

# **D-Link *Air* DWL-122**

## **2.4GHz Wireless USB Adapter**

# **Manual**

**D-Link**

**Building Networks for People**

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# Package Contents



## Contents of Package:

- **D-Link Air DWL-122  
2.4 GHz Wireless USB 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 OSX (v10.2x or later)
- At least 32 MB of memory and a 300 MHz processor
- Properly installed and working USB Controller

# Introduction

The D-Link *Air* DWL-122 Wireless USB Adapter is a convenient Plug & Play USB 1.1 solution that brings wireless networking to your laptop or desktop PC.

With transfer rates up to 11Mbps 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-122 is Wi-Fi compliant, meaning that it can connect and interoperate with other 802.11b Wi-Fi-compliant wireless routers, access points and adapters. The DWL-122 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-122 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 (10.2x 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. The DWL-122 also features 64 or 128-bit WEP encryption providing a level of security for the data that you wirelessly transmit.

Using its default settings, the DWL-122 automatically connects to other D-Link Wireless products as soon as it's active.

## Features and Benefits

- Compact size for placement anywhere
- Convenience of Plug & Play installation
- Fully 802.11b compatible
- Powered by the USB port; no external power source is needed
- USB 1.1 standard
- Network Security with with 64-bit and 128-bit WEP encryption
- Supports infrastructure networks via an Access Point or Router and Peer-to-Peer communication in Ad-Hoc mode
- User-friendly configuration and diagnostic utilities
- Connects at up to 328 feet indoors\*
- One year warranty (USA only)

*\* Environmental factors may adversely affect range*

# Features



## 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 WLAN is a cellular 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 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.

## Wireless Basics (*continued*)

*People use wireless LAN 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.

**Scalability** – WLANs can be configured in a variety of topologies 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.

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

## Wireless Basics (*continued*)

### Installation Considerations

The D-Link *Air* DWL-122 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-122 and other network devices to a minimum - each wall or ceiling can reduce your D-Link wireless product'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 extreme RF noise.



# Getting Started

## Inserting the DWL-122

Insert the DWL-122 into an available USB port.



## Using the DWL-122 with the extension cord

Plug one end of the USB extension cord into the USB port on your computer and plug the other end into the DWL-122.



## Removing the DWL-122 (Windows XP)

After installing the DWL-122, this icon will appear in the taskbar at the bottom of the screen (for WinXP service pack I and above).



Before you disengage the DWL-122 from the USB port, you must click on the icon (illustrated above) that resides in the taskbar. When the screen at right appears, highlight the DWL-122.

Click **Stop**



Windows will notify you when it is safe to remove the DWL-122 from the USB port.

## Getting Started (*continued*)

With its default settings, the DWL-122 will connect with other D-Link *Air* products, right out of the box.

There are basically two modes of networking:

**Infrastructure** – using an Access Point or Router, such as the DI-614+.

**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-122 wireless 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 D-Link network devices listed here; (your existing network may be comprised of other devices).

A wireless broadband Router-  
**D-Link *Air*Plus DI-614+**

A laptop computer with a USB wireless network adapter -  
**D-Link *Air* DWL-122**

A desktop computer with a USB wireless network adapter -  
**D-Link *Air* DWL-122**

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

## Setting up a Wireless Infrastructure Network



- 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 DWL-122 wireless USB adapter into an available USB port on your desktop computer. (See the **Quick Installation Guide** included with the DWL-122.)
- 5 If you are connecting a laptop computer to your network, you can install the DWL-122 into an available USB port on your laptop. (See the **Quick Installation Guide** included with the DWL-122.)

## Getting Started (continued)

### Setting up a Wireless *Ad Hoc* Network



- 1** Install the **D-Link Air DWL-122** Wireless USB adapter into the desktop computer. (See the **Quick Installation Guide** included with the product for installation instructions.)
- 2** Install another DWL-122 into the laptop computer. (See the **Quick Installation Guide** included with the product for installation instructions.)
- 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. (See Box below.)

### 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.

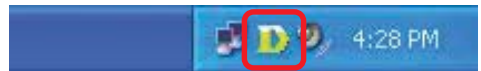
**IMPORTANT:** If computers or other devices are assigned the same IP Address, one or more of the devices may not be visible on the network.

# Using the Configuration Utility with Windows OS

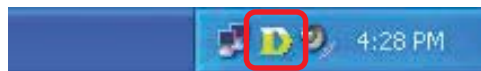
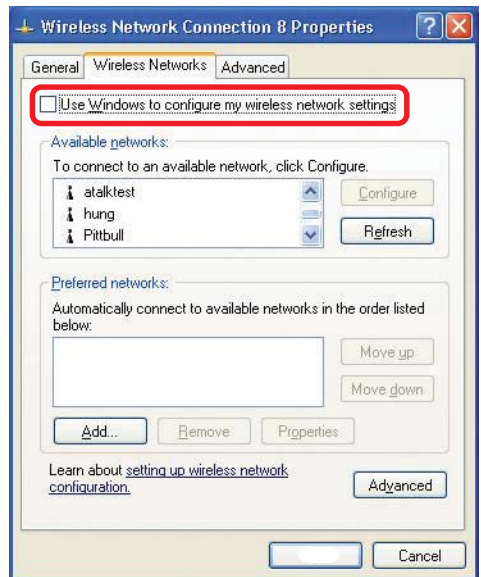
**D-Link Air DWL-122** uses the **Configuration Utility** as the management software. The utility provides the user an easy interface to change any settings related to the wireless adapter. When the computer is started, the **Configuration Utility** starts automatically and the system tray icon is loaded 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 DWL-122**.

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, click on the D-Link Configuration Utility icon in the taskbar in the lower corner of your computer screen.



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 again.



A new icon will appear in your Icon tray. **Double-click** on the **D** icon shown in the tray.

# Using the Configuration Utility with Windows OS (continued)

## Status:

Displays the MAC Address of the Access Point or Router to which the DWL-122 is associated

## Link Info

Packet Count	
Transmit	Receive
> 100	
50	
0	

## 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-122 is communicating in the 2.4GHz band.

## 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 11Mbps.

## Channel:

The default setting is **Auto**. The channel selection is automatically determined by the DWL-122.

## Signal Strength:

Displays the signal strength of the DWL-122'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 with Windows OS (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-122 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.

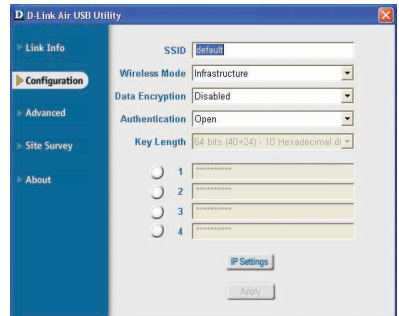
## Keys 1-4:

Select the default key

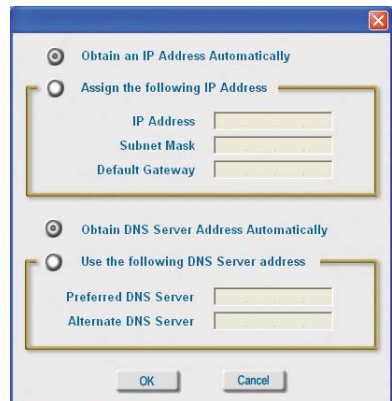
*Hexadecimal digits consist of the numbers 0-9 and the letters A-F*

*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.



# Using the Configuration Utility with Windows OS (continued)

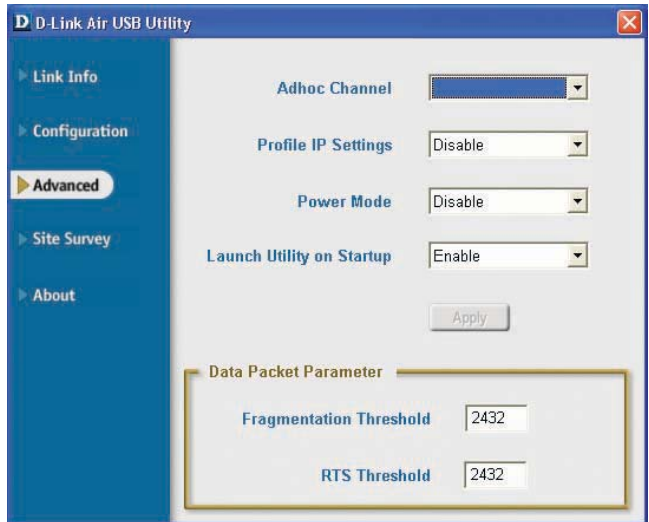
## Ad-Hoc Channel:

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 with Windows OS (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.

