D-Link®

User Manual

DAP-1650 Wireless AC1200 Dual-band Gigabit Range Extender

DAP-1650

Table of Contents

Product Overview
Package Contents

DAP-1650 Wireless AC1200 Dual Band Gigabit Cloud Router
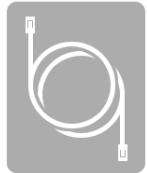
Ethernet Cable

Power Adapter

WI-FI Configuration Note

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 DAP-1650 will cause damage and void the warranty for this product.*

System Requirements

Network Requirements	• An Ethernet-based Network • IEEE 802.11ac/n/g/b/a wireless network (AP/Bridge/Repeater Mode) • 10/100/1000 Ethernet
Web-based Configuration Utility Requirements	**Computer with the following:** • Windows®, Macintosh, or Linux-based operating system • An installed Ethernet adapter **Browser Requirements:** • Internet Explorer® 7.0 or higher • Mozilla Firefox 12.0 or higher • Google™ Chrome 20.0 or higher • Apple Safari 4.0 or higher **Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.

Introduction

D-Link, an industry leader in networking, introduces the new D-Link DAP-1650 Wireless AC1200 Dual-band Gigabit Range Extender. With the ability to transfer files with a maximum combined wireless signal rate of up to 1200 Mbps[1], the DAP-1650 gives you high-speed wireless network access for your home or office.

The DAP-1650 is compliant with the latest draft IEEE 802.11ac standard, meaning that it can connect and inter-operate with other 802.11ac compatible wireless client devices. The DAP-1650 is also backwards compatible with 802.11b/g/n devices. It can be flexibly configured to operate in 3 different modes: **Access Point**, **Media Bridge**, and **Repeater**. With its setup wizard, the DAP-1650 ensures that you will be up and running on a wireless network in just a matter of minutes.

The DAP-1650 features Wi-Fi Protected Access (WPA-PSK/WPA2-PSK) to provide an enhanced level of security for wireless data communications. The DAP-1650 also includes additional security features to keep your wireless connection safe from unauthorized access.

The DAP-1650 also supports Wi-Fi Protected Setup (WPS), repeater and wireless client operation modes each capable of being conveniently set up by using the PIN or Push Button methods.

[1] Maximum wireless signal rate derived from draft 802.11ac 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. Wireless range and speed rates are D-Link RELATIVE performance measurements based on the wireless range and speed rates of a standard Wireless N product from D-Link.

Features

- **Faster Wireless Networking -** The DAP-1650 provides combined wireless speeds of up to 1200 Mbps[1] . This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio.

- **Flexible Operation Modes -** The DAP-1650 can operate as an Access Point, Repeater, and Media Bridge, meaning that you can customize its operation to suit your specific networking requirements.

- **Gigabit Ethernet Ports** - The built-in Gigabit Ethernet ports facilitate a wired connection of up to 1 Gbps, meaning that wired devices can also take advantage of the DAP-1650's high-speed wireless capabilities.

- **Compatible with IEEE 802.11n/g/b/a Devices -** The DAP-1650 is still fully compatible with the 802.11n/g/b/a standards, so it can connect with existing wireless adapters found on older devices.

- **Robust Security -** Use WPS (Wi-Fi Protected Setup) to create a secure connection to new devices in a matter of seconds by simply pushing a button or entering a PIN. There's also WPA/WPA2 security encryption, allowing you to customize your network's security.

- **User-friendly Setup Wizard -** Through its easy-to-use web-based user interface, the DAP-1650 lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your access point to your specific settings within minutes.

[1] Maximum wireless signal rate derived from draft 802.11ac 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. Wireless range and speed rates are D-Link RELATIVE performance measurements based on the wireless range and speed rates of a standard Wireless N product from D-Link.
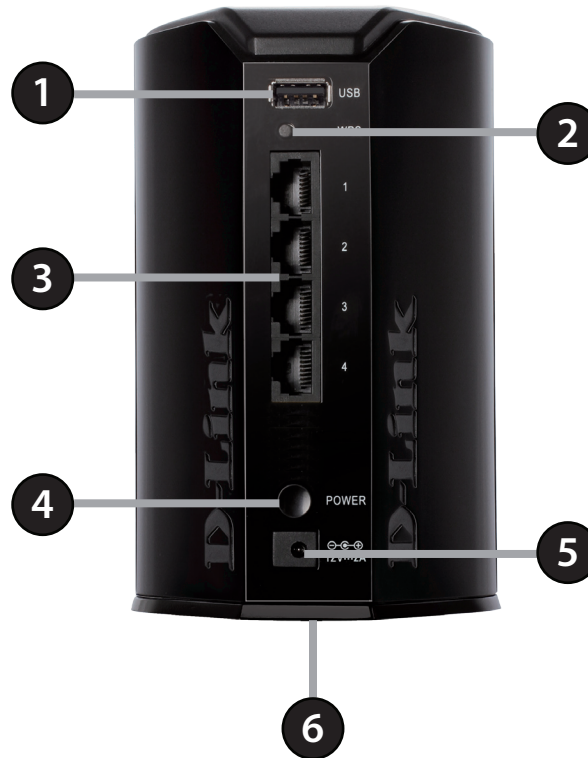
Hardware Overview
Connections

1	**USB Port**	Connect a USB storage device to enable network wide access.
2	**WPS Button**	Use WPS (Wi-Fi Protected Setup) to easily create a secure connection to new devices.
3	**LAN Ports**	Connect 10/100/1000 Ethernet devices such as computers, switches, and hubs.
4	**Power Switch**	Press to turn power to the unit on or off.
5	**Power Receptor**	Receptor for the supplied power adapter.
6	**Reset Button (base)**	Press the reset button to return the device back to it's factory conditions.

Hardware Overview
LEDs
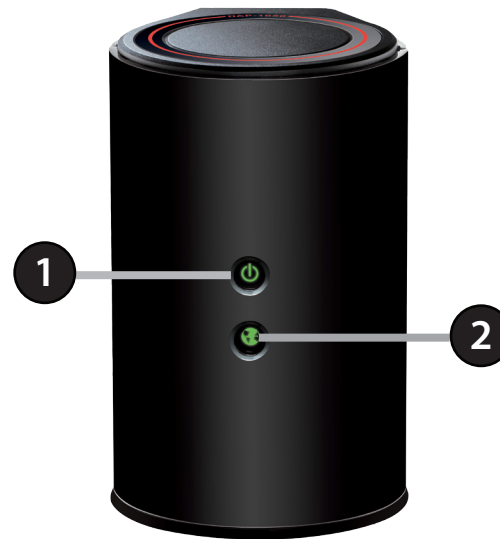
1	**Power LED**	A solid green light indicates a proper connection to the power supply. The light will blink green during the WPS process. The light will blink orange during boot up.
2	**Internet LED**	A solid light indicates connection on the Internet port. If the LED is orange, the connection is good but the access point cannot connect to the Internet.

Installation

Please configure the DAP-1650 with a computer connected directly to the device. The following pages will explain the different operational modes you can use.

Operation Modes

The DAP-1650 features three operation modes, enabling you to customize it to your networking requirements. Please refer to the following sections to determine which mode is most suitable for your network.

- Access Point mode - page 11
- Repeater mode - page 12
- Media Bridge mode - page 13

Access Point Mode

Access Point (AP) mode adds wireless capability to your existing wired network. The DAP-1650 acts as a central connection point for any computer (client) that has an 802.11ac or backwards compatible 802.11n/g/b/a wireless network interface and is within range of the access point. Clients must connect to the network name (SSID) broadcast by the access point in order to wirelessly access the network. If wireless security is enabled on the access point, the client will need to enter a password to connect. In Access Point mode, multiple clients can connect wirelessly to the network at the same time.

AP Mode

Internet   Router   DAP-1650

Wireless Devices
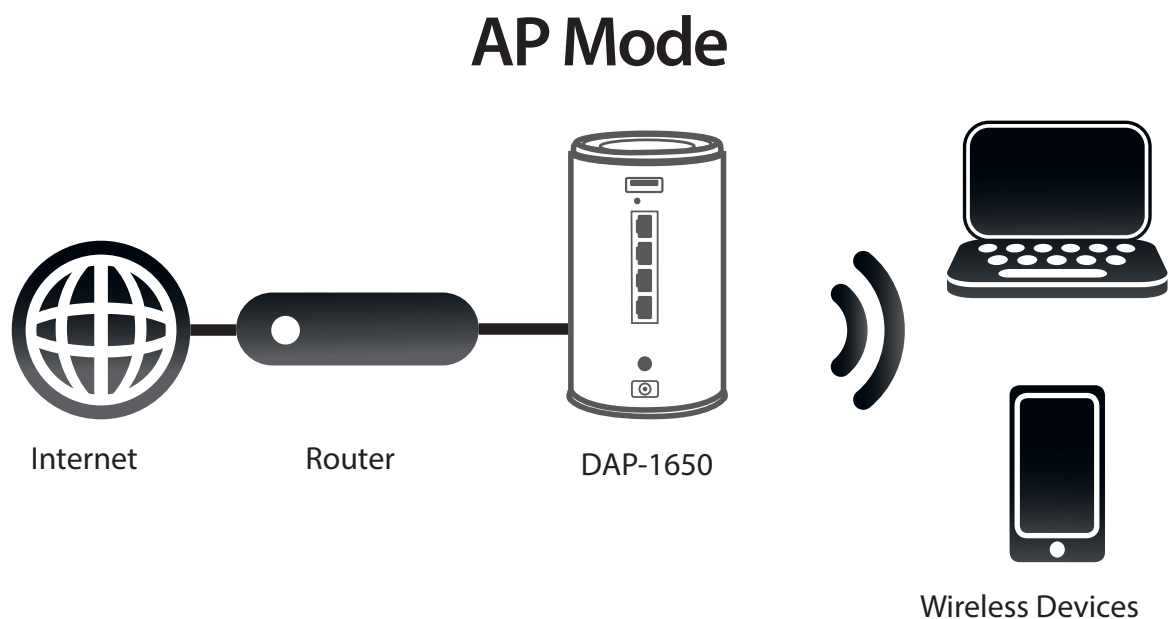
Repeater Mode

In Repeater mode, the DAP-1650 extends the range of your existing wireless network by repeating the wireless signal of another access point or wireless router. The DAP-1650 and wireless router (if used) must be within range of each other. The extended wireless network can use the same SSID and security settings as the existing network, or you can choose to specify a new network name and security method.

Repeater Mode

Internet   Wireless
                  Router   DAP-1650
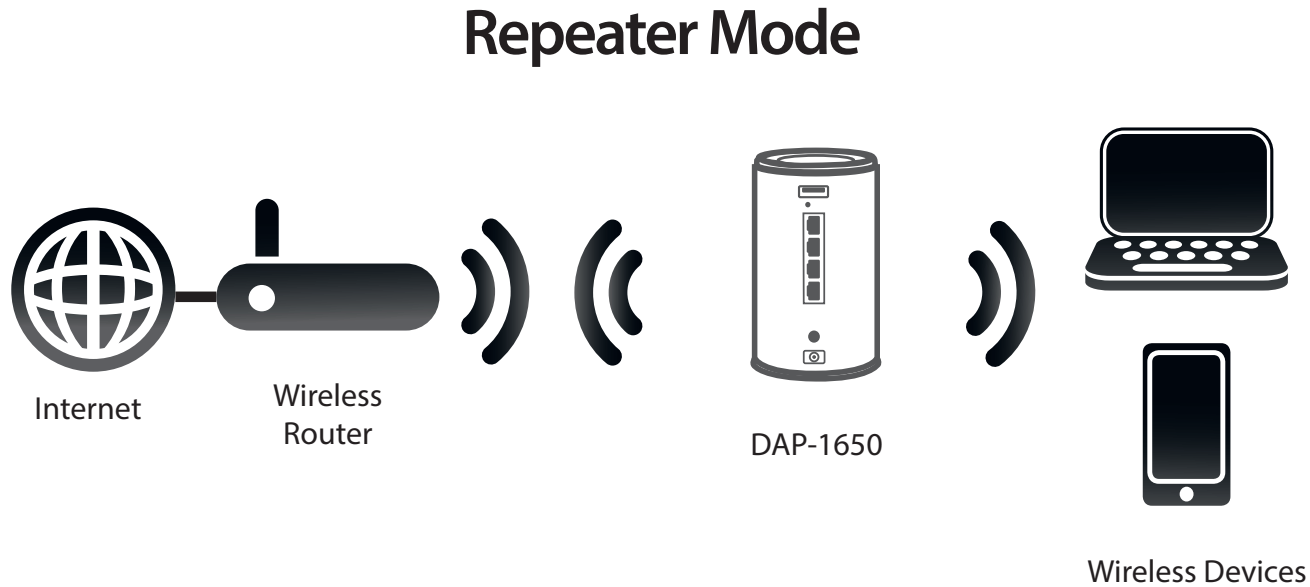
                                                              Wireless Devices

Media Bridge Mode

In Media Bridge mode, the DAP-1650 creates a wireless link between two existing networks, and enables you to attach a wired device to a wireless network.The two networks must be within wireless reach of one another in order for bridge mode to be effective.

