.0.50**.

Note: If you have multiple DAP-1320 devices on the network, you can access web-based configuration via **http://dlinkapxxxx.local**, as shown in the included Wi-Fi Configuration Card, with “xxxx” being the last four digits of the DAP-1320’s MAC address.

Enter your password. By default, Admin is selected as the username and cannot be changed, and by default, the password is blank.

The configuration interface will open, and you can configure the various settings for the DAP-1320. If you have not yet configured and uplink network, the home screen will show that there is no connection between the DAP-1320 and the uplink router.

For detailed information on manually setting up your DAP-1320 to extend an existing wireless network, refer to “Using the Manual Method” on page 17.

A screenshot of the D-Link configuration utility login screen. It has a light blue background. At the top, it says "Admin Password:". Below that is a text input field. At the bottom is a blue button with the text "Log In".

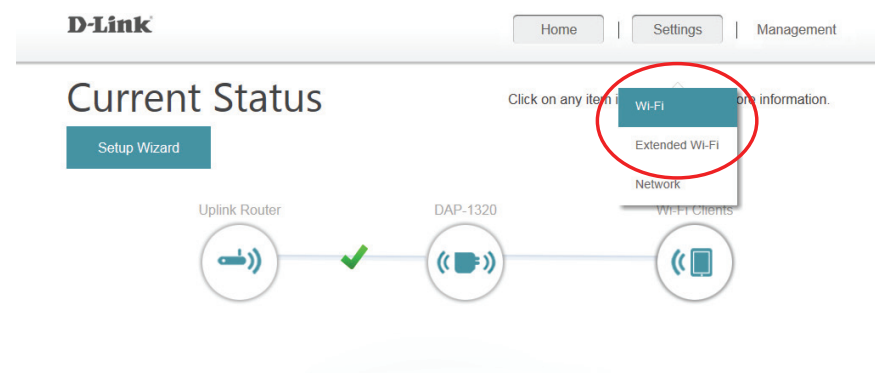
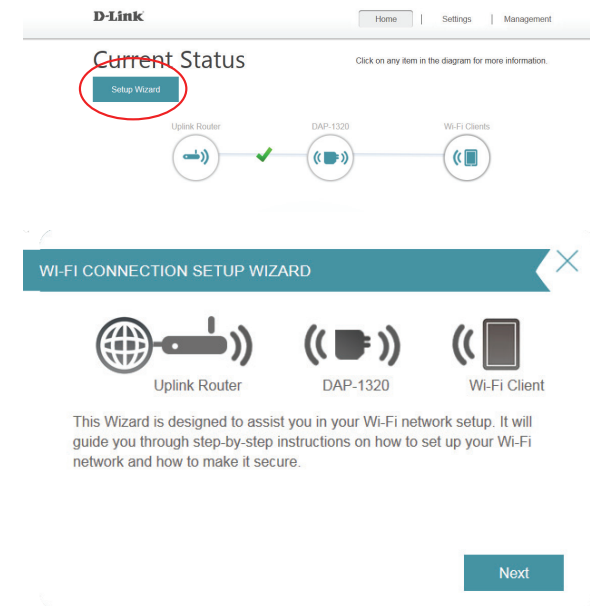
Setup Wizard

If you wish to configure your extender to connect to the Internet using the setup wizard, click the **Setup Wizard** button.

This wizard is designed to guide you through a step-by-step process to configure your new Wireless Range Extender N300 to extend your wireless network and connect to the Internet.

Click **Next** to continue.

If you already have a Wi-Fi network set up and you want to configure your Wi-Fi network settings manually, go to **Settings** at the top of your browser window and select **Wi-Fi** from the drop-down menu (refer to “Wi-Fi Settings” on page 22) to set up the connection between your DAP-1320 and the uplink router. To set up the extended Wi-Fi network, select **Extended Wi-Fi** (refer to “Extended Wi-Fi Settings” on page 23).





Select whether you want to use the WPS (Wireless Protected Setup) method or the manual method to set up an extended wireless network using your DAP-1320 and click **Next**.


If you wish to use the WPS method, please refer to “Using the WPS Method” on page 16.

If you wish to use the manual setup method, please refer to “Using the Manual Method” on page 17.

SELECT CONFIGURATION METHOD


Uplink Router


DAP-1320


Wi-Fi Client

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

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

Back

Next

Using the WPS Method

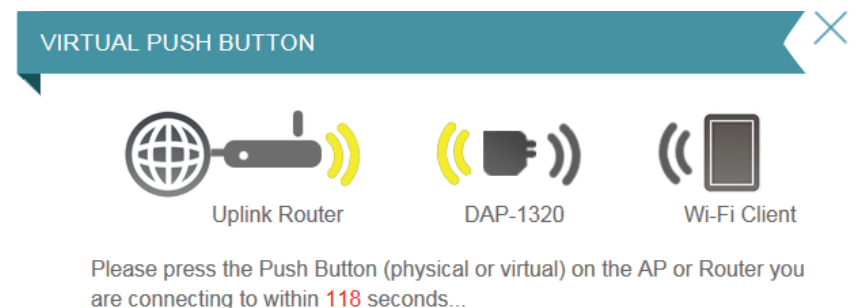
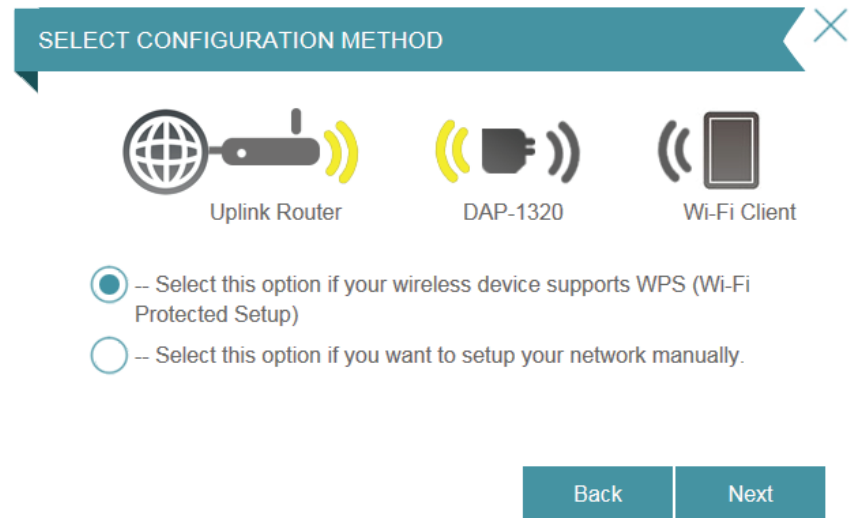
To set up using the WPS method, select the first option from the setup wizard menu. Click **Next** to continue.

