

USER MANUAL

DIR-615

VERSION 7.00



D-Link[®]

WIRELESS

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Package Contents

- D-Link DIR-615 Wireless Router
- Power Adapter
- Ethernet Cable
- Manual and Warranty on CD

Note: Using a power supply with a different voltage rating than the one included with the DIR-615 will cause damage and void the warranty for this product.

Note: Always attach the power cord plug to the power supply, before inserting the power cord and connected power supply to the wall outlet.



System Requirements

- Ethernet-based Cable or DSL Modem
- Computers with Windows®, Macintosh®, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer 6 or Firefox 2.0 or above (for configuration)

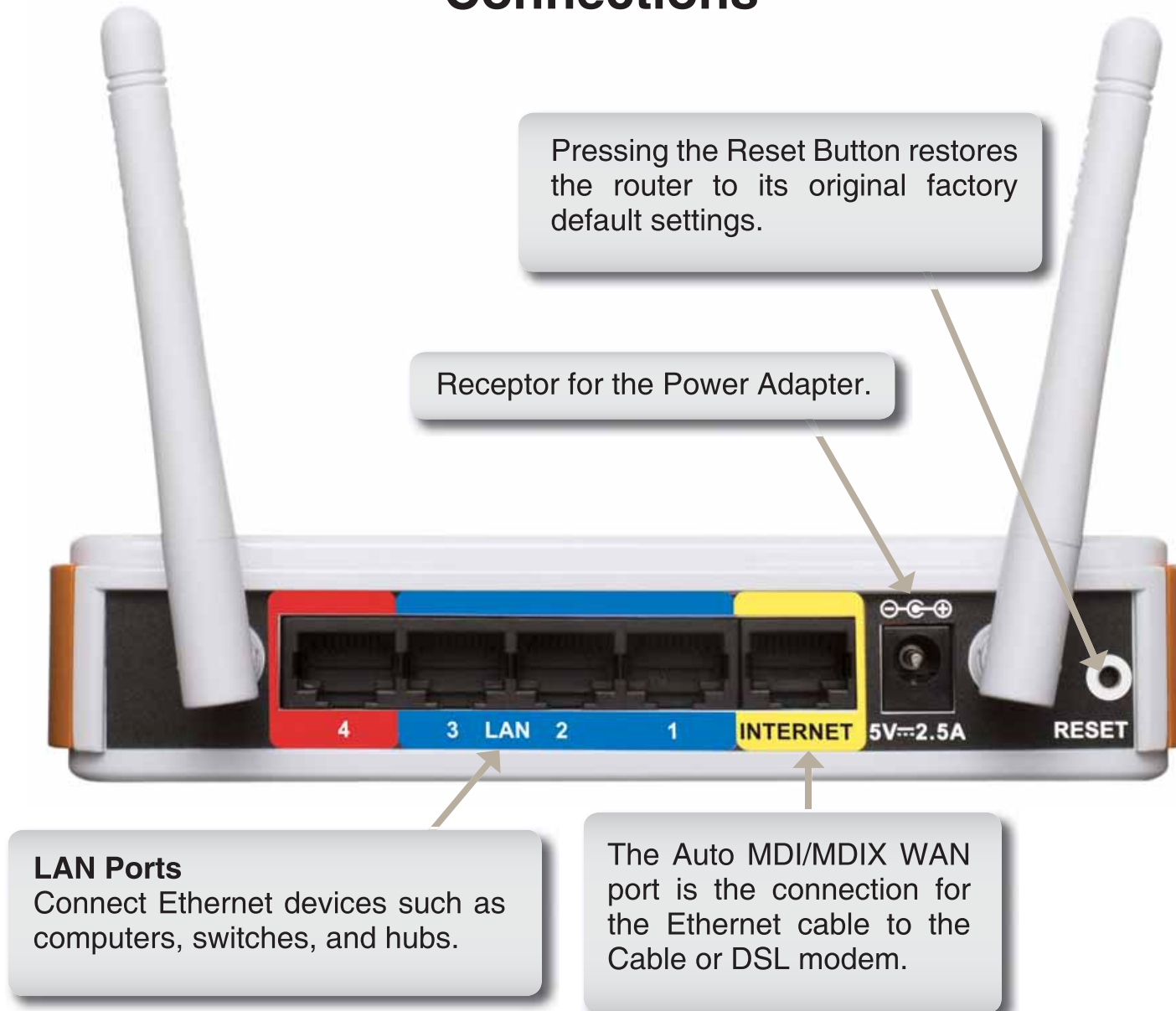
Features

- **Faster Wireless Networking** - The DIR-615 provides up to 300Mbps* wireless connection with other 802.11n wireless clients. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio.
- **Compatible with 802.11b and 802.11g Devices** - The DIR-615 is still fully compatible with the IEEE 802.11b and IEEE 802.11g standard, so it can connect with existing 802.11b and IEEE 802.11g PCI, USB and Cardbus adapters.
- **Advanced Firewall Features** - The Web-based user interface displays a number of advanced network management features including:
 - **Content Filtering** - Easily applied content filtering based on MAC Address, URL, and/or Domain Name.
 - **Filter Scheduling** - These filters can be scheduled to be active on certain days or for a duration of hours or minutes.
 - **Secure Multiple/Concurrent Sessions** - The DIR-615 can pass through VPN sessions. It supports multiple and concurrent IPsec and PPTP sessions, so users behind the DIR-615 can securely access corporate networks.
- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-615 lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your router to your specific settings within minutes.

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

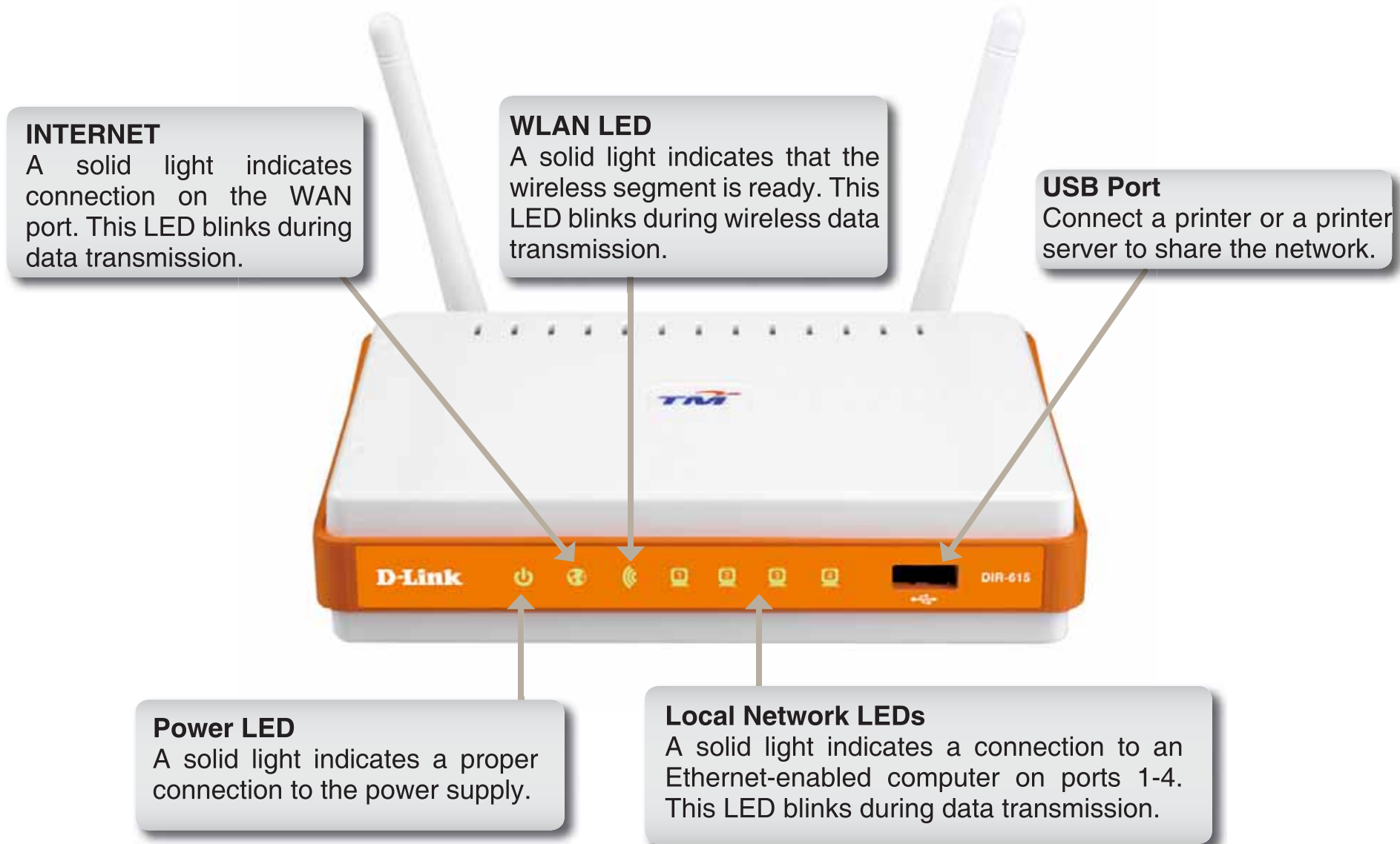
Hardware Overview

Connections



Hardware Overview

LEDs and USB Port



Installation

This section will walk you through the installation process. Placement of the router is very important. Do not place the router in an enclosed area such as a closet, cabinet, or in the attic or garage.

Before you Begin

Please configure the router with the computer that was last connected directly to your modem. Also, you can only use the Ethernet port on your modem. If you were using the USB connection before using the router, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the WAN port on the router, and then turn the modem back on. In some cases, you may need to call your ISP to change connection types (USB to Ethernet).

If you have DSL and are connecting via PPPoE, make sure you disable or uninstall any PPPoE software such as WinPoet, Broadjump, or Ethernet 300 from your computer or you will not be able to connect to the Internet.

Wireless Installation Considerations

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

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

Connect to Cable/DSL/Satellite Modem

If you are connecting the router to a cable/DSL/satellite modem, please follow the steps below:

1. Place the router in an open and central location. Do not plug the power adapter into the router.
2. Turn the power off on your modem. If there is no on/off switch, then unplug the modem's power adapter. Shut down your computer.
3. Unplug the Ethernet cable (that connects your computer to your modem) from your computer and place it into the WAN port on the router.
4. Plug an Ethernet cable into one of the four LAN ports on the router. Plug the other end into the Ethernet port on your computer.
5. Turn on or plug in your modem. Wait for the modem to boot (about 30 seconds).
6. Plug the power adapter to the router and connect to an outlet or power strip. Wait about 30 seconds for the router to boot.
7. Turn on your computer.
8. Verify the link lights on the router. The power light, WAN light, and the LAN light (the port that your computer is plugged into) should be lit. If not, make sure your computer, modem, and router are powered on and verify the cable connections are correct.
9. Skip to page 16 to configure your router.

Connect to Another Router

If you are connecting the D-Link router to another router to use as a wireless access point and/or switch, you will have to do the following before connecting the router to your network:

- Disable UPnP™
- Disable DHCP
- Change the LAN IP address to an available address on your network. The LAN ports on the router cannot accept a DHCP address from your other router.

To connect to another router, please follow the steps below:

1. Plug the power into the router. Connect one of your computers to the router (LAN port) using an Ethernet cable. Make sure your IP address on the computer is 192.168.0.xxx (where xxx is between 2 and 254). Please see the **Networking Basics** section for more information. If you need to change the settings, write down your existing settings before making any changes. In most cases, your computer should be set to receive an IP address automatically in which case you will not have to do anything to your computer.
2. Open a web browser and enter **http://192.168.0.1** and press **Enter**. When the login window appears, set the user name to **admin** and leave the password box empty. Click **OK** to continue.
3. Click on **Advanced** and then click **Advanced Network**. Uncheck the Enable UPnP checkbox. Click **Save Settings** to continue.
4. Click **Setup** and then click **Network Settings**. Uncheck the Enable DHCP Server server checkbox. Click **Save Settings** to continue.
5. Under Router Settings, enter an available IP address and the subnet mask of your network. Click **Save Settings** to save your settings. Use this new IP address to access the configuration utility of the router in the future. Close the browser and change your computer's IP settings back to the original values as in Step 1.

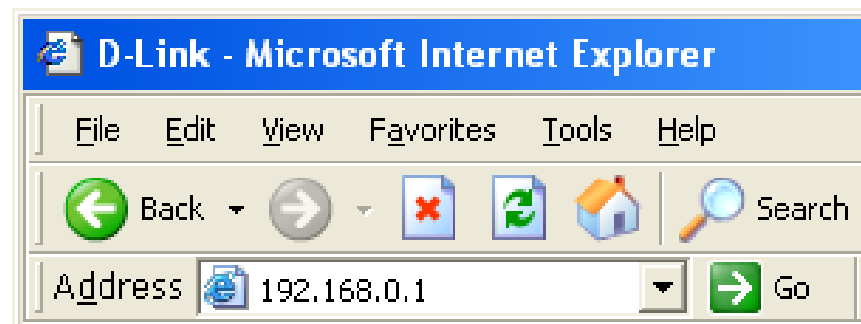
6. Disconnect the Ethernet cable from the router and reconnect your computer to your network.
7. Connect an Ethernet cable in one of the LAN ports of the router and connect it to your other router. Do not plug anything into the WAN port of the D-Link router.
8. You may now use the other three LAN ports to connect other Ethernet devices and computers. To configure your wireless network, open a web browser and enter the IP address you assigned to the router. Refer to the **Configuration** and **Wireless Security** sections for more information on setting up your wireless network.

Configuration

This section will show you how to configure your new D-Link wireless router using the web-based configuration utility.

Web-based Configuration Utility

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).



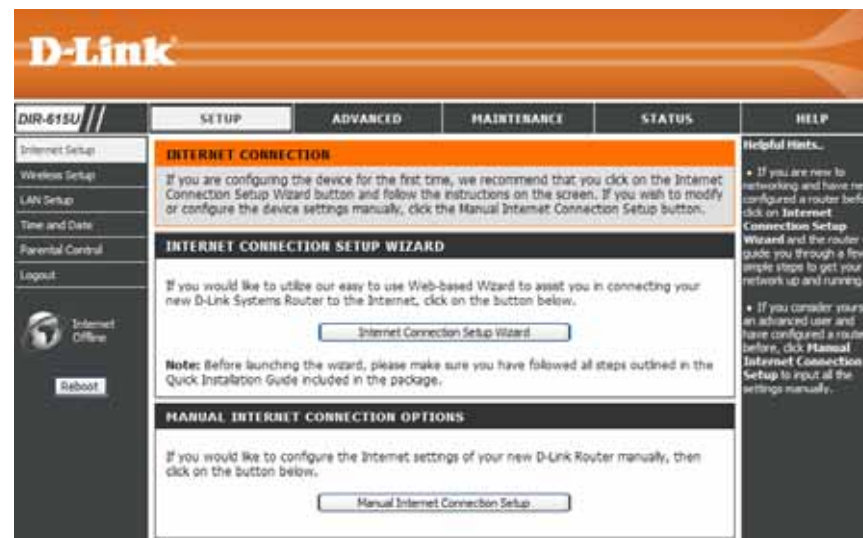
Enter the user name (admin) and your password. Leave the password blank by default.

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

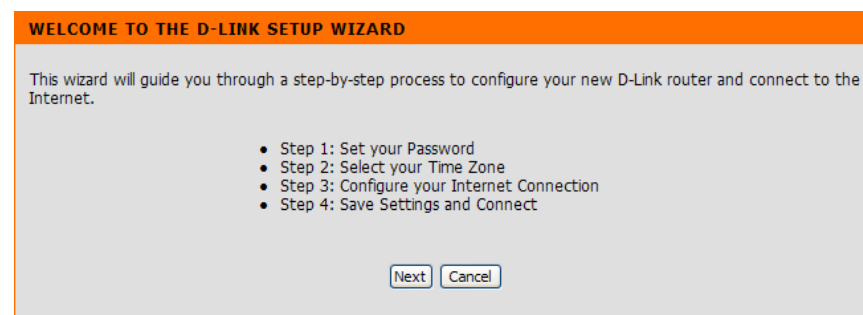


Setup Wizard

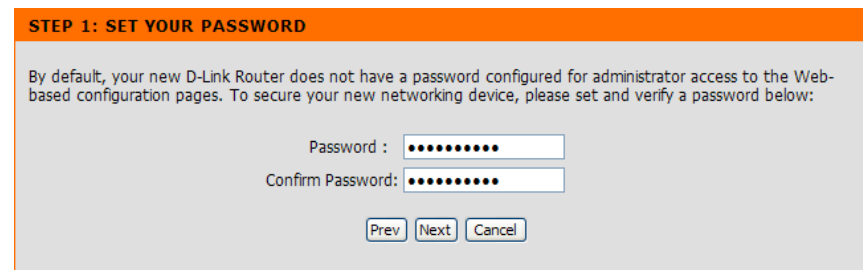
You may run the setup wizard from the opening Internet Setup window to quickly set up your router. Click **Internet Connection Setup Wizard**, and the first window of the wizard will open.



Click **Next** to continue.



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



Select your time zone and preferred NTP Server from the drop-down menus, and then click **Next** to continue.

Select the type of Internet connection you use and then click **Next** to continue.

If selecting **DHCP Connection (Dynamic IP Address)**, identify VLAN in the **VLAN ID** field. You may need to enter the MAC address of the computer that was last connected directly to your modem. If you are currently using that computer, click **Clone MAC Address** and then **Next** to continue.

The **Host Name** is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

STEP 2: SELECT YOUR TIME ZONE

Select the appropriate time zone for your location. This information is required to configure the time-based options for the router.

Time Zone : (GMT+08:00) Kuala Lumpur, Singapore

NTP Server Used : ntp1.dlink.com

Prev Next Cancel

STEP 3: CONFIGURE YOUR INTERNET CONNECTION

DHCP Connection (Dynamic IP Address)
Choose this option if your Internet connection automatically provides you with an IP Address. Most Cable Modems use this type of connection.

Username / Password Connection (PPPoE)
Choose this option if your Internet connection requires a username and password to get online. Most DSL modems use this type of connection.

