

User Manual

Xtreme N[®] Dual Band USB Adapter

Xtreme N 雙頻USB無線網路卡

DWA-160

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Package Contents



D-Link DWA-160 Xtreme N® Dual Band USB Adapter



Cradle



CD with drivers and software

System Requirements

- A computer or laptop with an available USB 2.0 port
- Windows® 7, Vista®, XP (Service Pack 2) or 2000 (Service Pack 4)
- CD-ROM Drive
- 300MHz processor and at least 64MB of RAM
- A 802.11n or 802.11g or 802.11a access point or wireless router

Introduction

The DWA-160 Xtreme N™ Dual Band USB Adapter is a convenient wireless connectivity solution for desktop or notebook PCs. Instead of stringing Ethernet cables to your PC or dismantling your desktop computer case, the DWA-160 can enable 802.11n wireless connectivity by simply utilizing your desktop or notebook PC's USB port.

Powered by Xtreme N™ Dual Band technology, the DWA-160 provides a faster wireless connection and superior reception than 802.11a or 802.11g*. The DWA-160 is designed for use in bigger homes and for those that demand higher networking, and its 5GHz Mediband helps avoid interference by providing a clearer wireless band for signals than existing 802.11g products. Maximize wireless performance by connecting this USB Adapter to a Xtreme N™ Dual Band Media router or an Xtreme N™ Gaming router, and stay connected from virtually anywhere in the home. This USB Adapter supports WPA™ and WPA2™ encryption to prevent outside intrusion and protect your personal information from being exposed.

D-Link's Quick Setup Wizard guides you step-by-step through the installation process. You'll be able to configure this USB Adapter without having to call the teenager from down the street to help you. The D-Link Wireless Manager is included with this product to keep track of all your most frequently accessed networks.

Compact in size and robust in speed, the DWA-160 adapter is great for travel and a convenient solution for providing high performance wireless connectivity to your desktop or notebook PC. Enjoy the many benefits of wireless connectivity today!

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

Features

- Compact size for placement anywhere.
- Convenience of Plug & Play installation.
- Fully 802.11g and 802.11a compatible.
- 802.11n compliant.
- Powered by the USB port; no external power source required.
- USB 2.0 standard*.
- You can securely connect to a wireless network using WPA™/WPA2™ (Wi-Fi® Protected Access) providing you a much higher level of security for your data and communication than has previously been available. You may also use 802.1x for wireless authentication.
- Position the DWA-160 almost anywhere in your workspace to achieve the best reception possible.
- Supports Infrastructure networks via an access point
- User-friendly configuration and diagnostic utilities.

* Using a USB 1.1 port will adversely affect throughput.

Hardware Overview



1	WPS Button	Press the WPS button to automatically connect to a WPS-enabled wireless router or access point and establish connectivity. Refer to page 20.
2	USB Connector	Used to connect the DWA-160 to your computer.

Installation

This section will walk you through the installation process. If you have a built-in wireless adapter, please disable it in device manager before installing your D-Link adapter. Also, if you have previously installed another wireless adapter, please make sure any software is uninstalled.

Getting Started

Before installing your new D-Link wireless adapter, please verify the following:

- Remove any previous installations of wireless adapters
- Disable any built-in wireless adapters
- Verify the settings such as the SSID and security settings of the network(s) you want to connect to

Remove Existing Installations

If you've installed a different manufacturer's adapter or a different model D-Link adapter, make sure the software is uninstalled before installing the new software. Some utilities may cause a conflict with the new software. If you plan to use multiple adapters at different times, make sure the utilities are not set to load when your computer boots up. Windows® 7, Vista® and XP users may use the built-in wireless utility for all adapters.

To remove any old software:

Windows® 7 users: Click **Start** > **Control Panel** > **Uninstall Programs**.

Windows Vista®/XP users: Click **Start** > **Control Panel** > **Add or Remove Programs**.

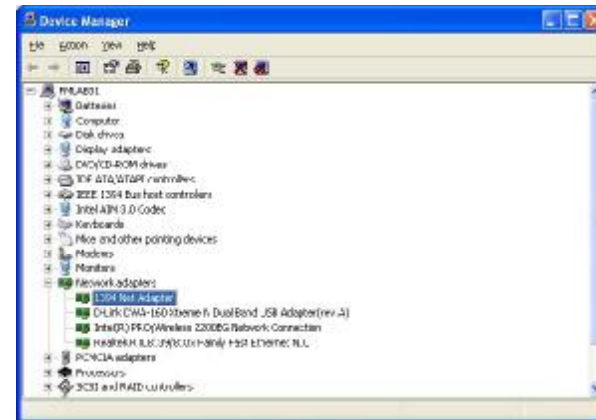
Windows® 2000 users: Click **Start** > **Settings** > **Control Panel** > **Add or Remove Programs**.

Disable Other Wireless Adapters

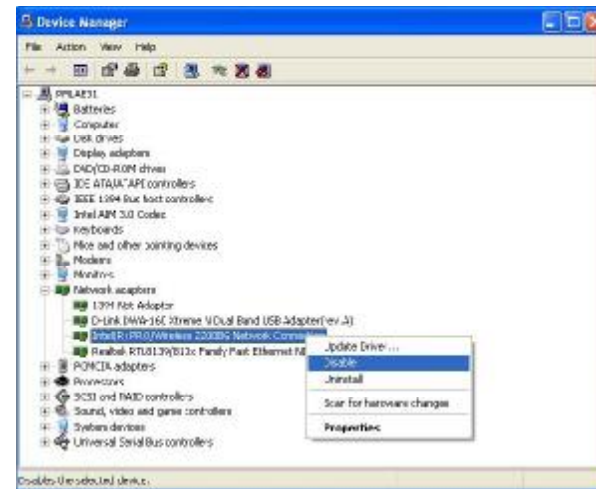
Most newer laptops may include a built-in wireless adapter. To prevent any conflicts with the D-Link wireless adapter, it is recommended to disable the wireless adapter (as well as any unused Ethernet adapters).

From the desktop, right-click on the **My Computer** icon and select **Properties**.

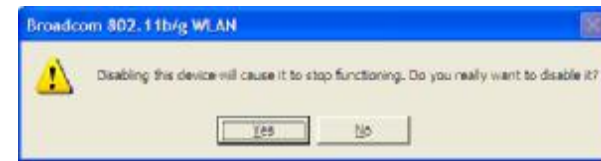
Click the **Hardware** tab and then click **Device Manager**. Scroll down the list and click the + sign to the left of **Network Adapters**.



Right-click the adapter you would like to disable and select **Disable**.

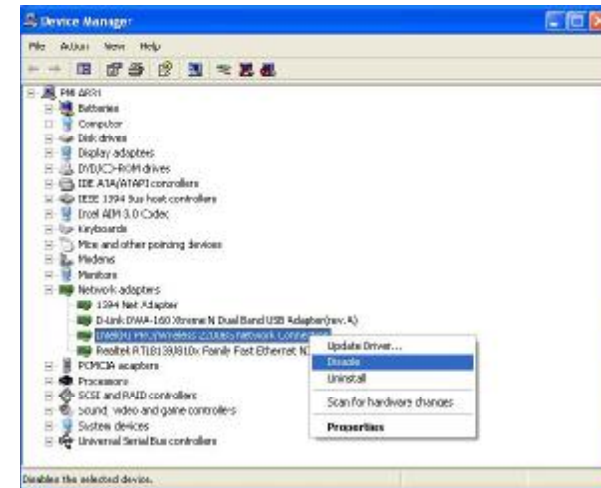


Click **Yes** to disable the adapter.