Media Bridge Mode

Internet   Router/   DAP-1650   Gaming console
                Switch

Wireless Installation Considerations

The DAP-1650 wireless access point lets you access your network using a wireless connection from virtually anywhere within the operating range of the device. 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:

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

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

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

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

- 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 also be affected. 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.

Configuration
SharePort Mobile App (iOS, Android)

The SharePort Mobile app will allow you to access files from a USB storage drive that is plugged into your router. You must enable file sharing from the **Setup** > **Storage** page (refer to page 22) for this app to work properly.

1. Plug your USB storage drive into the USB port.

   Note: The DAP-1650 supports hard drives with up to one terabyte of storage capacity.

USB port
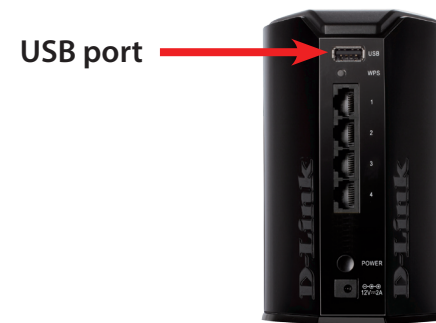
2. Use your iOS or Android mobile device to scan the QR code to the right to download the **SharePort Mobile** app.

   You can also search for the SharePort Mobile app directly in the iOS App Store or Google Play.

iOS   **Android**

3. From your iOS or Android mobile device, choose **Settings.**

   Note: These steps are for the iOS version of the app. The Android version may differ slightly.

Settings

QRS Mobile App Setup

The DAP-1650 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).**

Web-based Configuration Utility

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

If you wish to change the default settings or adjust the configuration of the DAP-1650, you may use the web-based configuration utility.

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

Select **Admin** from the drop-down menu and then enter your password. Leave the password blank by default.
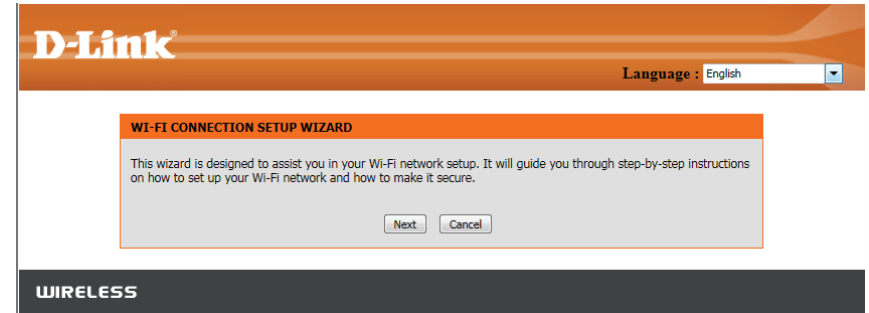
If you get a *Page Cannot be Displayed* error, please refer to "Troubleshooting" on page 90 for assistance.
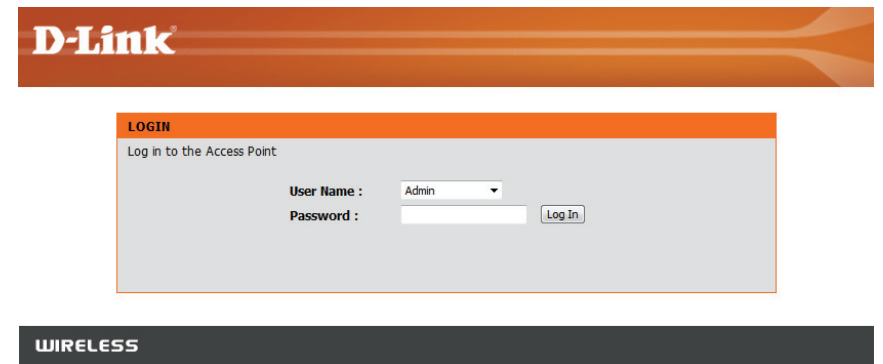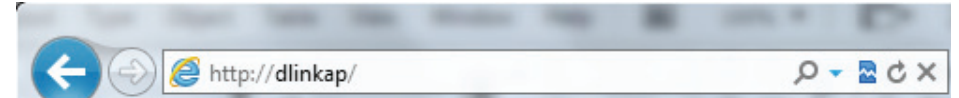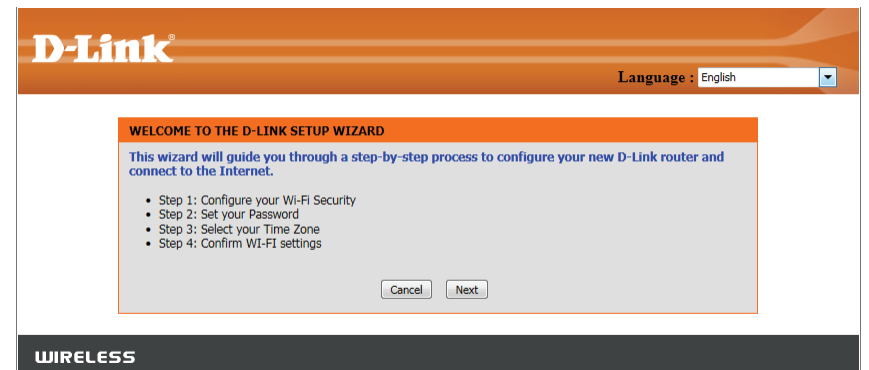
Wireless Setup Wizard

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

If you want to configure the access point manually without running the wizard, skip to "Manual Configuration" on page 26.

Click **Next** to continue.

Access Point Mode

This wizard is designed to assist you in configuring your DAP-1650 as an access point.

Select **Access Point** from the drop-down menu. Then, click **Next** to continue.

This screen will help you to set a network name (SSID) and security password for your wireless network. Specify an SSID for both the 2.4 GHz and 5 GHz bands (these names must not be the same). It is possible to use the same wireless security password for both networks. If you wish to use a different password for each network (recommended) enter the desired passwords in the **2.4 GHz Wi-Fi Password** and **5 GHz Wi-Fi Password** fields.

Click **Next** to continue.

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

Check the **Enable Graphical Authentication** box to enable CAPTCHA authentication for added security. Click **Next** to continue.

SET YOUR PASSWORD

By default, your new D-Link Router does not have a password configured for administrator access to the Web-based configuration pages. To secure your new networking device, please set and verify a password below:

Password :

Verify Password :

Enable Graphical Authentication :

Cancel   Prev   Next

Select your time zone from the drop-down menu and click **Next** to continue.

SELECT YOUR TIME ZONE

Select the appropriate time zone for your location. This information is required to configure the time-based options for router.

Time Zone : (GMT+08:00) Taipei

Cancel   Prev   Next

A summary page will be displayed, showing the current settings for your 2.4 GHz and 5 GHz wireless networks. It is recommended that you make a note of this information for future reference.

Click **Finish** to save your network settings.

In order for your network settings to take effect AP will reboot automatically.

When the device has finished rebooting the main screen will display.

A dialog box will appear asking if you wish to save the address for the web-based configuration utility in your browser's bookmarks. Click **OK** to save and you will be taken to your browser's bookmark settings to save the address. Click **Cancel** to continue without saving a bookmark.

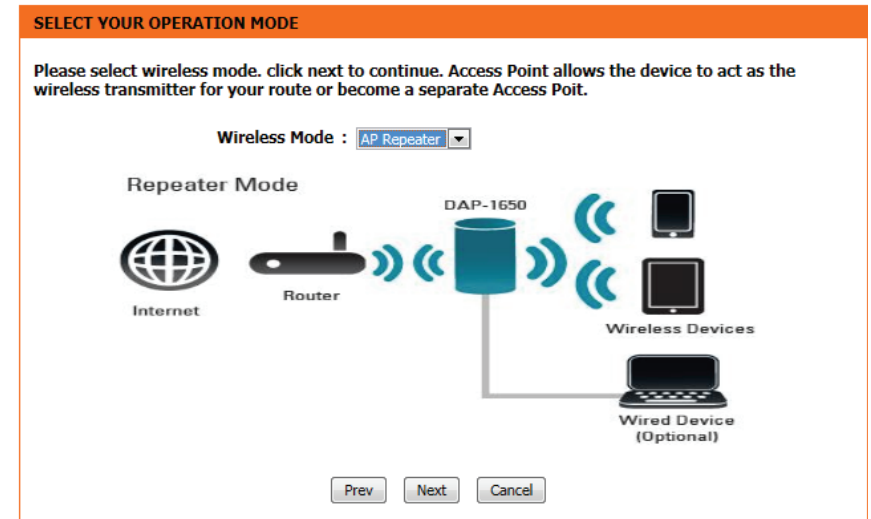In order for your network settings to take effect the AP will reboot automatically.

When the device has finished rebooting the main screen will display.
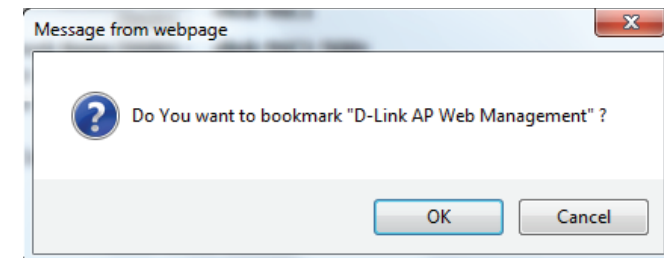
Repeater Mode

This wizard is designed to assist you in configuring your DAP-1650 as a repeater to extend the range of your existing wireless network.

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

This screen will help you to set a network name (SSID) and security password for your wireless network. Specify an SSID for both the 2.4 GHz and 5 GHz bands (these names must not be the same). It is possible to use the same wireless security password for both networks. If you wish to use a different password for each network (recommended) enter the desired passwords in the **2.4 GHz Wi-Fi Password** and **5 GHz Wi-Fi Password** fields.

Click **Next** to continue.

The wizard will scan for available wireless networks.

SELECT WI-FI NETWORK

Scanning to available Wi-Fi network...

[Prev] [Cancel] [Finish]

Select the network you wish to extend and click **Next**.

SELECT WI-FI NETWORK

SSID	BSSID	Channel	Type	Encrypt	Signal	Select
07869-5	00:18:e7:95:68:ab	48 (A+N)	AP	WPA-PSK (aes/tkip)/WPA2-PSK(aes/tkip)	100	○
D-Link	1c:bd:b9:c3:8f:40	149 (A+N)	AP	no	71	○
SWSWSW	00:94:e4:cd:d8:06	157 (A+N)	AP	WPA-PSK (aes/tkip)/WPA2-PSK(aes/tkip)	67	○
dlink1	fc:75:16:76:73:00	149 (A+N)	AP	no	65	○
dlink2	fc:75:16:76:73:01	149 (A+N)	AP	no	63	○

Enter your password for that wireless network and click **Next**.

ENTER WI-FI PASSWORD

Please enter Wi-Fi Password to establish wireless connection.

Wi-Fi Password : passw0rd

[Prev] [Next] [Cancel]

A summary page will be displayed, showing the current settings for your 2.4 GHz and 5 GHz wireless networks. It is recommended that you make a note of this information for future reference.

Click **Finish** to save your network settings.

In order for your network settings to take effect the AP will reboot automatically.

When the device has finished rebooting the main screen will display.

CONFIRM WI-FI SETTINGS(2.4G)

Below is a detailed summary of your Wi-Fi security settings. Please print this page out, or write the information on a piece of paper,so you can configure the correct settings on your Wi-Fi devices.

Wi-Fi Network Name (SSID) : dlink-B7E4

Wi-Fi Password : yxrea33028

CONFIRM WI-FI SETTINGS(5G)

Wi-Fi Network Name (SSID) : dlink-B7E4-5GHz

Wi-Fi Password : yxrea33028

CONFIRM WI-FI SETTINGS(REPEATER)

Wi-Fi Network Name (SSID) : _top_of_the_list

Wi-Fi Password : passw0rd
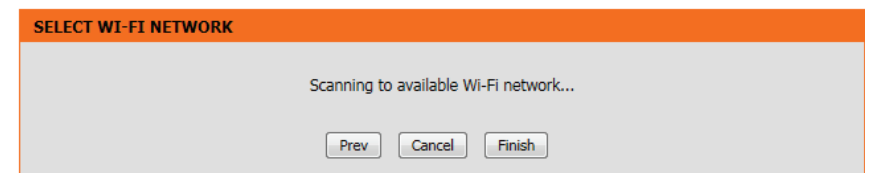
[Cancel] [Prev] [Finish]

Media Bridge Mode

This wizard is designed to assist you in configuring your DAP-1650 as a media bridge to extend the range of your existing wireless network. This mode is particularly useful for attaching a wired device to a wireless network.

