

USER MANUAL

DIR-400

VERSION 1.0



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Package Contents

- D-Link DIR-400 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-400 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 Version 6.0 or Mozilla Firefox 1.5 above (for configuration)

Introduction

D-Link, the industry leader in wireless networking, introduces another breakthrough in wireless connectivity. The D-Link DIR-400 Wireless 108 G Router is capable of transferring data with a maximum wireless signal rate of up to 108Mbps* through its 108Mbps Turbo mode*, and is also compatible with 802.11b/g. The D-Link DIR-400 Wireless Router also offers four Ethernet ports to support multiple computers.

The advanced wireless technology built into the DIR-400 Wireless Router offers data transfer speeds with a maximum wireless signal rate of up to 108Mbps* through its wireless channels, allowing streaming videos and other high bandwidth applications such as online gaming to operate without the hassle of Ethernet cables. The ability to use high bandwidth applications also makes streaming real-time programs more enjoyable and more efficient.

With the DIR-400 Wireless Router's built-in advanced firewall, threats of hackers penetrating your network are minimized. Some firewall features include functions that allow or disallow certain ports to be open for certain applications. Time scheduling can be established as a firewall rule so that specific ports will be open at certain times and closed at other times. Features like content filtering, MAC filtering, URL blocking, and domain blocking are useful tools to prevent other unwanted intruders from connecting to your network or browsing restricted sites.

The easy-to-use configuration wizard takes only minutes to set up and guides users step-by-step through configuring the DIR-400. With its versatile features and a user-friendly interface, the DIR-400 Wireless 108 G Router provides an enhanced networking experience.

* 108Mbps Turbo mode operates only with other D-Link 108 G products. Maximum wireless signal rate derived from IEEE Standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Environmental conditions will adversely affect wireless signal range.

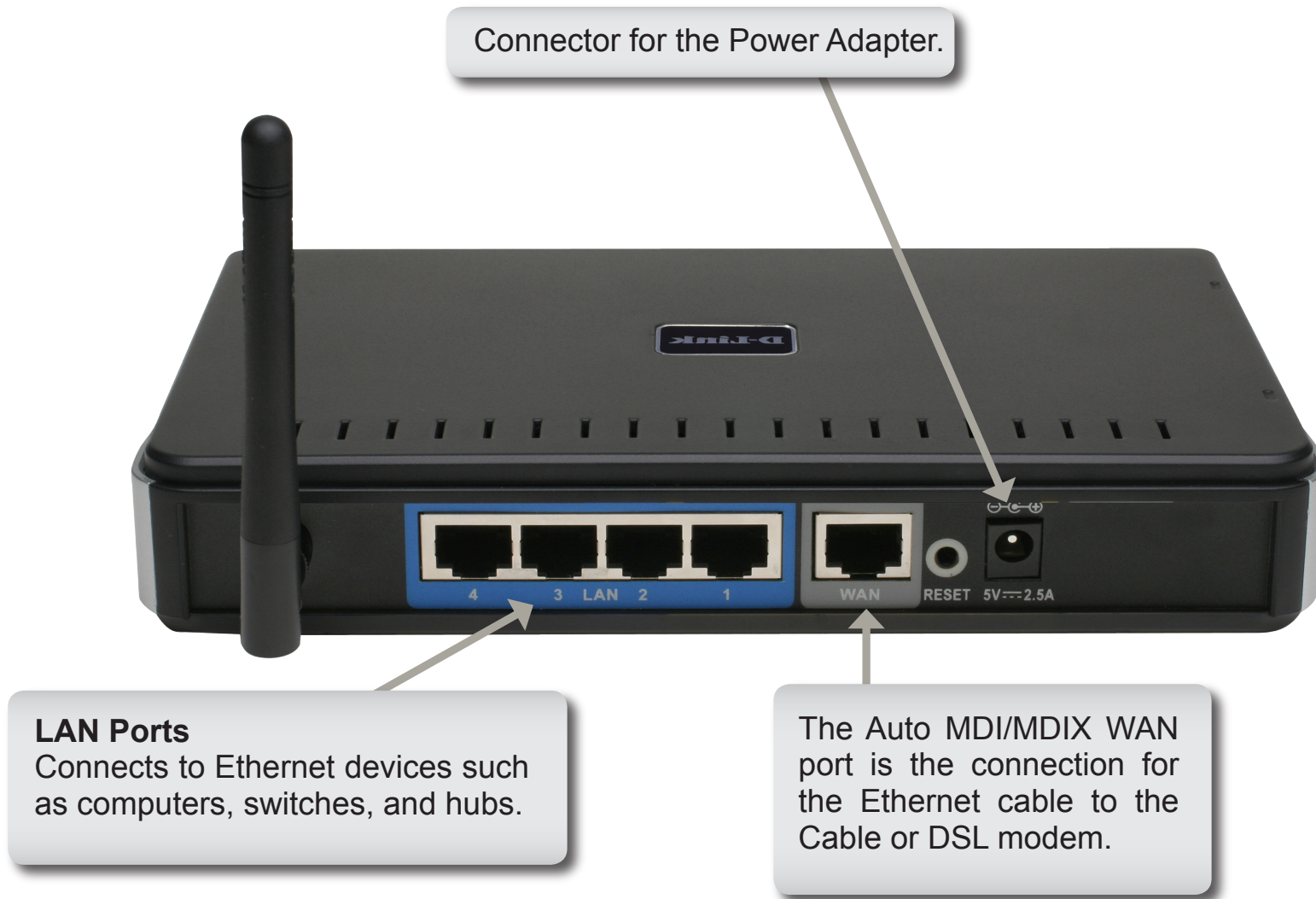
Features

- **Faster Wireless Networking** - The DIR-400 provides an up to 108Mbps* wireless connection with other D-Link 108 G devices. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio. The performance of this 108 G wireless router gives you the freedom of wireless networking at speeds 2x faster than 802.11g and 10x faster than 802.11b.
- **Compatible with 802.11b and 802.11g Devices** - The DIR-400 is still fully compatible with the IEEE 802.11g and 802.11b standards, so it can connect with existing 802.11g and 802.11b 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-400 can pass through VPN sessions. It supports multiple and concurrent IPSec and PPTP sessions, so users behind the DIR-400 can securely access corporate networks.
- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-400 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.

* 108Mbps Turbo mode operates only with other D-Link 108 G products. Maximum wireless signal rate derived from IEEE Standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Environmental conditions will adversely affect wireless signal range.

Hardware Overview

Connections



Hardware Overview

Buttons

Pressing the Reset Button restores the router to its original factory default settings.



The Wi-Fi Protected Setup (WPS) button is used to connect the router to other devices that support Push Button Configuration (PBC).

Hardware Overview

LEDs

WAN LED

A solid light indicates connection on the WAN port. This LED blinks during data transmission.

WLAN LED

A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission.

Local Network LEDs

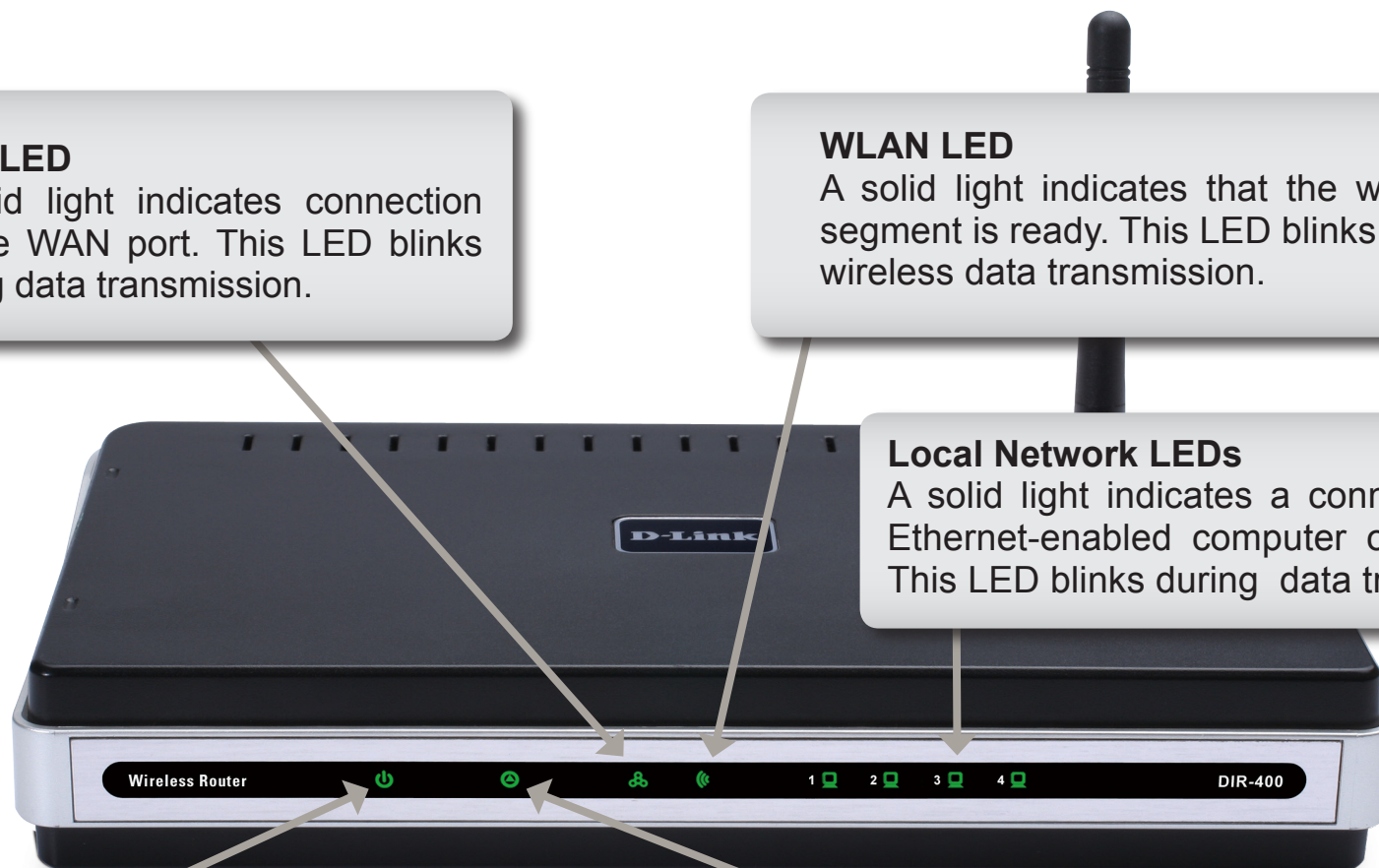
A solid light indicates a connection to an Ethernet-enabled computer on ports 1-4. This LED blinks during data transmission.

Power LED

A solid light indicates a proper connection to the power supply.

Status LED

A blinking light indicates that the DIR-400 is ready.



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 when connecting the modem to the router. If you were using the modem's 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 devices** (wireless products that control devices 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.

Connecting to a 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 the included 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 then plug it into 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 that the cable connections are correct.
9. Skip to page 15 to configure your router.

Connecting to Another Router

If you are connecting the D-Link router to another router for 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 adapter 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 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 to 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

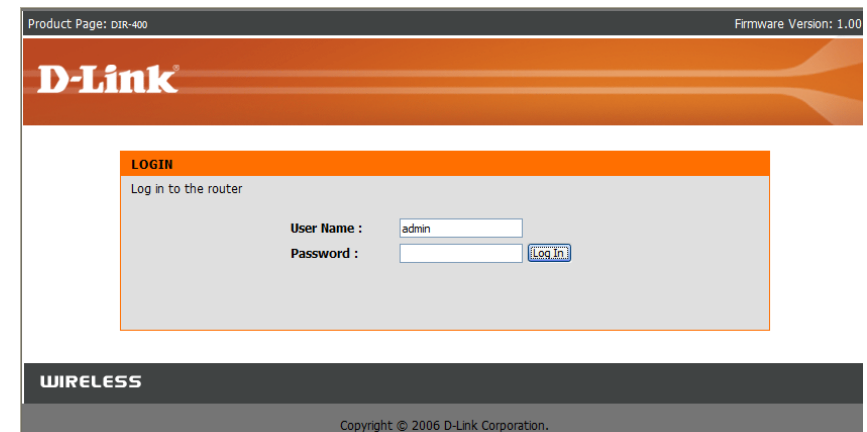
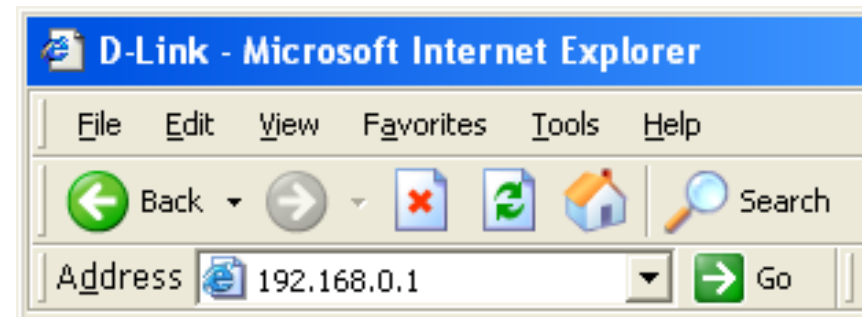
This section will show you how to configure your new D-Link wireless router using the web-based configuration utility.

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).

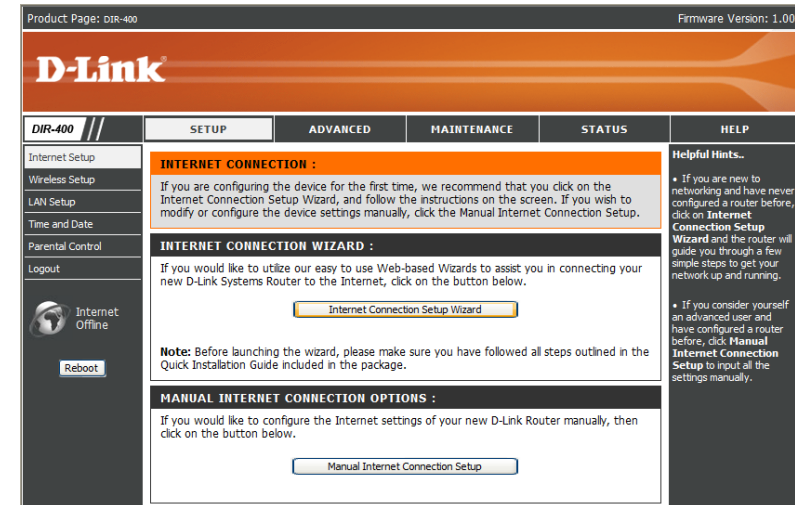
Enter the user name (admin) and your password. Leave the password blank by default.

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

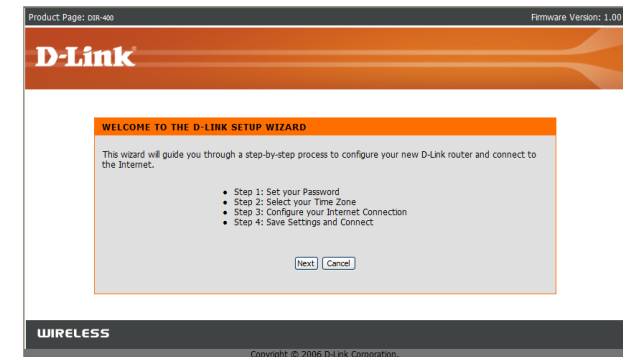


Setup Wizard

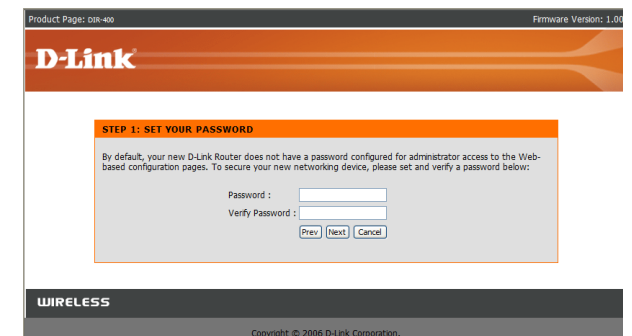
You can quickly set up your router by running the setup wizard from the Internet Setup window. Click **Internet Connection Setup Wizard**, and you will be directed to the first window of the wizard.



Click **Next** to continue.



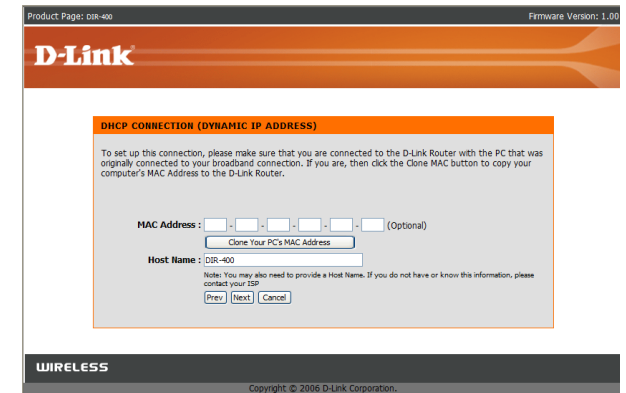
Create a new password and then click **Next** to continue.



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

If you selected Dynamic IP Address, 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 Your PC's MAC Address** and then click **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.



If you selected **PPPoE**, enter your PPPoE username and password. Click **Next** to continue.

Select **Static** if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses.