Static IP Address Connection
Choose this option if your Internet Setup Provider provided you with IP Address information that needs to be configured manually.

Prev Next Cancel

DHCP CONNECTION (DYNAMIC IP ADDRESS)

To set up this connection, please make sure that you are connected to the D-Link Router using the PC that was originally connected to your broadband connection. If you are, then click the Clone MAC Address button to copy your computer's MAC Address to the D-Link Router.

Wan Connection Mode : router

Vlan Id : 100

MAC Address : - - - - - (Optional)
Clone MAC Address

Host Name : DIR-615

Note: You may also need to provide a Host Name. If you do not have or know this information, please contact your ISP.

Prev Next Cancel

If selecting **Username / Password Connection (PPPoE)**, enter VLAN ID provided by the ISP. If the ISP doesn't provide a specified IP address information, simply enter your PPPoE username and password.

Click the **Static IP** radio button if the ISP assigned you the IP address, subnet mask, and start/end LAN IP address. Enter the required information in **IP Unnumbered Address**, **IP Unnumbered Netmask**, **LAN Start IP** and **LAN End IP**.

Click **Next** to continue.

Note: Make sure to remove your PPPoE software from your computer. The software is no longer needed and will not work through a router.

If selecting **Static IP Address Connection**, enter your network settings provided by your ISP. Click **Next** to continue.

SET USERNAME AND PASSWORD CONNECTION (PPPOE)

To set up this connection you will need to have a Username and Password from your Internet Service Provider. If you do not have this information, please contact your ISP.

Vlan Id :

Address Mode : Dynamic IP Static IP

User Name :

Password :

Verify Password :

Service Name : (Optional)

Note: You may also need to provide a Service Name. If you do not have or know this information, please contact your ISP.

SET STATIC IP ADDRESS CONNECTION

To set up this connection you will need to have a complete list of all the IP information provided by your Internet Service Provider. If you have a Static IP connection and do not have this information, please contact your ISP.

Wan Connection Mode :

Vlan Id :

IP Address :

Subnet Mask :

Gateway Address :

Primary DNS Address :

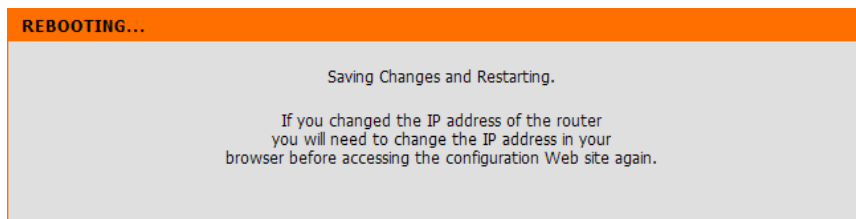
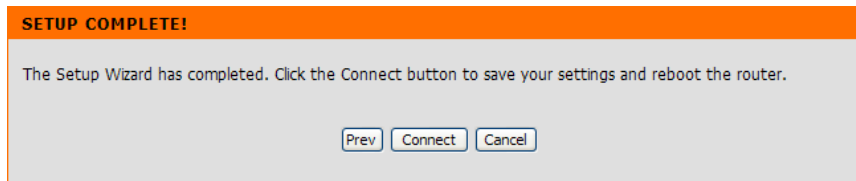
Secondary DNS Address : (Optional)

Click **Connect** to go to the next page.

Click **Wireless Connection Setup Wizard** to open the wizard window of configuring wireless connection. Click **Reboot** to directly restart the Router.

If clicking **Reboot**, the Router will save the new settings and reboot. Please allow 1-2 minutes for rebooting. When the router has finished rebooting, the opening window will be displayed.

If clicking **Wireless Connection Setup Wizard**, this window will open. Click **Next** to continue.



Enter a Wireless Network Name, also known as SSID, in the text box. Click **Automatically assign a network key (Recommended)** or **Manually assigning a network key** for the wireless security key, and use the check box to select the desired level of wireless security, WEP, WPA. and then click **Next** to continue.

If selecting Manually assign a network key in the previous window, this window will open. Enter a wireless security password in the Network Key box. Click **Next** to continue.

This window displays a summary of your wireless security settings. Please print this out or record this information in a safe place and then click **Save** to continue.

STEP 1: SETUP YOUR WIRELESS NETWORK

Give your network a name, using up to 32 characters.

Wireless Network Name (SSID)

Automatically assign a network key (Recommended)
To prevent intruders from accessing your network, the router will automatically assign a security key (also called WEP or WPA key) to your network.

Manually assign a network key
Use this option if you prefer to create your own key.

Use WPA encryption instead of WEP (WPA is stronger than WEP and all D-LINK wireless client adapters support WPA)

STEP 2: SET YOUR WIRELESS SECURITY PASSWORD

You have selected your wireless security level - you will need to set a wireless security password. The WPA (Wi-Fi Protected Access) key must meet one of following guidelines:

- Between 8 to 63 characters (A longer WPA key is more secure than a short one)
- Exactly 64 characters using 0-9 and A-F

Network Key :

Note: You will need to enter the same password that you created in this step into your wireless clients in order to enable proper wireless communication.

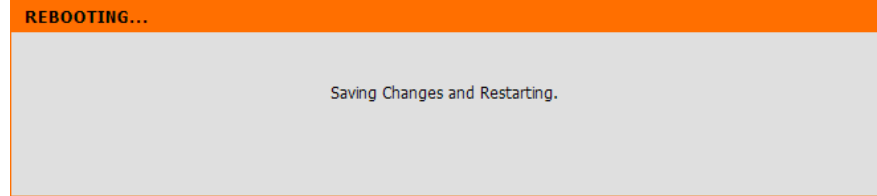
SETUP COMPLETE!

Below is a detailed summary of your wireless security settings. Please print this page out, or write down the information on a piece of paper, so you can configure the correct settings on your wireless client adapters.

Wireless Network Name (SSID) : dlink
Security Mode : Auto (WPA or WPA2) - Personal
Cipher Type : TKIP or AES
Network Key : mS34BhVx5

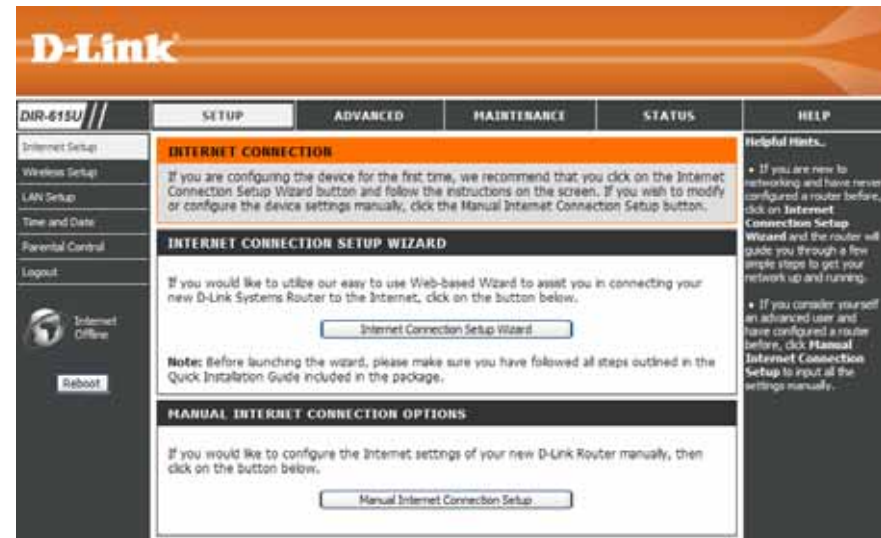
Note: In some smart wireless utilities (e.g. D-LINK wireless utility or wireless zero configuration), you only need to select a Wireless Network Name and enter a Network Key to access the Internet.

The Router will save the new settings and reboot. Please allow 1-2 minutes for rebooting. When the router has finished rebooting, the opening Wireless Setup window is displayed.



Internet Setup

If you want to configure the Router manually without using the wizard, click the **Manual Internet Connection Setup** button.



This window will display for you configure the Internet connection manually.

Tick **Enable Access Point Mode** if you want to change the Router to an access point.

In Internet Connection Type section, you may choose up to 4 WAN connections from the **WAN Connection** drop-down menu, and choose one of them as the using one by ticking **WAN Connection Enable**. You can also choose the WAN Connection Mode between router and bridge, and enter the VLAN ID. Select the Internet connection type from **My Internet Connection is** drop-down list, and different configurations based on various connection types will display below.



Internet Setup

Static (assigned by ISP)

Select Static IP Address if all WAN IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

IP Address: Enter the IP address assigned by your ISP.

Subnet Mask: Enter the Subnet Mask assigned by your ISP.

ISP Gateway Address: Enter the Gateway assigned by your ISP.

MAC Address: The default MAC Address is set to the WAN's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP.

Clone MAC Address: The default MAC address is set to the WAN's physical interface MAC address on the Broadband Router. You can use the **Clone MAC Address** button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router. It is not recommended that you change the default MAC address unless required by your ISP.

Primary DNS Address: Enter the Primary DNS (Domain Name Server) server IP address assigned by your ISP.

Secondary DNS Address: Enter the Secondary DNS server IP address assigned by your ISP. This is optional.

MTU: Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1492 is the default MTU.

INTERNET CONNECTION TYPE

Choose the mode to be used by the router to connect to the Internet.

WAN connection :

WAN Connection Enable :

Wan Connection Mode :

Vlan Id :

My Internet Connection is :

STATIC IP ADDRESS INTERNET CONNECTION TYPE

Enter the static IP address information provided by your Internet Service Provider (ISP).

IP Address : (assigned by your ISP)

Subnet Mask :

ISP Gateway Address :

MAC Address : - - - - - (optional)

Primary DNS Address :

Secondary DNS Address : (optional)

MTU :

Internet Setup

Dynamic

Choose Dynamic IP Address to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for Cable modem services.

Host Name: The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

MAC Address: The default MAC Address is set to the WAN's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP.

Clone MAC Address: The default MAC address is set to the WAN's physical interface MAC address on the Broadband Router. Click the **Clone MAC Address** button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the router. It is not recommended that you change the default MAC address unless required by your ISP.

DNS Address Enter the Primary and Secondary DNS Server Addresses.

MTU: Maximum Transmission Unit - You may need to change the MTU for optimal performance with your specific ISP.

INTERNET CONNECTION TYPE

Choose the mode to be used by the router to connect to the Internet.

WAN connection :

WAN Connection Enable :

Wan Connection Mode :

Vlan Id :

My Internet Connection is :

DYNAMIC IP (DHCP) INTERNET CONNECTION TYPE

Use this Internet connection type if your Internet Service Provider (ISP) didn't provide you with IP Address information and/or a username and password.

Host Name :

MAC Address :

Primary DNS Address :

Secondary DNS Address : (optional)

MTU :

Internet Setup

PPPoE

Choose PPPoE (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services. Make sure to remove your PPPoE software from your computer. The software is no longer needed and will not work through a router.

PPPoE: Select **Dynamic** (most common) or **Static**. Select **Static** if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses.

User Name: Enter your PPPoE user name.

Password: Enter your PPPoE password.

Confirm Password: Retype the new password.

Service Name: Enter the ISP Service Name (optional).

IP Unnumbered Address: Enter the IP address (Static PPPoE only).

IP Unnumbered Netmask: Enter the IP netmask (Static PPPoE only).

LAN IP: Enter Start and End LAN IP address.

DNS: Click **Receive DNS from ISP** to get the DNS automatically. Click **Enter DNS Manually** to enter the DNS information below.

DNS Addresses: Enter the Primary and Secondary DNS Server Addresses.

INTERNET CONNECTION TYPE

Choose the mode to be used by the router to connect to the Internet.

WAN connection :

WAN Connection Enable :

Wan Connection Mode :

Vlan Id :

My Internet Connection is :

PPPOE

Enter the information provided by your Internet Service Provider (ISP).

Dynamic PPPoE Static PPPoE

User Name :

Password :

Confirm Password :

Service Name : (optional)

MAC Address : (optional)

Receive DNS from ISP Enter DNS Manually

Primary DNS Address :

Secondary DNS Address : (optional)

Maximum Idle Time : Minutes

MTU :

Connect mode select : Always Manual Connect-on demand

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect.

MTU: Maximum Transmission Unit - You may need to change the MTU for optimal performance with your specific ISP. *1492* is the default MTU.

Connection Mode Select: Select either **Always-on**, **Manual**, or **Connect-on demand**.

Wireless Setup

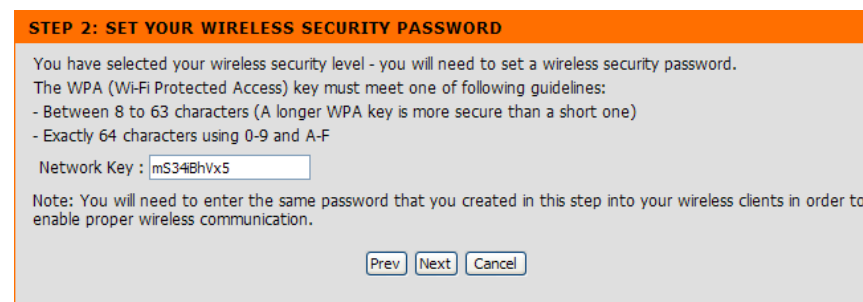
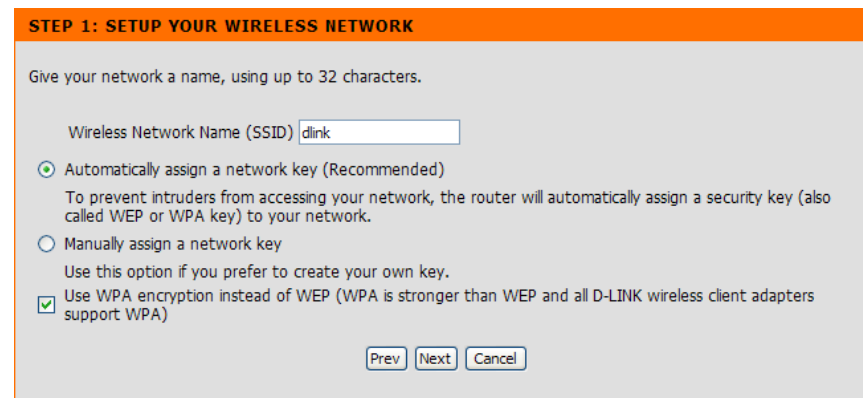
Wireless settings for the router may be configured manually or by using a wizard. To use the wizard, click the **Wireless Connection Setup Wizard** button and then follow the steps that are described below. To configure the wireless settings manually, click the **Manual Wireless Connection Setup** button. The parameters for this window are described later in this section. The Wireless Security section that directly follows this Configuration section provides additional explanation for how to configure the WEP, WPA, WPA2, and WPA/WPA2 wireless security mode options. If you want to have more wireless network name, also known as SSID, click the **Multiple Wireless network Name Setup** button.



Click **Wireless Connection Setup Wizard** to start wireless setup wizard. Click **Next** to continue.

Enter a Wireless Network Name, also known as SSID, in the text box. Click **Automatically assign a network key (Recommended)** or **Manually assign a network key** for the wireless security key, and use the check box to select the desired level of wireless security, WEP, WPA. and then click **Next** to continue.

If selecting Manually assign a network key in the previous window, this window will open. Enter a wireless security password in the Network Key box. Click **Next** to continue.



This window displays a summary of your wireless security settings. Please print this out or record this information in a safe place and then click **Save** to continue.

The Router will save the new settings and reboot. Please allow 1-2 minutes for rebooting. When the router has finished rebooting, the opening Wireless Setup window is displayed.

SETUP COMPLETE!

Below is a detailed summary of your wireless security settings. Please print this page out, or write down the information on a piece of paper, so you can configure the correct settings on your wireless client adapters.

Wireless Network Name (SSID) : dlink
Security Mode : Auto (WPA or WPA2) - Personal
Cipher Type : TKIP or AES
Network Key : mS34iBhVx5

Note: In some smart wireless utilities (e.g. D-LINK wireless utility or wireless zero configuration), you only need to select a Wireless Network Name and enter a Network Key to access the Internet.

REBOOTING...

Saving Changes and Restarting.

Wi-Fi Protected Setup: To implement Wi-Fi protection, or WCN 2.0, tick the Enable checkbox, click either **Generate New PIN** or **Reset PIN to Default**, and then configure the Wi-Fi settings below. Please see the Setting Up Wi-Fi Protection (WCN 2.0 in Windows Vista) section later in this manual for detailed configuration information.

Enable: Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions.

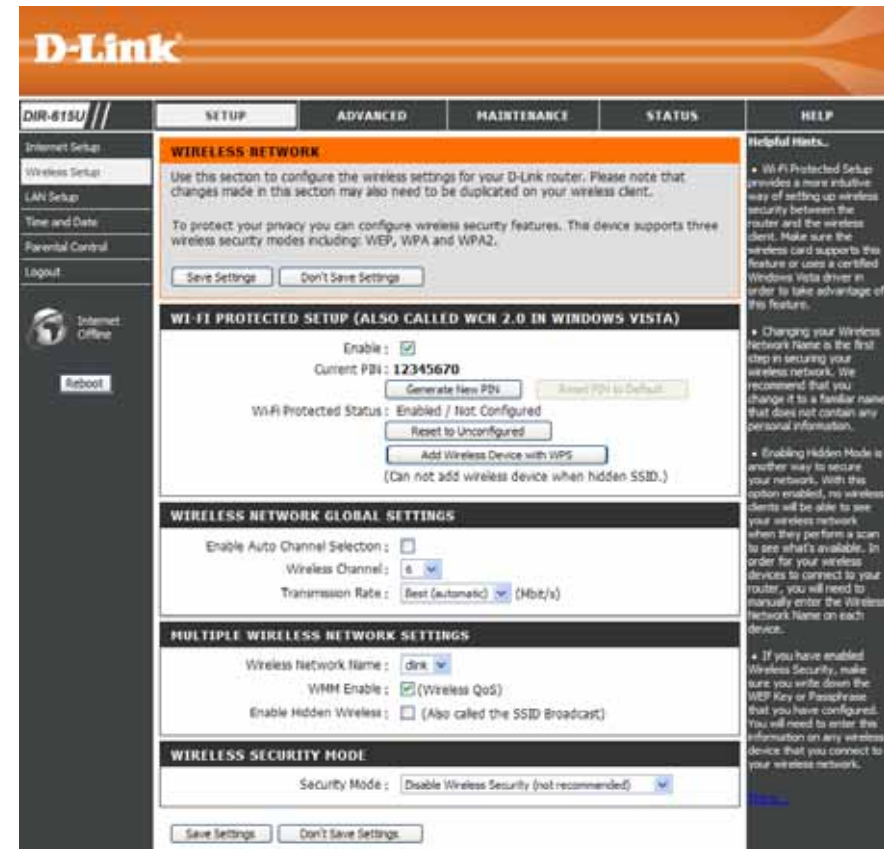
Enable Wireless Channel: Indicates the channel setting for the DIR-615. By default the channel is set to 6. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. The **Auto Channel Selection** setting can be selected to allow the DIR-615 to choose the channel with the least amount of interference.

