D-Link

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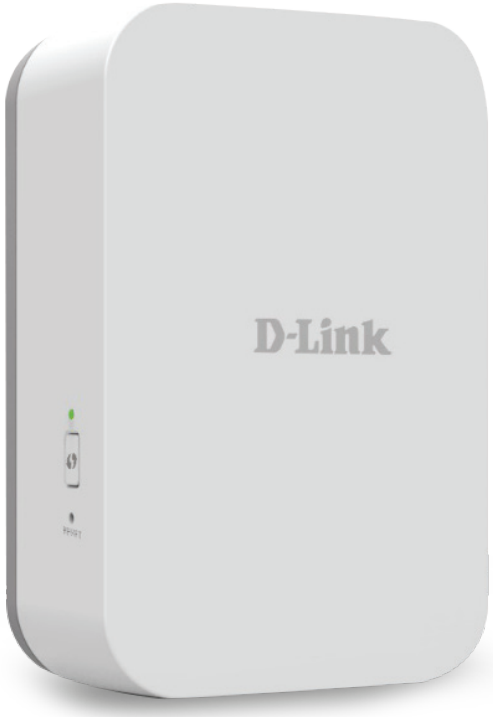

User Manual

Wireless N300 POE Bridge

DAP-1316-ES

Preface

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

Manual Revisions

Revision	Date	Description
10	September 29, 2014	• Initial release

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This purpose of this product is to create a constant network connection for your devices. As such, it does not have a standby mode or use a power management mode. If you wish to power down this product, please simply unplug it from the power outlet.

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Introduction
Package Contents

DAP-1316-ES Wireless N300 POE Bridge

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

System Requirements

Network Requirements	• A wireless router with an active Internet connection. • IEEE 802.11n, 802.11g, or 802.11b wireless clients/devices
Web-based Configuration Utility Requirements	**Computer or Mobile Device with the following:** • A Windows®, Macintosh, Android, or Linux-based operating system • Wireless adapter or Wi-Fi functionality **Browser Requirements:** • Internet Explorer 7 or later • Firefox 12.0 or later • Safari 4 or later • Google Chrome 20.0 or later

Introduction

Features

IEEE803.3af PSE feature to power on PD device

The DAP-1316-ES Wireless n300 POE Bridge is an 802.11b/g/n Wi-Fi PSE Bridge designed with AP/client mode and IEEE803.3af PSE feature to power on PD device.

High-speed Wireless Performance With Wireless N Technology

Thanks to the latest Wireless N technology, the DAP-1316-ES provides a wireless connection at up to 300 Mbps* with other 802.11n wireless devices. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio with smooth performance.

Simple Setup

You can quickly and easily connect the DAP-1316-ES to an uplink router by pressing WPS button and manage the administrative settings.

Compatibility

The DAP-1316-ES is still fully compatible with the IEEE 802.11g/b standards, so it can still connect with your older 802.11g/b devices.

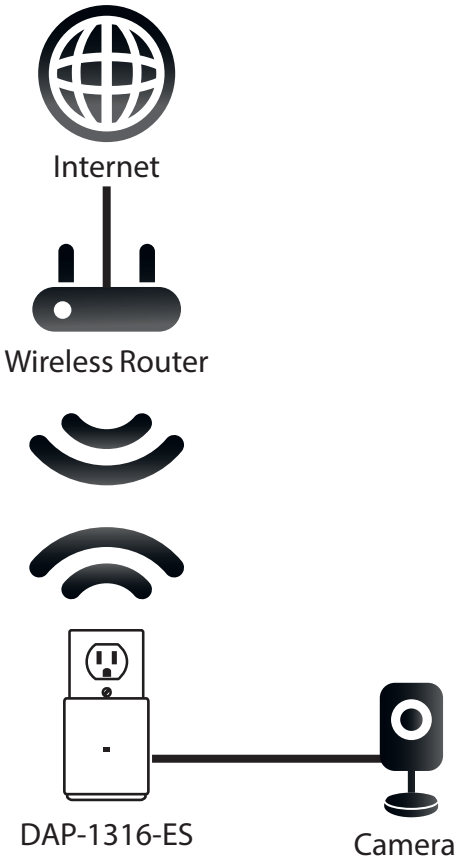
Latest Wireless Network Security and Encryption

Supports wireless security features to provide secure connection between DAP-1316-ES and uplink router. Support for WPA/WPA2 standards ensure that you'll be able to use the best possible encryption methods with your compatible wireless devices.

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

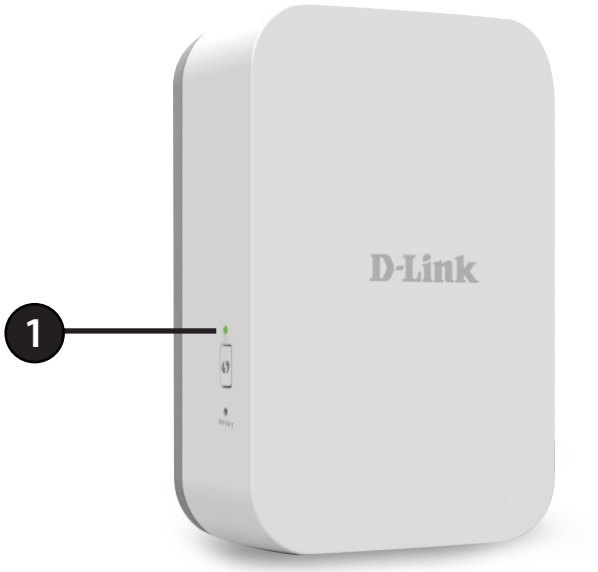
What is a POE Bridge?