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 you selected **PPTP**, enter your PPTP username and password. Click **Next** to continue.

If you selected **L2TP**, enter your L2TP username and password. Click **Next** to continue.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

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.

Address Mode: ☒ Dynamic IP ☐ Static IP

IP Address:

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.

WIRELESS

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Product Page: DIR-400 Firmware Version: 1.00

D-Link

SET USERNAME AND PASSWORD CONNECTION (PPTP)

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

Address Mode: ☒ Dynamic IP ☐ Static IP

PPTP IP Address:

PPTP Subnet Mask:

PPTP Gateway IP Address:

PPTP Server IP Address (may be same as gateway):

User Name:

Password:

Verify Password:

WIRELESS

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Product Page: DIR-400 Firmware Version: 1.00

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SET USERNAME AND PASSWORD CONNECTION (L2TP)

To set up this connection you will need to have a Username and Password from your Internet Service Provider. You also need L2TP IP address. If you do not have this information, please contact your ISP.

Address Mode: ☒ Dynamic IP ☐ Static IP

L2TP IP Address:

L2TP Subnet Mask:

L2TP Gateway IP Address:

L2TP Server IP Address (may be same as gateway):

User Name:

Password:

Verify Password:

WIRELESS

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If you selected **Big Pond**, enter your Big Pond username and password. Click **Next** to continue.

If you selected **Static**, enter the network settings supplied by your Internet provider. Click **Next** to continue.

If you selected **Russia PPTP**, enter your PPTP username and password. Click **Next** to continue.

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D-Link

SET USERNAME AND PASSWORD CONNECTION (BIGPOND)

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

Auth Server :

Bigpond Server IP Address (may be same as gateway) :

Bigpond User Name :

Bigpond Password :

Bigpond Verify Password :

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SET STATIC IP ADDRESS CONNECTION

To set up this connection you will need to have a complete list of 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.

IP Address :

Subnet Mask :

Gateway Address :

Primary DNS Address :

Secondary DNS Address :

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SET USERNAME AND PASSWORD CONNECTION (PPTP)

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

Address Mode : ☒ Dynamic IP ☐ Static IP

PPTP IP Address :

PPTP Subnet Mask :

PPTP Gateway IP Address :

PPTP Server IP Address (may be same as gateway) :

User Name :

Password :

Verify Password :

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If you selected **Russia PPTP**, you will also be asked to enter your routing information as given to you by your ISP. Click **Next** to continue.

If you selected **Russia PPPoE**, enter your PPPoE username and password. Click **Next** to continue.

Select **Static** if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses.

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 you selected **Russia PPPoE**, you will also be asked to enter your routing information as given to you by your ISP. Click **Next** to continue.

Product Page: 008-400 Firmware Version: 1.00

D-Link

WAN PHYSICAL ROUTE

Please enter the routing information provide by your Internet service provider in order to access the ISP's internal network.

| | Destination | Subnet Mask | Gateway |
|--------------------------|-------------|-------------|---------|
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |

Next Cancel

WIRELESS

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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.

Address Mode : ☒ Dynamic IP ☐ Static IP

IP Address :

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.

Prev Next Cancel

WIRELESS

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D-Link

WAN PHYSICAL ROUTE

Please enter the routing information provide by your Internet service provider in order to access the ISP's internal network.

| | Destination | Subnet Mask | Gateway |
|--------------------------|-------------|-------------|---------|
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |
| <input type="checkbox"/> | | | |

Next Cancel

WIRELESS

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Click **Connect** to save your settings. The router will automatically reboot.



Internet Setup

Dynamic (Cable)

To manually set up the Internet connection, click the **Manual Internet Connection Setup** button on the router's opening window.

Access Point Mode: Checking this box disables NAT and turns the router into an Access Point only.

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

Secondary DNS: This is optional.

MTU: Maximum Transmission Unit - You may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU.

The screenshot shows the D-Link DIR-400 web interface. The top bar indicates 'Product Page: DIR-400' and 'Firmware Version: 1.00'. The main navigation tabs are 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' tab is selected, and the 'Internet Setup' sub-tab is active. The 'Internet Setup' page has a sidebar with links: 'Internet Setup', 'Wireless Setup', 'LAN Setup', 'Time and Date', 'Parental Control', and 'Logout'. The main content area is titled 'INTERNET CONNECTION' and contains the following sections:

- INTERNET CONNECTION:** A text block explaining connection types (Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond) and a note about PPPoE client software. Below this are 'Save Settings' and 'Don't Save Settings' buttons.
- ACCESS POINT MODE:** A section with a 'Reboot' button and a checkbox labeled 'Enable Access Point Mode'.
- INTERNET CONNECTION TYPE:** A section with a dropdown menu set to 'Dynamic IP (DHCP)'.
- DYNAMIC IP (DHCP) INTERNET CONNECTION TYPE:** A section with fields for 'Host Name' (DIR-400), 'MAC Address' (with a 'Clone MAC Address' button), 'Primary DNS Address' (0.0.0.0), 'Secondary DNS Address' (0.0.0.0), and 'MTU' (1500). Below these fields are 'Save Settings' and 'Don't Save Settings' buttons.

On the right side, there are 'Helpful Hints...' and 'Support:' sections with additional information.

Internet Setup

PPPoE (DSL)

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 and then retype the password in the next box.

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

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

DNS Addresses: Enter the Primary and Secondary DNS Server Addresses (Static PPPoE only).

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, select Always-on as your Connection Mode.

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.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|------------------|-------|----------|-------------|--------|--|
| Internet Setup | | | | | Helpful Hints.. <ul style="list-style-type: none"> Internet Connection: When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP). Support: If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed. |
| Wireless Setup | | | | | |
| LAN Setup | | | | | |
| Time and Date | | | | | |
| Parental Control | | | | | |
| Logout | | | | | |

Internet Offline

Reboot

INTERNET CONNECTION

Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.

Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.

Save Settings Don't Save Settings

ACCESS POINT MODE :

Use this to disable NAT on the router and turn it into an Access Point.

☐ Enable Access Point Mode

INTERNET CONNECTION TYPE :

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

My Internet Connection is : PPPoE (Username / Password)

PPPOE :

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

☒ Dynamic PPPoE ☐ Static PPPoE

User Name : test

Password :

Retype Password :

Service Name : (optional)

IP Address :

MAC Address : - - - - - (optional)

Clone MAC Address

Primary DNS Address : 0.0.0.0 (optional)

Secondary DNS Address : 0.0.0.0 (optional)

Maximum Idle Time : 5 Minutes

MTU : 1492

Connect mode select : ☐ Always-on ☐ Manual ☒ Connect-on demand

Save Settings Don't Save Settings

WIRELESS

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Internet Setup

PPTP

Choose PPTP (Point-to-Point-Tunneling Protocol) if your ISP uses a PPTP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

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

IP Address: Enter the IP address (Static PPTP only).

Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static PPTP only).

Gateway: Enter the Gateway IP Address provided by your ISP.

DNS: The DNS server information will be supplied by your ISP.

Server IP: Enter the Server IP provided by your ISP (optional).

PPTP Account: Enter your PPTP account name.

PPTP Password: Enter your PPTP password and then retype the password in the next box.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, select Always-on as your Connection Mode.

MTU: Maximum Transmission Unit - You may need to change the MTU for optimal performance. 1400 is the default MTU.

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

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|------------------|-------|----------|-------------|--------|--|
| Internet Setup | | | | | Helpful Hints.. <ul style="list-style-type: none"> Internet Connection: When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP). Support: If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed. |
| Wireless Setup | | | | | |
| LAN Setup | | | | | |
| Time and Date | | | | | |
| Parental Control | | | | | |
| Logout | | | | | |
| Internet Offline | | | | | |
| Reboot | | | | | |

INTERNET CONNECTION

Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.

Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.

Save Settings Don't Save Settings

ACCESS POINT MODE :

Use this to disable NAT on the router and turn it into an Access Point.

☐ Enable Access Point Mode

INTERNET CONNECTION TYPE :

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

My Internet Connection is : PPTP (Username / Password)

PPTP :

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

☒ Dynamic IP
 ☐ Static IP

IP Address : 0.0.0.0
 Subnet Mask : 0.0.0.0
 Gateway : 0.0.0.0
 DNS : 0.0.0.0
 Server IP/Name :
 PPTP Account :
 PPTP Password :
 PPTP Retype password :
 Maximum Idle Time : 5 Minutes
 MTU : 1400
 Connect mode select : ☐ Always-on ☐ Manual ☒ Connect-on demand

Save Settings Don't Save Settings

WIRELESS

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Internet Setup

L2TP

Choose L2TP (Layer 2 Tunneling Protocol) if your ISP uses a L2TP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

L2TP: Select **Dynamic** (most common) or **Static**. Select **Static** if your ISP assigned you the IP address, subnet mask, gateway, and DNS server addresses.

IP Address: Enter the IP address (Static L2TP only).

Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static L2TP only).

Gateway: Enter the Gateway IP Address provided by your ISP.

DNS: The DNS server information will be supplied by your ISP.

Server IP: Enter the Server IP provided by your ISP (optional).

L2TP Account: Enter your L2TP account name.

L2TP Password: Enter your L2TP password and then retype the password in the next box.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, select Always-on as your Connection Mode.

MTU: Maximum Transmission Unit - You may need to change the MTU for optimal performance with your specific ISP. 1400 is the default MTU.

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

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400

Internet Setup
Wireless Setup
LAN Setup
Time and Date
Parental Control
Logout

Internet Offline
Reboot

SETUP ADVANCED MAINTENANCE STATUS HELP

INTERNET CONNECTION

Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.

Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.

Save Settings Don't Save Settings

ACCESS POINT MODE :

Use this to disable NAT on the router and turn it into an Access Point.

☐ Enable Access Point Mode

INTERNET CONNECTION TYPE :

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

My Internet Connection is : L2TP (Username / Password)

L2TP :

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

☒ Dynamic IP ☐ Static IP

IP Address : 0.0.0.0
Subnet Mask : 0.0.0.0
Gateway : 0.0.0.0
DNS : 0.0.0.0

Server IP/Name :
L2TP Account :
L2TP Password :
L2TP Retype password :
Maximum Idle Time : 5 Minutes
MTU : 1400

Connect mode select : ☐ Always-on ☐ Manual ☒ Connect-on demand

Save Settings Don't Save Settings

WIRELESS

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Helpful Hints..

- Internet Connection:** When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP).
- Support:** If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.

Internet Setup

Big Pond

Choose Big Pond if your ISP uses a Big Pond connection. Your ISP will provide you with a username and password.

User Name: Enter your Big Pond user name.

Password: Enter your Big Pond password and then retype the password in the next box.

Auth Server: Choose your Authentication Server from the dropdown box.

Login Server IP: Enter the IP address of the login server. (optional)

MAC Address: The default MAC Address is set to the WAN's physical interface MAC address on the 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 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.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Internet Setup
Wireless Setup
LAN Setup
Time and Date
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Logout

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Reboot

INTERNET CONNECTION

Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.

Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.

Save Settings Don't Save Settings

ACCESS POINT MODE :

Use this to disable NAT on the router and turn it into an Access Point.

☐ Enable Access Point Mode

INTERNET CONNECTION TYPE :

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

My Internet Connection is: BigPond (Australia)

BIGPOND :

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

User Name :

Password :

Retype Password :

Auth Server : sm-server

Login Server IP/Name : (optional)

MAC Address : - - - - - (optional)

Clone MAC Address

Save Settings Don't Save Settings

WIRELESS

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Helpful Hints..

- Internet Connection:** When configuring the router to access the Internet, be sure to choose the correct **Internet Connection Type** from the drop down menu. If you are unsure of which option to choose, please contact your **Internet Service Provider (ISP)**.
- Support:** If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.

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; the router will not accept the IP address if it is not in a valid format.

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

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

ISP Gateway: 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 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 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 server IP address assigned by your ISP.

Secondary DNS Address: 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.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|--|--|----------|-------------|--------|--|
| Internet Setup Wireless Setup LAN Setup Time and Date Parental Control Logout | <h3>INTERNET CONNECTION</h3> <p>Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.</p> <p>Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.</p> <p>Save Settings Don't Save Settings</p> <hr/> <h4>ACCESS POINT MODE :</h4> <p>Use this to disable NAT on the router and turn it into an Access Point.</p> <p><input type="checkbox"/> Enable Access Point Mode</p> <hr/> <h4>INTERNET CONNECTION TYPE :</h4> <p>Choose the mode to be used by the router to connect to the Internet.</p> <p>My Internet Connection is : Static IP</p> <hr/> <h4>STATIC IP ADDRESS INTERNET CONNECTION TYPE :</h4> <p>Enter the static address information provided by your Internet Service Provider (ISP).</p> <p>IP Address : 0.0.0.0 (assigned by your ISP)</p> <p>Subnet Mask : 0.0.0.0</p> <p>ISP Gateway Address : 0.0.0.0</p> <p>MAC Address : - - - - - (optional)</p> <p>Clone MAC Address</p> <p>Primary DNS Address : 0.0.0.0</p> <p>Secondary DNS Address : 0.0.0.0 (optional)</p> <p>MTU : 1500</p> <p>Save Settings Don't Save Settings</p> | | | | <h4>Helpful Hints...</h4> <ul style="list-style-type: none"> Internet Connection: When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP). Support: If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed. |

WIRELESS

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Internet Setup

Russia PPTP

Choose Russia PPTP (Point-to-Point-Tunneling Protocol) if your PPTP Internet connection requires a username and password to get online as well as a static route to access your ISP's internal network. Your ISP will provide you with a username and password. Certain ISPs in Russia use this type of connection.

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

IP Address: Enter the IP address (Static PPTP only).

Subnet Mask: Enter the Primary and Secondary DNS Server Addresses (Static PPTP only).

Gateway: Enter the Gateway IP Address provided by your ISP.

DNS: The DNS server information will be supplied by your ISP (Internet Service Provider.)

Server IP: Enter the Server IP provided by your ISP (optional).

PPTP Account: Enter your PPTP account name.

PPTP Password: Enter your PPTP password and then retype the password in the next box.

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. select Always-on as your Connection Mode.

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

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

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|------------------|---|----------|-------------|--------|--|
| Internet Setup | INTERNET CONNECTION | | | | Helpful Hints.. <ul style="list-style-type: none"> Internet Connection: When configuring the router to access the Internet, be sure to choose the correct Internet Connection Type from the drop down menu. If you are unsure of which option to choose, please contact your Internet Service Provider (ISP). Support: If you are having trouble accessing the Internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed. |
| Wireless Setup | <p>Use this section to configure your Internet Connection type. There are several connection types to choose from: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. If you are unsure of your connection method, please contact your Internet Service Provider.</p> <p>Note: If using the PPPoE option, you will need to remove or disable any PPPoE client software on your computers.</p> <p>Save Settings Don't Save Settings</p> | | | | |
| LAN Setup | ACCESS POINT MODE : | | | | |
| Time and Date | <p>Use this to disable NAT on the router and turn it into an Access Point.</p> <p><input type="checkbox"/> Enable Access Point Mode</p> | | | | |
| Parental Control | INTERNET CONNECTION TYPE : | | | | |
| Logout | <p>Choose the mode to be used by the router to connect to the Internet.</p> <p>My Internet Connection is : Russia PPTP (Dual Access)</p> | | | | |
| Internet Offline | RUSSIA PPTP (DUAL ACCESS) : | | | | |
| Reboot | <p>Enter the information provided by your Internet Service Provider (ISP).</p> <p><input checked="" type="radio"/> Dynamic IP <input type="radio"/> Static IP</p> <p>IP Address : <input type="text"/></p> <p>Subnet Mask : <input type="text"/></p> <p>Gateway : <input type="text"/></p> <p>DNS : <input type="text"/></p> <p>Server IP/Name : <input type="text"/></p> <p>PPTP Account : <input type="text"/></p> <p>PPTP Password : <input type="password"/></p> <p>PPTP Retype password : <input type="password"/></p> <p>Maximum Idle Time : <input type="text"/> Minutes</p> <p>MTU : <input type="text"/></p> <p>Connect mode select : <input type="radio"/> Always-on <input type="radio"/> Manual <input checked="" type="radio"/> Connect-on demand</p> <p>Save Settings Don't Save Settings</p> | | | | |
| | WIRELESS | | | | |

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Internet Setup

Russia PPPoE (DSL)

Choose Russia PPPoE (Point to Point Protocol over Ethernet) if your PPPoE Internet connection requires a username and password to get online as well as a static route to access your ISP's internal network. Your ISP will provide you with a username and password. Certain ISPs in Russia use this type of connection. 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 and then retype the password in the next box.

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

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

DNS Addresses: Enter the Primary and Secondary DNS Server Addresses (Static PPPoE only).

Maximum Idle Time: Enter a maximum idle time during which the Internet connection is maintained during inactivity. select Always-on as your Connection Mode.

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.