Transmission Rate: Use the drop-down menu to select the appropriate Transmission Rate in Mbits per second. Many users will want to use the default setting, *Best (automatic)*.

Wireless Network Name: Service Set Identifier (SSID) is the name of your wireless network. Once created and enabled a name in Multiple Wireless Network Name (SSIDs) window, you may select from the drop-down menu.

WMM Enable: Enable Wi-Fi Multimedia to enjoy basic quality of service features. WMM prioritizes traffic according to four access categories: voice, video, best effort, and background.

Enable Hidden Wireless: Check this option if you would not like the SSID of your wireless network to be broadcasted by the DIR-615. If this option is checked, the SSID of the DIR-615 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DIR-615 in order to connect to it.



1. To enable *Enable WPA/WPA2 Wireless Security (enhanced)*.
2. Next to **Cipher Type**, select *TKIP*, *AES*, or *AUTO(TKIP/AES)*.
3. Next to **PSK / EAP**, select *PSK*.
4. Next to **Network Key**, enter a 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.
5. 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, WPA2, or WPA/WPA2 (whichever of the three options you have selected above) on your adapter and enter the same network key as you did on the router.

WIRELESS SECURITY MODE

Security Mode :

WPA ONLY

WPA Only requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

Network Key :

(8~63 ASCII or 64 HEX)

1. To enable *Enable WPA/WPA2 Wireless Security (enhanced)*.
2. Next to **Cipher Type**, select *TKIP*, *AES*, or *AUTO(TKIP/AES)*.
3. Next to **PSK / EAP**, select *EAP*.
4. Next to **RADIUS Server IP Address** enter the IP address of your RADIUS server.
5. Next to **Port**, enter the port you are using with your RADIUS server. *1812* is the default port.
6. Next to **Shared Secret**, enter the security key.
7. Click **Save Settings** to save your settings.

WIRELESS SECURITY MODE

Security Mode :

WPA ONLY

WPA Only requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

802.1X

RADIUS Server IP Address :

Port :

Shared Secret :

1. To enable WPA, WPA2, or WPA/WPA2 for a RADIUS server, next to **Security Mode**, select *Enable WPA Only Wireless Security (enhanced)*, *Enable WPA2 Only Wireless Security (enhanced)*, or *Enable WPA/WPA2 Wireless Security (enhanced)*.
2. Next to **Cipher Type**, select *TKIP*, *AES*, or *Auto*.
3. Next to **PSK/EAP**, select *EAP*.
4. Next to **RADIUS Server 1** enter the **IP Address** of your RADIUS server.
5. Next to **Port**, enter the port you are using with your RADIUS server. *1812* is the default port.
6. Next to **Shared Secret**, enter the security key.
7. If you have a secondary RADIUS server, enter its IP address, port, and secret key.
8. Click **Save Settings** to save your settings.

WIRELESS SECURITY MODE

Security Mode :

WPA ONLY

WPA Only requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

802.1X

RADIUS Server 1 IP Address :

Port :

Shared Secret :

RADIUS Server 2 IP Address :

Port :

Shared Secret :

LAN Setup

This section will allow you to change the local network settings of the router and to configure the DHCP settings.

Router IP Address: Enter the IP address of the router. The default IP address is 192.168.0.1.

If you change the IP address, once you click **Apply**, you will need to enter the new IP address in your browser to get back into the configuration utility.

Default Subnet Mask: Enter the Subnet Mask. The default subnet mask is 255.255.255.0.

Local Domain Name: Enter the Domain name (Optional).

Enable DNS Relay: Check the box to transfer the DNS server information from your ISP to your computers. If unchecked, your computers will use the router for a DNS server.

Refer to the next page for DHCP information.

The screenshot displays the D-Link DIR-615 web interface. The top navigation bar includes 'D-Link', 'DIR-615', and tabs for 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar contains links for 'Internet Setup', 'Wireless Setup', 'LAN Setup', 'Time and Date', 'Parental Control', and 'Logout'. The main content area is titled 'NETWORK SETTING' and contains the following sections:

- NETWORK SETTING:** A text block explaining the purpose of the section and a note: "Please note that this section is optional and you do not need to change any of the settings here to get your network up and running." Below this are 'Save Settings' and 'Don't Save Settings' buttons.
- ROUTER SETTINGS:** A section for configuring the router's IP address. It includes input fields for 'Router IP Address' (set to 192.168.0.1), 'Default Subnet Mask' (set to 255.255.255.0), and 'Local Domain Name'. A checkbox for 'Enable DNS Relay' is checked.
- DHCP SERVER SETTINGS:** A section for configuring the built-in DHCP server. It includes a checked 'Enable DHCP Server' checkbox, a 'DHCP IP Address Range' of 100 to 199 (addresses within the LAN subnet), and a 'DHCP Lease Time' of 10080 minutes.
- DHCP CLIENT LIST:** A table with columns for 'Host Name', 'IP Address', 'MAC Address', and 'Expired Time'.
- 25 - DHCP RESERVATION:** A section showing 'Remaining number of clients that can be configured : 25'.

On the right side, there is a 'Helpful Hints...' section with a note: "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."

DHCP Server Settings

DHCP stands for Dynamic Host Control Protocol. The DIR-615 has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to “Obtain an IP Address Automatically.” When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DIR-615. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

Enable DHCP Server: Check the box to enable the DHCP server on your router. Uncheck to disable this function.

DHCP IP Address Range: Enter the starting and ending IP addresses for the DHCP server’s IP assignment.

DHCP Lease Time: The length of time for the IP address lease. Enter the Lease time in minutes.

DHCP SERVER SETTINGS

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

Enable DHCP Server :

DHCP IP Address Range : to (addresses within the LAN subnet)

DHCP Lease Time : (minutes)

DHCP CLIENT LIST

Host Name	IP Address	MAC Address	Expired Time
-----------	------------	-------------	--------------

25 - DHCP RESERVATION

Remaining number of clients that can be configured : 25

	Computer Name	IP Address	MAC Address	
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<< Computer Name ▾

Time and Date

This section will allow you to configure, update, and maintain the correct time on the internal system clock.

Time Zone: Select the Time Zone from the drop-down menu.

Enable Daylight Saving: Ticking this checkbox enables Daylight Saving time. Click **Sync. your computer's time settings** to copy your PC's time settings.

NTP Server Used: Tick the **Automatically synchronize with D-Link's Internet time server** check box and then use the drop-down menu to select an NTP server. NTP is short for Network Time Protocol. NTP synchronizes computer clock times in a network of computers.

Manual: To manually input the time, deselect **Automatically synchronize with D-Link's Internet time server** check box and then enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second. Click **Save Settings**.

The screenshot shows the D-Link web interface for the DIR-615U router. The main navigation bar includes SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The left sidebar lists various setup options like Internet Setup, Wireless Setup, LAN Setup, Time and Date, Parental Control, and Logout. The main content area is titled 'TIME AND DATE' and contains the following sections:

- TIME AND DATE CONFIGURATION:** Shows the current time as 01/01/2000 01:09:43 and the time zone as (GMT +08:00) Kuala Lumpur, Singapore. There is a checkbox for 'Enable Daylight Saving' which is currently unchecked. A button labeled 'Sync. your computer's time settings' is present.
- AUTOMATIC TIME AND DATE CONFIGURATION:** Features a checked checkbox for 'Automatically synchronize with D-Link's Internet time server'. Below it, the 'NTP Server Used' is set to 'ntp1.dlink.com' with an 'Update Now' button.
- SET THE TIME AND DATE MANUALLY:** Contains input fields for Year (2009), Month (Aug), Day (28), Hour (11), Minute (52), and Second (38). 'Save Settings' and 'Don't Save Settings' buttons are at the bottom.

Parental Control

This feature allows you to create a list of websites that you want to either allow or deny users access.

Configure Parental Control: Select *Turn Parental Control OFF*, *Turn Parental Control ON and ALLOW* computers access to *ONLY* these sites, or *Turn Parental Control ON and DENY* computers access to *ONLY* these sites.

Website URL: Enter the keywords or URLs that you want to block (or allow). Any URL with the keyword in it will be blocked.

Schedule: The schedule of time when the parental control filter will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the **Maintenance > Schedules** section.

Helpful Hints...

- Create a list of Websites that you would like the devices on your network to be allowed or denied access to.
- Keywords can be entered in this list in order to block any URL containing the keyword entered.

10 - PARENTAL CONTROL RULES

Configure Parental Control Rules below:
 Turn Parental Control Rules OFF

Remaining number of rules that can be created: 10

	Website URL	User IP	Schedule
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	Always <input type="button" value="New Schedule"/>

Save Settings Don't Save Settings

Port Forwarding

This will allow you to open a single port or a range of ports.

Rule: Check the box to enable the rule.

Name: Enter a name for the rule.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to.

Start Port/End Port: Enter the port or ports that you want to open. If you want to open one port, enter the same port in both boxes.

Traffic Type: Select *TCP*, *UDP*, or *Any*

D-Link

DIR-615U // SETUP ADVANCED MAINTENANCE STATUS HELP

ADVANCED PORT FORWARDING RULES

The Advanced Port Forwarding option allows you to define a single public port on your router for redirection to an internal LAN IP Address and Private LAN port if required. This feature is useful for hosting online services such as FTP or Web Servers.

Save Settings Don't Save Settings

20 - ADVANCED PORT FORWARDING RULES

Remaining number of rules that can be created: 20

	Name	Private IP	Public IP	Port	Traffic Type
<input type="checkbox"/>	<input type="text"/> << Application Name >>	<input type="text"/>	<input type="text"/>	Public Port <input type="text"/> ~ <input type="text"/>	Any
<input type="checkbox"/>	<input type="text"/> << Application Name >>	<input type="text"/>	<input type="text"/>	Private Port <input type="text"/> ~ <input type="text"/>	Any
<input type="checkbox"/>	<input type="text"/> << Application Name >>	<input type="text"/>	<input type="text"/>	Public Port <input type="text"/> ~ <input type="text"/>	Any
<input type="checkbox"/>	<input type="text"/> << Application Name >>	<input type="text"/>	<input type="text"/>	Private Port <input type="text"/> ~ <input type="text"/>	Any

Helpful Hints:

- Check the **Application Name** drop-down menu for a list of pre-defined applications that you can select from. If you select one of the pre-defined applications, click the arrow button next to the drop-down menu to fill out the appropriate fields.
- This feature allows you to open a range of ports to a computer on your network. To do so, enter the first port in the range you would like to open on the router in the first box under **Public Port** and last port of the range in the second one. After that you enter the first port in the range that the internal server uses in the first box under **Private Port** and the last port of the range in the second.
- To open a single port using this feature, simply enter the same number in both boxes.

Internet Online

Reboot

Port Mapping

Port Mapping allows you to redirect the LAN ports or SSIDs to WAN connection.

Enable Port Mapping: Tick to enable port mapping function.

Interface: This column displays the available LAN port and SSIDs

WAN Connection: Use the drop-down menu to select which WAN connection will be used for port mapping.



SNMP

SNMP (Simple Network Management Protocol) is used to monitor and control a network.

SNMP Agent: Click the **Enable** radio button to enable a network-management software.

Enable SNMP Traps: The management agent can send an event notification to the management system to identify the occurrence of conditions such as threshold that exceeds a predetermined value. Tick the check box to enable the function.

Add Community: This section allows you to add client community for SNMP access. Click **Save/Apply** to add the community to the Existing Community section. In this section, you may remove or edit the community.

Name: Use the drop-down menu to select the community name between **Public** and **Private**.

Permissions: Use the drop-down menu to select the access right between **Read only** and **Read & Write**.

Destination IP Address: Enter the destination IP address to launch trap message.

Community Settings: Use the drop-down menu to select the existing community name.

Version: Use the drop-down menu to select between **SNMP v1** and **SNMPv2c**.

The screenshot shows the D-Link DIR-615U web interface. The top navigation bar includes 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar lists various configuration options like Port Forwarding, Port Mapping, QoS Engine, Filter Rules, Firewall & DMZ, Advanced Wireless, Advanced Network, Routing, Triggers, and Logout. The main content area is titled 'SNMP SETUP' and contains the following sections:

- SNMP SETUP:** A text box explaining that SNMP stands for Simple Network Management Protocol and provides functionalities for controlling and monitoring a network.
- SNMP:** A section with radio buttons for 'SNMP Agent' (set to 'Disable') and a checkbox for 'Enable SNMP Traps' (unchecked). A 'save/apply' button is present.
- ADD COMMUNITY:** A section with a 'Name' dropdown menu (set to 'Private') and a 'Permissions' dropdown menu (set to 'Read Only'). A 'save/apply' button is present.
- ADD TRAPS:** A section with a 'Destination IP Address' text input, a 'Community Settings' dropdown menu (set to 'Private'), and a 'Version' dropdown menu (set to 'SNMP v1'). A message states 'You must add a community first.' and a 'save/apply' button is present.

QoS Engine

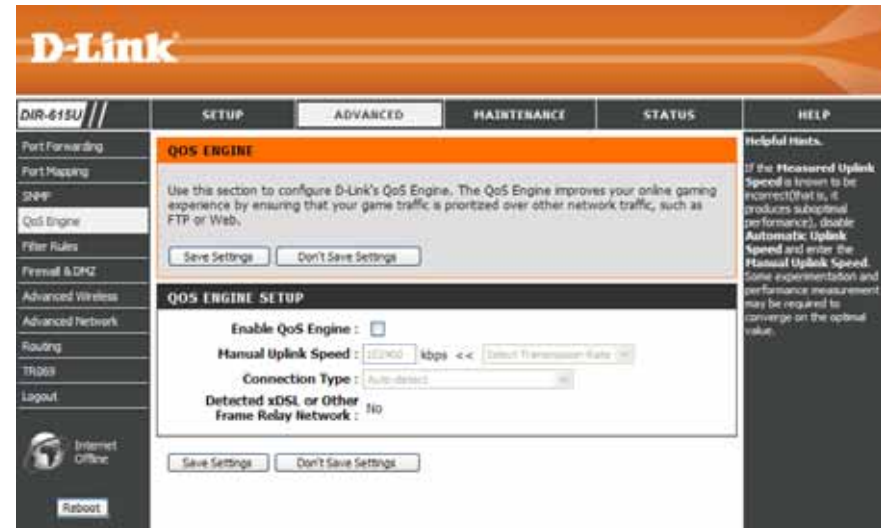
The QoS Engine option helps improve your network gaming performance by prioritizing applications. By default the QoS Engine settings are disabled and application priority is not classified automatically.

Enable QoS Engine: This option is disabled by default. Enable this option for better performance and experience with online games and other interactive applications, such as VoIP.

Manual Uplink Speed: The speed at which data can be transferred from the router to your ISP. This is determined by your ISP. ISP's often speed as a download/upload pair. For example, 1.5Mbps/284Kbits. Using this example, you would enter 284. Alternatively you can test your uplink speed with a service such as www.dslreports.com.

Connection Type: By default, the router automatically determines whether the underlying connection is an xDSL/Frame-relay network or some other connection type (such as cable modem or Ethernet), and it displays the result as Detected xDSL or Frame Relay Network. If you have an unusual network connection in which you are actually connected via xDSL but for which you configure either "Static" or "DHCP" in the Internet settings, setting this option to **xDSL or Other Frame Relay Network** ensures that the router will recognize that it needs to shape traffic slightly differently in order to give the best performance. Choosing **xDSL or Other Frame Relay Network** causes the measured uplink speed to be reported slightly lower than before on such connections, but gives much better results.

Detected xDSL or Other Frame Relay Network: When Connection Type is set to **Auto-detect**, the automatically detected connection type is displayed here.



Filter Rules

The Filter Rules allows you to configure IP or MAC address of a network adapter and allow or deny its network access at certain time.

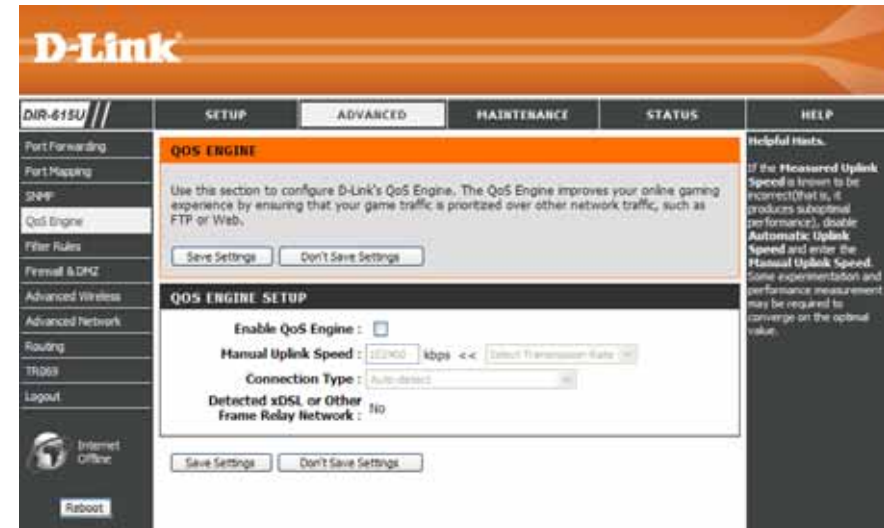
MAC/IP Address: Enter the MAC or IP address of a network adapter for a filter rule.

