

## User Manual

### *D-Link DMG-112A N300 Wireless Range Extender*



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# Product Overview

## Package Contents

This product should contain all of the below mentioned items within its packaging:

- One D-Link DMG-112A wireless range extender
- One Power Adapter
- One CD containing the User Manual
- One Quick Installation Guide

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

**Note:** Using a power supply with a different voltage rating than the one included with the D-Link DMG-112A will cause damage to this product and void the warranty for this product.

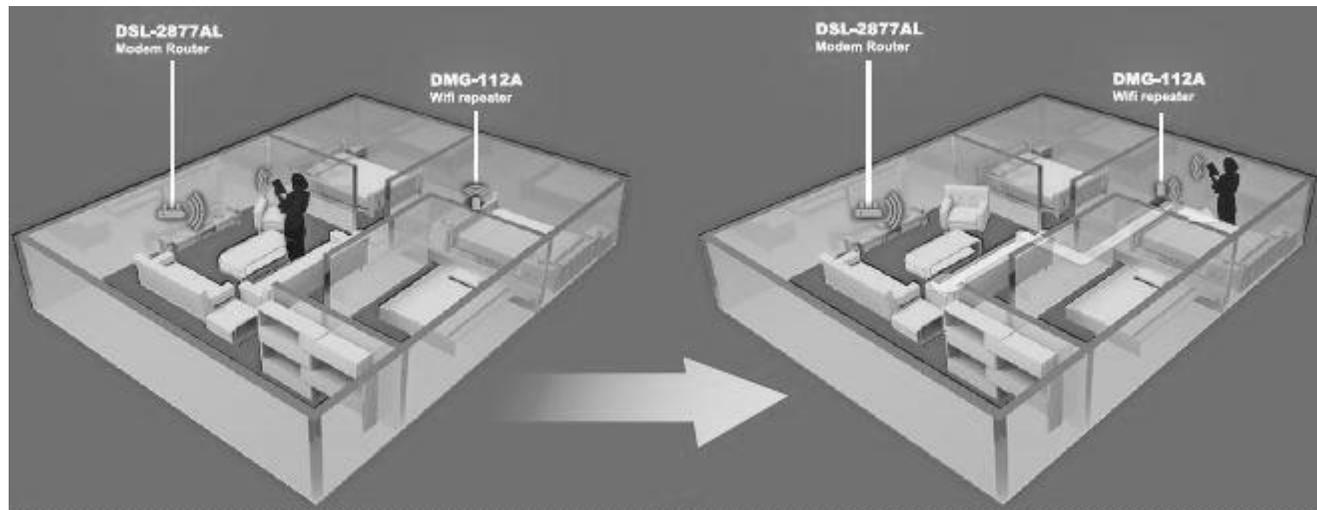


## System Requirements

<b>Network Requirements:</b>	<ul style="list-style-type: none"><li>• Wireless Adapter with IEEE 802.11n, 802.11b/g.</li></ul>
<b>Web User Interface Requirements:</b>	<ul style="list-style-type: none"><li>• Windows®, Macintosh, or Linux-based Operating System.</li><li>• Internet Browser like Internet Explorer 7 or higher, Firefox 3.5 or higher, Safari 4 or higher, or Chrome 8 or higher.</li></ul>

## Features

- **Faster Wireless Networking** - The D-Link DMG-112A provides up to 300Mbps\* for the 2.4GHz band connection with other 802.11n wireless clients capability allows users to participate in real-time activities online.
- **Compatible with 802.11b and 802.11g Devices** - The D-Link DMG-112A is still fully compatible with the IEEE 802.11b and IEEE 802.11g standards, so it can connect with existing 802.11b and 802.11g PCI, USB and Cardbus adapters.
- **Wireless Security** - The D-Link DMG-112A provides Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), WPA2 and Wi-Fi Protected Setup (WPS) wireless encryption protocols to ensure the encryption of wireless data communication between wireless stations and D-Link DMG-112A.
- **D-Link Homezone, Extends Your Wireless Network** - Increase the coverage of your home Wireless network with the sleek and easy-to-use D-Link DMG-112A N300 Wireless Range Extender. D-Link Homezone enable The Wi-Fi Hand-off technology communicates with your router and other repeaters in your home network to ensure your wireless devices have a seamless connection. As you move around your house D-Link's homezone technology automatically switches wireless devices to the access point with the strong coverage, so you'll always get the best possible Wi-Fi, no matter where you are in your home. The D-Link DMG-112A also provides backward compatibility with older wireless devices in your network, allowing you to enjoy a fast and reliable wireless connection.



- **Easy To Setup** - Setting up the N300 Wireless range extender is simple. You can use the supported D-Link One-Touch™ app on your iOS or Android mobile device to easily set up the D-Link DMG-112A without needing a computer. Alternatively, by pushing front push-button to enable WPS (Wi-Fi Protect Setup) on the D-Link DMG-112A and on the router or AP you want to extend, and the D-Link DMG-112A will automatically configure itself for you.

\* Maximum wireless signal rate derived from IEEE standard 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.

## Hardware Overview

### Front Panel / Rear Panel



#### Front Panel

LED 1	LED 2	LED 3	LED 4	Button	Description
Light off	Light off	Light off	Light off	X	The device is powered off.
Light off	Light off	Light off	Blinking Blue	X	The system of the device is starting.
Light off	Light off	Light off	Solid Blue	X	Powered on and operating properly.
Light off	Light off	Blinking Amber	Solid Blue	Press 4-6 seconds	Reset to default settings.
Light off	Blinking Amber	Solid Amber	Solid Blue	Press 1 second	Processing WPS. Allows you to connect with uplink router.
Light off	Blinking Amber	Blinking Amber	Solid Blue	X	Get IP address from the uplink router.
If the D-Link DMG-112A has been connected to the uplink router. The LED1, LED2 and LED3 will be used to show the wireless signal strength.					
Light off	Light off	Solid Amber	Solid Blue	X	Wireless Signal Strength – Weak.
Light off	Solid Amber	Solid Amber	Solid Blue	X	Wireless Signal Strength – Middle.

Solid Amber	Solid Amber	Solid Amber	Solid Blue	X	Wireless Signal Strength – Strong.
Wireless signal strength			Blinking Blue	Press 1 second	Processing WPS. Allows you to connect with Wi-Fi client.

**Rear Panel**

Number	Hardware	Description
1	USB Connector	Used to connect the D-Link DMG-112A to your computer or power adapter.

## Basic Installation

This section will walk you through the installation process. Placement of the device is very important. Do not place the device in an enclosed area such as a closet, cabinet, or in the attic or garage.

### Before You Begin

Please read and make sure you understand all the prerequisites for proper installation of your new device. Have all the necessary information and equipment on hand before beginning the installation.

### Installation Notes

In order to establish a connection to the uplink router it will be necessary to provide information to the wireless repeater that will be stored in its memory. For some users, only their account information (Username and Password) is required.

#### **Operating Systems**

D-Link DMG-112A could be managed and setup by D-Link One-Touch™. D-Link One-Touch™ is available for android and iOS mobile operating system.

The D-Link DMG-112A uses an HTML-based web interface for setup and management. The Web configuration manager may be accessed using any operating system capable of running web browser software, including Windows®, Macintosh, and Linux-based Operating Systems.

#### **Web Browser**

Any common Web browser can be used to configure the D-Link DMG-112A using the Web configuration management software. The program is designed to work best with more recently released browsers such as Internet Explorer 7 or higher, Firefox 3.5 or higher, Safari 4 or higher, or Chrome 8 or higher. The Web browser must have JavaScript enabled. JavaScript is enabled by default on many browsers. Make sure JavaScript has not been disabled by other software (such as virus protection or web user security packages) that may be running on your computer.

## Information you will need about this Wireless Repeater

### Username

This is the Username needed access the device's management interface. When you attempt to connect to the device through D-Link One-Touch™ or a web browser you will be prompted to enter this Username. The default Username for the device is **“admin”**.

### Password

This is the Password you will be prompted to enter when you access the device's management interface. The default Password is **“admin”**.

