



User Manual

Wireless AC1200 Dual Band PCI Express Adapter

Table of Contents

Product Overview	3	Check your IP address.....	31
Package Contents.....	3	Statically Assign an IP address	32
System Requirements.....	3	Technical Specifications	33
Introduction	4		
Features.....	5		
Hardware Overview.....	6		
LEDs.....	6		
Installation	7		
Getting Started.....	7		
Remove Existing Installations	7		
Disable Other Wireless Adapters.....	8		
Wireless Installation Considerations.....	10		
Driver/Software Installation	11		
Hardware Installation.....	14		
Connecting to a Wireless Network.....	15		
Using Windows 8	15		
Using Windows 7	17		
Configuring Wireless Security	19		
Wireless Security	22		
What is WPA™?	22		
Troubleshooting	23		
Wireless Basics	27		
Networking Basics	31		

Package Contents



D-Link DWA-582 Wireless AC1200 Dual Band PCI Express Adapter



Two Antennas



Low Profile Bracket



CD with drivers and software

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

System Requirements

- A desktop computer with an available 64-bit PCI Express slot
- 1 GHz processor / 512 MB RAM / 200 MB available space / CD-ROM drive
- Windows® 8 or 7
- An access point or wireless router

Introduction

The DWA-582 Wireless AC1200 Dual Band PCI Express Adapter is a convenient wireless connectivity solution for desktops. The device installs into a desktop's PCI Express slot.

The DWA-582 provides a fast wireless connection with superior reception, 802.11ac. The DWA-582 is designed for use in homes and small businesses that demand higher networking. Maximize wireless performance by connecting the Wireless AC1200 Dual Band PCI Express Adapter to a wireless AC router and stay connected. The DWA-582 supports WEP, WPA and WPA2 enhanced security. This feature greatly enhances personal data and prevents outside intrusion.

The dual-band technology in the DWA-582 supports 2.4 GHz or 5 GHz wireless signals. This allows you to check e-mail and browse the Internet using the 2.4 GHz band or stream HD movies and other media on the 5 GHz band. The 5 GHz band helps avoid interference by providing a cleaner wireless band for HD signals.

*Maximum wireless signal rate derived from IEEE Standard 802.11ac 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, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.

Features

- **Faster Wireless Networking*** - Enable wireless connectivity on your Desktop PC computer with the DWA-582. With the performance of D-Link's Wireless AC line of wireless products, the DWA-582 delivers an unsurpassed wireless experience. Perform multiple network tasks at once with the speed provided by this Wireless Adapter.
- **Compatible with 802.11n Devices** - Fully compatible with the 802.11n standards, the DWA-582 can connect with existing 802.11n compliant routers, access points and cards. That means you can still communicate with colleagues and friends while you have the ability to link to even more wireless networks.
- **Better Security with WPA/WPA2** - With the DWA-582 in your Desktop PC, you can securely connect to a wireless network using WPA/WPA2 (Wi-Fi Protected Access) for wireless authentication. WPA/WPA2 provides you with a much higher level of security for your data and communication than what has previously been available.
- **Total Performance** - Upgrade your computer with the latest Wireless AC technology.
- **Total Wireless Protection** - Connect to secure wireless networks using WPA and WPA2.
- **Total Connection** - Operates on the 2.4 GHz and the 5.15 ~ 5.85 GHz frequency.

* Maximum wireless signal rate derived from IEEE Standard 802.11ac 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, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.

Hardware Overview

LEDs



1	Antennas	Two antennas for better coverage.
2	WLAN LED	A solid light indicates that wireless is ready. This LED blinks during wireless data transmission.
3	PCIe Connector	The PCIe connector will fit into the PCI Express slot on your computer.

Installation

This section will walk you through the installation process. If you have a built-in wireless adapter, please disable it in the 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

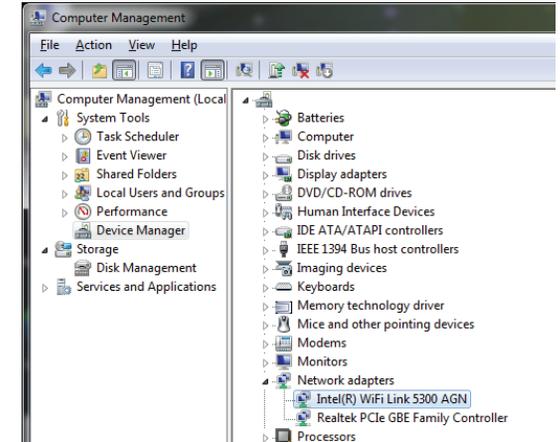
If you've installed a different manufacturer's adapter or a different model D-Link adapter, make sure the software is uninstalled before installing the new software. Some utilities may cause a conflict with the new software. If you plan to use multiple adapters at different times, make sure the utilities are not set to load when your computer boots up. To remove any old software, click **Start > Control Panel > Uninstall Programs**.