Destination Port: Enter a port or range of ports of TCP or UDP for the filter rule.

Traffic Type: Select a traffic type (*TCP*, *UDP*, or *Any*) that will be used for the filter rule.

Action: Use the drop-down menu to select **Allow** or **Deny** the network access.

Schedule: Select **Always** to apply for this filter rule all the time, or select one of the scheduled time. The scheduled time should be configured in **Maintenance > Schedules** section in advance.



Firewall & DMZ

This section will allow you to set up inside and outside firewall. The outside firewall can choose various which part you want to prevent from.

Enable LAN to WAN Firewall: Tick to enable the firewall from LAN to WAN.

WAN Connection: Select the WAN Connection you want to set up the firewall.

Tick to enable the firewall from WAN to LAN.

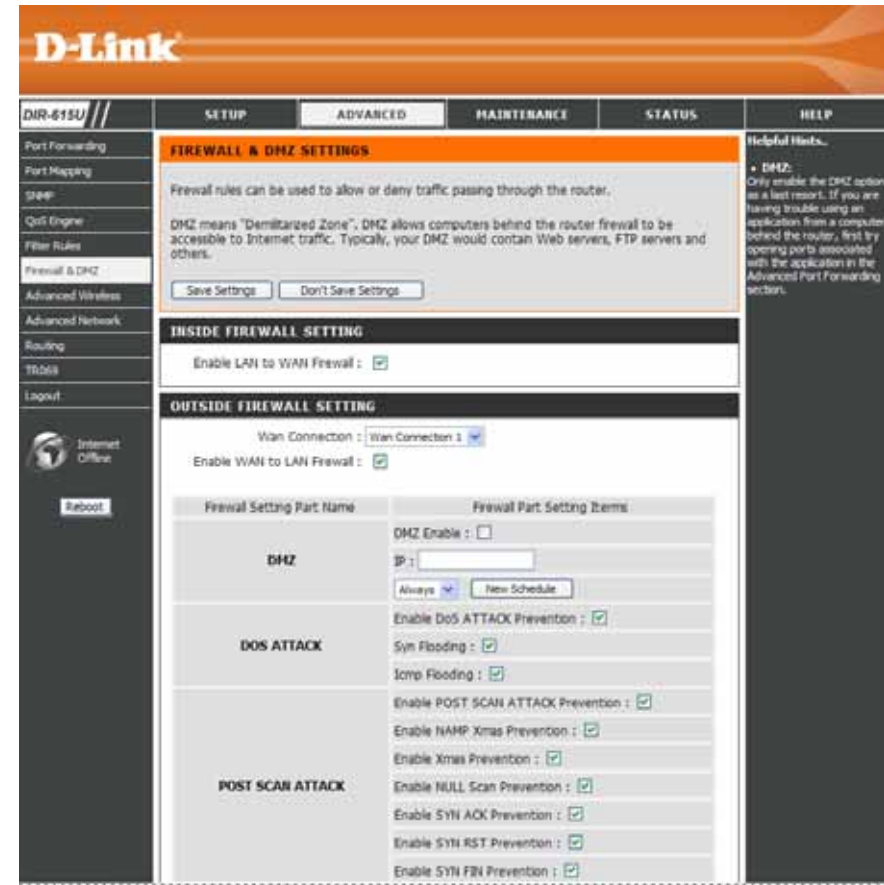
Enable WAN to LAN Firewall:

Tick **DMZ Enable** check box to enable DMZ, and enter an **DMZ:** IP address of a computer in the **IP** field to be accessible to Internet traffic.

DoS Attack: DoS (Denial-of-service) attack makes the computer resources unavailable for intended users. Tick the **Enable DoS Attack Prevention** check box to enable the function, and tick the rest of the check boxes to prevent from various type of DoS attack.

Post Scan Attack: Post scan attack targets the opening ports and attacks those ports. Tick the **Enable Post Scan Attack Prevention** check box to enable the function, and tick the rest of the check boxes to prevent from various type of post scan attack.

Service Filter: Service Filter Tick the **Enable Service Filter Blocking** check box to enable the function, and tick the rest of the check boxes to deny the access from various tools.



Advanced Wireless

This window allows you to change the behavior of the 802.11g wireless radio from the standard settings. Please be aware that any changes to the factory default settings may adversely affect the behavior of your network.

Transmit Power: Set the transmit power of the antennas.

Beacon interval: Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. *100* is the default setting and is recommended.

RTS Threshold: This value should remain at its default setting of *2346*. If inconsistent data flow is a problem, only a minor modification should be made.

Fragmentation: The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the *2346* byte setting will be fragmented before transmission. *2346* is the default setting.

DTIM Interval: (Delivery Traffic Indication Message) *1* is the default setting. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Preamble Type: Select Short or Long Preamble. The Preamble defines the length of the CRC block (Cyclic Redundancy Check is a common technique for detecting data transmission errors) for communication between the wireless router and the roaming wireless network adapters. Auto is the default setting. Note: High network traffic areas should use the shorter preamble type.

CTS Mode: CTS (Clear To Send) is a function used to minimize collisions among wireless devices on a wireless local area network (LAN). CTS will make sure the wireless network is clear before a wireless client attempts to send wireless data. Enabling CTS will add overhead and may lower wireless throughput. **None:** CTS is typically used in a pure 802.11g environment. If CTS is set to "None" in a mixed mode environment populated by 802.11b clients, wireless collisions may occur frequently. **Always:** CTS will always be used to make sure the wireless LAN is clear before sending data. **Auto:** CTS will monitor the wireless network and automatically decide whether to implement CTS based on the amount of traffic and collisions that occurs on the wireless network.



Wireless Mode: Select one of the following:

802.11n Only - Select only if all of your wireless clients are 802.11n.

802.11 Mixed(g/b) - Select if you are using both 802.11b and 802.11g wireless clients.

802.11 Mixed(n/g/b) - Select if you are using a mix of 802.11n, 11g, and 11b wireless clients.

Channel Width: Select the Channel Width:

20MHz - Select if you are not using any 802.11n wireless clients. This is the default setting.

20/40MHz(Auto) - Select if you are using both 802.11n and non-802.11n wireless devices.

Short GI: Check this box to reduce the guard interval time therefore increasing the data capacity. However, it's less reliable and may create higher data loss.

Advanced Network

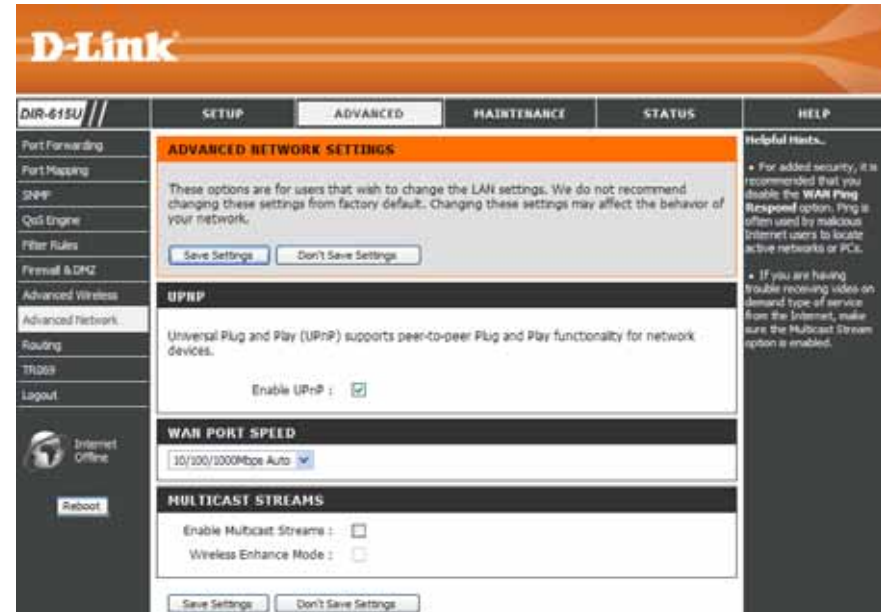
This window allows you to change the LAN settings. Please be aware that any changes to the factory default settings may affect the behavior of your network.

Enable UPnP: To use the Universal Plug and Play (UPnP™) feature tick this checkbox. UPnP provides compatibility with networking equipment, software and peripherals.

WAN Port Speed: You may set the port speed of the WAN port to *10Mbps*, *100Mbps*, or *10/100Mbps Auto*. Some older cable or DSL modems may require you to set the port speed to 10Mbps.

Enable Multicast Streams: Tick the check box to allow multicast traffic to pass through the router from the Internet.

Wireless Enhance Mode: Tick the check box to allow wireless multicast traffic to pass through the router.



Routing

This option allows you to define fixed routes to defined destinations.

Enable: Tick this checkbox to enable or disable fixed routes to defined destinations.

Interface: Use the drop-down menu to choose the *WAN or WAN (Physical Port)* Interface the IP packet must use to transit out of the Router.

Destination: The IP address of the packets that will take this route.

Subnet Mask: The subnet of the IP address of the packets that will take this route.

Gateway: Specifies the next hop to be taken if this route is used.

D-Link

DIR-615U // SETUP ADVANCED MAINTENANCE STATUS HELP

Port Forwarding
Port Mapping
SNMP
QoS Engine
Filter Rules
Firewall & DMZ
Advanced Wireless
Advanced Network
Routing
Tools
Logout

Internet
Offline
Reboot

ROUTING
The Routing option allows you to define static routes to specific destinations.
Save Settings Don't Save Settings

25 - STATIC ROUTING
Remaining number of rules that can be created: 25

	Interface	Destination	Subnet Mask	Gateway
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			
<input type="checkbox"/>	WAN1			

Helpful Hints...

- **Enable:** Specifies whether the entry will be enabled or disabled.
- **Interface:** Specifies the interface - WAN or WAN Physical - that the IP packet must use to transit out of the router, when the route is used.
- **Destination IP:** The IP address of packets that will take this route.
- **Subnet Mask:** One bit in the mask specifies which bits of the IP address must match.
- **Gateway:** Specifies the next hop to be taken if the route is used. A gateway of 0.0.0.0 implies there is no next hop, and the IP address matched is directly connected to the router on the interface specified: WAN or WAN Physical.

TR-069

TR-069 (WAN Management Protocol) allows the remote server to connect to the device and configure the device. When using this function, usually the router needs to have a physical IP address. With TR-069 STUN, you can even configure the router when it is behind NAT.

Enable TR-069: Tick this checkbox to enable TR-069 function

Enable TR-069 From LAN: Tick this to enable TR-069 function from LAN instead of WAN port.

Username: Enter the username for the remote server to be able to login to the router.

Password: Enter the password for the remote server to be able to login to the router

ACS URL: Enter the IP address of ACS (Auto-configuration Server).

Default ACS URL: Enter the IP address of default ACS.

CPE URL: Enter the IP Address of the CPE (Customer-premises equipment).

Periodic Inform Enable: Tick the check box to send the information periodically.

Periodic Inform Interval: The duration for sending the information.

Periodic Inform Time: Configure the specific time and date to start sending the information.

The screenshot shows the D-Link DIR-615 web interface. The main content area is titled "TR-069 PROTOCOL" and contains the following configuration options:

- TR-069 PROTOCOL:**
 - Enable TR-069 :
 - Enable TR-069 From LAN :
 - Username :
 - Password :
 - ACS URL :
 - Default ACS URL :
 - CPE URL :
- PERIODIC INFORM:**
 - Periodic Inform Enable :
 - Periodic Inform Interval :
 - Periodic Inform Time : Year 2006, Month Sep, Day 5, Hour 14, Minute 10, Second 10
- TR-069 STUN:**
 - Enable STUN :
 - STUN Server Address :
 - STUN Server Port :
 - STUN Server User Name :
 - STUN Server Password :
 - Local Listen Port :

Buttons for "Save Settings" and "Don't Save Settings" are located at the bottom of each section.

Enable STUN: Tick the check box to enable the STUN function for TR-069

STUN Server Address: Enter the IP address of a STUN server.

STUN Server Port: Enter the port of the STUN server.

STUN Server User Name: Enter the username of the STUN server.

STUN Server Password: Enter the password of the STUN server

Local Listen Port Enter a port of the router that allow STUN server to get through.

Device Administration

This window will allow you to change the Administrator password. You can also enable Remote Management.

Administrator Password: Enter a new password for the Administrator Login Name and then retype the new password in the Confirm Password textbox. The administrator can make changes to the settings.

User Login Name: Enter a new Login Name for the User account.

User Password: Enter a new password for the User Login Name and then retype the new password in the Confirm Password textbox. The administrator can make changes to the settings.

Enable Remote Management: Remote management allows the DIR-615 to be configured from the Internet by a web browser. A username and password is still required to access the Web-Management interface. In general, only a member of your network can browse the built-in web pages to perform Administrator tasks. This feature enables you to perform Administrator tasks from the remote (Internet) host.

IP Allowed to Access: The Internet IP address of the computer that has access to the Broadband Router. If you leave this field blank or type *0.0.0.0*, then any computer will be able to access the Router. This would present a security risk and is not recommended.

Port: The port number used to access the DIR-615. For example: <http://x.x.x.x:8080> whereas x.x.x.x is the WAN IP address of the DIR-615 and *8080* is the port used for the Web-Management interface.

Enable Remote SSH: Tick this check box to allow the remote SSH to be able to configure DIR-615.

The screenshot shows the D-Link DIR-615 web management interface. The top navigation bar includes tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The main content area is titled "ADMINISTRATOR SETTINGS" and contains the following sections:

- ADMINISTRATOR SETTINGS:** A text box explaining that the 'admin' and 'user' accounts can access the management interface. It states that the admin has read/write access and can change passwords, while the user has read-only access. It recommends creating a password for security. Below this text are "Save Settings" and "Don't Save Settings" buttons.
- ADMIN PASSWORD:** A section with the instruction "Please enter the same password into both boxes, for confirmation." It contains two password input fields labeled "New Password:" and "Confirm Password:".
- USER PASSWORD:** A section with the instruction "Please enter the same password into both boxes, for confirmation." It contains a "User Name:" input field with "user" entered, and two password input fields labeled "New Password:" and "Confirm Password:".
- REMOTE MANAGEMENT:** A section with three sub-sections:
 - Enable Remote Management:** A checkbox that is currently checked. Below it is an "IP Allowed to Access:" input field with "0.0.0.0" entered and a "Port:" input field with "8080" entered.
 - Enable Remote SSH:** A checkbox that is currently unchecked. Below it is a "Remote Control IP Address:" input field with "0.0.0.0" entered and a "Port:" input field with "22" entered.
 - Enable Remote Telnet:** A checkbox that is currently unchecked. Below it is a "Remote Control IP Address:" input field with "0.0.0.0" entered.

On the right side of the interface, there is a "Helpful Hints..." section with two bullet points:

- For security reasons, it is recommended that you change the Login Name and Password for the Administrator accounts. Be sure to write down the new Login Names and Passwords to avoid having to reset the router in the event that they are forgotten.
- When enabling Remote Management, you can specify the IP address of the computer on the Internet that you want to have access to your router, or leave it blank to allow access to any computer on the Internet.

Remote Control IP Address: Enter a IP address that the remote SSH with this IP address can access the router. If you leave this field blank or type *0.0.0.0*, then any computer will be able to access the Router. This would present a security risk and is not recommended.

Port: The port number used to access the DIR-615.

Enable Remote Telnet: Tick this check box to allow the remote Telnet to be able to configure DIR-615.

Remote Control IP Address: Enter a IP address that the remote Telnet with this IP address can access the router. If you leave this field blank or type *0.0.0.0*, then any computer will be able to access the Router. This would present a security risk and is not recommended.

Save and Restore

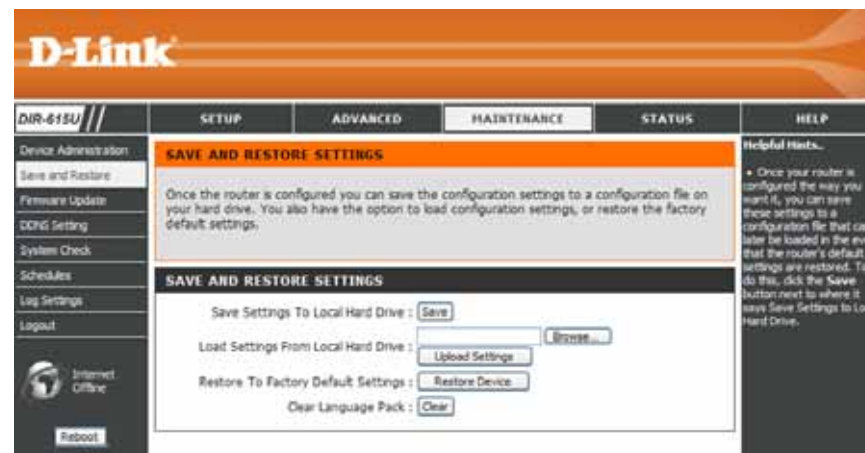
This window allows you to save your configuration file to a hard drive, load configuration settings from a hard drive, and restore the Router's factory default settings.

Save Settings to Local Hard Drive: Use this option to save the current router configuration settings to a file on the hard disk of the computer you are using. First, click the **Save** button. You will then see a file dialog, where you can select a location and file name for the settings.

Load Settings from Local Hard Drive: Use this option to load previously saved router configuration settings. First, use the **Browse** control to find a previously save file of configuration settings. Then, click the **Upload Settings** button to transfer those settings to the Router.

Restore to Factory Default Settings: This option will restore all configuration settings back to the settings that were in effect at the time the router was shipped from the factory. Any settings that have not been saved will be lost, including any rules that you have created. If you want to save the current router configuration settings, use the **Save** button above.

Reboots: Click the **Reboot** button on the left side of the window to restart the Router.



Firmware Update

You can upgrade the firmware of the Router here. Make sure the firmware you want to use is on the local hard drive of the computer. Click on **Browse** to locate the firmware file to be used for the update. Please check the D-Link support site for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your hard drive from the D-Link support site.

Firmware Upgrade: Click the **Check Now** button (or the link at the top of the window) to find out if there is an updated firmware; if so, download the new firmware to your hard drive.

Browse: After you have downloaded the new firmware, click **Browse** in this window to locate the firmware update on your hard drive. Click **Save Settings** to complete the firmware upgrade.