## 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.

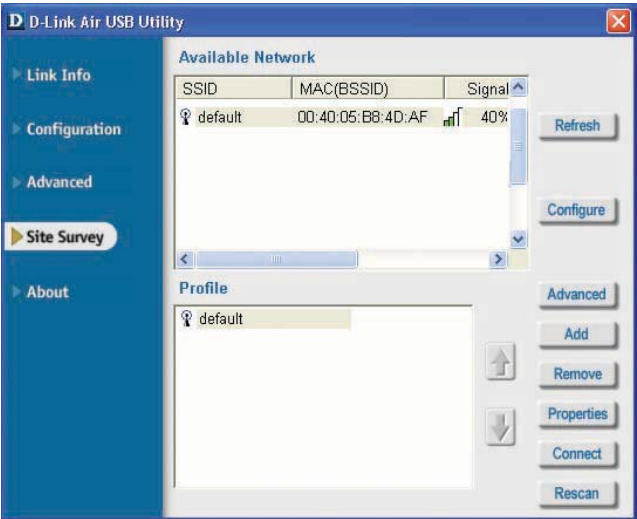
## Connect:

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.

## Site Survey

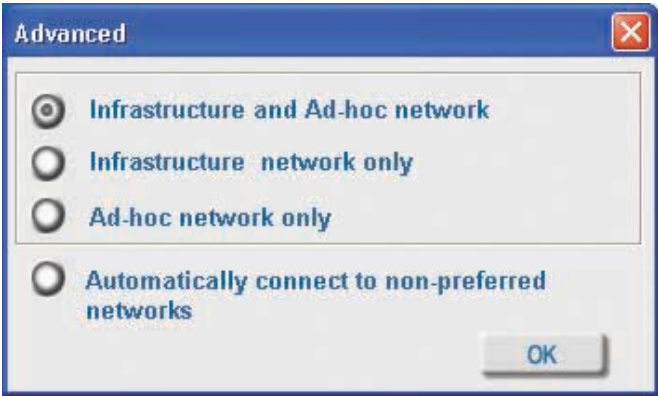


# Using the Configuration Utility with Windows OS (continued)

## Advanced

In this window you can select the type of network connection.

Click **OK** to save the changes.

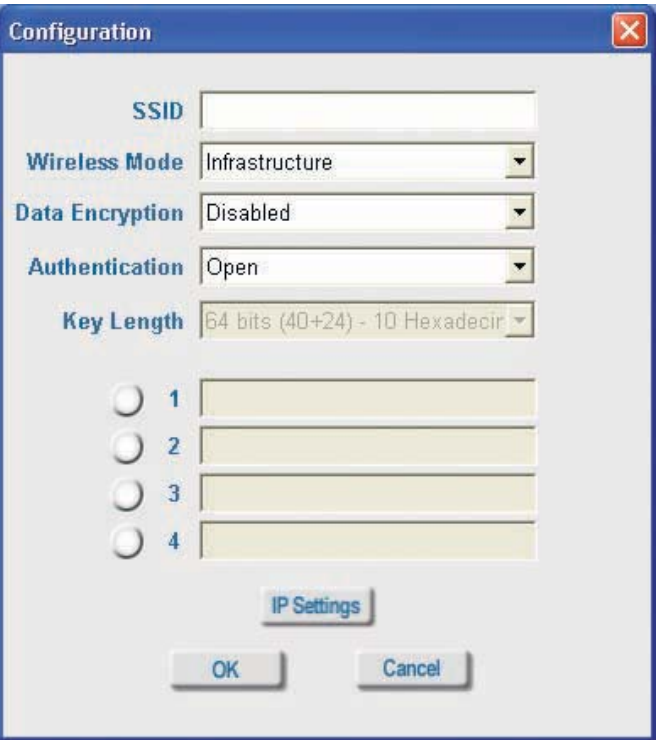


## Configuration, Add or Properties

If you clicked on **Add**, you can configure, in this window, all the properties of a profile that you wish to add to the network.

If you clicked on **Configuration or Properties** you can configure, in this window, all the properties of a profile that already exists in the network.

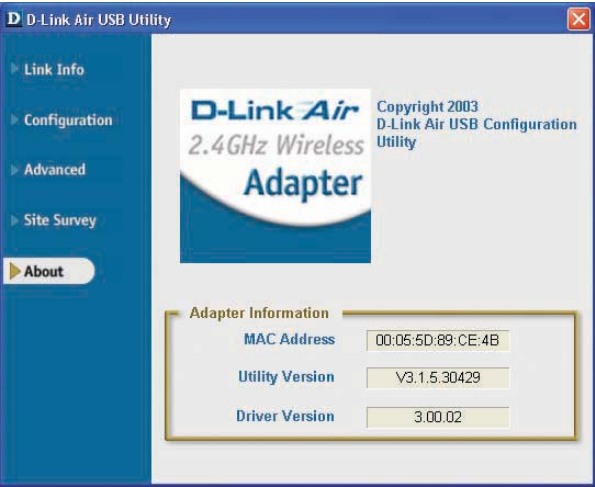
Click **OK** to save the changes.



# Using the Configuration Utility with Windows OS (continued)

The **About** tab displays the MAC Address, the utility and the firmware versions.

## About



# Using the Configuration Settings with Macintosh OS

After you have completed the installation of the DWL-122 into your Macintosh computer (please refer to the **Quick Installation Guide** included with the product), follow the steps below to access the configuration settings.

From the **Apple** pull-down menu select **System Preferences**.



Double-click on the **Wireless Adaptor** icon.

# Using the Configuration Utility with Macintosh OS (continued)

This window will appear displaying the following:

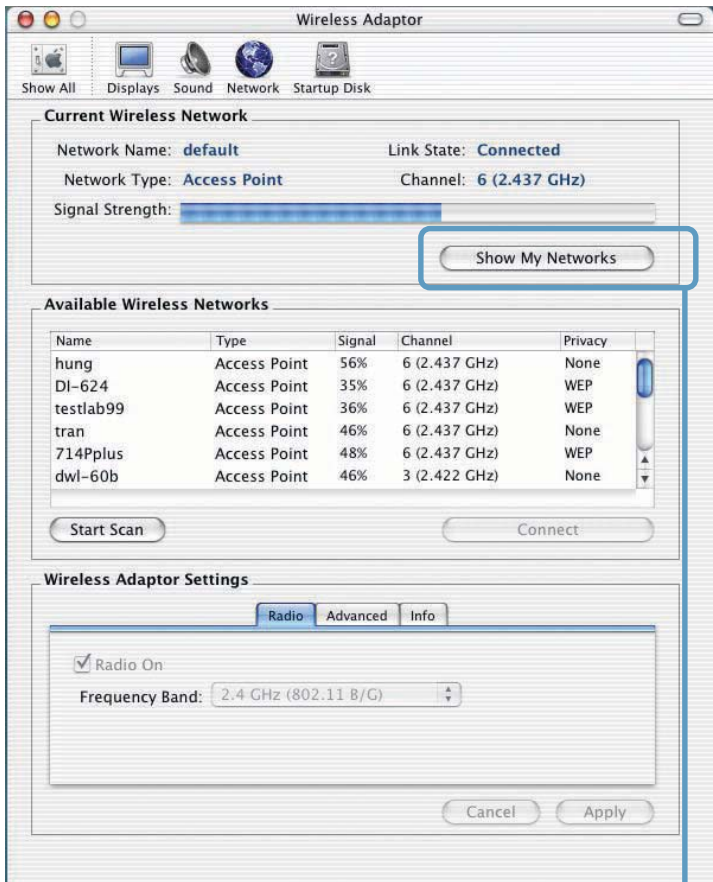
**Current Wireless Network** settings:  
*Network Name;*  
*Network Type;* *Link Status;* *Channel;*  
*and Signal Strength*

**Available Wireless Networks** including:  
*Name;* *Type;*  
*Signal;* *Channel;*  
*Privacy*

**Start Scan:** click *Start Scan* to rescan for an available wireless network at your current location

**Connect:** highlight a network profile and click *Connect* to connect to that network profile

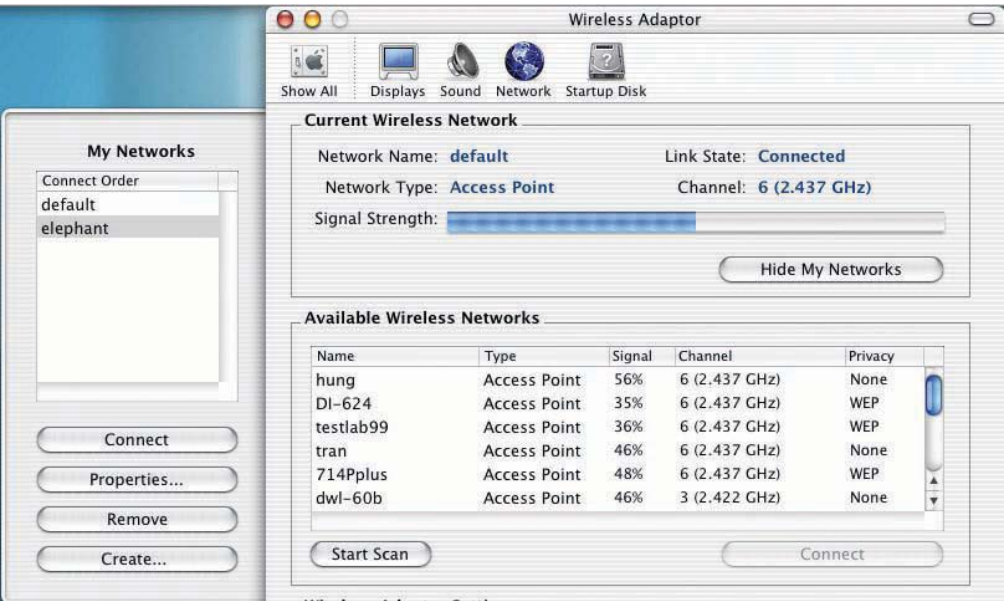
**Wireless Adaptor Settings:**  
*Radio On:* select or deselect  
*Frequency Band:* displays the frequency band; default is 2.4GHz (may not be changeable)



Click **Show My Networks** to manage your network profiles

# Using the Configuration Utility with Macintosh OS (continued)

## My Networks



**Connect:** highlight a network profile and click **Connect** to connect to that network profile

**Properties:** highlight a network profile and click **Properties** to configure that network profile. (See screens on the next page.)