### Local IP Addresses for the D-Link DMG-112A

This is the IP address you will enter into the Address field of your web browser to access the device's configuration Graphical User Interface (GUI) using a web browser. The default IP address is **192.168.0.50**.

### Local Subnet Mask for the D-Link DMG-112A

This is the subnet mask used by the D-Link DMG-112A, and will be used throughout your wireless computer. The default subnet mask is **255.255.255.0**.

## D-Link One-Touch™ APP

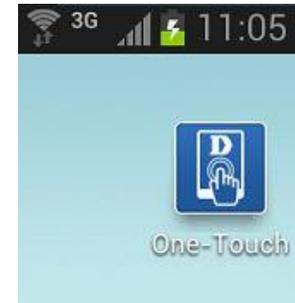
D-Link offers you a fast and easy way to get connected, by utilizing the free D-Link One-Touch™ APP for your Android or iOS mobile device which walks you step-by-step through installation of your D-Link One-Touch™ enabled device. You also have the ability to configure/change WAN and Wi-Fi settings and even upgrade the firmware.

You can search for the D-Link One-Touch™ APP directly in the Google Play or iOS APP Store, and install it.

The D-Link One-Touch™ icon will be displayed in the mobile device (Android, iOS).

**Note:**

- The following steps are for the Android version of the app.
- From your iOS mobile device, choose **Settings**, and Click **Wi-Fi**, select the Wi-Fi Network Name (SSID) that you created during setup and then enter default Wi-Fi password located on your Wi-Fi configuration note.



Tap on the D-Link One-Touch™ icon, the following screen will appear.

Here contains three functions:

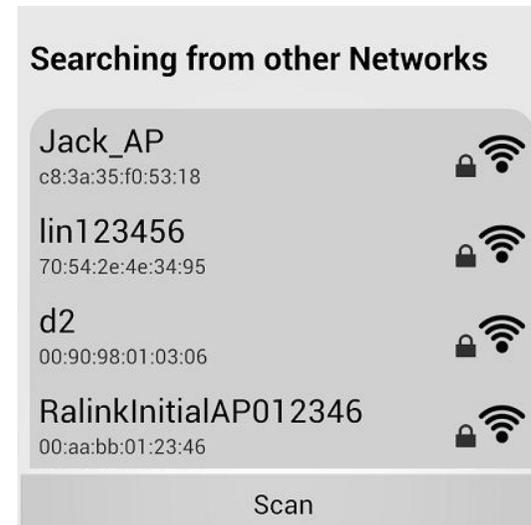
- [Network Starter](#) - The function is mainly to setup Wi-Fi settings of the D-Link DMG-112A.
- [Auto Setup](#) - The function is mainly to setup Wi-Fi settings of the D-Link DMG-112A to associate to remote AP automatically.
- [Software Upgrader](#) - The function is mainly to upgrade the firmware for the D-Link DMG-112A.



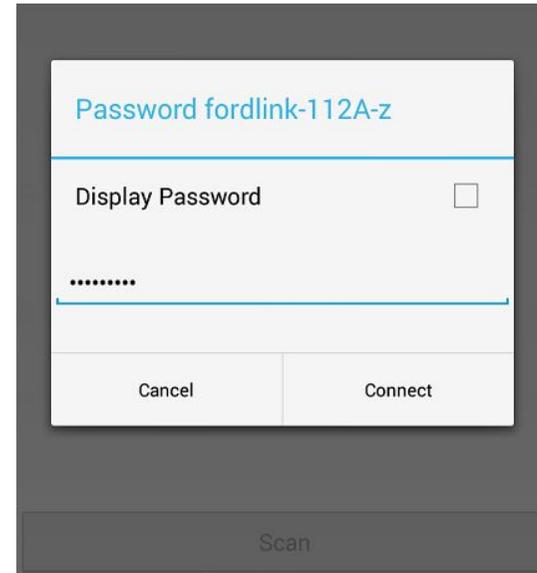
1. The Wi-Fi Network Name (SSID) of the D-Link DMG-112A will be displayed in **Ready for Setup**, and you can tap the Wi-Fi Network Name (SSID) to configure it.



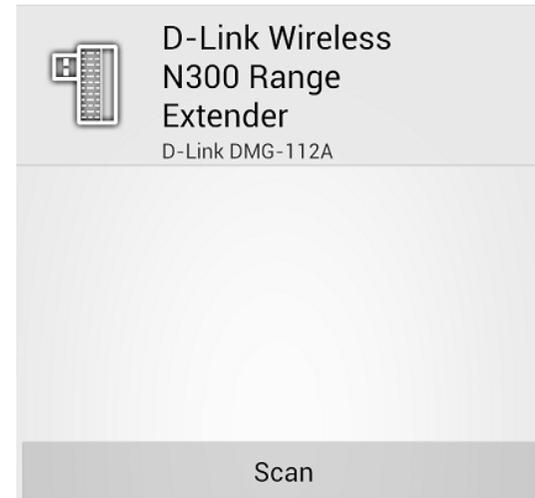
2. If your Wi-Fi Network Name (SSID) is not shown here, you can tap the **Scan** button to re-search.



3. If your mobile device has saved the D-Link DMG-112A wireless password, it will be automatically associated to D-Link DMG-112A, otherwise D-Link One-Touch™ will pop-up a password dialog, you need enter correct Wi-Fi password and tap **Connect** button to associate to D-Link DMG-112A.



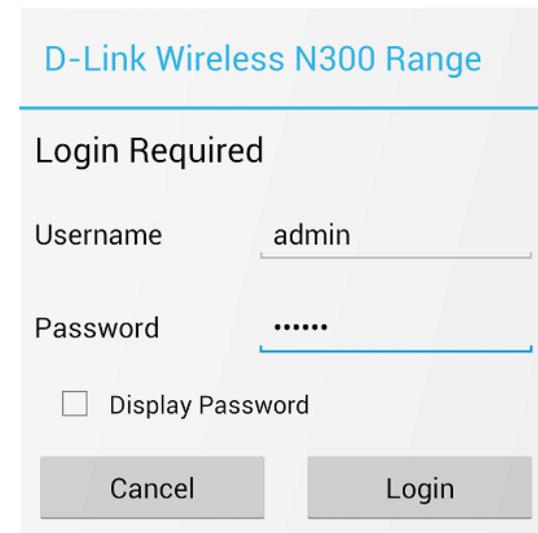
4. The device name, device icon and device type will be shown here, and you can tap the device icon to setup your device or upgrade the firmware of the device, if they are not shown in here, you can tap **Scan** button to re-search.



## Network Starter

1. Tap the **Network Starter** to start configuring the D-Link DMG-112A.

2. The D-Link One-Touch™ will login the D-Link DMG-112A, if login it is fail, the D-Link One-Touch™ will pop-up a login UI, you need enter correct username and password to login the D-Link DMG-112A.



3. Modify the device Name, login password and operation mode.

**Device Name:** The user changes the device name; the main title beside the ICON also will be changed.

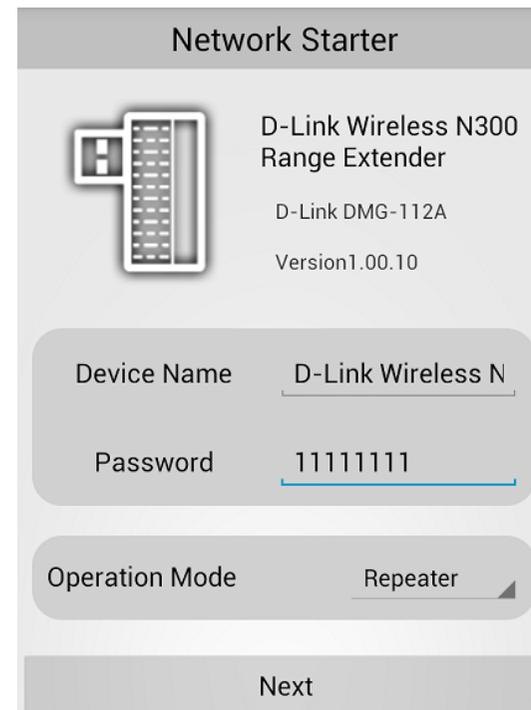
**Password:** the login password can't be empty and "admin" and the password string length should be between 4 - 24 characters.