The screenshot displays the D-Link web management interface for a DIR-615 router. The top navigation bar includes tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The left sidebar contains a menu with options like Device Administration, Save and Restore, Firmware Update (highlighted), DDNS Setting, System Check, Schedule, Log Settings, and Logout. The main content area is titled 'FIRMWARE UPDATE' and contains the following sections:

- FIRMWARE UPDATE:** A notice stating there may be new firmware available to improve functionality and performance, with a link to check for updates on the support site. It provides instructions on how to upgrade the firmware using a local file.
- FIRMWARE INFORMATION:** Displays the current firmware version (7.00811) and date (Mon 17 Aug 2009), along with a 'Check Now' button to verify for updates.
- FIRMWARE UPGRADE:** A warning note that some upgrades reset configuration to factory defaults, followed by instructions to upload a firmware file. It includes an 'Upload' button and a 'Browse...' button.
- LANGUAGE PACK UPGRADE:** A similar section for upgrading the language pack, also featuring an 'Upload' button and a 'Browse...' button.

On the right side of the interface, there is a 'Helpful Hints...' section with a note about firmware updates and a link to check for updates on the support site.

DDNS Setting

The router supports DDNS (Dynamic Domain Name Service). The Dynamic DNS service allows a dynamic public IP address to be associated with a static host name in any of the many domains, allowing access to a specified host from various locations on the Internet. This is enabled to allow remote access to a host by clicking a hyperlinked URL in the form “hostname.dyndns.org”. Many ISPs assign public IP addresses using DHCP, this can make it difficult to locate a specific host on the LAN using standard DNS. If for example you are running a public web server or VPN server on your LAN, this ensures that the host can be located from the Internet if the public IP address changes. DDNS requires that an account be setup with one of the supported DDNS providers.

Enable DDNS: Tick the Enable DDNS checkbox to enable support for DDNS.

Server Address: Select one of the DDNS registration organizations from those listed in the pull-down menu. Available servers include *dlinkddns.com(Free)*, *DynDns.org(Custom)*, *Dyn.Dns.org(free)*, and *Dyn.Dns.org(Static)*.

Host Name: Enter the host name of the DDNS server.

Username: Enter the username given to you by your DDNS server.

Password: Enter the password or key given to you by your DDNS server.

The screenshot shows the D-Link web interface for the DIR-615U router. The main content area is titled "DYNAMIC DNS" and contains the following text:

The Dynamic DNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a domain name that you have purchased (www.whateveryournames.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your host name to connect to your game server no matter what your IP address is.

Sign up for D-Link's Free DDNS service at www.DLinkDDNS.com.

Buttons: Save Settings, Don't Save Settings

DYNAMIC DNS SETTINGS

Enable DDNS:

Server Address:

Host Name:

Username:

Password:

DDNS Account Testing

System Check

This tool is used to verify the physical connectivity on both the LAN and the WAN interfaces. The Ping Test can be used to test the status of the Internet.

Virtual Cable Tester (VCT) VCT is an advanced feature that integrates a LAN cable tester on every Ethernet port on the router. Through the graphical user interface (GUI), VCT can be used to remotely diagnose and report cable faults such as opens, shorts, swaps, and impedance mismatch. This feature significantly reduces service calls and returns by allowing users to easily troubleshoot their cable connections.

Ping Test: The Ping Test is used to send Ping packets to test if a computer is on the Internet. Enter the IP Address that you wish to Ping, and click **Ping**.

D-Link

DIR-615 // SETUP ADVANCED MAINTENANCE STATUS HELP

SYSTEM CHECK
The System Check tool can be used to verify the physical connectivity on both the LAN and Internet interfaces. The Ping Test tool can be used to verify the status of the Internet connection.

VCT INFO

Ports	Link Status	
Internet	Disconnected	More Info
LAN1	Disconnected	More Info
LAN2	Disconnected	More Info
LAN3	100Mbps FULL Duplex	More Info
LAN4	Disconnected	More Info

PING TEST
Ping Test is used to send "Ping" packets to test if a computer is on the Internet.

Host Name or IP Address :

PING RESULT

Schedules

The Router allows the user the ability to manage schedule rules for various firewall and parental control features on this window. Once you have finished configuring the new schedule rule, click the **Save Settings** button at the top of the window.

Name: Enter a name for the new schedule rule.

Day(s): Choose the desired day(s), either All Week or Select Days. If the latter is selected, please use the checkboxes directly below to specify the individual days.

All Day - 24 hrs: Tick this check box if the new schedule rule applies to the full 24-hour period.

Start Time/End Time: If the new schedule rule does not apply to the full 24-hour period, untick the previous checkbox and then enter a specific beginning and ending time.

The screenshot shows the D-Link DIR-615U web interface. The main navigation menu on the left includes: Device Administration, Save and Restore, Firmware Update, DDNS Setting, System Check, Schedules (highlighted), Log Settings, and Logout. The main content area is titled 'SCHEDULES' and contains the following text: 'The Schedule configuration option is used to manage schedule rules for "Access Control", "Firewall Rules" and "Parental Control".' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. The '10 - ADD SCHEDULE RULE' section includes a 'Name' input field, 'Day(s)' options (All Week, Select Day(s)), checkboxes for Sun, Mon, Tue, Wed, Thu, Fri, Sat, an 'All Day - 24 hrs' checkbox, and 'Start Time' and 'End Time' fields with dropdown menus for AM/PM and hour/minute. The 'SCHEDULE RULES LIST' table has columns for Name, Day(s), and Time Frame. The right sidebar contains 'Helpful Hints...' with several bullet points explaining schedule rules.

Log Settings

The system log displays chronological event log data specified by the router user. You may also save a simple text file containing the log to your computer. Click the **Save** button and follow the prompts to save the file.

Save Log File: Click on the **Save** button link on this window to save the log file to your local hard drive.

Syslog Server: click the checkbox to save the log in the log server in the LAN side.

Log Type & Level: Click the checkbox(es) of the type of log information requested: **“System, Firewall & Security, Router Status, Critical, Warning and Information”**

Send by Mail: Enter the your SMTP server name(or IP address) and enter your mail address before sending your system log by mail.

D-Link

DIR-615 // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Administration

Save and Restore

Firmware Update

DDNS Setting

System Check

Schedules

Log Settings

Logout

Internet Offline

Reboot

LOG SETTINGS

Logs can be saved by sending it to an admin email address.

Save Settings Don't Save Settings

SAVE LOG FILE

Save Log File To Local Hard Drive **Save**

SYSLOG SERVER

Enable Logging To Syslog Server:

Syslog Server IP Address: Computer Name

LOG TYPE & LEVEL

Log Type: System Firewall & Security Router Status

Log Levels: Critical Warning Information

SEND BY MAIL

Email Address:

Email Subject:

Sender Email Address:

SMTP Server / IP Address:

User Name:

Password:

Confirm Password: **Send Mail Now**

Helpful Hints:

- Click on the **Save** button to save log file to local hard drive which can later send to the network administrator for troubleshooting. You can also select what type of event you would like to be logged from **Log Type & Level**.
- A System Logger (Syslog) is a server that collects in one place the logs from different sources. If the LAN includes a syslog server, you can use this option to send the router's logs to that server.

Device Info

This window displays the current information for the DIR-615. It will display the LAN, WAN, and Wireless information.

If your WAN connection is set up for a Dynamic IP address then a **DHCP Release** button and a **DHCP Renew** button will be displayed. Use **DHCP Release** to disconnect from your ISP and use **DHCP Renew** to connect to your ISP.

If your WAN connection is set up for PPPoE, a **Connect** button and a **Disconnect** button will be displayed. Use **Disconnect** to drop the PPPoE connection and use **Connect** to establish the PPPoE connection.

LAN: Displays the MAC address and the private (local) IP settings for the router.

WAN: Displays the MAC address and the public IP settings for the router.

Wireless Displays the wireless MAC address and your
802.11N: wireless settings such as SSID, Channel, and Encryption status.

The screenshot shows the D-Link DIR-615 web interface. The top navigation bar includes tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The left sidebar contains a menu with options like Device Info, Log, Statistics, Active Session, Wireless, Logout, Internet, and a Reboot button. The main content area is titled 'DEVICE INFORMATION' and contains the following details:

- DEVICE INFORMATION:** All of your Internet and network connection details are displayed on this page. The firmware version is also displayed here. Firmware Version : 7.00B11 , Mon 17 Aug 2009
- LAN:**
 - MAC Address : 00:4B:28:30:52:01
 - IP Address : 192.168.0.1
 - Subnet Mask : 255.255.255.0
 - DHCP Server : Enabled
- INTERNET:**
 - MAC Address : 00:4B:28:30:52:02
 - Connection : DHCP client Connecting...
 - IP Address : 0.0.0.0
 - Subnet Mask : 0.0.0.0
 - Default Gateway : 0.0.0.0
 - DNS : 0.0.0.0
- WIRELESS 802.11N:**
 - Channel : 6
 - (SSID : Encryption)
 - dlink : Disabled

On the right side, there is a 'Helpful Hints...' section with a note: 'All of your LAN, Internet and WIRELESS 802.11N connection details are displayed here.'

Log

This window allows you to view a log of activities on the Router. This is especially helpful detecting unauthorized network usage.

First Page: View the first page of the log.

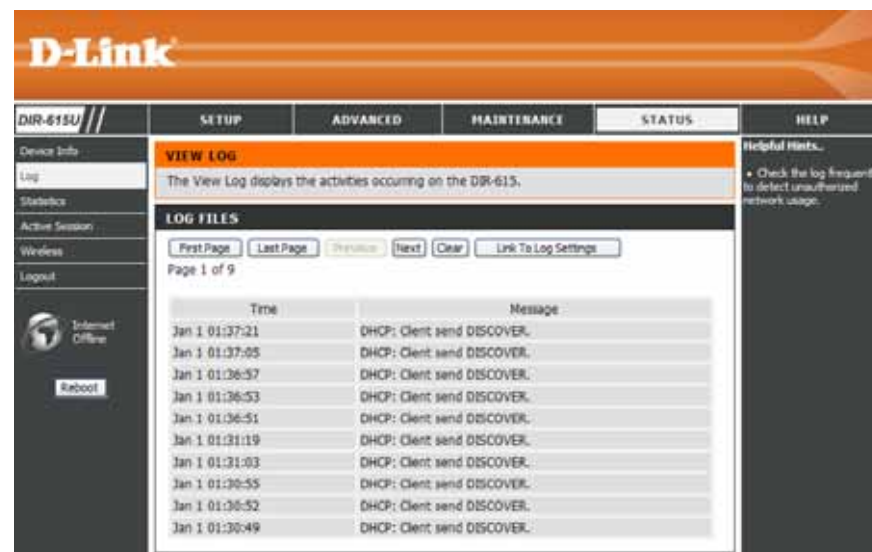
Last Page: View the last page of the log.

Previous: View the previous page.

Next: View the next page.

Clear: Clear the log.

Link to Log Settings: Click this button to go directly to the Log Settings window (**Maintenance > Log Settings**).



The screenshot shows the D-Link web interface for a DIR-615 router. The main content area is titled "VIEW LOG" and contains a table of log entries. The table has two columns: "Time" and "Message". The log entries are as follows:

Time	Message
Jan 1 01:37:21	DHCP: Client send DISCOVER.
Jan 1 01:37:05	DHCP: Client send DISCOVER.
Jan 1 01:36:57	DHCP: Client send DISCOVER.
Jan 1 01:36:53	DHCP: Client send DISCOVER.
Jan 1 01:36:51	DHCP: Client send DISCOVER.
Jan 1 01:31:19	DHCP: Client send DISCOVER.
Jan 1 01:31:03	DHCP: Client send DISCOVER.
Jan 1 01:30:55	DHCP: Client send DISCOVER.
Jan 1 01:30:52	DHCP: Client send DISCOVER.
Jan 1 01:30:49	DHCP: Client send DISCOVER.

Navigation buttons include "First Page", "Last Page", "Previous", "Next", "Clear", and "Link To Log Settings". The page is labeled "Page 1 of 9".

Statistics

The window below displays the Traffic Statistics. Here you can view the amount of packets that pass through the DIR-615 on both the WAN and the LAN ports. The traffic counter will reset if the device is rebooted.

D-Link

DIR-615U // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Info
Log
Statistics
Active Session
Wireless
Logout

Internet Offline
Reboot

TRAFFIC STATISTICS
Traffic Statistics displays Receive and Transmit packets passing through the DIR-615.

Refresh Reset

	Receive	Transmit
Internet	0 Packets	0 Packets
LAN	3172 Packets	4361 Packets
WIRELESS 11n	556055 Packets	3025 Packets

Helpful Hints...
• This is a summary displaying the number of packets that have passed between the Internet and the LAN since the router was last initialized.

Active Session

The NAPT Active Session table displays a list of all active conversations between WAN computers and LAN computers.

D-Link

DIR-615U // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Info
Log
Statistics
Active Session
Wireless
Logout

Internet Offline
Reboot

ACTIVE SESSION
Active Session display Source and Destination packets passing through the DIR-615.

Refresh

NAPT SESSIONS

TCP Sessions : 1
UDP Sessions : 0
Total : 1

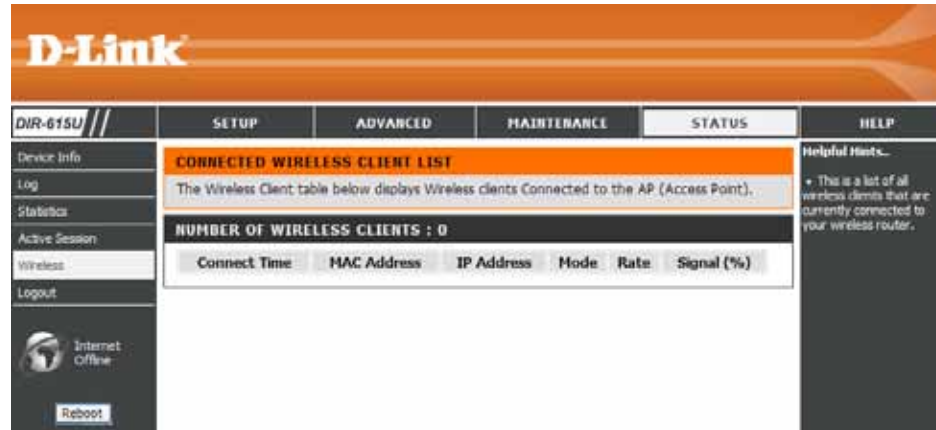
NAPT ACTIVE SESSIONS

IP Address	TCP Sessions	UDP Sessions
192.168.0.20	1	0

Helpful Hints...
• An Active session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.

Wireless

The wireless client table displays a list of current connected wireless clients. This table also displays the connection time and MAC address of the connected wireless client.



Help

Click the desired hyperlink to get more information about how to use the Router.

The screenshot displays the D-Link DIR-615U web interface. At the top, the D-Link logo is visible on an orange background. Below the logo is a navigation bar with tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The HELP tab is currently selected. The main content area is titled "SUPPORT MENU" and is divided into four sections: Setup, Advanced, Maintenance, and Status. Each section contains a list of hyperlinks to various configuration and status pages. On the left side of the interface, there is a sidebar with a "Menu" button, a "Logout" button, an "Internet Offline" status indicator with a globe icon, and a "Reboot" button. On the right side, there is a "Helpful Hints..." section.

DIR-615U //	SETUP	ADVANCED	MAINTENANCE	STATUS	HELP
Menu	SUPPORT MENU				Helpful Hints..
Logout	Setup				
Internet Offline	<ul style="list-style-type: none">Internet SetupWireless SetupLAN SetupTime and DateParental Control				
<input type="button" value="Reboot"/>	Advanced				
	<ul style="list-style-type: none">Port ForwardingApplication RulesFilter RulesFirewall & DMZAdvanced WirelessAdvanced NetworkRouting				
	Maintenance				
	<ul style="list-style-type: none">Device AdministrationSave and RestoreFirmware UpdateDDNS SettingSystem CheckSchedulesLog Settings				
	Status				
	<ul style="list-style-type: none">Device InfoLogStatisticsActive SessionWireless				

Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DIR-615 offers the following types of security:

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

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 Setup** on the left side.
2. Next to **Security Mode**, select *Enable WEP Wireless Security (basic)*.
3. Next to **Authentication**, select either *Shared Key* or *Open*. *Shared Key* is recommended as it provides greater security when WEP is enabled.
4. Select either *64Bit* or *128Bit* encryption from the drop-down menu next to **WEP Encryption**.
5. Next to **Default Key Type**, select *WEP Key 1* and enter a WEP key that you create. Make sure you enter this key exactly on all your wireless devices. You may enter up to four different keys either using *Hex* or *ASCII*. *Hex* is recommended (letters A-F and numbers 0-9 are valid). In *ASCII* all numbers and letters are valid.
6. 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

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.

Authentication :

WEP Encryption :

Default WEP Key :

WEP Key : (5 ASCII or 10 HEX)

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 two 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 and 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 Setup** on the left side.
2. Next to **Security Mode**, select *Enable WPA Only Wireless Security (enhanced)* or *Enable WPA2 Only Wireless Security (enhanced)*.
3. Next to **Cipher Mode**, select *TKIP*, *AES*, or *Both*.
4. Next to **PSK/EAP**, select *PSK*.
5. Next to **Network 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.
6. 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.

The screenshot shows the 'WIRELESS SECURITY MODE' section of a router's configuration page. The 'Security Mode' dropdown is set to 'Enable WPA Only Wireless Security (enhanced)'. Below this, the 'WPA ONLY' section is active, displaying the text: 'WPA Only requires stations to use high grade encryption and authentication.' The 'Cipher Type' dropdown is set to 'TKIP', and the 'PSK / EAP' dropdown is set to 'PSK'. A 'Network Key' input field is present with a placeholder '(8~63 ASCII or 64 HEX)'. At the bottom, there are two buttons: 'Save Settings' and 'Don't Save Settings'.