The DAP-1316-ES acts as a client and connect to uplink router for internet access and supports IEEE802.3af PoE feature to power on PD device. You can quick setup uplink connection by using WPS button or you can configure DAP-1316-ES wirelessly by connect to default SSID and password (management only, will disable downlink after setup completely).



Hardware Overview

Front/Top

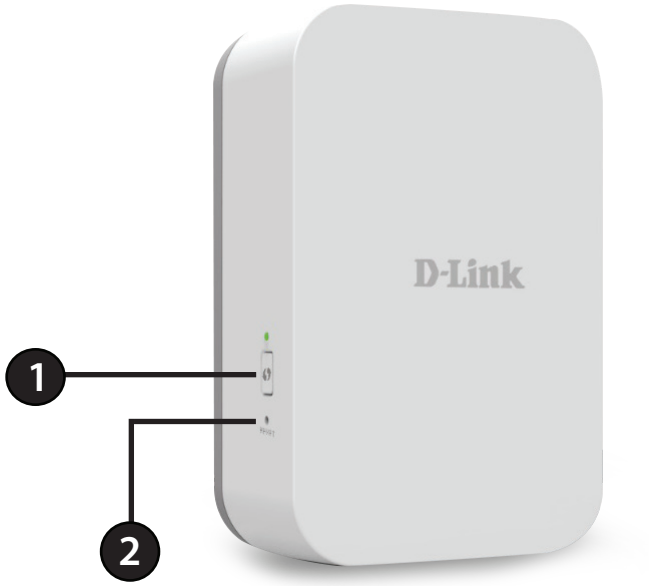


1	LED Indicator	This indicates the current status of the DAP-1316-ES, as detailed in the table below.

LED Indicator	Color	Status	Description
Power/Status	Red	Solid	• Power on process • During FW upgrade
	Green	Blinking	• During WPS processing
		Solid	• The uplink is establish and IP is not provisioned.
	Orange	Blinking	• The uplink is not establish and IP is not provisioned.
	None	Off	• The device is power off.

Hardware Overview

Side and Bottom



1	WPS Button	Pressing the WPS button for 1 second allows you to connect with Wi-Fi clients using Wi-Fi Protected Setup.
2	Reset Button	Pressing the reset button will reset the DAP-1316-ES to the factory default settings.

Wireless Installation Factors

The Wireless N300 POE Bridge lets you connect to uplink router wirelessly and provide IEEE802.3af feature to power ron PD 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:

1. Keep the number of walls and ceilings between the PoE bridge and uplink router to a minimum - each wall or ceiling can reduce your range by up to 98 feet (30 meters). Position your devices so that the number of walls or ceilings is minimized.

2. Be aware of the direct line between network devices. At a 45-degree angle, a wall that is 0.5 meters thick (1.5 feet) appears to be almost 1 meter (3 feet) thick. At a 2-degree angle it can appear over 14 meters (45 feet) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

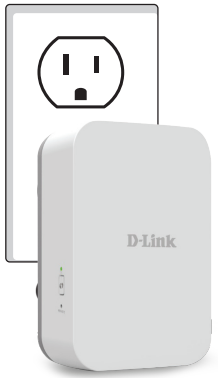
3. Building materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation,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

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

5. If you are using 2.4 GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4 GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone in not in use.

Setting Up Your DAP-1316-ES

Plug in the DAP-1316-ES to a power outlet. Verify that the power LED is blinking orange before continuing.

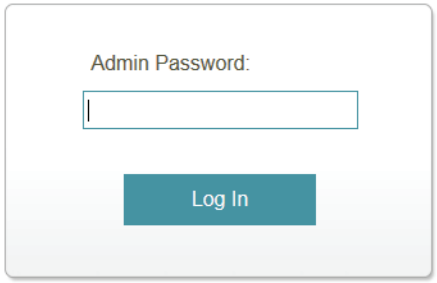


Locate the Wi-Fi name (SSID) and password for your DAP-1316-ES device. These details are printed on the specification sticker on the backside of the device. Using your computer or mobile device's Wi-Fi connection utility, connect to the SSID of your DAP-1316-ES and enter the password. If you are unsure of how to connect to a wireless network, please refer to "Connect to a Wireless Network" on page 32, or consult your device's user manual. Once connected, you are ready to begin the setup process.

