D-Link *Air*Plus™ G DWL-G120

**802.11g (2.4GHz)
Wireless USB 2.0 Adapter**

Manual

D-Link®
Building Networks for People

Contents

Package Contents

Contents of Package:

- **D-Link *Air*Plus™ G DWL-G120**
  2.4 GHz Wireless USB 2.0 Adapter

- Manual on CD-ROM

- Quick Installation Guide

- USB Extension Cable

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

System Requirements:

- A computer or laptop with an available USB port

- Windows XP/2000/Me/98SE

- Mac OS X (v10.2x or later)

- At least 32MB of memory and a 300MHz processor

- Properly installed and working USB Controller

Introduction

The D-Link *Air*Plus^{TM}G DWL-G120 Wireless USB Adapter is a convenient Plug & Play USB 2.0 solution that brings wireless networking to your laptop or desktop PC.

With transfer rates up to 54Mbps you can connect to a wireless network at home, at the office or at any wireless hotspot. Now you can stay connected wherever you are and wherever you go.

The DWL-G120 is Wi-Fi compliant, meaning that it can connect and interoperate with other 802.11b or 802.11g Wi-Fi-compliant wireless routers, access points and adapters. The DWL-G120 connects to any available USB port on a laptop or desktop Windows and Macintosh-based computer and also includes a standard USB extension cable. With the optional USB extension cable, the DWL-G120 can be positioned virtually anywhere at a workstation to achieve the best available wireless signal reception - whether that workstation is in your office, on your deck or patio, by the pool, at the local coffee shop, or in an airport terminal while waiting to board your next flight.

The adapter works with Apple Mac OS X (v10.2x or later) Jaguar, Microsoft Windows XP, Windows 2000 and other Windows operating systems to ensure that you'll be up and running on a wireless network in just a matter of seconds.

Using its default settings, the DWL-G120 automatically connects to other D-Link *Air* or *Air*Plus wireless products as soon as it's active.

In addition to featuring 64- or 128-bit WEP encryption, the DWL-G120 offers the added security of WPA (Wi-Fi Protected Access) when used with other WPA devices in a network with a RADIUS server.

For home users that will <u>not</u> incorporate a RADIUS server in their network, the security for the DWL-G120, used in conjunction with other WPA-compatible 802.11 products, will still be much stronger than ever before. Utilizing the **Pre-Shared Key mode** of WPA, the DWL-G120 will obtain a new security key every time it connects to the 802.11 network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security. With the DWL-G120, you will automatically receive a new key every time you connect, vastly increasing the safety of your communication.

Features and Benefits

- **Provides high-speed wireless connection** at up to 54Mbps

- **Compact size** for placement anywhere

- **Convenience** of Plug & Play installation

- **Fully 802.11b/802.11g compatible**

- **Powered by the USB port**; no external power source is required

- **USB 2.0 standard**

- **Better Security with WPA[1] -** In addition to 64-,128-bit WEP encryption, you can also securely connect to a wireless network using WPA (Wi-Fi Protected Access) providing you a much higher level of security for your data and communication than has previously been available.

- **Optimal wireless reception** using its USB cable (included). Position the DWL-G120 almost anywhere in your workspace to achieve the best reception possible.

- **Supports Infrastructure networks via an access point and Peer-to-Peer communication in Ad-Hoc mode**

- **User-friendly configuration and diagnostic utilities**

- **Connects at up to 328 feet indoors**[2]

- **One year warranty**

[1] *WPA will be available soon as a download for Mac users*

[2] *Environmental factors may adversely affect range*

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. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A wireless local area network (WLAN) is a computer network that transmits and receives data with radio signals instead of wires. WLANs 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 to 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.

People use WLAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs - WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

Scalability - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are easily changed and range from Peer-to-Peer networks suitable for a small number of users to larger Infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Wireless Basics *(continued)*

Installation Considerations

The DWL-G120 lets you access your network using a wireless connection from virtually anywhere within its operating range. 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 DWL-G120 and other network devices to a minimum - each wall or ceiling can reduce your DWL-G120'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 can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.

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

Getting Started

> **With its default settings, the DWL-G120 will connect with other D-Link *Air*Plus™ G products, right out of the box.**

There are basically two modes of networking:

Infrastructure – using an access point or router, such as the DI-624.