Select **Media Bridge** from the drop-down menu.
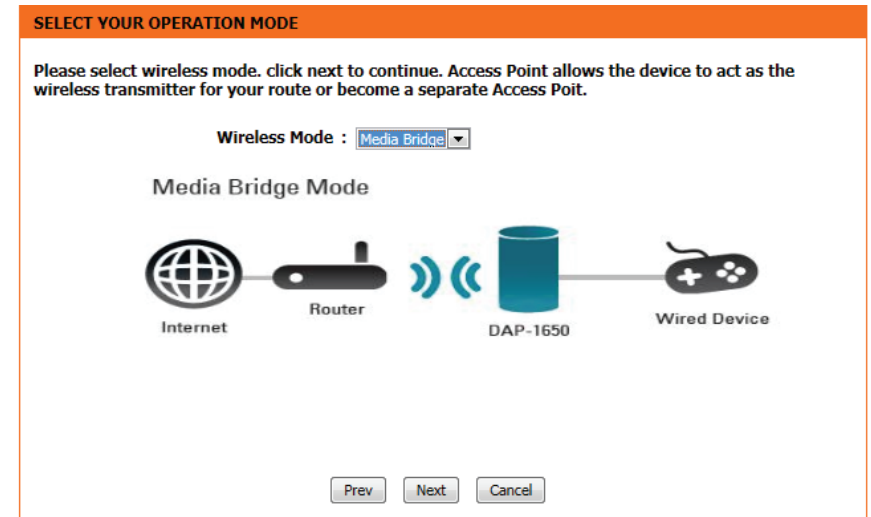
The wizard will scan for available wireless networks.

Select the network you wish to extend and click **Next**.

SSID	BSSID	Channel	Type	Encrypt	Signal	Select
07869-5	00:18:e7:95:68:ab	48 (A+N)	AP	WPA-PSK (aes/tkip)/WPA2-PSK(aes/tkip)	100	○
D-Link	1c:bd:b9:c3:8f:40	149 (A+N)	AP	no	71	○
SWSWSW	00:94:e4:cd:d8:06	157 (A+N)	AP	WPA-PSK (aes/tkip)/WPA2-PSK(aes/tkip)	67	○
dlink1	fc:75:16:76:73:00	149 (A+N)	AP	no	65	○
dlink2	fc:75:16:76:73:01	149 (A+N)	AP	no	63	○

Enter your password for that wireless network and click **Next**.

A summary page will be displayed, showing the current settings for your wireless network. It is recommended that you make a note of this information for future reference.

Click **Finish** to save your network settings.

In order for your network settings to take effect the AP will reboot automatically.

When the device has finished rebooting the main screen will display.

Manual Configuration
Wireless Settings

You may also manually configure your DAP-1650 instead of running the setup wizard. Please refer to the following pages for detailed instructions on how to manually configure the DAP-1650 for your desired operation mode.

Access Point Mode

2.4 GHz Band

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

Enable Wireless: Check the box to enable the wireless function for the **2.4 GHz** band. If you do not want to use wireless, uncheck the box to disable all wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule. By default, the schedule is set to **Always**.

Wireless Network Name: Specify a network name (SSID) to identify the 2.4 GHz network. This is the network name that wireless clients will search for when connecting to your wireless network.

802.11 Mode: Select one of the following:
802.11n Only - Select if you are only using 802.11n wireless clients.
Mixed 802.11n and 802.11g - Select if you are using a mix of 802.11n and 802.11g wireless clients.
Mixed 802.11n, 802.11g and 802.11b - Select if you are using a mix of 802.11n, 802.11g, and 802.11b wireless clients.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DAP-1650 to automatically choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1650. The channel can be changed to fit the channel setting for an existing wireless network or to reduce interference in congested areas. If you enable **Auto Channel Scan**, this option will not be available.

Transmission Rate: Use the drop-down menu to select the appropriate transmission rate in Mbits per second. Many users will want to use the default setting, **Best (automatic)**.

WIRELESS MODE SETTINGS

Wireless Mode : Access Point ▼

WIRELESS NETWORK SETTINGS

Wireless Band : 2.4GHz Band
Enable Wireless : ☑ Always ▼ New Schedule
Wireless Network Name : dlink-B7E4 (Also called the SSID)
802.11 Mode : Mixed 802.11n, 802.11g and 802.11b ▼
Enable Auto Channel Scan : ☑
Wireless Channel : 2.412 GHz - CH 1 ▼
Transmission Rate : Best (automatic) ▼ (Mbit/s)
Channel Width : 20/40 MHz(Auto) ▼
Visibility Status : ⦿ Visible ◯ Invisible

WIRELESS SECURITY MODE

Security Mode : WPA-Personal ▼

Channel Width: Select the channel width:

Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.

Visibility Status: **20 MHz** - Select if you are not using any 802.11n wireless clients. Select whether you would like the network name (SSID) of your wireless network to be **Visible** or **Invisible** to wireless clients. If **Invisible**, the SSID of the DAP-1650 will not be seen by site survey utilities, so wireless clients will have to manually enter the SSID of your wireless network in order to connect to it.

Security Mode: For information on how to set up wireless security, please refer to "Configuring Wireless Security" on page 36.

5 GHz Band

Enable Wireless: Check the box to enable the wireless function for the **5 GHz** band. If you do not want to use wireless, uncheck the box to disable all wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule. By default, the schedule is set to **Always**.

Wireless Network Name: Specify a network name (SSID) to identify the 5 GHz network. This is the network name that wireless clients will search for when connecting to your wireless network. This name should be different to that of the 2.4 GHz network configured above.

802.11 Mode: Select one of the following:

802.11a Only - Select if you are only using 802.11a wireless clients.

802.11n Only - Select if you are only using 802.11n wireless clients.

Mixed 802.11n and 802.11a - Select if you are using a mix of 802.11n and 802.11a wireless clients.

802.11ac Only - Select if you are only using 802.11ac wireless clients.

Mixed 802.11ac and 802.11n - Select if you are using a mix of 802.11ac and 802.11n wireless clients.

Mixed 802.11ac, 802.11n and 802.11a - Select if you are using a mix of 802.11ac, 802.11n, and 802.11a wireless clients.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DAP-1650 to automatically choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1650. The channel can be changed to fit the channel setting for an existing wireless network or to reduce interference in congested areas. If you enable **Auto Channel Scan**, this option will not be available.

WIRELESS NETWORK SETTINGS

Wireless Band : 5GHz Band
Enable Wireless : ☑ Always ▼ New Schedule
Wireless Network Name : dlink-B7E4-5GHz (Also called the SSID)
802.11 Mode : Mixed 802.11ac, 802.11n and 802.11a ▼
Enable Auto Channel Scan : ☑
Wireless Channel : 5.180 GHz - CH 36 ▼
Transmission Rate : Best (automatic) ▼ (Mbit/s)
Channel Width : 20/40/80 MHz(Auto) ▼
Visibility Status : ◉ Visible ◯ Invisible

WIRELESS SECURITY MODE

Security Mode : WPA-Personal ▼

Transmission Rate: Use the drop-down menu to select the appropriate transmission rate in Mbits per second. Many users will want to use the default setting, **Best (automatic)**.

Channel Width: Select the channel width:
Auto 20/40/80 - Select this option if you are using a combination of 802.11ac, 802.11n, and other wireless devices.
Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.
20 MHz - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select whether you would like the network name (SSID) of your wireless network to be **Visible** or **Invisible** to wireless clients. If **Invisible**, the SSID of the DAP-1650 will not be seen by site survey utilities, so wireless clients will have to manually enter the SSID of your wireless network in order to connect to it.

Security Mode: For information on how to set up wireless security, please refer to "Configuring Wireless Security" on page 36.

Click **Save Settings** at the bottom of the page to save the current configuration.

WIRELESS NETWORK SETTINGS

Wireless Band : 5GHz Band
Enable Wireless : ☑ Always ▼ New Schedule
Wireless Network Name : dlink-B7E4-5GHz (Also called the SSID)
802.11 Mode : Mixed 802.11ac, 802.11n and 802.11a ▼
Enable Auto Channel Scan : ☑
Wireless Channel : 5.180 GHz - CH 36 ▼
Transmission Rate : Best (automatic) ▼ (Mbit/s)
Channel Width : 20/40/80 MHz(Auto) ▼
Visibility Status : ◉ Visible ◯ Invisible

WIRELESS SECURITY MODE

Security Mode : WPA-Personal ▼

Repeater Mode

Repeater mode re-broadcasts the wireless signal of an existing network to increase coverage. The existing wireless signal can be repeated by the DAP-1650 using both the 2.4 GHz and 5 GHz bands.

2.4 GHz Band

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

Enable Wireless: Check the box to enable the wireless function for the **2.4 GHz** band. If you do not want to use wireless, uncheck the box to disable all wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule. By default, the schedule is set to **Always**.

Wireless Network Name: Specify a network name (SSID) to identify the 5 GHz network. This is the network name that wireless clients will search for when connecting to your wireless network. This name should be different to that of the 2.4 GHz network configured above.

802.11 Mode: Select one of the following:
802.11a Only - Select if you are only using 802.11a wireless clients.
802.11n Only - Select if you are only using 802.11n wireless clients.
Mixed 802.11n and 802.11a - Select if you are using a mix of 802.11n and 802.11a wireless clients.
802.11ac Only - Select if you are only using 802.11ac wireless clients.
Mixed 802.11ac and 802.11n - Select if you are using a mix of 802.11ac and 802.11n wireless clients.
Mixed 802.11ac, 802.11n and 802.11a - Select if you are using a mix of 802.11ac, 802.11n, and 802.11a wireless clients.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DAP-1650 to automatically choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1650. The channel can be changed to fit the channel setting for an existing wireless network or to reduce interference in congested areas. If you enable Auto Channel Scan, this option will not be available.

Transmission Rate: Use the drop-down menu to select the appropriate transmission rate in Mbits per second. Many users will want to use the default setting, *Best (automatic)*.

Channel Width: Select the channel width:
Auto 20/40/80 - Select this option if you are using a combination of 802.11ac, 802.11n, and other wireless devices.
Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.
20 MHz - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select whether you would like the network name (SSID) of your wireless network to be **Visible** or **Invisible** to wireless clients. If **Invisible**, the SSID of the DAP-1650 will not be seen by site survey utilities, so wireless clients will have to manually enter the SSID of your wireless network in order to connect to it.

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

Security Mode: For information on how to set up wireless security, please refer to "Configuring Wireless Security" on page 36.

Click **Save Settings** at the bottom of the page to save the current configuration.

5 GHz Band

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

Enable Wireless: Check the box to enable the wireless function for the **5 GHz** band. If you do not want to use wireless, uncheck the box to disable all wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule. By default, the schedule is set to **Always**.

Wireless Network Name: Specify a network name (SSID) to identify the 5 GHz network. This is the network name that wireless clients will search for when connecting to your wireless network. This name should be different to that of the 2.4 GHz network configured above.

802.11 Mode: Select one of the following:
802.11a Only - Select if you are only using 802.11a wireless clients.
802.11n Only - Select if you are only using 802.11n wireless clients.
Mixed 802.11n and 802.11a - Select if you are using a mix of 802.11n and 802.11a wireless clients.
802.11ac Only - Select if you are only using 802.11ac wireless clients.
Mixed 802.11ac and 802.11n - Select if you are using a mix of 802.11ac and 802.11n wireless clients.
Mixed 802.11ac, 802.11n and 802.11a - Select if you are using a mix of 802.11ac, 802.11n, and 802.11a wireless clients.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DAP-1650 to automatically choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DAP-1650. The channel can be changed to fit the channel setting for an existing wireless network or to reduce interference in congested areas. If you enable **Auto Channel Scan**, this option will not be available.

WIRELESS NETWORK SETTINGS

Wireless Band : 5GHz Band
Enable Wireless : ☑ Always ▼ New Schedule
Wireless Network Name : dlink-B7E4-5GHz (Also called the SSID)
802.11 Mode : Mixed 802.11ac, 802.11n and 802.11a ▼
Enable Auto Channel Scan : ☑
Wireless Channel : 5.180 GHz - CH 36 ▼
Transmission Rate : Best (automatic) ▼ (Mbit/s)
Channel Width : 20/40/80 MHz(Auto) ▼
Visibility Status : ◉ Visible ○ Invisible

WIRELESS SECURITY MODE

Security Mode : WPA-Personal ▼

Transmission Rate: Use the drop-down menu to select the appropriate transmission rate in Mbits per second. Many users will want to use the default setting, **Best (automatic)**.

Channel Width: Select the channel width:
Auto 20/40/80 - Select this option if you are using a combination of 802.11ac, 802.11n, and other wireless devices.
Auto 20/40 - Select if you are using both 802.11n and non-802.11n wireless devices.
20 MHz - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select whether you would like the network name (SSID) of your wireless network to be **Visible** or **Invisible** to wireless clients. If **Invisible**, the SSID of the DAP-1650 will not be seen by site survey utilities, so wireless clients will have to manually enter the SSID of your wireless network in order to connect to it.

Security Mode: For information on how to set up wireless security, please refer to "Configuring Wireless Security" on page 36.

Click **Save Settings** at the bottom of the page to save the current configuration.