The DAP-1320 uses the push-button method for WPS. After selecting WPS, the DAP-1320 will ask you to press the WPS push button on the access point or router you want to connect the DAP-1320 to. You have 120 seconds to press the button on your access point or router. Click **Next** to continue.

If a connection has been successfully made, you will see a notice on the screen and the LED on the device will turn solid green.

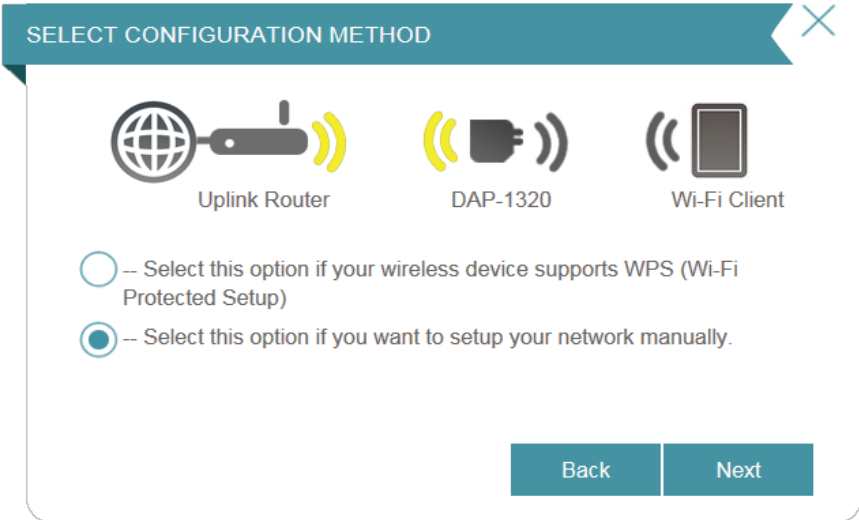
If the LED is lit solid amber after the connection process has finished, the DAP-1320 has established a poor quality connection. To improve the connection quality, the DAP-1320 should be relocated to a wall outlet closer to the source wireless router or AP.

You can also use the WPS button on the side of the DAP-1320 to initiate a WPS connection with the uplink router. After pressing the WPS button on the DAP-1320, you will have 120 seconds to press the WPS button on your access point or router. The LED on the DAP-1320 will turn solid green when a connection has been successfully established with the uplink router.



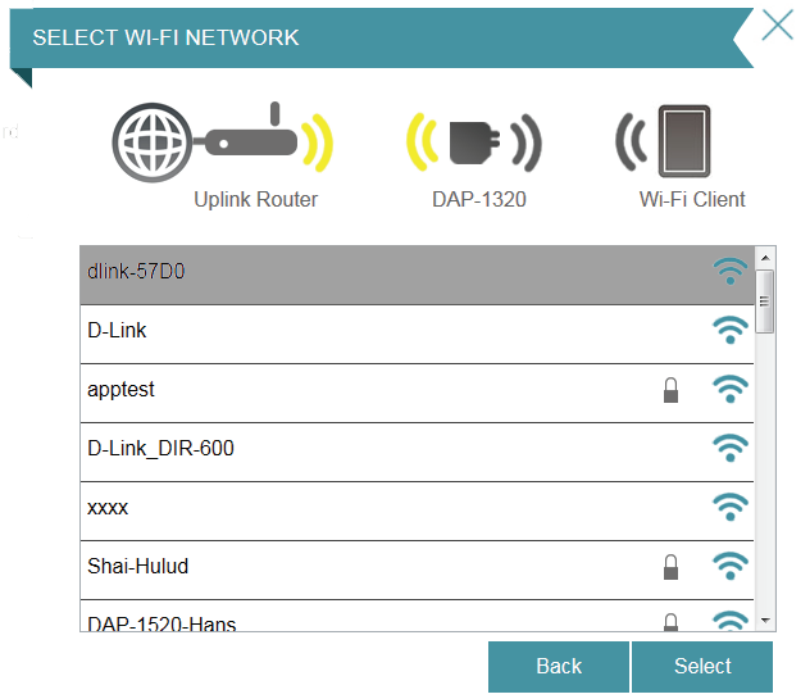
Using the Manual Method

To set up your network manually, select the second option from the setup wizard menu. Click **Next** to continue.



The DAP-1320 will first scan for available Wi-Fi networks and list the networks it has found. If the network you would like to connect to isn't listed, click **Back** and select the manual option again to perform another scan.

Once you have selected the uplink network you wish to use, click **Select**.




Enter the password for your uplink network.


Click **Next** to continue, or click **Back** to return to the previous step.


The DAP-1320 will re-broadcast the Wi-Fi connection from the uplink router as an extended Wi-Fi network. Enter the SSID and password that you wish to apply to the extended Wi-Fi network. If you would like the uplink router Wi-Fi network and the extended Wi-Fi network to have the same SSID and password, check the box at the bottom of the screen.

Click **Next** to continue, or click **Back** to return to the previous step.

ENTER WI-FI PASSWORD

Uplink Router

DAP-1320

Wi-Fi Client

Please enter Wi-Fi Password to establish wireless connection


Wi-Fi Password:


(Between 8 and 63 characters)


Back

Next

PLEASE ENTER THE SETTINGS FOR THE EXTENDED NETWORK

Uplink Router

DAP-1320

Wi-Fi Client

Give your **Extended Wi-Fi network (SSID)** a name:

(Using up to 32 characters)

Give your **Extended Wi-Fi network** a password:

(Between 8 and 63 characters)

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

Back


Next


The setup process is now complete. A summary page will appear showing the settings for both the connection to the uplink router, and the extended Wi-Fi network. It is recommended that you make a record of this information for future reference.


Click **Save** to exit the wizard and return to the home screen.

Or, click **Back** to return to the previous step.