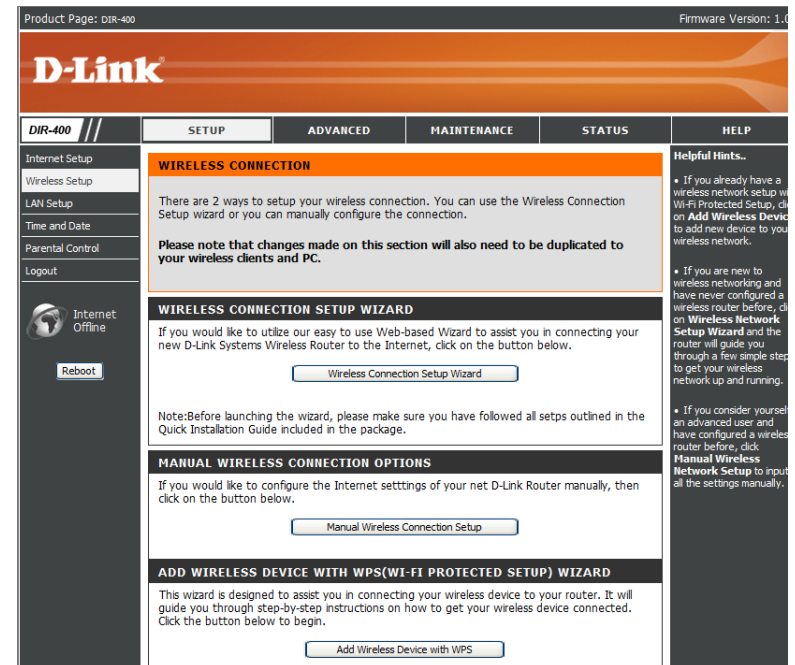
The screenshot shows the D-Link DIR-400 web interface. The top navigation bar includes tabs for SETUP, ADVANCED, MAINTENANCE, STATUS, and HELP. The left sidebar contains links for Internet Setup, Wireless Setup, LAN Setup, Time and Date, Parental Control, Logout, and Internet Offline. The main content area is titled 'INTERNET CONNECTION' and contains the following sections:

- INTERNET CONNECTION:** A note explaining that this section is for configuring the Internet connection type. It lists several connection types: Static IP, DHCP, PPPoE, PPTP, L2TP, and BigPond. A note states that if using the PPPoE option, the user must remove or disable any PPPoE client software on their computers. There are 'Save Settings' and 'Don't Save Settings' buttons.
- ACCESS POINT MODE:** A section with a checkbox for 'Enable Access Point Mode' and a 'Reboot' button.
- INTERNET CONNECTION TYPE:** A section where the user chooses the mode to be used by the router to connect to the Internet. The 'My Internet Connection is' dropdown is set to 'Russia PPPoE (Dual Access)'.
- RUSSIA PPPoE (DUAL ACCESS):** A section for entering information provided by the Internet Service Provider (ISP). It includes fields for:
 - User Name:** test
 - Password:** (masked with dots)
 - Retype Password:** (masked with dots)
 - Service Name:** (optional)
 - IP Address:** (optional)
 - MAC Address:** (optional)
 - Clone MAC Address:** (checkbox)
 - Maximum Idle Time:** 5 Minutes
 - MTU:** 1492
 - Connect mode select:** Radio buttons for Always-on, Manual, and Connect-on demand (selected).
- WAN PHYSICAL SETTING:** A section for configuring the WAN physical settings. It includes:
 - Dynamic IP / Static IP:** Radio buttons (Dynamic IP selected).
 - IP Address:** (optional)
 - Subnet Mask:** (optional)
 - Gateway:** (optional)
 - Primary DNS Address:** 0.0.0.0 (optional)
 - Secondary DNS Address:** 0.0.0.0 (optional)

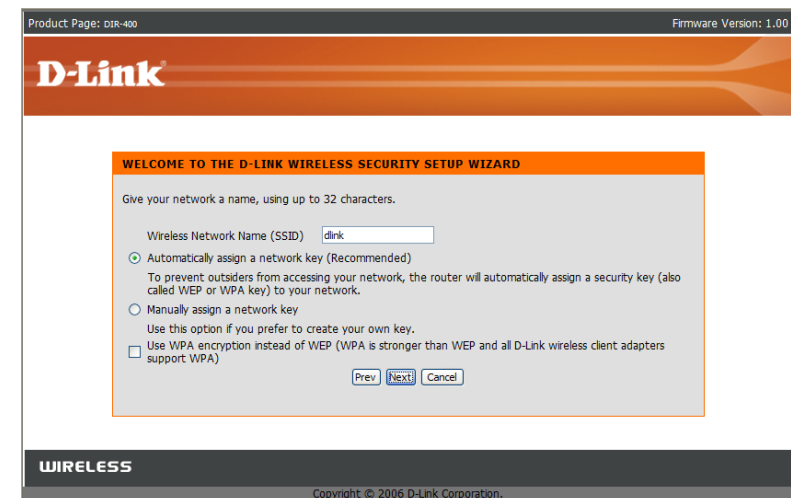
At the bottom of the main content area, there are 'Save Settings' and 'Don't Save Settings' buttons. The footer of the page includes the 'WIRELESS' section and the copyright notice: 'Copyright © 2006 D-Link Corporation.'

Wireless Setup (Automatic)

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. After setting up your wireless network, you can use the **Add Wireless Device With WPS(Wi-Fi Protected Setup) Wizard** to add wireless devices to your network. 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.



Enter a Wireless Network Name (SSID) in the text box to identify your wireless network. Check **Automatically assign a network key** if you want the DIR-400 to automatically generate a secure network key for you to use, or check **Manually assign a network key** to create your own network key. WEP encryption (more compatible) is used by default; if you want to use WPA encryption (newer, more secure), check the Use WPA encryption instead of WEP checkbox. Click **Next**.



If you chose **Automatically assign a network key**, this screen will appear with your automatically generated key. Please print this out or record this information in a safe place and then click **Save** to continue.

The router will save your new settings and reboot. After rebooting, you will be returned to the Internet Setup screen.

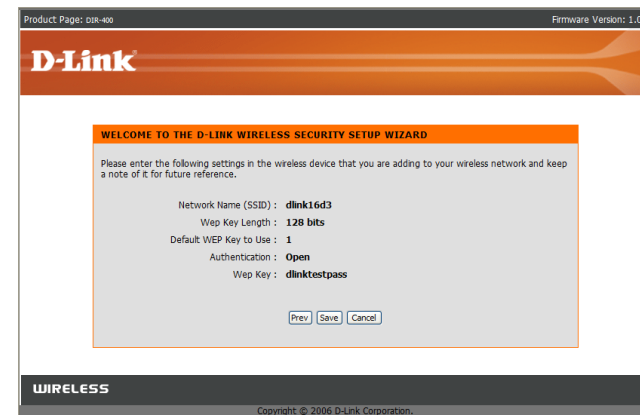
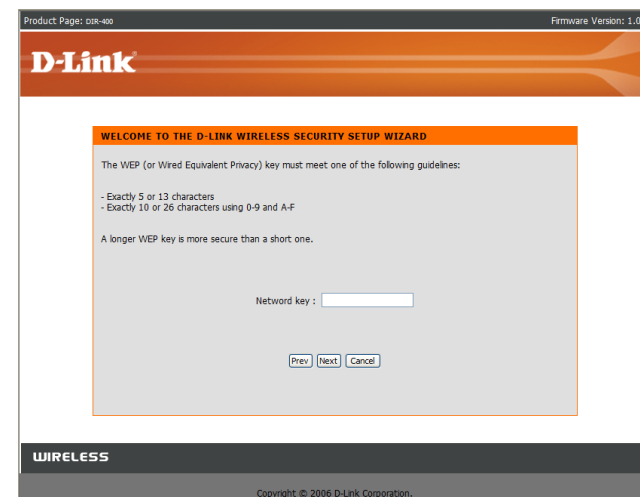
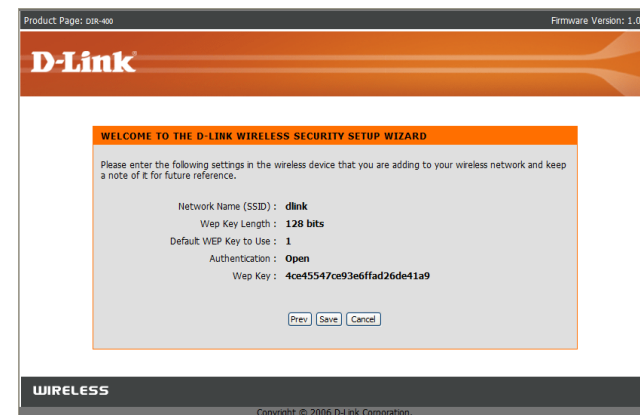
If you chose **Manually enter a network key**, this screen will appear. Enter a network key and click **Next**.

If you chose **WEP**, the network key must be exactly 5 or 13 characters long, or 10 to 26 characters using 0-9 or A-F only (hexidecimal). Longer network keys will be more secure.

If you chose **WPA**, the network key must be between 8 and 63 characters long, or exactly 64 characters using 0-9 or A-F only (hexidecimal). Longer network keys will be more secure.

After clicking Next, this screen will appear with your wireless settings. Please print this out or record this information in a safe place and then click **Save** to continue.

The router will save your new settings and reboot. After rebooting, you will be returned to the Internet Setup screen.



Wireless Setup (Manual)

If you clicked the **Manual Wireless Connection Setup** button, this screen will appear, allowing you to manually configure your wireless settings.

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 wireless. If you do not want to use wireless, uncheck the box to disable all wireless functions.

Wireless Network Name: Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive.

Wireless Channel: Indicates the channel setting for the DIR-400. By default the channel is set to 6. The wireless 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-400 to choose the channel with the least amount of interference.

Super G Mode: You can enable a Super G Mode to allow the router to communicate with other D-Link 108 G products at boosted transmission rates.

Choosing *Super G without Turbo* allows you to have enhanced transfer speeds through use of Dynamic Packet Bursting, Fast Frames and Hardware Encryption and Compression.

Choosing *Super G with Dynamic Turbo* allows the router to use two channels to double the data transfer rate in addition to Dynamic Packet Bursting, Fast Frames and Hardware Encryption and Compression. However, all wireless clients must be Turbo capable for this function to work. If a non-Turbo wireless client connects to the network, all devices on the wireless network will transfer data at normal rates.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Internet Setup
Wireless Setup
LAN Setup
Time and Date
Parental Control
Logout

Internet
Offline
Reboot

WIRELESS NETWORK :

Use this section to configure the wireless settings for your D-Link Router. Please note that changes made on this section may also need to be duplicated on your Wireless Client.

To protect your privacy you can configure wireless security features. This device supports three wireless security modes including: WEP or WPA.

Save Settings Don't Save Settings

WI-FI PROTECTED SETUP (ALSO CALLED WCN 2.0 IN WINDOW VISTA) :

Enable : ☐
Current PIN : 00000000
Generate New PIN Reset PIN to Default
Wi-Fi Protected Status : Disabled / Not Configured
Reset to Unconfigured

WIRELESS NETWORK SETTINGS :

Enable Wireless : ☒
Wireless Network Name : dlink (Also called the SSID)
Wireless Channel : 6
Enable Auto Channel selection : ☐
Super G Mode : Disabled
WMM Function : ☐ (Wireless QoS)
Enable Hidden Wireless : ☒ Visible ☐ Invisible (Also called Disable SSID Broadcast)

WIRELESS SECURITY MODE :

Security Mode : Disable Wireless Security (not recommended)

Save Settings Don't Save Settings

Helpful Hints...

- Changing your Wireless Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar name that does not contain any personal information.
- We recommend that you Enable Auto Channel Scan so that the router can select the best possible channel for your wireless network to operate on.
- If you have enabled Wireless Security, make sure you write down WEP Key or Passphrase that you have configured. You will need to enter this information on any wireless device that you connect to your wireless network.

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)*.

WMM Enable: Enable WMM (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 router. If this option is checked, the SSID of the DIR-400 will not be seen by wireless network finding utilities, so your wireless clients will have to know the SSID of your DIR-400 in order to connect to it.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Internet Setup
Wireless Setup
LAN Setup
Time and Date
Parental Control
Logout

Internet
Offline
Reboot

WIRELESS NETWORK :

Use this section to configure the wireless settings for your D-Link Router. Please note that changes made on this section may also need to be duplicated on your Wireless Client.

To protect your privacy you can configure wireless security features. This device supports three wireless security modes including: WEP or WPA.

Save Settings Don't Save Settings

WI-FI PROTECTED SETUP (ALSO CALLED WCN 2.0 IN WINDOW VISTA) :

Enable : ☐
Current PIN : 00000000
Generate New PIN Reset PIN to Default
Wi-Fi Protected Status : Disabled / Not Configured
Reset to Unconfigured

WIRELESS NETWORK SETTINGS :

Enable Wireless : ☒
Wireless Network Name : dlink (Also called the SSID)
Wireless Channel : 6
Enable Auto Channel selection : ☐
Super G Mode : Disabled
WMM Function : ☐ (Wireless QoS)
Enable Hidden Wireless : ☒ Visible ☐ Invisible (Also called Disable SSID Broadcast)

WIRELESS SECURITY MODE :

Security Mode : Disable Wireless Security (not recommended)

Save Settings Don't Save Settings

Helpful Hints..

- Changing your Wireless Network Name is the first step in securing your wireless network. We recommend that you change it to a familiar name that does not contain any personal information.
- We recommend that you Enable Auto Channel Scan so that the router can select the best possible channel for your wireless network to operate on.
- If you have enabled Wireless Security, make sure you write down WEP Key or Passphrase that you have configured. You will need to enter this information on any wireless device that you connect to your wireless network.

Enabling WEP Wireless Security

Security Mode:

1. To enable wireless security on the router, use the drop-down menu to select the desired option. To enable WEP, select *Enable WEP Wireless Security (basic)*.
2. Next to **Authentication**, select either *Open* or *Shared Key*. Shared Key provides greater security.
3. Select either *64Bit* or *128Bit* encryption from the drop-down menu next to **WEP Encryption**.
4. 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.
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 WEP on your adapter and enter the same WEP key as you did on the router.

NOTE: 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.

The screenshot shows the 'WIRELESS SECURITY MODE' configuration page. At the top, 'Security Mode' is set to 'Enable WEP Wireless Security (basic)'. Below this, the 'WEP' section contains explanatory text about WEP encryption standards and key entry rules. It specifies that for 64-bit keys, 10 hex digits are required, and for 128-bit keys, 26 hex digits are required. It also notes that text strings can be converted to hexadecimal keys. The configuration options include 'Authentication' set to 'Open', 'WEP Encryption' set to '64Bit', and 'Default WEP Key' set to 'WEP Key 1'. A text box for the 'WEP Key' contains '0000000000' with a note '(5 ASCII or 10 HEX)'. At the bottom, there are two buttons: 'Save Settings' and 'Don't Save Settings'.

WIRELESS SECURITY MODE :

Security Mode : Enable WEP Wireless Security (basic)

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 : Open

WEP Encryption : 64Bit

Default WEP Key : WEP Key 1

WEP Key : 0000000000 (5 ASCII or 10 HEX)

Save Settings Don't Save Settings

Enabling WPA, WPA2, WPA/WPA2 Wireless Security

1. To enable WPA, WPA2, or WPA/WPA2, select either *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 *Both*.
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 : Enable WPA Only Wireless Security (enhanced)

WPA ONLY :

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

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

WIRELESS SECURITY MODE :

Security Mode : Enable WPA2 Only Wireless Security (enhanced)

WPA2 ONLY :

WPA2 Only requires stations to use high grade encryption and authentication.

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

WIRELESS SECURITY MODE :

Security Mode : Enable WPA / WPA2 Auto Wireless Security (enhanced)

WPA / WPA2 AUTO :

WPA2-PSK auto requires stations to use high grade encryption and authentication.

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

Enabling WPA, WPA2, WPA/WPA2 Wireless Security for a RADIUS Server

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.

Note: When using EAP mode, you cannot have WPS enabled.

WPA / WPA2 AUTO :

WPA2-PSK auto requires stations to use high grade encryption and authentication.

Cipher Type :

PSK / EAP :

802.1X

| | |
|----------------------|-----------------------------------|
| RADIUS Server 1 : IP | <input type="text"/> |
| Port | <input type="text" value="1812"/> |
| Shared Secret | <input type="text"/> |
| RADIUS Server 2 : IP | <input type="text"/> |
| Port | <input type="text" value="1812"/> |
| Shared Secret | <input type="text"/> |

Adding a Wireless Device through WPS

You can add WPS (Wi-Fi Protected Setup) compatible devices with the help of a wizard by clicking the **Add Wireless Device with WPS** button.



If you have not already enabled WPS, this message will appear. Click **Yes** to enable WPS.



Adding a Wireless Device through WPS (Wi-Fi Protected Setup)

On this screen, select **Automatic** if your wireless device supports WPS and you want to use those features to help configure it. Click **Next**.

Select **Manual** if your device does not support WPS, or if you want to configure your device manually. Clicking **Next** will show your router's SSID and encryption information, which you can use to configure your wireless device. For more help on configuring your wireless device, consult the owner's manual for that device.

Product Page: DIR-400 Firmware Version: 1.00

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ADD WIRELESS DEVICE WITH WPS(WI-FI PROTECTED SETUP)

Please select one of the following configuration methods and click next to continue.

☐ **Auto** Select this option if your wireless device supports WPS (Wi-Fi Protected Setup)

☐ **Manual** Select this option will display the current wireless settings for you to configure the wireless device manually

Next Cancel

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ADD WIRELESS DEVICE WITH WPS(WI-FI PROTECTED SETUP)

Please enter the following settings in the wireless device that you are adding to your wireless network and keep a note of it for future reference.

SSID: dlink16d3

Security Mode: Auto (WPA or WPA2) - PSK

Cipher Type: AUTO

Pre-shared Key: FF23D35E7980019FF442904CE04EAAF68C15698AC63297438CD172C28CAD09D3

OK

WIRELESS

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Adding a Wireless Device through WPS (PIN)

Here, you can add a device by using a PIN number, or by using Push Button Configuration (PBC). Connecting using a PIN number is more secure, while PBC is much easier to use.

