



User Manual

Mini 3G 7.2Mbps USB Router

Preface

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Package Contents

- D-Link DWR-510 Mini 3G 7.2Mbps USB Router
- Manual on the device



System Requirements

- A compatible (U)SIM card with service.*
- Computers with Windows®, Macintosh®, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator™ Version 6.0 and above (for configuration)

*Subject to services and service terms available from your carrier.

Introduction

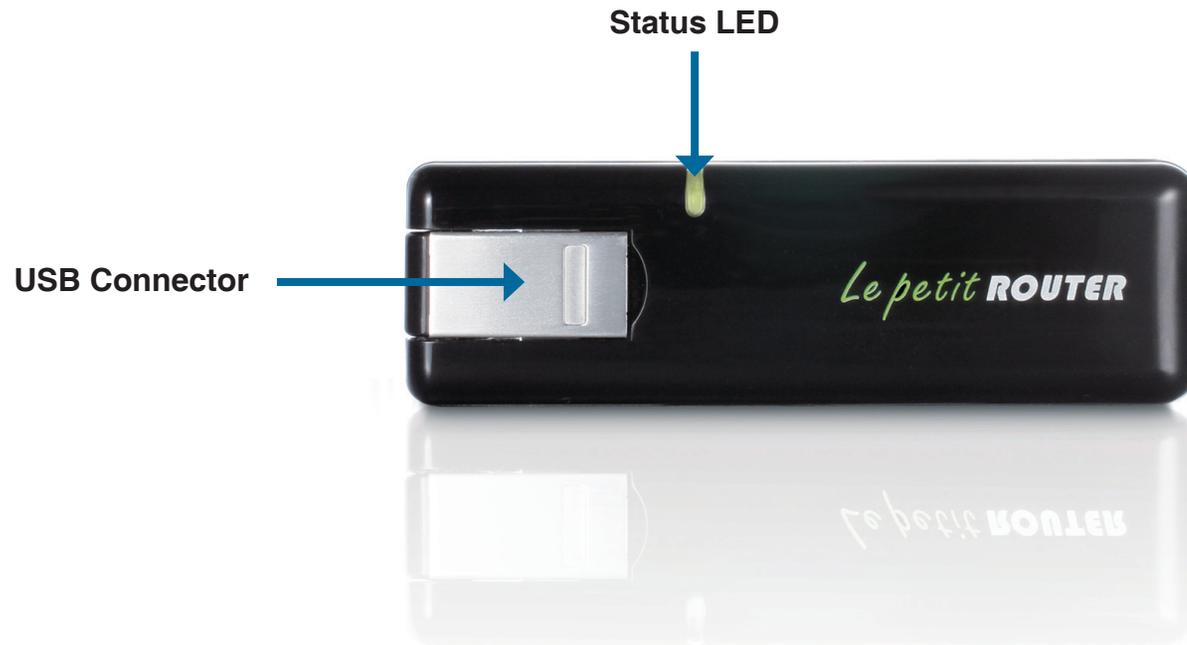
The D-Link DWR-510 Mini 3G 7.2Mbps USB Router is a very compact 3G router and dongle, slim and small enough to carry in a pocket. It allows users to take full advantage of HSUPA-compatible 3G networks for portable use anywhere or anytime while on the go.

The DWR-510 can function in either Wi-Fi router mode or 3G USB modem mode. When in Wi-Fi router mode, the device allows Wi-Fi capable devices like smart phones, portable gaming devices, notebooks, or digital cameras access to 3G networks via a wireless connection. The DWR-510 can share its 3G connection with up to 10 Wi-Fi clients.

When using the D-Link DWR-510 Mini 3G 7.2Mbps USB Router as a 3G USB modem, you can not only keep your PC connected to 3G network, but also turn off your PC's Wi-Fi radio in order to save battery power.

Hardware Overview

Side Panel



Port/LED	Function			
USB Connector	Connects to your computer's USB port.			
Status LED	Indicates the status of your network connection.			
	Color	Solid	Blinking (Fast)	Blinking (Slow)*
	Blue	WCDMA/HSDPA/HSUPA Connected	Transmitting	Dial on demand
	Green	GSM/GPRS Connected	Transmitting	Dial on demand
Red	SIM error/No service	-	-	

* This applies when the device is in standby mode.

Wireless Installation Considerations

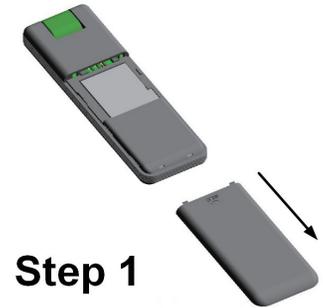
The DWR-510 can be accessed using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the quantity, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or office. The key to maximizing the wireless range is to follow these basic guidelines:

1. Minimize the number of walls and ceilings between the D-Link router and other network devices. Each wall or ceiling can reduce your adapter's range from 3 to 90 feet (1 to 30 meters).
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (0.5 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. Try to position access points, wireless routers, and computers so that the signal passes through open doorways and drywall. Materials such as glass, metal, brick, insulation, concrete and water can affect wireless performance. Large objects such as fish tanks, mirrors, file cabinets, metal doors and aluminum studs may also have a negative effect on range.
4. If you are using 2.4 GHz cordless phones, make sure that the 2.4 GHz phone base is as far away from your wireless device as possible. The base transmits a signal even if the phone is not in use. In some cases, cordless phones, X-10 wireless devices, and electronic equipment such as ceiling fans, fluorescent lights, and home security systems may dramatically degrade wireless connectivity.

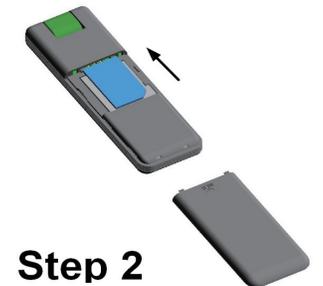
Product Setup

Installing the SIM Card

1. Remove the back cover of the USB Dongle.



2. Insert the SIM card with the gold contacts facing down. Make sure that you insert the SIM card in the right direction, with the notched edge facing away from the DWR-510's contacts.



3. Replace the back cover.



Connection Setup

Modem Mode

1. Move the router/modem selection switch to modem mode.
2. Connect the Mini 3G 7.2Mbps USB Router to your computer, the LED will blink green.
3. Follow the instructions to install the D-Link Connection Manager.
4. Enter the PIN code for the SIM card.
5. Click the “Connect” icon in the Connection Manager.
6. You can now use the DWR-510 Mini 3G 7.2Mbps USB Router as a 3G modem.

Note: You have to install the Connection Manager software when using the DWR-510 for the first time. After successful installation, you can configure USB modem and Wi-Fi router basic settings.



**Modem/Router switch
in modem position**

Connection Setup

Router Mode

1. Move the router/modem selection switch to router mode.
2. Connect the Mini 3G 7.2Mbps USB Router to your computer, the LED will blink green. Alternatively, you can connect the DWR-510 to a USB power adapter.
3. Find the Wi-Fi network with the SSID “dlink_DWR-510” and connect to it.
4. You can now use the DWR-510 Mini 3G 7.2Mbps USB Router as a 3G router.



**Modem/Router switch
in router position**



Modem Mode: D-Link Connection Manager

When using Modem Mode, you will need to use the D-Link Connection Manager. It allows you to manage your 3G connection, and lets you send and receive SMS messages through a simple to use interface.

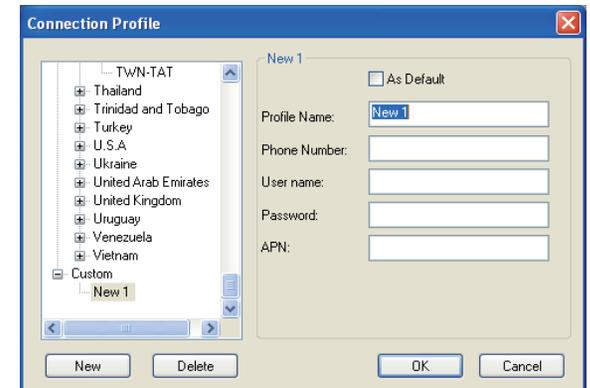
Note: These settings will only take effect when the DWR-510 is in Modem Mode.

New Profile

Before starting, if the mobile service provider associated with your SIM card is listed in the preset profile list, you can directly connect to the desired network using its pre-defined profile.

You also can create your own profile by following the steps below:

1. Click the **Edit** button, then go to **Connection Profile**.
2. Click the **New** button to create a new profile.
3. Choose a **Profile Name**, then type in the **Phone Number**, **User Name**, **Password**, and **APN**. If you want to make this your default profile, check **As Default**. Click **OK** to continue.



Windows



Mac

Establishing a Connection

You can click the Connect button to connect to the network via the default profile. Once connected, you can use the mobile service network to browse the Internet, send e-mail, send text messages, and perform other tasks online.