SETUP COMPLETE


Uplink Router


DAP-1320


Wi-Fi Client

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

Wi-Fi Network Name: **dlink-07869**

Wi-Fi Password: *********

Extended Wi-Fi Network Name: **dlink-extender**

Extended Wi-Fi Password: *********

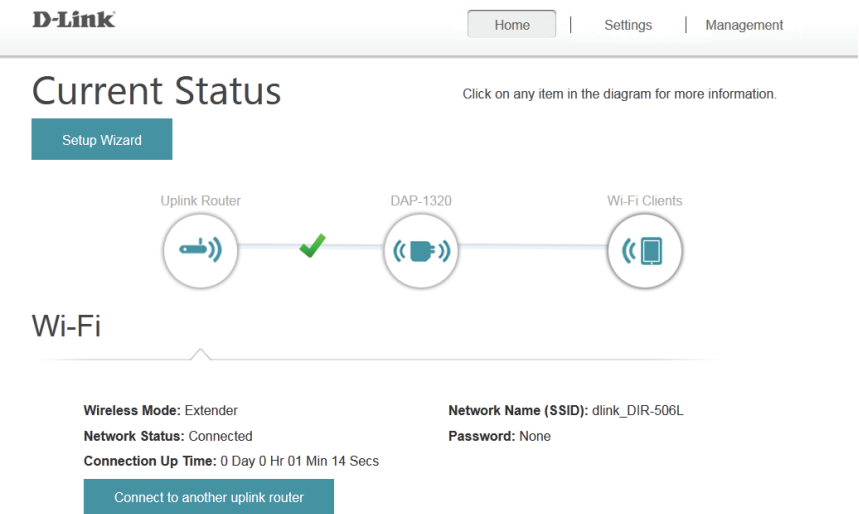
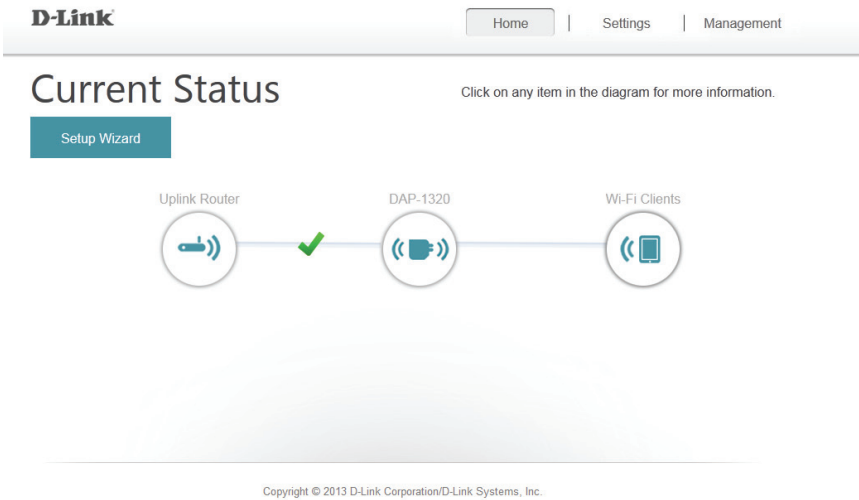
Back

Save

Home Screen

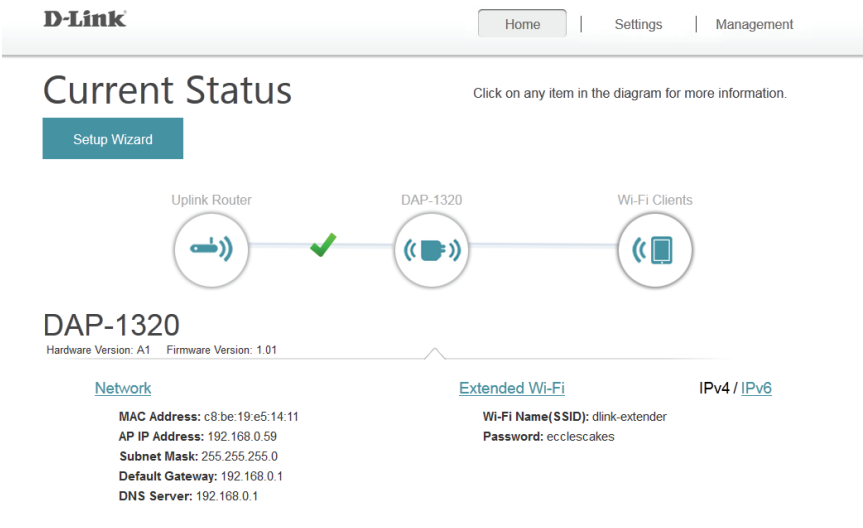
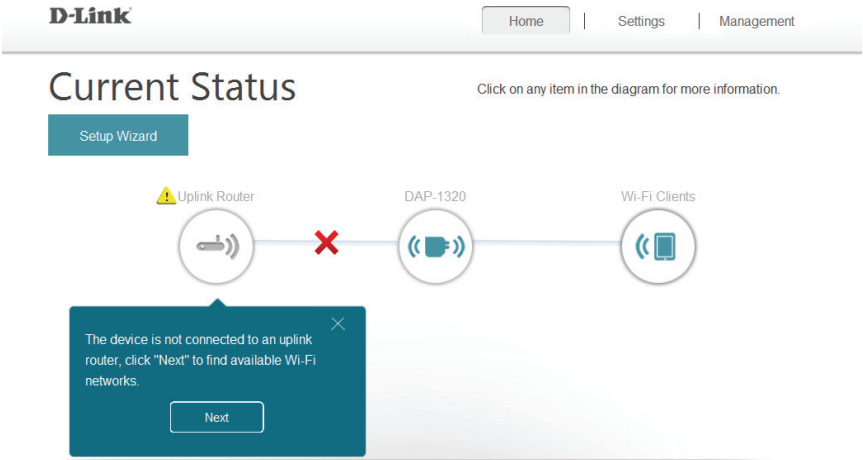
The home screen gives a summary of the current status of devices connected to the DAP-1320. A green check between devices indicates that there is an active connection. A red cross indicates that there is no connection present, or there is a connection error.

At any time, you can click on the device images on the home screen to view the current status of each device.



If there is no connection between the DAP-1320 and the uplink router, you can click on the uplink router icon to search for an available uplink router.

You can view the details of both the uplink router network and the extended Wi-Fi network by clicking on the DAP-1320 icon.



Wi-Fi Settings

This page lets you configure the Wi-Fi settings to connect your DAP-1320 to another wireless network. This is the uplink network which the DAP-1320 will then be able to extend. To access this page, click on the **Settings** drop-down menu at the top of the page, and select **Wi-Fi**.

Wireless Mode: This is set to Repeater mode and cannot be changed.

Wi-Fi Network Name (SSID): Click **Scan** to scan for available wireless networks and select the one you want to use the DAP-1320 to extend. You can also type in the name (SSID) of the wireless network.

Security: Select the security method that is being used by the wireless network that you have selected: **WEP**, **WPA/WPA2**, or **None**.

Password: If you selected WEP or WPA/WPA2, you will be required to enter the password or security key for the network you are attempting to join.

You can also use WPS to connect your wireless devices to the DAP-1320's extended network. For further information on how to do this, please refer to "Connecting a Wireless Client" on page 31.

Click **Save** to save the settings and return to the home page.

D-Link Home | Settings | Management

Wi-Fi Settings

Use this section to configure the Wi-Fi Network you would like your DAP-1320 to connect to. Use Site Survey to scan available Wi-Fi networks and select the Wi-Fi Network you would like your DAP-1320 to connect to. Enter the Password of the Wi-Fi Network you selected and click Save.