**Operation Mode:** Select the operation mode for the D-Link DMG-112A, and it has only one operation mode: **Repeater**

**Note:** If the D-Link DMG-112A setting is factory default setting, the D-Link One-Touch™ will provide a random string to login password; users can also modify the login password.

Click **Next** button to select the uplink wireless router.

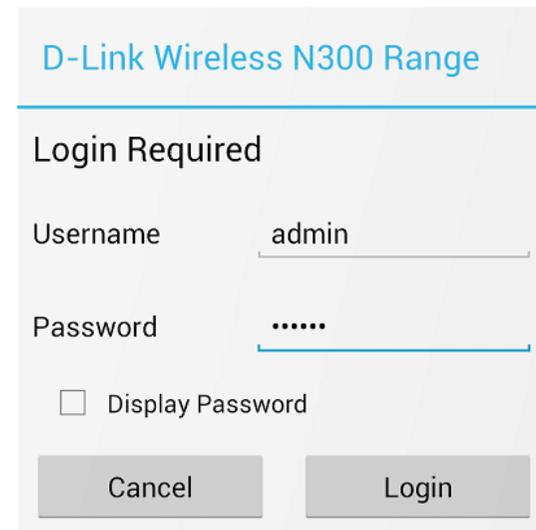
4. Selecting an uplink wireless router, D-Link One-Touch™ will pop-up a password dialog, you need enter correct Wi-Fi password and tap Connect button to associate to the uplink wireless router. If they are not shown in here, you can tap Scan button to re-search.



## Auto Setup

1. Tap the **Auto Setup** to start configuring the D-Link DMG-112A.

2. The D-Link One-Touch™ will login the D-Link DMG-112A, if login it is fail, the D-Link One-Touch™ will pop-up a login UI, you need enter correct username and password to login the D-Link DMG-112A.



3. Selecting an uplink wireless router, D-Link One-Touch™ will pop-up a password dialog, you need enter correct Wi-Fi password and tap **Connect** button to associate to the uplink wireless router. If they are not shown in here, you can tap **Scan** button to re-search.

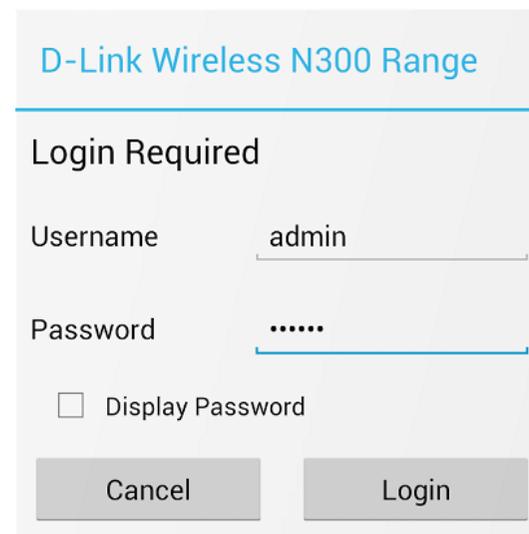


## Software Upgrader

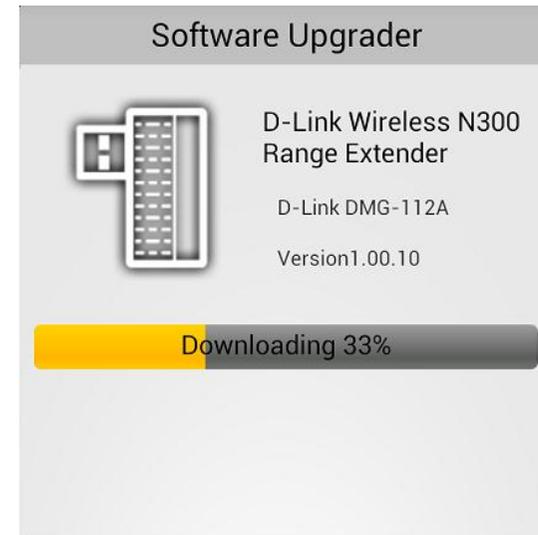
1. Tap the **Software Upgrader** to start to upgrade firmware for the D-Link DMG-112A.

**Note:** When performing a firmware upgrade, you need to make sure that the D-Link DMG-112A or mobile device can access internet.

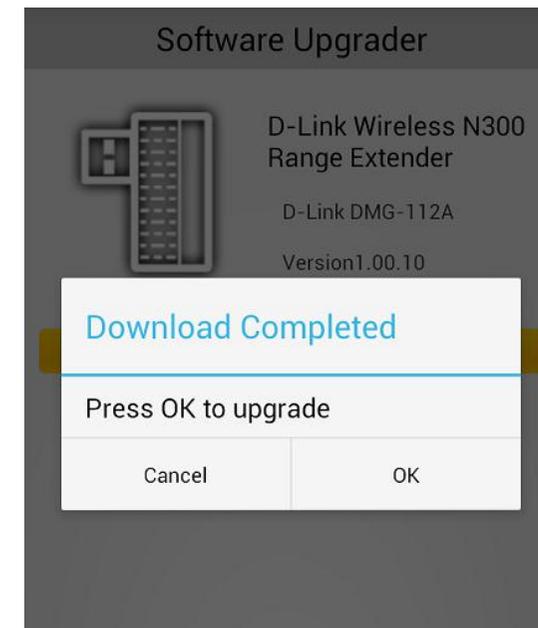
2. The D-Link One-Touch™ will login the D-Link DMG-112A, if login it is fail, the D-Link One-Touch™ will pop-up a login UI, you need enter correct username and password to login the D-Link DMG-112A.



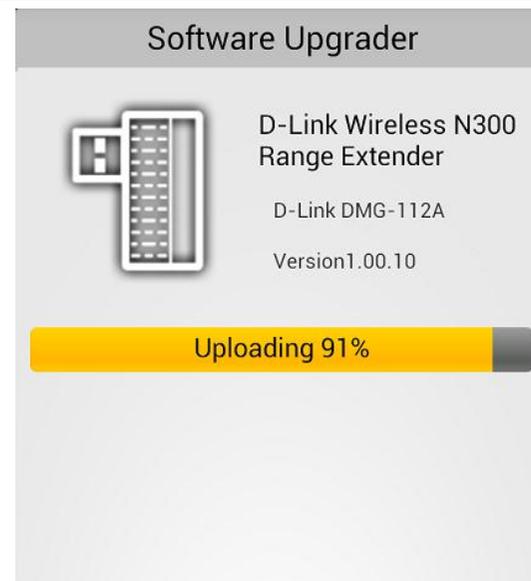
3. If the D-Link DMG-112A is not the latest firmware version, then D-Link One-Touch™ will download it.



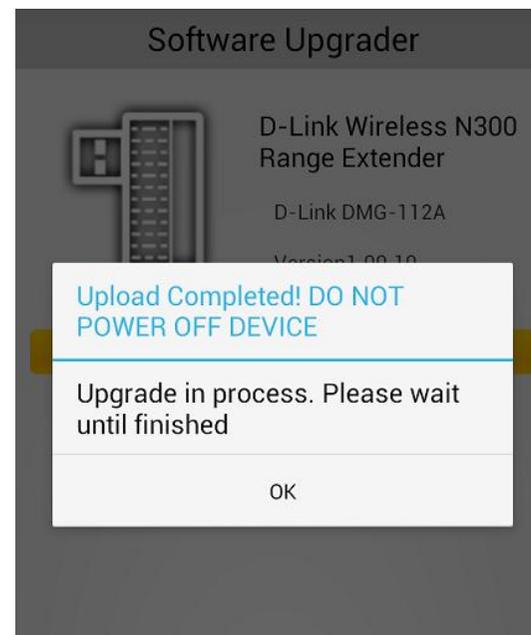
4. The latest firmware download is complete; the Download Completed dialog will be pop-up, tap **OK** button to upgrade the latest firmware for the D-Link DMG-112A.



5. Uploading the firmware for the D-Link DMG-112A.



6. Upload Completed dialog will be pop-up, tap **OK** button to exit the D-Link One-Touch™, and wait a few minutes for the firmware upgrade is complete.