Connect

Ending a Connection

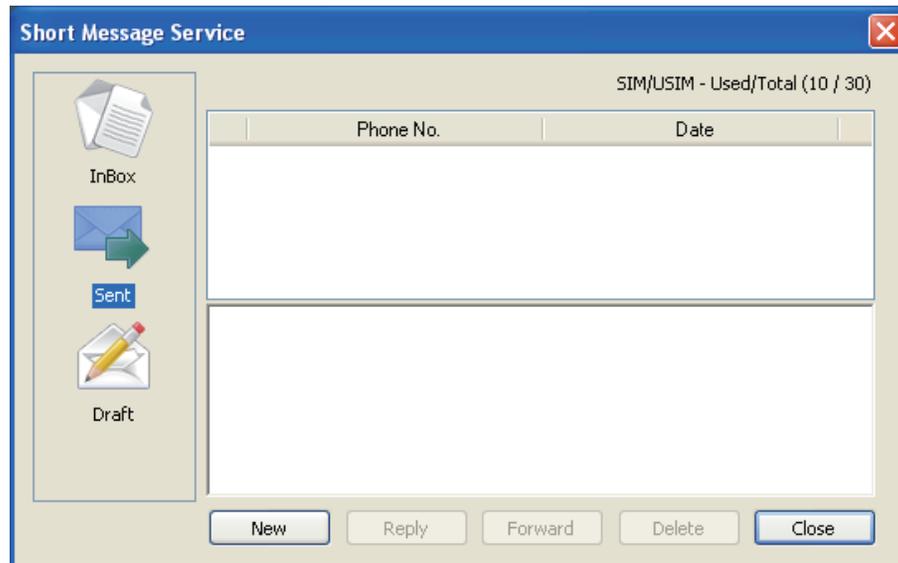
If you wish to disconnect, click the Connect button again.



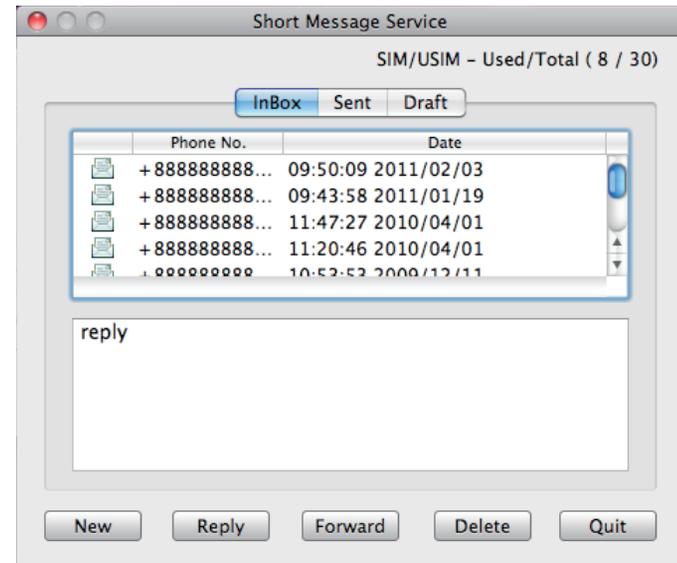
Disconnect

Text Messaging (SMS)

The DWR-510 can be used to perform all the text messaging functions that can be done on a mobile phone such as sending, receiving, replying, forwarding and deleting.



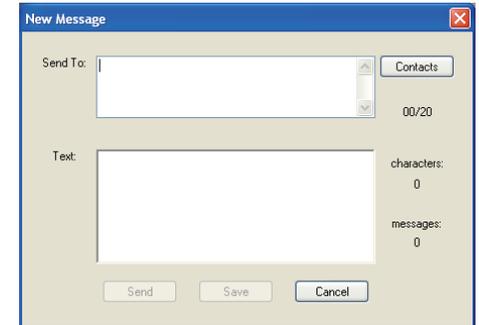
Windows



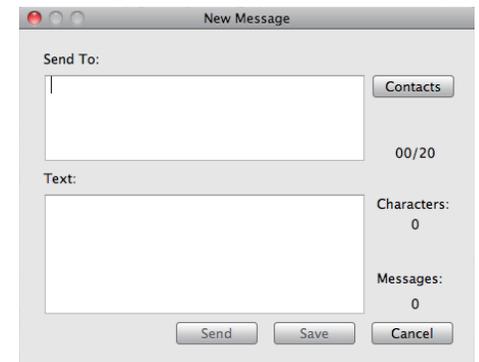
Mac

New/Reply/Forward Text Message

1. Click the **SMS** button.
2. Click **New**, **Reply**, or **Forward**.
3. Enter the recipient's phone number or click **Contacts** to see the contacts stored to the SIM card. In the contacts window, click the box next to the recipients name and click **Add** to return to the New SMS window.
4. Enter a message to send.
5. Click **Send** to send the message.



Windows



Mac

Deleting a Message

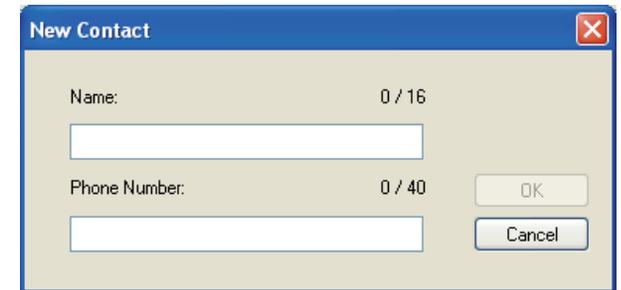
1. Click the **SMS** button.
2. Select the messages you want to delete and click **Delete**.
3. Click **Delete** to delete the selected messages.
4. Click **Yes** to confirm.

Contact Management

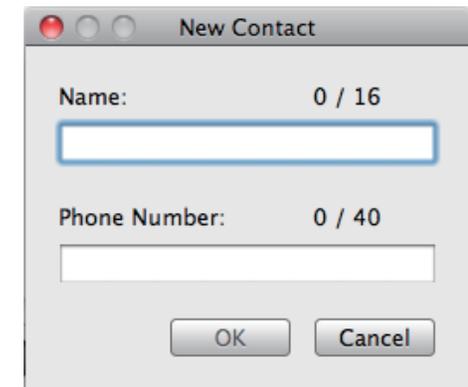
The DWR-510 contacts manager displays all the contacts on the SIM Card. Contacts can be added, edited, deleted and imported.

Adding Contacts

1. Click the **Contacts** button.
2. Click the **New** button.
3. In the Add Contact window, enter the contact name and telephone number.
4. Click **OK** to add the contact.



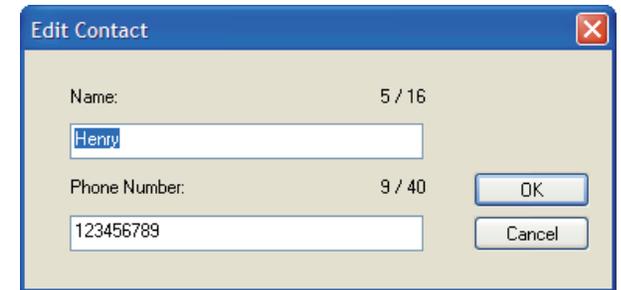
Windows



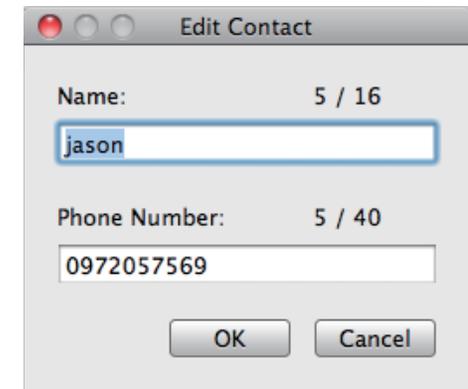
Mac

Editing Contacts

1. Click the **Contacts** button.
2. Select the contact to edit.
3. Click the **Edit** button.
4. Modify the contacts details.
5. Click **OK** to save the changes.



Windows



Mac

Deleting Contacts

1. Click the **Contacts** button.
2. Select the contact to delete and click the **Delete** button.
3. Click **Yes** to confirm the deletion.

Importing vCards to Contacts

1. Click the **Contacts** button.
2. Click the **Import** button.
3. Select the source of the vCard(s).
4. Click **Open** to import the card(s).
5. After the import, a message will display the import information.
Click **OK** to close the window.

Exporting Contacts to vCards

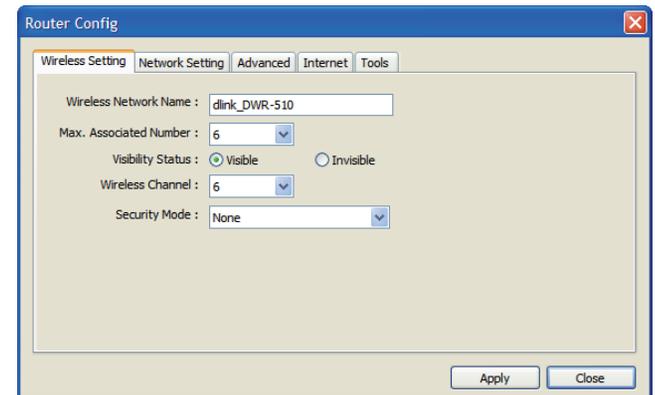
1. Click the **Contacts** button.
2. Click the **Export** button.
3. Select the destination to save the vCard(s).
4. Click **OK** to export the card(s).
5. After the export, a message will be displayed. Click **OK** to close.