Settings >> Wi-Fi Save

Wireless Mode: **Repeater**

Wi-Fi Network Name (SSID): Scan

Security: **WPA/WPA2-Personal** ▼

Password:

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Extended Wi-Fi Settings

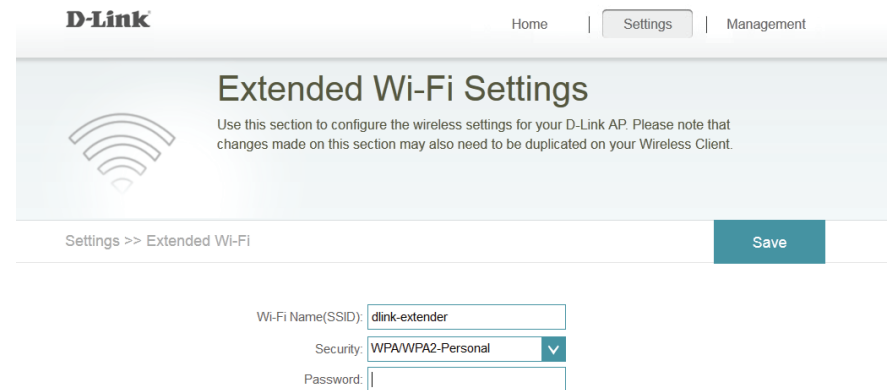
This page lets you configure the settings for the DAP-1320's extended wireless network. To access this page, click on the **Settings** drop-down menu at the top of the page, and select **Extended Wi-Fi**.

Wi-Fi Name (SSID): This is the name of the DAP-1320's extended network. The DAP-1320 will rebroadcast the uplink router's Internet connection under this SSID. You can also choose to make the SSID for the extended network the same as the SSID for the uplink network.

Security: Select the type of wireless security you wish to use for the extended network. Choose **None**, **WEP**, or **WPA/WPA2 Personal**.

Password: Enter the password or network key that you wish to use for the extended network. You can also choose to make the password for the extended network the same as the password for the uplink network.

Click **Save** to save the settings and return to the home page.



The screenshot shows the D-Link web interface for Extended Wi-Fi Settings. At the top, there is a navigation bar with the D-Link logo and links for Home, Settings, and Management. The main heading is "Extended Wi-Fi Settings" with a sub-note: "Use this section to configure the wireless settings for your D-Link AP. Please note that changes made on this section may also need to be duplicated on your Wireless Client." Below this, there is a breadcrumb trail "Settings >> Extended Wi-Fi" and a "Save" button. The configuration fields are: "Wi-Fi Name(SSID):" with a text input containing "dlink-extender", "Security:" with a dropdown menu set to "WPA/WPA2-Personal", and "Password:" with an empty text input.

Field	Value
Wi-Fi Name(SSID):	dlink-extender
Security:	WPA/WPA2-Personal
Password:	

Network Settings

This page lets you configure the network settings for the DAP-1320. To access this page, click on the **Settings** drop-down menu at the top of the page, and select **Network**. Click **Save** at any time to save the changes you have made on this page.

Device Name: You can change the name of the device by editing the text in the text box. If you change the name of the device, you will need to enter "http://xxxx.local." (where "xxxx" corresponds to the name of the device) in the address bar of your web browser in order to access the configuration utility.

Settings >> Network Save

Network Settings

Device Name: http:// .local.

[Advanced Settings...](#)

Advanced Settings

The Advanced Settings section of the Network Settings page allows you to configure both IPv4 and IPv6 settings which will be used by the DAP-1320's extended network.

IPv4 Device Management interface - You can select either a Dynamic or Static IPv4 configuration:

My LAN Connection is: Here you can select whether you want the IP to have a **Dynamic IP** or **Static IP** address. If you select Dynamic IP, the options below will not be available.

IP Address: Enter the Static IP address that you want to assign to the extended network AP. This address should be outside of the uplink router's DHCP address pool.

Subnet Mask: Enter the subnet mask.

Gateway Address: Enter the gateway address. This is usually the IP address of the uplink router.

Primary DNS Server: Enter the address of the primary DNS server.

Secondary DNS Server: Enter the address of the secondary DNS server. This is optional but will provide backup if the primary server fails.

IPv4 Device Management Interface

Choose a IPv4 provisioning mechanism to be used by the AP.

My LAN Connection is: Dynamic IP (DHCP) ▼

IP Address:

Subnet Mask:

Gateway Address:

Primary DNS Server:

Secondary DNS Server:

IPv6 Device Management Interface - You can select an Autoconfiguration (dynamic), Static IP, or Link-local IPv6 configuration:

My IPv6 Connection is: Select **Autoconfiguration (SLAAC/DHCPv6)** to have the DAP-1320 automatically receive an IPv6 address from the uplink router.

Obtain DNS Server Address: You can select to obtain IPv6 DNS server information automatically, or you can select to configure DNS servers manually.

Primary DNS Server: Enter the primary IPv6 DNS server address.

Secondary DNS Server: Enter the secondary IPv6 DNS server address. This is optional but will provide backup if the primary server fails.

My IPv6 Connection is: Select **Static IPv6** to manually assign an IP address to the DAP-1320.

IPv6 Address: Enter the IPv6 address that you want to assign to the extended network AP. This address should be outside of the uplink router's DHCP address pool.

Subnet Prefix Length: Enter the length of the IPv6 subnet prefix.

Default Gateway: Enter the default gateway.

Primary DNS Server: Enter the primary IPv6 DNS server address.

Secondary DNS Server: Enter the secondary IPv6 DNS server address. This is optional but will provide backup if the primary server fails.

IPv6 Device Management Interface

Choose a IPv6 provisioning mechanism to be used by the AP.

My IPv6 Connection is: Autoconfiguration (SLAAC/DHCPv6) ▼

Obtain a DNS server address automatically or enter a specific DNS server address.

☐ Obtain IPv6 DNS Servers automatically

☒ Use the following IPv6 DNS Servers

Primary DNS Server:

Secondary DNS Server:

IPv6 Device Management Interface

Choose a IPv6 provisioning mechanism to be used by the AP.

My IPv6 Connection is: Static IPv6 ▼

Enter the IPv6 address information that you would like to use to access the Web-based management interface.

IPv6 Address:

Subnet Prefix Length:

Default Gateway:

Primary DNS Server:


Secondary DNS Server:

My IPv6 Connection is: Select **Link-local only** to only set an IPv6 address for the local network.

LAN IPv6 Link-Local Address: The link-local address of the DAP-1320.

IPv6 Device Management Interface

Choose a IPv6 provisioning mechanism to be used by the AP.