If you chose to add your device by PIN number, click the circle next to **PIN** and enter the PIN number of your device. Click **Connect**.

Press the PBC Connect button on your device within 2 minutes to automatically configure that device's wireless connection.

After 2 minutes, you will be taken back to the Wireless Setup screen. If no devices were connected during that time, a screen will appear allowing you to retry device connection.

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ADD WIRELESS DEVICE WITH WPS(WI-FI PROTECTED SETUP)

There are two ways to add wireless device to your wireless network:

- PIN (Personal Identification Number)
- PBC (Push Button Configuration)

☐ **PIN** :

Please enter the PIN from your wireless device and click the below "Connect" button

☐ **PBC**

Please press the push button on your wireless device and press the "Connect" button below within 120 seconds

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USING PIN NUMBER

Please start WPS on the wireless device you are adding to your wireless network within 116 seconds ...

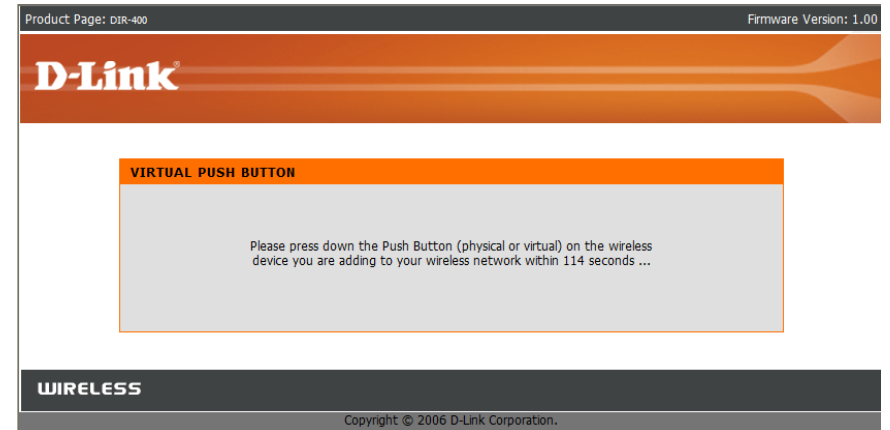
WIRELESS

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Adding a Wireless Device through WPS (PBC)

If you selected PBC, you will need to press the WPS push button on your device within 2 minutes, and the device's wireless connection will automatically be configured.

After 2 minutes, you will be taken back to the Wireless Setup screen. If no devices were connected during that time, a screen will appear allowing you to retry device connection.



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 settings.

Product Page: DIR-400

Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|----------------------|--------------------------|--------|---|------------|-------------|--------------|---|----------------------|----------------------|--------------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|---|----------------------|----------------------|---------------------|--|
| Internet Setup | NETWORK SETTINGS : | | | | Helpful Hints... <ul style="list-style-type: none"> • 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. • In order to ensure that devices on your network are always assigned the same IP address, add a DHCP Reservation for each device. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wireless Setup | <p>Use this section to configure the internal network settings of your router and also to configure the built-in DHCP Server to assign IP addresses to the computers on your network. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.</p> <p>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.</p> <p> <input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/> </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAN Setup | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Time and Date | ROUTER SETTINGS : | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parental Control | <p>Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.</p> <p> Router IP Address : <input type="text" value="192.168.0.1"/> Default Subnet Mask : <input type="text" value="255.255.255.0"/> Local Domain Name : <input type="text"/> Enable DNS Relay : <input checked="" type="checkbox"/> </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Logout | DHCP SERVER SETTINGS : | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Internet Off/on | <p>Use this section to configure the built-in DHCP Server to assign IP addresses to the computers on your network.</p> <p> Enable DHCP Server : <input checked="" type="checkbox"/> DHCP IP Address Range : <input type="text" value="100"/> to <input type="text" value="199"/> (addresses within the LAN subnet) DHCP Lease Time : <input type="text" value="10080"/> (minutes) </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reboot | DHCP CLIENT LIST : | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Host Name</th> <th>IP Address</th> <th>MAC Address</th> <th>Expired Time</th> </tr> </thead> <tbody> <tr> <td>06955PCW/D0P2</td> <td>192.168.0.100</td> <td>00:19:b9:43:71:1e</td> <td>Thu Jun 14 14:20:17 2007</td> </tr> </tbody> </table> | | | | Host Name | IP Address | MAC Address | Expired Time | 06955PCW/D0P2 | 192.168.0.100 | 00:19:b9:43:71:1e | Thu Jun 14 14:20:17 2007 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Name | IP Address | MAC Address | Expired Time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06955PCW/D0P2 | 192.168.0.100 | 00:19:b9:43:71:1e | Thu Jun 14 14:20:17 2007 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 25 - DHCP RESERVATION : | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>Remaining number of clients that can be configured : 25</p> <table border="1"> <thead> <tr> <th>Computer Name</th> <th>IP Address</th> <th>MAC Address</th> <th></th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> <tr><td><input type="checkbox"/> <input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><< Computer Name >></td></tr> </tbody> </table> | | | | 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 >> | |
| 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 >> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p> <input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/> </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

[More...](#)

WIRELESS

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DHCP Server Settings

DHCP stands for Dynamic Host Control Protocol. The DIR-400 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-400. 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.

DHCP SERVER SETTINGS :

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

Enable DHCP Server : ☒

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 |
|---------------|---------------|-------------------|--------------------------|
| 06955PCWINXP2 | 192.168.0.100 | 00:19:b9:43:71:1e | Thu Jun 14 14:20:17 2007 |

Enable DHCP Server: Check the box to enable the DHCP server function 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 Reservation

DHCP Reservation lets you manually assign IP addresses for computers connected to your network. It allows you to reserve an IP to be used for a particular computer only. This is useful when also using other network management features, such as firewall rules and port forwarding.

After entering a reservation, click on **Save Settings** to save your changes.

- Computer Name:** Enter a name for the computer you want to reserve an IP for.
- IP Address:** Enter the IP you wish to assign to the computer.
- MAC Address:** Enter the MAC address of the computer you want to reserve an IP for. To find the MAC address on a computer, please refer to the Networking Basics section in this manual.

You can also use the dropdown box (Computer Name) to automatically enter the Computer Name, current IP Address, and MAC Address of a computer currently connected to the router. To do so, select a computer from the dropdown box, then click the << button.

25 – DHCP RESREVATION :

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 ▾ |

[More...](#)

Save Settings

Don't Save Settings

Time and Date

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

Time Zone: Select your 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" checkbox 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, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second. Click **Save Settings**.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|------------------|-------|----------|-------------|--------|------|
| Internet Setup | | | | | |
| Wireless Setup | | | | | |
| LAN Setup | | | | | |
| Time and Date | | | | | |
| Parental Control | | | | | |
| Logout | | | | | |

Internet Offline

Reboot

TIME AND DATE :

The Time Configuration option allows you to configure, update, and maintain the correct time on the internal system clock. From this section you can set the time zone that you are in and set the NTP (Network Time Protocol) Server. Daylight Saving can also be configured to adjust the time when needed

Save Settings Don't Save Settings

TIME AND DATE CONFIGURATION :

Time : 06/07/2007 15:31:31

Time Zone : (GMT-08:00) Pacific Time (US & Canada); Tijuana

Enable Daylight Saving : ☐ Sync. your computer's time settings

AUTOMATIC TIME AND DATE CONFIGURATION :

☐ Automatically synchronize with D-Link's Internet time server

NTP Server Used : Select NTP Server Update Now

SET THE TIME AND DATE MANUALLY :

Year 2007 Month Jul Day 9

Hour 15 Minute 51 Second 00

Save Settings Don't Save Settings

Helpful Hints..

• If you plan on using the scheduling feature of this router, then making sure the time is correct is extremely important. Either enter the time manually by clicking the **Copy Your Computers Time Settings** button, or use the **Automatic Time Configuration** option to have your router synchronize with a time server on the Internet.

Parental Control

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

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 (or allowed).

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

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PARENTAL CONTROL RULES :

Parental Control provides the useful tools for restricting Internet access. Website URL allows you to quickly create a list of all web sites that you wish to allow or deny users from accessing. Schedule allows you to control when clients or PCs connected to Router are allowed to access the Internet.

Save Settings Don't Save Settings

25 - PARENTAL CONTROL RULES

Configure Parental Control below:
Turn Parental Control OFF

Remaining number of rules that can be created: 25

| | Website URL | Schedule |
|--------------------------|-------------|----------------|
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
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| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |
| <input type="checkbox"/> | | Always Add New |

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.

Port Forwarding

This will allow you to open a single port or a range of ports. This may be necessary for some online applications, such as online gaming. Check with your software's technical support site to see if your software requires port forwarding.

Rule: Check the box to enable the rule.

Name: Enter a name for the rule.

You can also use the dropdown box (Application Name) to automatically enter the Name, Ports and Traffic Type for common applications such as FTP, Telnet, and more. To do so, select an application from the dropdown box, then click the << button.

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

You can also use the dropdown box (Computer Name) to automatically enter the IP address of a computer currently connected to the router. To do so, select a computer from the dropdown box, then click the << button.

Port: Enter the port or ports that you want to open for both Public Ports(WAN ports) and Private Ports(LAN ports). You can open a range of ports by entering the starting port in the first box and the ending port in the second box. If you want to open a single port, enter the same port number in both boxes.

Traffic Type: Select what kind of traffic to allow through the ports: TCP, UDP, or Any.

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PORT FORWARDING RULES :

The Advanced Port Forwarding option allow 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 service such as FTP or Web Servers.

Save Settings Don't Save Settings

25 - PORT FORWARDING RULES

Remaining number of rules that can be created: 25

| Name | Port | Traffic Type |
|--|--------------------------------------|--|
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |
| <input type="checkbox"/> <div> <div>Name</div> <div><< Application Name</div> </div> | <div>Public Port</div> <div>~</div> | <div>Any</div> |
| <div>IP Address</div> <div>0.0.0.0</div> | <div>Private Port</div> <div>~</div> | <div>Schedule</div> <div>Always</div> <div>Add New</div> |

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.
- You can select your computer from the list of DHCP clients in the **Computer Name** drop down menu, or enter the IP address manually of the computer you would like to open the specified port to.
- In order to apply a schedule to a Port Forwarding Rule, you must first define a schedule on the **Maintenance>Schedules** page.
- 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 in the **Start** field and last port of the range in the **End** field.
- To open a single port using this feature, simply enter the same number in both the **Start** and **End** fields.

Application Rules

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications may have difficulty working through NAT (Network Address Translation) functions of a router. Application Rules help these applications work through the DIR-400.

Rule: Check the box to enable the rule.

Name: Enter a name for the rule.

You can also use the dropdown box (Application Name) to automatically enter the Name, Ports and Traffic Type for common applications such as FTP, Telnet, and more. To do so, select an application from the dropdown box, then click the << button.

Trigger Port: This is the port used to trigger the rule. It can be either a single port or a range of ports.

Firewall Port: This is the port number on the WAN side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges.

Traffic Type: Select what kind of traffic to control: TCP, UDP, or Any.

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APPLICATION RULE

The Application Rules option is used to open single or multiple ports in your firewall when the router senses data sent to the Internet on a outgoing "Trigger" port or port range. Special Applications rules apply to all computers on your internal network.

Save Settings Don't Save Settings

25 - APPLICATION RULES

Remaining number of rules that can be created: 25

| | | | Port | Traffic Type |
|--------------------------|--|---------------------|---------------|--------------|
| <input type="checkbox"/> | | << Application Name | Trigger 0 | TCP |
| | | | Firewall 0 | TCP |
| <input type="checkbox"/> | | << Application Name | Trigger 0 | TCP |
| | | | Firewall 0 | TCP |
| <input type="checkbox"/> | | << Application Name | Trigger 0 | TCP |
| | | | Firewall 0 | TCP |
| <input type="checkbox"/> | | << Application Name | Trigger 0 | TCP |
| | | | Firewall 0 | TCP |

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.

Access Control

Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers from accessing the Network based on their MAC addresses. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the router.

Configure MAC Filter: Here, you have three options: Select *Turn MAC Filtering OFF*, *Turn MAC Filtering ON and ALLOW computers listed to access the network*, or *Turn MAC Filtering ON and DENY computers listed to access the network*.

MAC Address: Enter the MAC address you would like to filter. To find the MAC address on a computer, please refer to the Networking Basics section in this manual.

DHCP Client List: You can use the dropdown box (Computer Name) to automatically enter the MAC address of a computer currently connected to the router. To do so, select a computer from the dropdown box, then click the << button.

Schedule: This selects which schedule will be used to determine when the MAC filter will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled.

Clicking on **Add New** will allow you to make a new schedule. You can view current schedule settings in the **Maintenance > Schedules** section.

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MAC FILTERING

The MAC (Media Access Controller) Address filter option is used to control network access based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by the manufacturer of the network adapter. This feature can be configured to ALLOW or DENY network/Internet access.

Save Settings Don't Save Settings

25 - MAC FILTERING RULES

Configure MAC Filtering below:
Turn MAC Filtering OFF

Remaining number of rules that can be created: 25

| | MAC Address | | DHCP Client List | Schedule | |
|--------------------------|-------------------|----|------------------|----------|---------|
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |
| <input type="checkbox"/> | 00:00:00:00:00:00 | << | Computer Name | Always | Add New |

Helpful Hints..

- Create a list of MAC addresses that you would either like to allow or deny access to your network.
- Computers that have obtained an IP address from the router's DHCP server will be in the DHCP Client List. Select a device from the drop down menu and click the arrow to add that device's MAC to the list.
- Use the check box on the left to either enable or disable a particular entry.
- Use the **Always** drop down menu if you have previously defined a schedule in the router. If not, click on the **Add New** button to add one.

Firewall & DMZ - DMZ Host

This section will allow you to set up a DMZ host.

If you have a client PC that cannot run Internet applications properly from behind the DIR-400, then you can set the client up for unrestricted Internet access. It allows a computer to be fully exposed to the Internet. This feature is useful for some applications such as gaming. Note that adding a client to the DMZ (Demilitarized Zone) may expose your local network to a variety of security risks, so only use this option as a last resort.

Enable SPI: Check this to enable SPI (Stateful Packet Inspection).

Enable DMZ Host: Check this box to enable the DMZ Host feature.

DMZ IP Address: Enter the IP address of the computer you would like to open all ports to (the DMZ Host).

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FIREWALL & DMZ SETTINGS

Firewall rules can be used to allow or deny traffic passing through the router. You can specify a single port by utilizing the input box on the top or a range of ports by utilizing both input boxes.

DMZ means "Demilitarized Zone". DMZ allows computers behind the router firewall to be accessible to Internet traffic. Typically, your DMZ would contain Web servers, FTP servers and others.

Save Settings Don't Save Settings

FIREWALL SETTING

Enable SPI: ☐

DMZ HOST

The DMZ (Demilitarized Zone) option provides you with an option to set a single computer on your network outside of the router. If you have a computer that cannot run Internet applications successfully from behind the router, then you can place the computer into the DMZ for unrestricted Internet access.

Note: Putting a computer in the DMZ may expose that computer to a variety of security risks. Use of this option is only recommended as a last resort.

Enable DMZ Host: ☐

DMZ IP Address: 0.0.0.0 << Computer Name

50 - FIREWALL RULES

Remaining number of clients that can be configured : 50

| | Name | Interface | IP Address | Protocol | Schedule |
|--------------------------|--------------|-----------|------------|------------|-------------------------|
| <input type="checkbox"/> | | Source | | all | Schedule Always Add New |
| | Action Allow | Dest | | Port Range | |
| <input type="checkbox"/> | | Source | | all | Schedule Always Add New |
| | Action Allow | Dest | | Port Range | |

Firewall & DMZ - Firewall Rules

This section will allow you to set up firewall rules.

Firewall Rules allow you to specifically allow or deny traffic to and from specific IPs and ports between your network and the internet.

Name: Choose a name for the firewall rule.

Action: Select to *Allow* or *Deny* transport of the data packets according to the criteria defined in the rule.

Source/Dest: The Source/Destination is the TCP/UDP port on either the LAN (local network) or WAN (Internet) side.

IP Address: Enter a beginning and ending IP address. If you only want to affect a single IP address, enter the same IP address in both boxes.

Protocol: Select the transport protocol that will be used for the filter rule.

Port Range: Enter the desired port range for the filter rule. If you only want to affect a single port, enter the same port in both boxes.

Schedule: This selects which schedule will be used to determine when the firewall rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled.

Clicking on **Add New** will allow you to make a new schedule. You can view current schedule settings in the **Maintenance > Schedules** section.

50 – FIREWALL RULES

Remaining number of clients that can be configured : 50

| | | Interface | IP Address | | Schedule |
|--------------------------|--------|-----------|------------|--------------|----------|
| <input type="checkbox"/> | Name | | | Protocol all | Schedule |
| | | Source | | | Always |
| | Action | | | Port Range | Add New |
| | Allow | Dest | | | |

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

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.

802.11g Only Mode: Tick this checkbox to restrict access to 802.11g devices only.

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ADVANCED NETWORK SETTINGS :

These options are for users that wish to change the behavior of their 802.11g wireless radio from the standard setting. We do not recommend changing these settings from the factory default. Incorrect settings may impact the performance of your wireless radio. The default settings should provide the best wireless radio performance in most environment.