Disable Other Wireless Adapters

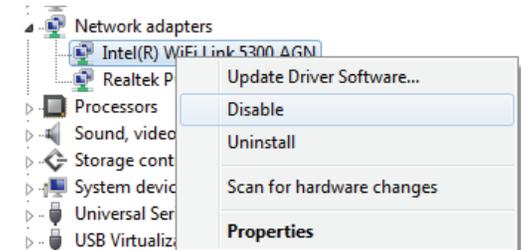
To prevent any conflicts with the D-Link wireless adapter, it is recommended to disable any wireless adapter (as well as any unused Ethernet adapters).

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

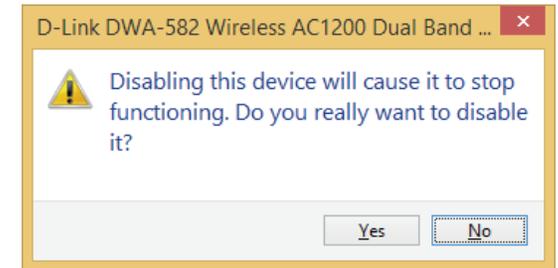
Click the **Hardware** tab and then click **Device Manager**. Scroll down the list and click the + sign to the left of **Network Adapters**.



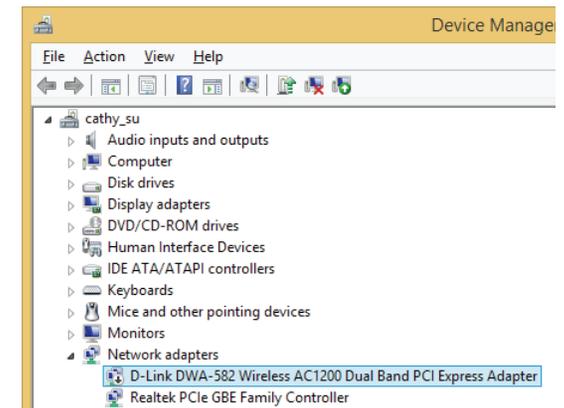
Right-click the adapter you would like to disable and select **Disable**.



Click **Yes** to disable the adapter.



The adapter is now disabled. 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 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:

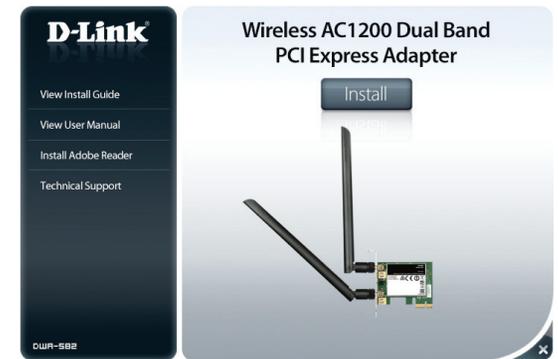
1. Keep the number of walls and ceilings between the D-Link adapter and other network devices to a minimum - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between 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 2.4 GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4 GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone is not in use.

Driver/Software Installation

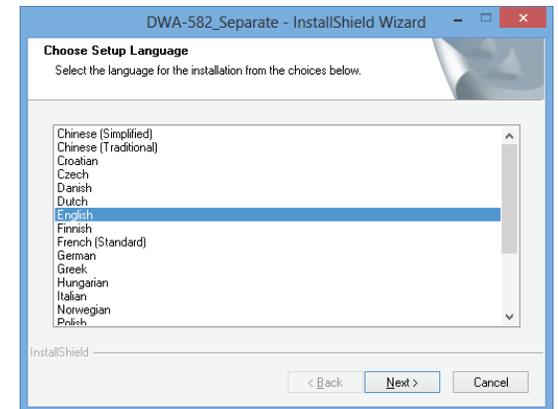
Note: Please install the drivers before physically installing the adapter into your computer.

Turn on the computer and insert the D-Link DWA-582 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).

Click on **Install** to begin.



Select your language and click **Next** to continue.