My IPv6 Connection is: Link-local only 

The LAN IPv6 Link-Local Address is the IPv6 Address that you use to access the Web-based management interface.

LAN IPv6 Link-Local Address: FE80::CABE:19FF:FEE5:1411/64

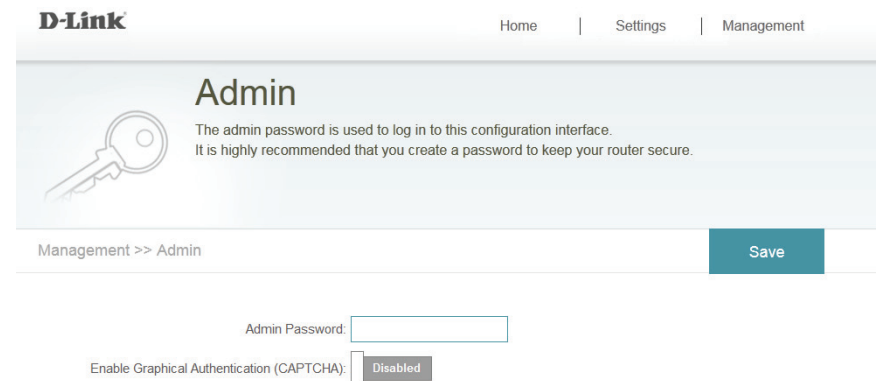
Maintenance

Admin

This page will allow you to set a new password for the administrator account used to configure the DAP-1320. You can also enable graphical authentication (CAPTCHA) on this page. To access this page, click on the **Management** drop down menu at the top of the page, and select **Admin**. Click **Save** at any time to save the changes you have made on this page.

Admin Password: Enter the Admin password.

Enable Graphical Authentication: Click on the slider to enable graphical authentication, or CAPTCHA. This provides an extra layer of security by requiring you to enter a code that is displayed on-screen. This can help prevent unauthorized users from gaining access to your wireless network using automated methods.



The screenshot shows the D-Link web interface for the 'Admin' section. At the top, there is a navigation bar with 'D-Link' on the left and 'Home | Settings | Management' on the right. The main header area has a light blue background with a key icon on the left and the title 'Admin' on the right. Below the title, a message states: 'The admin password is used to log in to this configuration interface. It is highly recommended that you create a password to keep your router secure.' Below this, there is a breadcrumb trail 'Management >> Admin' on the left and a teal 'Save' button on the right. The main content area contains a label 'Admin Password:' followed by a text input field. Below that, there is a label 'Enable Graphical Authentication (CAPTCHA):' followed by a slider control currently set to 'Disabled'.

System

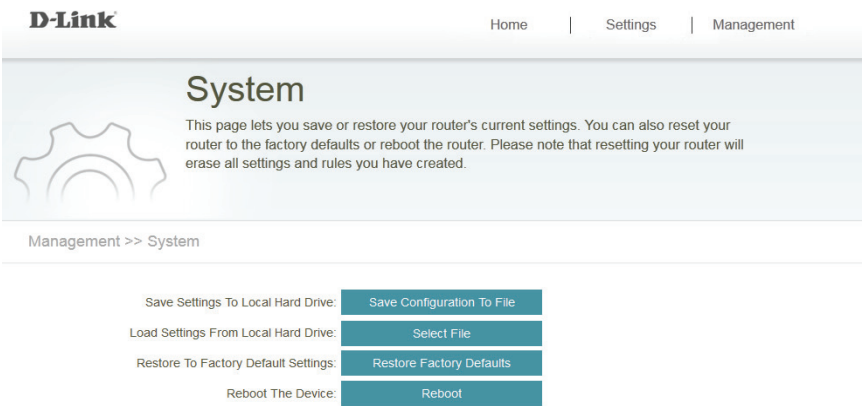
This page allows you to save or restore your system configuration, reset or reboot the DAP-1320. To access this page, click on the **Management** drop down menu at the top of the page, and select **System**. Click **Save** at any time to save the changes you have made on this page.

Save Settings To Local Hard Drive: Save the system settings onto a file to the local hard drive. You will then see a file dialog where you can select a location and file name for the settings.

Load Settings From Local Hard Drive: Load the system settings from a file on the local hard drive.

Restore to Factory Default Settings: Restore the system settings to factory default settings. This will erase all currently stored settings.

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



Upgrade

Firmware and language upgrades may be provided for the DAP-1320 in future. You can check for and upgrade your firmware and language pack on this page. To access this page, click on the **Management** drop down menu at the top of the page, and select **Upgrade**. Click **Save** at any time to save the changes you have made on this page.

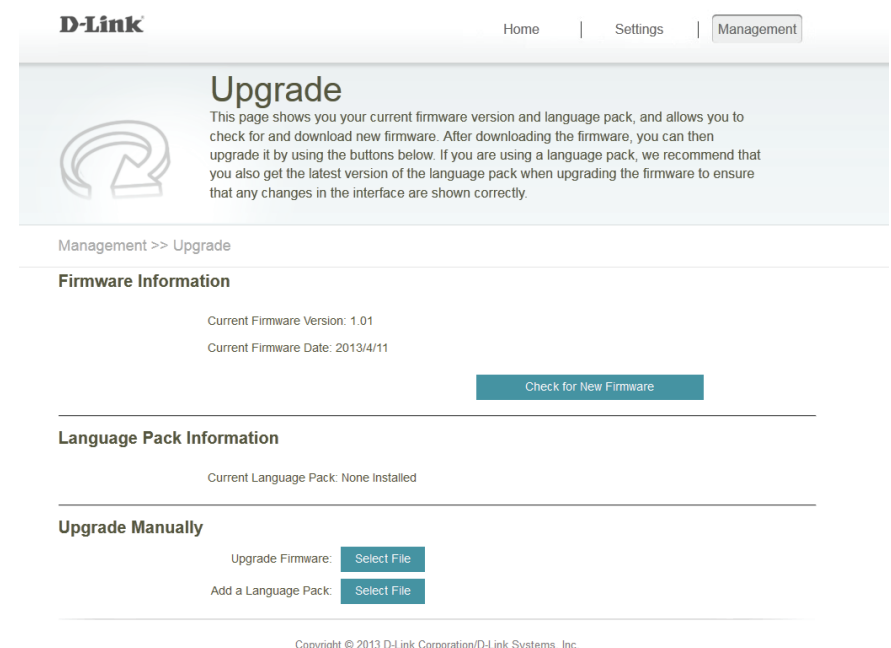
Firmware Information: This section displays the currently installed firmware version, as well as the date on which the current firmware version was released.

Check For New Firmware: Click **Check For New Firmware** to find out if there is new or updated firmware. If there is, you can download it to your computer.

Language Pack Information: This section will show the details of any language packs currently installed.