Save Settings Don't Save Settings

ADVANCED WIRELESS SETTINGS

Transmit Power : 100%
Beacon Interval : 100 (msec, range:20~1000, default:100)
RTS Threshold : 2346 (range: 256~2346, default:2346)
Fragmentation : 2346 (range: 1500~2346, default:2346, even number only)
DTIM Interval : 1 (range: 1~255, default:1)
Preamble Type : ☒ Short Preamble ☐ Long Preamble
CTS Mode : ☐ None ☐ Always ☒ Auto
802.11g Only Mode ☐ Enable

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Helpful Hints..
It is recommended that you leave these options at their default values. Adjusting them could negatively impact the performance of your wireless network.

Advanced Network

This window allows you to change the LAN settings. Please be aware that any changes from 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.

Enable WAN Ping Respond: Unchecking the box will not allow the DIR-400 to respond to ping requests. Blocking pings may provide some extra security from hackers. Tick this checkbox to allow the WAN port to be “Pinged”.

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 Gaming Mode: Gaming mode allows a form of pass-through for certain internet games. If you are using an XBox/XBox 360, Playstation 2/Playstation 3, Nintendo Wii or a PC, make sure you are using the latest firmware and Gaming Mode is enabled. To utilize Gaming Mode, tick this checkbox. If you are not using an online gaming application, it is recommended that you disable Gaming Mode by leaving the checkbox unticked.

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| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP |
|---|--|----------|-------------|--------|--|
| Port Forwarding Application Rules Access Control Firewall & DMZ Advanced Wireless Advanced Network Routing Logout Internet Offline Reboot | ADVANCED NETWORK SETTINGS : <p>These options are for users that wish to change the LAN settings. We do not recommend changing these settings from factory default. Changing these settings may affect the behavior of your network.</p> <p>Save Settings Don't Save Settings</p> | | | | Helpful Hints.. <ul style="list-style-type: none"> • For added security, it is recommended that you disable the WAN Ping Respond option. Ping is often used by malicious Internet users to locate active networks or PCs. • Gaming Mode should be used when you are playing games on the Internet from behind the router. |
| | UPNP : <p>Universal Plug and Play (UPnP) supports peer-to-peer Plug and Play functionality for network devices.</p> <p>Enable UPnP : <input checked="" type="checkbox"/></p> | | | | |
| | WAN PING : <p>If you enable this feature, the WAN port of your router will respond to ping requests from the Internet that are sent to the WAN IP Address.</p> <p>Enable WAN Ping Respond : <input checked="" type="checkbox"/></p> | | | | |
| | WAN PORT SPEED : <p>10/100Mbps Auto</p> | | | | |
| | GAMING MODE : <p>If you are having difficulties playing some online games - please enable this mode.</p> <p>Enable GAMING mode: <input type="checkbox"/></p> | | | | |
| | MULTICAST STREAMS : <p>Enable Multicast Streams: <input checked="" type="checkbox"/></p> | | | | |

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 which interface, WAN or WAN (Physical Port), 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.

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ROUTING :

The Routing option allows you to define fixed routes to defined destinations.

Save Settings

Don't Save Settings

50 - STATIC ROUTING

Remaining number of rules that can be created: 50

| | Interface | Destination | Subnet Mask | Gateway |
|--------------------------|-----------|-------------|-------------|---------|
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |
| <input type="checkbox"/> | WAN | | | |

Helpful Hints..

- Enable:
Specifies whether the entry will be enabled or disabled.
- Interface:
Specifies the interface — LAN or WAN — that the IP packet must use to transit out of the router, when this route is used.
- Destination IP:
The IP address or packet that will take this route.
- Subnet Mask:
One bits in the mask specify which bits of the IP address must match.
- Gateway:
Specifies the next hop to be taken if this 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.

Device Administration

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

Administrator Login Name: Enter a new Login Name for the Administrator account. The default Login Name is *admin*. Note that the Login Name is case-sensitive, e.g. *admin* would be a different Login Name than *Admin*.

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.

Enable Remote Management: Remote management allows the DIR-400 to be configured from the Internet through a web browser. The Administrator Login Name and Password are still required to access the web management interface. Normally, 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 a remote (Internet) host.

IP Allowed to Access: The Internet IP address of the computer that has access to the router. If you input an asterisk (*) into this field, then any computer will be able to access the router. Putting an asterisk (*) into this field would present a security risk and is not recommended.

Port: The port number used to access the DIR-400. For example: `http://x.x.x.x:8080`, where x.x.x.x is the WAN IP address of the DIR-400 and 8080 is the port used for the web management interface.

The screenshot shows the D-Link DIR-400 web management interface. At the top, it says 'Product Page: DIR-400' and 'Firmware Version: 1.00'. The D-Link logo is prominently displayed. Below the logo is a navigation bar with tabs: 'DIR-400', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'SETUP' tab is selected, and within it, the 'ADMINISTRATOR SETTINGS' sub-tab is active. The main content area is titled 'ADMINISTRATOR SETTINGS' and contains the following sections:

- ADMINISTRATOR SETTINGS:** A message states, 'There is password for this router by default. To help secure your network, we recommend that you should choose a new password.' Below this message are two buttons: 'Save Settings' and 'Don't Save Settings'.
- ADMINISTRATOR (THE DEFAULT LOGIN NAME IS "ADMIN") :** This section contains three input fields: 'Login name' (with 'admin' entered), 'New Password' (masked with dots), and 'Confirm Password' (masked with dots).
- REMOTE MANAGEMENT :** This section contains three items: 'Enable Remote Management' (a checkbox that is currently unchecked), 'IP Allowed to Access' (an empty text input field), and 'Port' (a dropdown menu showing '8080').

On the left side of the interface, there is a sidebar with a list of links: 'Device Administration', 'Save and Restore', 'Firmware Update', 'DDNS Setting', 'System Check', 'Schedules', 'Log Settings', 'Logout', 'Internet Offline', and a 'Reboot' button. On the right side, 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 and User 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.

Save and Restore

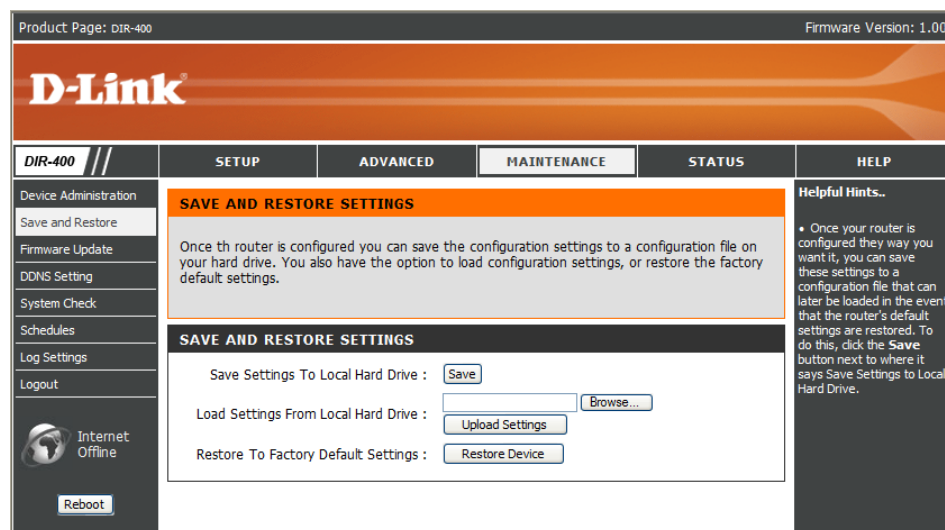
This window allows you to save your configuration file to a hard drive, load configuration settings from a hard drive, and restore the router's factory default settings.

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 default settings that the router came with. 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.

Reboot: 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.

Product Page: DIR-400

Firmware Version: 1.00

DIR-400

SETUP

ADVANCED

MAINTENANCE

STATUS

HELP

Device Administration

Save and Restore

Firmware Update

DDNS Setting

System Check

Schedules

Log Settings

Logout

Internet Offline

Reboot

FIRMWARE UPGRADE :

There may be new firmware for your DIR-400 to improve functionality and performance. [Click here to check for an upgrade on our support site.](#)

To upgrade the firmware, locate the upgrade file on the local hard drive with the Browse button. Once you have found the file to be used, click the Save Settings button below to start the firmware upgrade.

CURRENT FIRMWARE INFO

Current Firmware Version 1.00

Firmware Date Thu, 07 June 2007

Check Online Now for Latest Firmware Version

Check Now

UPDATE SETTING

Update :

Browse...

Apply

Helpful Hints..

• Firmware Update are released periodically to improve the functionality of your router and also to add features. If you run into a problem with a specific feature of the router, check our support site by clicking on the [Click here to check for an upgrade on our support site](#) link and see if an updated firmware is available for your router.

DDNS Settings

The router supports DDNS (Dynamic Domain Name Service). The Dynamic DNS feature allows you to host a server (Web, FTP, game server, etc.) using a domain name that you have purchased or reserved (www.yourdomain.com). Many ISPs assign public IP addresses using DHCP, this can make it difficult to locate a specific host on the Internet using standard DNS as the IP keeps changing. Using the DDNS feature with a DDNS service provider allows you to use a host name that connects to your server no matter what your IP address is. Using the DDNS feature 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 DIR-400 web interface. The top bar indicates 'Product Page: DIR-400' and 'Firmware Version: 1.00'. The main navigation bar includes 'D-Link', 'DIR-400', and tabs for 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The left sidebar lists various settings: 'Device Administration', 'Save and Restore', 'Firmware Update', 'DDNS Setting' (selected), 'System Check', 'Schedules', 'Log Settings', and 'Logout'. Below these is an 'Internet Offline' status indicator and a 'Reboot' button.

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.whateveryournameis.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 for 'Save Settings' and 'Don't Save Settings' are present.

Below this is the 'DYNAMIC DNS SETTINGS' section with the following fields:

Enable DNS : ☐

Server Address : << >>

Host Name :

Username or Key :

Password or Key :

Verify Password or Key :

Timeout : (hours)

Status : Disconnect

On the right side, under 'Helpful Hints..', there is a note:

• In order to use this feature you must first have a DDNS account from one of the providers in the drop down menu.

System Check

This tool is used to verify 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.

Info: 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. Click on **More Info** to find out more information about a particular connection.

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

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Administration
Save and Restore
Firmware Update
DDNS Setting
System Check
Schedules
Log Settings
Logout

Internet Offline
Reboot

SYSTEM CHECK

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

VCT INFO

| Ports | Link Status | | |
|-------|-------------|---------------------|---------------------------|
| WAN | | Disconnected | More Info |
| LAN1 | | Disconnected | More Info |
| LAN2 | | Disconnected | More Info |
| LAN3 | | Disconnected | More Info |
| LAN4 | | 100Mbps full Duplex | 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](#)

PING RESULT

Helpful Hints..

- "Ping" checks whether a computer on the Internet is running and responding. Enter either the IP address of the target computer or enter its fully qualified domain name.

Schedules

The Schedules screen allows the user to manage schedule rules for various firewall and parental control features. Once you have finished configuring or creating a 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 All Week to have the schedule run every day, or choose Select Day(s) to have the schedule run only on particular days. If Select Day(s) 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 for the days selected.

Start Time/End Time: If the new schedule rule does not apply to the full 24-hour period, make sure the All Day - 24 hrs checkbox is unticked and enter a specific beginning and ending time for the schedule to run.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

SCHEDULES

The Schedule configuration option is used to manage schedule rules for "Access Control", "Firewall Rules" and "Parental Control".

Save Settings Don't Save Settings

10 - ADD SCHEDULE RULE

Name :

Day(s) : ☒ All Week ☐ Select Day(s)

☐ Sun ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat

All Day - 24 hrs : ☐

Start Time : : AM (hour:minute, 12 hour time)

End Time : : AM (hour:minute, 12 hour time)

SCHEDULE RULES LIST :

| Name : | Day(s) : | Time Frame : |
|--------|----------|--------------|
| | | |

Helpful Hints...

- Schedules are used with a number of other features to define when those features are in effect.
- Give each schedule a name that is meaningful to you. For example, a schedule for Monday through Friday from 3:00pm to 9:00pm, might be called "After School".
- Click **Save** to add a completed schedule to the list below.
- Click **Edit** icon to change an existing schedule.
- Click **Delete** icon to permanently delete a schedule.

Log Settings

The system log displays chronological event log data specified by the router user. You can customize what data is logged and then save the log to disk. You can also send log information to a syslog server, or have the log sent to an e-mail address.

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

Log Type: Tick the checkbox(es) to specify what information will be logged: System Activity, Debug Information, Attacks, Dropped Packets, and Notice.

Enable Logging To Syslog Server: This allows the router to send log information to a syslog server, which can be used to monitor your router's activities. To enable this feature, tick the checkbox.

Enter the IP address of the server in this box. If the syslog server is internal to your network, you can use the dropdown box (Computer Name) to automatically enter the IP address of the computer acting as your syslog server. To do so, select a computer from the dropdown box, then click the << button.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

| DIR-400 | SETUP | ADVANCED | MAINTENANCE | STATUS | HELP | | | | | | | | | | |
|---|---|----------|-------------|--------|---|----------|---|--|--|--|---|--|--|--|--|
| Device Administration Save and Restore Firmware Update DDNS Setting System Check Schedules Log Settings Logout | LOG SETTINGS : Logs can be saved by sending it to an admin email address. <input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/> | | | | Helpful Hints.. • If you would like to have the router's logs emailed to you but are unsure of what to enter in the SMTP Server/IP Address field, please contact your email provider or visit their support website to find out this information. | | | | | | | | | | |
| Internet Offline <input type="button" value="Reboot"/> | SAVE LOG FILE Save Log File To Local Hard Drive <input type="button" value="Save"/> | | | | | | | | | | | | | | |
| | LOG TYPE : <table border="1"> <tr> <td>Log Type</td> <td><input checked="" type="checkbox"/> System Activity</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Debug Information</td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/> Attacks</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Dropped Packets</td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/> Notice</td> </tr> </table> | | | | | Log Type | <input checked="" type="checkbox"/> System Activity | | <input type="checkbox"/> Debug Information | | <input checked="" type="checkbox"/> Attacks | | <input type="checkbox"/> Dropped Packets | | <input checked="" type="checkbox"/> Notice |
| Log Type | <input checked="" type="checkbox"/> System Activity | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Debug Information | | | | | | | | | | | | | | |
| | <input checked="" type="checkbox"/> Attacks | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Dropped Packets | | | | | | | | | | | | | | |
| | <input checked="" type="checkbox"/> Notice | | | | | | | | | | | | | | |
| | SYLOG SETTINGS Enable Logging To Syslog Server : <input type="checkbox"/> Syslog Server IP Address : 0.0.0.0 << Computer Name >> | | | | | | | | | | | | | | |
| | EMAIL NOTIFICATION Enable Email Notification : <input type="checkbox"/> From Email Address : <input type="text"/> To Email Address : <input type="text"/> SMTP Server Address : <input type="text"/> Enable Authentication : <input type="checkbox"/> Account Name : <input type="text"/> Password : <input type="password"/> Verify Password : <input type="password"/> Send Log When Full : <input type="checkbox"/> Send Log by Schedule : Always >> <input type="button" value="Add New"/> | | | | | | | | | | | | | | |
| | <input type="button" value="Save Settings"/> <input type="button" value="Don't Save Settings"/> | | | | | | | | | | | | | | |

WIRELESS

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Log Settings - Email Notification

Email notification is a feature that sends the router log to a specified e-mail address. Log updates will be sent to the specified e-mail address automatically in 5 minute intervals, or when the log becomes full. You can also send logs according to a set schedule you can define.

Enable Email Notification: To enable e-mail notification, tick this checkbox.

From Email Address: Enter the e-mail address you want to appear in the *From:* field when sending an e-mail of the log.

To Email Address: Enter the e-mail address you want the log to be sent to.

SMTP Server Address: Enter the name of the SMTP mail server that you want to use to send your e-mails through.

Enable Authentication: Tick this checkbox if your SMTP mail server requires authentication.

Account Name: If your SMTP server requires authentication, enter your account's user name in this box.

Password / Verify Password: If your SMTP server requires authentication, enter your account's password in this box, and enter it again in the Verify Password box.

Send Log When Full: Ticking this box will set the router to e-mail the log only when the log becomes full. When this feature is enabled, you cannot use the Send Log by Schedule feature.

Send Log by Schedule: This lets you select a schedule that will be used to determine when router logs will be sent. During the time specified by your schedule, logs will be sent to your e-mail address in 5 minute intervals. To set a schedule, you must untick the Send Log When Full checkbox.

| EMAIL NOTIFICATION | |
|-----------------------------|--|
| Enable Email Notification : | <input type="checkbox"/> |
| From Email Address : | <input type="text"/> |
| To Email Address : | <input type="text"/> |
| SMTP Server Address : | <input type="text"/> |
| Enable Authentication : | <input type="checkbox"/> |
| Account Name : | <input type="text" value="user"/> |
| Password : | <input type="password" value="••••"/> |
| Verify Password : | <input type="password" value="••••"/> |
| Send Log When Full : | <input type="checkbox"/> |
| Send Log by Schedule : | <div>Always ▾</div> <div>Add New</div> |

Save Settings

Don't Save Settings

Device Information

This window displays the current information for the DIR-400. It will display 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/reconnect to your ISP.