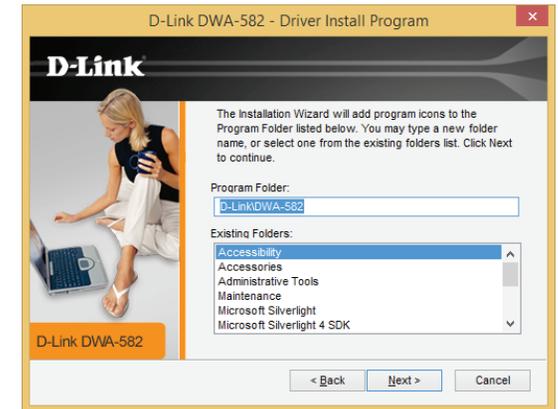
At the Welcome Wizard screen, click **Next** to continue.



By default setup will install to the default location: *C:\Program Files\D-Link\DWA-582*, where C: represents the drive letter of your hard drive. To install to a different location click **Browse** and specify the location. Click **Next**.



Select the Program Files folder location. Click **Next** to continue. The drivers will install. This may take 1-2 minutes.



Once the drivers are installed, click **Next** to continue.

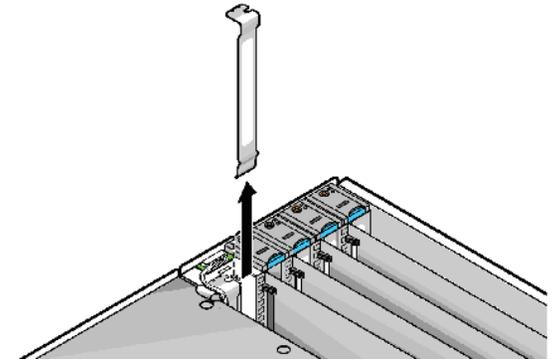


Click **Finish** to complete the driver installation. You can now install the adapter into your computer. Please turn off and unplug the power to your computer.

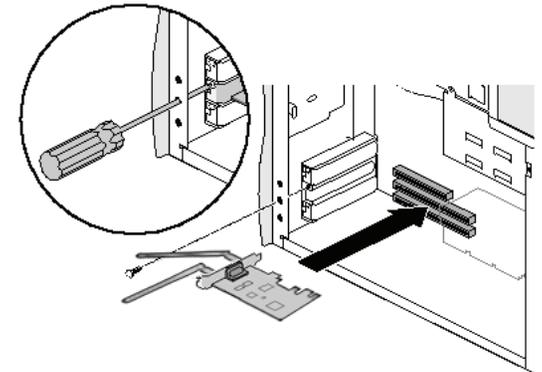


Hardware Installation

Step 1 - Open the side panel of your computer and then remove the metal cover bracket on your PCI Express slot.



Step 2 - Insert the DWA-582 firmly into the PCI Express slot and screw it in place. You may either leave the antennas on or unscrew them to make it easier to install.

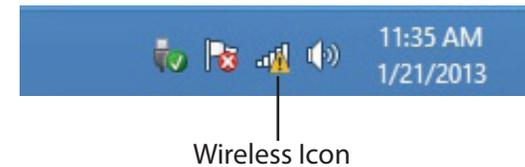


Step 3 - Replace the computer case cover and plug the power back. If you took off the antennas during installation, re-attach them now.

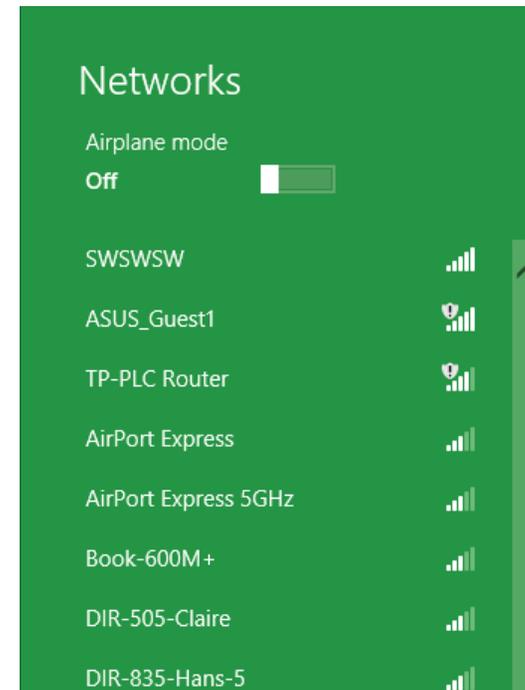
Connecting to a Wireless Network Using Windows 8