When the adapter is disabled, a down arrow or a grayed icon will be displayed.

Disabling the adapter will not remove the drivers. If you would like to use the adapter, simply right-click it and select **Enable**.



Wireless Installation Considerations

The D-Link wireless adapter lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

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

Adapter Installation

Warning: Do NOT install the DWA-160 Xtreme N™ Dual Band USB Adapter into your computer before installing the driver software from the D-Link CD.

Turn on the computer and Insert the D-Link DWA-160 Driver CD in the CD-ROM drive.

If the CD Autorun function does not automatically start on your computer, go to **Start > Run**. In the run box type "**D:\autorun.exe**" (where **D:** represents the drive letter of your CD-ROM drive).

When the autorun screen appears, click **Install Drivers**.



Section 2 - Installation

The *InstallShield Wizard* window will appear. Click **Next** to continue.



By default setup will install to the default location: `C:\Program Files\D-Link\DWA-160`, where C: represents the drive letter of your hard drive. To install to a different location click **Browse** and specify the location, then click **Next**.



Select the Program Files folder location and click **Next**.



Section 2 - Installation

Insert the adapter into an available USB port on your computer. Click **Next** to continue.

If the *Found New Hardware Wizard* appears, click **Cancel**.



The Wireless Connection Wizard will now appear.

If you want to manually connect to a wireless network, refer to page 15. The following instructions will connect you to a wireless network using Wi-Fi Protected Setup (WPS). Click **Next** to continue.



Push Button Configuration (PBC)

To connect to your network using the WPS push button configuration method, click the virtual button as shown in the screenshot.

Note: You may also connect to your network by pressing the WPS button on the adapter and holding for two seconds until the wizard screen comes up. Then, press the WPS button on the router/access point to continue.

Press the WPS button on your access point or wireless router within 2 minutes to establish connectivity.

When this screen appears, you have successfully connected to your wireless network. Click **Next** to complete your setup.



Section 2 - Installation

To manually connect to your wireless network, select **Manually connect to a wireless network** and then click **Next**.



Enter the network name (SSID) manually. If you enter the SSID incorrectly, you will automatically be brought to the site survey page. Click **Scan** to display the site survey page.



Click the **Scan** button to display a list of wireless networks (site survey). Click on the network name (SSID) and click **Next**.



Section 2 - Installation

When this screen appears, you are successfully connected to your wireless network. Click **Next** to complete your setup.



Click **Finish** to continue. If you are prompted to reboot your computer, select **Yes, I want to restart my computer now.**



Configuration

This section will show you how to configure your new D-Link wireless adapter using the D-Link Utility as well as Windows® XP Zero Configuration and Vista® WLAN Auto Configuration.

D-Link Wireless Connection Manager

The D-Link DWA-160 uses the Wireless Connection Manager as the management software. The manager provides the user an easy interface to change any settings related to the wireless adapter. Clicking on the Wireless Connection Manager icon on the desktop will start the Configuration.

If you are using Windows® 7, Vista®, or XP, please skip to pages 28, 29 or 30 respectively.

Double-click the **Wireless Connection Manager** icon on your desktop.



Wireless Networks

The Wireless Networks (Site Survey) page will display all wireless networks that are available in your area. To connect to a network, simply highlight the wireless network (SSID) and click **Connect**.

SSID: The SSID (Service Set Identifier) is the name of the wireless network.

MAC: Displays the MAC address of the wireless device.

Signal: Displays the Link Quality of the wireless connection.

Security: If there is a “lock” icon, this means the wireless network is secure. You must know the encryption key/security settings to connect.

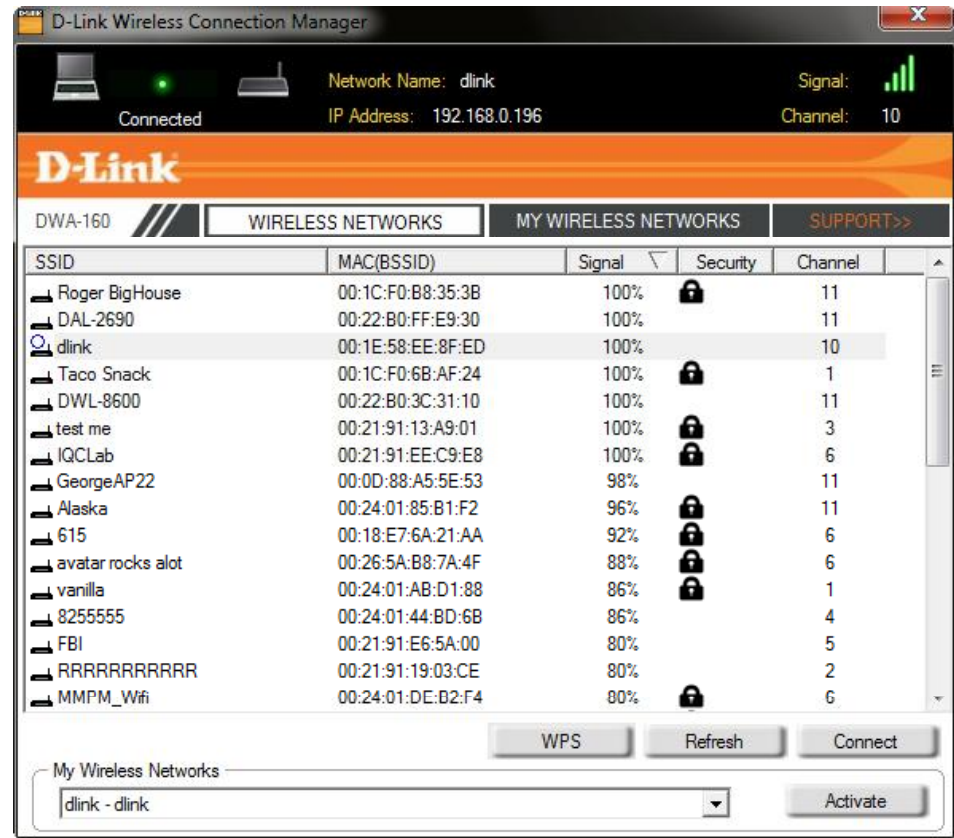
Channel: Displays the channel of the wireless network.

WPS Button: Connect to a wireless network using Wi-Fi Protected Setup. Refer to the next page.

Refresh Button: Rescans for available wireless networks in your area.

Connect Button: Highlight a wireless network and click the **Connect** button. If the network is secure, a pop-up window will appear. Enter the security information to connect (refer to the *Wireless Security* section for more information).

Activate Button: Select a wireless network profile from the drop-down menu and click **Activate** to connect. Allow up to 30 seconds to connect.