WIRELESS NETWORK SETTINGS

Wireless Band : 5GHz Band
Enable Wireless : ☑ Always ▼ New Schedule
Wireless Network Name : dlink-B7E4-5GHz (Also called the SSID)
802.11 Mode : Mixed 802.11ac, 802.11n and 802.11a ▼
Enable Auto Channel Scan : ☑
Wireless Channel : 5.180 GHz - CH 36 ▼
Transmission Rate : Best (automatic) ▼ (Mbit/s)
Channel Width : 20/40/80 MHz(Auto) ▼
Visibility Status : ⦿ Visible ◯ Invisible

WIRELESS SECURITY MODE

Security Mode : WPA-Personal ▼

Media Bridge Mode

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

Site Survey: Click this button to scan for wireless networks. Select the wireless network you want the bridge to use and it's name will automatically be added to the Wireless Network Settings. All APs on the bridge must be using the same wireless channel.

Enable Wireless: Check the box to enable the wireless function for the **5 GHz** band. If you do not want to use wireless, uncheck the box to disable all wireless functions. You may also set up a specific time range (schedule). Select a schedule from the drop-down menu or click **Add New** to create a new schedule. By default, the schedule is set to **Always**.

Wireless MAC clone: Check the box to enable the MAC clone function.

MAC Source: Select **Auto** or **Manual** from the drop down menu to scan for the MAC address you wish to bridge. Select the MAC address from the scanned results and the MAC address will automatically be added.

Security Mode: For information on how to set up wireless security, please refer to "Configuring Wireless Security" on page 36.

Click **Save Settings** at the bottom of the page to save the current configuration.

Note: *The Bridge mode is not completely specified in the Wi-Fi or IEEE standards. This mode will work with other DAP-1650 units. Communication with other APs (even other D-Link APs) is not guaranteed.*

Configuring Wireless Security

Wireless security encryption prevents unauthorized users from accessing your wireless network. The DAP-1650 features two methods of wireless security encryption: Wired Equivalent Privacy (WEP), and Wi-Fi Protected Access (WPA). It is recommended that you use WPA security if your wireless devices support this standard, as it is more secure than the older WEP standard. For more details of wireless security standards, please refer to "Wireless Security" on page 76.

Note: Unless otherwise specified, the security configuration process is the same for both the 2.4 GHz and 5 GHz bands.

WEP

Security Mode: Select **WEP** from the drop-down menu.

WEP Encryption: The WEP standard offers two levels of encryption: 64-bit and 128-bit. Each level has the option of a key (password) consisting of either HEX digits or ASCII characters:
64Bit (10 hex digits) - Uses a key consisting of 10 hex digits (0-9, A-F).
64Bit (5 ascii characters) - Uses a key consisting of 5 ASCII characters (0-9, A-Z, plus symbols).
128Bit (26 hex digits) - Uses a key consisting of 26 hex digits (0-9, A-F).
128bit (13 ascii characters) - Uses a key consisting of 13 ASCII characters (0-9, A-Z, plus symbols).

WEP Key 1: Enter the desired WEP key (password) for your wireless network. The key should adhere to the requirements of WEP encryption method specified above.

Authentication: Select an authentication method from the drop-down menu

Click **Save Settings** at the bottom of the page to save the current configuration.

WPA-Personal

Security Mode: Select **WPA-Personal** from the drop-down menu.

WPA Mode: There are two versions of WPA supported by the DAP-1650: **WPA** and **WPA2**. It is recommended that you use **Auto(WPA or WPA2)** so that the WPA2 version will be used if connecting wireless clients support it.

Cipher Type: Choose a cipher type from the drop-down menu.

Pre-Shared Key: Enter the desired pre-shared key (password) for the wireless network. Wireless clients will need this key in order to connect to your wireless network.

Click **Save Settings** at the bottom of the page to save the current configuration.

2.4GHZ WIRELESS SECURITY SETTING :

Security Mode : WPA-Personal
WPA Mode : AUTO(WPA or WPA2)
Cipher Type : TKIP and AES
Pre-Shared Key : 1234567890

WPA-Enterprise

WPA-Enterprise uses a RADIUS authentication server to provide centralized authentication for wireless access. If you are missing any of the information required for this setup, please contact your network administrator.

Security Mode: Select **WPA-Enterprise** from the drop-down menu.

WPA Mode: There are two versions of WPA supported by the DAP-1650; **WPA** and **WPA2**. It is recommended that you use **Auto(WPA or WPA2)** so that the WPA2 version will be used if connecting wireless clients support it.

Cipher Type: Choose a cipher type from the drop-down menu.

RADIUS Server IP Address: Enter the IP address for your network's RADIUS authentication server.

Pre-Shared Key: Enter the port for the RADIUS authentication server.

Radius Server Shared Secret: Enter the shared secret required by the RADIUS authentication server.

2.4GHZ WIRELESS SECURITY SETTING :

Security Mode : WPA-Enterprise
WPA Mode : AUTO(WPA or WPA2)
Cipher Type : TKIP and AES
RADIUS Server IP Address : 0.0.0.0
RADIUS Server Port : 1812
RADIUS Server Shared Secret :
[Advanced]
Optional backup RADIUS server
Second RADIUS server IP Address : 0.0.0.0
Second RADIUS Server Port : 1812
Second RADIUS Server Shared Secret :

Advanced: Click on the **Advanced** button to display the setup options for an optional backup RADIUS server configuration.

Second RADIUS Server IP Address: Enter the IP address for your network's backup RADIUS authentication server.

Second Pre-Shared Key: Enter the port for the backup RADIUS authentication server.

Second Radius Server Shared Secret: Enter the shared secret required by the backup RADIUS authentication server.

Click **Save Settings** at the bottom of the page to save the current configuration.

Network Settings

The Network Settings page enables you to configure the Local Area Network (LAN) settings for the access point. From this page you can adjust your local network's IP address settings, and configure IPv6.

Device Name: You can change the name of your access point to make it easier to identify. Enter a name for the access point in the field provided. If you change the device name, you should use this name in your web browser address bar when trying to access the web-based configuration utility.
Example: http://devicename

LAN IPv4 Connection Type: Select how you would like to configure the access point's IP address settings from the drop-down menu:
Dynamic IP(DHCP) - The access point will request an IP address from the DHCP server that it is connected to.
Static IP - You can manually specify the IP address settings for the access point.

IP Address: Enter the IP address that you want to specify for the access point (Static IP only).

Subnet Mask: Enter the subnet mask to be used by the access point (Static IP only).

Gateway Address: Enter the default gateway address to be used by the access point (Static IP only).

Primary DNS Server: Enter the primary DNS server address to be used by the access point (Static IP only).

Secondary DNS Server: Enter the secondary DNS server address to be used by the access point (Static IP only).

Click **Save Settings** at the bottom of the page to save the current configuration.

DEVICE NAME

Device Name allows you to configure this device more easily. You can enter "http://device name" into your web browser instead of IP address for configuration. (Default: http://dlinkap)

Device Name : dlinkap

LAN IPV4 CONNECTION TYPE

Choose the IPv4 mode to be used by the Access Point.

My LAN Connection is : Dynamic IP (DHCP)

My IPv6 Connection is: Select **Link-Local Only** from the drop-down menu. This will set the access point's local IPv6 address.

LAN IPv6 Link-Local Address: The access point's local IPv6 address will be displayed here. This address should be used to access the web-based configuration utility through the IPv6 protocol.

Click **Save Settings** at the bottom of the page to save the current configuration.

IPV6 CONNECTION TYPE :

Choose the mode to be used by the AP to connect to the IPv6 Internet.

My IPv6 Connection is : Link-Local Only

LAN IPV6 ADDRESS SETTINGS :

Use this section to configure the internal network settings of your router. 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 :

My IPv6 Connection is: Select **Static IPv6** from the drop-down menu. This will allow you to assign a static IPv6 address to the access point.

LAN IPv6 Address: The router's local IPv6 address will be displayed here. This address should be used to access the web-based configuration utility through the IPv6 protocol.

Subnet Prefix Length: Enter the prefix length for IPv6 IP addresses on your network.

Default Gateway: Enter the default IPv6 gateway address for your network.

Primary DNS Server: Enter the primary IPv6 DNS server address for your network.

Secondary DNS Server: Enter the secondary IPv6 DNS server address for your network.

Click **Save Settings** at the bottom of the page to save the current configuration.

IPV6 CONNECTION TYPE :

Choose the mode to be used by the AP to connect to the IPv6 Internet.

My IPv6 Connection is : Static IPv6

LAN IPV6 ADDRESS SETTINGS :

Enter the information provided by your Internet Service Provider(ISP);

LAN IPv6 Address :
Subnet Prefix Length :
Default Gateway : undefined
Primary DNS Server :
Secondary DNS Server :

My IPv6 Connection is: Select **Autoconfiguration (SLAAC/DHCPv6)** from the drop-down menu. The access point will request IPv6 settings from a DHCPv6 server on your network.

IPv6 DNS Settings: You can select to have the access point automatically obtain DNS server settings from the DHCP server, or you can specify IPv6 DNS server settings to be used. If you select **Obtain IPv6 DNS automatically**, no further configuration is required.

Primary DNS Server: Enter the primary IPv6 DNS server address to be used.

Secondary DNS Server: Enter the secondary IPv6 DNS server address to be used.

Click **Save Settings** at the bottom of the page to save the current configuration.

IPV6 CONNECTION TYPE :

Choose the mode to be used by the AP to connect to the IPv6 Internet.

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

IPV6 DNS SETTINGS :

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

◯ **Obtain IPv6 DNS Server automatically**
◉ **Use the following IPv6 DNS Servers**

Primary DNS Server :
Secondary DNS Server :

Storage

This page allows the user to use a web browser to remotely access files stored on an SD card or USB storage drive plugged into the router. You can access storage device by http://shareport.local when you enable SharePort Web Access

The following parameters will be available for configuration:

Enable SharePort Web Access: Tick this option to enable the share port web access feature.

HTTP Access Port: Enter the HTTP Access Port number used here. By default, this value is 8181.

HTTPS Access Port: Enter the HTTPS Access Port number used here. By default, this value is 4433.

Allow Remote Access: Tick this option the allow remote access to this router.

In the **User Creation** section, the user can create and modify usernames and passwords.

The following parameters will be available for configuration:

User Name: In the **User Name** field we can enter the new username that will be created. Alternatively, if we want to modify an existing user account, select a username from the **drop-down** menu. It will automatically be added to the User Name field for modification.

Password: In the **Password** field, the user can enter the password that will be associated with the user account.

Verify Password: In the **Verify Password** field, the user can re-enter the password that will be associated with the user account.

Click the **Add/Edit** button the add a new user account or modify an existing account.

In the **User List** section, the user can modify or delete different user settings for each account.

The following parameters will be available in the display.

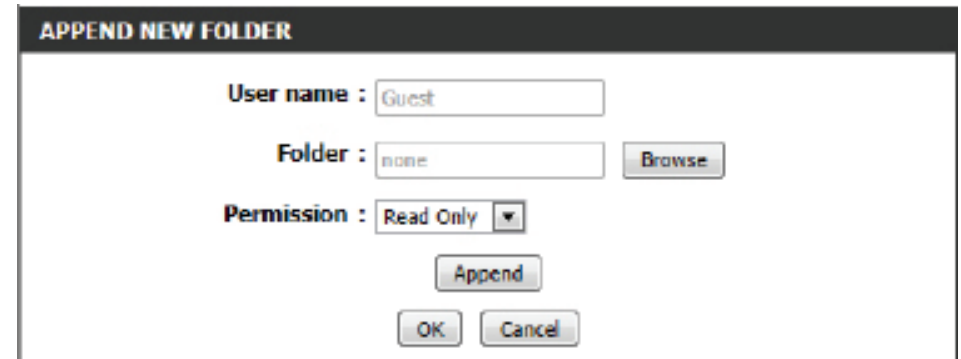|	
No.	Displays the number of the entry in the user list.
User Name:	Displays the user name of the entry in the list.
Access Path:	Displays the access path of the entry in the list.
Permission:	Displays the permission settings of the entry in the list.

Click the **Edit** icon to edit the access path and permission, for each user. Click the **Delete** icon to delete an account from the list.

After click on the **Edit** button, this window will appear.

The following parameters will be available for configuration:

User Name:	This field will display the current user name that will be modified.
Folder:	This filed will display the access path that this user will have access to, after logging in. Click the Browse button to navigate to a folder, located on the USB storage device.
Permission:	Here the user can select the appropriate permission setting for this user account. Permissions available for selection, from the drop-down menu are **Read Only** and **Read/Write**.

Read Only permission will only allow this account to read data stored on the USB storage device within the constrains of the access path specified. **Read/Write** permission will allow this account to read and write data to and from the USB storage device within the constrains of the access path specified.

Click the **Append** button to add a blank account with the access path and permission specified.
Click the **OK** button to accept the changes made for the existing account.
Click the **Cancel** button to discard the changes made.

In the **Number Devices** section, the user can view information about the external USB storage devices inserted into the USB port of this router.
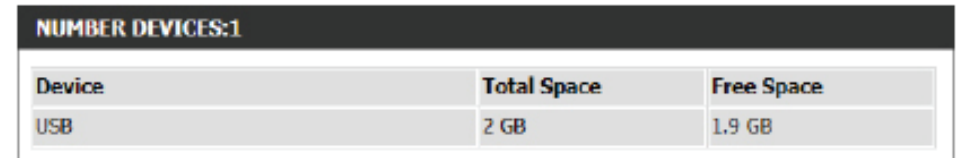
The following parameters will be available in the display

Number of Devices: This field will display the number of USB storage devices that are attached to the USB port of the router.