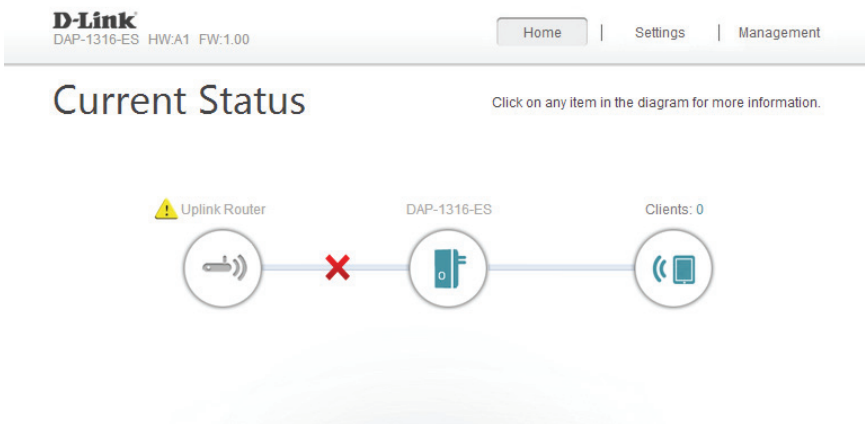
Web-based Configuration

To access the configuration utility for the DAP-13-16-ES on your PC, first connect to the DAP-1316-ES wirelessly using the Wi-Fi name (SSID) and password located on your Wi-Fi Configuration Card. Then open a web browser and enter **http://dap-1316-es.local.** in the address bar. You can also use the IP address **http://192.168.0.60**.

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

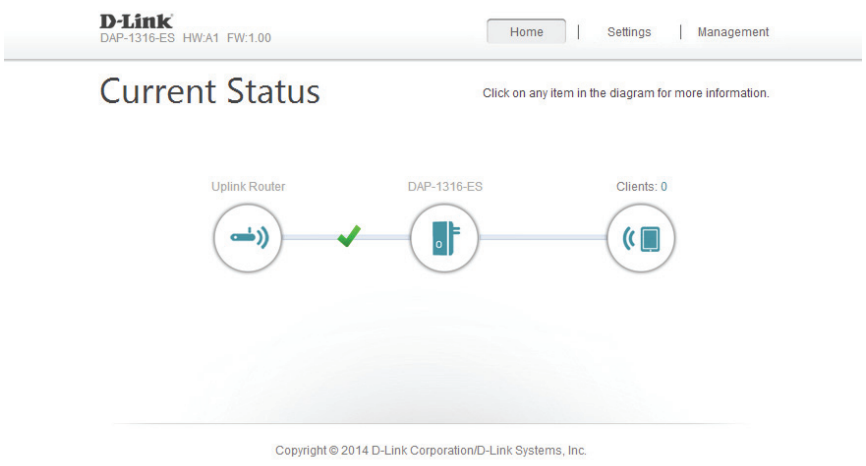


The configuration interface will open, and you can configure the various settings for the DAP-1316-ES. If you have not yet configured and uplink network, the home screen will show that there is no connection between the DAP-1316-ES and the uplink router.

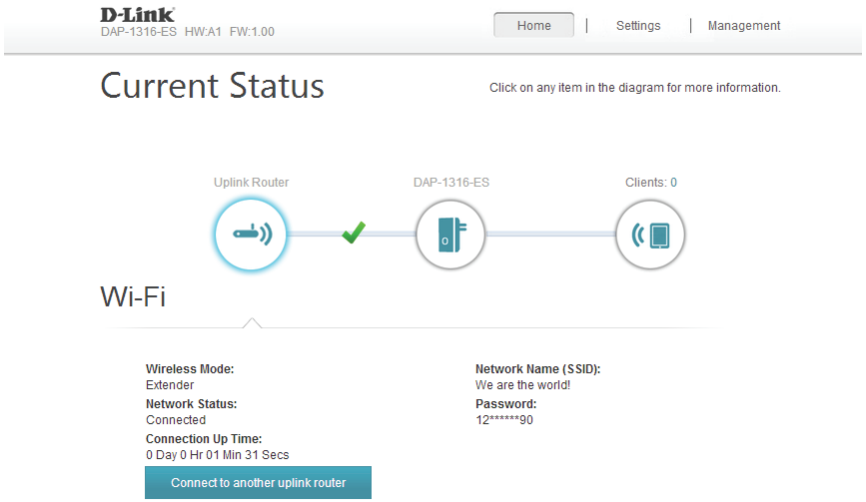


Home Screen

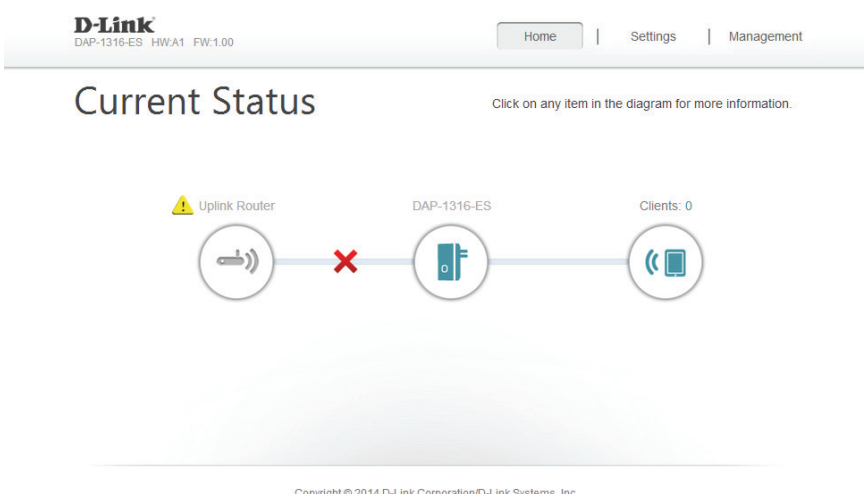
The home screen gives a summary of the current status of devices connected to the DAP-1316-ES. A green check between devices indicates that there is an active connection. A red cross indicates that there is no connection present, or there is a connection error.