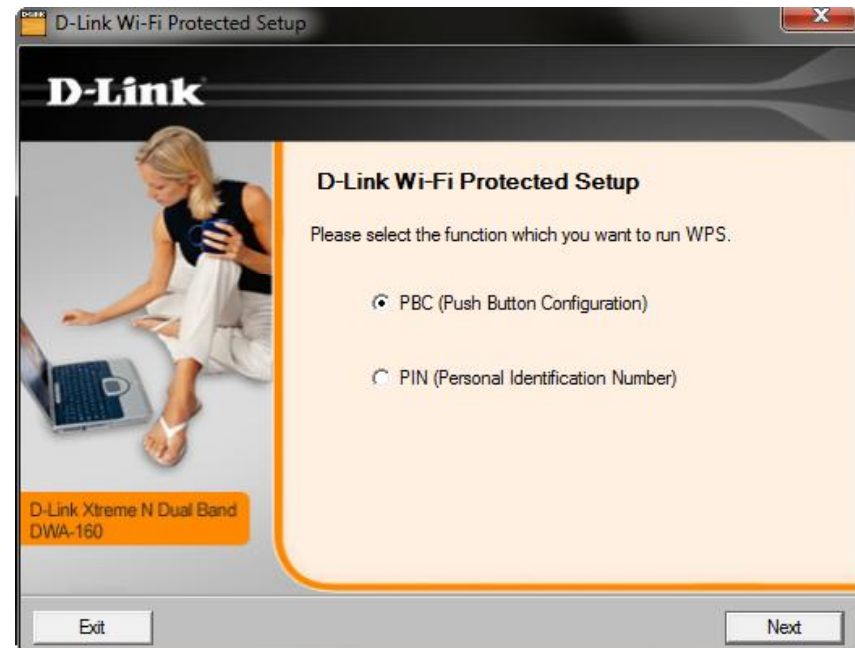
Wi-Fi® Protected Setup (WPS)

Wi-Fi Protected Setup (WPS) System is designed for easy setup of security-enabled Wi-Fi networks. It is recommended to have the access point or wireless router nearby during setup.

For more information on WPS, visit the Wi-Fi Alliance website at www.wi-fi.org.

“Push Button Configuration” (PBC) is a virtual button in the utility that connects you to other WPS-enabled devices. A connection can be established by clicking on the virtual button, then pushing the physical button on the access point or wireless router within 120 seconds. Refer to page 15.

“Personal Identification Number” (PIN) is a unique number generated randomly by the wireless adapter’s utility. Entering this number in the utility of the WPS-enabled wireless router or access point connects you with the intended wireless network. Refer to page 22 for more information.



Push Button

1. To connect to your network, press the WPS button on the adapter and hold for two seconds until the wizard screen appears.



2. Press the WPS button located on your access point or router to continue. This screen will appear once you have successfully established connection with your network.



Personal Identification Number (PIN)

If you want to connect using the PBC method, refer to page 20. To use the PIN method, select PIN (Personal Identification Number) and click **Next**.



Make sure your access point or wireless router is close by. Write down the number on the screen. Enter this number in your access point or wireless router. Please refer to the manufacturer's manual for instructions.

Once you click **Next**, you will have 2 minutes to enter this number in your access point or wireless router.



Section 3 - Configuration

The adapter will try to establish connectivity to your access point or wireless router.



When this screen appears, you have successfully established connectivity. Click **Finish** to complete your setup.



My Wireless Networks

The My Wireless Networks page will allow you to create, edit, and delete wireless network profiles. Every time you connect to a network using the *Wireless Networks* page, a profile will automatically be created.

New Button: Click **New** to create a new wireless network profile (refer to page 24).

Modify: Click **Modify** to edit a current profile (refer to page 25).

Delete: Click **Delete** to remove a profile.

Activate: Click **Activate** to use a profile. Allow up to 30 seconds to connect to the wireless network.

Profile Details: The Profile Details section will display information about the wireless network such as the network name (SSID), network type (Infrastructure), and if the network is secured.



Add Profile

You may add a new network by clicking the **New** button from the *My Wireless Networks* page.

Profile Name: Enter a name for your profile (e.g. Home, Office, Coffee Shop).

SSID: Enter the SSID of the wireless network.

Network Type: Select the network type. If you are connecting to a wireless router or access point, select **Infrastructure**.

Security Type: Select the type of security used. Please refer to the **Wireless Security** section for more information.

OK Button: Click **OK** to save your settings.

Profile Settings

Basic Settings

Profile Name: dlink

SSID: dlink

Network Type: Infrastructure Ad hoc

Set Security Option

None

WEP

WPA/WPA2-Personal

WPA/WPA2-Enterprise

Passphrase Settings

Auto TKIP AES

Key: *****

Show text in the password field

OK Cancel

Modify Profile

You may edit an existing profile by selecting the profile and clicking the **Modify** button from the *My Wireless Networks* page.

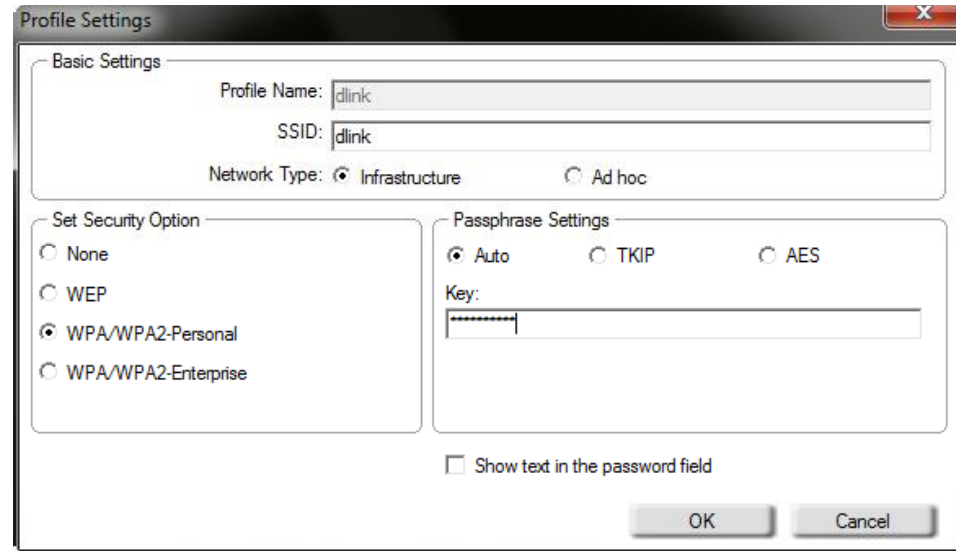
Profile Name: Enter a name for your profile (e.g. Home, Office, Coffee Shop).

SSID: Displays the SSID of the network.

Network Type: Displays the network type.