Upgrade Firmware: Click **Select File** to locate the firmware file on your local device and perform a manual firmware upgrade.

Add a Language Pack: Click **Select File** to locate a language pack file on your local device and add the language pack to the user interface.



Statistics

This page displays details about your wireless and network connections. To access this page, click on the **Management** drop down menu at the top of the page, and select **Statistics**.

- Wi-Fi:** Click on the **Wi-Fi** tab to display the statistics for the connection between the DAP-1320 and the uplink router.
- Extended Wi-Fi:** Click on the **Extended Wi-Fi** tab to display the statistics for the connection between the DAP-1320 and any connected clients. .
- Clear:** Click the **Clear** button to reset the statistics.



Connecting a Wireless Client

WPS Button

WPS (Wi-Fi Protected Setup) is a simple and secure way to connect your wireless devices with the DAP-1320. Most wireless devices such as wireless routers, media players, 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 the 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 the WPS button on the DAP-1320 for about 1 second. The LED on the device will start to blink. You can also use the WPS option in the setup wizard section of the web interface.

Step 2 - Within 120 seconds, press the WPS button on your wireless device.

Step 3 - Allow up to 1 minute to configure. Once the LED light stops blinking and turns solid green, you will be connected and your wireless connection will be secured with WPA2.

Connect to a Wireless Network

Windows® 8

WPA/WPA2

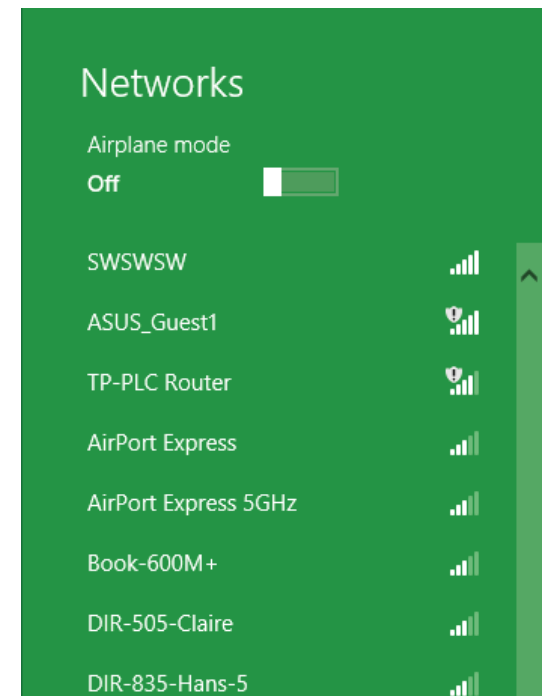
It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key (Wi-Fi password) being used.

To join an existing network, locate the wireless network icon in the taskbar, next to the time display.



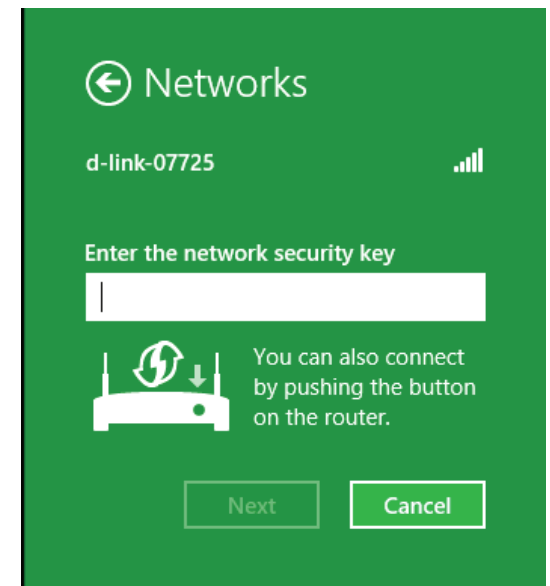
Wireless Icon

Clicking on this icon will display a list of wireless networks which are within connecting proximity of your computer. Select the desired network by clicking on the network name.

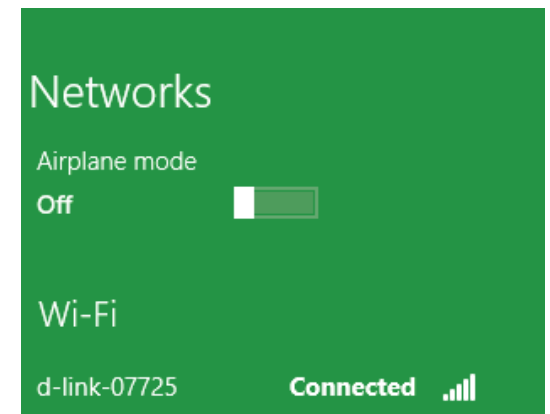


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click **Next**.

If you wish to use Wi-Fi Protected Setup (WPS) to connect to the router, you can also press the WPS button on your router at this point to enable the WPS function.



When you have established a successful connection with a wireless network, the word **Connected** will appear next to the name of the network to which you are connected.

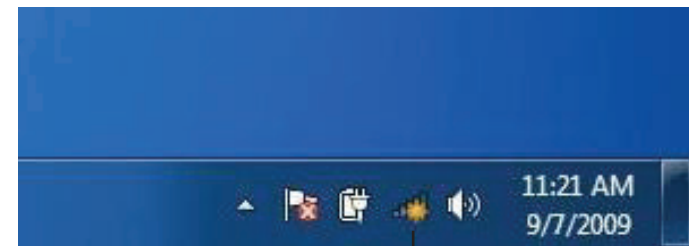


Windows® 7

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.

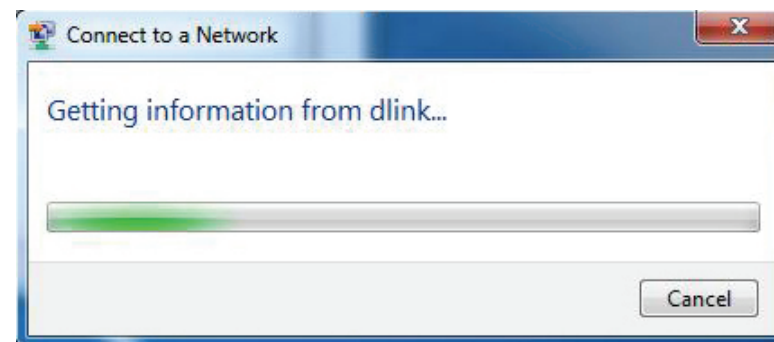


3. Highlight the wireless network (SSID) you would like to connect to and click the **Connect** button.

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.



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**.

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.