Ad-Hoc – directly connecting to another computer, for Peer-to-Peer communication, using wireless network adapters on each computer, such as two or more DWL-G120 Wireless Network USB adapters.

On the following pages we will show you an example of an **Infrastructure Network** and an **Ad-Hoc Network**.

An **Infrastructure** network contains an access point or router. The **Infrastructure network** example shown on the following page contains the following D-Link network devices (your existing network may be comprised of other devices):

A wireless router - **D-Link *Air*Plus™ G DI-524**

A laptop computer with a **D-Link *Air*Plus™ G DWL-G122**

A desktop computer with a **D-Link *Air*Plus™ G DWL-G120**

A cable modem - **D-Link DCM-201**

Getting Started (continued)
Setting up a Wireless Infrastructure Network

For a typical wireless setup at home (as shown above), please do the following:

1 You will need broadband Internet access (a cable or DSL-subscriber line into your home or office).

2 Consult with your cable or DSL provider for proper installation of the modem.

3 Connect the cable or DSL modem to your broadband router. (*See the Quick Installation Guide included with your router.*)

4 Install the D-Link *Air*Plus^{TM} G DWL-G120 Wireless USB adapter into an available USB port on your desktop computer. *(See the Quick Installation Guide included with the DWL-G120.)*

5 Install the D-Link *Air*Plus G DWL-G120 wireless USB adapter into an available USB port on your laptop computer. *(See the Quick Installation Guide included with the DWL-G120.)*

Getting Started (continued)
Setting up a Wireless Ad-Hoc Network

Computer

Laptop

DWL-G120
Wireless USB Adapter

① Install the **D-Link *Air*Plus**™**G DWL-G120** Wireless USB adapter into the desktop computer. *(See the Quick Installation Guide included with the product.)*

② Install the **D-Link *Air*Plus G DWL-G120** Wireless USB adapter into the laptop computer. *(See the Quick Installation Guide included with the product.)*

③ Set the wireless configuration for the adapters to Ad-Hoc mode, set the adapters to the same channel, and assign an IP address to each computer on the Ad-Hoc network.

IP Address

When assigning IP addresses to the computers on the network, please remember that the **IP address for each computer must be in the same IP address range as all the computers in the network**, and the subnet mask must be exactly the same for all the computers in the network.

For example: If the first computer is assigned an IP address of 192.168.0.2 with a subnet mask of 255.255.255.0, then the second computer can be assigned an IP address of 192.168.0.3 with a subnet mask of 255.255.255.0, etc.

IMPORTANT: If computers or other devices are assigned the same IP address, one or more of the devices may not be visible on the network.

Using the Configuration Utility

D-Link *Air***Plus**™ **G DWL-G120** uses the **Configuration Utility** as the management software. The utility provides the user an easy interface to change any settings related to the wireless adapter. After you have completed the installation of the DWL-G120 (refer to the *Quick Installation Guide* that came with your purchase) whenever you start the computer, the **Configuration Utility** starts automatically and the system tray icon is loaded in the toolbar (see illustration below.*) Clicking on the utility icon will start the **Configuration Utility**. Another way to start the **Configuration Utility** is to click on **Start>Programs>D-Link** *Air***Plus G >D-Link** *Air***Plus G Utility.**

If you are using Windows XP, you can use either the Zero Configuration Utility or the D-Link Configuration Utility.
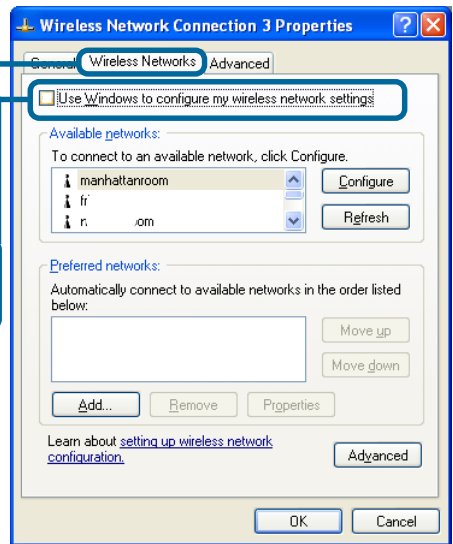
To use the D-Link Configuration Utility with XP, right-click on the wireless network icon in the taskbar in the lower right-hand corner of your computer screen.