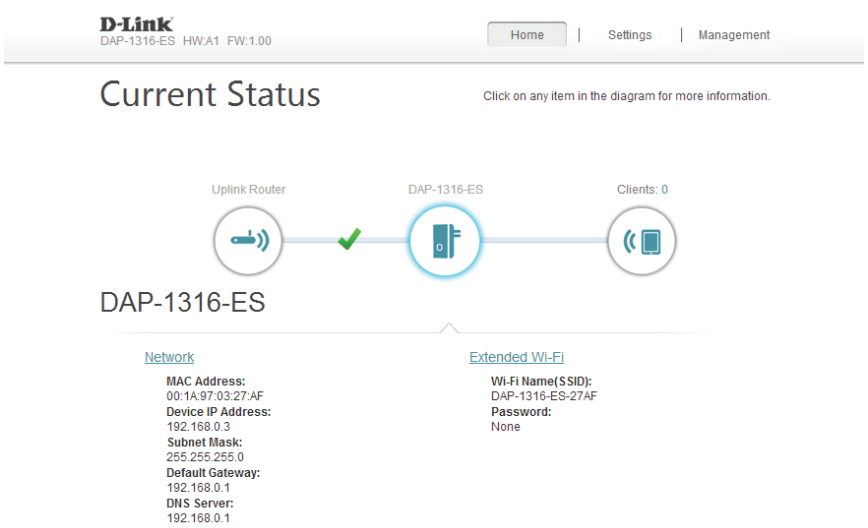
At any time, you can click on the device images on the home screen to view the current status of each device.



If there is no connection between the DAP-1316-ES and the uplink router, you can click on the uplink router icon to search for an available uplink router.



You can view the details of both the uplink router network and the extended Wi-Fi network by clicking on the DAP-1316-ES icon.



Wi-Fi Settings

This page lets you configure the Wi-Fi settings to connect your DAP-1316-ES to another wireless network. To access this page, click on the **Settings** drop-down menu at the top of the page, and select **Wi-Fi**.

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

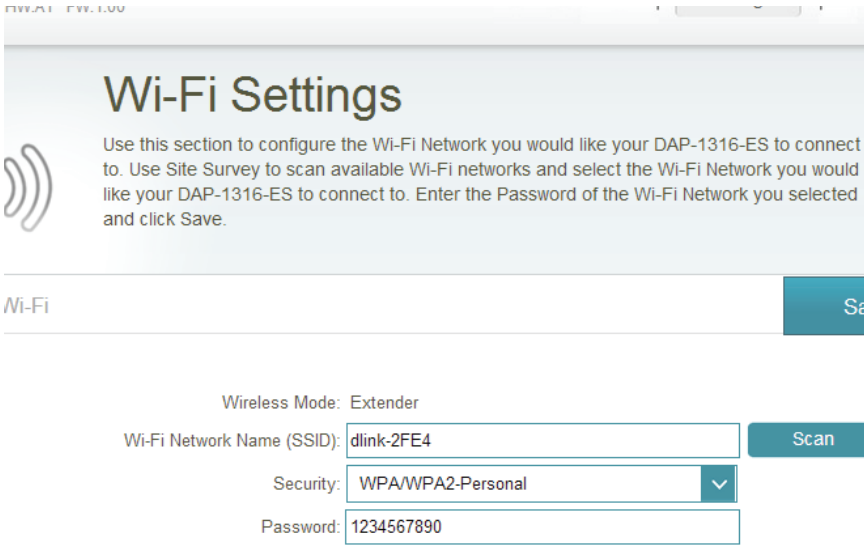
Wi-Fi Network Name (SSID): Click **Scan** to scan for available wireless networks and select the one you want to use the DAP-1316-ES to extend. You can also type in the name (SSID) of the wireless network.

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

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

You can also use WPS to connect your wireless devices to the DAP-1316-ES's extended network. For further information on how to do this, please refer to "Connecting a Wireless Client" on page 31.