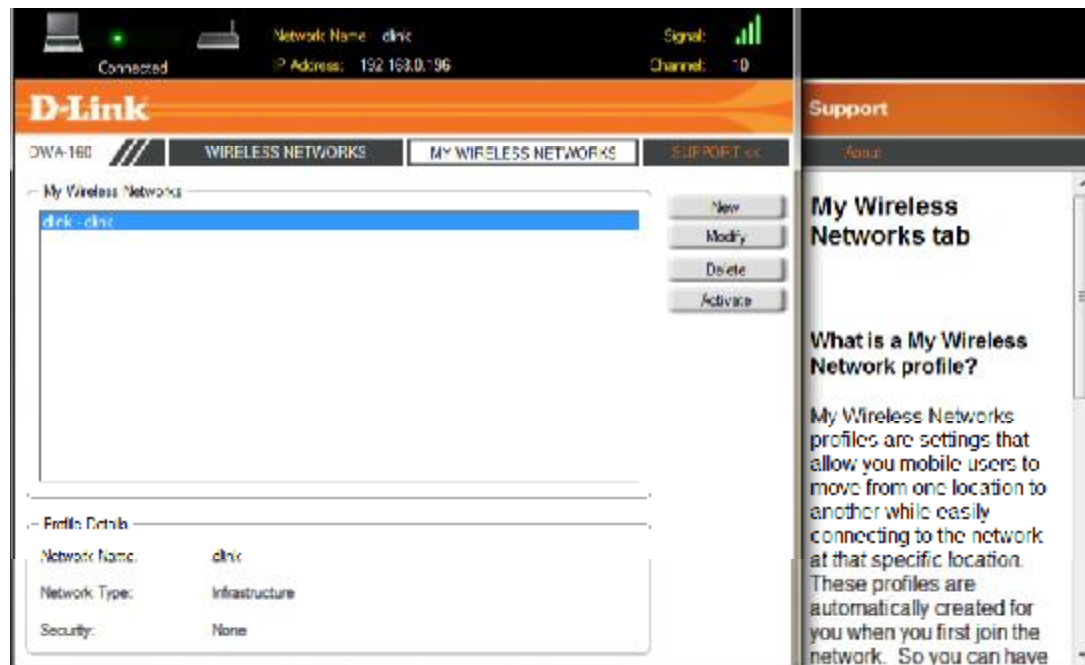
Security Type: Select the type of security used. Please refer to the **Wireless Security** section for more information.

OK Button: Click **OK** to save your settings.



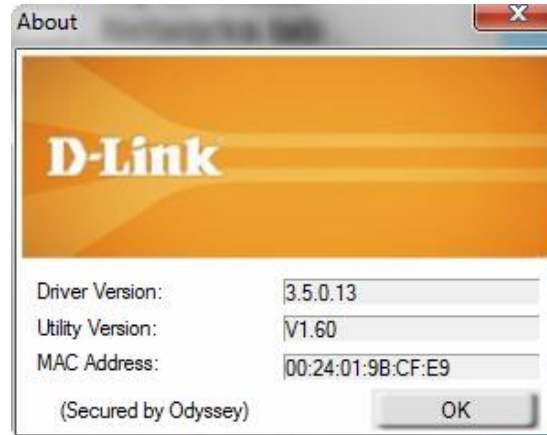
Support

If you need help, click the **Support** button. A panel will appear to the right of the utility which will display information about the utility.



About

The About screen gives you information about the Firmware and Utility Versions of the DWA-160.



Connect to a Wireless Network Windows® 7

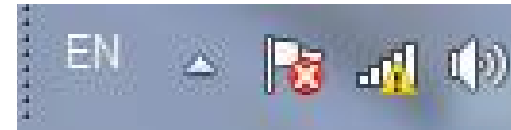
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

Left-click the wireless icon in your system tray (lower-right corner next to the time).

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 for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



Windows Vista®

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, confirm the encryption by reviewing the profile or check the TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



Windows® XP

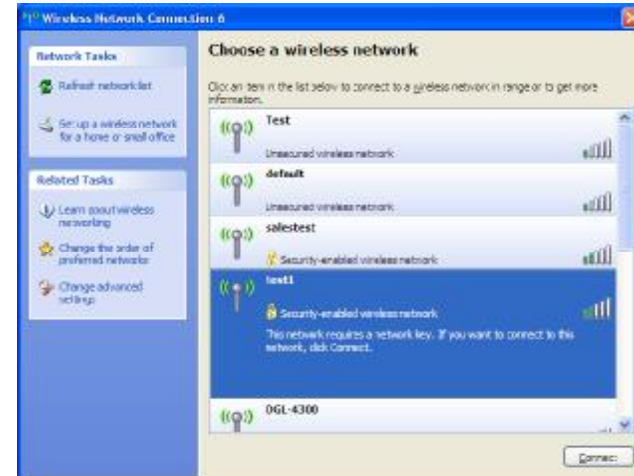
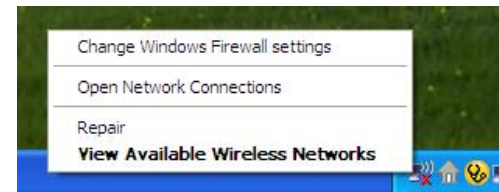
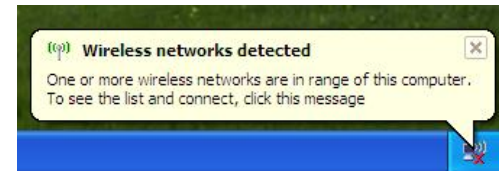
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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 the TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DWA-160 offers the following types of security:

- WPA/WPA2-Personal
- WPA/WPA2-Enterprise

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 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.

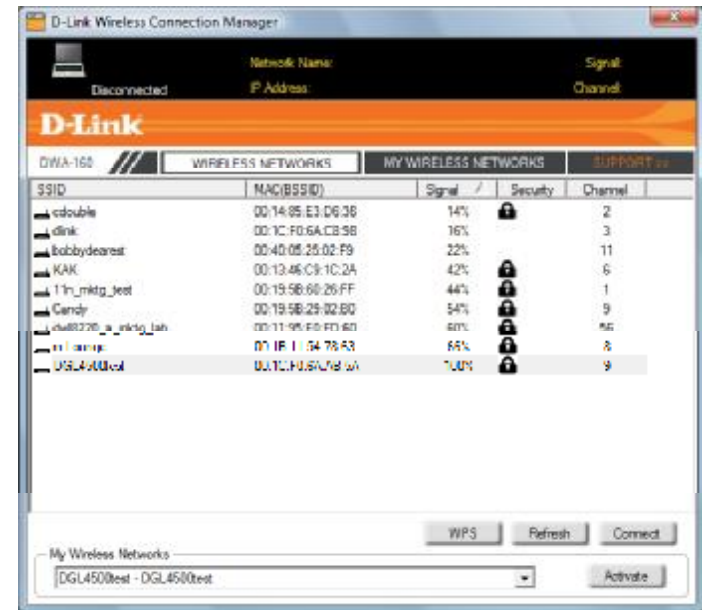
WPA/WPA2-Personal uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless router or access point.

WPA/WPA2-Enterprise incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

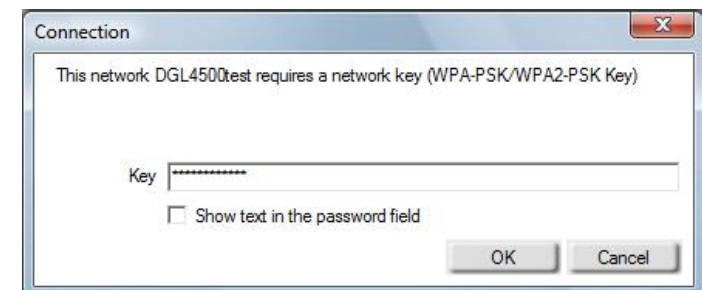
Configure WPA/WPA2-Personal Using the D-Link Wireless Connection Manager

It is recommended to enable WPA/WPA2-Personal 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/WPA2-Personal passphrase being used.