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

The screenshot shows the D-Link DIR-400 web interface. The top bar indicates 'Product Page: DIR-400' and 'Firmware Version: 1.00'. The main header features the D-Link logo. Below the header is a navigation menu with tabs: 'DIR-400', 'SETUP', 'ADVANCED', 'MAINTENANCE', 'STATUS', and 'HELP'. The 'STATUS' tab is selected, and the 'DEVICE INFORMATION' sub-tab is active. The left sidebar contains links for 'Device Info', 'Log', 'Statistics', 'Active Session', 'Wireless', and 'Logout'. The main content area is divided into three sections: 'LAN', 'WAN', and 'WIRELESS 802.11G'. The 'LAN' section shows MAC Address: 00:40:f4:03:16:d3, IP Address: 192.168.0.1, Subnet Mask: 255.255.255.0, and DHCP Server: Enabled. The 'WAN' section shows MAC Address: 00:40:f4:03:16:d4, Connection: DHCP Client Disconnected, IP Address: 0.0.0.0, Subnet Mask: 0.0.0.0, Default Gateway: 0.0.0.0, and DNS: . Below the Connection status are buttons for 'DHCP Release' and 'DHCP Renew'. The 'WIRELESS 802.11G' section shows SSID: dlink16d3, Channel: 6, and Encryption: AUTO (WPA or WPA2) - PSK. A 'Helpful Hints..' sidebar on the right contains a bullet point: 'All of your LAN, WAN and WIRELESS 802.11G connection details are displayed here.'

Log

This window allows you to view a log of activities on the router. This is especially helpful for 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**).

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Info
Log
Statistics
Active Session
Wireless
Logout

Internet Offline
Reboot

VIEW LOG

View Log displays the activities occurring on the DIR-400.

LOG FILES

First Page Last Page Previous Next Clear Link To Log Settings

1 / 2

| Time | Message |
|----------------|---|
| Jun 7 11:31:17 | reading /etc/resolv.conf |
| Jun 7 11:31:15 | sending OFFER of 192.168.0.100 |
| Jun 7 11:31:09 | device_lan_ip=192.168.0.1 , device_lan_subnet_mask=255.255.255.0 |
| Jun 7 11:31:09 | reading /etc/resolv.conf |
| Jun 7 11:31:09 | reading /etc/hosts |
| Jun 7 11:31:09 | DNS started |
| Jun 7 11:31:09 | Sending discover... |
| Jun 7 11:31:07 | Sending discover... |
| Jun 7 11:31:05 | Sending discover... |
| Jun 7 11:31:04 | DHCP client start. |

Helpful Hints...

- Check the log frequently to detect unauthorized network usage.

Statistics

The window below displays the Traffic Statistics. Here you can view the amount of packets that pass through the DIR-400 on both the WAN and the LAN ports. The traffic counter will reset if the device is rebooted.

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // SETUP ADVANCED MAINTENANCE STATUS HELP

Device Info
Log
Statistics
Active Session
Wireless
Logout

Internet Offline
Reboot

TRAFFIC STATISTICS :
Traffic Statistics display Receive and Transmit packets passing through the DIR-400.

Refresh Reset

| | Receive | Transmit |
|--------------|-------------|-------------|
| WAN | 0 Packets | 3 Packets |
| LAN | 192 Packets | 251 Packets |
| WIRELESS 11g | 0 Packets | 39 Packets |

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

Active Session

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

Product Page: DIR-400 Firmware Version: 1.00

D-Link

DIR-400 // 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-400

Refresh

NAPT SESSION

| | |
|---------------|---|
| TCP Session : | 2 |
| UDP Session : | 4 |
| Total : | 6 |

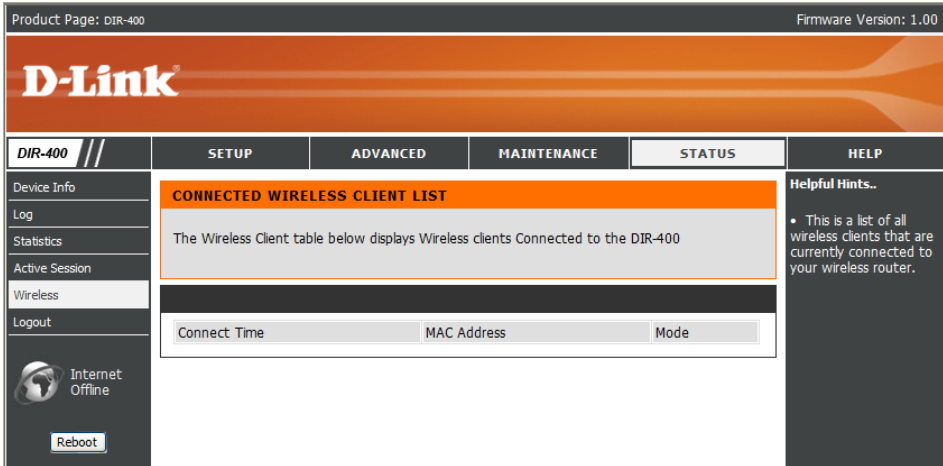
NAPT ACTIVE SESSION

| IP Address | TCP Session | UDP Session | |
|---------------|-------------|-------------|------------------------|
| 192.168.0.100 | 2 | 2 | detail |
| 127.0.0.1 | 0 | 1 | detail |
| 192.168.0.1 | 0 | 1 | detail |

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

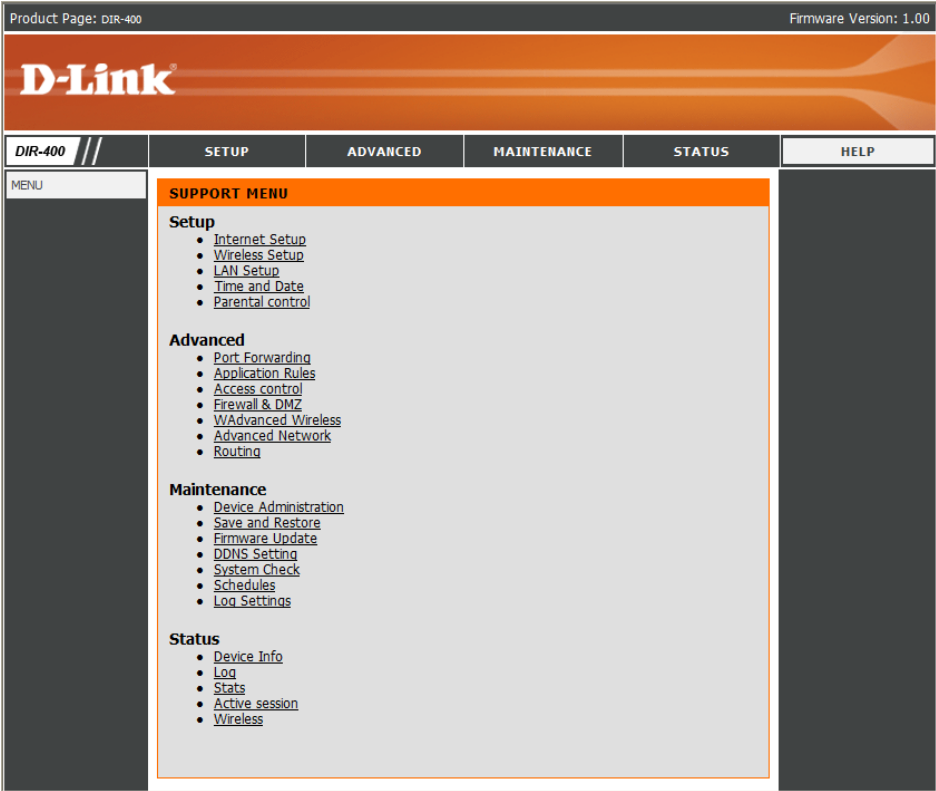
Wireless

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



Help

Click the desired hyperlink to view more information about how to use the router.



Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DIR-400 offers the following types of security:

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

Configuring 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 WEP Key**, select *WEP Key 1* and create your own WEP key. 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 (only 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 : Enable WEP Wireless Security (basic)

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 : Open

WEP Encryption : 64Bit

Default WEP Key : WEP Key 1

WEP Key : 0000000000 (5 ASCII or 10 HEX)

Save Settings Don't Save Settings

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 are:

- 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 the Advanced Encryption Standard (AES) instead of TKIP.
- User authentication, which is generally missing in WEP, is done 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.

Configuring 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.

WIRELESS SECURITY MODE :

Security Mode : Enable WPA Only Wireless Security (enhanced)

WPA ONLY :

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

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

Save Settings Don't Save Settings

WIRELESS SECURITY MODE :

Security Mode : Enable WPA2 Only Wireless Security (enhanced)

WPA2 ONLY :

WPA2 Only requires stations to use high grade encryption and authentication.

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

Save Settings Don't Save Settings

Configuring 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 : Enable WPA / WPA2 Auto Wireless Security (enhanced)

WPA / WPA2 AUTO :

WPA2-PSK auto requires stations to use high grade encryption and authentication.

Cipher Type : TKIP

PSK / EAP : PSK

Network Key : FF23D35E79B0019FF442904CE04EAAF6BC1!
(8~63 ASCII or 64 HEX)

Save Settings Don't Save Settings

Configuring WPA, WPA2, & 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 for 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.

Note: When using EAP mode, you cannot have WPS enabled.

WPA / WPA2 AUTO :

WPA2-PSK auto requires stations to use high grade encryption and authentication.

Cipher Type : TKIP
PSK / EAP : EAP

802.1X

RADIUS Server 1 : IP []
Port 1812
Shared Secret []

RADIUS Server 2 : IP []
Port 1812
Shared Secret []

Save Settings Don't Save Settings

Connecting to a Wireless Network Using Windows® XP

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

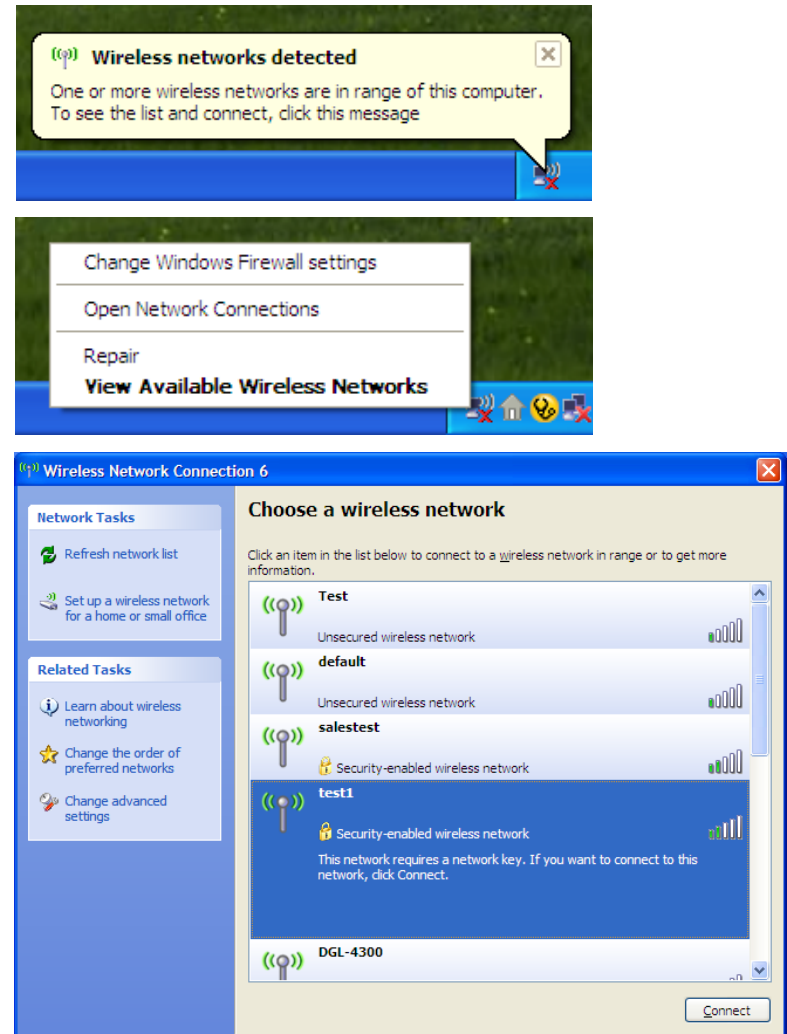
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

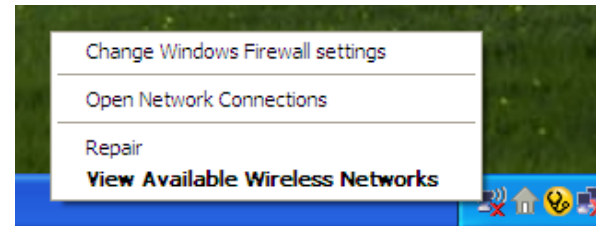
If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



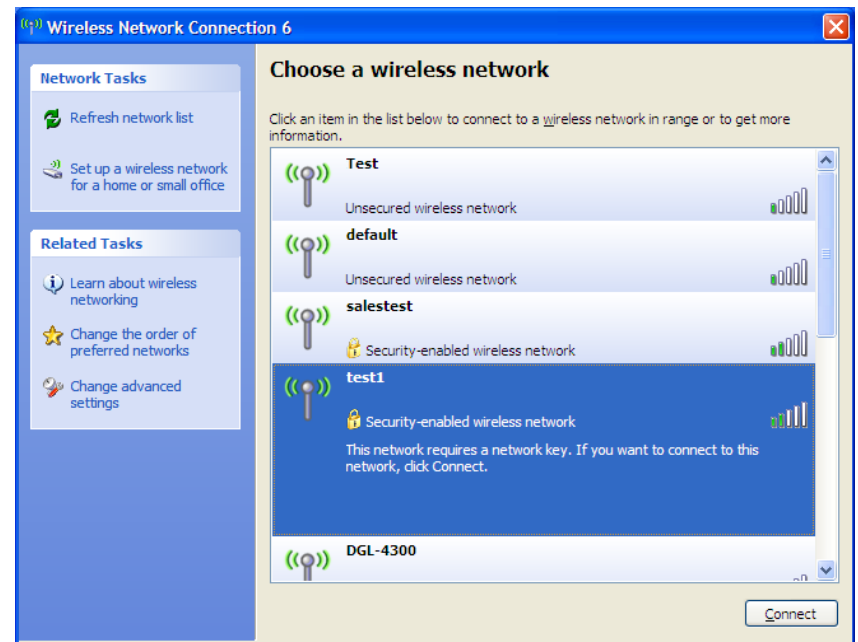
Configure WEP

It is recommended to enable WEP encryption 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**.

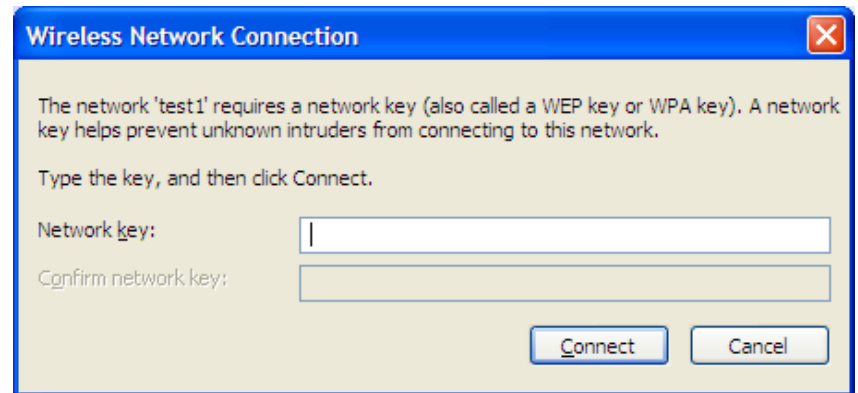


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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

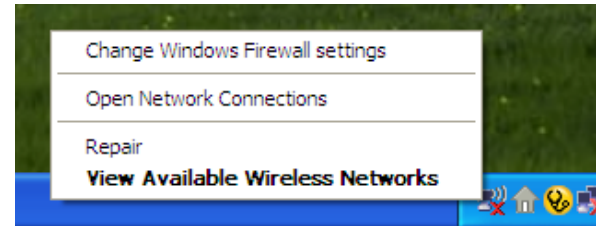
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WEP settings are correct. The WEP key must be exactly the same as on the wireless router.



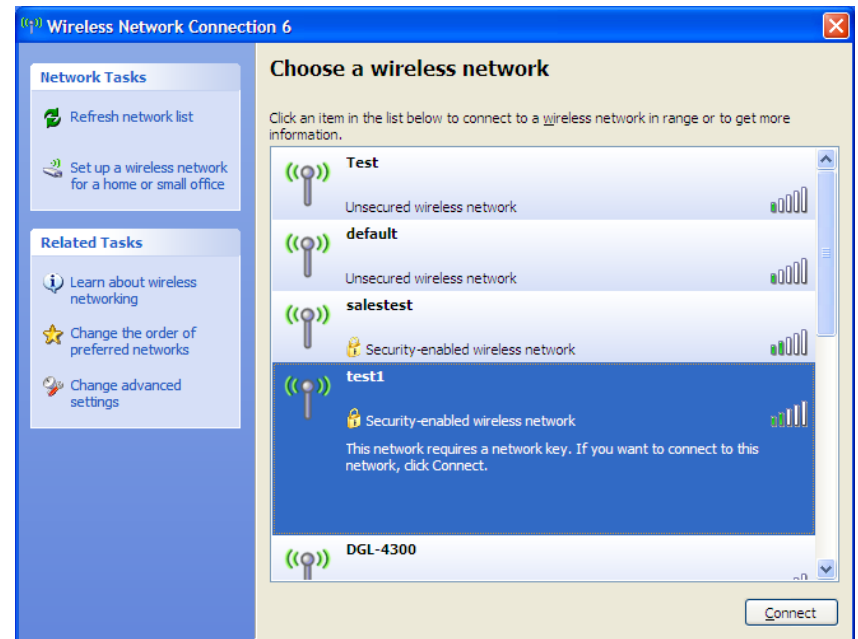
Configuring WPA-PSK

It is recommended to enable WPA-PSK encryption on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA-PSK passphrase 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**.