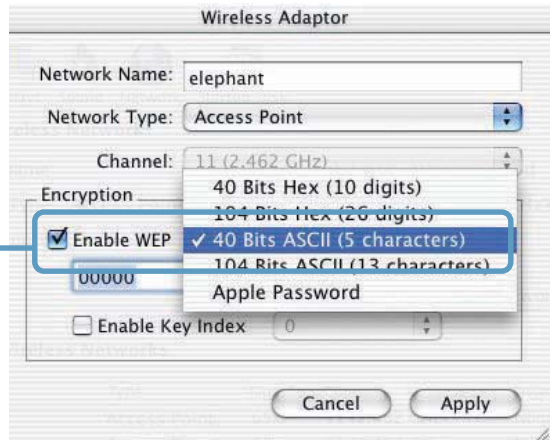
**Remove:** highlight a network profile and click **Remove** to remove that network from the profile list

**Create:** click **Create** to create a new network profile, manually. (See screens on the next page.)

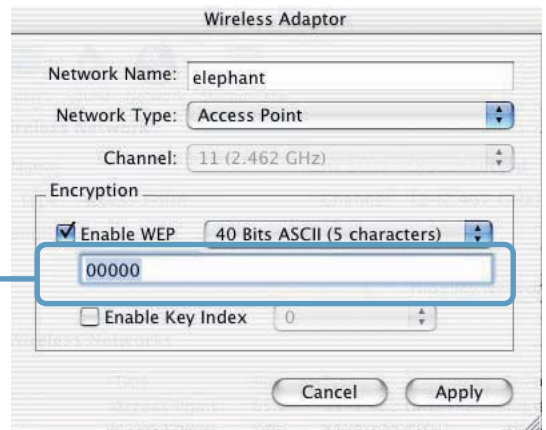
# Using the Configuration Utility with Macintosh OS (continued)

## My Networks > Create and/or Properties

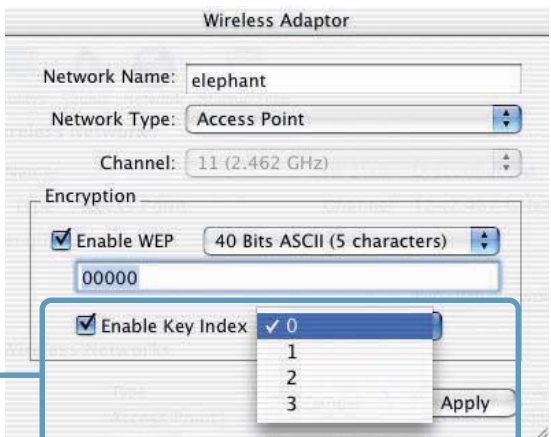
Select the level of WEP encryption. In the example, 40 Bits ASCII (5 characters) was chosen.



Enter the WEP string, in this case 5 ASCII characters have been entered.



Select the key that you wish to use. You can input up to four keys.



# Using the Configuration Utility with Macintosh OS (continued)

## Power Save:

**Always On** - consumes the most power

**Max Power Save** - consumes the least power

**Power Save** - consumes a moderate amount of power

## Advanced



**Authentication:** Choose one of the following modes:

**Open Authentication** - the DWL-122 is visible to all devices on the network

**Shared Authentication** - allows communication only with devices with identical WEP settings

**Auto** - will automatically adjust to the Authentication mode of the wireless Access Point or Router

**World Mode:** select Active Scanning to continuously rescan and associate with the Access Point or Router with the strongest signal in the SSID. (Not available for adapters sold in the USA.)

## Info

This **Info** tab displays the MAC Address and the Firmware and Driver versions





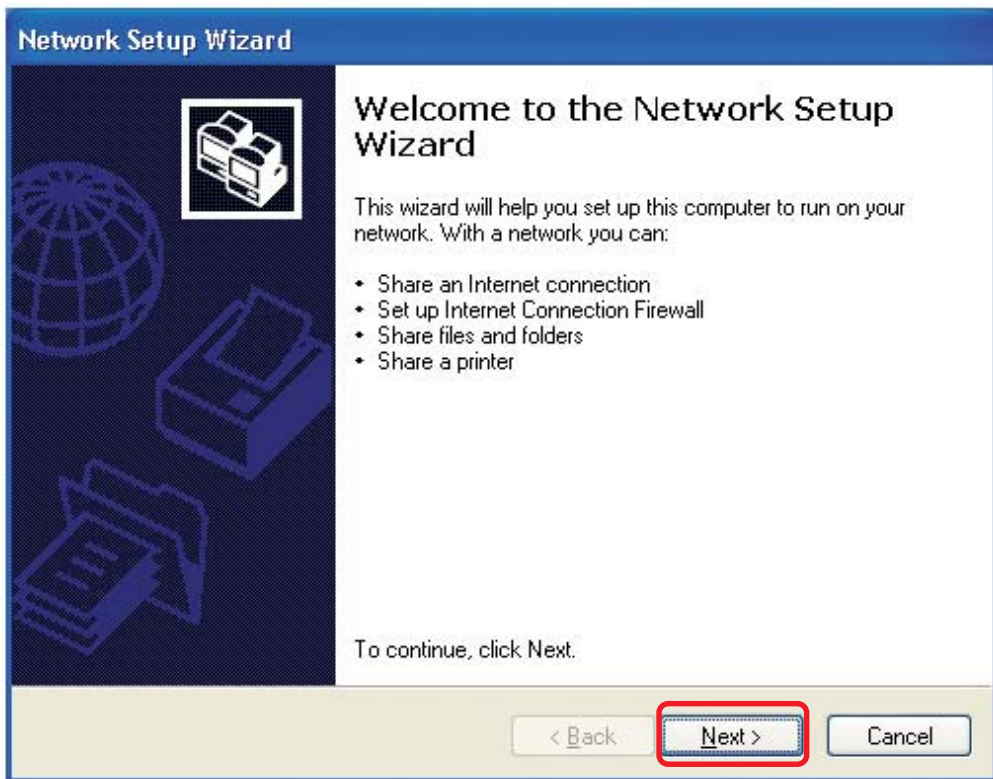
# Networking Basics

## Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP**.

*Note: Please refer to websites such as <http://www.homenethelp.com> and <http://www.microsoft.com/windows2000> for information about networking computers using Windows 2000, ME or 98SE.*

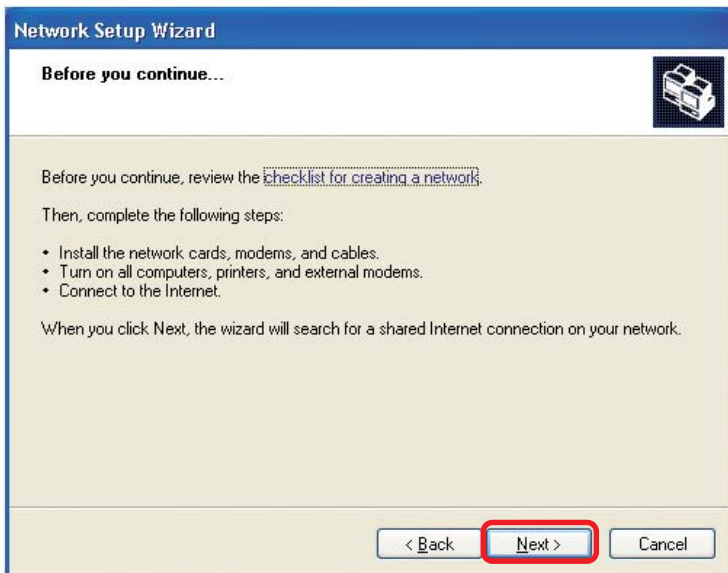
Go to **Start>Control Panel>Network Connections**  
Select **Set up a home or small office network**



When this screen appears, **Click Next**.