1. Open the Wireless Connection Manager by double-clicking on the D-Link icon on your desktop.
2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**. If the network is using WPA/WPA2-Personal, the screen (as shown to the bottom-right) will appear.
3. Enter the WPA/WPA2-Personal passphrase exactly as it is on your wireless router or access point. Click the **Show text in the password field** box to see the passphrase. Unchecking it will hide it.
4. Click **OK** to connect to the network. Allow up to 30 seconds to connect.

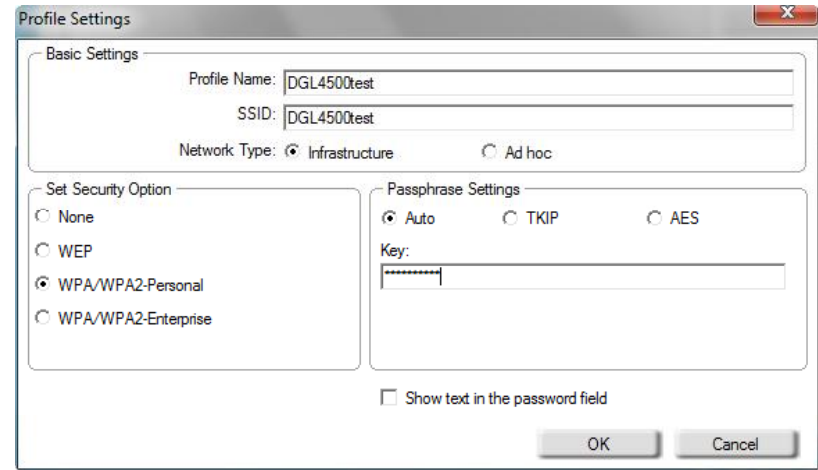


If you would like to create a new network and enter the WPA/WPA2-Personal settings, refer to the next page.



It is recommended to enable WPA/WPA2-Personal on your wireless router or access point before configuring your wireless adapter. Make sure you enter the passphrase exactly the same on all wireless devices.

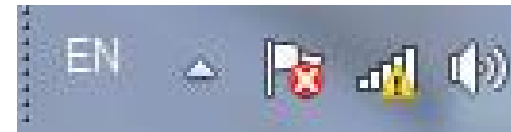
1. Open the Wireless Connection Manager by double-clicking on the D-Link icon on your desktop. Click on **New** to create a new profile or highlight an existing profile and click **Modify**.
2. Select **WPA/WPA2-Personal** under *Set Security Option*.
3. Select **TKIP** or **AES**, or **Auto**.
4. Enter the passphrase exactly as it is on your wireless router or access point.
5. Click **OK** to connect to the network. Allow up to 30 seconds to connect.



Configure WPA/WPA2 Passphrase 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).



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

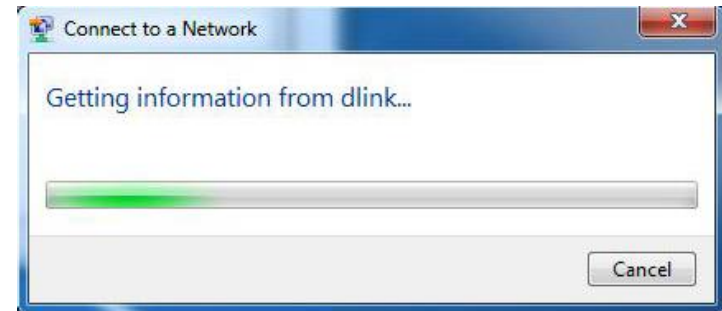


3. Highlight the wireless network (SSID) you would like to connect to and click the Connect button.

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.



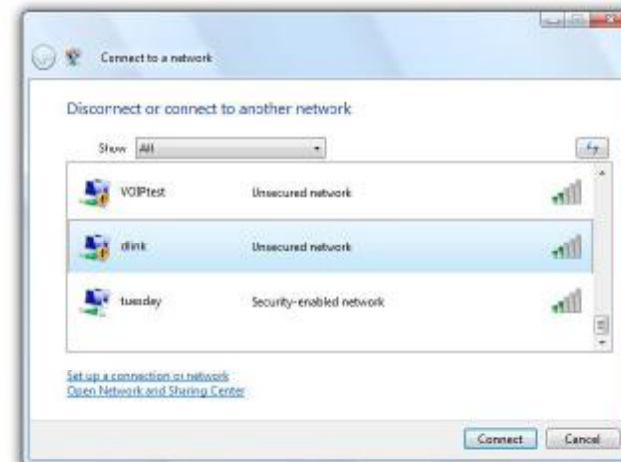
Windows Vista®

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**.

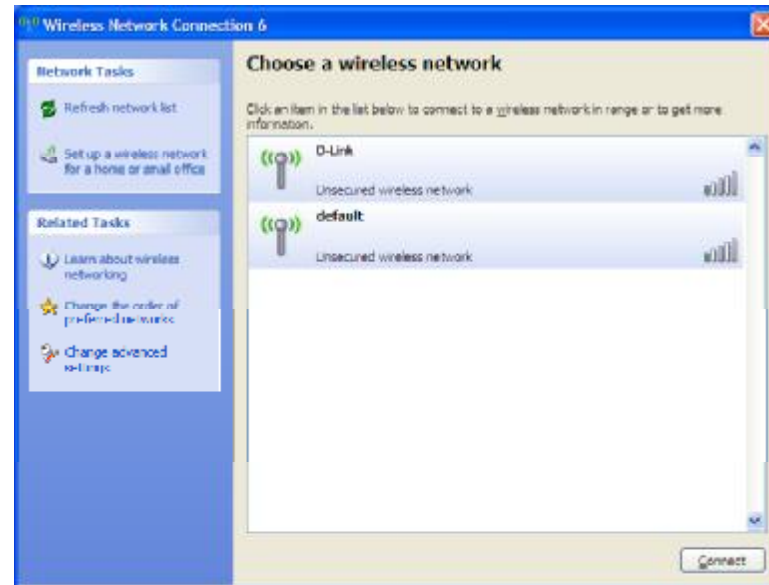
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



Windows® XP

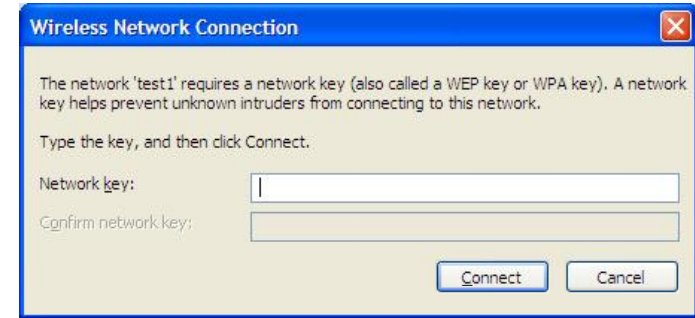
It is recommended to enable WPA/WPA2-Personal on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA/WPA2-Personal key being used.

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/WPA2-Personal 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/WPA2-Personal settings are correct. The WPA/WPA2-Personal passphrase must be exactly the same as on the wireless router or access point.