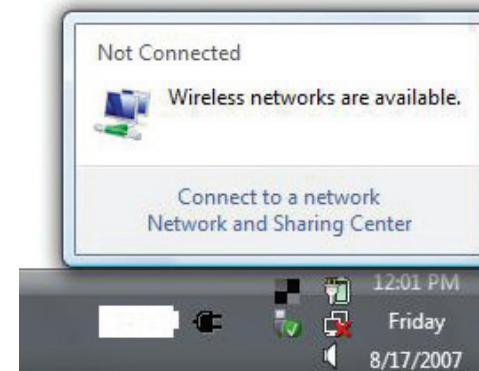
Windows Vista®

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 Are Available" bubble, click on the center of the bubble to access the utility.

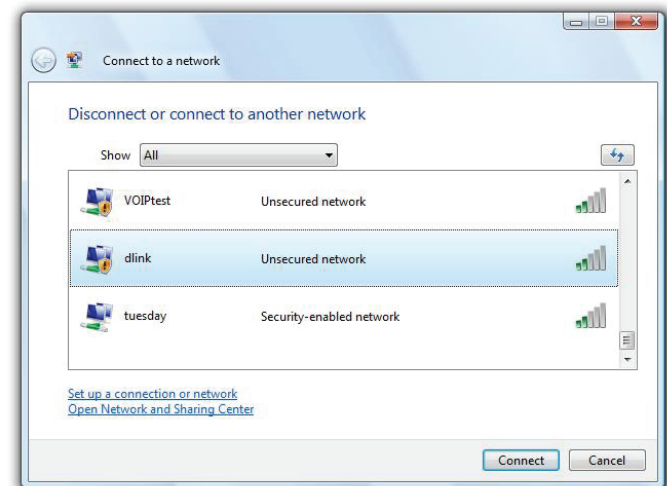
or

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 **Connect**.

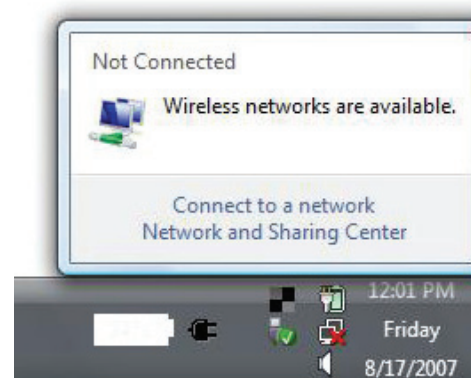
If you get a good signal but cannot access the Internet, check the TCP/IP settings for your wireless adapter. Refer to "Troubleshooting" on page 43 for more information.



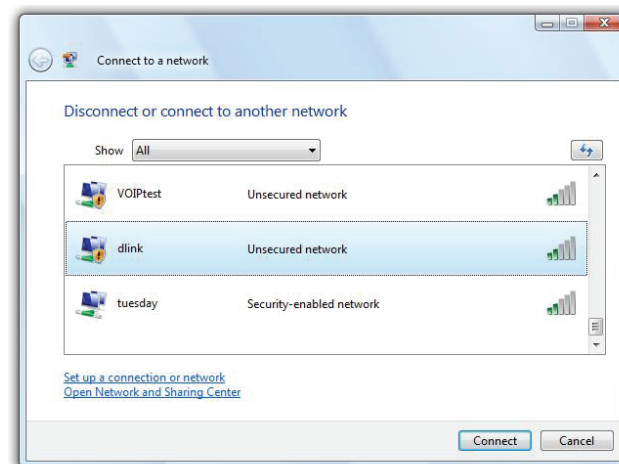
WPA/WPA2

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**.

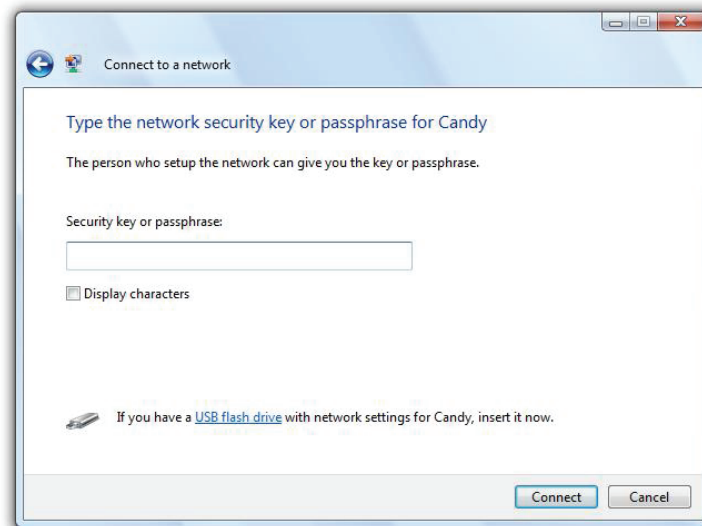


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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.



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.

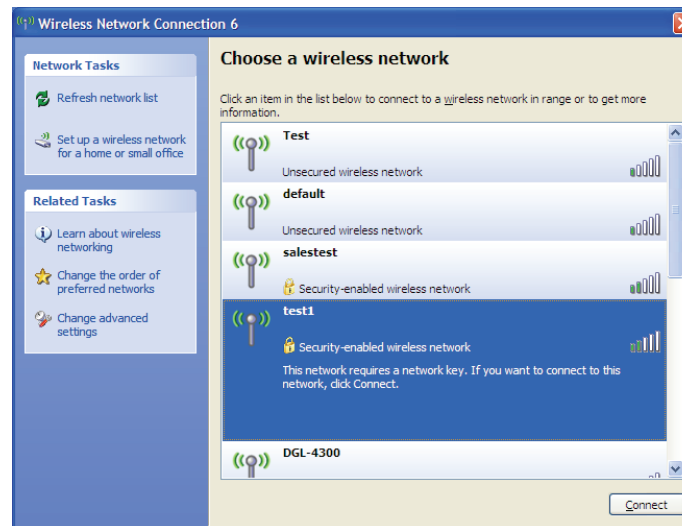
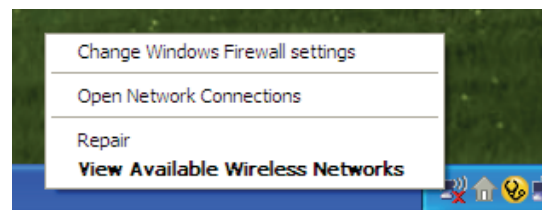
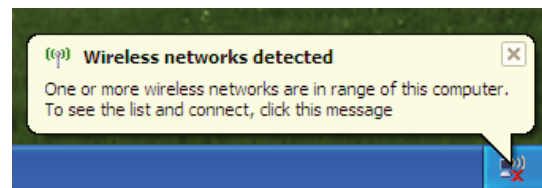
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