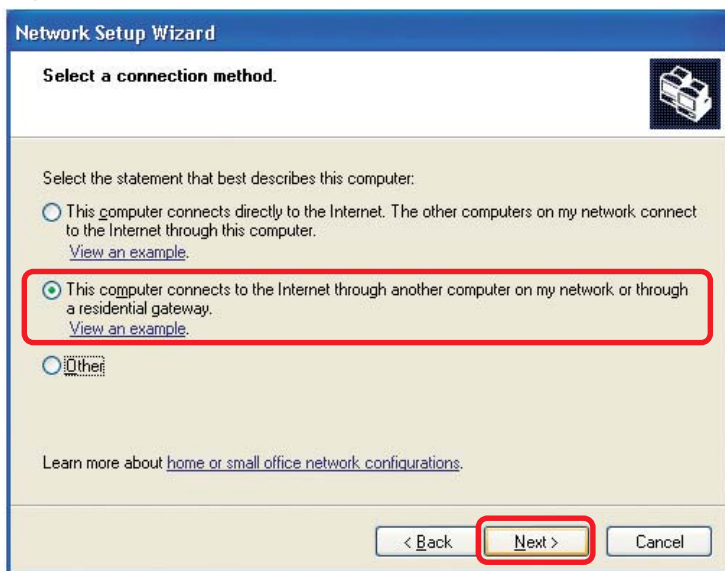
## Networking Basics (continued)

Please follow all the instructions in this window:



Click **Next**

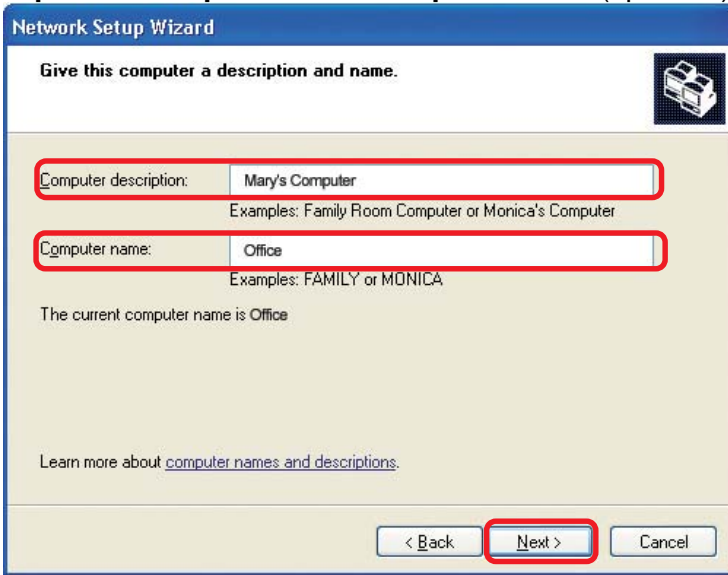
In the following window, select the best description of your computer. If your computer connects to the internet through a gateway/router, select the second option as shown.



Click **Next**

## Networking Basics (continued)

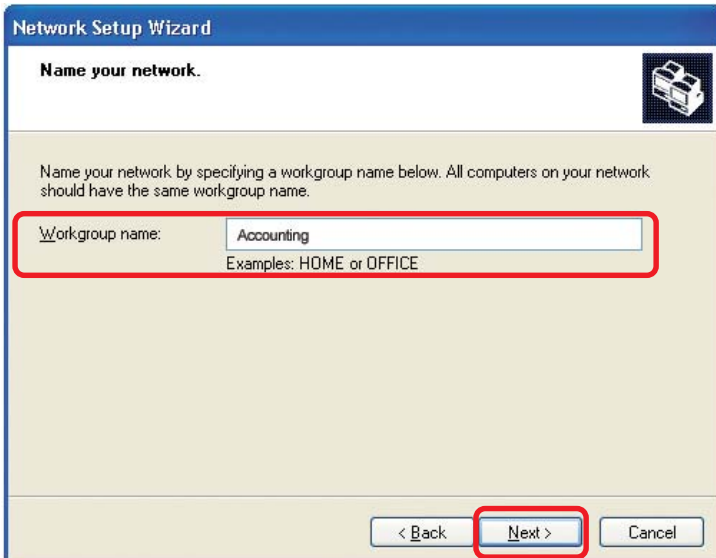
Enter a **Computer description** and a **Computer name** (optional.)



The screenshot shows the 'Network Setup Wizard' window with the title 'Give this computer a description and name.' The window contains two text input fields. The first field is labeled 'Computer description:' and contains the text 'Mary's Computer'. Below it, there is a line of text: 'Examples: Family Room Computer or Monica's Computer'. The second field is labeled 'Computer name:' and contains the text 'Office'. Below it, there is a line of text: 'Examples: FAMILY or MONICA'. Below these fields, it says 'The current computer name is Office'. At the bottom, there is a link: 'Learn more about [computer names and descriptions](#).' At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

Click **Next**

Enter a **Workgroup** name. All computers on your network should have the same **Workgroup** name.

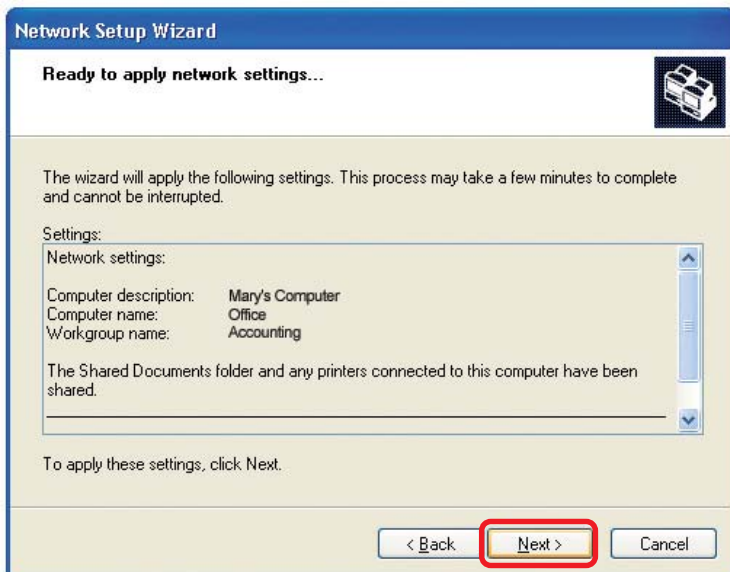


The screenshot shows the 'Network Setup Wizard' window with the title 'Name your network.' The window contains a text input field labeled 'Workgroup name:' which contains the text 'Accounting'. Below it, there is a line of text: 'Examples: HOME or OFFICE'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a red rectangle.

Click **Next**

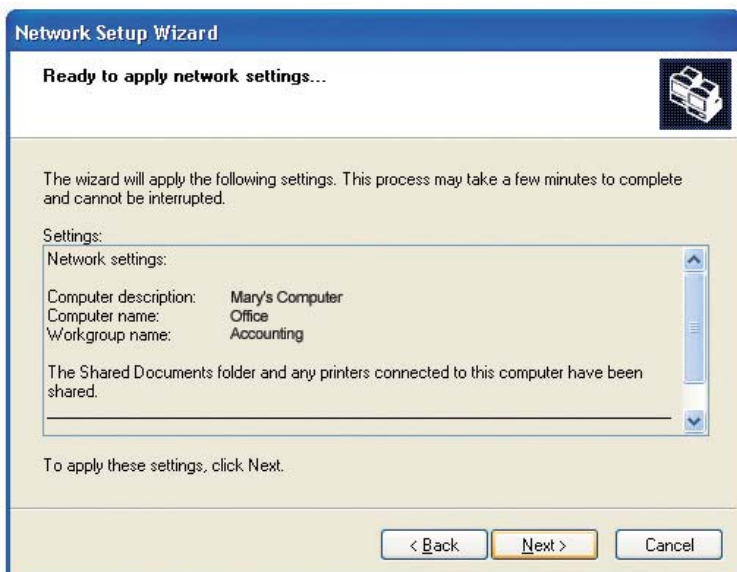
## Networking Basics (continued)

Please wait while the **Network Setup Wizard** applies the changes.



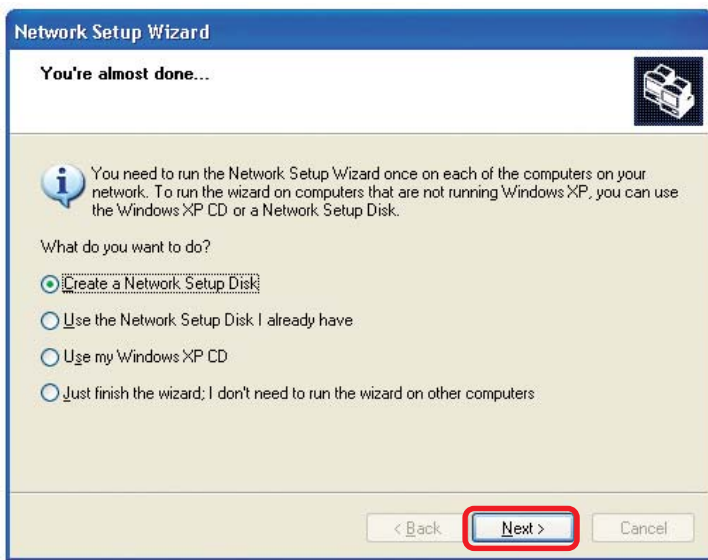
When the changes are complete, click **Next**.

Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.