## Getting Started

This section will show you how to set up and configure your new D-Link DMG-112A N300 Wireless range extender using the Web-based configuration utility.

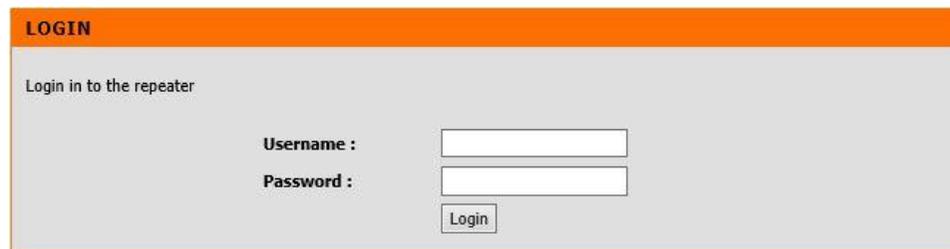
### How to connect to the Web User Interface

#### Connect to the D-Link DMG-112A

To access the configuration utility for the D-Link DMG-112A on your PC, first connect to the D-Link DMG-112A wirelessly using the network name (SSID) and password located on your Wi-Fi Configuration Card.

To access the web user interface, open a web-browser such as Internet Explorer and enter the IP address of the D-Link DMG-112A (**192.168.0.50**) into the address bar and press the *Enter* key on your keyboard.

Type **“admin”** in the User Name field and **“admin”** in the Password field, and click the **Login** button to proceed. If you get a *Page Cannot be Displayed* error, please refer to the Troubleshooting section for more information.



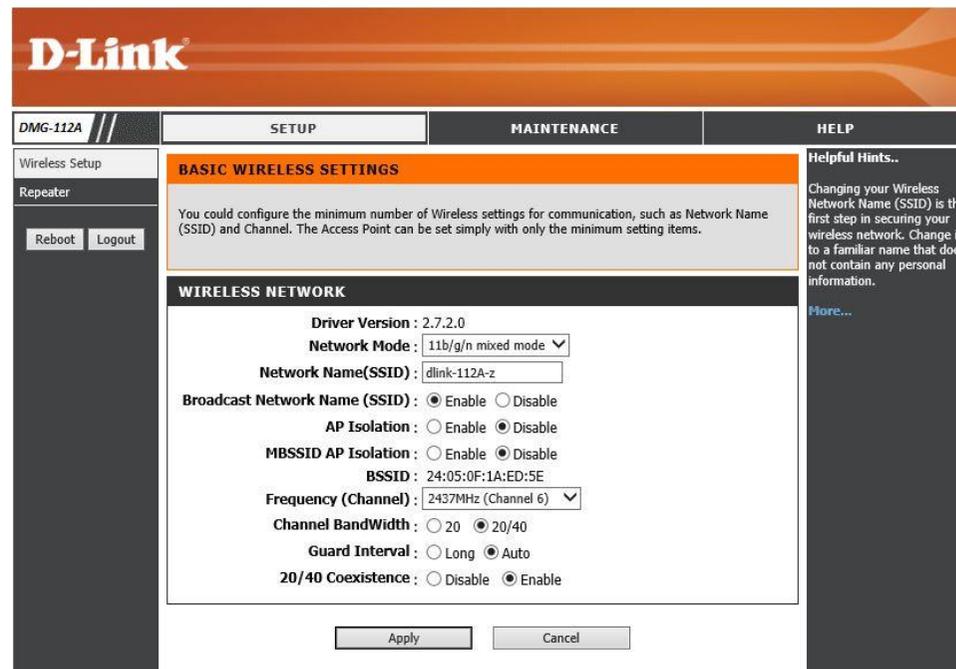
## Web User Interface Configuration

After successfully logging into the Web User Interface, the following page will be displayed. This page is divided into clickable components that make the configuration of this device easier and more understandable.

The top menu lists out the **Categories** available for configuration. The categories available to configure on this device are **Setup**, **Maintenance** and **Help**.

The left menu lists out the **Pages** available, for each individual category, for configuration. In this example, we observe the pages available in the **Setup** category. The pages available here are **Wireless Setup** and **Repeater**.

At the Bottom is the **Reboot** and **Logout** button which will restart and logout the D-Link DMG-112A.



## Setup Category

The **Setup** category is designed to assist the user with essential configurations, concerning the initial setup of this product.

The following pages can be found in the **Setup** category.

- [Wireless Setup](#) - On this page we can configure services related to the Wireless connectivity of this product.
- [Repeater](#) - On this page we can configure AP client parameters of this product.

The screenshot displays the D-Link web interface for the DMG-112A. The main navigation bar includes 'DMG-112A', 'SETUP', 'MAINTENANCE', and 'HELP'. The 'SETUP' section is active, showing 'BASIC WIRELESS SETTINGS' and 'WIRELESS NETWORK' configurations. The 'WIRELESS NETWORK' section includes the following settings:

- Driver Version : 2.7.2.0
- Network Mode : 11b/g/n mixed mode
- Network Name(SSID) : dlink-112A-z
- Broadcast Network Name (SSID) :  Enable  Disable
- AP Isolation :  Enable  Disable
- MBSSID AP Isolation :  Enable  Disable
- BSSID : 24:05:0F:1A:ED:5E
- Frequency (Channel) : 2437MHz (Channel 6)
- Channel BandWidth :  20  20/40
- Guard Interval :  Long  Auto
- 20/40 Coexistence :  Disable  Enable

Buttons for 'Apply' and 'Cancel' are located at the bottom of the configuration area. A 'Helpful Hints...' section on the right provides additional information about SSID configuration.

## Wireless Setup

To access the **Wireless Setup** page, click on the **Setup** menu link at the top, and then click on the **Wireless Setup** menu link on the left.

On this page the user can configure services related to the Wireless Setup connectivity of this product.

Services available for configuration are the following:

- [Basic Wireless Settings](#)
- [Advanced Wireless Settings](#)
- [Wireless Security Settings](#)

The screenshot displays the D-Link web interface for the DMG-112A N300 Wireless Range Extender. The top navigation bar includes 'SETUP', 'MAINTENANCE', and 'HELP'. The left sidebar shows 'Wireless Setup' and 'Repeater' options, with 'Reboot' and 'Logout' buttons. The main content area is titled 'BASIC WIRELESS SETTINGS' and contains a 'WIRELESS NETWORK' section with various configuration options. A 'Helpful Hints...' section is visible on the right.

DMG-112A	SETUP	MAINTENANCE	HELP
Wireless Setup	<b>BASIC WIRELESS SETTINGS</b>		Helpful Hints..
Repeater	You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.		Changing your Wireless Network Name (SSID) is the first step in securing your wireless network. Change it to a familiar name that does not contain any personal information.
Reboot Logout	<b>WIRELESS NETWORK</b>		More...
	Driver Version : 2.7.2.0		
	Network Mode : 11b/g/n mixed mode		
	Network Name(SSID) : dlink-112A-z		
	Broadcast Network Name (SSID) : <input checked="" type="radio"/> Enable <input type="radio"/> Disable		
	AP Isolation : <input type="radio"/> Enable <input checked="" type="radio"/> Disable		
	MBSSID AP Isolation : <input type="radio"/> Enable <input checked="" type="radio"/> Disable		
	BSSID : 24:05:0F:1A:ED:5E		
	Frequency (Channel) : 2437MHz (Channel 6)		
	Channel BandWidth : <input type="radio"/> 20 <input checked="" type="radio"/> 20/40		
	Guard Interval : <input type="radio"/> Long <input checked="" type="radio"/> Auto		
	20/40 Coexistence : <input type="radio"/> Disable <input checked="" type="radio"/> Enable		
	Apply	Cancel	

## Basic Wireless Settings

Click the **Basic** menu of the **Wireless Setup** to configure the basic wireless settings of this product.

**Driver Version:** Display the wireless driver version of this product.

**Network Mode:** Here we can select which 802.11 wireless modes to use. Options to choose from are **802.11b only**, **802.11g only**, **802.11b/g mixed mode**, and **802.11b/g/n mixed mode**. If you are not sure, select the **802.11 b/g/n mixed** option.