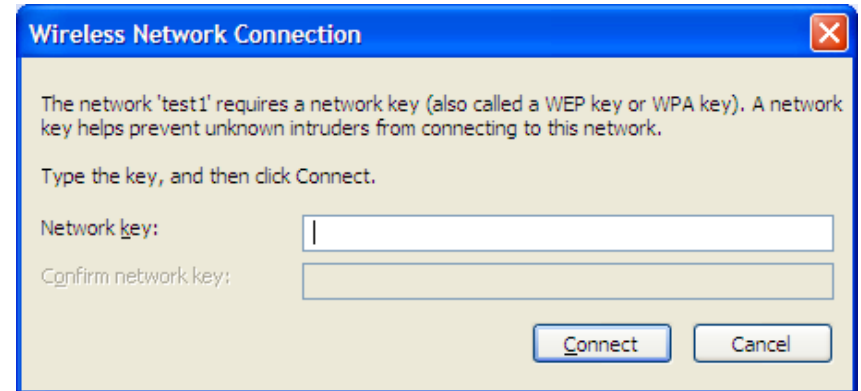


2. Highlight the wireless network (SSID) you would like to connect to and click **Connect**.



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 (WCN 2.0 in Windows Vista)

The DIR-400 supports Wi-Fi protection, referred to as WCN 2.0 in Windows Vista. The instructions for setting this up depend on whether you are using Windows Vista or third party software to configure the router.

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 WCN 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. You can choose to use the Current PIN that is displayed on the **Wireless Network** window, randomly create a new PIN by clicking **Generate New PIN**, or click on **Reset PIN to Default** to use the default PIN.



If you are using third party software to set up Wi-Fi Protection, carefully follow the directions provided with the software. 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 in the third party software interface 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.

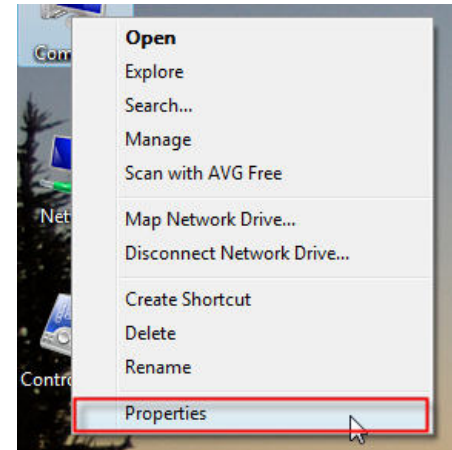
If you are using the router's Wi-Fi Security push button option, press the Wi-Fi Protected Setup button on the side of the router, then push the button on the client (or virtual button on the client's GUI) within 2 minutes. Next click **Finish**. The Client's software will then allow a newcomer to join 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 to finish setting up your connection.

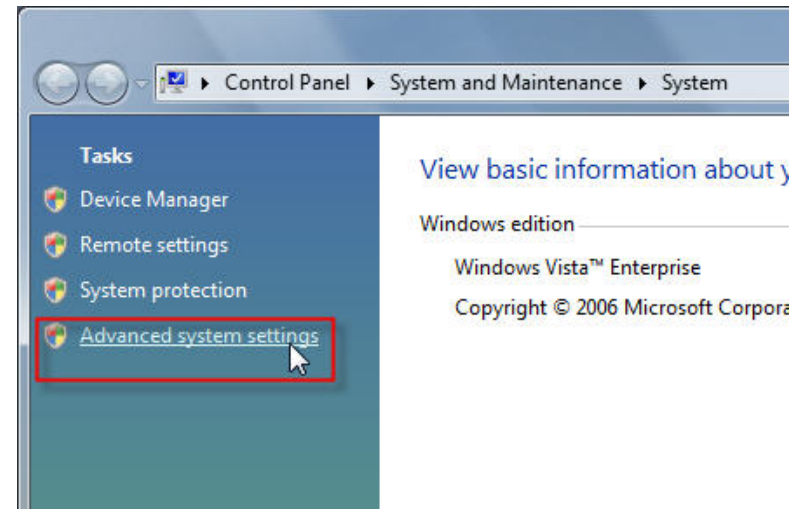
Changing the Computer Name and Joining a Workgroup

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

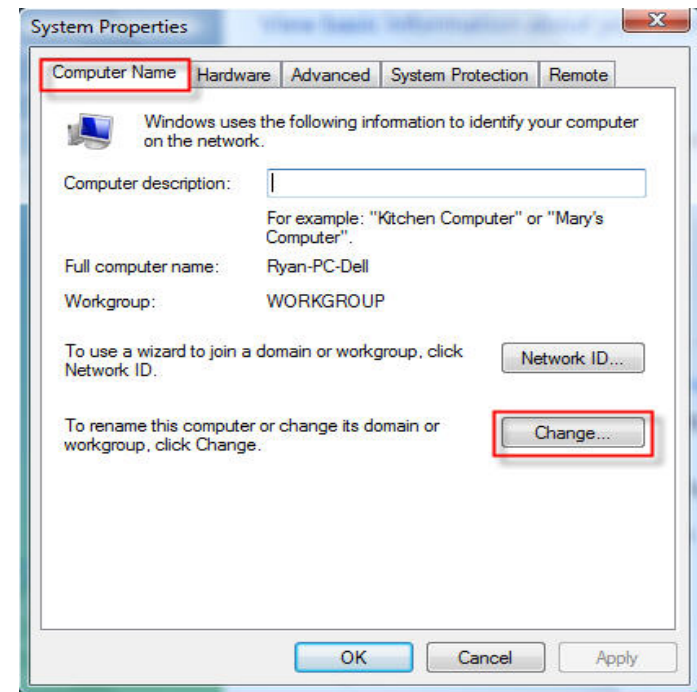
1. Right-click on **Control Panel** and click on **Properties**.



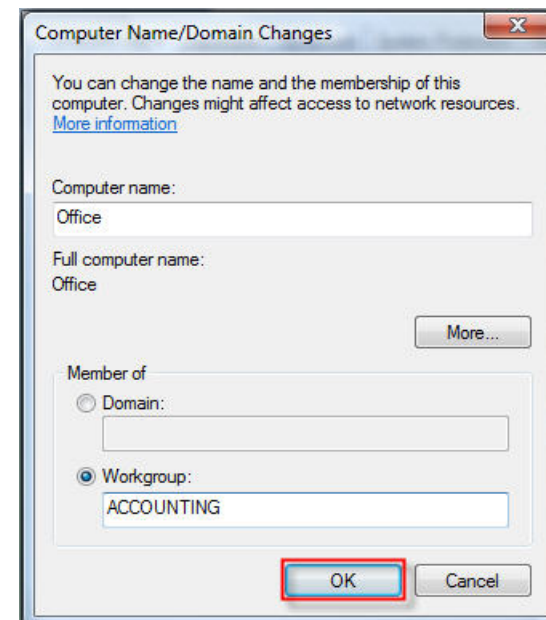
2. Click on the **Advanced system settings** link.



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



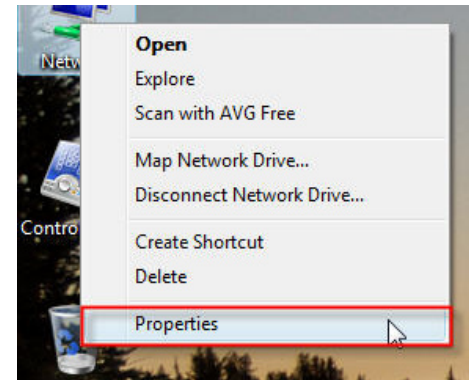
4. Go to the **Computer Name/Domain Changes** window and click the radio button next to the Workgroup you want to join. When you are finished, click the **OK** button.



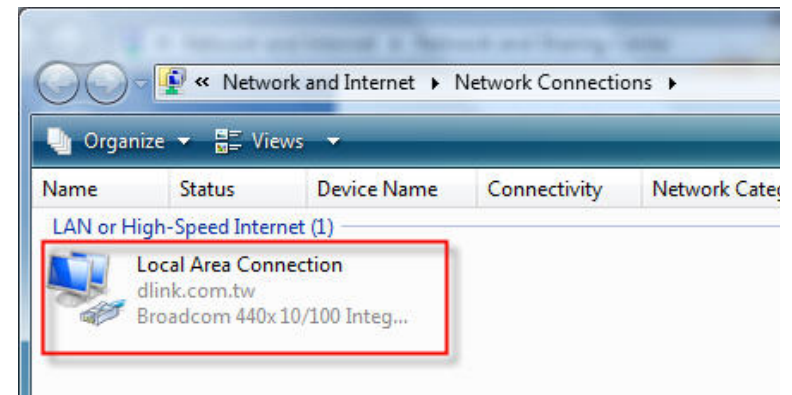
Configuring the IP Address in Vista

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

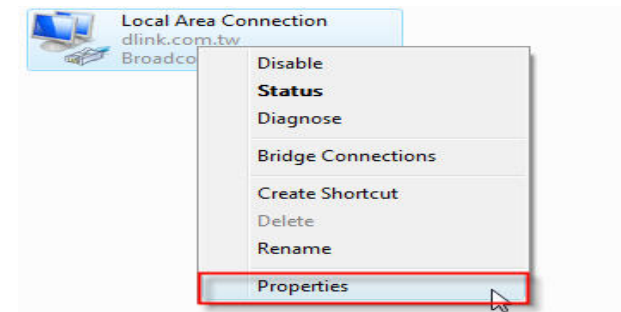
1. Right-click on **Network** and click on **Properties**.



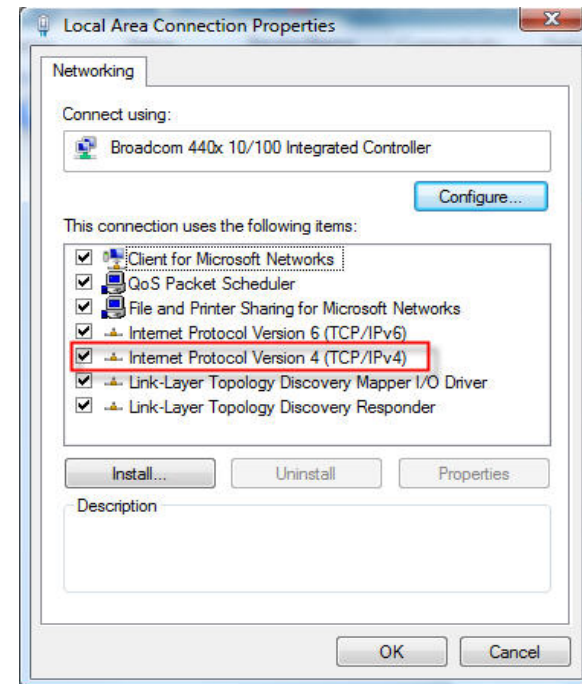
2. Go to the **Network and Internet** window and click the appropriate **Local Area Connection** icon.



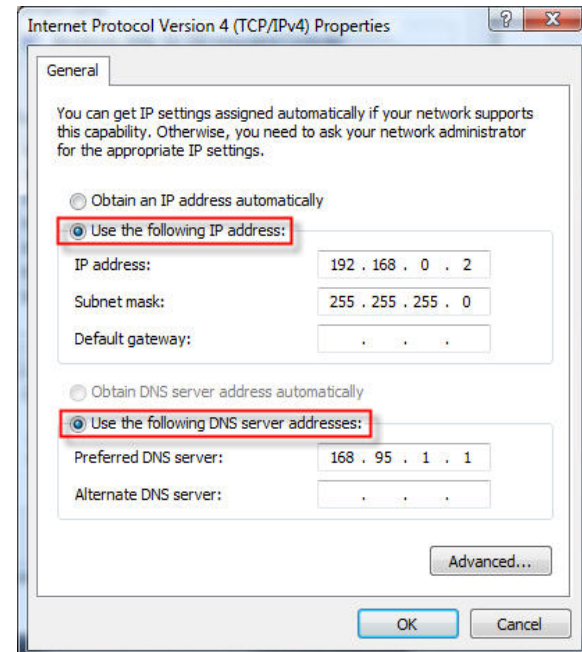
3. Right-click the **Local Area Connection** icon and then select **Properties** from the context menu.



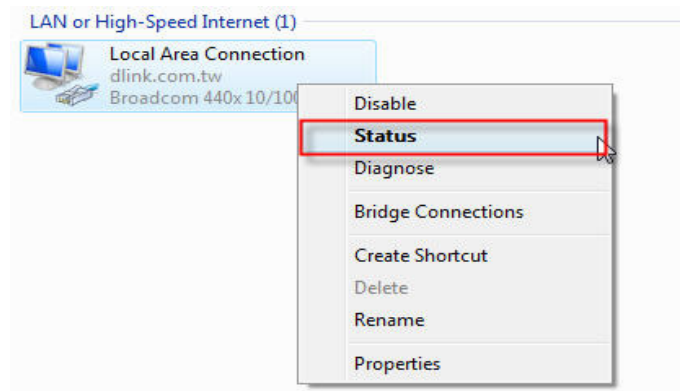
4. Tick the **Internet Protocol Version 4 (TCP/IPv4)** checkbox in the **Networking** tab in the **Local Area Connection Properties** window, then click on the **Properties** button.



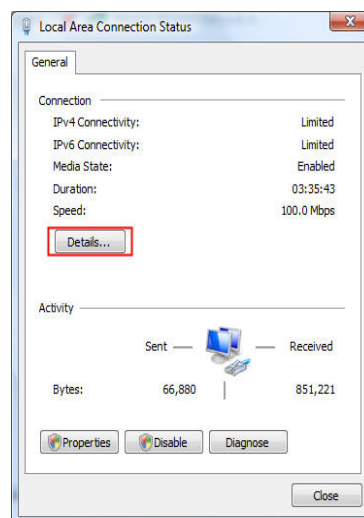
5. Click the “Use the following IP address” option in the **General** tab in the **Local Area Connection’s Properties** window and enter the desired IP address in the space offered. Then click the “Use the following DNS server addresses” option on the same tab and enter the desired DNS server information. Click **OK**, then **OK** again to exit the Properties windows.



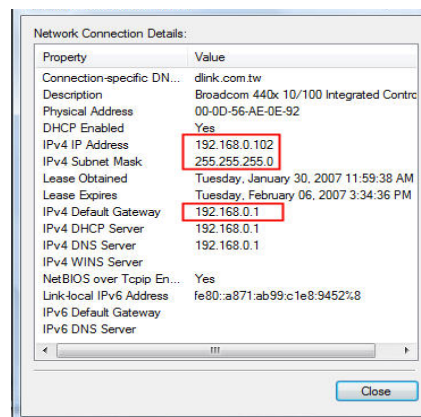
6. Right-click the **Local Area Connection** icon and then select **Status** from the drop-down menu.



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



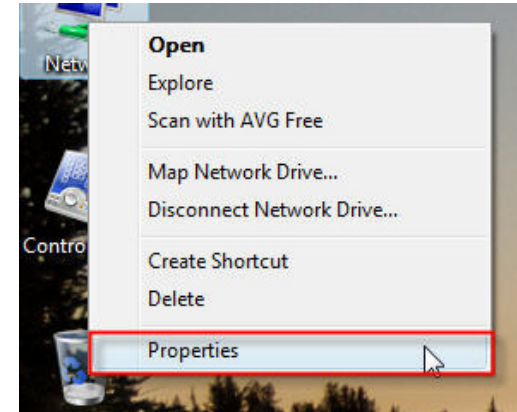
8. Confirm your new settings on the **Network Connection Status** window. When you are finished, click the **Done** button.



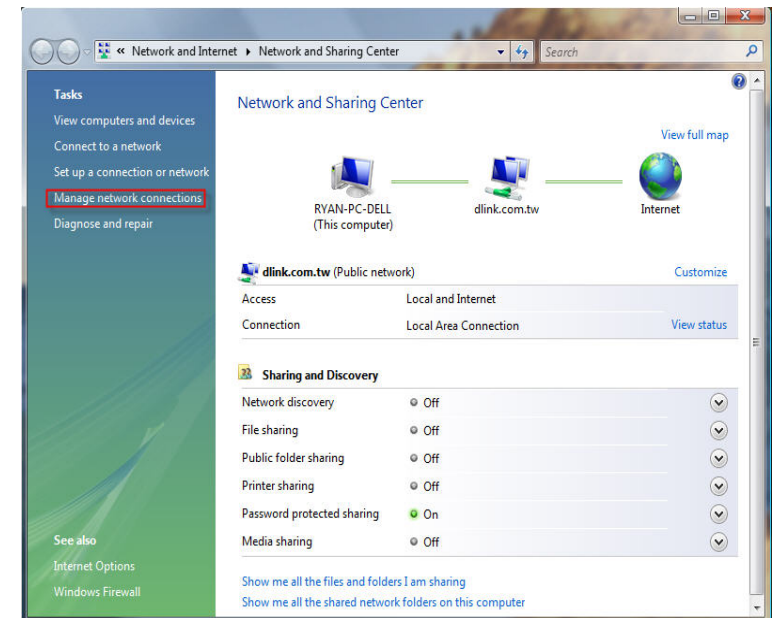
Connecting to a Secured Wireless Network (WEP, WPA-PSK & WPA2-PSK)

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

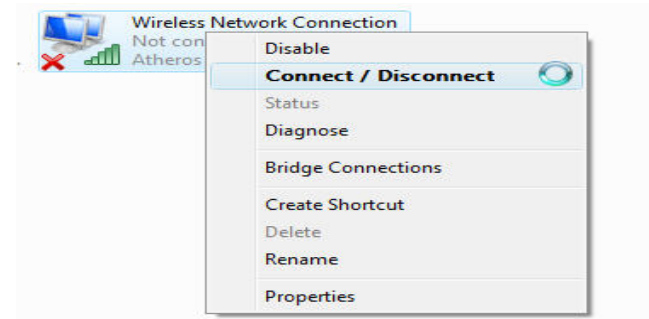
1. Right-click on **Network** and click on **Properties**.