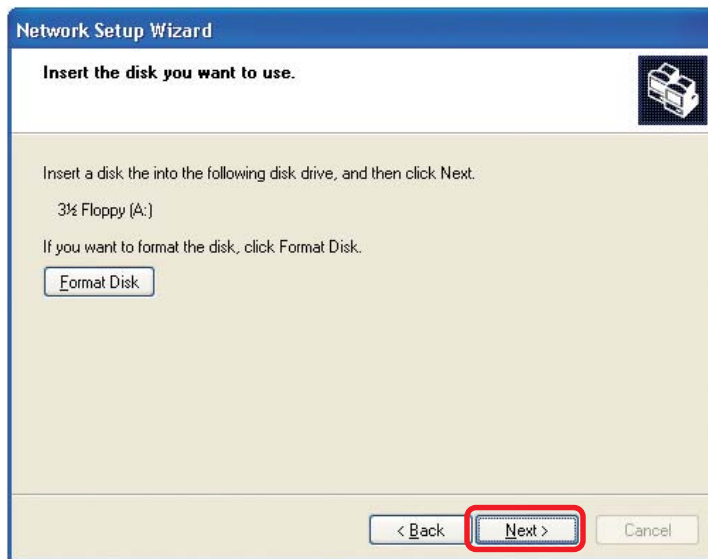


## Networking Basics (continued)

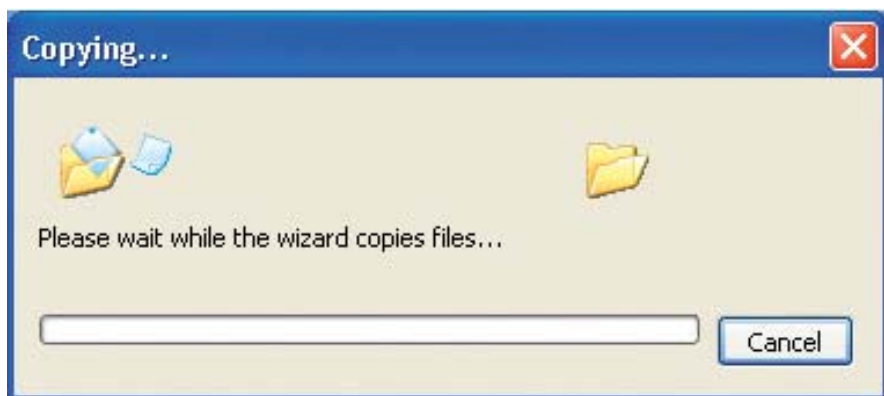
In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network. Click **Next**.



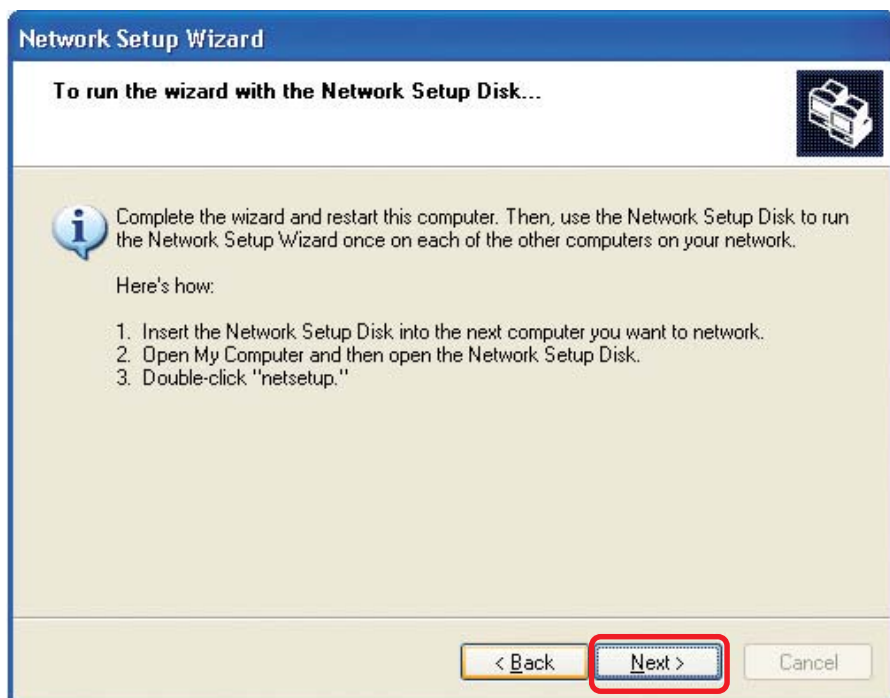
Insert a disk into the Floppy Disk Drive, in this case drive **A**.



## Networking Basics (continued)



Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. To continue click **Next**.

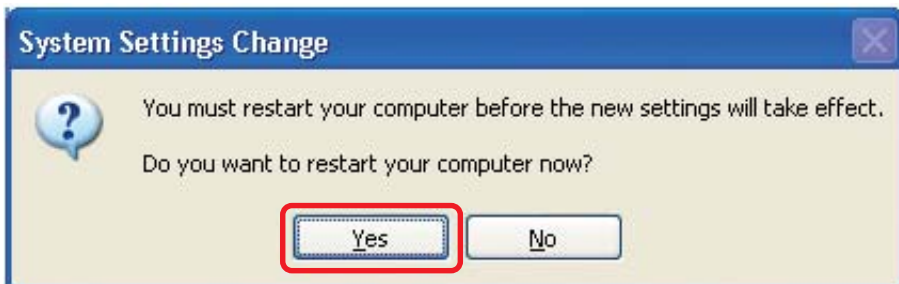


## Networking Basics (continued)

Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

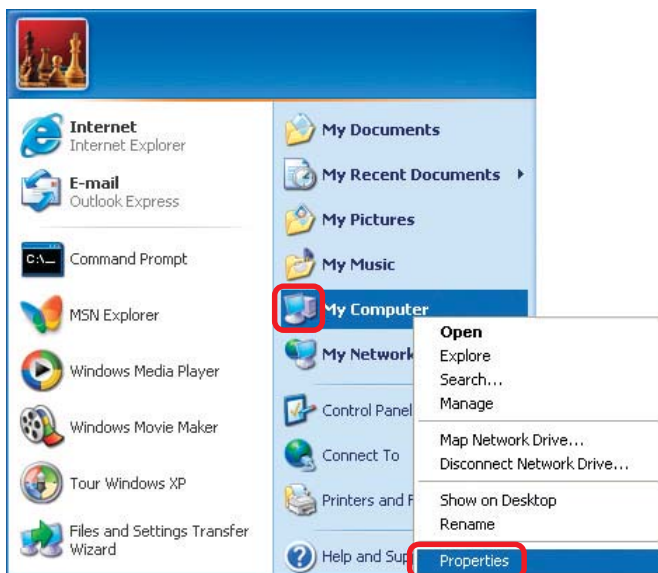


## Networking Basics (continued)

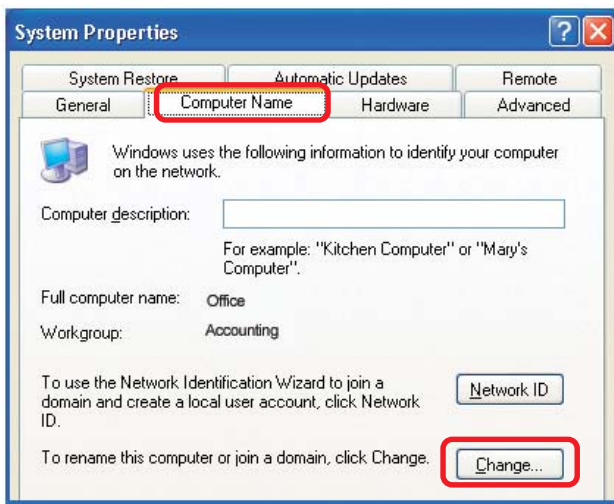
### Naming your Computer

To name your computer, using **Windows XP**, please follow these directions:

- Click **Start** (in the lower left corner of the screen)
- **Right-click** on **My Computer**
- Select **Properties** and click



- Select the **Computer Name Tab** in the System Properties window.



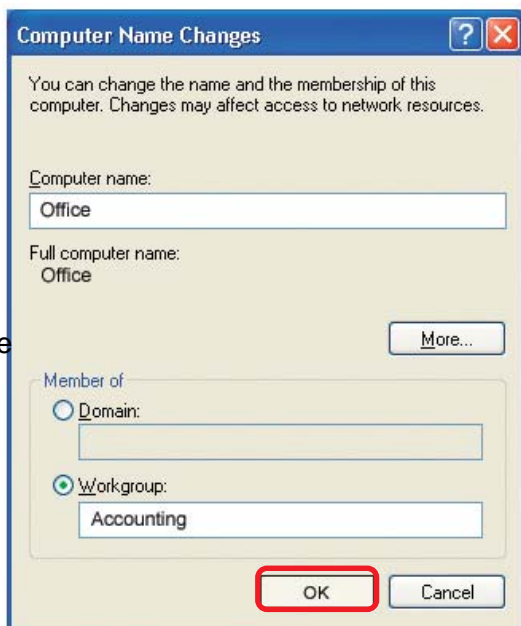
- You may enter a **Computer Description** if you wish; this field is optional.
- To rename the computer and join a domain, Click **Change**.