In the window that appears, select **View Available Wireless Networks** and click the **Advanced** button. The screen at right will appear.

Select the **Wireless Networks** tab.

Uncheck the box in the properties window that enables windows configuration.

After you have done this, you can then use the D-Link Configuration Utility with XP by clicking on the D-Link Configuration Utility icon.

*Configuration Utility icon in the system tray

If the icon does not display in the taskbar, then click on this icon on your desktop to open.

Using the Configuration Utility *(continued)*

Status:
Displays the MAC address of the access point or router to which the DWL-G120 is associated

SSID:
The Service Set Identifier is the name assigned to the wireless network. The factory SSID setting is **default**.

Frequency:
802.11b indicates that the DWL-G120 is communicating in the 2.4GHz band.

Link Info

Wireless Mode:
Either **Infrastructure** or **Ad-Hoc** will be displayed here. (Please see the *Getting Started* section in this manual for an explanation of these two modes.)

Encryption:
You can see if WEP (Wired Equivalent Privacy) is **Enabled** or **Disabled** here.

Tx Rate:
The default setting is **Auto**; Tx Rate settings are automatically determined for an optimal speed up to a maximum of 54Mbps.

Channel:
The default setting is **Auto**. The channel selection is automatically determined by the DWL-G120.

Signal Strength:
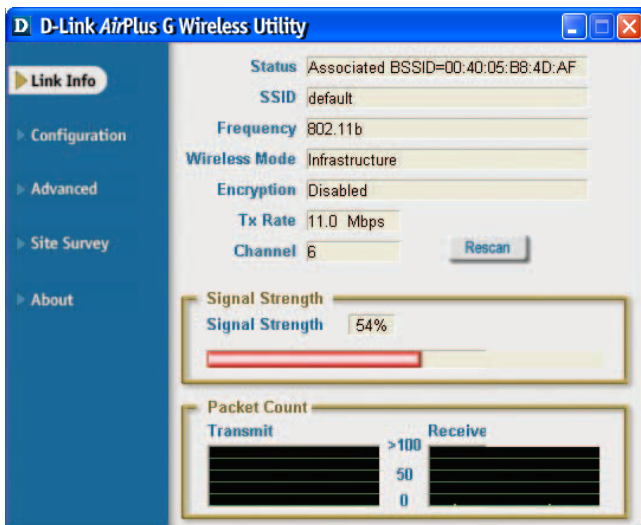Displays the signal strength of the DWL-G120's wireless connection to the access point or router.

Packet Count:
Displays the statistics of the data packets that are transmitted and received.

Rescan Button:
Rescans for the strongest signal with the current SSID and associates with that access point or router.

Using the Configuration Utility *(continued)*

SSID:

Service Set Identifier is a name that identifies a wireless network. Access points and wireless devices attempting to connect to a specific WLAN (Wireless Local Area Network) must use the same SSID. The default setting is **default**.

Wireless Mode:

Click on the pull-down menu; select from the following options:

Infrastructure - connecting to the WLAN using an access point. (This is the **default** setting).

Ad-Hoc – wireless mode used when connecting directly to a computer equipped with a wireless adapter in a Peer-to-Peer environment.

Data Encryption:

Select **Enabled** or **Disabled.**

Authentication:

Choose one of the following modes:

Open Authentication – the DWL-G120 is visible to all devices on the network.

Shared Authentication – allows communication only with other devices with identical WEP settings.

Auto – will automatically adjust to the Authentication mode of the wireless access point or router.