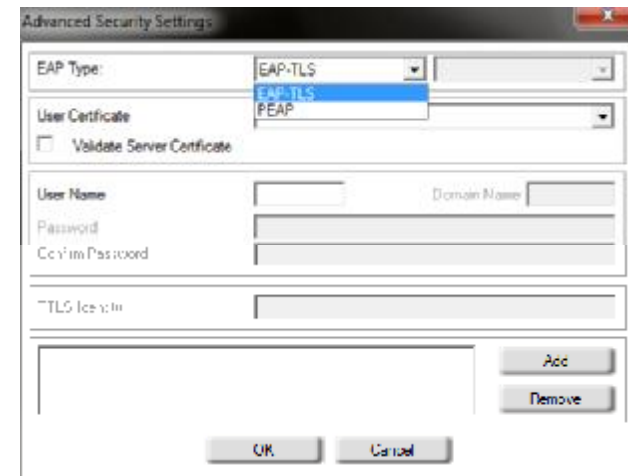
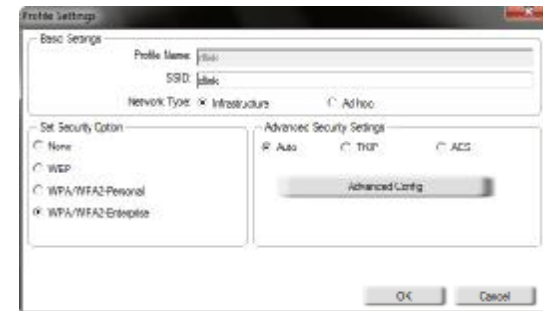


Configure WPA/WPA2-Enterprise

Using the D-Link Wireless Connection Manager

WPA/WPA2-Enterprise is for advanced users who are familiar with using a RADIUS server and setting up certificates.

1. Open the Wireless Connection Manager by double-clicking on the D-Link icon on your desktop. Click on **New** to create a new profile or highlight an existing profile and click **Modify**.
2. Select **WPA/WPA2-Enterprise** under *Set Security Option* and then select **TKIP** or **AES**.
3. Click on **Advanced Config** to continue.
4. Next to *EAP Type*, select **EAP-TLS** or **PEAP**. Extensible Authentication Protocols allow devices on the network to request authentication from the RADIUS server in the network. All the devices on the network must use the same EAP type when using a RADIUS server for authentication. Some RADIUS servers require that the *Validate Server* field be selected. Check this field if your RADIUS server requires validation.
5. Select an **User Certificate** from the drop-down menu.
6. Enter the login information required to authenticate.
7. Click **Add** to enter the IP address(es) of your RADIUS servers.
8. Click **OK** to save your settings.



Troubleshooting

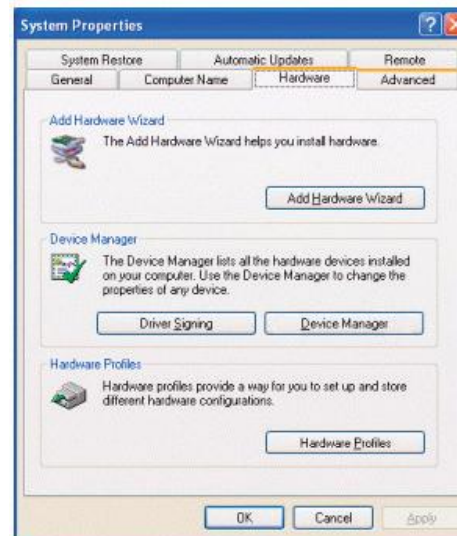
This chapter provides solutions to problems that can occur during the installation and operation of the DWA-160. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. How do I know if my adapter is installed properly?

Go to **Start > My Computer > Properties.**



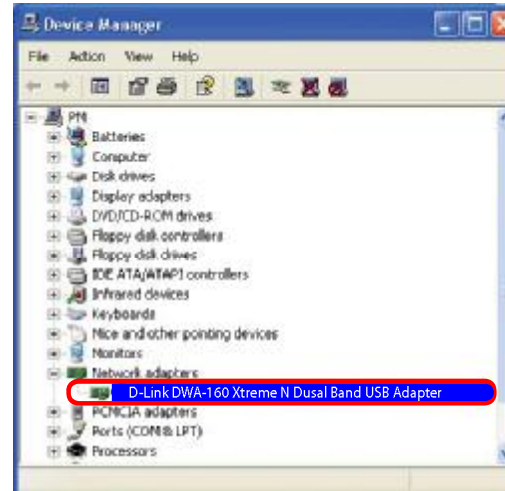
Select the **Hardware Tab**, then select **Device Manager.**



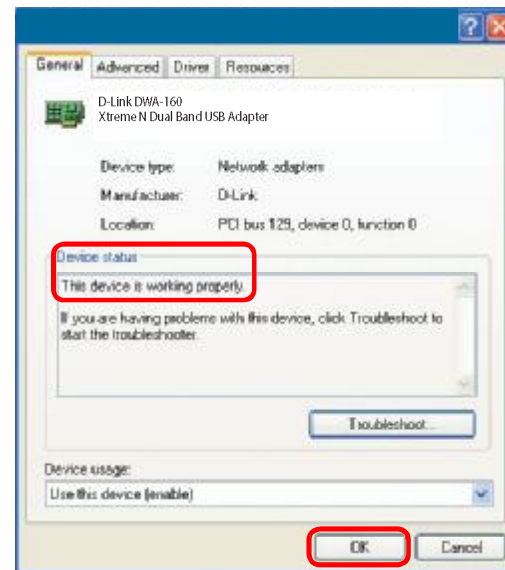
Click the + sign next to **Network Adapters**.

Right-click on **D-Link DWA-160 Xtreme N Dual Band USB Adapter**.

Select **Properties** to check that the drivers are installed properly.



Look under **Device Status** to check that the device is working properly. Click **OK** to continue.



2. The computer does not recognize the DWA-160 Wireless Adapter.

Make sure that the DWA-160 Wireless Adapter is properly seated in the computer's USB port.

If Windows® does not detect the hardware upon insertion of the adapter, make sure to completely remove drivers that were previously loaded.

3. The computer with the DWA-160 installed is unable to connect to the wireless network and/or the Internet.

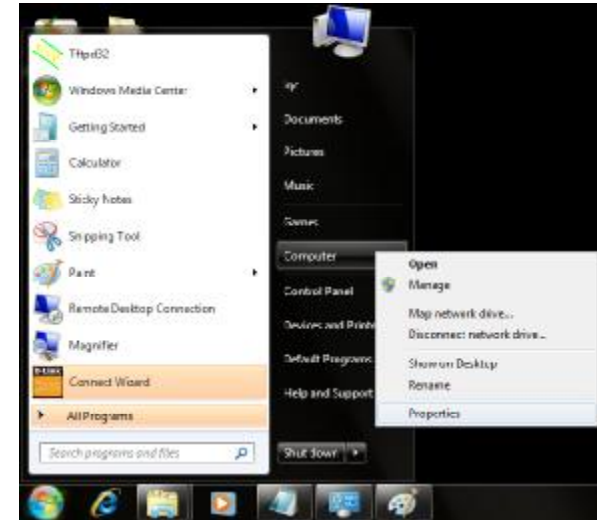
- Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.
- Check that the LED indicators on the wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP Address, subnet mask, gateway, and DNS settings are correctly entered for the network
- In **Infrastructure** mode, make sure the same **Service Set Identifier (SSID)** is specified on the settings for the wireless clients and access points. By default, the **SSID** factory setting for D-Link products is blank. (Double-click on the WLAN icon in the taskbar. The **Link Info** screen will display the SSID setting.)