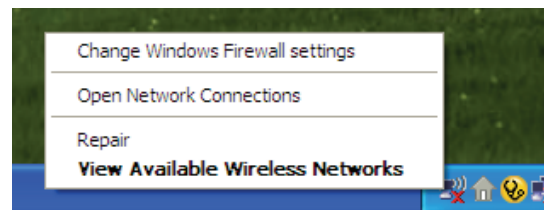
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



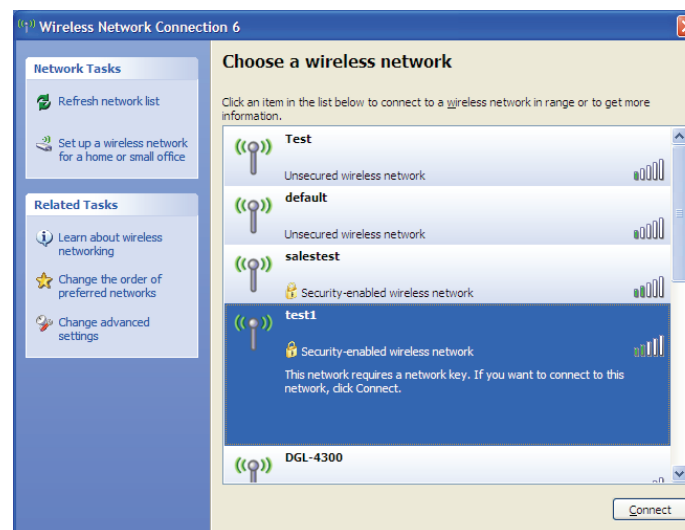
WPA/WPA2

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**.

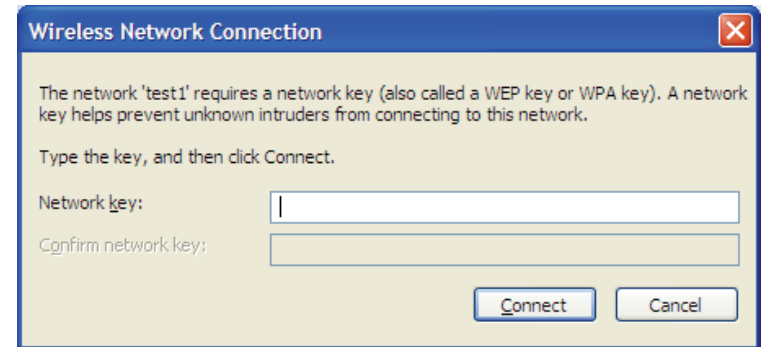


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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 Wireless Range Extender N300 (dlinkap.local 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:
 - Internet Explorer 7 or later
 - Firefox 12.0 or later
 - Safari 4 or later
 - Google Chrome 20.0 or later
- Make sure that you are connected to the same wireless network which is listed on the base of the DAP-1320. If you have an active wired LAN Ethernet connection, try temporarily unplugging the Ethernet cable from the computer you are using, as this may eliminate possible conflicts from having two simultaneous connections on the same computer.
- Disable any Internet security software running on the computer. Software firewalls such as ZoneAlarm, BlackICE, 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 interface. Open your web browser and enter the address of your extender (**http://dlinkap.local**) in the address bar. This should open the login page for your web management. If the DAP-1320 is not connected to an uplink router, you can try accessing the web interface using the default IP address **http://192.168.0.50**.
- If you still cannot access the configuration, unplug the extender from the power outlet for at least 10 seconds and plug it 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 extender. Unfortunately this process will change all your settings back to the factory defaults.

To reset the extender, locate the reset button (hole) on the underside panel of the unit. With the extender powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the extender will go through its reboot process (indicated by the LED turning red). Wait about 30 seconds to access the extender. The default IP address is **http://dlinkap.local**. 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 and conveniently access your network. 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 adapters 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.

Tips

Here are a few things to keep in mind when you are installing your Wireless Range Extender N300.

Centralize the extender's location

For best performance, make sure you place the extender in a centralized location within your desired usage area. Try to place the extender so that there are minimal obstructions between it and the uplink router. If possible, use an elevated power outlet, so the signal can be dispersed more easily. If you have a large home or usage area, you may need several extenders in order to achieve optimal coverage.

Eliminate Interference

Place home appliances such as cordless telephones, microwaves, and televisions as far away as possible from the extender. This can significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security

Don't let your neighbors or intruders connect to your wireless network. Secure your wireless network by utilizing the WPA or WEP security feature on the extender and uplink router. Refer to the relevant sections of this manual for further details.

Technical Specifications

Standards

- IEEE 802.11n
- IEEE 802.11g
- IEEE 802.11b

Wireless Frequency Range ¹

- 2.4 GHz to 2.4835 GHz

Antenna

- Internal Antenna

Security

- Wi-Fi Protected Access (WPA/WPA2)
- WPS™ (PBC)
- Wired Equivalent Privacy (WEP) 64/128-bit

Advanced Features

- QRS Mobile setup app for iOS and Android devices

Device Management

- Web UI

Diagnostic LEDs

- Status/WPS

Operating Temperature

- 0 to 40 °C (32 to 104 °F)

Operating Humidity

- 0% to 90% non-condensing

Power Input

- AC 110-240 V

Maximum Power Consumption

- 5.5 W

Certifications

- EMI/EMC
- FCC
- CE
- IC
- C-Tick
- UL
- Wi-Fi Certified

Dimensions

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

Weight

- 69 grams (0.152 lb)

¹ Frequency range varies depending on local regulations

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<http://tsd.dlink.com.tw/GPL.asp>

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Please direct all inquiries to:

Email: GPLCODE@DLink.com

Snail Mail:

Attn: GPLSOURCE REQUEST

D-Link Systems, Inc.

17595 Mt. Herrmann Street

Fountain Valley, CA 92708

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1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work’s System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

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The Corresponding Source for a work in source code form is that same work.

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6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

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Safety Statements

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 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.

Operations in the 5.15-5.25 GHz / 5.470 ~ 5.725 GHz band are restricted to indoor usage 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 maintain compliance with FCC RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting.

If this device is going to be operated in 5.15 ~ 5.25 GHz frequency range, then it is restricted in indoor environment only. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

ICC Notice:

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.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. 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.

- (i) 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;
- (ii) The maximum antenna gain (2dBi) permitted (for devices in the band 5725-5825 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

In addition, users should also be cautioned to take note that high-power radars are allocated as primary users (meaning they have priority) of the bands 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

Règlement d'Industry Canada

Les conditions de fonctionnement sont sujettes à deux conditions:

- (1) Ce périphérique ne doit pas causer d'interférence et.
- (2) Ce périphérique doit accepter toute interférence, y compris les interférences pouvant perturber le bon fonctionnement de ce périphérique.