Device: This field will display the USB storage device's name.

Total Space: This field will display the total space that is available on the USB storage device attached.

Free Space: This field will display the free space that is available on the USB storage device attached.
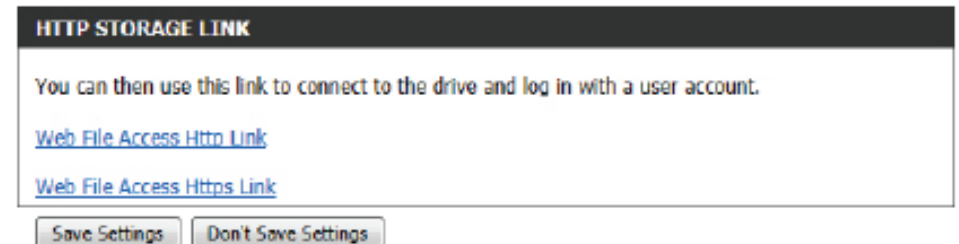
NUMBER DEVICES:1		
Device	Total Space	Free Space
USB	2 GB	1.9 GB

In the **HTTP Storage Link** section, the user can use this link to connect to the drive remotely after logging in with a user account.

Notice the path of the link(s) provided will point the external interface of this router. If no **DDNS** account is specified on the Dynamic DNS page, the WAN IP address will be used. If, however, a **DDNS** account is specified, then the domain name will be used.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

HTTP STORAGE LINK

You can then use this link to connect to the drive and log in with a user account.

Web File Access Http Link

Web File Access Https Link

Save Settings   Don't Save Settings

Media Server

This page will allow you to enable a DLNA Media Server or enable the iTunes Server. DLNA (Digital Living Network Alliance) is the standard for the interoperability of Network Media Devices (NMDs). The user can enjoy multimedia applications (music, pictures and videos) on your network connected PC or media devices. If you agree to share media with devices, any computer or device that connects to your network can play your shared music, pictures and videos.

Note: The shared media may not be secure. Allowing any devices to stream is recommended only on secure networks.

DLNA Server: Select whether to enable or disable the DLNA Media Server functions.

DLNA Server Name: Choose a name for your DLNA media server so that it can be found.

Folder: Choose the location of the folder you wish to share or check the box to use the root folder of the entire drive.

iTunes Server: Select whether to enable or disable the iTunes Server functions.

Folder: Choose the location of the iTunes Library folder you wish to share or check the box to use the root folder if it is located on the root folder of the connected drive.

Advanced

This section allows you to configure the advanced parameters of your DAP-1650. There will be different advanced features available for configuration based on the mode in which your device is operating. The instructions below are listed according to operation mode.

Access Point Mode

Access Control

MAC filtering allows you to control wireless access to your network according to clients' MAC addresses.

Configure MAC Filtering: Use the drop-down menu to select your desired MAC filtering method:
Turn MAC Filtering OFF - No MAC filtering will be implemented.
Turn MAC Filtering ON and ALLOW - MAC filtering will be turned on, and only MAC addresses listed in the table below will be allowed access.
Turn MAC Filtering ON and DENY - MAC filtering will be turned on, and only MAC addresses listed in the table below will be denied access.

Checkbox: Check the box to include this MAC address in the MAC filtering rules.

MAC Address: Enter the MAC address of the client that you wish to filter. If the client is currently connected to the access point, you can select it from the **Client List** drop-down menu, and click **<<** to automatically populate the field.

Click **Clear** to clear all fields. Click **Save Settings** at the bottom of the page to save the current configuration.

Advanced Wireless

On this page, you can adjust the advanced wireless settings for each wireless band.

Transmit Power: Select the desired transmission power of the wireless radio from the drop-down menu.

WMM Enable: Check the box to enable wireless multimedia (WMM), a QoS engine which can help to reduce lag and latency when transmitting multimedia over your wireless connection.

Short GI: Enabling a short guard interval (GI) can increase throughput. However, it can also increase error rate in some installations, due to increased sensitivity to radio-frequency reflections. Select the option that works best for your installation.

WLAN Partition: Enabling this option means that connection wireless clients will not be able to communicate with one another, but will still have access to network resources such as the Internet.

Ethernet to WLAN Access: When this is enabled there is no barrier to data flow from the Ethernet to wireless devices using the access point. If this is disabled, all data from the Ethernet to associated wireless devices is blocked. Wireless devices can still send data to the Ethernet

HT 20/40 Coexistance: Enable this option to reduce interference from other wireless networks in your area. If the channel width is operating at 40 MHz and there is another wireless network's channel overlapping and causing interference, the router will automatically change to 20 MHz.

IGMP Snooping: Enabling this option allows the access point to listen for internet group management protocol (IGMP) traffic, which can help to detect clients which require multicast streams.

Click **Save Settings** at the bottom of the page to save the current configuration.

Guest Zone

The guest zone feature will allow you to create temporary zones that can be used by guests to access the Internet. These zones will be separate from your main wireless network.

Enable Guest Zone: Check to enable the guest zone feature. Select the schedule of time when the guest zone will be active. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

Wireless Band: Displays the wireless band you are creating a zone for.

Wireless Network Name: Enter a wireless network name (SSID) that is different from your main wireless network.

Security Mode: Refer to "Wireless Security" on page 76 for more information regarding wireless security.

WLAN Partition: Tick the check box to prevent the guest clients from accessing other guests in the guest zone.

QoS

The QoS Engine option helps improve your network gaming performance by prioritizing applications. By default the QoS engine settings are disabled and application priority is not classified automatically.

Enable QoS Engine: This option is disabled by default. Enable this option for better performance and experience with online games and other interactive applications, such as VoIP.

QoS Type: Select from the menu to priortize by port or by protocol. If you select by protocol the adavnced QoS panel will appear below.

Lan Port 1-4: Select the port and the type of traffic you wish to prioitize on that port.

Advanced QOS: Use this panel to fine-tune your network traffic prioritzation by protocol.

Wi-Fi Protected Setup

This section allows you to configure how the DAP-1650 uses Wi-Fi Protected Setup (WPS) to create a secure wireless connection.

Enable: Check the box to enable WPS.

Lock WPS-PIN Setup: Check the box to disable WPS using the PIN method. If this option is selected, wireless clients will only be able to use the WPS-PBC (push-button connection) method.

Current PIN: Displays the current PIN which can be used by wireless clients to connect to the access point. Click **Reset PIN to Default** to return the PIN to its factory default. Click **Generate New PIN** to randomly generate a new PIN.

Click **Add Wireless Device With WPS** to activate the WPS-PBC (push-button) method. You will then have 120 seconds to press the WPS button on the new device that you wish to connect.

Click **Save Settings** at the bottom of the page to save the current configuration.

WI-FI PROTECTED SETUP

Enable : ☑
Lock WPS-PIN Setup : ☐

PIN SETTINGS

Current PIN : 44319793

[Reset PIN to Default] [Generate New PIN]

ADD WIRELESS STATION

[Add Wireless Device With WPS]

[Save Settings] [Don't Save Settings]

User Limit

Here, you can set a maximum number of users that can be connected to the access point at any one time for each wireless band.

Enable User Limit: Check the box to enable the user limit function.

User Limit: Enter a number of users (between 1-32).

Click **Save Settings** at the bottom of the page to save the current configuration.

USER LIMIT SETTINGS

Wireless Band : 2.4GHz Band
Enable User Limit : ☐
User Limit(1 - 32) : 20

USER LIMIT SETTINGS

Wireless Band : 5GHz Band
Enable User Limit : ☐
User Limit(1 - 32) : 20

[Save Settings] [Don't Save Settings]

Repeater Mode

Advanced Wireless

2.4 GHz Band

Transmit Power: Select the desired transmission power of the wireless radio from the drop-down menu.

Click **Save Settings** at the bottom of the page to save the current configuration.

5 GHz Band

Transmit Power: Select the desired transmission power of the wireless radio from the drop-down menu.

Click **Save Settings** at the bottom of the page to save the current configuration.

Wi-Fi Protected Setup

This section allows you to configure how the DAP-1650 uses Wi-Fi Protected Setup (WPS) to create a secure wireless connection.

Enable: Check the box to enable WPS.

Lock WPS-PIN Setup: Check the box to disable WPS using the PIN method. If this option is selected, wireless clients will only be able to use the WPS-PBC (push-button connection) method.

Current PIN: Displays the current PIN which can be used by wireless clients to connect to the access point. Click **Reset PIN to Default** to return the PIN to its factory default. Click **Generate New PIN** to randomly generate a new PIN.

Click **Add Wireless Device With WPS** to activate the WPS-PBC (push-button) method. You will then have 120 seconds to press the WPS button on the new device that you wish to connect.

Click **Save Settings** at the bottom of the page to save the current configuration.

WI-FI PROTECTED SETUP

Enable : ✓
Lock WPS-PIN Setup : ☐

PIN SETTINGS

Current PIN : 44319793

[Reset PIN to Default] [Generate New PIN]

ADD WIRELESS STATION

[Add Wireless Device With WPS]

[Save Settings] [Don't Save Settings]

Media Bridge Mode

Advanced Wireless

2.4 GHz Band

Transmit Power: Select the desired transmission power of the wireless radio from the drop-down menu.

Click **Save Settings** at the bottom of the page to save the current configuration.

5 GHz Band

Transmit Power: Select the desired transmission power of the wireless radio from the drop-down menu.

Click **Save Settings** at the bottom of the page to save the current configuration.

Wi-Fi Protected Setup

This section allows you to configure how the DAP-1650 uses Wi-Fi Protected Setup (WPS) to create a secure wireless connection.

Enable: Check the box to enable WPS.

Lock WPS-PIN Setup: Check the box to disable WPS using the PIN method. If this option is selected, wireless clients will only be able to use the WPS-PBC (push-button connection) method.

Current PIN: Displays the current PIN which can be used by wireless clients to connect to the access point. Click **Reset PIN to Default** to return the PIN to its factory default. Click **Generate New PIN** to randomly generate a new PIN.

Click **Add Wireless Device With WPS** to activate the WPS-PBC (push-button) method. You will then have 120 seconds to press the WPS button on the new device that you wish to connect.

Click **Save Settings** at the bottom of the page to save the current configuration.

WI-FI PROTECTED SETUP

Enable : ☑
Lock WPS-PIN Setup : ☐

PIN SETTINGS

Current PIN : 44319793

Reset PIN to Default   Generate New PIN

ADD WIRELESS STATION

Add Wireless Device With WPS

Save Settings   Don't Save Settings

Maintenance

The maintenance section allows you to adjust the administrative settings of the router such as time and date, administrator password, and update the device's firmware. .

Access Point Mode

Admin

New Password: To change the password for the web-based configuration utility's admin account, enter a new password in the field provided.

Confirm Password: Re-enter the new password in this field.

Gateway Name: This allows you create a user friendly name for your device.

Enable Graphical Authentication: Click **Save Settings** at the bottom of the page to save the current configuration.

PASSWORD

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

New Password : ••••••••••••
Verify Password : ••••••••••••

SYSTEM NAME

Gateway Name : DAP-1650

ADMINISTRATION

Enable Graphical : ☐
Authentication

[Save Settings] [Don't Save Settings]

System

The system page can be used to save and restore the device's configuration, as well as restore the factory default settings.

Save Settings to Local Hard Drive: Click **Save** to save the access point's current configuration to a file on your local computer. After clicking, a *Save File* dialog will appear, prompting you to save the configuration file on your computer.

Load Settings From Local Hard Drive: Click **Browse** to locate a previously saved configuration file on your local computer. Once the file has been located, click **Upload Settings** to apply the configuration in the file to the access point.
Note: This will overwrite any current configuration.

Restore to Factory Default Settings: Click **Restore Device** to reset the DAP-1650's settings to the factory defaults.
Warning: This will erase all current settings and cannot be undone.

Reboot the Device: Click **Reboot** to reboot the device. You will need to log in to the device again once the reboot has been completed.

Remove Language Pack: Click to remove a language pack from the device.

SAVE AND RESTORE

Save Settings To Local Hard Drive : [Save]
Load Settings From Local Hard Drive : [_____] [Browse...]
[Upload Settings]
Restore To Factory Default Settings : [Restore Device]
Reboot The Device : [Reboot]
Remove Language Pack : [Remove]

Firmware

Use the firmware page to update the device's firmware, and add or remove language packs.

Firmware Information: This section displays information about the device's current firmware and language pack.
Note: The access point must have an active Internet connected to check for firmware and language pack updates.

Check the Latest Firmware and Language Pack Versions: If the above check for firmware detected updates, the details will displayed here. Click **Download** to download the update files to your computer.

Firmware Upgrade: Click **Browse** to locate a firmware file on your computer. Once located, click **Upload** to commence the firmware upgrade process. It is recommended that you save your current router configuration using the system page before you begin a firmware upgrade.
Warning: You must use a wired connection to the access point to update the firmware.