Check that the **Network Connection** for the wireless client is configured properly. Select **AP (Infrastructure)** when connecting to an access point. Double-click on the **WLAN icon** in the taskbar > click on **Configuration** to change the settings for the wireless adapter.

If **Security** is enabled, make sure that the correct encryption keys are entered on both the DWA-160 and the access point. Double-click on the **WLAN icon** in the taskbar > click **Encryption**. Check to see that the key selected is set to the same key as other devices on the network.

Windows® 7 Troubleshooting

Go to **Start > Computer > Properties**.



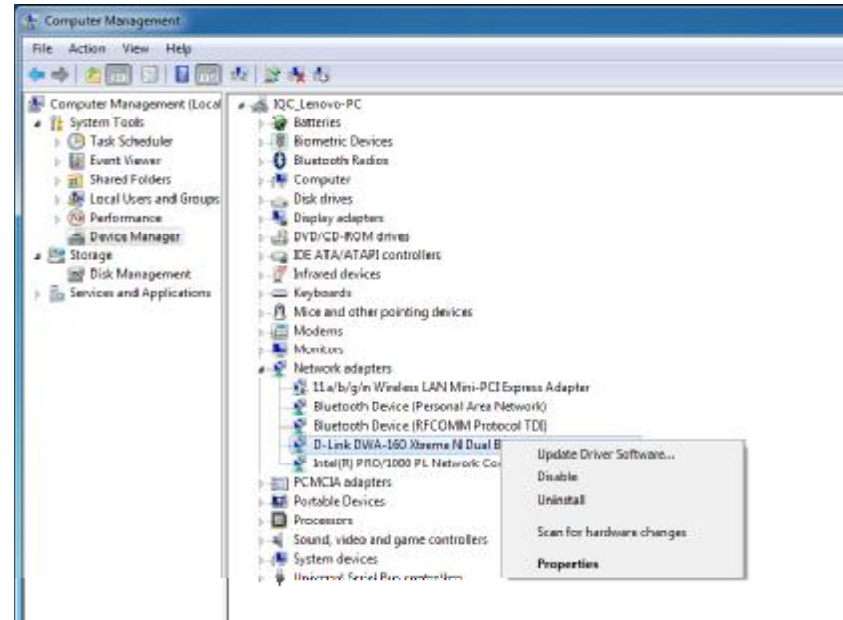
Select the **Device Manager**



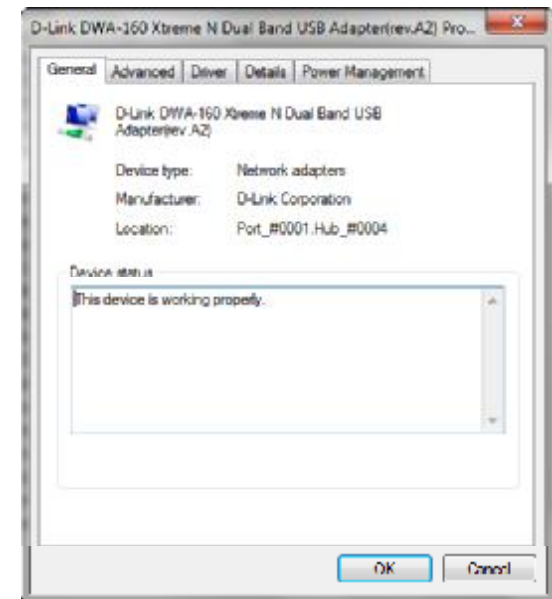
Click the + sign next to **Network Adapters**.

Right-click on **D-Link DWA-160 Wireless Desktop Adapter**.

Select **Properties** to check that the drivers are installed properly.



Look under **Device Status** to check that the device is working properly. Click **OK** to continue.



Wireless Basics

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

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

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

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

What is Wireless?

Wireless or Wi-Fi® technology is another way of connecting your computer to the network without using wires. Wi-Fi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office network.

Why D-Link Wireless?

D-Link is the worldwide leader and award winning designer, developer, and manufacturer of networking products. D-Link delivers the performance you need at a price you can afford. D-Link has all the products you need to build your network.

How does wireless work?

Wireless works similar to how cordless phone work, through radio signals to transmit data from one point A to point B. But wireless technology has restrictions as to how you can access the network. You must be within the wireless network range area to be able to connect your computer. There are two different types of wireless networks Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)

Bluetooth® is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate in a range up to 30 feet away.

Compared to WLAN the speed and wireless operation range are both less than WLAN, but in return it doesn't use nearly as much power which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

Who uses wireless?

Wireless technology has become so popular in recent years that almost everyone is using it, whether it's for home, office, or business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the web, check email, instant message, and etc
- Gets rid of the cables around the house
- Simple and easy to use

Small Office and Home Office

- Stay on top of everything at home as you would at the office
- Remotely access your office network from home
- Share an Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere not just at home or the office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a D-Link USB Adapter with your laptop, you can access the hotspot to connect to the Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless networks are easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips

Here are a few things to keep in mind, when you install a wireless network.

Centralize your router or Access Point

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference

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

Security

Don't let your next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on WPA™/WPA2™ security features on the router. Refer to the product manual for detailed information on how to set it up.

Wireless Modes

There are basically two modes of networking:

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

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

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

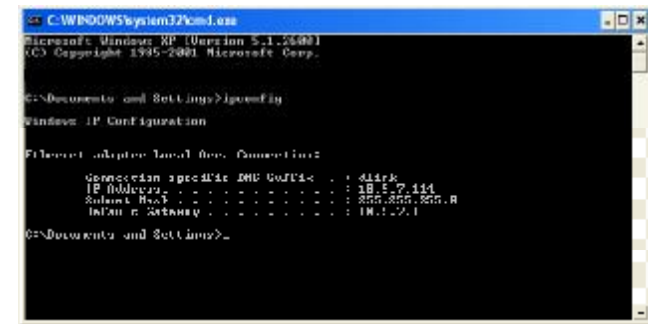
Networking Basics

Check your IP address

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

Windows® XP/2000 Users

- Click on **Start** > **Run**. In the run box type *cmd* and click **OK**.
- At the prompt, type *ipconfig* and press **Enter**.
- This will display the IP address, subnet mask, and the default gateway of your adapter.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 5.1.2600]
(C) Copyright 1995-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