**Network Name (SSID):** Enter the wireless network name (SSID).

**Broadcast Network Name (SSID):** Enable or disable the Broadcast Network Name function for this product.

**AP Isolation:** Here we can choose to enable the AP isolation feature on this product.

**MBSSID AP Isolation:** Here we can choose to enable the AP isolation feature on this product.

**BSSID:** Display the BSSID of the product.

**Frequency (Channel):** Here we can select a wireless channel manually, or select the **Auto Select** option to allow the repeater to automatically select the channel with the least interference.

**Channel Bandwidth:** Here we can select the wireless bandwidth range used. Options to choose from are **20** and **20/40**.

**Guard Interval:** Here we can select the guard interval. Options to choose from are **Long** and **Auto**.

**20/40 Coexistence:** Enable or disable the 20/40 Coexistence feature on this product.

### BASIC WIRELESS SETTINGS

You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.

#### WIRELESS NETWORK

**Driver Version :** 2.7.2.0

**Network Mode :** 11b/g/n mixed mode ▾

**Network Name(SSID) :** dlink-112A-z

**Broadcast Network Name (SSID) :**  Enable  Disable

**AP Isolation :**  Enable  Disable

**MBSSID AP Isolation :**  Enable  Disable

**BSSID :** 24:05:0F:1A:ED:5E

**Frequency (Channel) :** 2437MHz (Channel 6) ▾

**Channel BandWidth :**  20  20/40

**Guard Interval :**  Long  Auto

**20/40 Coexistence :**  Disable  Enable

Apply

Cancel

## Advanced Wireless Settings

Click the **Advanced** menu of the **Wireless Setup** to configure the advanced wireless settings of this product.

Please note: The position of the D-Link DMG-112A may influence the performance, specially the range of the radio signal. Always change just one parameter and keep track of the effects.

**Driver Version:** Display the wireless driver version of this product.

**BG Protection Mode:** It is for 802.11b/g wireless client to connect to 802.11n wireless network smoothly in a complicated wireless area, the default is **Auto**.

**Beacon Interval:** Enter the beacon interval of the wireless radio on this product. The value range is 20 - 999ms, and default value is 100ms.

**Data Beacon Rate (DTIM):** Enter the DTIM interval of the wireless radio on this product. The value range is 1 - 255ms, and the default value is 1ms.

**Fragment Threshold:** Enter the fragment threshold value on this product. The fragment threshold defines the maximum transmission packet size, and the packet will be fragmented if it is bigger than the threshold setting. The value range is 256 - 2346 bytes, and the default size is 2346 bytes.

**RTS Threshold:** Enter the RTS threshold value on this product. Determines the packet size of a transmission through the use of the product to help control traffic flow. The value range is 1 - 2347, and the default value is 2347.

**TX Power:** Enter the TX power of the wireless radio on this product. The value range is 1 - 100, and the default value is 100.

**Short Preamble:** Enable or disable the short preamble of the wireless radio on this product.

**Short Slot:** Enable or disable the short slot of the wireless radio on this product.

**TX Burst:** Enable or disable the TX burst of the wireless radio on this product.

**Pkt\_Aggregate:** Enable or disable the packet aggregate feature on this product.

**IEEE 802.11H Support:** Enable or disable the IEEE 802.11H feature on this product.

### ADVANCED WIRELESS SETTINGS

Use the Advanced Setup page to make detailed settings for the Wireless. Advanced Setup includes items that are not available from the Basic Setup page, such as Beacon Interval, Control Tx Rates and Basic Data Rates.

#### ADVANCED WIRELESS

**Driver Version :** 2.7.2.0

**BG Protection Mode :** Auto ▾

**Beacon Interval :** 100 ms (range 20 - 999, default 100)

**Data Beacon Rate (DTIM) :** 1 ms (range 1 - 255, default 1)

**Fragment Threshold :** 2346 (range 256 - 2346, default 2346)

**RTS Threshold :** 2347 (range 1 - 2347, default 2347)

**TX Power :** 100 (range 1 - 100, default 100)

**Short Preamble :**  Enable  Disable

**Short Slot :**  Enable  Disable

**Tx Burst :**  Enable  Disable

**Pkt\_Aggregate :**  Enable  Disable

**IEEE 802.11H Support :**  Enable  Disable (only in A band)

Apply

Cancel

### Wireless Security Settings

Click the **Security** menu of the **Wireless Setup** to configure the wireless security settings of this product.

**SSID choice:** Select SSID to configure the wireless security on this product.

**Security Mode:** Here we can select security to use. Options to choose from are **None, OpenWEP, ShareWEP, WEPAuto, WPA-PSK, WPA2-PSK** and **WPA-PSK/WPA2-PSK**.

### WEP Wireless Configuration

Make sure that all wireless devices on your network are using the same encryption level and key.

If select Hex secret key, then WEP keys must consist of the letters "A" through "F" and the numbers "0" through "9", and the key length should be 10 or 26 hexadecimal characters.

If select ASCII secret key, the key length should be 5 or 13 ASCII characters.

#### WIRELESS SECURITY/ENCRYPTION SETTINGS

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

#### SELECT SSID

SSID choice :

#### "DLINK-112A-Z"

Security Mode :

#### ACCESS POLICY

Policy :

Add a station Mac :

#### WIRE EQUIVALENCE PROTECTION (WEP)

	Default Key	<input type="text" value="Key 1"/>	
	WEP Key 1	<input type="text" value="0123456789"/>	<input type="text" value="Hex"/>
	WEP Key 2 :	<input type="text"/>	<input type="text" value="Hex"/>
	WEP Key 3 :	<input type="text"/>	<input type="text" value="Hex"/>
	WEP Key 4 :	<input type="text"/>	<input type="text" value="Hex"/>

### WPA-PSK/WPA2-PSK Wireless Configuration

Is a special mode of WPA for home users without an enterprise authentication server and provides the same strong encryption protection. To use WPA Pre-Shared Key, enter a password in the WPA Shared Key field between 8 and 63 bit ASCII or 64 bit hex characters long

**WPA Algorithms:** Select a WPA algorithms for the wireless security, and it provides TKIP (Temporal Key Integrity Protocol), AES (Advanced Encryption Standard) and TKIPAES.

**Pass Phrase:** Enter a password using 8 - 63 ASCII characters.

**Key Renewal Interval:** Enter the key's renewal interval. The value range is 0 - 4194303, and the default value is 3600s.

### Access Policy

Without WLAN MAC access restriction, any WLAN client can join (authenticate with) a Wi-Fi network if they know the network name (also called the SSID) and perhaps a few other security parameters like encryption keys.

When WLAN MAC access is enabled, however, the access point or router performs an additional check on a different parameter. Obviously the more checks that are made, the greater the likelihood of preventing network break-ins.

To set up WLAN MAC access rules, you as a WLAN administrator must configure a list of clients that will be allowed to join the network.

**WPA**

WPA Algorithms :  TKIP  AES  TKIPAES

Pass Phrase : 12345678

Key Renewal Interval : 3600 seconds (0 ~ 4194303)

**ACCESS POLICY**

Policy : Reject

Del 00:11:22:33:44:55 : Del 00:22:33:44:55:66

Add a station Mac :

## Repeater

To access the **Repeater** page, click on the **Setup** menu link at the top, and then click on the **Repeater** menu link on the left.

The D-Link DMG-112A can be used with a wireless access pointer (AP) to build a large wireless networks. If the D-Link DMG-112A is configured as wireless repeater, then it will forward all traffic from its local wireless network to a remote AP.

Here provides two ways to configure it as wireless repeater:

**Manual Setup** - You must know the SSID, MAC address, wireless security mode, encryption type and pass phrase of the remote AP.

**Automatic Setup** - Select an AP in the SITE SURVEY frame, and the SSID, Security mode, Encryption type of remote AP will be written to AP CLIENT PARAMETERS frame automatically, then you must enter the pass phrase of the AP, and click the **Apply** button to associate to the remote AP.

Click the **Manual Setup** button to manually configure the AP client parameters.

Click the **Scan** button to re-search the nearby AP.