Router Mode: D-Link Connection Manager (Windows only)

The D-Link Mobile Connection Manager allows you to conveniently adjust options such as the wireless or network settings for the DWR-510. You can also access these settings by using the web-based configuration utility(see page 18).

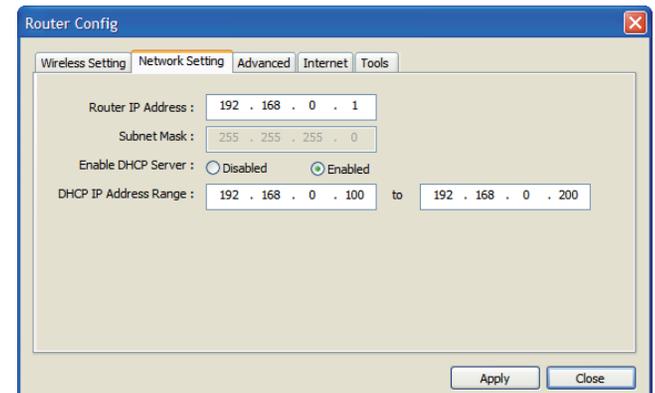
Wireless Settings

1. Enter a wireless network name. When connecting other devices to your wireless network, this is the name you will need to search for.
2. Select the maximum number of devices to allow to connect to your wireless network.
3. Set the visibility status to **Visible** or **Invisible**.
4. Choose the wireless channel and security mode.
5. Click **Apply** to save the settings.



Network Settings

1. Enter the router IP address and subnet mask.
2. If you want to enable DHCP Server, check **Enabled**. Otherwise, check **Disabled**.
3. Enter values for the DHCP IP address range.
4. Click **Apply** to save the settings.



Advanced Settings

1. Check **Enabled**, if you want to enable MAC address filtering. Otherwise, check **Disabled**.
2. Enter up to 10 MAC addresses that can access the device. Only these devices will be allowed to access your wireless network; all other devices will be denied access.
3. Click **Apply** to save the settings.

The screenshot shows the 'Router Config' window with the 'Advanced' tab selected. Under the 'Advanced' tab, there are two radio button options: 'Disabled - Disabled the MAC Filter function.' (which is selected) and 'Enabled - Allow PCs listed below to access this device, others are denied.' Below these options is a table for entering MAC addresses:

No.	MAC Address	No.	MAC Address
1	<input type="text"/>	2	<input type="text"/>
3	<input type="text"/>	4	<input type="text"/>
5	<input type="text"/>	6	<input type="text"/>
7	<input type="text"/>	8	<input type="text"/>
9	<input type="text"/>	10	<input type="text"/>

At the bottom right of the window are 'Apply' and 'Close' buttons.

Internet Settings

1. If you want to enable Auto APN, tick the check box.
2. Enter a profile name, username, password, and APN description.
3. Set the Reconnect Mode to **Always On**, **On Demand**, or **Manual**.
4. Enter a maximum idle time in minutes or choose 0 for infinite.
5. Enter a PIN code.
6. Click **Apply** to save the settings.

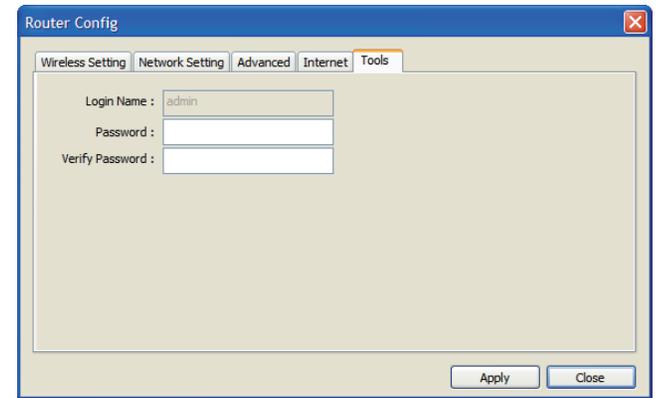
The screenshot shows the 'Router Config' window with the 'Internet' tab selected. The settings are as follows:

- Auto APN:
- Profile Name:
- Username:
- Password:
- APN:
- Reconnect Mode: Always on On demand Manual
- Maximum Idle Time: (minutes, 0 = infinite)
- PIN Code:

At the bottom right of the window are 'Apply' and 'Close' buttons.

Tools

1. If you want to change the password for the DWR-510, enter a new password in the text box.
2. Enter the password again to verify it.
3. Click **Apply** to save the settings.



Router Mode: Web-based Configuration Utility

When using Router Mode, you can use the web-based configuration utility to manage your wireless network. It allows you to set wireless encryption, control access to the wireless network, set up an FTP server for file sharing, and more.

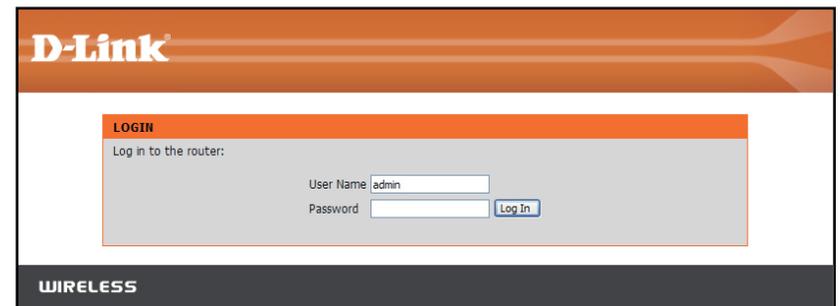
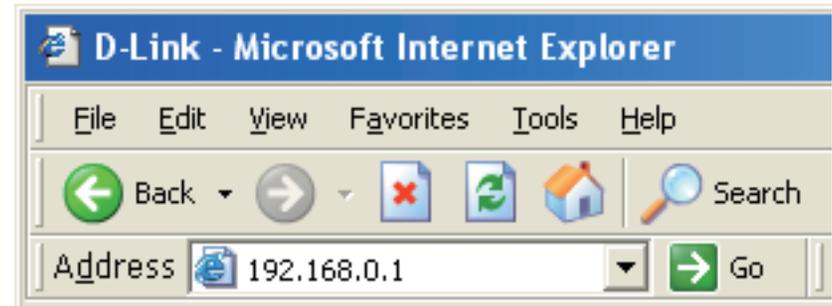
Note: The web-based configuration utility and its associated features are for Router Mode only.

To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the router (192.168.0.1).

Type **admin** in the **User Name** field and then enter your password. Leave the password blank by default.

Click the **Login** button to log in to the router.

If you get a **Page Cannot be Displayed** error, please refer to the **Troubleshooting** section for assistance.



Internet Connection Setup Wizard

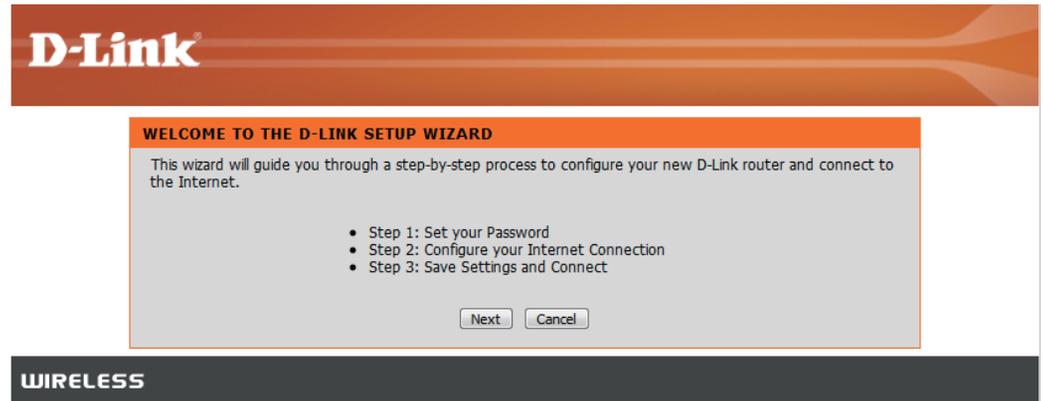
Once logged into the web interface of the router, the **Setup > Internet** page will appear. Click the **Internet Connection Setup Wizard** button to quickly configure your router using the setup wizard.

If you want to enter your settings without running the wizard, click **Manual Internet Connection Setup** and skip to “Manual Internet Configuration”.