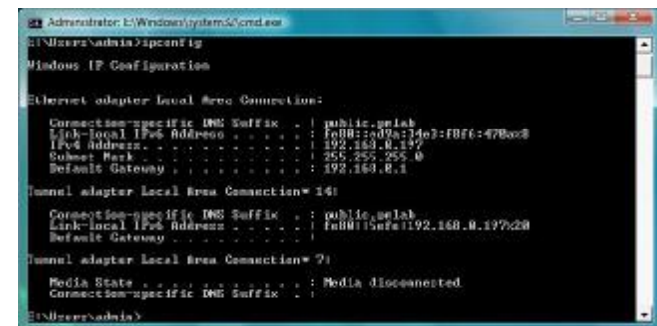
Windows IP Configuration

Wireless adapter Local Area Connection:
    Connection-specific DNS Suffix . . . : dlink
    IP Address . . . . . : 192.168.1.114
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Documents and Settings>
```

Windows® 7/Vista® Users

- Click **Start** > **All Programs** > **Accessories** > **Command Prompt**. You may need administrative access to run this application.
- For all additional prompt windows inquiring of running the command prompt application, select **Yes**, **OK**, or **Continue**.
- At the prompt, type *ipconfig* and press **Enter**.
- This will display the IP address, subnet mask, and default gateway of your adapter.



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

Windows IP Configuration

Ethernet adapter Local Area Connection:
    Connection-specific DNS Suffix . . : public.wpiab
    Link-local IPv6 Address . . . . . : fe80::a33a:1463:fbff:47b0c8
    IPv4 Address. . . . . : 192.168.0.149
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

Tunnel adapter Local Area Connection* 14:
    Connection-specific DNS Suffix . . : public.wpiab
    Link-local IPv6 Address . . . . . : fe80:15fa:192:168::197:28
    Default Gateway . . . . . :

Tunnel adapter Local Area Connection* 71:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . :

C:\Users\admin>
```

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.

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:

Windows® XP/2000 Users

- **Windows® XP** - Click on **Start > Control Panel**. Make sure you are in Classic View. Double-click on the Network Connections icon.
Windows® 2000 – From the desktop, right-click **My Network Places > Properties**.
- Right-click on the **Local Area Connection** which represents your D-Link wireless network adapter (or other adapter) which will be connected to your router.
- Highlight **Internet Protocol (TCP/IP)** and click **Properties**.
- Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or 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 or gateway.
- Set **Primary DNS** the same as the LAN IP address of your router or gateway.
- The **Secondary DNS** is optional (you may enter a DNS server from your ISP).
- Click **OK** to save your settings.

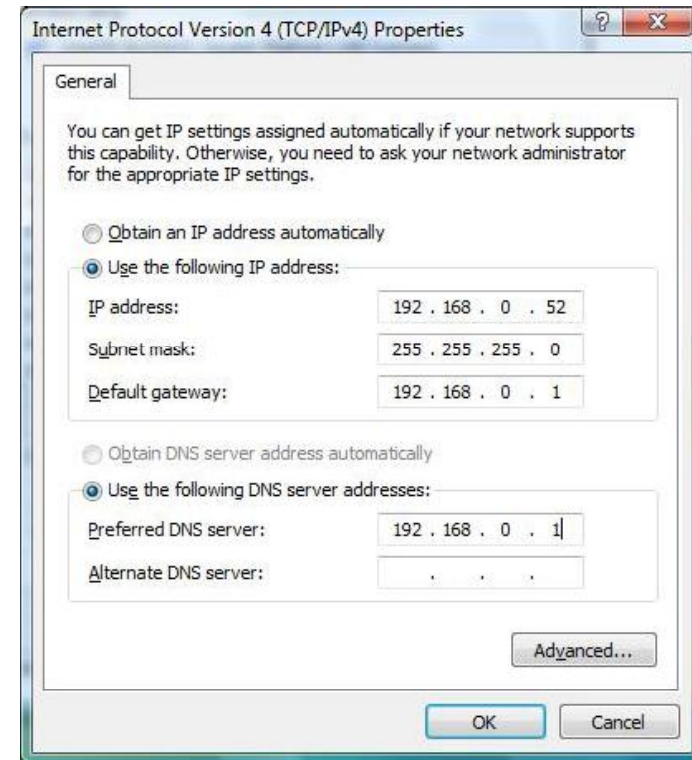


Windows® 7/ Vista® Users

- Click on **Start > Control Panel** (make sure you are in Classic View). Double-click on the **Network and Sharing Center** icon. If you are using Windows Vista, click on **Manage network connections** along the left panel in the window. For Windows® 7, click on **Change adapter settings**.
- Right-click on the **Local Area Connection** which represents your D-Link wireless network adapter which will be connected to your network.
- Highlight **Internet Protocol Version 4 (TCP /IPv4)** and click **Properties**.
- Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or LAN IP address on your router or network.

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 or gateway.
- Set **Primary DNS** the same as the LAN IP address of your router or gateway.
- The **Secondary DNS** is optional (you may enter a DNS server from your ISP).
- Click **OK** to save your settings.



Contacting Technical Support

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DWA-160)
- Hardware Revision (located on the label on the adapter (e.g. rev B2))
- Serial Number (s/n number located on the label on the adapter).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:
(877) 453-5465

Internet Support:
<http://support.dlink.com>

For customers within Canada:

Phone Support:
(800) 361-5265

Internet Support:
<http://support.dlink.ca>

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below ("Hardware") will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below ("Warranty Period"), except as otherwise stated herein.

- Hardware: One (1) year

The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty:

D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days (“Software Warranty Period”), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link’s functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty:

The Limited Warranty provided hereunder for Hardware and Software portions of D-Link’s products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold “As-Is” without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim:

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support (USA 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization (“RMA”) number by completing the RMA form. Enter the assigned Case ID Number at <https://rma.dlink.com/> (USA only).
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the product and will not ship back any accessories.

- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery (“COD”) is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to D-Link Systems, Inc.
- **USA residents** send to 17595 Mt. Herrmann, Fountain Valley, CA 92708. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link’s reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.
- **Canadian residents** send to D-Link Networks, Inc., 2525 Meadowvale Boulevard Mississauga, Ontario, L5N 5S2 Canada. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via Purolator Canada or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in Canada, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link’s reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming. RMA phone number: 1-800-361-5265 Hours of Operation: Monday-Friday, 9:00AM – 9:00PM EST.

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:

Products that, in D-Link’s judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties:

EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability:

TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NONCONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law:

This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

Trademarks:

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

Copyright Statement:

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

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Registration

Register your product online at registration.dlink.com



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

Version 2.0
October 4, 2011

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.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment.

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 NOTE:

Radiation Exposure Statement:

The product comply with the US/Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

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

SAR compliance has been established in typical laptop computer(s) with USB slot, and product could be used in typical laptop computer with USB slot. Other application like handheld PC or similar device has not

been verified and may not compliance with related RF exposure rule and such use shall be prohibited.

The USB dongle transmitter is approved for use in typical laptop computers. To comply with FCC RF exposure requirements, it should not be used in other devices or certain laptop and tablet computer configurations where the USB connectors on the host computer are unable to provide or ensure the necessary operating configurations intended for the device and its users or bystanders to satisfy RF exposure compliance requirements.

Industry Canada statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and

(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(iv) Users should also be advised that 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:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(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) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

(iv) 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:

The product comply with the US/Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

NOTE IMPORTANTE: Déclaration d'exposition aux radiations:

Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada établies pour un environnement non contrôlé.

Le produit est sûr pour un fonctionnement tel que décrit dans ce manuel. La réduction aux expositions RF peut être augmentée si l'appareil peut être conservé aussi loin que possible du corps de l'utilisateur ou que le dispositif est réglé sur la puissance de sortie la plus faible si une telle fonction est disponible.

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 赫茲(GHZ)頻帶內操作之無線資訊傳輸設備，限於室內使用。