## Networking Basics (continued)

### Naming your Computer

- In this window, enter the **Computer name**
- Select **Workgroup** and enter the name of the
- All computers on your network must have the same **Workgroup** name.
- Click **OK**



### Checking the IP Address in Windows XP

The wireless adapter-equipped computers in your network must be in the same IP Address range (see *Getting Started* in this manual for a definition of IP Address Range.)

To check on the IP Address of the adapter, please do the following:

- Right-click on the **Local Area Connection icon** in the task bar
- Click on **Status**



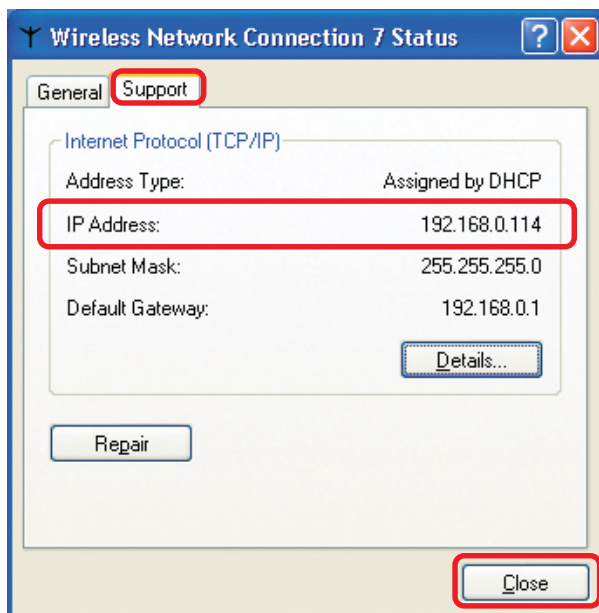
## Networking Basics (continued)

### Checking the IP Address in Windows XP

This window will appear.

- Click the **Support** tab

- Click **Close**

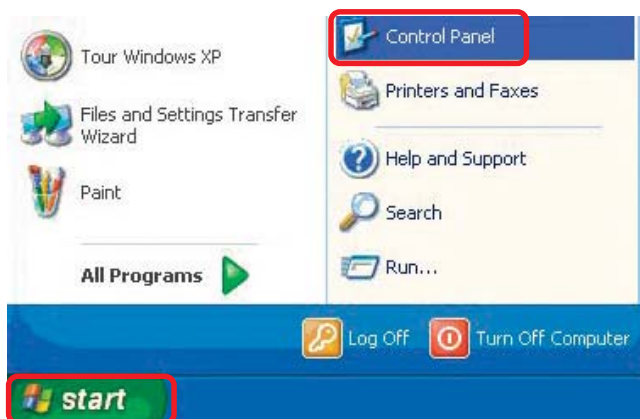


### Assigning a Static IP Address in Windows XP/2000

**Note:** Residential Gateways/Broadband Routers will automatically assign IP Addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable Gateway/Router you will not need to assign Static IP Addresses.

If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP Address, please follow these instructions:

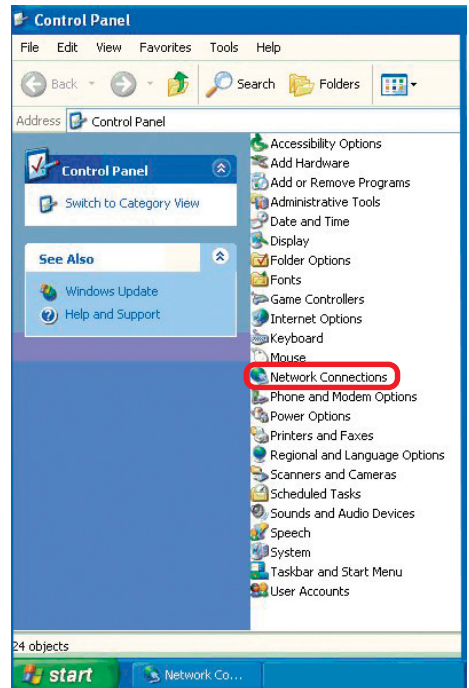
- Go to **Start**
- Double-click on **Control Panel**



## Networking Basics (continued)

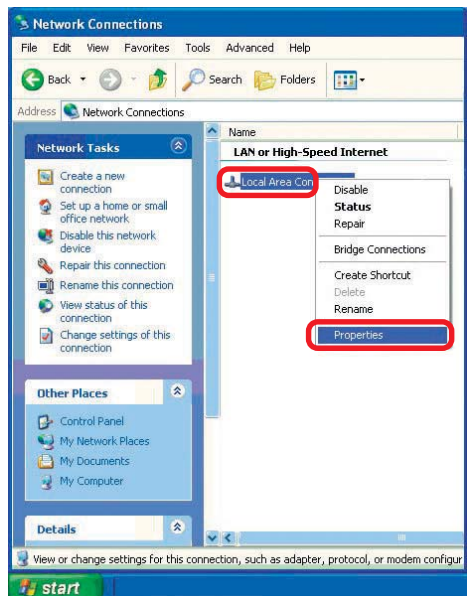
### Assigning a Static IP Address in Windows XP/2000

- Double-click on **Network Connections**



- Right-click on **Local Area Connections**

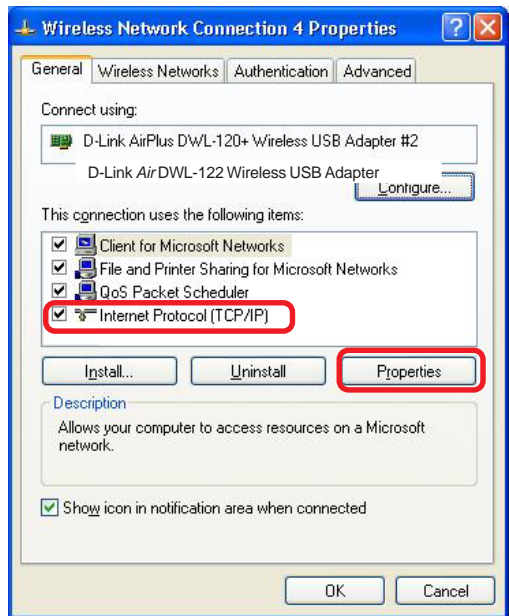
- Double-click on **Properties**



## Networking Basics (continued)

### Assigning a Static IP Address in Windows XP/2000

- Click on **Internet Protocol (TCP/IP)**
- Click **Properties**



- In the window below, select **Use the following IP address**. Input your **IP address and subnet mask**. (The IP Addresses on your network must be within the same range. For example, if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)

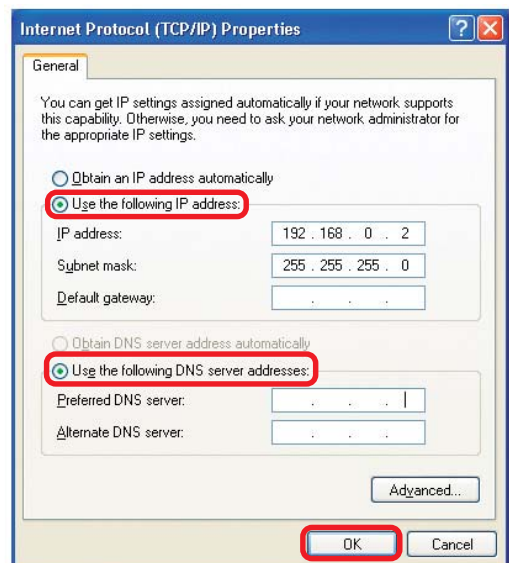
- **IP Address:**  
e.g., 192.168.0.2

- **Subnet Mask:**  
255.255.255.0

- **Default Gateway:**  
Enter the LAN IP address of the wireless router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)

- Select **Use the following DNS server addresses**.  
Enter the LAN IP address of the Wireless Router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)

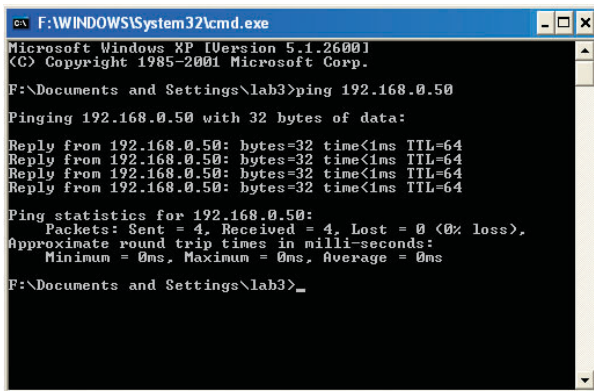
- Click **OK**



## Networking Basics (continued)

### Checking the Wireless Connection by Pinging in Windows XP and 2000\*

- Go to **Start > Run >** type **cmd**. A window similar to this one will appear. Type **ping xxx.xxx.xxx.xxx**, where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the Wireless Router or Access Point, as shown.



```

C:\F:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

F:\Documents and Settings\lab3>ping 192.168.0.50

Pinging 192.168.0.50 with 32 bytes of data:

Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64
Reply from 192.168.0.50: bytes=32 time<1ms TTL=64

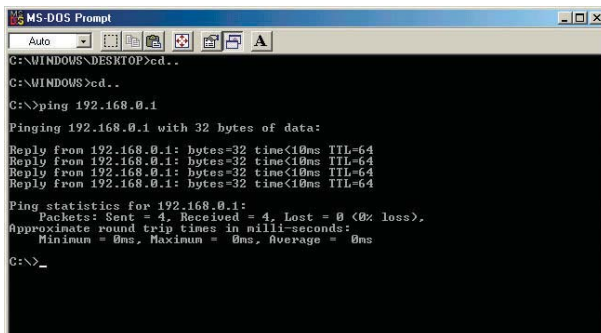
Ping statistics for 192.168.0.50:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

F:\Documents and Settings\lab3>_