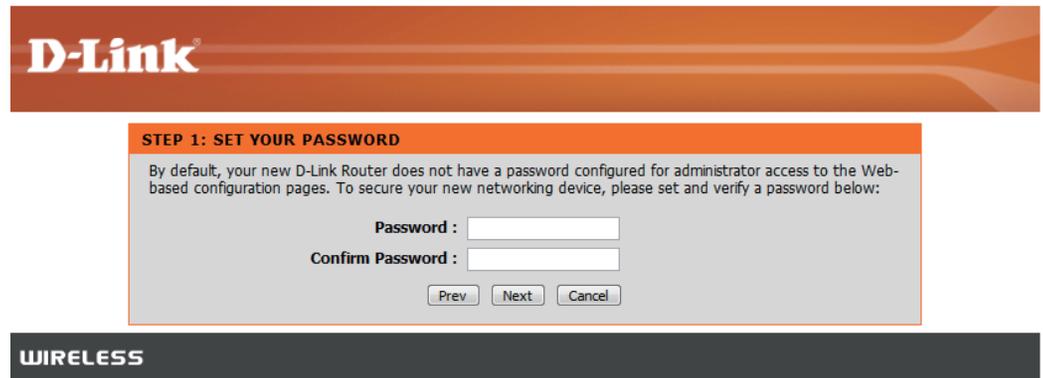
The screenshot shows a web interface for configuring the router's internet connection. It is divided into three main sections:

- INTERNET CONNECTION**: An orange header section containing a grey text box that reads: "If you are configuring the device for the first time, we recommend that you click on the Internet Connection Setup Wizard button and follow the instructions on the screen. If you wish to modify or configure the device settings manually, click the Manual Internet Connection Setup button."
- INTERNET CONNECTION SETUP WIZARD**: A dark grey header section containing a white text box that reads: "If you would like to utilize our easy to use Web-based Wizard to assist you in connecting your new D-Link Systems Router to the Internet, click on the button below." Below this text is a button labeled "Internet Connection Setup Wizard". A **Note** follows: "Before launching the wizard, please make sure you have followed all steps outlined in the Quick Installation Guide included in the package."
- MANUAL INTERNET CONNECTION OPTIONS**: A dark grey header section containing a white text box that reads: "If you would like to configure the Internet settings of your new D-Link Router manually, then click on the button below." Below this text is a button labeled "Manual Internet Connection Setup".

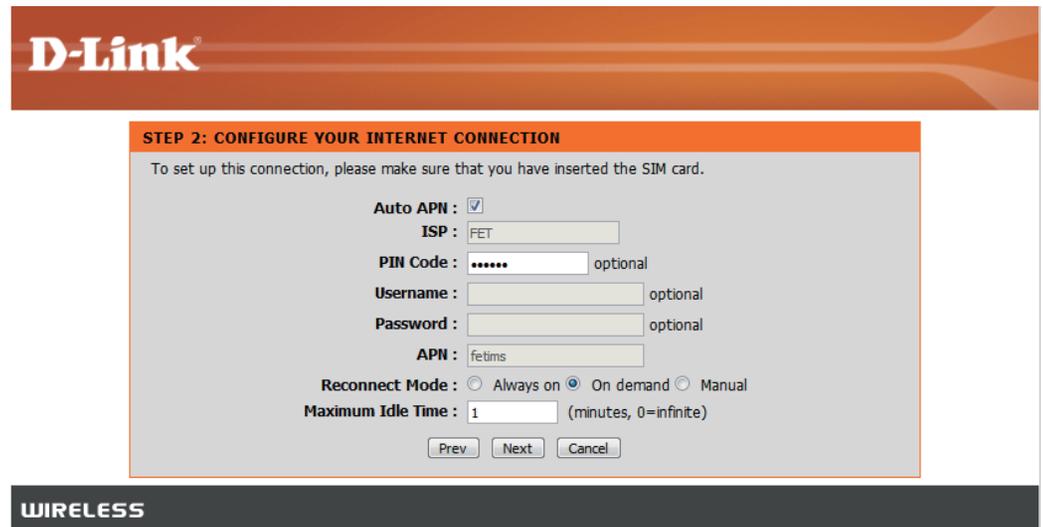
Click **Next** to continue.



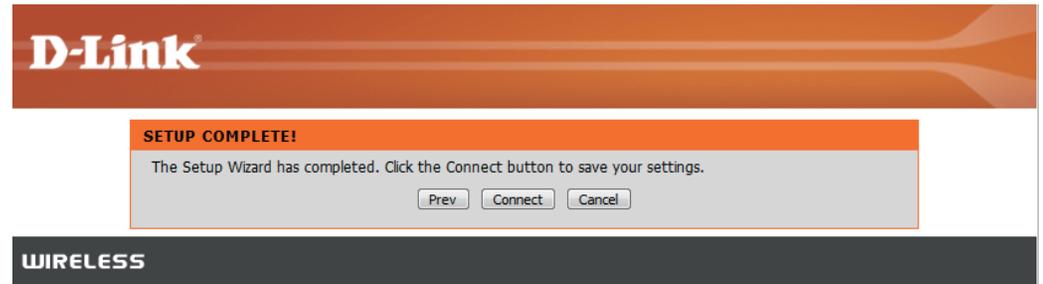
Create a new password and then click **Next** to continue.



Configure your 3G Internet Connection settings and then click **Next** to continue.



Click **Connect** to save your settings. Once the router has finished rebooting, click **Continue**. Please allow 1-2 minutes to connect.



Internet Setup

This section lets you enter the Internet connection information provided by your Internet Service Provider (ISP).

Auto APN: If you want to enable Auto APN, tick the check box.

ISP: Enter the name of your ISP.

Username: Enter a username.

Password: Enter a password.

APN: Enter the APN description.

Reconnect Mode: Set to **Always On**, **On Demand**, or **Manual**.

Maximum Idle Time: Enter a maximum idle time in minutes. Choose 0 for infinite.

SIM Card Settings: Enter the PIN code for the SIM card.

The screenshot shows the D-Link router's configuration interface. The top navigation bar includes 'D-Link' and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar contains 'INTERNET SETTINGS', 'WIRELESS SETTINGS', 'NETWORK SETTINGS', 'LOGOUT', and a language dropdown set to 'English'. The main content area is titled 'WAN' and contains the following configuration options:

- WAN:** Use this section to configure your Internet Connection type. Includes 'Save Settings' and 'Don't Save Settings' buttons.
- WWAN INTERNET CONNECTION:** Enter the information provided by your Internet Service Provider (ISP).
 - Auto APN:**
 - ISP:** FET
 - Username:** [text input]
 - Password:** [text input]
 - APN:** fetims
 - Reconnect Mode:** Always on On demand Manual
 - Maximum Idle Time:** 1 (minutes, 0=infinite)
- SIM CARD SETTINGS:**
 - PIN Code:** [text input with masked characters]

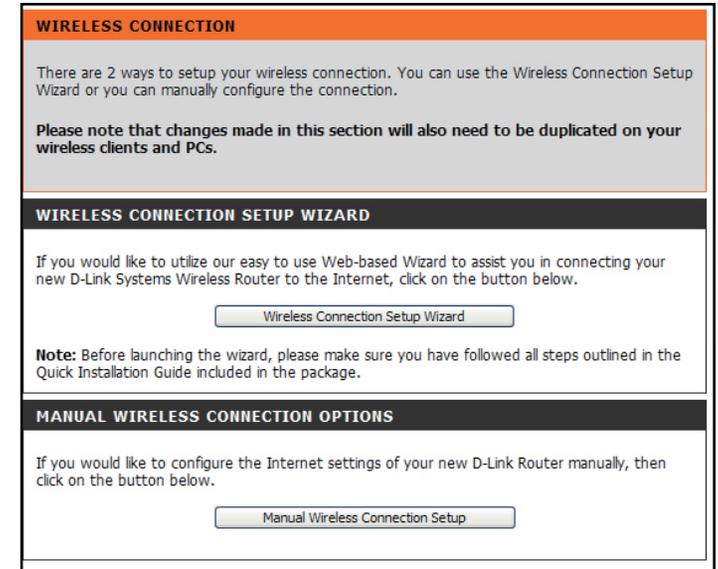
A 'Helpful Hints...' sidebar on the right provides instructions: 'When configuring the router to access the Internet, be sure to fill the correct information. If you are unsure of which option to choose, contact your Internet Service Provider (ISP).'

Wireless Settings

If you want to configure the wireless settings on your router using the wizard, click **Wireless Connection Setup Wizard**.

If you want to manually configure the wireless settings on your router click **Manual Wireless Connection Setup** and refer to “**Manual Wireless Connection Setup**”.

Click the **Wireless Connection Setup Wizard** button to view the **Wireless Security Setup Wizard** menu. The Welcome menu lists the steps used for setup. Click on the **Next** button to continue.



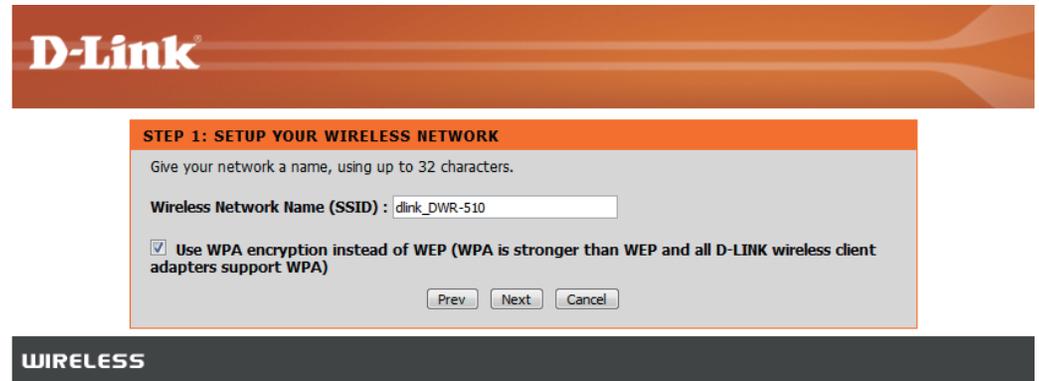
Enter the SSID (Service Set Identifier). The SSID is the name of your wireless network. Create a name using up to 20 characters. The SSID is case-sensitive.