The screenshot shows the D-Link web interface for the DMG-112A. The top navigation bar includes 'DMG-112A', 'SETUP', 'MAINTENANCE', and 'HELP'. The left sidebar has 'Wireless Setup' and 'Repeater' (selected). The main content area is titled 'AP CLIENT FEATURE' and contains the following sections:

- AP CLIENT FEATURE:** A message stating "You could configure AP Client parameters here."
- AP CLIENT PARAMETERS:** A form with the following fields:
  - SSID: dlink-2870B-z\_hshg
  - Security Mode: WPA1PSKWPA2PSK
  - Encryption Type: TKIPAES
  - Pass Phrase: 1111111111
 Below the fields are 'Apply' and 'Cancel' buttons.
- SITE SURVEY:** Contains 'Manual Setup' and 'Scan' buttons. Below is a table of detected APs:

Ch	SSID	BSSID	Security	Signal(%)	W-Moe	ExtCh	NT
1	dlink-2870B-z_hshg	00:15:e9:c4:a9:c6d	WPA1PSKWPA2PSK/TKIPAES	100	11b/g/n	NONE	In

## Maintenance Category

The **Maintenance** category is designed to assist the user with maintenance configurations for this product.

The following pages can be found in the **Maintenance** category:

- [Administrator](#) - Here you can change the password for the administrator.
- [System Settings](#) - All settings will be automatically saved to your D-Link DMG-112A. There is no need to manually save or reboot. If you want to restart the device anyway, it is better done via the **Reboot** button.
- [Firmware Update](#) - On this page the user can update the running firmware for this product.
- [Device Info](#) - On this page we can view local network and Wireless information about this product.
- [Station List](#) - On this page we can monitor stations which associated to this AP.

The screenshot displays the D-Link web interface for the DMG-112A. The top navigation bar includes 'SETUP', 'MAINTENANCE', and 'HELP'. The 'MAINTENANCE' tab is active, showing the 'ADMINISTRATOR' configuration page. The page is divided into several sections:

- ADMINISTRATOR**: A header section with an orange background.
- ADMINISTRATOR SETTINGS**: A section containing:
  - Account:
  - Password:
  - Captcha:
  - Buttons:  and
- NTP SETTINGS**: A section containing:
  - Current Time:
  - Time Zone:  (dropdown menu)
  - NTP Server:
  - NTP synchronization(hours):
- Helpful Hints...**: A sidebar on the right with security advice: "For security reasons, it is recommended that you change the password for the Admin accounts. Be sure to write down the new password to avoid having to reset the router incase they are forgotten." and a [More...](#) link.

## Administrator

To access the **Administrator** page, click on the **Maintenance** menu link at the top, and then click on the **Administrator** menu link on the left.

On this page we can configure the administrator settings of this product.

The screenshot shows the D-Link web interface for the DMG-112A. The top navigation bar has 'SETUP', 'MAINTENANCE', and 'HELP' tabs. The left sidebar has a menu with 'Administration', 'System Settings', 'Firmware Update', 'Device Info', and 'Station List'. The 'ADMINISTRATOR' section is active, showing a message: 'You may configure administrator account and password, NTP settings. Captcha is used for picture auth.' Below this is the 'ADMINISTRATOR SETTINGS' section with the following fields:

- Account :
- Password :
- Captcha :

Buttons for 'Apply' and 'Cancel' are present. Below this is the 'NTP SETTINGS' section with fields for 'Current Time', 'Time Zone', 'NTP Server', and 'NTP synchronization(hours)'.

In this section, the following parameters can be configured:

**Account:** Enter the new Web UI login username here.

**Password:** Enter the new Web UI login password here.

**Enable Captcha:** Enable or disable the graphic login authentication for this product here.

Click the **Apply** button to accept the changes made

This is a close-up of the 'ADMINISTRATOR SETTINGS' section. The fields are:

- Account :
- Password :
- Captcha :

Buttons for 'Apply' and 'Cancel' are visible below the fields.

This login page to display the graphic login authentication for this product.

**LOGIN**

Login in to the repeater

Username : admin

Password : \*\*\*\*\*

Captcha : bjmon

refresh

Login

On this page we can configure services related to the Time and Date services used by this product. 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.

In this section, the following parameters can be configured or displayed:

**Current Time:** Display the current time.

**Time Zone:** Select your local time zone from pull down menu.

**NTP Server:** Enter the address of a time server.

Click the **Apply** button to accept the changes made.

Click the **Sync with host** button to synchronize the time with host.

**NTP SETTINGS**

Current Time : Thu Jan 1 01:57:25 UTC 19 Sync with host

Time Zone : (GMT-11:00) Midway Island, Samoa

NTP Server : 192.168.0.166

NTP synchronization(hours) : 2

Apply Cancel

## System Settings

To access the **System Settings** page, click on the **Maintenance** menu link at the top, and then click on the **System Settings** menu link on the left.

On this page allows you to export or import your system configuration, and restore the system settings to factory default settings.

The screenshot shows the D-Link web interface for the DMG-112A. The top navigation bar includes the D-Link logo and three tabs: 'SETUP', 'MAINTENANCE', and 'HELP'. The 'MAINTENANCE' tab is selected. On the left, a sidebar menu lists 'Administration', 'System Settings', 'Firmware Update', 'Device Info', and 'Station List'. Below the menu are 'Reboot' and 'Logout' buttons. The main content area is titled 'SETTINGS MANAGEMENT' and contains three sections: 'EXPORT SETTINGS' with an 'Export' button; 'IMPORT SETTINGS' with a 'Settings file location' input field, a '浏览...' button, and 'Import' and 'Cancel' buttons; and 'LOAD FACTORY DEFAULTS' with a 'Restore Device' button. On the right, a 'Helpful Hints..' sidebar explains the system page's functionality, including rebooting, restoring to factory defaults, and backing up settings.

**Export Settings:** Once you have configured the device to your satisfaction, it is a good idea to back up the configuration file to your computer. Click the **Export** button of **Export Settings** to save the current configuration settings to your computer.

**Import Settings:** Click the **Import** button to load the settings from your local hard drive. Confirm that you want to load the file when prompted. The D-Link DMG-112A will reboot and begin operating with the configuration settings that have just been loaded.

**Restore to Factory Default:** Restore the default settings if the D-Link DMG-112A does not work properly after an abortive configuration click on the **Restore Device** button. If the admin's password is lost you can no longer manage the D-Link DMG-112A. Use the restore switch at the back of the device. Warning! When you select to restore the default settings you will lose any settings defined before.

#### Default Values

IP address: http://192.168.0.50.

User name: admin

Password: admin

The screenshot displays three distinct sections of the configuration interface, each with a dark header bar and a white content area. The first section, 'EXPORT SETTINGS', features a single 'Export' button. The second section, 'IMPORT SETTINGS', includes a text input field for the 'Settings file location' with a '浏览...' (Browse) button, and two buttons labeled 'Import' and 'Cancel'. The third section, 'LOAD FACTORY DEFAULTS', contains a 'Restore To Factory Defaults' label and a 'Restore Device' button.

## Firmware Update

To access the **Firmware Update** page, click on the **Maintenance** menu link at the top, and then click on the **Firmware Update** menu link on the left.