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

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

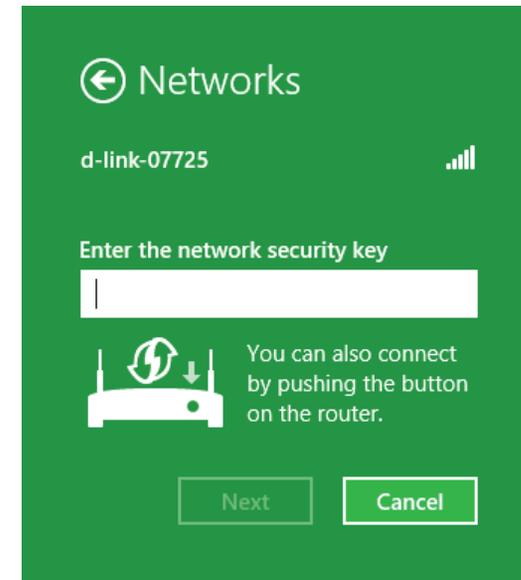


Clicking on this icon will display a list of wireless networks which are within connecting proximity of your computer. Select the desired network by clicking on the network name.

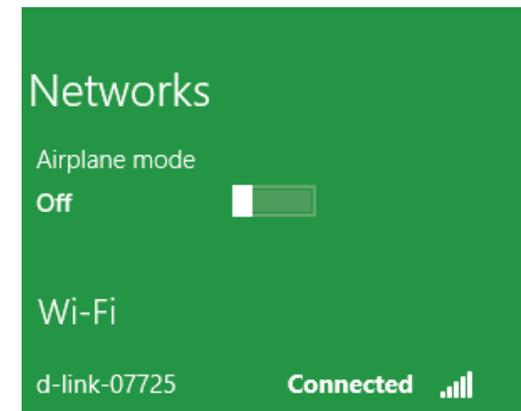


You will then be prompted to enter the network security key (Wi-Fi password) for the wireless network. Enter the password into the box and click Next.

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 to a wireless network, the word **Connected** will appear next to the name of the network to which you are connected.



Using Windows 7

Windows 7 users may use the built-in wireless utility to connect to a wireless network. 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 7 utility as seen below.

If you receive the Wireless Networks Detected bubble, click on the center of the bubble to access the utility. You can also click on the wireless icon in your system tray (lower-right corner).

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



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 **Networking Basics** on page 31 for more information.



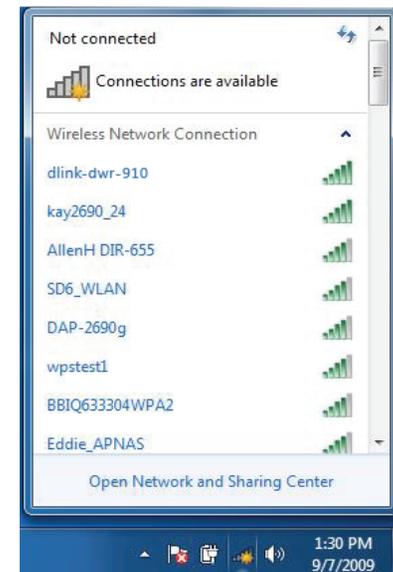
Configuring Wireless Security

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).



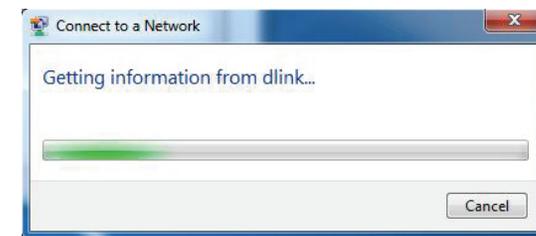
2. The utility will display any available wireless networks in your area.



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



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.



Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DWA-582 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.