The screenshot shows the 'WIRELESS SECURITY MODE' section of a router's configuration page. The 'Security Mode' dropdown is set to 'Enable WPA2 Only Wireless Security (enhanced)'. Below this, the 'WPA2 ONLY' section is active, displaying the text: 'WPA2 Only requires stations to use high grade encryption and authentication.' The 'Cipher Type' dropdown is set to 'TKIP', and the 'PSK / EAP' dropdown is set to 'PSK'. A 'Network Key' input field is present with a placeholder '(8~63 ASCII or 64 HEX)'. At the bottom, there are two buttons: 'Save Settings' and 'Don't Save Settings'.

Configure WPA/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 Setup** on the left side.
2. Next to **Security Mode**, select *Enable WPA/WPA2 Wireless Security (enhanced)*.
3. Next to **Cipher Mode**, select *TKIP*, *AES*, or *Both*.
4. Next to **PSK/EAP**, select *PSK*.
5. Next to **Network 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.
6. 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/WPA2-PSK on your adapter and enter the same passphrase as you did on the Router.

WIRELESS SECURITY MODE

Security Mode :

WPA/WPA2

WPA/WPA2 requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

Network Key : (8~63 ASCII or 64 HEX)

Configure WPA, WPA2, and WPA/WPA2 (RADIUS)

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 *Enable WPA Only Wireless Security (enhanced)*, *Enable WPA2 Only Wireless Security (enhanced)*, or *Enable WPA/WPA2 Wireless Security (enhanced)*.
3. Next to **Cipher Type**, select *TKIP*, *AES*, or *Auto*.
4. Next to **PSK/EAP**, select *EAP*.
5. Next to **RADIUS Server 1** enter the **IP Address** of your RADIUS server.
6. Next to **Port**, enter the port you are using with your RADIUS server. *1812* is the default port.
7. Next to **Shared Secret**, enter the security key.
8. If you have a secondary RADIUS server, enter its IP address, port, and secret key.
9. Click **Save Settings** to save your settings.

WIRELESS SECURITY MODE

Security Mode :

WPA ONLY

WPA Only requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

802.1X

RADIUS Server 1 IP Address :

Port :

Shared Secret :

RADIUS Server 2 IP Address :

Port :

Shared Secret :

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.

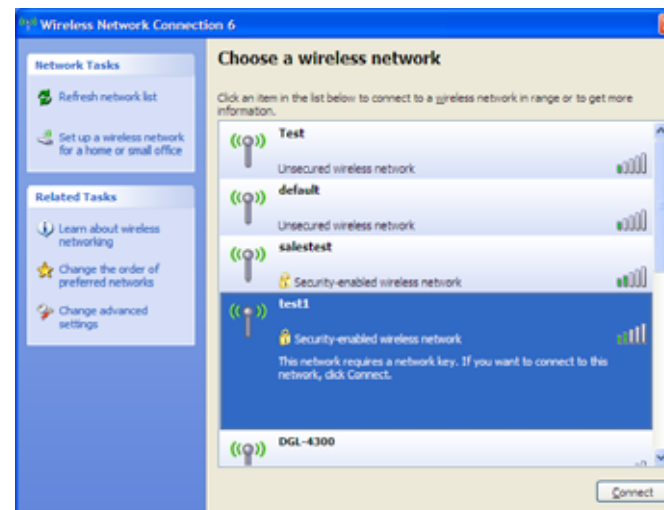
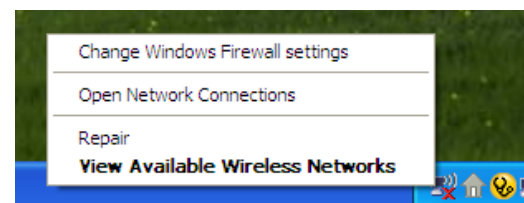
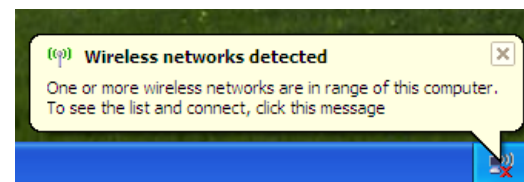
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

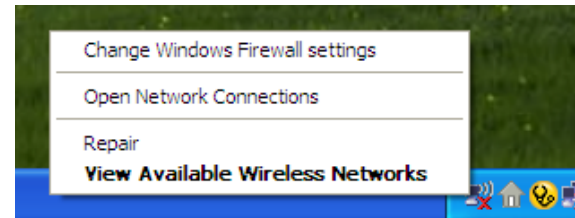
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



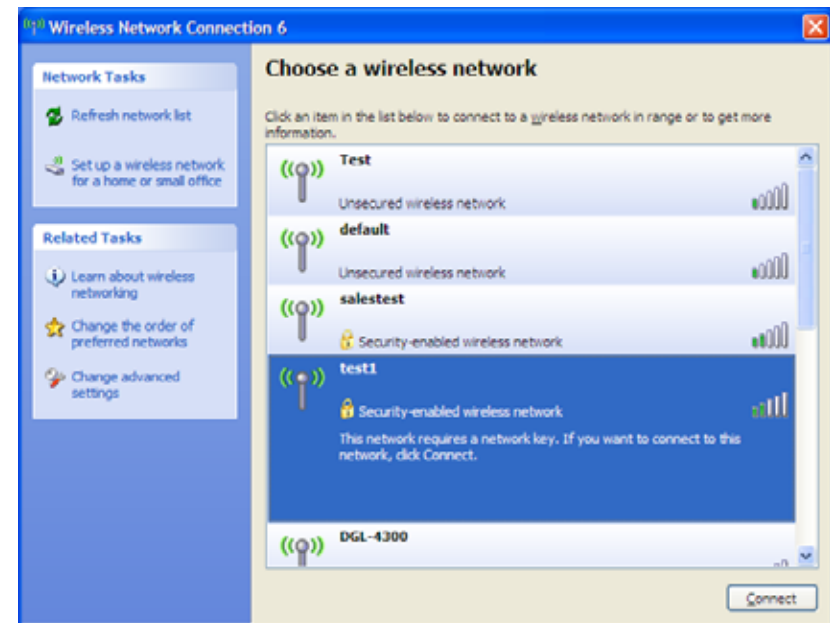
Configure WEP

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**.

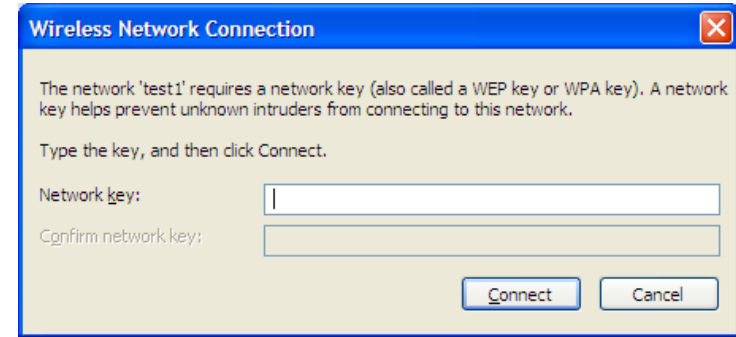


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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

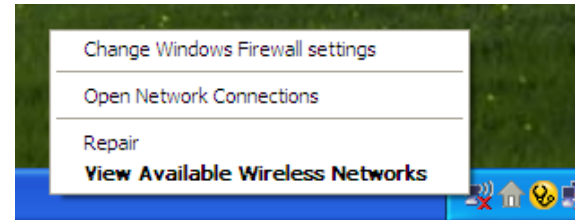
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WEP settings are correct. The WEP key must be exactly the same as on the wireless router.



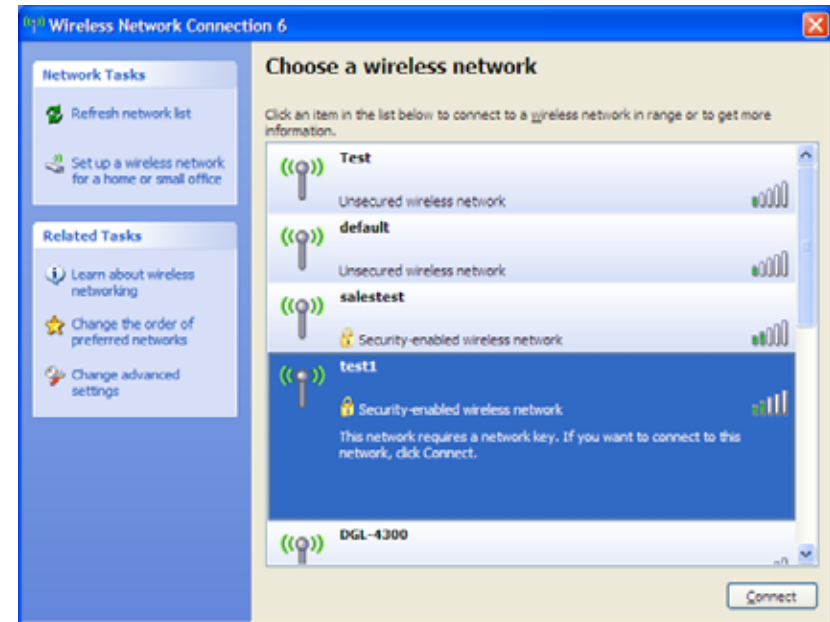
Configure WPA-PSK

It is recommended to enable 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**.

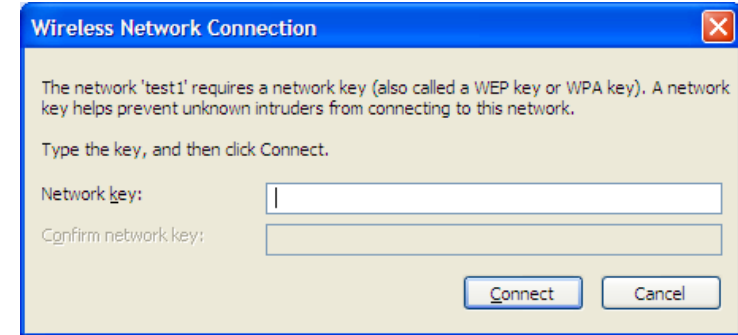


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



3. The **Wireless Network Connection** box will appear. Enter the 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.



Setting Up Wi-Fi Protection (WPN 2.0 in Windows Vista)

The DIR-615 supports Wi-Fi protection, referred to as WPN 2.0 in Windows Vista. The instructions for setting this up depend on whether you are using Windows Vista to configure the Router or third party software.

Initial Router Configuration for Wi-Fi Protection

When you first set up the Router, Wi-Fi protection is disabled and unconfigured. To enjoy the benefits of Wi-Fi protection, the Router must be both enabled and configured. There are three basic methods to accomplish this: use Windows Vista's built-in support for WPN 2.0, use software provided by a third party, or use the traditional Ethernet approach.

If you are running Windows Vista, tick the Enable checkbox on the **Wireless Network** window. Use the Current PIN that is displayed on the **Wireless Network** window or choose to click the **Generate New PIN** button or **Reset PIN to Default** button.



If you are using third party software to set up Wi-Fi Protection, carefully follow the directions. When you are finished, proceed to the next section to set up the newly-configured Router.

Setting Up a Configured Router

Once the Router has been configured, you can use the push button on the Router or third party software to invite a newcomer to join your Wi-Fi protected network. For maximum security, the software method is recommended. However, the push button method is ideal if there is no access to a GUI.

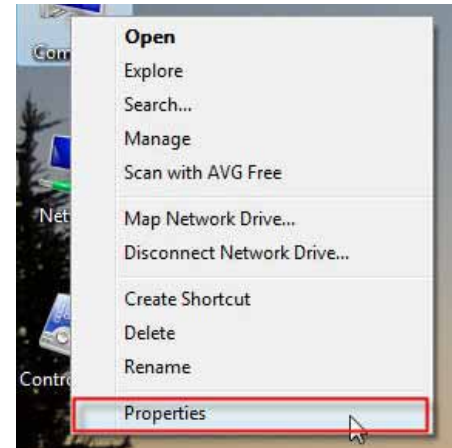
If you are using the Router's Wi-Fi Security push button option, simultaneously depress the push button located on the side of the Router and the button on the client (or virtual button on the client's GUI). Next click **Finish**. The Client's software will then allow a newcomer to join your secure, Wi-Fi protected network.

If you are using third party software, run the appropriate Wi-Fi Protected System utility. You will be asked to either use the push button method or to manually enter the PIN. Follow the on-screen instructions.

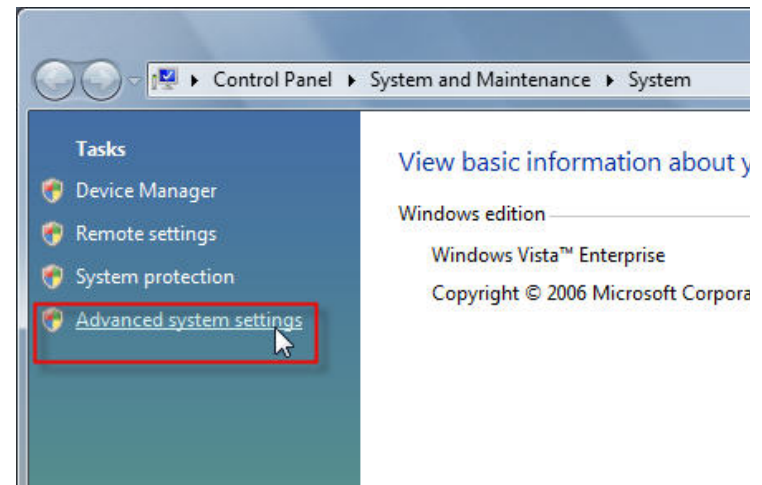
Changing the Computer Name and Joining a Workgroup

The following are step-by-step directions to change the computer name and join a workgroup.

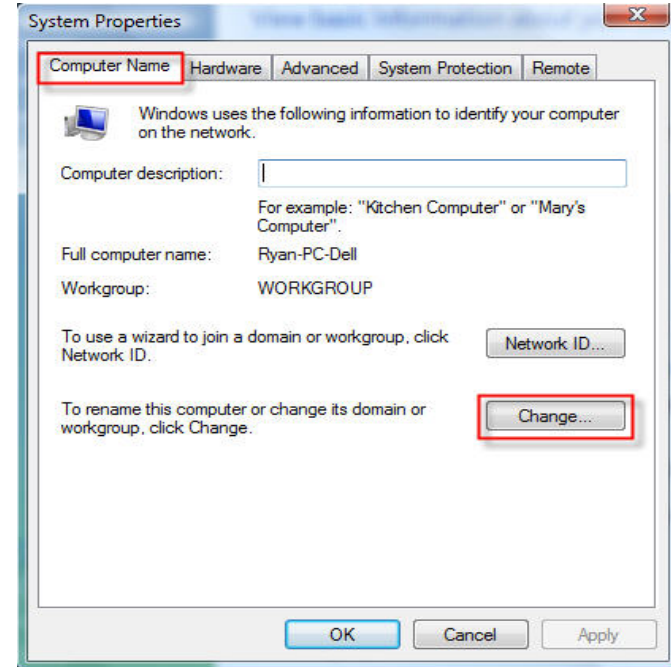
1. Click on **Properties**.



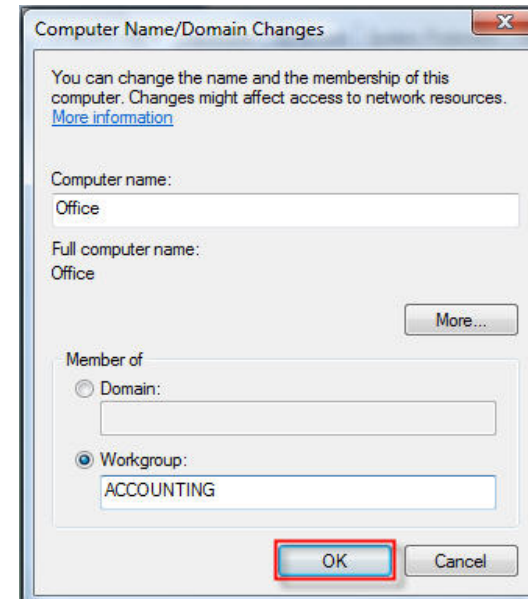
2. Click on the **Advanced system settings** link.



3. Click the **Computer Name** tab in the **System Properties** window and enter a description of your computer in the textbox. When you are finished, click the **Change** button.



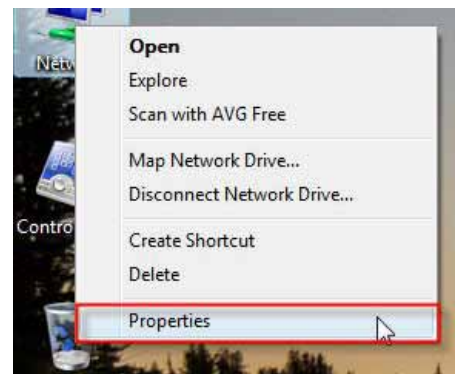
4. Go to the **Computer Name/Domain Changes** window and click the radio button next to the Workgroup you want to join. When you are finished, click the **OK** button.



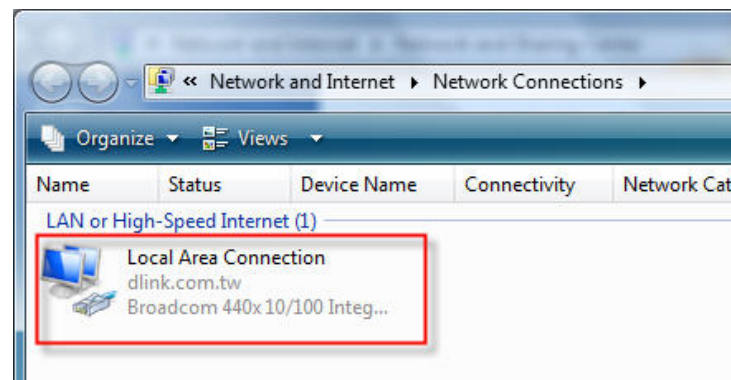
Configuring the IP Address in Vista

The following are step-by-step directions to configure the IP address in Windows Vista.

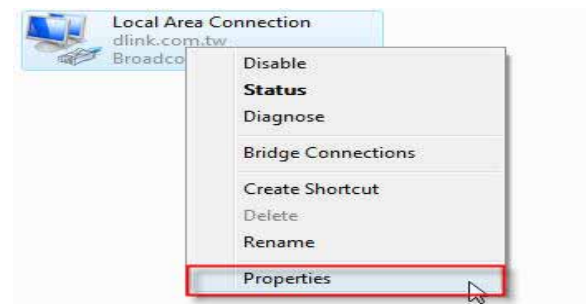
1. Click on **Properties**.