It is recommended that you tick the checkbox to use WPA wireless encryption to secure your wireless network.

Click **Next** to continue.

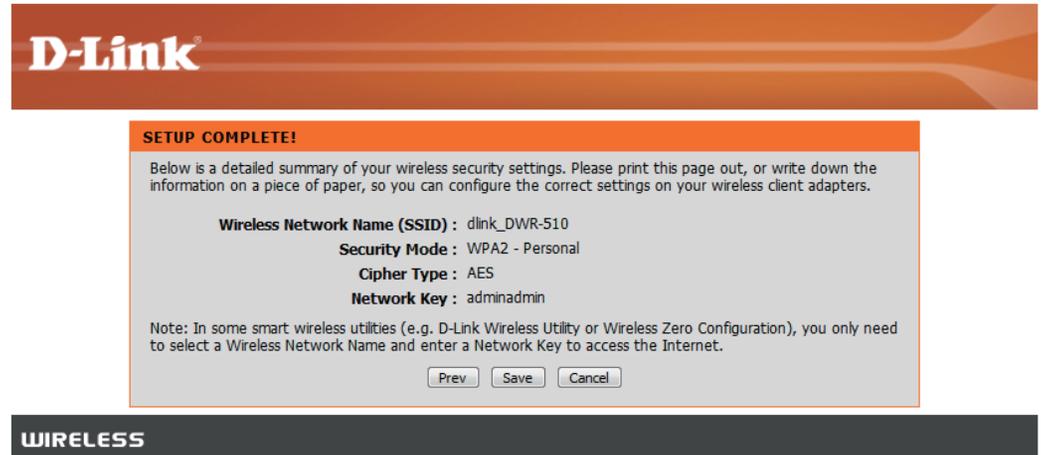
Type a password that you would like to use for your wireless network in the **Network Key:** entry field.

Click **Next** to continue.



The final menu appears to indicate that setup is complete.

You should write down the **Wireless Network Name (SSID)** and **Network Key** for future reference when connecting other wireless devices to your wireless network.



Click **Save** to finish the Security Wizard.

Manual Wireless Setup

Use this section to configure the wireless settings for your D-Link router.

Wireless Network Name: Enter a wireless network name.

Max. Associated Number: Set the maximum number of clients that can connect wirelessly.

Wireless Channel: Choose the wireless channel.

Visibility Status: Set the visibility status to **Visible** or **Invisible**.

Security Mode: Choose the wireless security mode.

The screenshot shows the D-Link router's web interface. The top navigation bar includes 'D-Link' and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar contains links for 'INTERNET SETTINGS', 'WIRELESS SETTINGS', 'NETWORK SETTINGS', and 'LOGOUT', with a language dropdown set to 'English'. The main content area is titled 'WIRELESS' and contains a warning message: 'Use this section to configure the wireless settings for your D-Link Router. Please note that changes made on this section may also need to be duplicated on your Wireless Client.' Below this are 'Save Settings' and 'Don't Save Settings' buttons. The 'WIRELESS NETWORK SETTINGS' section includes:

- Wireless Network Name: dlink_DWR-510 (Also called the SSID)
- Max. Associated Number: 6 stations
- Wireless Channel: 6
- Visibility Status: Visible Invisible

 The 'WIRELESS SECURITY MODE' section includes:

- Security Mode: None

 A 'Helpful Hints...' sidebar on the right provides additional information:

- Changing your Wireless Network Name is the first step in securing your wireless network. Change it to a familiar name that does not contain any personal information.
- Changing the maximum number of connected to the router's PCs or other hand-held devices.
- Enabling Hidden Mode is another way to secure your network. With this option enabled, no wireless clients will be able to see your wireless network when they scan to see what's available. For your wireless devices to connect to your router, you will need to manually enter the Wireless Network Name on each device.
- If you have enabled Wireless Security, make sure you write down the

Network Setup

Use this section to configure the internal network settings of your router.

Router IP Address: Enter the router IP address.

Subnet Mask: Enter the subnet mask.

Enable DHCP Server: If you want to enable DHCP Server, check **Enabled**. Otherwise, check **Disabled**.

DHCP IP Address Range: Enter values for the DHCP IP address range.

D-Link

SETUP ADVANCED TOOLS STATUS SUPPORT

INTERNET SETTINGS
WIRELESS SETTINGS
NETWORK SETTINGS
LOGOUT
English

NETWORK SETTINGS

Use this section to configure the internal network settings of your router and also to configure the built-in DHCP Server to assign IP addresses to the computers on your network. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.

Save Settings Don't Save Settings

ROUTER SETTINGS

Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.

Router IP Address: 192.168.0.1
Subnet Mask: 255.255.255.0

DHCP SERVER SETTINGS

Use this section to configure the built-in DHCP Server to assign IP addresses to the computers on your network.

Enable DHCP Server: Disabled Enabled
DHCP IP Address Range: 192.168.0.100 to 192.168.0.200

Helpful Hints...
If you already have a DHCP server on your network or are using static IP addresses on all the devices on your network, uncheck **Enable DHCP Server** to disable this feature.

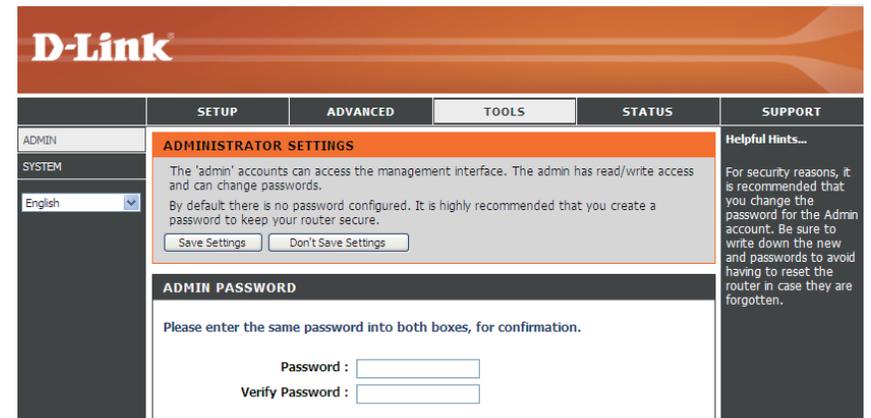
WIRELESS

Administrator Settings

Use this section to change the password for the Administrator account.

Password: Enter a password.

Verify Password: Verify the password.



D-Link

SETUP ADVANCED **TOOLS** STATUS SUPPORT

ADMIN

SYSTEM

English

ADMINISTRATOR SETTINGS

The 'admin' accounts can access the management interface. The admin has read/write access and can change passwords.

By default there is no password configured. It is highly recommended that you create a password to keep your router secure.

ADMIN PASSWORD

Please enter the same password into both boxes, for confirmation.

Password :

Verify Password :

Helpful Hints...

For security reasons, it is recommended that you change the password for the Admin account. Be sure to write down the new and passwords to avoid having to reset the router in case they are forgotten.

Factory Reset

Use this section to restore the router to the factory default settings.

Restore To Factory Default: Click this button to restore all settings to the factory defaults.



Device Information

All of your Internet and network connection details are displayed on this page. The firmware version is also displayed here.

General: Displays the firmware version.

WAN: Displays information about the WAN.

LAN: Displays information about the LAN.

D-Link

SETUP ADVANCED TOOLS STATUS SUPPORT

DEVICE INFO **DEVICE INFORMATION** Helpful Hints...

WIRELESS All of your Internet and network connection details are displayed on this page. The firmware version is also displayed here. All of your WAN and LAN connection details are displayed here.

LOGOUT

English

GENERAL

Firmware Version :
Signal Strength : 100%

WAN

Connection Status : Connected
Network Type : GPRS
ISP : FET
Connected Time : 5 minutes 17 seconds
IP : 114.140.27.124
DNS : 210.241.192.201 168.95.1.1
Received Packets : 1258
Transmitted Packets : 1083

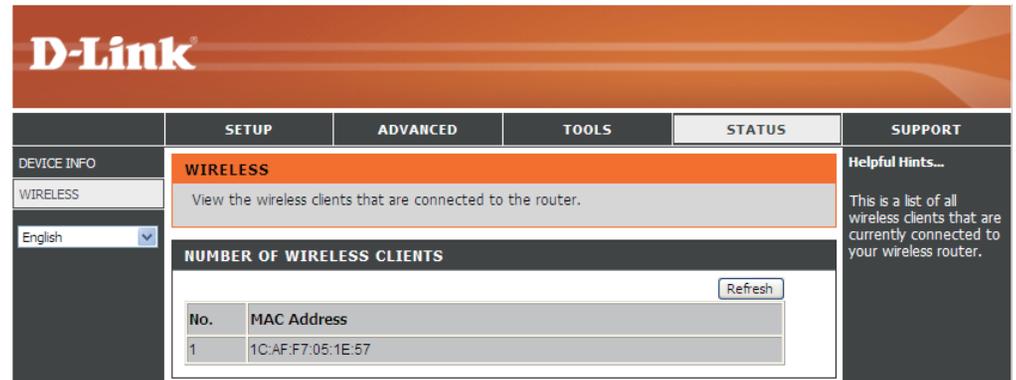
LAN

IP : 192.168.0.1
Subnet Mask : 255.255.255.0
DHCP Server : Enabled
Address Range : 192.168.0.100 - 192.168.0.200
MAC Address : 48:5d:60:a3:72:1a
SSID : dlink_DWR-510
Channel : 6
Mode : 802.11 B/G/N
Encryption : None

Wireless Information

All of your wireless connection details are displayed on this page.