Troubleshooting

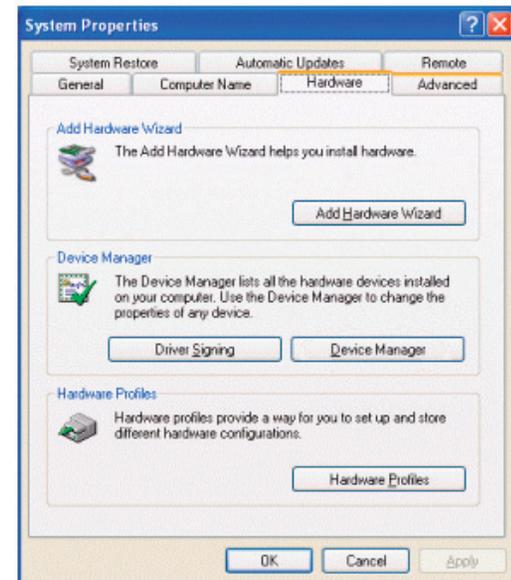
This chapter provides solutions to problems that can occur during the installation and operation of the DWA-582. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

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

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



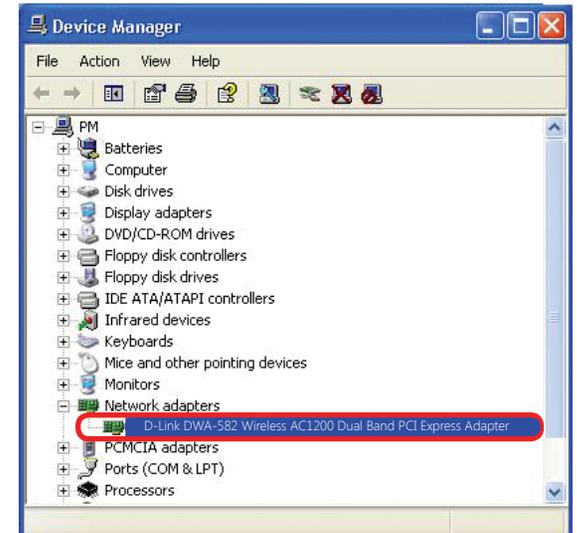
Select the **Hardware Tab.**



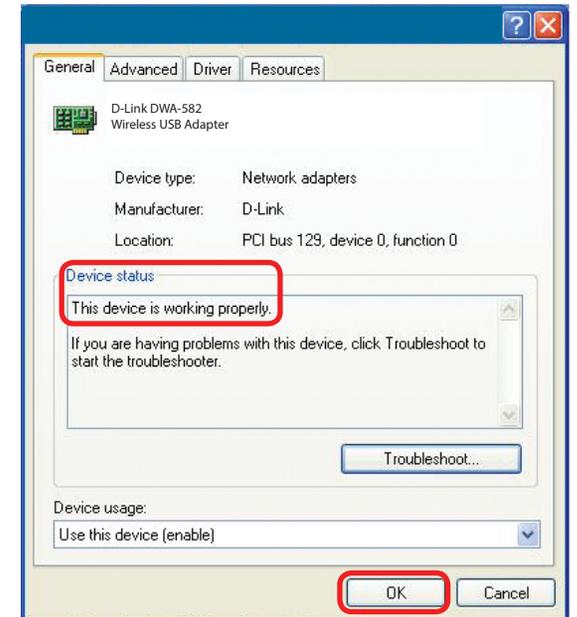
Click the + sign next to **Network Adapters**.

Right-click on **D-Link DWA-582 Wireless AC1200 Dual Band PCI Express 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. I cannot connect to the access point or the wireless router.

- Make sure that the SSID on the DWA-582 Wireless AC1200 Dual Band PCI Express Adapter is exactly the same as the SSID on the access point or wireless router.
- Move the DWA-582 and access point or wireless router into the same room and then test the wireless connection.
- Disable all security settings. (WEP, MAC Address Control, AES)
- Make sure that the radio is not locked down to a different frequency
- Turn off your access point and the computer with the DWA-582. Turn on the access point, and then turn on the computer with the DWA-582.

3. The DWA-582 Power and Link lights are not on.

- Check to see if the DWA-582 desktop adapter is firmly inserted into the PCI Express slot of your laptop computer.

4. The computer does not recognize the DWA-582 Wireless Adapter.

- Make sure that the DWA-582 is properly seated in the computer's PCI Express slot.
- If Windows does not detect the hardware upon insertion of the adapter, make sure to completely remove drivers that were previously loaded. To remove the drivers, do the following:
 - A. Under **Tools** > select **Folder Options...** > select **View** > under Hidden files and folders > select Show hidden files and folders.
 - B. Uncheck **Hide extension for known file types** > click on **Apply**
 - C. Search for previously loaded driver files. Remove these files from the INF and SYSTEM (DRIVERS) folders in the Windows directory.