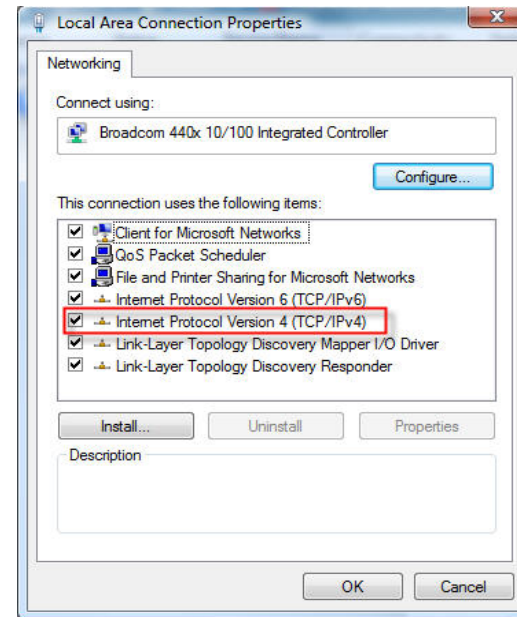
2. Go to the **Network and Internet** window and click the appropriate **Local Area Connection** icon.



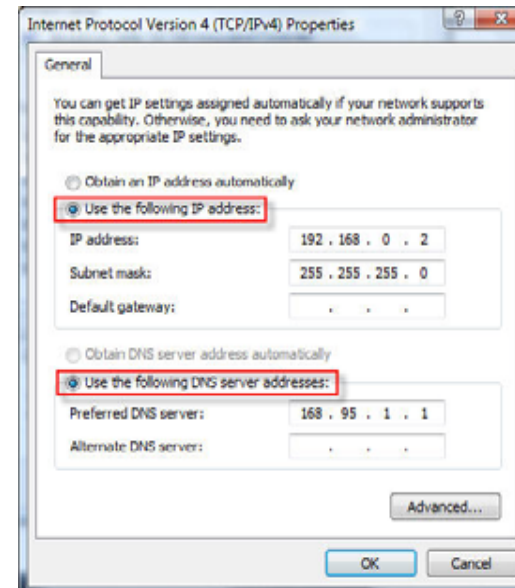
3. Right-click the **Local Area Connection** icon and then select **Properties** from the drop-down menu.



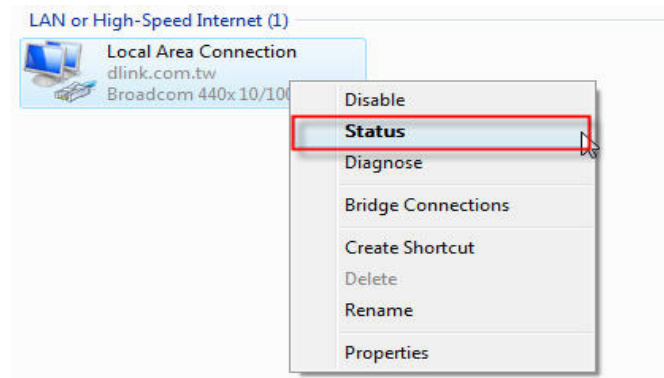
4. Tick the **Internet Protocol Version 4 (TCP/IPv4)** checkbox in the **Networking** tab in the **Local Area Connection Properties** window.



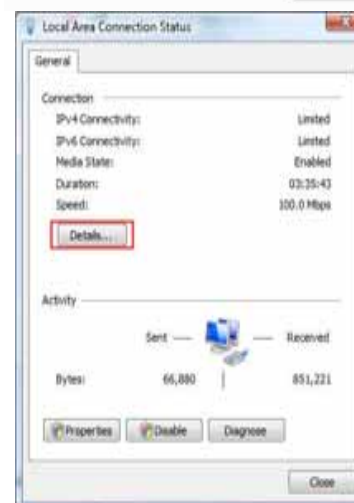
5. Click the “Use the following IP address” option in the **General** tab in the **Local Area Connections Properties** window and enter the desired IP address in the space offered. Then click the “Use the following DNS server addresses” option on the same tab and enter the desired DNS server information.



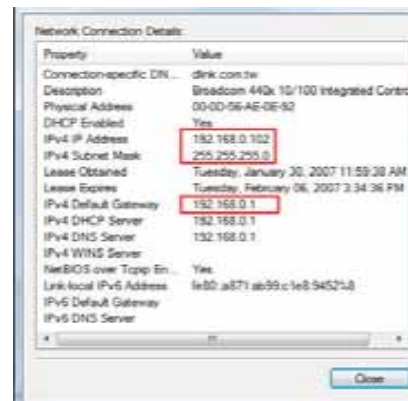
6. Right-click the **Local Area Connection** icon and then select **Status** from the drop-down menu.



7. Go to the **Local Area Connection Status** window and click the **Details** button.



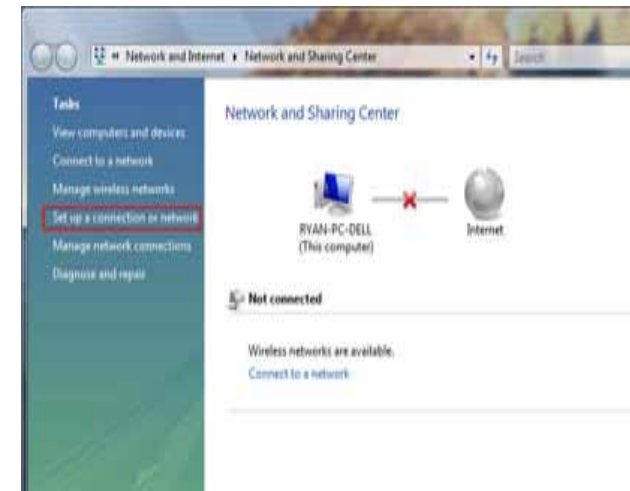
8. Confirm your new settings on the **Network Connection Status** window. When you are finished, click the **Done** button.



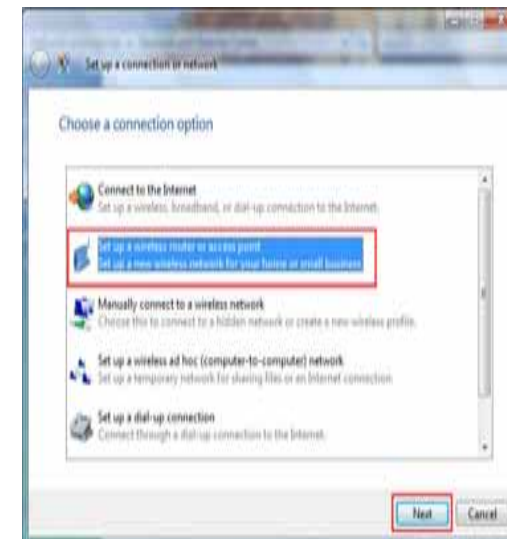
Setting Up a Connection or Network Wirelessly

The following are step-by-step directions to set up a wireless connection.

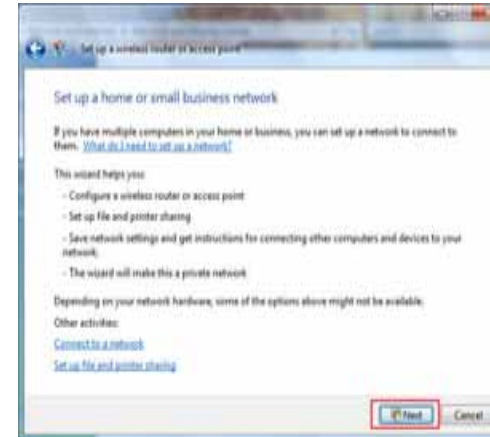
1. Click on **Set up a connection or network** in the **Network and Sharing Center** section.



2. Go to the **Set up a connection or network** window and choose the **Set up a wireless router or access point** **Set up a new wireless network for your home or business** option. Click the **Next** button.



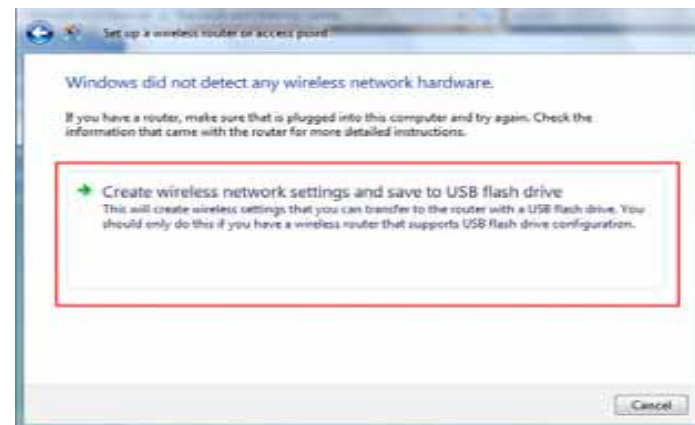
3. Click the **Next** button on the **Set up a wireless router or access point** window.



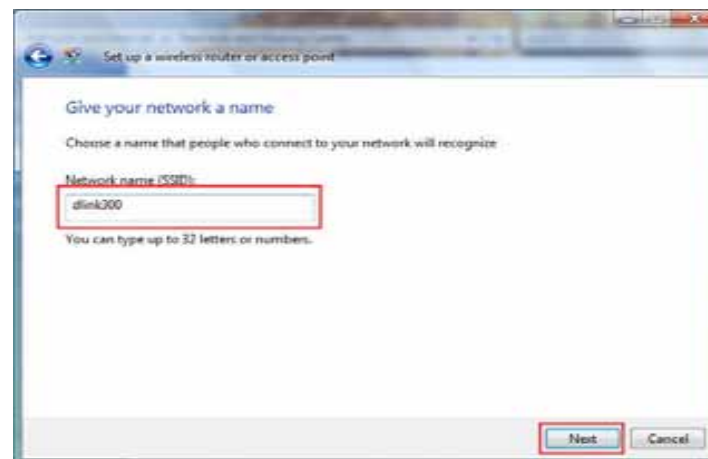
4. The following window displays the system progress.



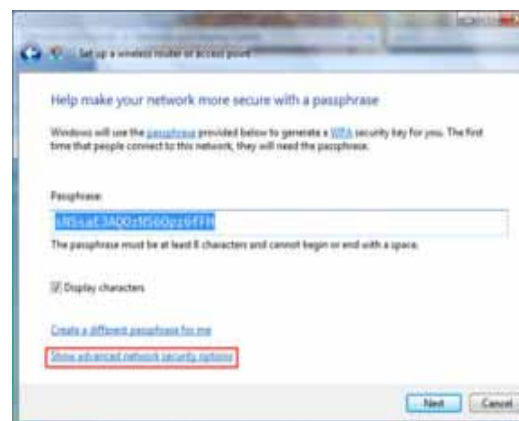
5. This window confirms that you want to create wireless network settings that are savable to a USB flash drive.



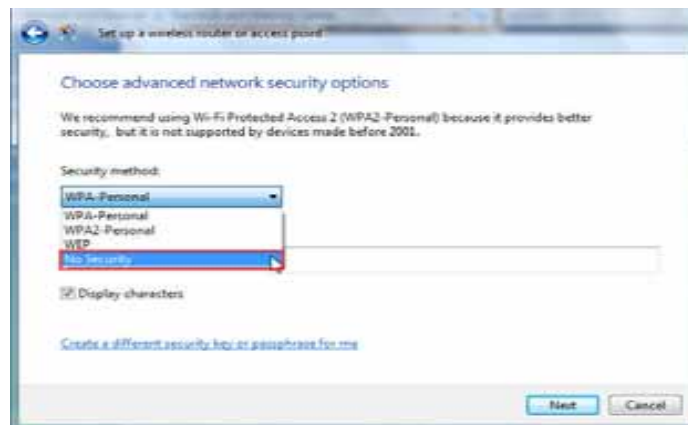
6. Enter a network name on the **Give your network a name** window in the **Set up a wireless router or access point** wizard. Click the **Next** button.



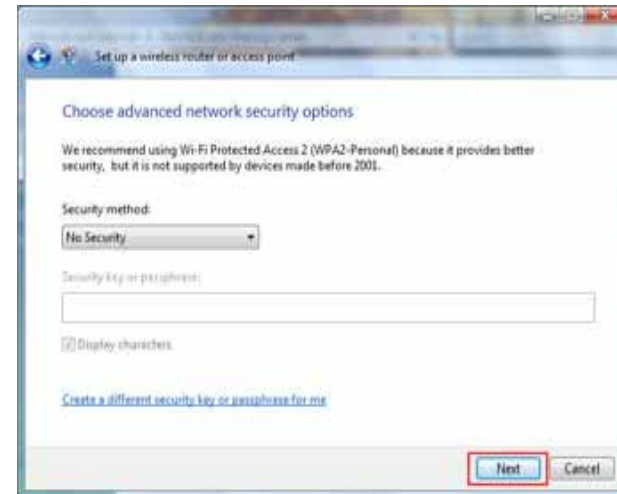
7. Enter a passphrase on the **Help make your network more secure with a passphrase** window in the **Set up a wireless router or access point** wizard. Click the **Show advanced network security options** link.



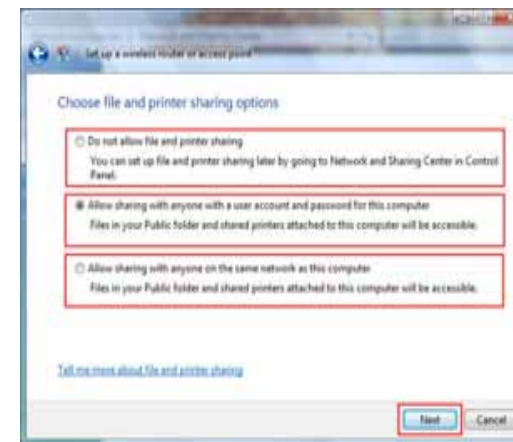
8. Select security method on the **Choose advanced network security options** window in the **Set up a wireless router or access point** wizard. Click the **Next** button.



9. Once you have selected the desired security method on the **Choose advanced network security options** window in the **Set up a wireless router or access point wizard**, click the **Next** button.



10. Select the desired file and printer sharing option on the **Choose file and printer sharing options** window in the **Set up a wireless router or access point wizard**. Click the **Next** button.



11. Once you have saved your network settings to USB, use the pull-down menu on the **Insert the USB flash drive into this computer** window in the **Set up a wireless router or access point wizard** to select a destination for your network settings. Click the **Next** button.



12. Once you have saved your network settings to USB, the **Copying settings to the USB drive** window in the **Set up a wireless router or access point** wizard opens to indicate the system progress.



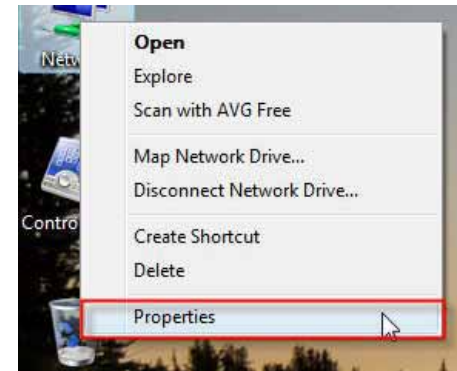
13. Once you are finished, the **To add a device or computer, follow these instructions** window in the **Set up a wireless router or access point** wizard opens. When you are finished, click the **Close** button.



Connecting to a Secured Wireless Network (WEP, WPA-PSK & WPA2-PSK)

The following are step-by-step directions to set up a wireless connection.

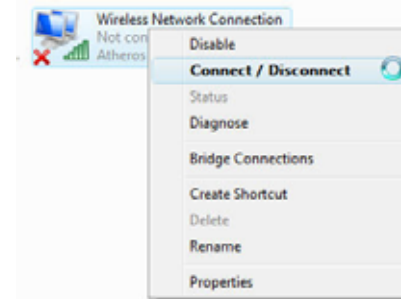
1. Click on **Properties**.



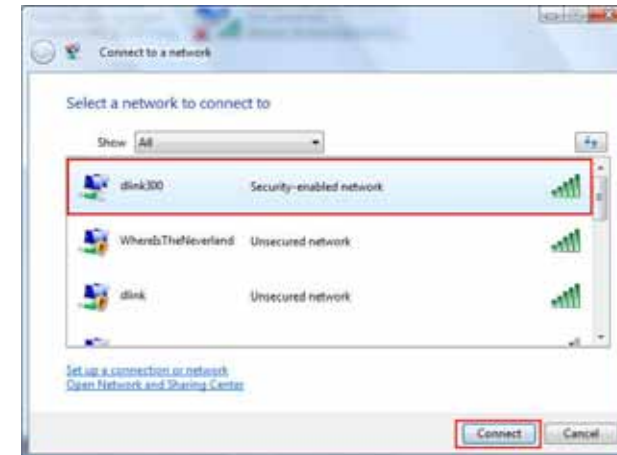
2. Click the **Manage network connections** link in the **Network and Sharing Center** window.



3. Right-click the **Wireless Network Connection** entry and then select **Connect/Disconnect** from the drop-down menu.



4. Select a network to connect to in the **Select a network to connect to** window in the **Connect to a network** wizard and then click the **Connect** button.



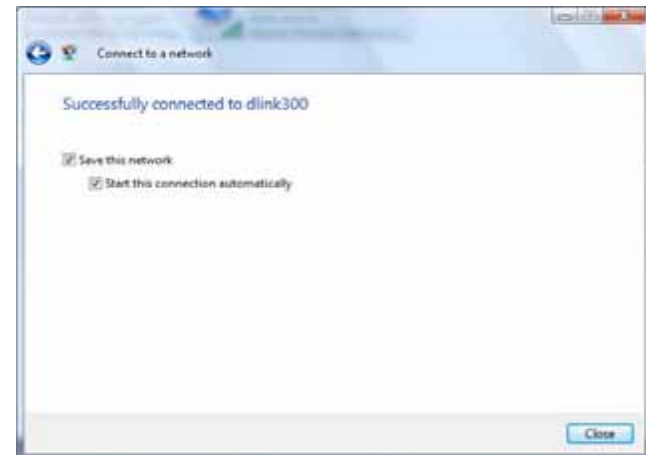
5. The following **Connect to a network** wizard window displays the system progress.