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

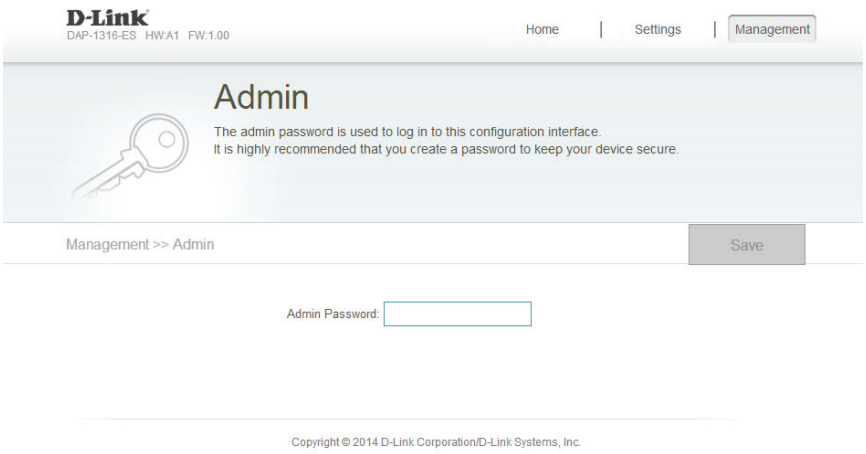


Maintenance

Admin

This page will allow you to set a new password for the administrator account used to configure the DAP-1316-ES. You can also enable graphical authentication (CAPTCHA) on this page. To access this page, click on the **Management** drop down menu at the top of the page, and select **Admin**. Click **Save** at any time to save the changes you have made on this page.

Admin Password: Enter the Admin password.



System

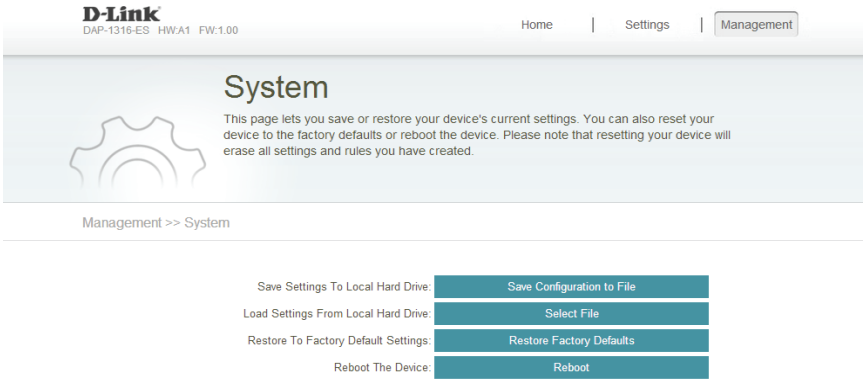
This page allows you to save or restore your system configuration, reset or reboot the DAP-1316-ES. To access this page, click on the **Management** drop down menu at the top of the page, and select **System**. Click **Save** at any time to save the changes you have made on this page.

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

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

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

Reboot the Device: Click **Reboot** to reboot the DAP-1316-ES.

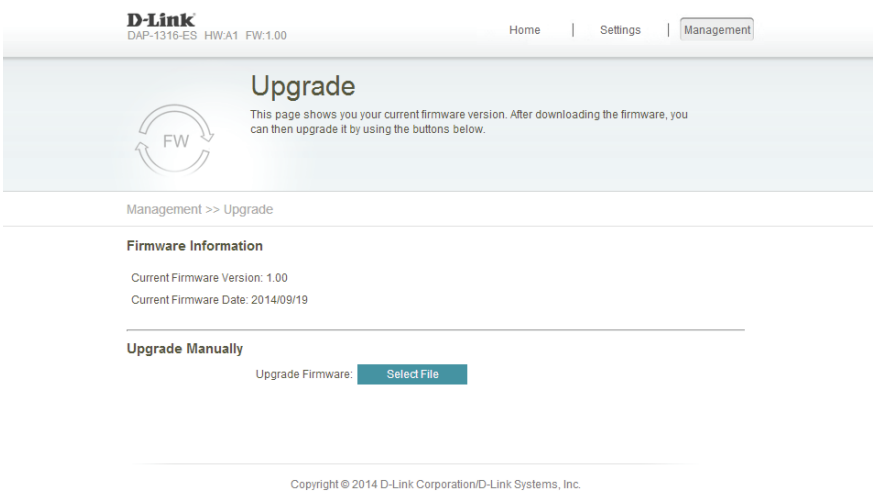


Upgrade

Firmware and language upgrades may be provided for the DAP-1316-ES in future. You can check for and upgrade your firmware and language pack on this page. To access this page, click on the **Management** drop down menu at the top of the page, and select **Upgrade**. Click **Save** at any time to save the changes you have made on this page.