Number of wireless clients: Displays the wireless clients and their MAC addresses.



D-Link

SETUP ADVANCED TOOLS STATUS SUPPORT

DEVICE INFO

WIRELESS

English

WIRELESS

View the wireless clients that are connected to the router.

NUMBER OF WIRELESS CLIENTS

No.	MAC Address
1	1C:AF:F7:05:1E:57

Helpful Hints...

This is a list of all wireless clients that are currently connected to your wireless router.

Support

D-Link

[SETUP](#)
[ADVANCED](#)
[TOOLS](#)
[STATUS](#)
[SUPPORT](#)

[SETUP](#)
[ADVANCED](#)
[TOOLS](#)
[STATUS](#)

English

STATUS HELP

- [Device Info](#)
- [Wireless](#)

DEVICE INFO

All of your Internet and network connection details are displayed on the Device Info page. The firmware version is also displayed here.

Note: Some browsers have limitations that make it impossible to update the WAN status display when the status changes. Some browsers require that you refresh the display to obtain updated status. Some browsers report an error condition when trying to obtain WAN status.

Depending on the type of WAN connection, you can take one of the following sets of actions:

WAN Connection

Depending on whether the WAN connection is currently established, you can click either the **Connect** to attempt to establish the WAN connection or the **Disconnect** to break the WAN connection.

Wireless LAN

This area of the screen reflects configuration settings from the [Setup Wireless Settings](#) page.

LAN Computers

This area of the screen continually updates to show all DHCP enabled computers and devices connected to the LAN side of your router. The detection "range" is limited to the address range as configured in DHCP Server. Computers that have an address outside of this range will not show. If the DHCP Client (i.e. a computer configured to "Automatically obtain an address") supplies a Host Name then that will also be shown. Any computer or device that has a static IP address that lies within the detection "range" may show, however its host name will not.

Wireless Security

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

DWR-510 offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA2-PSK (Pre-Shared Key)
- WPA (Wi-Fi Protected Access)
- WPA-PSK (Pre-Shared Key)
- WEP (Wired Equivalent Privacy)

What is WEP?

WEP stands for Wired Equivalent Privacy. It is based on the IEEE 802.11 standard and uses the RC4 encryption algorithm. WEP provides security by encrypting data over your wireless network so that it is protected as it is transmitted from one wireless device to another.

To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange – alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.

Configure WEP

It is recommended to enable encryption on your wireless router before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

1. Log into the web-based configuration by opening a web browser and entering the IP address of the router (192.168.0.1). Click on **Wireless Settings** on the left side.
2. Next to *Security Mode*, select **WEP**.
3. Next to *WEP Key 1*, enter a WEP key that you create. Make sure you enter this key exactly on all your wireless devices. You may enter up to 4 different keys.
4. Click **Save Settings** to save your settings. If you are configuring the router with a wireless adapter, you will lose connectivity until you enable WEP on your adapter and enter the same WEP key as you did on the router.

WIRELESS SECURITY MODE

To protect your privacy you can configure wireless security features. This device supports three wireless security modes, including WEP, and WPA-Personal. WEP is the original wireless encryption standard. WPA provides a higher level of security. WPA-Personal does not require an authentication server.

Security Mode :

WEP

WEP is the wireless encryption standard. To use it you must enter the same key(s) into the router and the wireless stations. For 64 bit keys you must enter 10 hex digits into each key box. For 128 bit keys you must enter 26 hex digits into each key box. A hex digit is either a number from 0 to 9 or a letter from A to F. For the most secure use of WEP set the authentication type to "Shared Key" when WEP is enabled.

You may also enter any text string into a WEP key box, in which case it will be converted into a hexadecimal key using the ASCII values of the characters. A maximum of 5 text characters can be entered for 64 bit keys, and a maximum of 13 characters for 128 bit keys.

If you choose the WEP security option this device will **ONLY** operate in **Legacy Wireless mode (802.11B/G)**. This means you will **NOT** get 11N performance due to the fact that WEP is not supported by the Draft 11N specification.

WEP Key 1 :

WEP Key 2 :

WEP Key 3 :

WEP Key 4 :

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

Configure WPA-PSK/WPA2-PSK

It is recommended to enable encryption on your wireless router before your wireless network adapters. Please establish wireless connectivity before enabling encryption. Your wireless signal may degrade when enabling encryption due to the added overhead.

1. Log into the web-based configuration by opening a web browser and entering the IP address of the router (192.168.0.1). Click on **Wireless Settings** on the left side.
2. Next to *Security Mode*, select **WPA-PSK** or **WPA2-PSK**.
3. Next to *Pre-Shared Key*, enter a key (passphrase). The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. Make sure you enter this key exactly the same on all other wireless clients.
4. Click **Save Settings** to save your settings. If you are configuring the router with a wireless adapter, you will lose connectivity until you enable WPA-PSK (or WPA2-PSK) on your adapter and enter the same passphrase as you did on the router.

WIRELESS SECURITY MODE

To protect your privacy you can configure wireless security features. This device supports three wireless security modes, including WEP, and WPA-Personal. WEP is the original wireless encryption standard. WPA provides a higher level of security. WPA-Personal does not require an authentication server.

Security Mode :

WPA

Use **WPA** or **WPA2** mode to achieve a balance of strong security and best compatibility. This mode uses WPA for legacy clients while maintaining higher security with stations that are WPA2 capable. Also the strongest cipher that the client supports will be used. For best security, use **WPA2 Only** mode. This mode uses AES(CCMP) cipher and legacy stations are not allowed access with WPA security. For maximum compatibility, use **WPA Only**. This mode uses TKIP cipher. Some gaming and legacy devices work only in this mode.

To achieve better wireless performance use **WPA2 Only** security mode (or in other words AES cipher).

PRE-SHARED KEY

Enter an 8- to 63-character alphanumeric pass-phrase. For good security it should be of ample length and should not be a commonly known phrase.

Pre-Shared Key :

Connect to a Wireless Network Using Windows Vista™

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

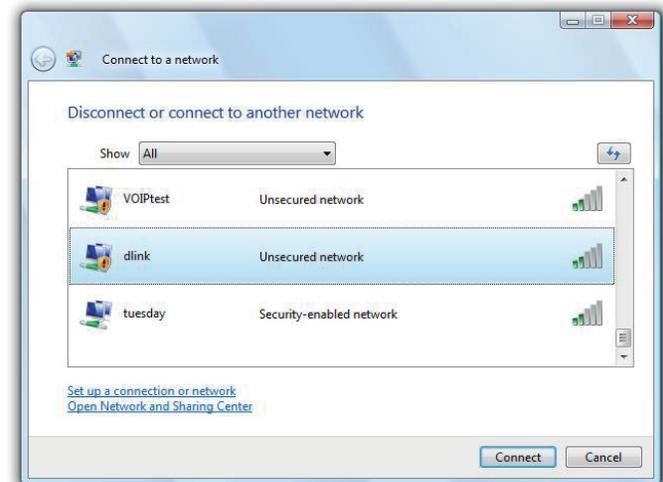
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

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

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

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



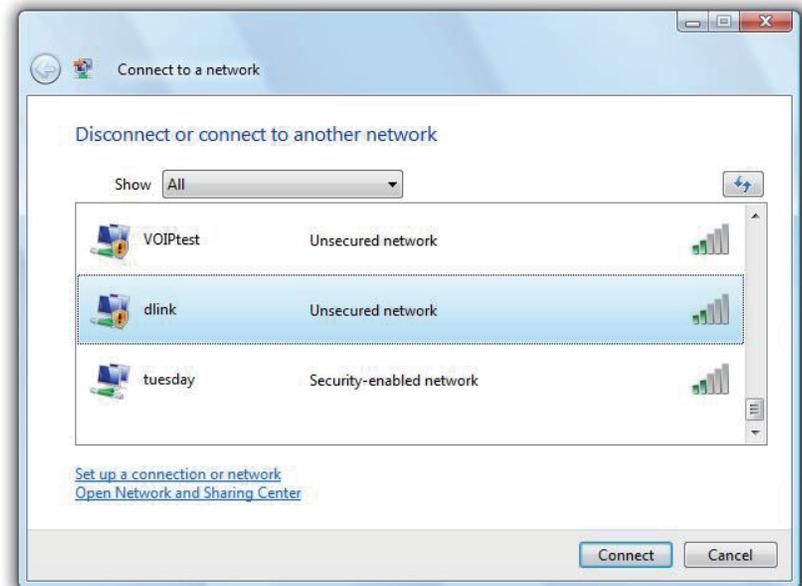
Configure Wireless Security

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

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

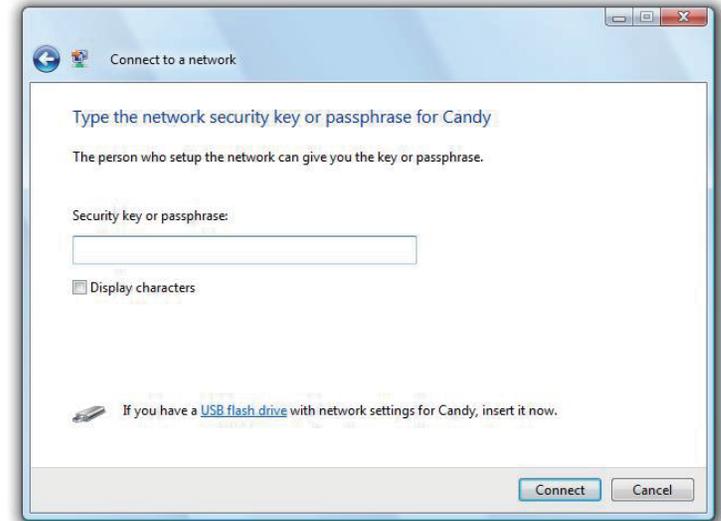


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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

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



Connect to a Wireless Network Using Windows® XP

Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility 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® XP utility as seen below.