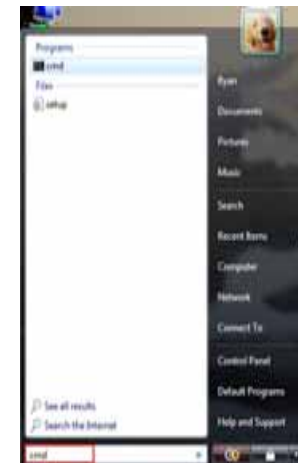
6. Enter the network security key or passphrase for the Router in the textbox provided in the **Type the network security key or passphrase for dlink300** window in the **Connect a network** wizard. When you are finished, click the **Connect** button.



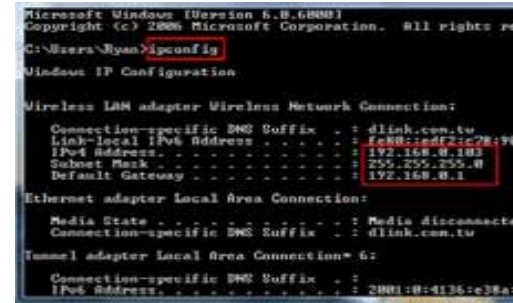
7. The following **Successfully connected to dlink300** window in the **Connect to a network** wizard is displayed. Choose to save to the network and/or start the new connection automatically. When you are finished, click the **Close** button.



8. The successful connection is displayed at the bottom of the Windows start up menu.



9. Confirm your new settings by calling up the command prompt and then entering the ipconfig command.



```
Microsoft Windows [Version 6.0.6002]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Ryan>ipconfig

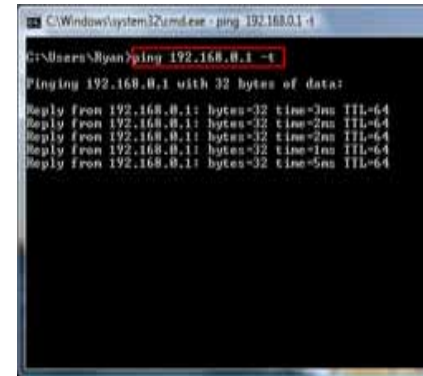
Windows IP Configuration

Wireless LAN adapter Wireless Network Connection:
    Connection-specific DNS Suffix . : dlink.com.tu
    Link-local IPv6 Address . . . . . : fe80::ad22:c28:98
    IPv4 Address. . . . . : 192.168.0.103
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

Ethernet adapter Local Area Connection:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : dlink.com.tu

Tunnel adapter Local Area Connection* 6:
    Connection-specific DNS Suffix . :
    IPv6 Address. . . . . : 2001:0:4136:c38a:
```

10. To test the new IP address, use the Ping feature of the command prompt.



```
C:\Windows\system32\cmd.exe - ping 192.168.0.1

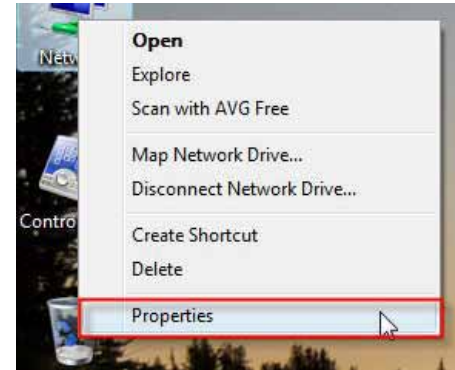
C:\Users\Ryan>ping 192.168.0.1 -t

Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time=3ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64
Reply from 192.168.0.1: bytes=32 time=1ms TTL=64
Reply from 192.168.0.1: bytes=32 time=5ms TTL=64
```

Connecting to an Unsecured Wireless Network

The following are step-by-step directions to set up an unsecured wireless connection.

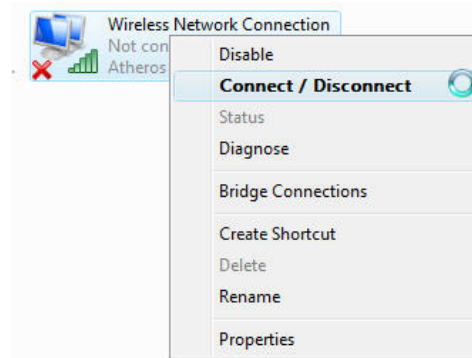
1. Click on **Properties**.



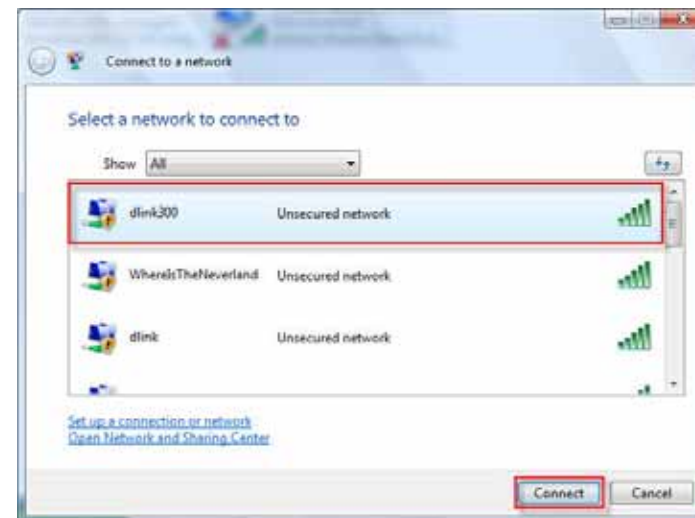
2. Go to the **Network and Sharing Center** window and click the **Manage Network Connections** link.



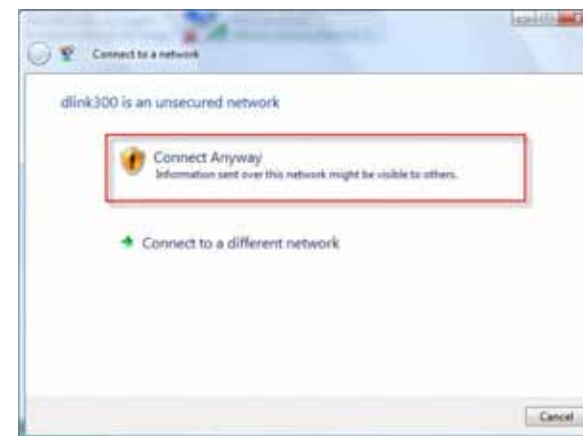
3. Right-click the **Wireless Network Connection** entry and then select **Connect/Disconnect** from the drop-down menu.



4. Select a network to connect to in the **Select a network to connect to** window in the **Connect to a network** wizard and then click the **Connect** button.



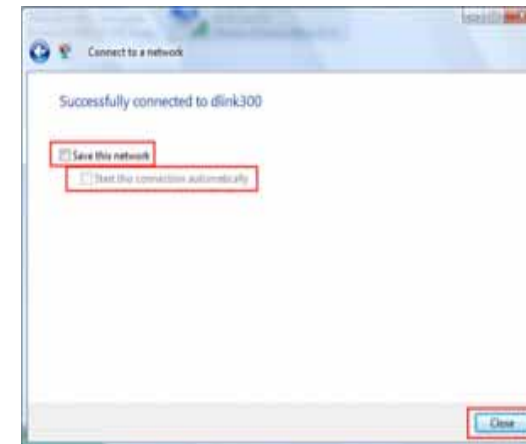
5. Confirm your desire to connect anyway on the following **Network Connection Status** window.



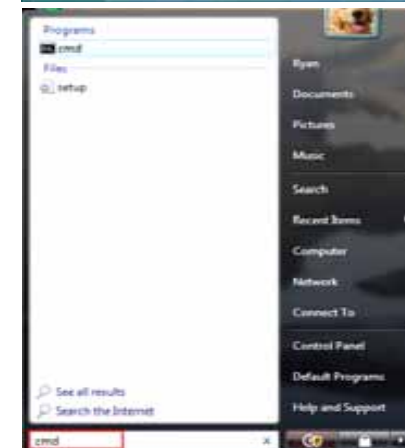
6. The following **Connect to a network** wizard window displays the system progress.




7. The following **Successfully connected to dlink300** window in the **Connect to a network** wizard is displayed. Choose to save to the network and/or start the new connection automatically. When you are finished, click the **Close** button.



8. The successful connection is displayed at the bottom of the Windows start up menu.



9. Confirm your new settings by calling up the command prompt and then entering the ipconfig command.



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6008]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

C:\Users\Ryan>ipconfig

Windows IP Configuration

Wireless LAN adapter Wireless Network Connection:

    Connection-specific DNS Suffix  . : dlink.com.tw
    Link-local IPv6 Address . . . . . : fe80::edf2:c78:902e:de46:14
    IPv4 Address. . . . . : 192.168.0.103
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

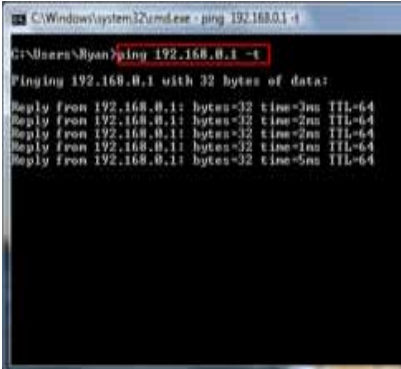
Ethernet adapter Local Area Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : dlink.com.tw

Tunnel adapter Local Area Connection* 6:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . : 2001:0:4136:e38a:36a0:ff4:3f57:ff90
```

10. To test the new IP address, use the Ping feature of the command prompt.



```
C:\Windows\system32\cmd.exe - ping 192.168.0.1 -t

C:\Users\Ryan>ping 192.168.0.1 -t

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<3ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64
Reply from 192.168.0.1: bytes=32 time=2ms TTL=64
Reply from 192.168.0.1: bytes=32 time=1ms TTL=64
Reply from 192.168.0.1: bytes=32 time=5ms TTL=64
```

Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DIR-615. 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. What can I do if I forgot my password?

If you forgot your password, you must reset your router. Unfortunately this process will change all your settings back to the factory defaults.

To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 30 seconds to access the router. The default IP address is 192.168.0.1. When logging in, the username is **admin** and leave the password box empty.

3. Why can't I connect to certain sites or send and receive emails when connecting through my router?

If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Ex. 1492, 1482, 1472, etc).

Note: AOL DSL+ users must use MTU of 1400.

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

- Click on **Start** and then click **Run**.
- Windows® 95, 98, and Me users type in **command** (Windows® NT, 2000, and XP users type in **cmd**) and press **Enter** (or click **OK**).
- Once the window opens, you'll need to do a special ping. Use the following syntax:

ping [url] [-f] [-l] [MTU value]

Example: **ping yahoo.com -f -l 1472**

```
C:\>ping yahoo.com -f -l 1482
Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52

Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 93ms, Maximum = 203ms, Average = 132ms

C:\>
```

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, lets say that 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network we're working with (1452+28=1480).

Once you find your MTU, you can now configure your router with the proper MTU size.

To change the MTU rate on your router follow the steps below:

- Open your browser, enter the IP address of your router (192.168.0.1) and click **OK**.
- Enter your username (admin) and password (blank by default). Click **OK** to enter the web configuration page for the device.
- Click on **Setup** and then click **Manual Configure**.
- To change the MTU enter the number in the MTU field and click the **Save Settings** button to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Wireless Basics

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

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

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

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

What is Wireless?

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

Why D-Link Wireless?

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

How does wireless work?

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

Wireless Local Area Network (WLAN)

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

Wireless Personal Area Network (WPAN)

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

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

Who uses wireless?

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

Home

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

Small Office and Home Office

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

Where is wireless used?

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

Using a D-Link 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.

For the wireless repeater, there are two types of repeater in D-Link for user to select:

- Universal repeater: It acts as an AP and a wireless STA at the same time. It can support all AP and wireless STA if they work in the same wireless channel.
- AP-repeater (AP with WDS): only repeat same model or limited models which base on the same proprietary protocol.

Please choose a universal repeater to boost the signal to extend the range.

Wireless Modes

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.

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

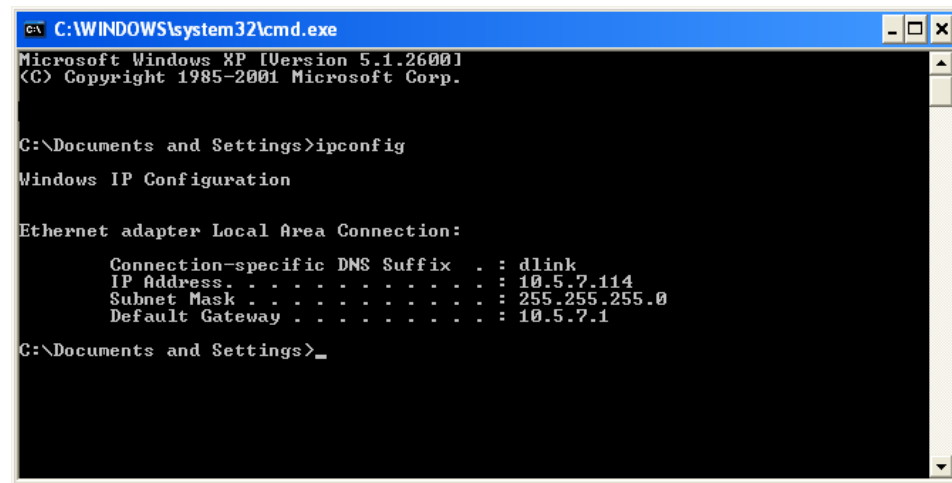
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start** > **Run**. In the run box type *cmd* and click **OK**.

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

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

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



```
cmd 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 you are connecting to a wireless network at a hotspot (e.g. hotel, coffee shop, airport), please contact an employee or administrator to verify their wireless network settings.

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® 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 D-Link network adapter and select **Properties**.

Step 3

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

Step 4

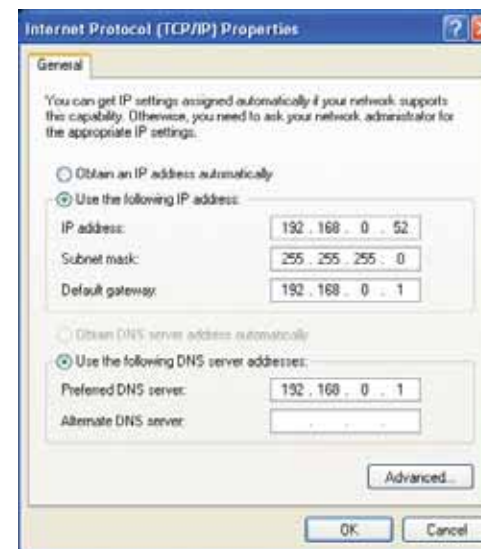
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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.



Technical Specifications

Standards

- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.11n draft 2.0
- IEEE 802.3
- IEEE 802.3u
-

Wireless Signal Rates*

- 300Mbps
- 48Mbps
- 24Mbps
- 12Mbps
- 9Mbps
- 5.5Mbps
- 1Mbps
- 54Mbps
- 36Mbps
- 18Mbps
- 11Mbps
- 6Mbps
- 2Mbps

Security

- WPA - Wi-Fi Protected Access (TKIP, MIC, IV Expansion, Shared Key Authentication)
- 802.1x
- 64/128-bit WEP
- PIN/PBC WPS

Modulation Technology

802.11 b : DSSS / DBPSK / DQPSK / CCK

802.11 g : 16QAM / 64QAM / BPSK / QPSK with OFDM

802.11 n : 16QAM / 64QAM / BPSK / QPSK with OFDM

Receiver Sensitivity

802.11n

HT20

- 300Mbps OFDM, 10% PER, -68dBm

HT40

- 300Mbps OFDM, 10% PER, -64dBm

802.11b and 802.11g

- 54Mbps OFDM, 10% PER, -70dBm
- 48Mbps OFDM, 10% PER, -72dBm
- 36Mbps OFDM, 10% PER, -76dBm
- 24Mbps OFDM, 10% PER, -78dBm
- 18Mbps OFDM, 10% PER, -80dBm
- 12Mbps OFDM, 10% PER, -83dBm
- 11Mbps CCK, 8% PER, -85dBm
- 9Mbps OFDM, 10% PER, -85dBm
- 6Mbps OFDM, 10% PER, -88dBm
- 5.5Mbps CCK, 8% PER, -87dBm
- 2Mbps DQPSK, 8% PER, -89dBm
- 1Mbps DBPSK, 8% PER, -90dBm

VPN Pass Through/ Multi-Sessions

- PPTP
- IPSec

Device Management

- Web-based Internet Explorer v6 or later; Netscape Navigator v6 or later; or other Java-enabled browsers
- DHCP Server and Client

Wireless Frequency Range

2.4GHz to 2.497GHz (802.11b)
2.4GHz to 2.4835GHZ (802.11g and 802.11n)

Wireless Operating Range²

- Indoors - up to 328 ft. (100 meters)
- Outdoors- up to 1312 ft. (400 meters)

Wireless Transmit Power (AVG Power)

11b:17dBm(Max) 11g:16dBm(Max) 11n:13dBm(Max)

External Antenna Type

Two fixed reverse SMA external antenna

Advanced Firewall Features

- NAT with VPN Pass-through (Network Address Translation)
- MAC Filtering
- IP Filtering
- URL Filtering
- Domain Blocking
- Scheduling

Operating Temperature

32°F to 129 °F (0°C to 40°C)

Humidity

95% maximum (non-condensing)

Safety and Emissions

FCC Part 15B/ 15C/ MPE
IC RSS-210
NCC LP0002

LEDs

- Power
- Status
- Internet
- WLAN (Wireless Connection)
- LAN (10/100)

Dimensions

- L = 135mm
- W = 99.8mm
- H = 31.5mm

Weight

0.246kg

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

FCC statement in User's Manual (for class B)

"Federal Communications Commission (FCC) 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 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.

FCC Caution:

1. The 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.

2. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

3. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the 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.