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

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



Connect to a Wireless Network

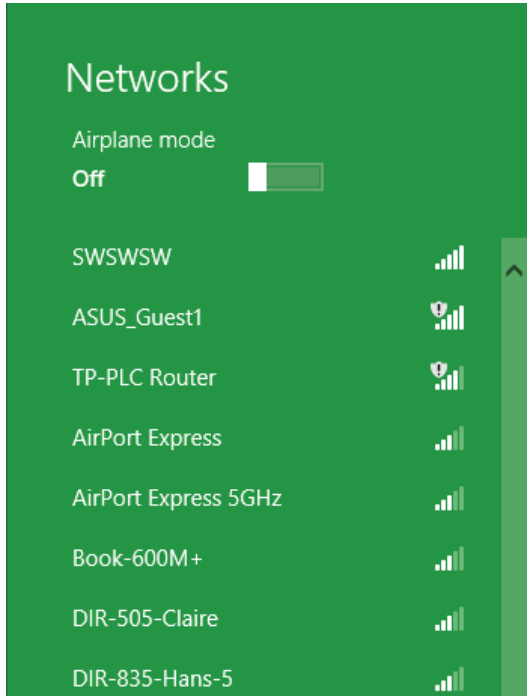
Windows® 8

WPA/WPA2

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

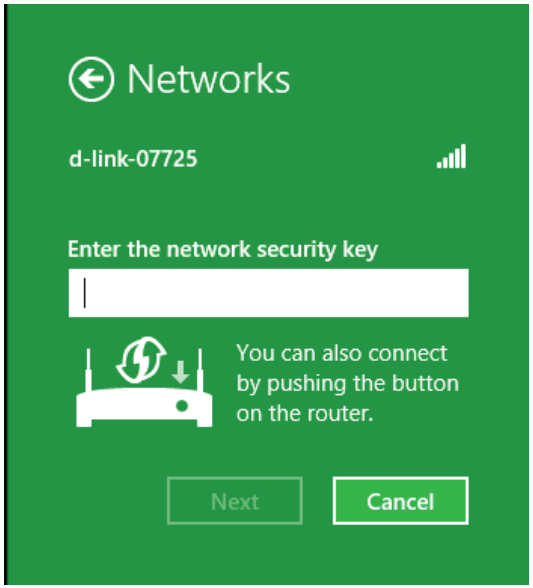
To join an existing network, locate the wireless network icon in the taskbar, next to the time display.

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

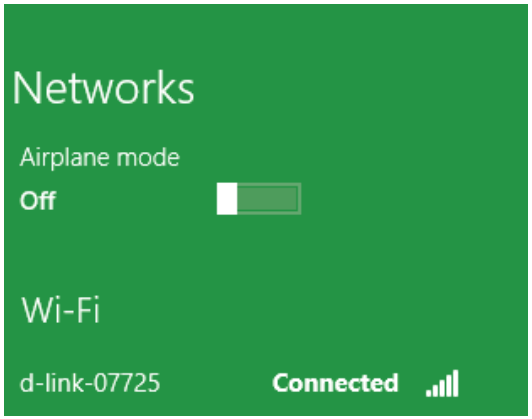


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click **Next**.

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



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



Windows® 7

WPA/WPA2

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

1. Click on the wireless icon in your system tray (lower-right corner).

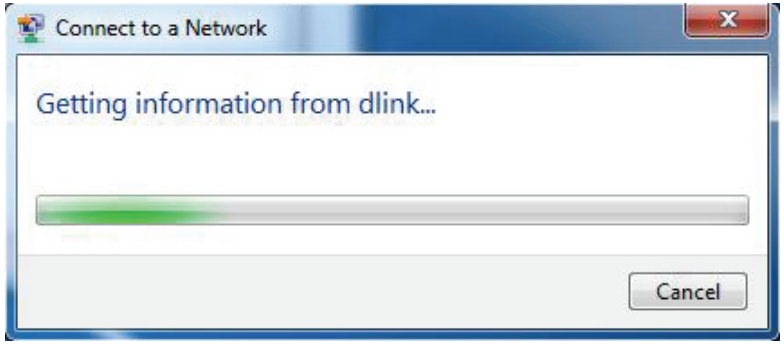
Wireless Icon

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

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

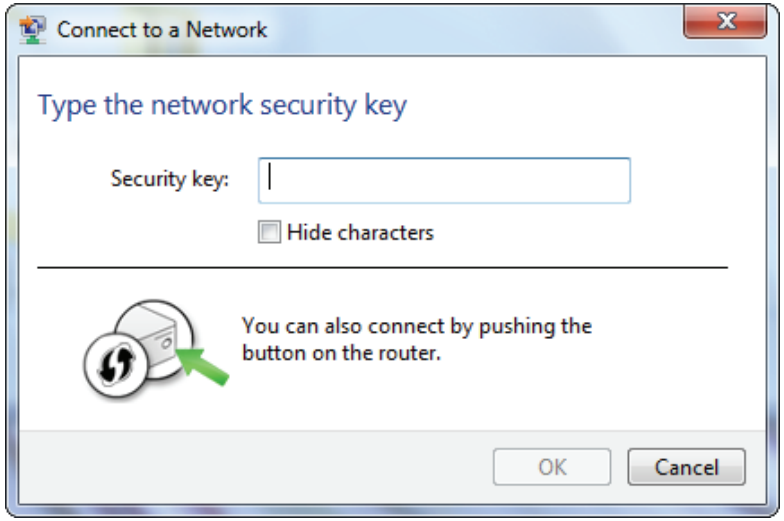
   If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

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



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

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



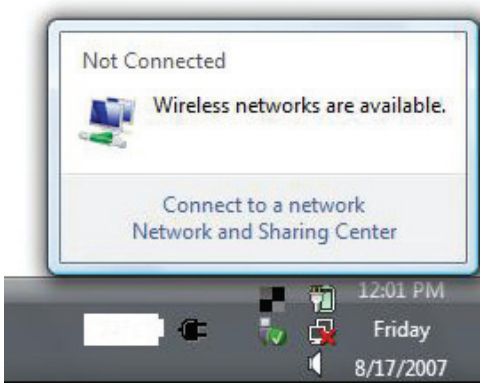
Windows Vista®

Windows Vista® users may use the built-in wireless utility. If you are using another company's utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows Vista® utility as seen below.

If you receive the "Wireless Networks Are Available" bubble, click on the center of the bubble to access the utility.