```

### Checking the Wireless Connection by Pinging in Windows Me and 98\*

- Go to **Start > Run >** type **command**. A window similar to this will appear. Type **ping xxx.xxx.xxx.xxx** where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the wireless router or access point, as shown.



```

MS-DOS Prompt
Auto
C:\WINDOWS\DESKTOP>cd..
C:\WINDOWS>cd..
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<10ms TTL=64
Reply from 192.168.0.1: bytes=32 time<10ms TTL=64
Reply from 192.168.0.1: bytes=32 time<10ms TTL=64
Reply from 192.168.0.1: bytes=32 time<10ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>_

```

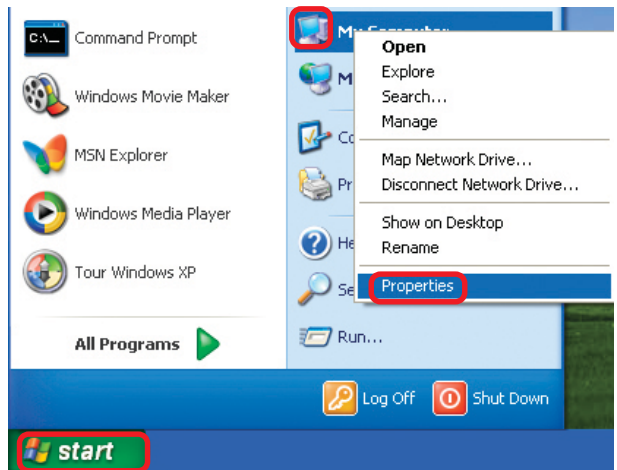
\* The IP Addresses in these illustrations are examples only. The actual IP Addresses that you ping may be different than those displayed here.

# Troubleshooting

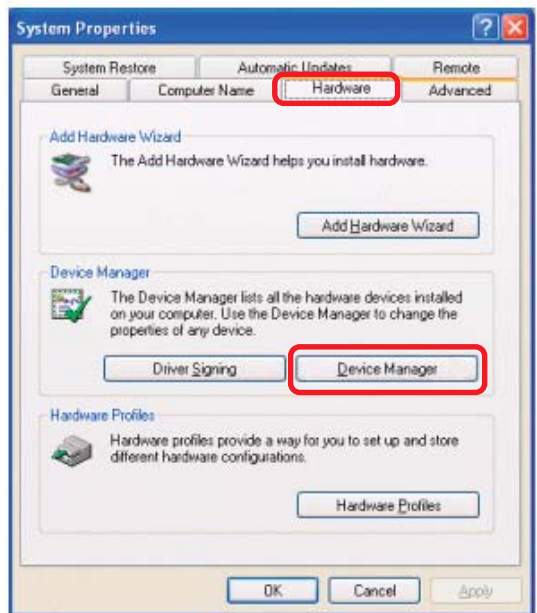
This chapter provides solutions to problems that can occur during the installation and operation of the DWL-122. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows XP. If you have another operating system, these solutions will still apply although the appearance on your computer screen may differ.)

## 1. Check that the drivers for the DWL-122 are installed properly.

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



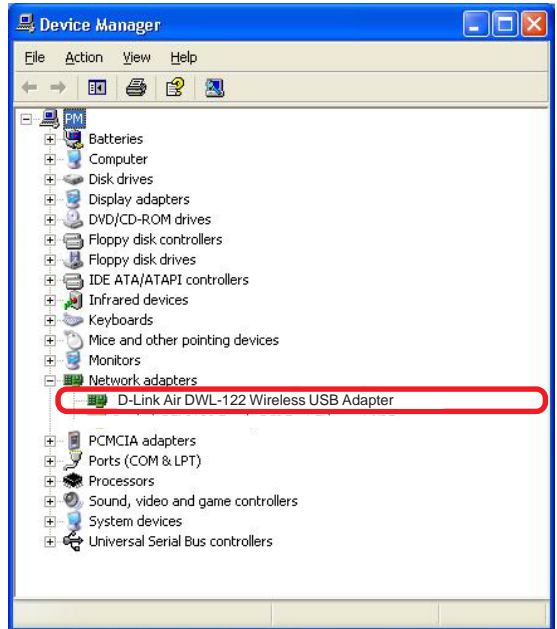
- **Select the Hardware Tab**



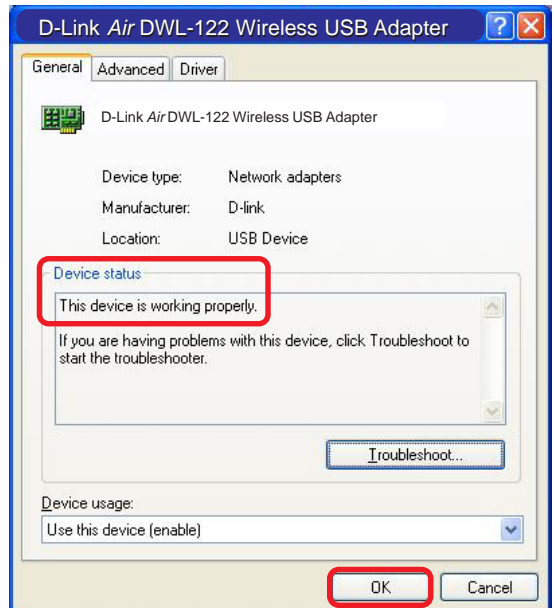
- **Click Device Manager**

## Troubleshooting (continued)

- Double-click on **Network Adapters**
- Right-click on **D-Link Air DWL-122 Wireless 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**



## Troubleshooting (*continued*)

### 2. What variables may cause my wireless products to lose reception?

D-Link products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advantageous placement of your D-Link wireless products.

### 3. Why does my wireless connection keep dropping?

- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the Channel on your Router, Access Point and Wireless adapter to a different Channel to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, Monitors, electric motors, etc.

### 4. Why can't I get a wireless connection?

If you have enabled Encryption on the DWL-122, you must also enable encryption on all wireless devices in the network in order to establish a wireless connection.

- The Encryption settings are: 64 or 128-bit. Make sure that the encryption bit level is the same on the Access Point or Router and the DWL-122.
- Make sure that the SSID on the Access Point or Router (if you have one in your network) and the DWL-122 are exactly the same. If they are not, a wireless connection will not be established. The default SSID is **default**.



# Technical Specifications

## Standard

- IEEE 802.11b

## Diagnostic LED

- Power
- Link Status

## Temperature

- Operating: 0°C to 55°C (32°F to 131°F)
- Storing: -20°C to 75°C (-4°F to 167°F)

## Humidity:

- Operating: 5-95%, non-condensing
- Storing: 10-90%, non-condensing

## Antenna Type:

- Integrated microstrip diversity antenna

## Modulation Technique:

- DSSS

## Physical Dimensions:

- L = 3.25 inches (82.5mm)
- W = 1.07 inches (27.2mm)
- H = 0.47 inches (12mm)

## Data Rates:

- 1,2,5.5,11Mbps (with Automatic Fallback)

## Interface:

- USB 1.1

## Available Channels:

- Eleven channels for North America

## Media Access Protocol:

- CSMA/CA with ACK

## Technical Specifications (continued)

### Operating Voltage:

- 5VDC  $\pm$  5%, powered through USB port

### Encryption:

- RC4 Encryption algorithm
- 64 or 128-bit WEP Encryption

### MTBF:

- >30,000 hours

### Modulation Schemes:

- DQPSK, DBPSK and CCK

### Transmitter Output Power:

- Typical 16dBm, 40mW

### Receiver Sensitivity:

- Typical -81dBm for 11Mbps @ 8% PER (Packet Error Rate)
- Typical -86dBm for 2Mbps @ 8% PER (Packet Error Rate)

# Warranty and Registration

## Wichtige Sicherheitshinweise

1. Bitte lesen Sie sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späten Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssig- oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Um eine Beschädigung des Gerätes zu vermeiden sollten Sie nur Zubehöerteile verwenden, die vom Hersteller zugelassen sind.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen. Verwenden Sie nur sichere Standorte und beachten Sie die Aufstellhinweise des Herstellers.
7. Die Belüftungsoffnungen dienen zur Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, dass diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluss an das Stromnetz die Anschlusswerte.
9. Die Netzanschlusssteckdose muss aus Gründen der elektrischen Sicherheit einen Schutzleiterkontakt haben.
10. Verlegen Sie die Netzanschlussleitung so, dass niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
11. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.
12. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
13. Durch die Lüftungsoffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
14. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
15. Wenn folgende Situationen auftreten, ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
  - a. Netzkabel oder Netzstecker sind beschädigt.
  - b. Flüssigkeit ist in das Gerät eingedrungen.
  - c. Das Gerät war Feuchtigkeit ausgesetzt.
  - d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
  - e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
  - f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
16. Bei Reparaturen dürfen nur Originalersatzteile bzw. den Originalteilen entsprechende Teile verwendet werden. Der Einsatz von ungeeigneten Ersatzteilen kann eine weitere Beschädigung hervorrufen.
17. Wenden Sie sich mit allen Fragen, die Service und Reparatur betreffen, an Ihren Servicepartner. Somit stellen Sie die Betriebssicherheit des Gerätes sicher.