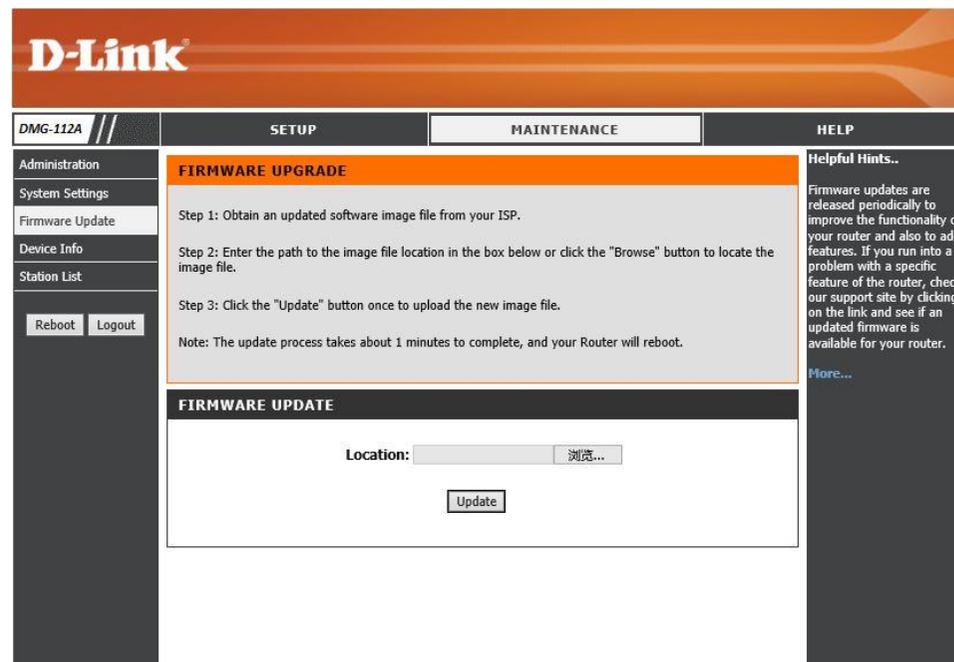
The Firmware update section can be used to update to the latest firmware code to improve functionality and performance. To update the firmware, follow these steps:

Click the **Browse** button to locate the D-Link update file on your computer.

Once you have found the file to be used, click the **Update** button below to start the firmware update process. This can take a minute or more.

Wait for the device to reboot. This can take another minute or more.

**Note:** Some firmware updates reset the configuration options to the factory defaults. Before performing an update, be sure to save the current configuration from the **System Settings** page of the **Maintenance**.



## Device Info

To access the **Device Info** page, click on the **Maintenance** menu link at the top, and then click on the **Device Info** menu link on the left.

This page displays the current information for the device. It will display what version of firmware you are currently running, as well as local network and wireless parameters.

DMG-112A	SETUP	MAINTENANCE	HELP
Administration	<b>DEVICE</b>		
System Settings	The Device Status page allows you to check the status of your Internet connection, LAN side connection.		
Firmware Update	<b>SYSTEM INFO</b>		
Device Info	System Up Time : 42 mins, 2 secs Firmware Version : 1.00.06BR Operation Mode : Repeater Mode		
Station List	<b>UPLINK CONFIGURATIONS</b>		
Reboot	Connected Type : DHCP IP Address : 192.168.1.4 Subnet Mask : 255.255.255.0 Default Gateway : 192.168.1.1 Primary Domain Name Server : 192.168.1.1 Secondary Domain Name Server : 192.168.1.1 MAC Address : 26:05:0F:1A:ED:5E		
Logout	<b>LOCAL NETWORK</b>		
	Local IP Address : 192.168.0.50 Local Netmask : 255.255.255.0 MAC Address : 26:05:0F:1A:ED:5E		

In this section, we can view the system up time, firmware version and operation mode of this product.

SYSTEM INFO
System Up Time : 40 secs Firmware Version : 1.00.06BR Operation Mode : Repeater Mode

In this section, we can view the uplink configuration of this product.

#### UPLINK CONFIGURATIONS

**Connected Type :** DHCP  
**IP Address :** 192.168.1.4  
**Subnet Mask :** 255.255.255.0  
**Default Gateway :** 192.168.1.1  
**Primary Domain Name Server :** 192.168.1.1  
**Secondary Domain Name Server :** 192.168.1.1  
**MAC Address :** 26:05:0F:1A:ED:5E

In this section, we can view the local network information, including IP address and MAC address of this product.

#### LOCAL NETWORK

**Local IP Address :** 192.168.0.50  
**Local Netmask :** 255.255.255.0  
**MAC Address :** 26:05:0F:1A:ED:5E

In this section, we can view the wireless information, including SSID, security type, and MAC address.

#### WIRELESS INFO

**SSID :** dlink-2870B-z\_hshg  
**BSSID :** 24:05:0F:1A:ED:5E  
**Channel :** 1  
**Mode :** 11b/g/n  
**Security :** WPAPSKWPA2PSK  
**NetworkKey :** 11111111

## Station List

To access the **Station List** page, click on the **Maintenance** menu link at the top, and then click on the **Station List** menu link on the left.

On this page the user can monitor stations which associated to this AP here.

The screenshot shows the D-Link web interface for the DMG-112A. The top navigation bar has 'SETUP', 'MAINTENANCE', and 'HELP' tabs. The left sidebar contains a menu with 'Administration', 'System Settings', 'Firmware Update', 'Device Info', and 'Station List'. The 'Station List' page displays a 'STATION LIST' section with the text 'You could monitor stations which associated to this AP here.' Below this is a 'WIRELESS NETWORK' table with the following data:

MAC Address	Aid	PSM	MimoPS	MCS	BW	SGI	STBC
54:27:1E:22:22:0C	1	0	3	7	20M	0	1

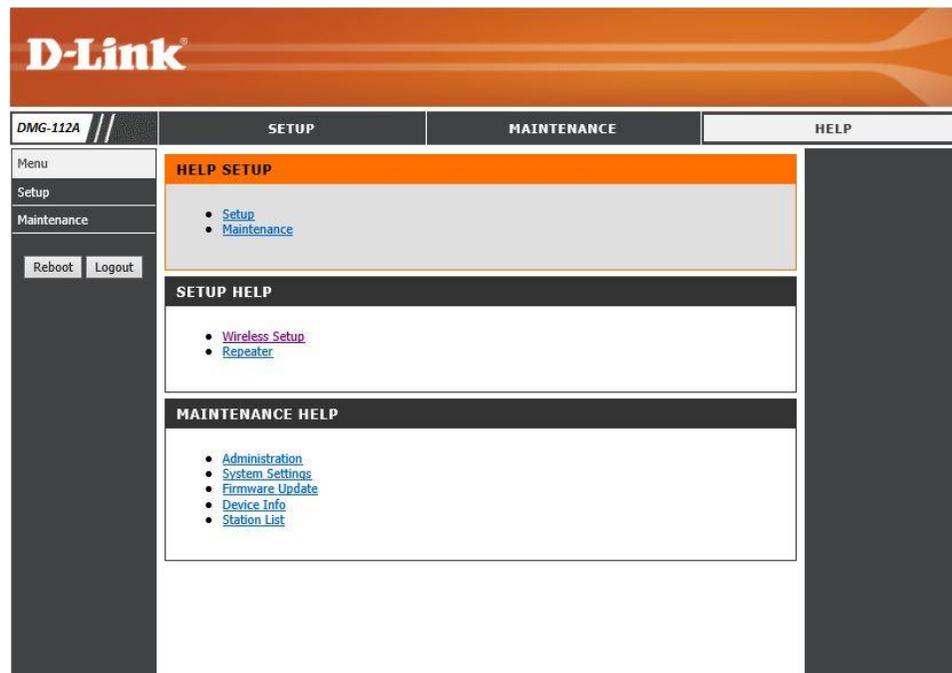
On the right side, there is a 'Helpful Hints...' section with the text 'Show connected clients.' and a 'More...' link.

## Help Category

The **Help** category is designed to assist the user with helpful information about every topic found on the web user interface of this product.

The following pages can be found in the **Help** category:

- **Menu** - On this page the user can navigate easily to any page throughout the menu structure to access help information.
- **Setup** - On this page the user can read more about topics discussed in the Setup category.
- **Maintenance** - On this page the user can read more about topics discussed in the Maintenance category.