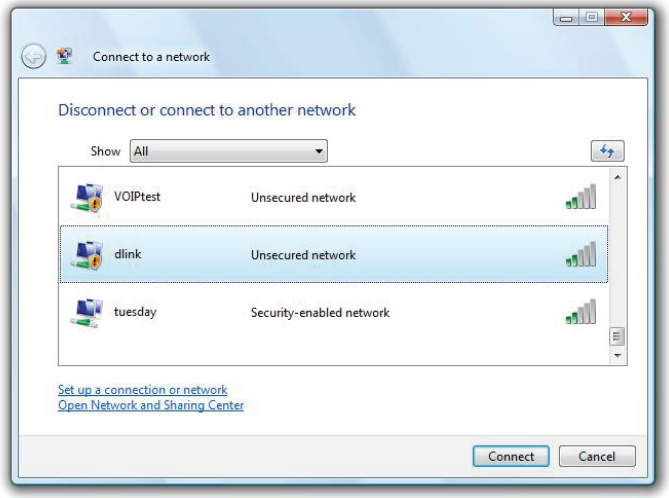
or

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



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

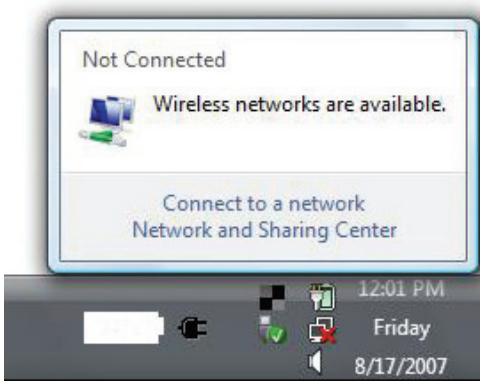
If you get a good signal but cannot access the Internet, check the TCP/IP settings for your wireless adapter. Refer to "Troubleshooting" on page 27 for more information.



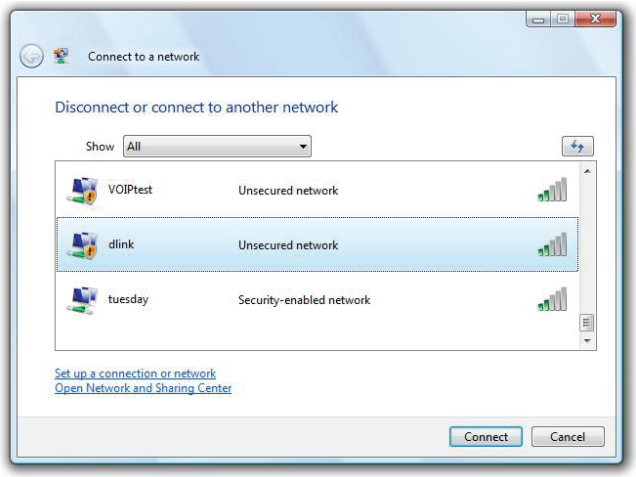
WPA/WPA2

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

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



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



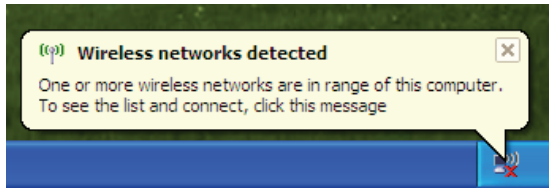
3. Enter the same security key or passphrase that is on your router and click **Connect**.

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

Windows® XP

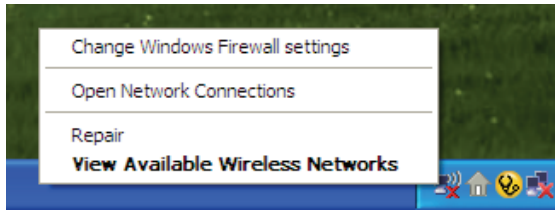
Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities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

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



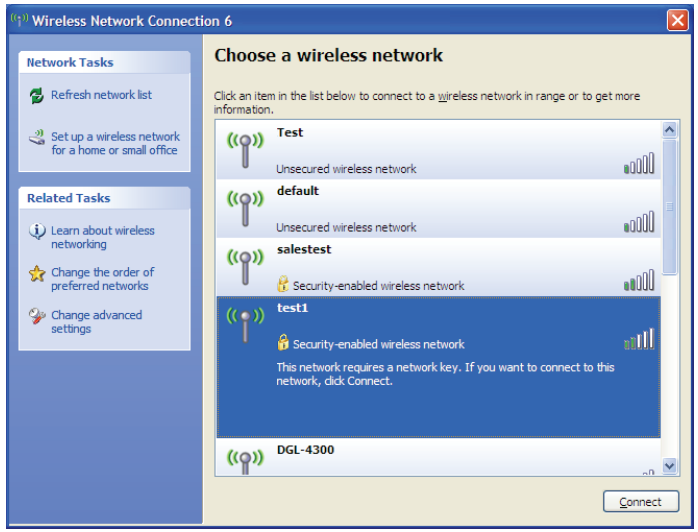
or

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



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

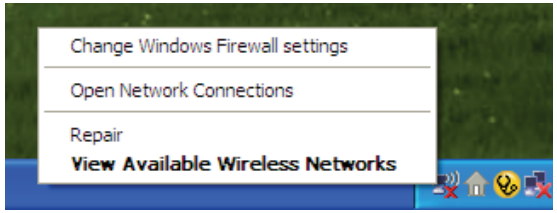
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