# Limited Warranty

## Hardware:

D-Link warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following periods measured from date of purchase from D-Link or its Authorized Reseller:

<u>Product Type</u>	<u>Warranty Period</u>
Complete products	One year
Spare parts and spare kits	90 days

The one-year period of warranty on complete products applies on condition that the product's Registration Card is filled out and returned to a D-Link office within ninety (90) days of purchase. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card. Failing such timely registration of purchase, the warranty period shall be limited to 90 days.

If the product proves defective within the applicable warranty period, D-Link will provide repair or replacement of the product. D-Link shall have the sole discretion whether to repair or replace, and replacement product may be new or reconditioned. Replacement product shall be of equivalent or better specifications, relative to the defective product, but need not be identical. Any product or part repaired by D-Link pursuant to this warranty shall have a warranty period of not less than 90 days, from date of such repair, irrespective of any earlier expiration of original warranty period. When D-Link provides replacement, then the defective product becomes the property of D-Link.

Warranty service may be obtained by contacting a D-Link office within the applicable warranty period, and requesting a Return Material Authorization (RMA) number. If a Registration Card for the product in question has not been returned to D-Link, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided. If Purchaser's circumstances require special handling of warranty correction, then at the time of requesting RMA number, Purchaser may also propose special procedure as may be suitable to the case.

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. The package must be mailed or otherwise shipped to D-Link with all costs of mailing/shipping/insurance prepaid; D-Link will ordinarily reimburse Purchaser for mailing/shipping/insurance expenses incurred for return of defective product in accordance with this warranty. D-Link shall never be responsible for any software, firmware, information, or memory data of Purchaser contained in, stored on, or integrated with any product returned to D-Link pursuant to this warranty.

Any package returned to D-Link without an RMA number will be rejected and shipped back to Purchaser at Purchaser's expense, and D-Link reserves the right in such a case to levy a reasonable handling charge in addition mailing or shipping costs.

## **Software:**

Warranty service for software products may be obtained by contacting a D-Link office within the applicable warranty period. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card. If a Registration Card for the product in question has not been returned to a D-Link office, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided when requesting warranty service. The term "purchase" in this software warranty refers to the purchase transaction and resulting licence to use such software.

D-Link warrants that its software products will perform in substantial conformance with the applicable product documentation provided by D-Link with such software product, for a period of ninety (90) days from the date of purchase from D-Link or its Authorized Reseller. D-Link warrants the magnetic media, on which D-Link provides its software product, against failure during the same warranty period. This warranty applies to purchased software, and to replacement software provided by D-Link pursuant to this warranty, but shall not apply to any update or replacement which may be provided for download via the Internet, or to any update which may otherwise be provided free of charge.

D-Link's sole obligation under this software warranty shall be to replace any defective software product with product which substantially conforms to D-Link's applicable product documentation. Purchaser assumes responsibility for the selection of appropriate application and system/platform software and associated reference materials. D-Link makes no warranty that its software products will work in combination with any hardware, or any application or system/platform software product provided by any third party, excepting only such products as are expressly represented, in D-Link's applicable product documentation as being compatible. D-Link's obligation under this warranty shall be a reasonable effort to provide compatibility, but D-Link shall have no obligation to provide compatibility when there is fault in the third-party hardware or software. D-Link makes no warranty that operation of its software products will be uninterrupted or absolutely error-free, and no warranty that all defects in the software product, within or without the scope of D-Link's applicable product documentation, will be corrected.

## **LIMITATION OF WARRANTIES**

IF THE D-LINK PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT D-LINK'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. D-LINK NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF D-LINK'S PRODUCTS.

D-LINK SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY THE CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING OR OTHER HAZARD.

## **LIMITATION OF LIABILITY**

IN NO EVENT WILL D-LINK BE LIABLE FOR ANY DAMAGES, INCLUDING LOSS OF DATA, LOSS OF PROFITS, COST OF COVER OR OTHER INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES ARISING OUT THE INSTALLATION, MAINTENANCE, USE,

PERFORMANCE, FAILURE OR INTERRUPTION OF A D- LINK PRODUCT, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY. THIS LIMITATION WILL APPLY EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

IF YOU PURCHASED A D-LINK PRODUCT IN THE UNITED STATES, SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

## **D-Link Offices for Registration and Warranty Service**

The product's Registration Card, provided at the back of this manual, must be sent to a D-Link office. To obtain an RMA number for warranty service as to a hardware product, or to obtain warranty service as to a software product, contact the D-Link office nearest you. An addresses/telephone/fax list of D-Link offices is provided in the back of this manual.

## **Trademarks**

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# 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.

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.

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.

## IMPORTANT NOTE:

### FCC Radiation Exposure Statement:

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

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

## CE Mark Warning

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

### Warnung!

Dies ist ein Produkt der Klasse A. Im Wohnbereich kann dieses Produkt Funkstörungen verursachen. In diesem Fall kann vom Benutzer verlangt werden, angemessene Massnahmen zu ergreifen.

### Precaucion!

Este es un producto de Clase A. En un entorno domestico, puede causar interferencias de radio, en cuyo case, puede requerirse al usuario para que adopte las medidas adecuadas.

### Attention!

Ceci est un produit de classe A. Dans un environnement domestique, ce produit pourrait causer des interferences radio, auquel cas l'utilisateur devrait prendre les mesures adequates.

### Attenzione!

Il presente prodotto appartiene alla classe A. Se utilizzato in ambiente domestico il prodotto puo causare interferenze radio, nel cui caso e possibile che l'utente debba assumere provvedimenti adeguati.

## BSMI Warning

### 警告使用者

這是甲類的資訊產品,在居住的環境中使用時,可能會造成射頻干擾,在這種情況下使用者會被要求採取某些適當的對策。

## Australia

### D-Link Australasia

Unit 16, 390 Eastern Valley Way, Roseville, NSW 2069 Australia  
TEL: 61-2-9417-7100 FAX: 61-2-9417-1077 TOLL FREE (Australia): 1800-177100  
TOLL FREE (New Zealand): 0800-900900  
URL: [www.dlink.com.au](http://www.dlink.com.au) E-MAIL: [support@dlink.com.au](mailto:support@dlink.com.au) & [info@dlink.com.au](mailto:info@dlink.com.au)  
Level 1, 434 St. Kilda Road, Melbourne, Victoria 3004 Australia  
TEL: 61-3-9281-3232 FAX: 61-3-9281-3229 MOBILE: 0412-660-064

## Canada

### D-Link Canada

2180 Winston Park Drive, Oakville, Ontario, L6H 5W1 Canada  
TEL: 1-905-829-5033 FAX: 1-905-829-5095 BBS: 1-965-279-8732  
TOLL FREE: 1-800-354-6522 URL: [www.dlink.ca](http://www.dlink.ca)  
FTP: [ftp.dlinknet.com](ftp://ftp.dlinknet.com) E-MAIL: [techsup@dlink.ca](mailto:techsup@dlink.ca)

## Chile

### D-Link South America

Isidora Goyechea 2934 of 702, Las Condes, Santiago, Chile, S. A.  
TEL: 56-2-232-3185 FAX: 56-2-232-0923 URL: [www.dlink.cl](http://www.dlink.cl)  
E-MAIL: [ccasassu@dlink.cl](mailto:ccasassu@dlink.cl) & [tsilva@dlink.cl](mailto:tsilva@dlink.cl)

## China

### D-Link China

2F, Sigma Building, 49 Zhichun Road, Haidan District, 100080 Beijing, China  
TEL: 86-10-88097777 FAX: 86-10-88096789 URL: [www.dlink.com.cn](http://www.dlink.com.cn)  
E-MAIL: [liwei@digitalchina.com.cn](mailto:liwei@digitalchina.com.cn)

## Denmark

### D-Link Denmark

Naverland 2, DK-2600 Glostrup, Copenhagen, Denmark  
TEL: 45-43-969040 FAX: 45-43-424347 URL: [www.dlink.dk](http://www.dlink.dk) E-MAIL: [info@dlink.dk](mailto:info@dlink.dk)

## Egypt

### D-Link Middle East

7 Assem Ebn Sabet Street, Heliopolis, Cairo, Egypt  
TEL: 20-2-635-6176 FAX: 20-2-635-6192 URL: [www.dlink-me.com](http://www.dlink-me.com)  
E-MAIL: [support@dlink-me.com](mailto:support@dlink-me.com) & [fateen@dlink-me.com](mailto:fateen@dlink-me.com)

## Finland

### D-Link Finland

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