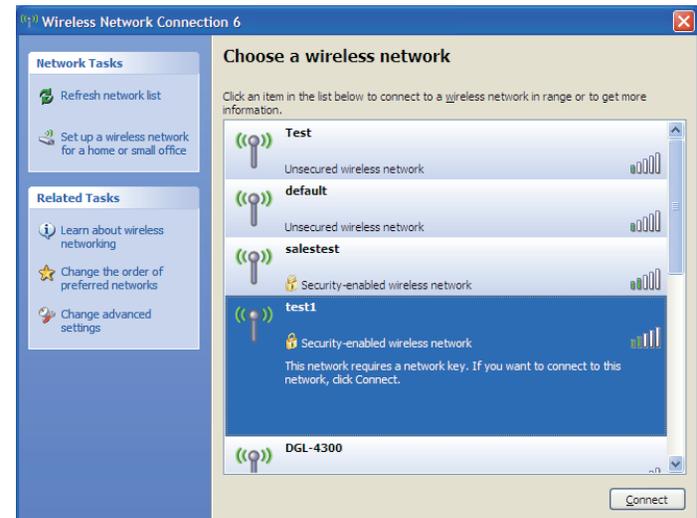
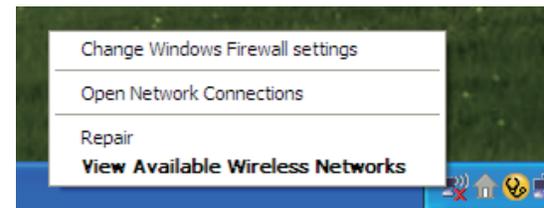
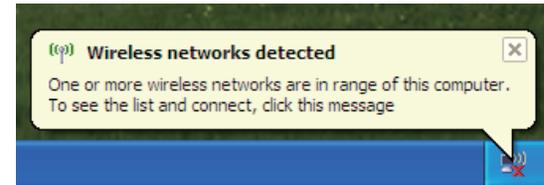
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

or

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

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

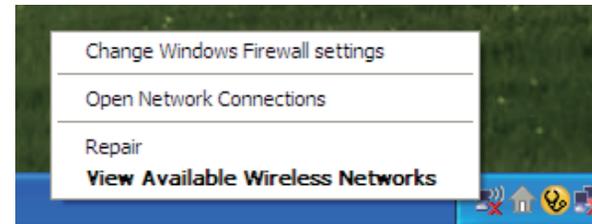
If you get a good signal but cannot access the Internet, check the TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



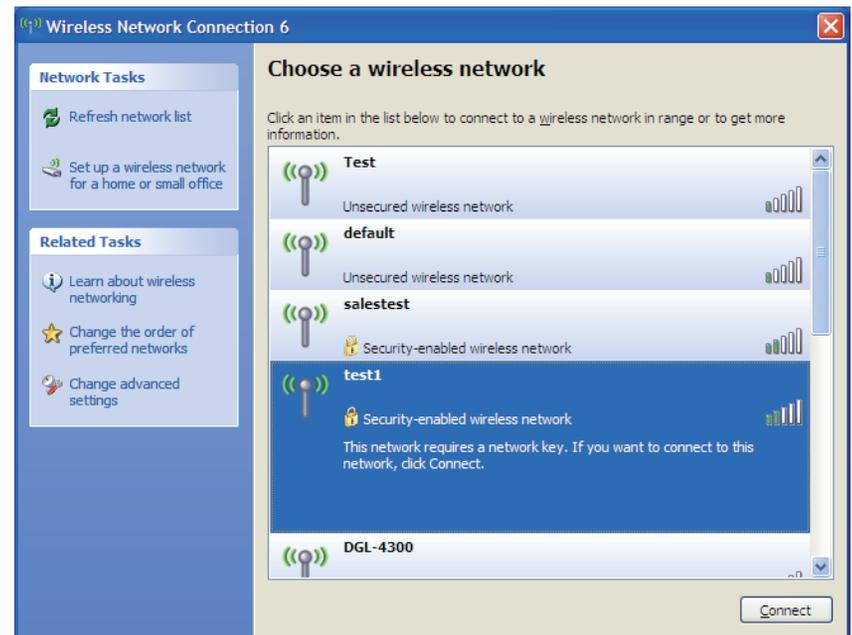
Configure WEP

It is recommended to enable WEP 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 WEP key being used.

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

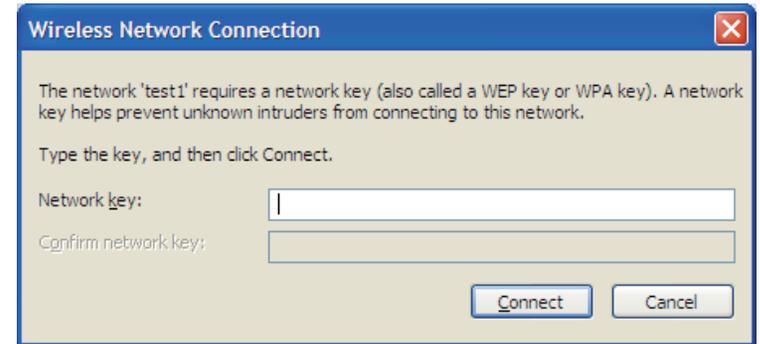


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. The **Wireless Network Connection** box will appear. Enter the same WEP key that is on your router and click **Connect**.

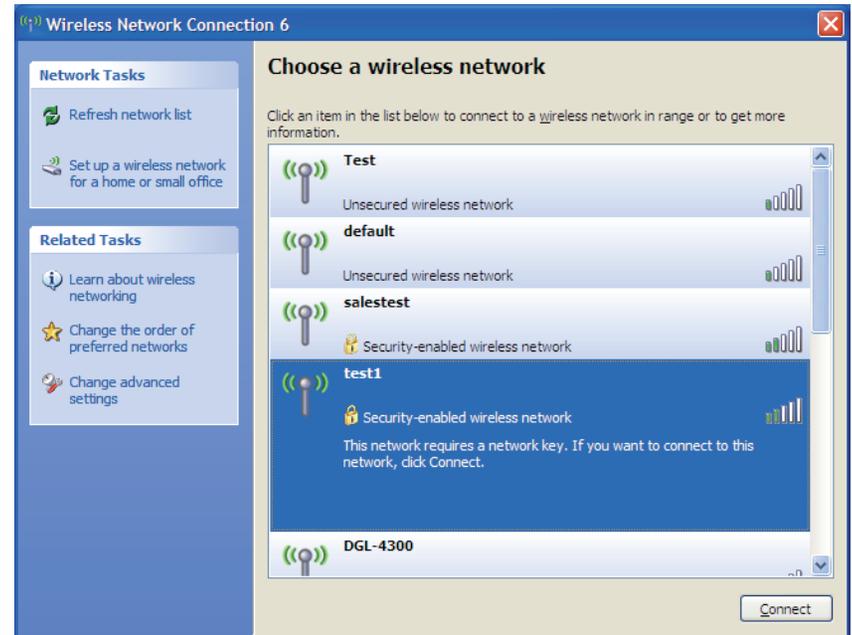
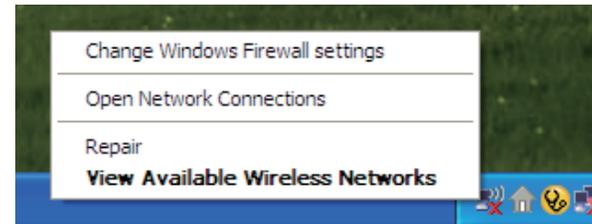
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WEP settings are correct. The WEP key must be exactly the same as on the wireless router.