# Knowledge Base

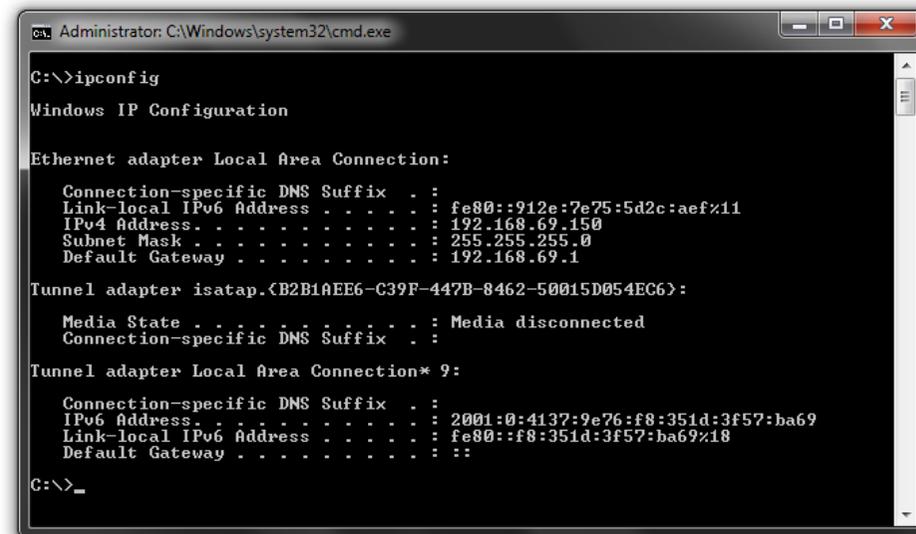
## Networking Basics

### Check your IP address

After you installed your new network or wireless adapter, by default, the TCP/IP settings should be set to obtain an IP address automatically from a DHCP server. By default the DHCP server option on your router is enabled.

To verify your IP address, please follow the steps below:

- Click on the Windows **Start** button and open the **Run** application.
- In the **Open** box type *cmd* and click **OK**.
- At the command prompt, type in the command *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*, it means that your network adapter did not receive an IP address from the DHCP server. 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.



```
Administrator: C:\Windows\system32\cmd.exe
C:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::912e:7e75:5d2c:aef%11
    IPv4 Address. . . . . : 192.168.69.150
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.69.1

Tunnel adapter isatap.{B2B1AEE6-C39F-447B-8462-50015D054EC6}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter Local Area Connection* 9:

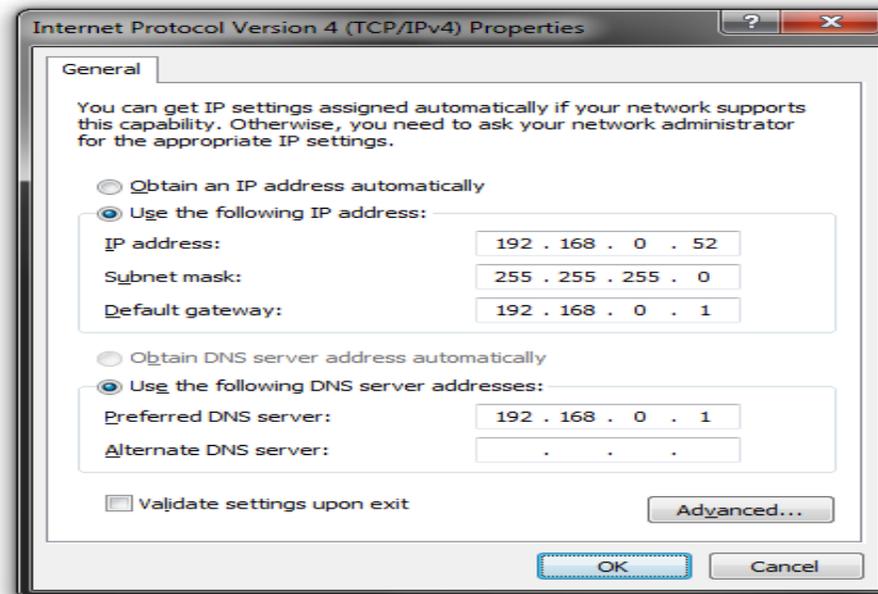
    Connection-specific DNS Suffix  . : 
    IPv6 Address. . . . . : 2001:0:4137:9e76:f8:351d:3f57:ba69
    Link-local IPv6 Address . . . . . : fe80::f8:351d:3f57:ba69%18
    Default Gateway . . . . . : ::

C:\>_
```

### 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:

- Click on the Windows **Start** button and navigate to the **Control Panel > Network and Sharing Center** and click on the **Change Adapter Settings** option on the left panel.
- Right-click on the **Local Area Connection**, which represents your network adapter, and selects **Properties**.
- Select the **Internet Protocol Version 4 (TCP/IPv4)** option and click on the **Properties** button.
- Select **Use the following IP address** and enter an IP address that is on the same subnet as your router. For example: If your router is running on the IP address of **192.168.1.1**, use any IP address from **192.168.1.2** to **192.168.69.254**. Use the Subnet Mask of **255.255.255.0**. Set Default Gateway the same as the LAN IP address of your router. Set Preferred DNS server IP address the same as the LAN IP address of your router. The Secondary DNS is not needed at this stage.
- Click the **OK** button twice to return to the **Network Connections** window.



## Wireless Basics

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 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.

### **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, we have 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 Wireless 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 your next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the router. Refer to product manual for detail information on how to set it up.

## **Wireless Modes**

There are basically two modes of networking:

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

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

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

## **Wireless Security**

This section will show you the different levels of security you can use to protect your data from intruders. The router offers wireless security options like WPA/WPA2 PSK/EAP.

### **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.

## Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the D-Link DMG-112A. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® 7. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

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

When entering the IP address of the D-Link DMG-112A N300 Wireless range extender, 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® 7.0 and higher
  - Mozilla Firefox 3.5 and higher
  - Google™ Chrome 8.0 and higher
  - Apple Safari 4.0 and higher
- Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.
- Disable any Internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® 7 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**.
  - 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 DMG-112A N300 Wireless range extender 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 D-Link DMG-112A N300 Wireless range extender 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.

### Why can't I get an Internet connection?

- Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.
- Check that the LED indicators on the remote wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP Address, subnet mask, gateway, and DNS settings are correctly entered for the network.

- In Infrastructure mode, make sure the same Service. Set. Identifier (SSID) is specified on the settings for the D-Link DMG-112A N300 Wireless range extender and access points.

### **What can I do if I forgot my web UI login password?**

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

To reset the device, locate the reset button on the front panel of the unit. With the device powered on, press and hold the button down for 4-6 seconds. Release the button and the device will go through its reboot process. Wait about 30 seconds to access the device. The default IP address is **192.168.0.50**. When logging in, the username is **'admin'** and the password is **'admin'**.

## **Note**

Computer USB output of the 5V/500mA is not up to the requirements of power equipment 5V/1A, unable to make the equipment normal use, if forced to use can damage the equipment.

## **FCC Radiation Exposure Statement**

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation 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.

## **Caution!**

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

# Technical Specifications

## Hardware Specifications

Wireless Interface (2.4GHz): IEEE 802.11b/g/n

- Combined WPS/Reset button
- LEDs: Status and Signal Strength

## Operating Voltage

- Input: 5V, 1A

## Temperature

- Operating: 32°F~104°F (0°C~40°C)
- Non-Operating: -4°F~149°F (-20°C~65°C)

## Humidity

- Operating: 10%~90% non-condensing
- Non-Operating: 5%~95% non-condensing

## Wireless Frequency Range

- IEEE 802.11b: 2400 MHz~2497 MHz
- IEEE 802.11g: 2400 MHz~2497 MHz
- IEEE 802.11n: 2400 MHz~2497 MHz

## Wireless Bandwidth Rate

- IEEE 802.11b: 11, 5.5, 2, and 1 Mbps
- IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, and 6 Mbps

- IEEE 802.11gn: 6.5 to 300 Mbps

## Wireless Channel Numbers

- IEEE 802.11b: Channels 1~11 (USA), 1~13 (Europe), 1~14 (Japan)
- IEEE 802.11g: Channels 1~11 (USA), 1~13 (Europe), 1~14 (Japan)
- IEEE 802.11n: Channels 1~11 (USA), 1~13 (Europe), 1~14 (Japan), Channels 36~64

## Antenna Type

- Two Internal Antennas

## Wireless Security

- WEP 64/128bit, WPA/WPA2-Personal, WPS(PBC)

## Certifications

- FCC, CE, NCC, CCC, CB.

## Dimensions & Weight

- 20 x 60 x 26 mm (0.94 x 2.36 x 1.02 inches)
- 20 grams (0.044 lbs)