Language Pack Upgrade: Click **Browse** to locate a language pack file on your computer. Once located, click **Upload** to commence the language pack upgrade process.

FIRMWARE INFORMATION

Current Firmware Version : 1.00
Current Firmware Time : 09/27/2013 17:32:00
Check Online Now for Latest Firmware Version : [Check Now]

FIRMWARE UPGRADE

Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.

To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button.

Upload : [   ] [Browse...] [Upload]

LANGUAGE PACK UPGRADE

Upload : [   ] [Browse...] [Upload]

Time

Use the time page to configure the time and date settings of the access point. You can also configure daylight saving adjustments and synchronize the access point's clock and calendar with an internet-based network time protocol (NTP) server.

Time: Displays the access point's current time and date.

Time Zone: Select your time zone from the drop-down menu.

Enable Daylight Saving: Check the box to have the access point automatically adjust the clock for daylight saving.

Daylight Saving Offset: Select the offset for beginning daylight saving from the drop-down menu.

Daylight Saving Dates: Use the drop-down menus to set the **Start** and **End** dates for daylight saving time.

Enable NTP Server: Check the box to have the access point automatically synchronize its clock and calendar with D-Link's Internet time server.

NTP Server Used: Type the address of the NTP server you would like to use in the field provided, or choose a pre-determined server from the drop-down menu and click **<<** to populate the field.

Set the Time and Date Manually: Use the drop-down menus to manually configure the time and date. This option will not be available if **Enable NTP Server** is selected above.

Click **Save Settings** at the bottom of the page to save the current configuration.

System Check

Host Name or IP Address: Enter the host name or IP address for which you wish to conduct a ping test.

Host Name or IPv6 Address: Enter the host name or IPv6 address for which you wish to conduct a ping test.

Ping Result: Displays results of the ping test above.

PING TEST

Host Name or IP Address : [　　　　] [Ping]

IPV6 PING TEST

Host Name or IPv6 Address : [　　　　] [Ping]

PING RESULT

Enter a host name or IP address above and click 'Ping'

Schedules

Use the schedules page to create new schedule rules for various access point functions. Schedules created here will be available for selection from schedule selection drop-down menus throughout the configuration utility.

Name: Enter a name to identity the new schedule rule.

Day(s): Select **All Week** to make the rule active for all days of the week. Select **Select Day(s)** to determine specific days on which to activate the rule. Days can be selected by checking the boxes below.

All Day-24 hrs: Check the box to make the rule active all day for the days selected above.

Time format: Select whether you would like to use **24-hour** or **12-hour** time format.

Start Time: Enter the time for the rule to become active on each of the days selected above.

End Time: Enter the time for the rule to become inactive on each of the days selected above.

Click **Add** to add the rule to the Schedule Rules List. Click **Cancel** to clear all fields.

Schedule Rules List. This table displays a summary of all current schedule rules. Click on the **Edit** icon to edit the rule, or click on the **Delete** icon to delete the rule from the list.

Repeater Mode

Admin

New Password: To change the password for the web-based configuration utility's admin account, enter a new password in the field provided.

Confirm Password: Re-enter the new password in this field.

Gateway Name: This allows you create a user friendly name for your device.

Enable Graphical Authentication: Click **Save Settings** at the bottom of the page to save the current configuration.

System

The system page can be used to save and restore the device's configuration, as well as restore the factory default settings.

Save Settings to Local Hard Drive: Click **Save** to save the access point's current configuration to a file on your local computer. After clicking, a *Save File* dialog will appear, prompting you to save the configuration file on your computer.

Load Settings From Local Hard Drive: Click **Browse** to locate a previously saved configuration file on your local computer. Once the file has been located, click **Upload Settings** to apply the configuration in the file to the access point.
Note: This will overwrite any current configuration.

Restore to Factory Default Settings: Click **Restore Device** to reset the DAP-1650's settings to the factory defaults.
Warning: This will erase all current settings and cannot be undone.

Reboot the Device: Click **Reboot** to reboot the device. You will need to log in to the device again once the reboot has been completed.

Remove Language Pack: Click to remove a language pack from the device.

SAVE AND RESTORE

Save Settings To Local Hard Drive : [Save]

Load Settings From Local Hard Drive : [_____] [Browse...]

[Upload Settings]

Restore To Factory Default Settings : [Restore Device]

Reboot The Device : [Reboot]

Remove Language Pack : [Remove]

Firmware

Use the firmware page to update the device's firmware, and add or remove language packs.

Firmware Information: This section displays information about the device's current firmware and language pack.
Note: The access point must have an active Internet connected to check for firmware and language pack updates.

Check the Latest Firmware and Language Pack Versions: If the above check for firmware detected updates, the details will displayed here. Click **Download** to download the update files to your computer.

Firmware Upgrade: Click **Browse** to locate a firmware file on your computer. Once located, click **Upload** to commence the firmware upgrade process. It is recommended that you save your current router configuration using the system page before you begin a firmware upgrade.
Warning: You must use a wired connection to the access point to update the firmware.

Language Pack Upgrade: Click **Browse** to locate a language pack file on your computer. Once located, click **Upload** to commence the language pack upgrade process.

FIRMWARE INFORMATION

Current Firmware Version : 1.00

Current Firmware Time : 09/27/2013 17:32:00

Check Online Now for Latest Firmware Version : [Check Now]

FIRMWARE UPGRADE

Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.

To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button.

Upload : [   ] [Browse...] [Upload]

LANGUAGE PACK UPGRADE

Upload : [   ] [Browse...] [Upload]

Time

Use the time page to configure the time and date settings of the access point. You can also configure daylight saving adjustments and synchronize the access point's clock and calendar with an internet-based network time protocol (NTP) server.

Time: Displays the access point's current time and date.

Time Zone: Select your time zone from the drop-down menu.

Enable Daylight Saving: Check the box to have the access point automatically adjust the clock for daylight saving.

Daylight Saving Offset: Select the offset for beginning daylight saving from the drop-down menu.

Daylight Saving Dates: Use the drop-down menus to set the **Start** and **End** dates for daylight saving time.

Enable NTP Server: Check the box to have the access point automatically synchronize its clock and calendar with D-Link's Internet time server.

NTP Server Used: Type the address of the NTP server you would like to use in the field provided, or choose a pre-determined server from the drop-down menu and click **<<** to populate the field.

Set the Time and Date Manually: Use the drop-down menus to manually configure the time and date. This option will not be available if **Enable NTP Server** is selected above.

Click **Save Settings** at the bottom of the page to save the current configuration.

Media Bridge Mode

Admin

New Password: To change the password for the web-based configuration utility's admin account, enter a new password in the field provided.

Confirm Password: Re-enter the new password in this field.

Gateway Name: This allows you create a user friendly name for your device.

Enable Graphical Authentication: Click **Save Settings** at the bottom of the page to save the current configuration.

System

The system page can be used to save and restore the device's configuration, as well as restore the factory default settings.

Save Settings to Local Hard Drive: Click **Save** to save the access point's current configuration to a file on your local computer. After clicking, a *Save File* dialog will appear, prompting you to save the configuration file on your computer.

Load Settings From Local Hard Drive: Click **Browse** to locate a previously saved configuration file on your local computer. Once the file has been located, click **Upload Settings** to apply the configuration in the file to the access point.
Note: This will overwrite any current configuration.

Restore to Factory Default Settings: Click **Restore Device** to reset the DAP-1650's settings to the factory defaults.
Warning: This will erase all current settings and cannot be undone.

Reboot the Device: Click **Reboot** to reboot the device. You will need to log in to the device again once the reboot has been completed.

Remove Language Pack: Click to remove a language pack from the device.

SAVE AND RESTORE

Save Settings To Local Hard Drive :   Save

Load Settings From Local Hard Drive :   Browse...

                                                                        Upload Settings

Restore To Factory Default Settings :   Restore Device

Reboot The Device :   Reboot

Remove Language Pack :   Remove

Firmware

Use the firmware page to update the device's firmware, and add or remove language packs.

Firmware Information: This section displays information about the device's current firmware and language pack.
Note: The access point must have an active Internet connected to check for firmware and language pack updates.

Check the Latest Firmware and Language Pack Versions: If the above check for firmware detected updates, the details will displayed here. Click **Download** to download the update files to your computer.

Firmware Upgrade: Click **Browse** to locate a firmware file on your computer. Once located, click **Upload** to commence the firmware upgrade process. It is recommended that you save your current router configuration using the system page before you begin a firmware upgrade.
Warning: You must use a wired connection to the access point to update the firmware.

Language Pack Upgrade: Click **Browse** to locate a language pack file on your computer. Once located, click **Upload** to commence the language pack upgrade process.

FIRMWARE INFORMATION

Current Firmware Version : 1.00
Current Firmware Time : 09/27/2013 17:32:00
Check Online Now for Latest Firmware Version : [Check Now]

FIRMWARE UPGRADE

Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.

To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button.

Upload : [   ] [Browse...] [Upload]

LANGUAGE PACK UPGRADE

Upload : [   ] [Browse...] [Upload]

Time

Use the time page to configure the time and date settings of the access point. You can also configure daylight saving adjustments and synchronize the access point's clock and calendar with an internet-based network time protocol (NTP) server.

Time: Displays the access point's current time and date.

Time Zone: Select your time zone from the drop-down menu.

Enable Daylight Saving: Check the box to have the access point automatically adjust the clock for daylight saving.

Daylight Saving Offset: Select the offset for beginning daylight saving from the drop-down menu.

Daylight Saving Dates: Use the drop-down menus to set the **Start** and **End** dates for daylight saving time.

Enable NTP Server: Check the box to have the access point automatically synchronize its clock and calendar with D-Link's Internet time server.

NTP Server Used: Type the address of the NTP server you would like to use in the field provided, or choose a pre-determined server from the drop-down menu and click **<<** to populate the field.

Set the Time and Date Manually: Use the drop-down menus to manually configure the time and date. This option will not be available if **Enable NTP Server** is selected above.

Click **Save Settings** at the bottom of the page to save the current configuration.

Status
Device Info

This page displays the current information for the DAP-1650, such as LAN and wireless LAN information and statistics.

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

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

Wireless LAN: Displays the wireless MAC address and wireless settings such as SSID and channel for the 2.4 GHz wireless band.

Wireless LAN 2: Displays the wireless MAC address and wireless settings such as SSID and channel for the 5 GHz wireless band.

GENERAL	
Time :	1999/12/31 10:22:58
Firmware Version :	1.00 Tue 13 Aug 2013

LAN	
MAC Address :	c0:a0:bb:1c:b7:e4
Connection :	DHCP Client
IP Address :	192.168.0.102
Subnet Mask :	255.255.255.0
Gateway Address :	192.168.0.1

WIRELESS LAN(2.4G)	
MAC Address :	c0:a0:bb:1c:b7:e4
Network Name (SSID) :	dlink-B7
Channel :	8
Security Mode :	WPA/WPA2-PSK
Wi-Fi Protected Setup :	Enabled/Configured

WIRELESS LAN(5G)	
MAC Address :	c0:a0:bb:1c:b7:e6
Network Name (SSID) :	dlink-B7E4-5GHz
Channel :	149
Security Mode :	WPA/WPA2-PSK
Wi-Fi Protected Setup :	Enabled/Configured

Logs

The DAP-1650 keeps a running log of events and activities occurring on the access point. If the device is rebooted, the logs will automatically be cleared.

Log Options:	There are several types of logs that can be viewed: **System Activity, Debug Information, Attacks, Dropped Packets,** and **Notice**. Check the boxes to display log items of each type. Click **Apply Log Settings Now** to update the log options.
First Page:	This button directs you to the first page of the log.
Last Page:	This button directs you to the last page of the log.
Previous Page:	This button directs you to the previous page of the log.
Next Page:	This button directs you to the next page of the log.
Clear Log:	This button clears all current log content.
Save Log:	This button allows you to save the current log to a file on your local computer.
Refresh:	This button refreshes the log.

Statistics

The DAP-1650 keeps statistics of the traffic that passes through it. You can view the amount of packets that pass through the LAN and wireless portions of the network. The traffic counter will reset if the access point is rebooted. Use the buttons at the top of the page to **Refresh** or **Clear** the statistics.

Wireless

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

Connected Time: Displays the amount of time the wireless client has been connected to the access point.

MAC Address: The Ethernet ID (MAC address) of the wireless client.

NUMBER OF WIRELESS CLIENTS(2.4G): 0	
MAC Address	Connected Time

NUMBER OF WIRELESS CLIENTS(5G): 0	
MAC Address	Connected Time

IPv6

The IPv6 section displays a summary of the current IPv6 configuration.

IPv6 Connection Type: Displays the currently configured IPv6 connection type.

LAN IPv6 Address: This feild displays the current IPv6 address of the Access Point.

IPv6 Default Gateway: If configured this field will display the details of the default IPv6 gateway.

LAN IPv6 Link-Local Address: The access point's local IPv6 address will be displayed here. This address should be used to access the web-based configuration utility through the IPv6 protocol.