Configure WPA-PSK

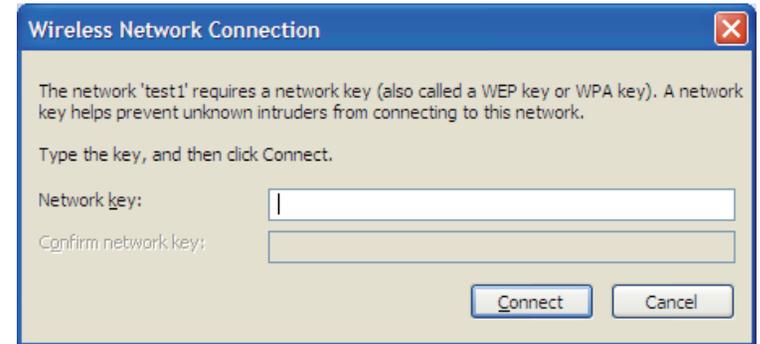
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select **View Available Wireless Networks**.
2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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

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



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DWR-510. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

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

When entering the IP address of the D-Link router (192.168.0.1 for example), you are not connecting to a website on the Internet or have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
 - Internet Explorer 6.0 or higher
 - Netscape 8 or higher
 - Mozilla 1.7.12 (5.0) or higher
 - Opera 8.5 or higher
 - Safari 1.2 or higher (with Java 1.3.1 or higher)
 - Camino 0.8.4 or higher
 - Firefox 1.5 or higher
- Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.
- Disable any internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

- Configure your Internet settings:
 - Go to **Start > Settings > Control Panel**. Double-click the **Internet Options** icon. From the **Security** tab, click the button to restore the settings to their defaults.
 - Click the **Connection** tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click **OK**.
 - Go to the **Advanced** tab and click the button to restore these settings to their defaults. Click **OK** three times.
 - Close your web browser (if open) and open it.
- Access the web management. Open your web browser and enter the IP address of your D-Link router in the address bar. This should open the login page for your the web management.
- If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

2. How can I upgrade the firmware on the device?

To update the firmware on the DWR-510, insert the device into an available USB port on your PC. Next, launch the firmware utility (FirmwareUpgrade.exe). Click the **Start** button to update the firmware. Please don't remove the DWR-510 while the upgrade is in progress. To finish the firmware update procedure, click the **OK** button.

Note: For update information, please follow the revision notice on the official web site.

3. I'm having problems installing the D-Link Connection Manager.

Your antivirus program may be preventing installation of the software. Try disabling your antivirus software temporarily while you install the D-Link Connection Manager.

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 e-mail, 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 Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like 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 you 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.

Wireless Modes

There are basically two modes of networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more WNA-2330 wireless network Cardbus adapters.

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

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

Networking Basics

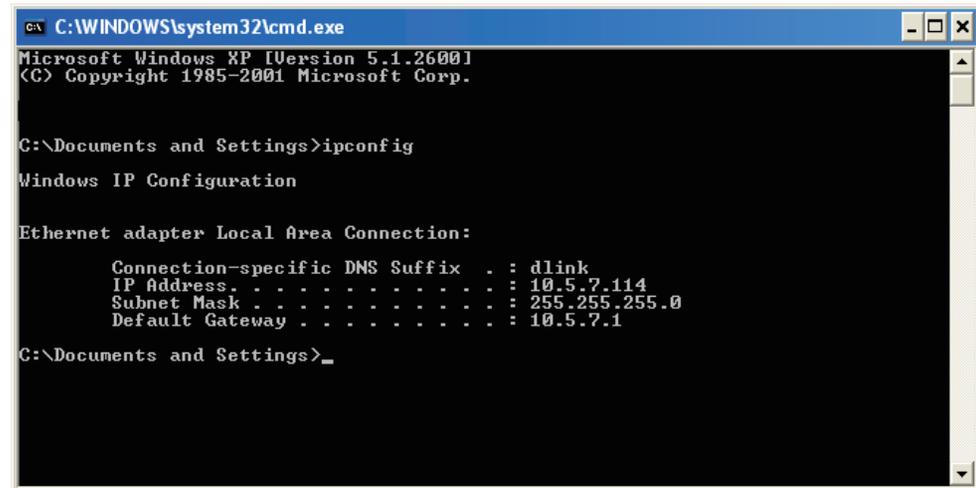
Check your IP address

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

Click on **Start > Run**. In the run box type *cmd* and click **OK**. (Windows® Vista™ users type *cmd* in the **Start Search** box.)

At the prompt, type *ipconfig* and press **Enter**.

This will display the IP address, subnet mask, and the default gateway of your adapter.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink
    IP Address. . . . .               : 10.5.7.114
    Subnet Mask . . . . .            : 255.255.255.0
    Default Gateway . . . . .        : 10.5.7.1

C:\Documents and Settings>_
```

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.

Statically Assign an IP address

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

Step 1

Windows® Vista™ - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections.**

Windows® XP - Click on **Start > Control Panel > Network Connections.**

Windows® 2000 - From the desktop, right-click **My Network Places > Properties.**

Step 2

Right-click on the **Local Area Connection** which represents your network adapter and select **Properties.**

Step 3

Highlight **Internet Protocol (TCP/IP)** and click **Properties.**

Step 4

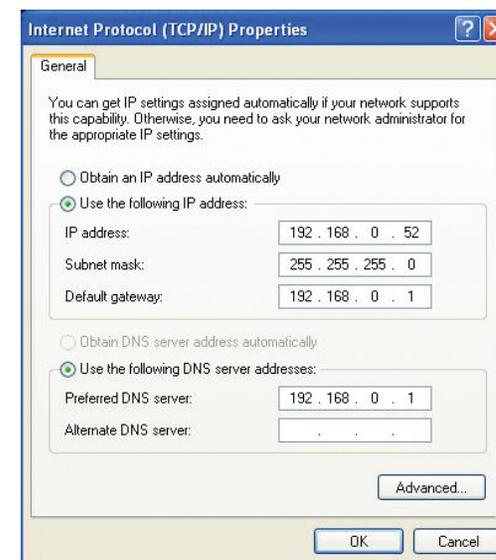
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

Example: If the router's LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5

Click **OK** twice to save your settings.



Warnings and Declarations

FCC Regulations:

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.

This device 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 radiated 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 or more 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves.

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

The highest SAR value for the device as reported to the FCC is 1.52 W/kg when placed next to the body.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid after searching on FCC ID: KA2WR530A1.

This device is compliance with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

Products with 2.4–GHz Wireless LAN Devices France

L'utilisation de cet équipement (2.4GHz wireless LAN) est soumise à certaines restrictions: cet équipement peut être utilisé à l'intérieur d'un bâtiment en utilisant toutes les fréquences de 2400 à 2483.5MHz (Chaîne 1–13). Pour une utilisation en environnement extérieur, les fréquences comprises entre 2400-2454 MHz (Chaîne 1-9) peuvent être utilisées. Pour les dernières restrictions, voir <http://www.art-telecom.fr>.

For 2.4–GHz wireless LAN operation of this product, certain restrictions apply. This equipment may use the entire–2400–MHz to 2483.5–MHz frequency band (channels 1 through 13) for indoor applications. For outdoor use, only 2400-2454 MHz frequency band (channels 1-9) may be used. For the latest requirements, see <http://www.art-telecom.fr>.

Wireless LAN Module's Maximum EIRP

Frequency Ranges (MHz)	Indoors	Outdoors
2400 MHz ~ 2446.5 MHz	10mW	Not Permitted
2446.5 MHz ~ 2483.5 MHz	100mW	100mW on private property with Ministry of Defense approval.

Declaration of Conformity

1. Health (Article 3.1(a) of the R&TTE Directive)

Applied Standard(s):

EN62311: 2008/ IEC 62209-2:2010

2. Safety (Article 3.1(a) of the R&TTE Directive)

Applied Standard(s):

EN 60950-1:2006+A11:2009

3. Electromagnetic compatibility (Article 3.1 (b) of the R&TTE Directive)

Applied Standard(s):

EN 301 489-1 V1.8.1/-7 V1.3.1/-17 V2.1.1/-24 V1.4.1

4. Radio frequency spectrum usage (Article 3.2 of the R&TTE Directive)

Applied Standard(s):

EN 301 511 V9.0.2

EN 301 908-1 V4.2.1/-2 V4.2.1

EN 300 328 V1.7.1

5. EMC Directive (2004/108 /EC)

Applied Standard(s):

EN55024: 1998/A1:2001/A2:2003

Caution

- Users have to use the connection to USB interfaces with USB 2.0 version or higher.
- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Please make sure the temperature for adapter will not be higher than 55 °C

Technical Specifications

GSM Band (GSM/GPRS/EDGE)

- 850/900/1800/1900 MHz
- Power Class 4 (850/900 MHz)
- Power Class 1 (1800/1900 MHz)

UMTS/HSDPA Band *

- 850/1900 MHz
- 850/2100 MHz
- 900/2100 MHz
- Power Class 3 (+24 dBm)

Data Rates **

- DL: 7.2 Mbps
- UL: 5.76 Mbps

Standards

- 802.11g/b, compatible with 802.11n devices

Wireless Security

- 64/128-bit WEP (Wired Equivalent Privacy)
- WPA & WPA2 (Wi-Fi Protected Access)

Firewall

- Built-in NAT
- Built-in firewall

Antenna

- Internal 3G and Wi-Fi antenna

LED Status Indicator

- Signal LED

Dimensions (L x W x H)

- 90 x 28 x 11 mm

Operating Temperature

- -10 to 55 °C (14 to 131 °F)

Operating Humidity

- 10% to 90% (Non-condensing)

Certifications

- CE
- FCC

* Supported frequency band is dependent upon regional hardware version.

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