5. The computer with the DWA-582 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. The SSID factory default setting for D-Link products is default.
- In **ad hoc** mode, both wireless clients will need to have the same **SSID**. Please note that it might be necessary to set up one client to establish a **BSS (Basic Service Set)** and wait briefly before setting up other clients. This prevents several clients from trying to establish a **BSS** at the same time, which can result in multiple singular **BSSs** being established, rather than a single **BSS** with multiple clients associated to it.
- Check that the **Network Connection** for the wireless client is configured properly. Select **AP (Infrastructure)** when connecting to an access point and select **ad hoc mode** when connecting without 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-582 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.

6. How can I troubleshoot distance issues using the DWA-582?

- Move the DWA-582 and access point or wireless router into the same room and then test the wireless connection.
- Change the channel of the access point.
- Move devices within the line of sight.

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 as seen in the picture, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)

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

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

Who uses wireless?

Wireless technology has become so popular in recent years that almost everyone is using it, whether it's for home, office, business, 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 office
- Remotely access your office network from home
- Share Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

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

Using a D-Link wireless desktop adapter with your laptop, you can access the hotspot to connect to Internet from remote locations, such as airports, hotels, coffee shops, libraries, restaurants, and convention centers.

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

Tips

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

Centralize your router or access point

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

Eliminate interference

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

Security

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

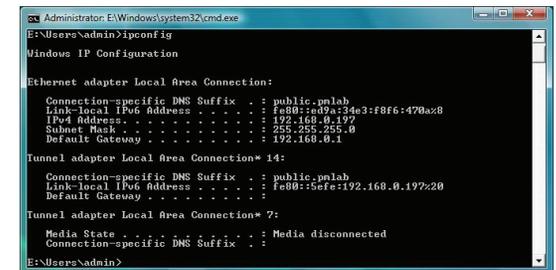
Networking Basics

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.

- 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.

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.



```
Administrator: E:\Windows\system32\cmd.exe
E:\Users\admin>ipconfig
Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : public.pnlab
    Link-local IPv6 Address . . . . . : fe80::80a1:34a3:f8f6:470a%8
    IPv4 Address. . . . . : 192.168.0.197
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

Tunnel adapter Local Area Connection* 14:

    Connection-specific DNS Suffix  . : public.pnlab
    Link-local IPv6 Address . . . . . : fe80::8efe:192.168.0.197%28
    Default Gateway . . . . . :

Tunnel adapter Local Area Connection* 7:

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

E:\Users\admin>
```

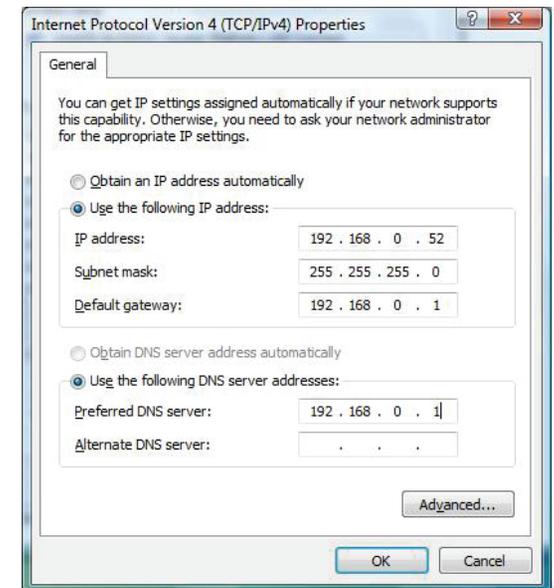
Statically Assign an IP address

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

- Click on **Start > Control Panel**. Double-click on the **Network and Sharing Center** icon, then 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.



Technical Specifications

Standards*

- IEEE 802.11ac
- IEEE 802.11n
- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.11a

Security

- Wi-Fi Protected Access (WPA™ & WPA2™)
- 64/128-bit WEP
- Wi-Fi Protected Setup - PIN & PBC

Frequency Range

- 2.4 GHz to 2.483 GHz
- 5.15 GHz to 5.35 GHz

External Antenna Type

- Two external dipole antennas

Temperature

- Operating: 0 to 40 °C (32 to 104 °F)
- Storage: -20 to 75 °C (-4 to 167 °F)

Humidity

- Operating: 10% to 90% non-condensing
- Storage: 5% to 95% non-condensing

Dimensions

- 121.06 x 79.04 x 25.17 mm (4.8 x 3.1 x 1.0 inches)

Weight

- 48.8 g (1.7 oz) with bracket

*Maximum wireless signal rate derived from IEEE Standard 802.11ac 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, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.