Primary DNS Server: If configured this field will display the details of the primary IPv6 DNS server address to be used.

Secondary DNS Server: If configured this field will display the details of the secondary IPv6 DNS server address to be used.

IPV6

All of your IPv6 network connection details are displayed on this page.

IPV6 CONNECTION INFORMATION

IPv6 Connection Type : Link-local Only

LAN IPv6 Address : None

IPv6 Default Gateway : None

LAN IPv6 Link-Local Address : fe80::c2a0:bbff:fe1c:b7e4/64

Primary DNS Server : None

Secondary DNS Server : None

Help

Wireless Security

This section will explain the different types of security you can use to protect your wireless network from intruders. Please note that some security methods may not be available for all operation modes. The DAP-1650 offers the following types of security:

- Wired Equivalent Privacy (WEP)

- Wi-Fi Protected Setup (WPS)

- Wi-Fi Protected Access (WPA/WPA2)
    - WPA - Personal
    - WPA - Enterprise

What is WEP?

Wired Equivalent Privacy (WEP) is an older form of wireless encryption which operates only in 802.11g legacy mode. WEP uses hex digits to create an authentication key, and is considered to be less secure than the newer WPA/WPA2 security standards. It is recommended that you only use this security mode if your wireless clients do not support WPA/WPA2.

What is WPS?

Wi-Fi Protected Setup (WPS) allows you to quickly and easily create a secure wireless connection between devices using a push-button or a PIN code. This method alleviates the need for users to change settings on their wireless devices, or remember security passwords. Many wireless devices have a physical push-button located somewhere on the exterior casing, while others may have a software button located within the device's configuration software. Please refer to your wireless device's documentation for further information on how to connect to the DAP-1650 using WPS.

What is WPA?

WPA, or Wi-Fi Protected Access, is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.

- User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless bridge or access point. WPA/WPA2 incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

WPA/WPA2 has two main security levels; Personal, and Enterprise:

- **WPA/WPA2 - Personal** is sufficient for most home networks and uses a pre-shared key as described above to authenticate users and encrypt data.
- **WPA/WPA2 - Enterprise** is designed for medium-to-large scale networking environments and uses a centralized RADIUS server for authentication. Users must be registered and authorized by the RADIUS server in order to access the wireless network.

Connect to a Wireless Network
Windows® 8

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.
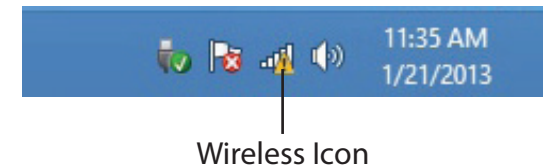
Wireless Icon

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.

Networks

Airplane mode
Off

SWSWSW

ASUS_Guest1

TP-PLC Router

AirPort Express

AirPort Express 5GHz

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.
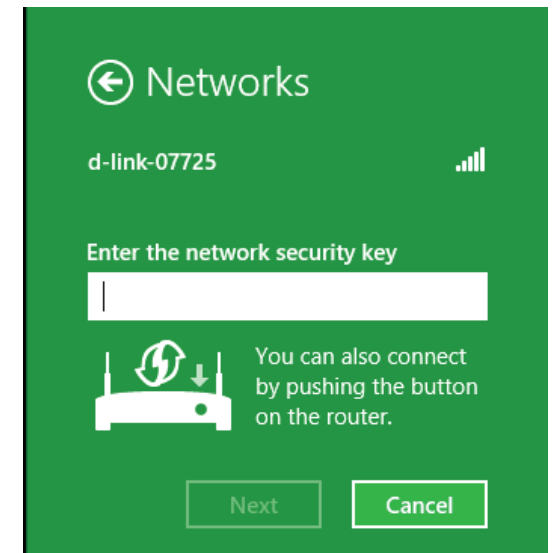
When you have established a successful connection to a wireless network, the word **Connected** will appear next to the name of the network to which you are connected.
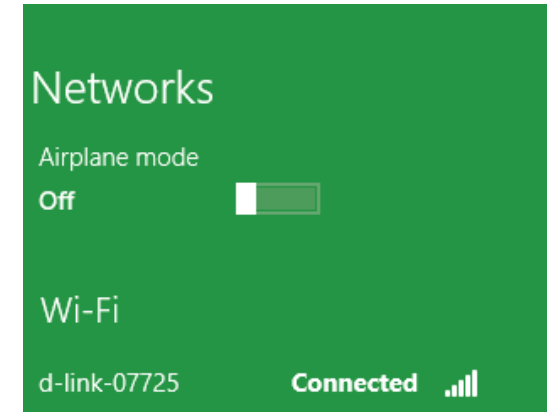
Windows® 7

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.
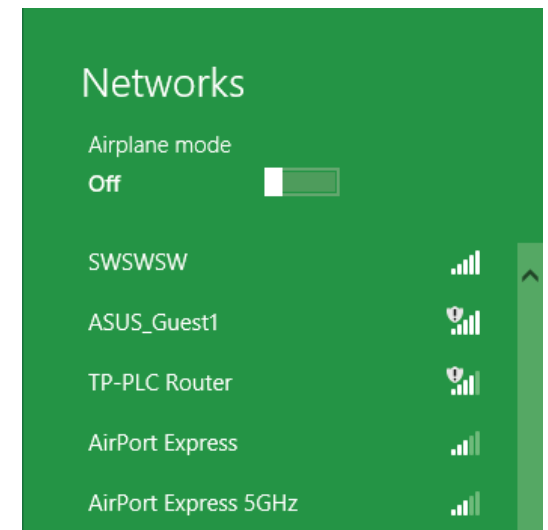
1. Click on the wireless icon in your system tray (lower-right corner).

Wireless Icon

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

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

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

4. The following window appears while your computer tries to connect to the router.
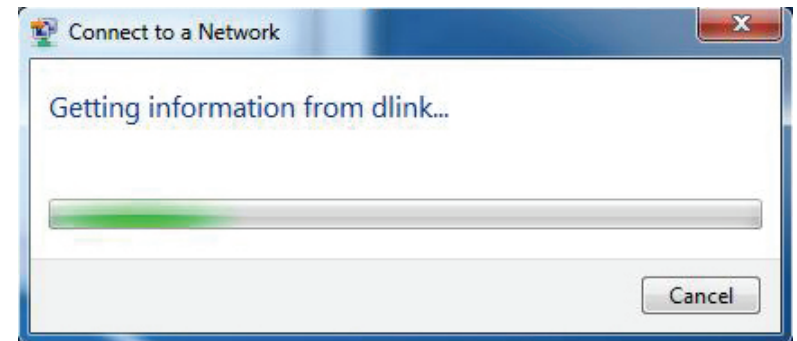
5. Enter the same security key or passphrase that is on your router and click **Connect**. You can also connect by pushing the WPS button on the router.

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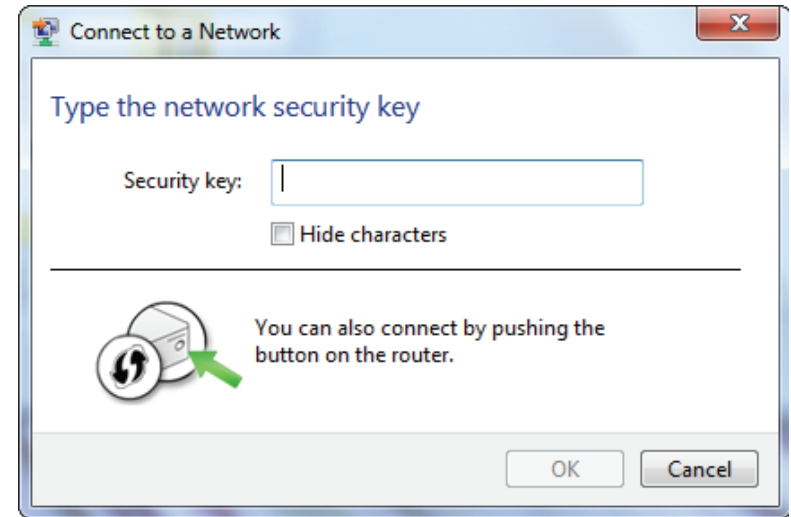
Windows Vista®

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

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

                    or

Right-click on the wireless computer icon in your system tray (lower-right corner next to the time). Select **Connect to a network**.
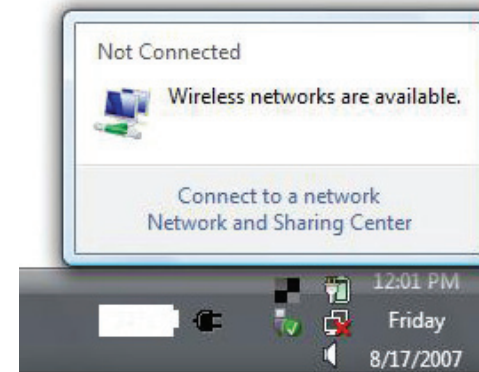
The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the **Connect** button.

If you get a good signal but cannot access the Internet, check your TCP/IP settings of your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.
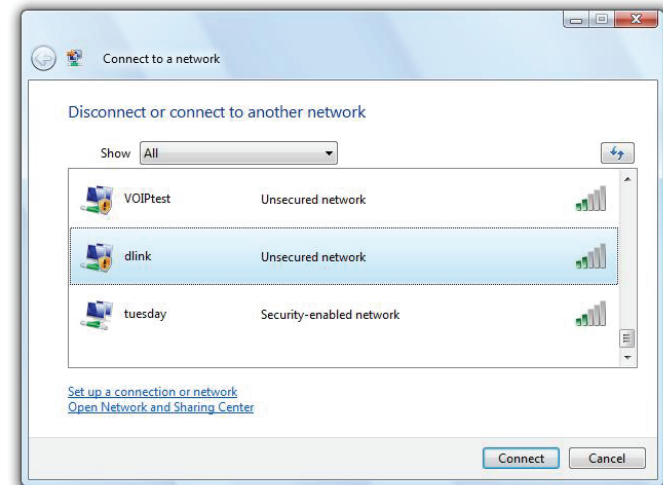
WPA/WPA2

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

1. Open the Windows Vista Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower right corner of screen). Select **Connect to a network**.

2. Highlight the Wi-Fi name (SSID) you would like to connect to and click **Connect**.
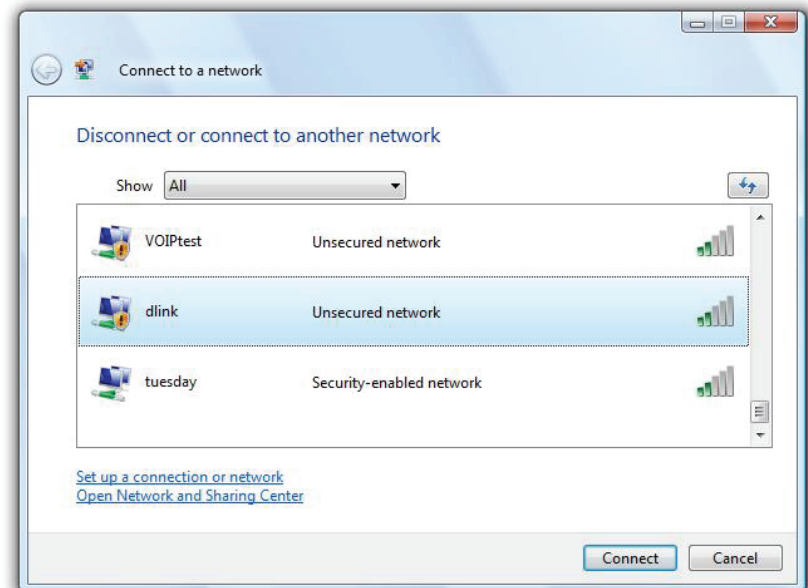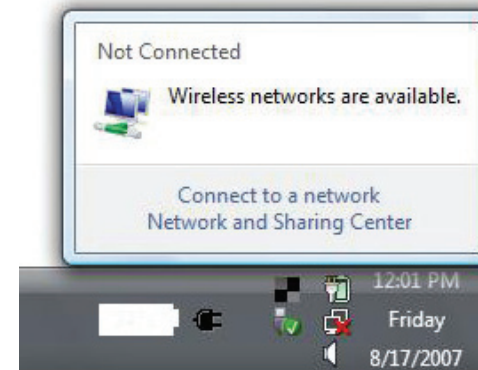
3. Enter the same security key or passphrase (Wi-Fi password) that is on your router and click **Connect**.