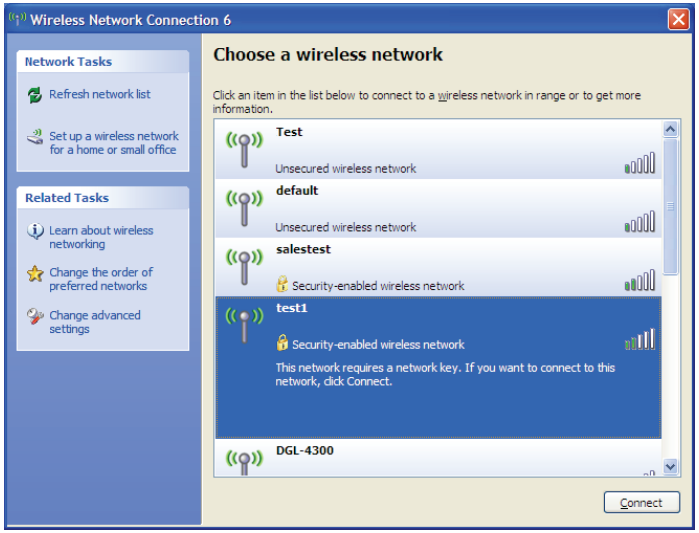
WPA/WPA2

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

1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.

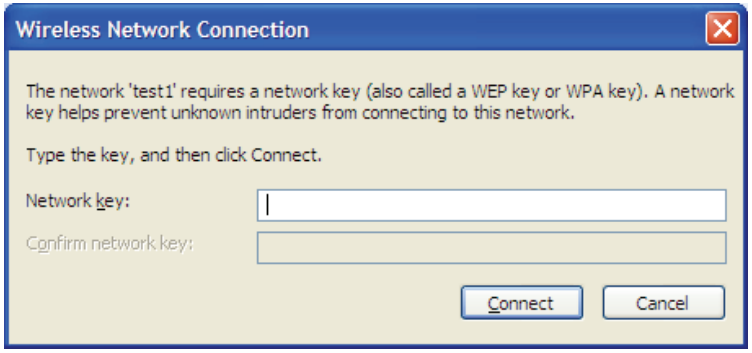


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK passphrase and click **Connect**.

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



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DAP-1320. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

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

When entering the IP address of the Wireless N300 POE Bridge (dlinkap.local for example), you are not connecting to a website nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
  - Internet Explorer 7 or later
  - Firefox 12.0 or later
  - Safari 4 or later
  - Google Chrome 20.0 or later
- Make sure that you are connected to the same wireless network which is listed on the base of the DAP-1316-ES. If you have an active wired LAN Ethernet connection, try temporarily unplugging the Ethernet cable from the computer you are using, as this may eliminate possible conflicts from having two simultaneous connections on the same computer.
- Disable any Internet security software running on the computer. Software firewalls such as ZoneAlarm, BlackICE, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

- Configure your Internet settings:
    - Go to **Start** > **Settings** > **Control Panel**. Double-click the **Internet Options** Icon. From the **Security** tab, click the button to restore the settings to their defaults.
    - Click the **Connection** tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click **OK**.
    - Go to the **Advanced** tab and click the button to restore these settings to their defaults. Click **OK** three times.
    - Close your web browser (if open) and open it.
- Access the web management interface. Open your web browser and enter the address of your extender (**http://dlinkap.local**) in the address bar. This should open the login page for your web management. If the DAP-1316-ES is not connected to an uplink router, you can try accessing the web interface using the default IP address **http://192.168.0.50**.
- If you still cannot access the configuration, unplug the extender from the power outlet for at least 10 seconds and plug it back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

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

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

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

Wireless Basics

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

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

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

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

Tips

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

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

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

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

Technical Specifications

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

Wireless Frequency Range [1]
- 2.4 GHz to 2.4835 GHz

Antenna
- Internal Antenna

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

Device Management
- Web UI

Diagnostic LEDs
- Status/WPS

Operating Temperature
- 0 to 40 ˚C (32 to 104 ˚F)

Operating Humidity
- 0% to 90% non-condensing

Power Input
- AC 110-240 V

Maximum Power Consumption
- 28 W

Certifications
- EMI/EMC
- FCC
- UL

Dimensions
- 110mm x 70mm x 45mm (62mm with plug)

Weight
- 69 grams (0.152 lb)

[1] Frequency range varies depending on local regulations

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Safety Statements

CE Mark Warning:

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

Federal Communication Commission Interference Statement

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

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

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

This 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.

IMPORTANT NOTICE:

Radiation Exposure Statement:

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

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

Country Code selection feature to be disabled for products marketed to the US/CANADA Industry Canada statement:

IC 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.

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.

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.

Installation Guideline	Warning: "The equipment is designed for building installation and not intended to be connected to exposed (outside plant) networks including campus environment and the ITE is to be connected only to PoE networks without routing to the outside plant." or equivalent.