Key Length:

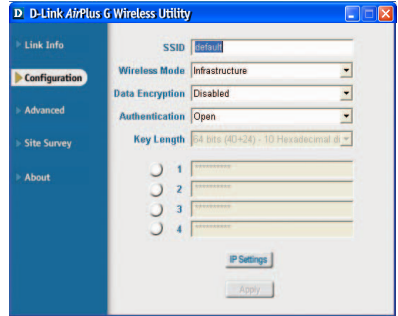Select the key length and either ASCII (e.g., a word) or hexadecimal format.
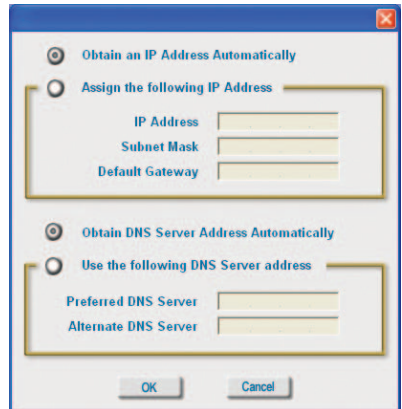
Keys 1-4:

Select the default key.

> *Hexadecimal* digits consist of the numbers 0-9 and the letters A-F.
>
> *ASCII* (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

Configuration

IP Settings

IP Settings:

When you click **IP Settings** in the Configuration window, the pop-up screen above will appear. Configure the IP Settings in this window.

Click **Apply** to save changes.

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Ad-Hoc Channel:

All devices in the Ad-Hoc network must be set to the same channel.

Profile IP Settings:

You can **Enable** or **Disable** the *IP Settings* portion of your profile here. If you select **Disable** you will need to configure the IP address information each time you connect to a network. If you select **Enable** you will maintain the same IP address information each time you connect to a network.

Advanced
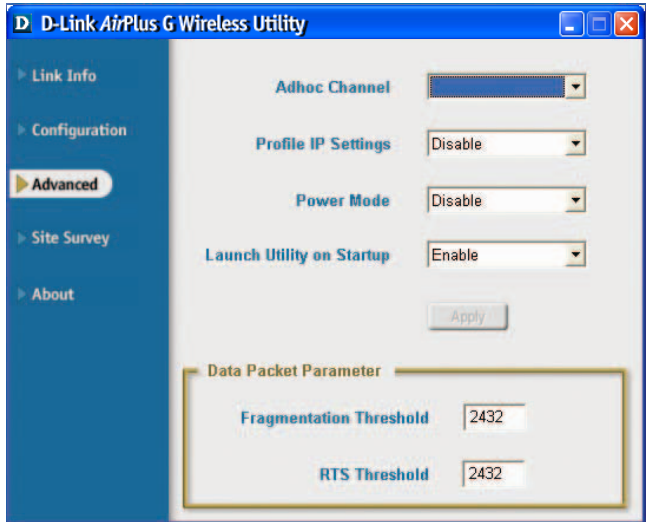
Power Mode:

Disable -This default setting consumes the most power.
Enable - This setting consumes the least power.

Launch Utility on Startup:

Select **Enable** or **Disable**.

Data Packet Parameter:

Select the parameters here.

Fragmentation Threshold:

This value should remain at its default setting of 2432. If you experience a high packet error rate, you may slightly increase your *Fragmentation Threshold* within the value range of 256 to 2432. Setting the *Fragmentation Threshold* too low may result in poor performance.

RTS Threshold:

This value should remain at its default setting of 2432. If inconsistent data flow is a problem, only a minor modification should be made.

Click **Apply** if you have made any changes.

Using the Configuration Utility *(continued)*

Available Network:
The top section of the window displays the **Available Networks**. Scroll up and down the list and highlight the network to which you wish to connect. Click on the **Connect** button.

Profile:
In the lower half of the screen, you can manage the profiles that you have created for the wireless network at home, at the office and in public places. Scroll up and down and highlight the profile that you wish to configure. You can **Add** or **Remove** a profile, or configure the **Properties** of the profile in order to connect with an available network.

Site Survey

Refresh:
Click on **Refresh** to get the most updated list of available networks.

Configure:
Highlight an existing network and click **Configure**; the configuration window on the next page will appear.

Advanced:
Highlight a network; click **Advanced** and the screen on the next page will appear.

Add:
Click **Add** and the screen on the next page will appear.

Remove:
Highlight a network profile; click **Remove** to remove a network from the profile list.

Properties:
Highlight a network profile; click **Properties** and the screen on the next page will appear.

Connect:
Highlight a network profile; click **Connect** to connect to that network.

Rescan:
Click **Rescan** to rescan and connect to the strongest signal with the current SSID.

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