It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.
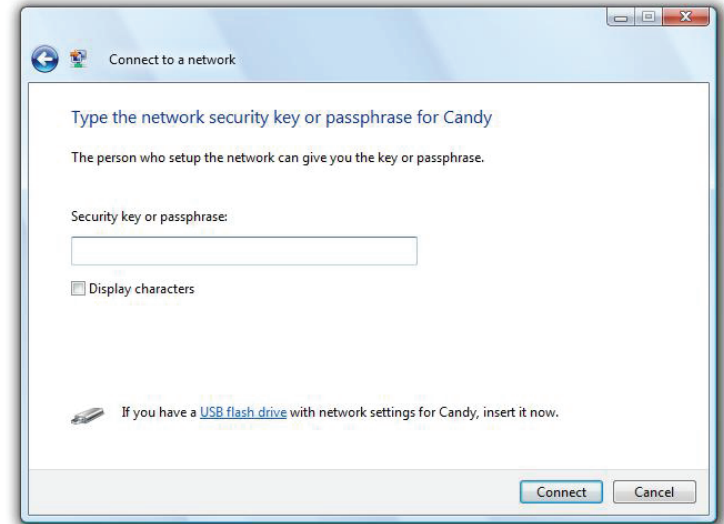
WPS/WCN 2.0

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

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

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

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

Using Windows® XP

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

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

<div align="center">or</div>

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 the TCP/IP settings of your wireless adapter. Refer to the Networking Basics section in this manual for more information.
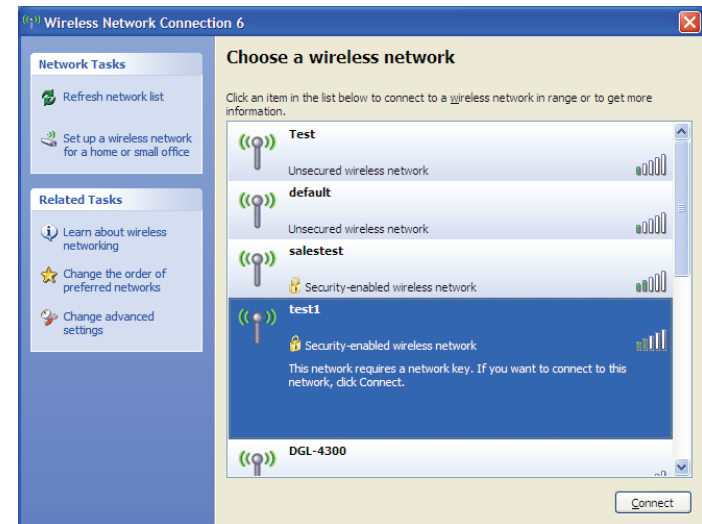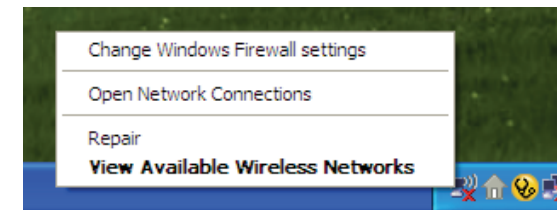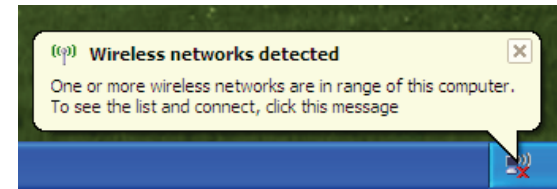
Configure WPA-PSK

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

1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.
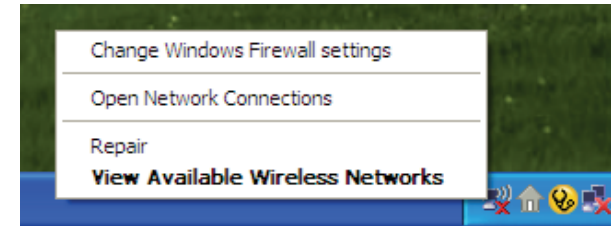
2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.
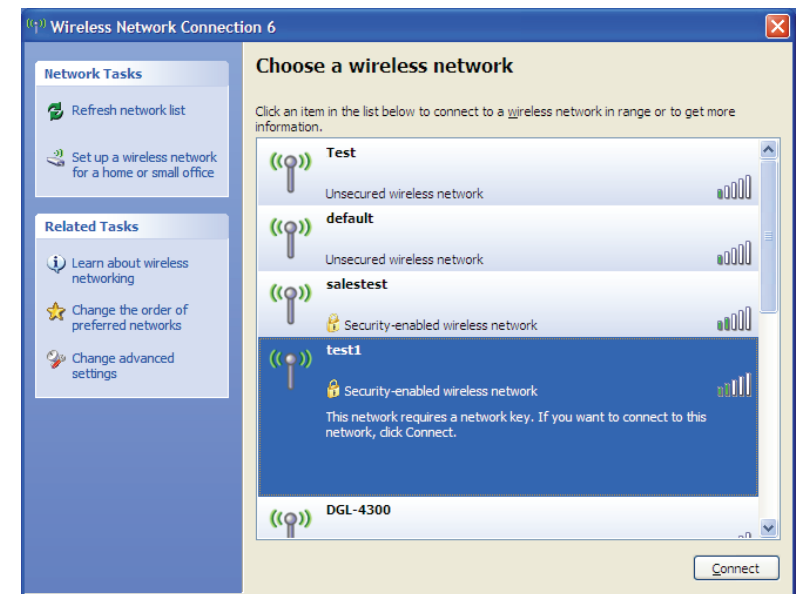
3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK passphrase and click **Connect**.

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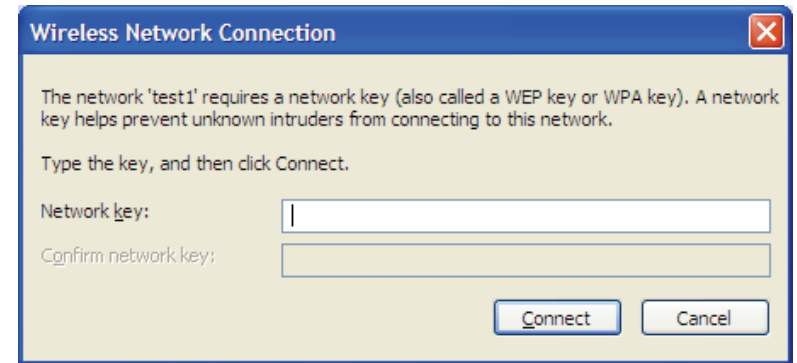
Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1650. Read the following descriptions if you are having problems.

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

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

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

    • Microsoft Internet Explorer® 7.0 or higher
    • Mozilla Firefox® 12.0 or higher
    • Google Chrome™ 20.0 or higher
    • Apple Safari® 4.0 or 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. 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 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. Open your web browser and enter the IP address of your D-Link access point in the address bar. This should open the login page for your the web management.

• If you still cannot access the configuration, unplug the power to the access point for 10 seconds and plug back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

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

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

To reset the access point, locate the reset button (hole) on the rear panel of the unit. With the access point powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the access point will go through its reboot process. Wait about 30 seconds to access the access point. The default address is **http://dlinkap.local**. When logging in, the username is Admin and leave the password box empty.

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

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

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

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

- Click on **Start** and then click **Run**.

- Windows® 95, 98, and ME users type in *command* (Windows® NT, 2000, and XP users type in cmd) and press **Enter** (or click **OK**).

- Once the window opens, you'll need to do a special ping. Use the following syntax:

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

```
C:\>ping yahoo.com -f -l 1482

Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:

Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.

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

C:\>ping yahoo.com -f -l 1472

Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:

Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52

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

C:\>
```

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

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

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

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

- Open your browser, enter the IP address of your access point (**192.168.0.50**) and click **OK.**

- Enter your username (Admin) and password (blank by default). Click **OK** to enter the web configuration page for the device.

- Click on **Setup** and then click **Manual Configure.**

- To change the MTU enter the number in the MTU field and click **Save Settings** to save your settings.

- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Networking Basics

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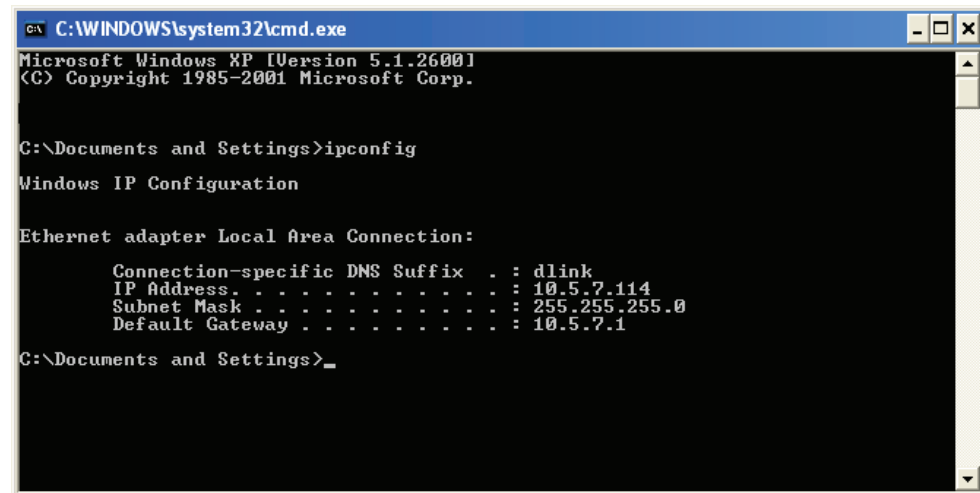
After you install your adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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

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

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

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

```
C:\WINDOWS\system32\cmd.exe

Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

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

C:\Documents and Settings>_
```

Statically Assign an IP address

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

Step 1

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

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

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

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

Step 2

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

Step 3

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

Step 4

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

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

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

Step 5

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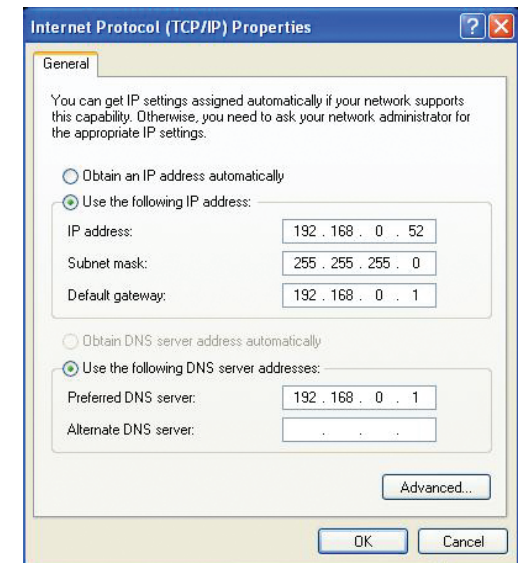
Technical Specifications

General		
Device Interfaces	• 802.11 a/b/g/n/ac wireless LAN • Four 10/100/1000 Gigabit LAN ports	• USB 2.0 port
Antenna Type	• 2x2 (2.4 GHz) and 2x2 (5 GHz) internal antennas	
Standards	• IEEE 802.11ac (draft) • IEEE 802.11n • IEEE 802.11g • IEEE 802.11b	• IEEE 802.11a • IEEE 802.3 • IEEE 802.3u
Minimum System Requirements	• Windows 7/Vista/XP SP3 or Mac OS X 10.4 or higher • Microsoft Internet Explorer 6 or higher, Firefox 1.5 or higher, or other Java-enabled browser	• CD-ROM • Ethernet network interface
Functionality		
Advanced Features	• Guest zone • Web file access • Multi-language web setup wizard • Green Ethernet	• DLNA media server support • QoS • MAC address filter
Mobile App Support	• SharePort Mobile	• QRS Mobile
Wireless Security	• WPA & WPA2 (Wi-Fi Protected Access)	• Wi-Fi Protected Setup (WPS) PIN/PBC
Physical		

Dimensions	• 93 x 116 x 145 mm (3.7 x 4.6 x 5.76 inches)	
Weight	• 330 grams (0.73 lbs)	
Power	• Input: 100 to 240 V AC, 50/60 Hz	• Output: 12 V DC, 2 A
Temperature	• Operating: 0 to 40 °C (32 to 104 °F)	• Storage: -20 to 65 °C (-4 to 149 °F)
Humidity	• Operating: 0% to 90% non-condensing	• Storage: 5% to 95% non-condensing
Certifications	• FCC Class B • CE Class B • C-Tick • DLNA • IPv6 Ready	• Wi-Fi Certified • Wi-Fi Protected Setup (WPS) • Wi-Fi Multimedia (WMM) • Compatible with Windows 8

[1] Maximum wireless signal rate derived from IEEE Standard draft 802.11ac, 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.

[2] All Maximum transmission power values expressed are for dual-chain mode. Maximum transmission power and included antennas may vary depending on regional regulations.

[3] Range may vary depending on regional regulations.

Compliance Statements

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CE Mark Warning:

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

Federal Communication Commission Interference Statement

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

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

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

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

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

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

IMPORTANT NOTE:
FCC Radiation Exposure Statement:

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

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

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). 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. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution :
(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
(ii) high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement:
(i) les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
(ii) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

IMPORTANT NOTE:
Radiation Exposure Statement:

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

NOTE IMPORTANTE:
Déclaration d'exposition aux radiations:

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

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 4216A-AP1650A1) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

TELEC Statement:
電波法により5GHz帯は屋内使用に限ります。

[以下警語適用台灣地區]
經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

在5.25-5.35秭赫頻帶內操作之無線資訊傳輸設備，限於室內使用

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. It can also be turned off through a power switch to save energy when it is not needed.
Network Standby: 4.07watts
Switched Off: 0.19 watts