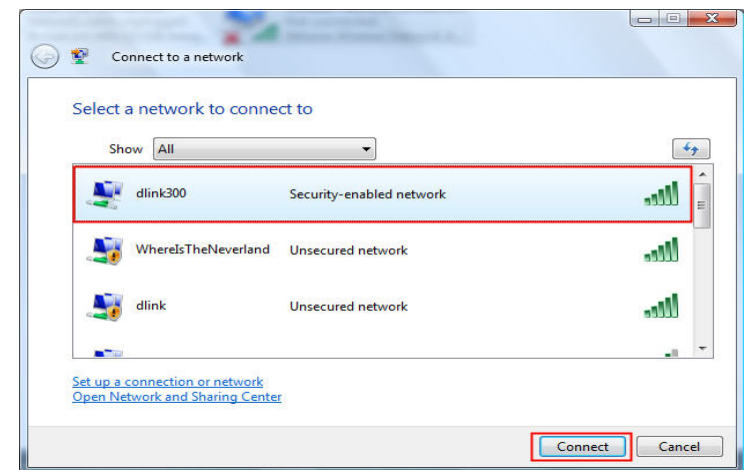
2. Click the **Manage network connections** link in the **Network and Sharing Center** window.



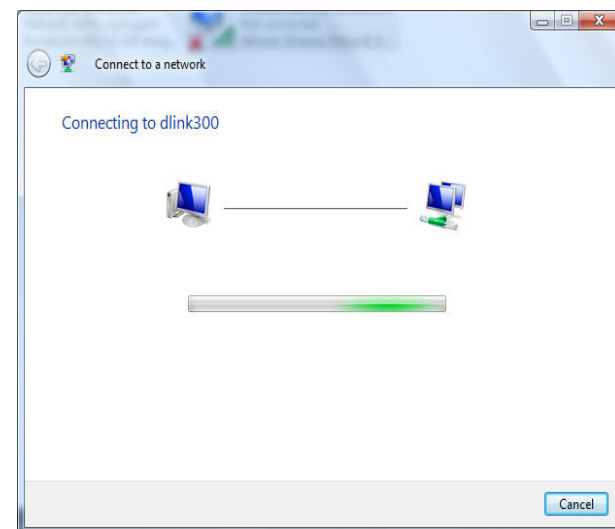
3. Right-click the **Wireless Network Connection** entry and then select **Connect/Disconnect** from the drop-down menu.



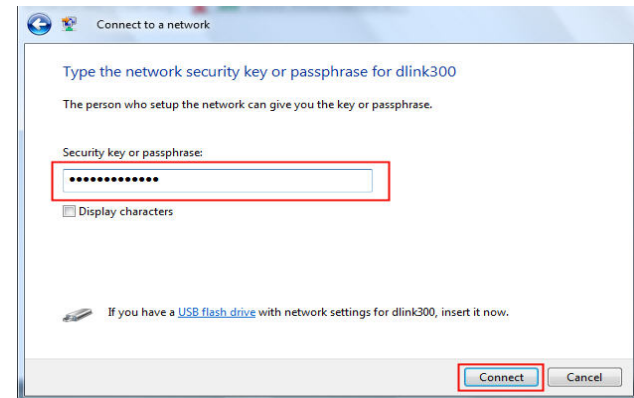
4. Select a network to connect to in the **Select a network to connect to** window and then click the **Connect** button.



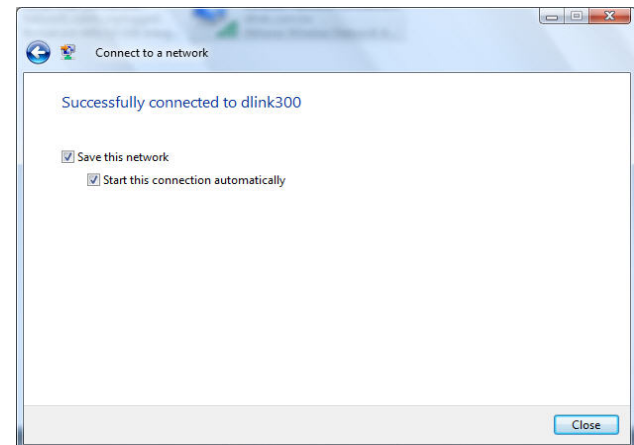
5. The following window displays connection progress.



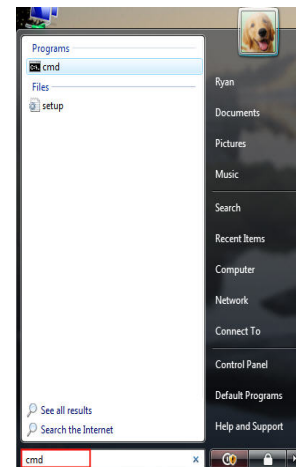
6. Enter the network security key or passphrase for the router in the textbox provided in the **Type the network security key or passphrase for [SSID name]** window. When you are finished, click the **Connect** button.



7. The following **Successfully connected to [SSID name]** window is displayed. Choose to save to the network and/or Start this 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. You can confirm your new settings by calling up the command prompt and then entering the ipconfig command.

```
Microsoft Windows [Version 6.0.6000]
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::cdf2:c28:90
    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:
```

10. To test the new IP address, use the ping command.

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

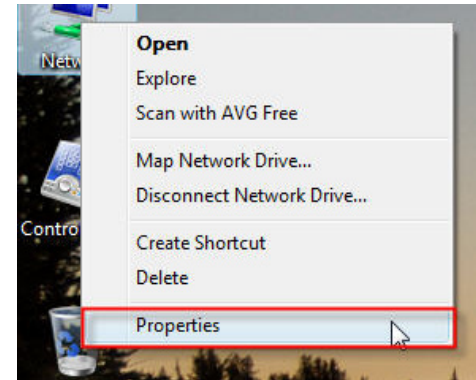
C:\Users\Ryan>ping 192.168.0.1 -t

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
```

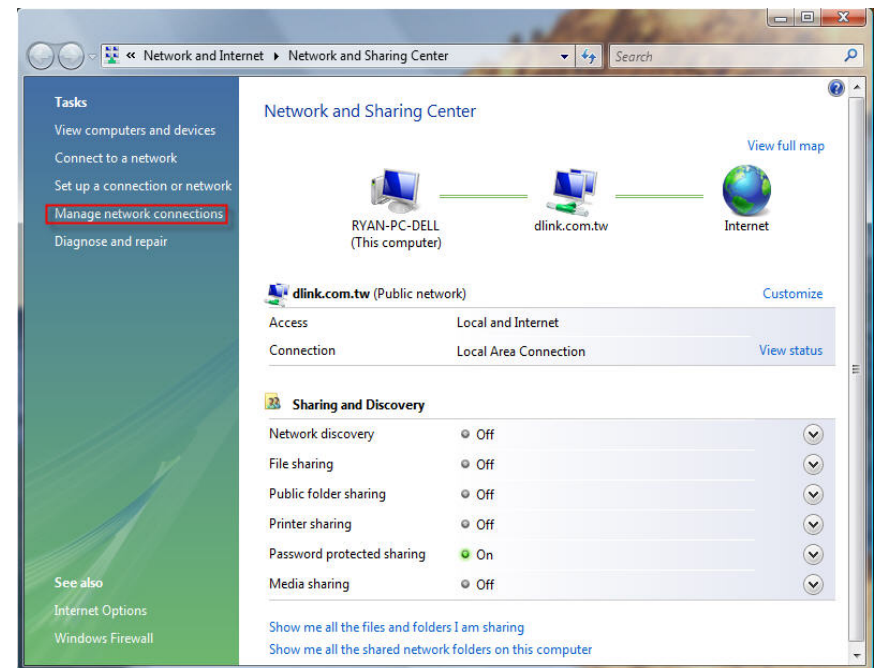
Connecting to an Unsecured Wireless Network

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

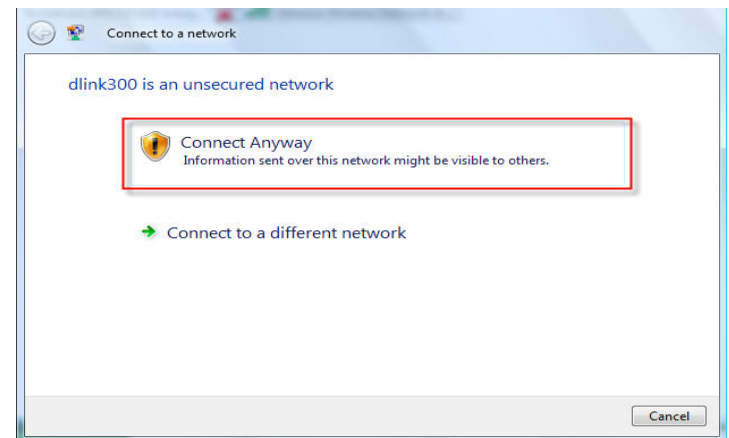
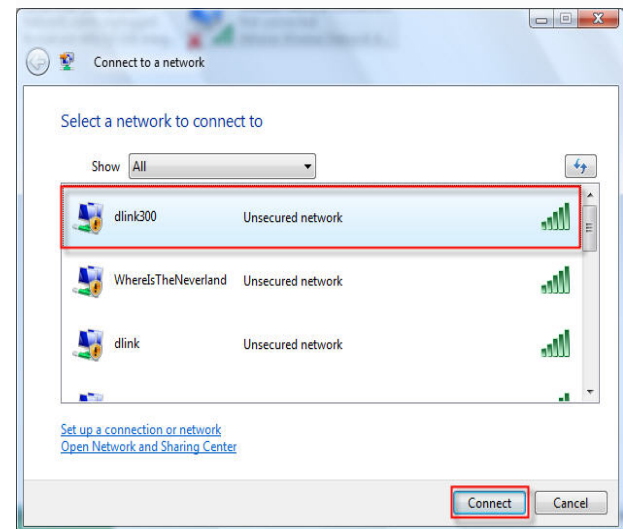
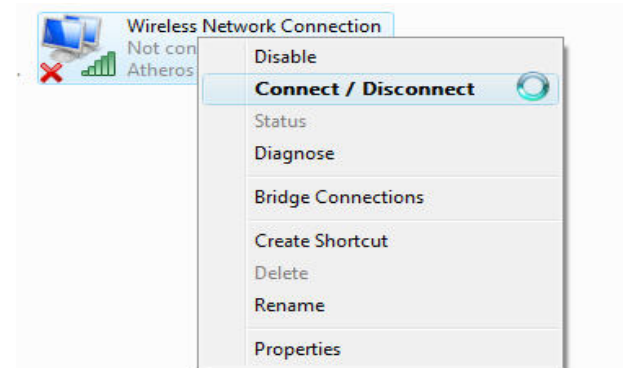
1. Right-click on **Network** and click on **Properties**.



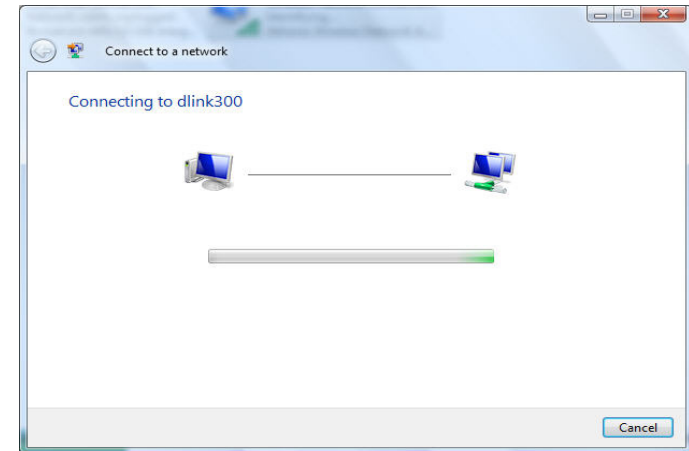
2. Go to the **Network and Sharing Center** window and click the **Manage Network Connections** link.



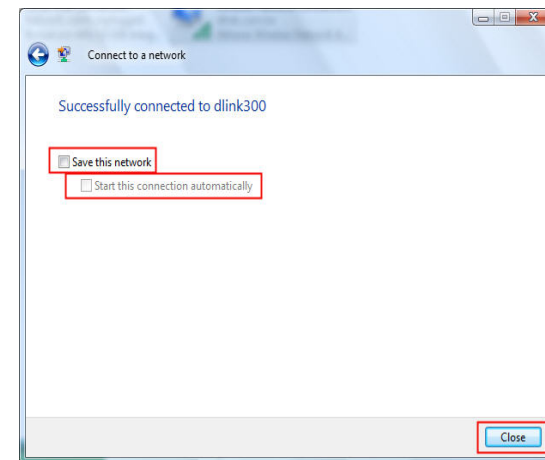
3. Right-click the **Wireless Network Connection** entry and then select **Connect/Disconnect** from the drop-down menu.
4. Select a network to connect to in the **Select a network to connect to** window and then click the **Connect** button.
5. Confirm that you still want to connect on the following **Network Connection Status** window by clicking on **Connect Anyway**.



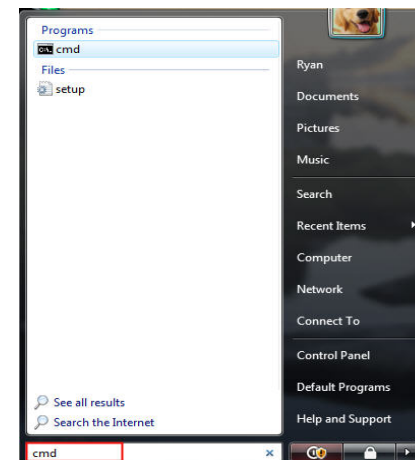
6. The following **Connect to a network** wizard window displays the connection progress.



7. The following **Successfully connected to [SSID name]** window 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. You can confirm your new settings by calling up the command prompt and then entering the ipconfig command.

```
Microsoft Windows [Version 6.0.6000]
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:c28:90
    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:
```

10. To test the new IP address, use the ping command.

```
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-400. Read the following descriptions if you are having problems.

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 nor do you have to be connected to the Internet. The device has the utility built into a ROM chip located 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 using one of the following:
 - Internet Explorer 6.0 or higher
 - Firefox 1.5 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
- 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's 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 **Default Level** 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 router's 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 web management.
- If you still cannot access the router's configuration pages, 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 an unfolded paperclip to hold the reset 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 you should 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/or Hotmail, we suggest gradually 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**.
- Type in **command** and press **Enter** (or click **OK**).
- Once the window opens, you'll need "ping" a URL. 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 decrease the MTU value by 10 until you get a reply. Once you get a reply, increase the MTU value 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, let's say that 1452 was the proper value, the actual MTU size should be 1480, which would be the optimum value 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, and go to the IP address of your router (192.168.0.1).
- 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.
- Try going to a website or checking your e-mail. 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 compatible, easy-to-use 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 in public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people 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 frequencies to connect wirelessly, so you have the freedom to place computers anywhere in your home or office while keeping them connected to your 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 similarly to how cordless phones work, using radio signals to transmit data from 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 to be able to connect your computer. There are two different types of wireless networks: Wireless Local Area Networks (WLAN), and Wireless Personal Area Networks (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, the signal can travel up to 300 feet. With an outdoor access point, the signal can extend up to 30 miles to serve locations such as 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 WPANs. Bluetooth devices in a WPAN operate in a range of up to 30 feet away.

Compared to WLANs, the speed and wireless operation range are both less, but in return Bluetooth doesn't use nearly as much power, making 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 for home, office or business, D-Link has a wireless solution for it.

Home

- Gives everyone at home broadband access
- Surf the web, check email, send instant messages, 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 the office
- Remotely access your office network from home
- Share your Internet connection and printer with multiple computers
- No need to dedicate office space

Where is wireless used?

Wireless technology is expanding everywhere, not just in the home or at the office. People like the freedom of mobility and it is becoming so popular that more and more public facilities now provide wireless access. Wireless connections in public places are usually called “hotspots”.

Using a D-Link Cardbus Adapter with your laptop enables you to access hotspots and connect to the Internet from remote locations like airports, hotels, coffee shops, libraries, restaurants, and convention centers.

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

Wireless Setup 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 is more evenly dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference

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

Security

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

Wireless Modes

There are basically two modes of networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – This is directly connecting to another computer for peer-to-peer communication by 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(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

Checking your IP address

After setting up your PC's connection to the router, 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.

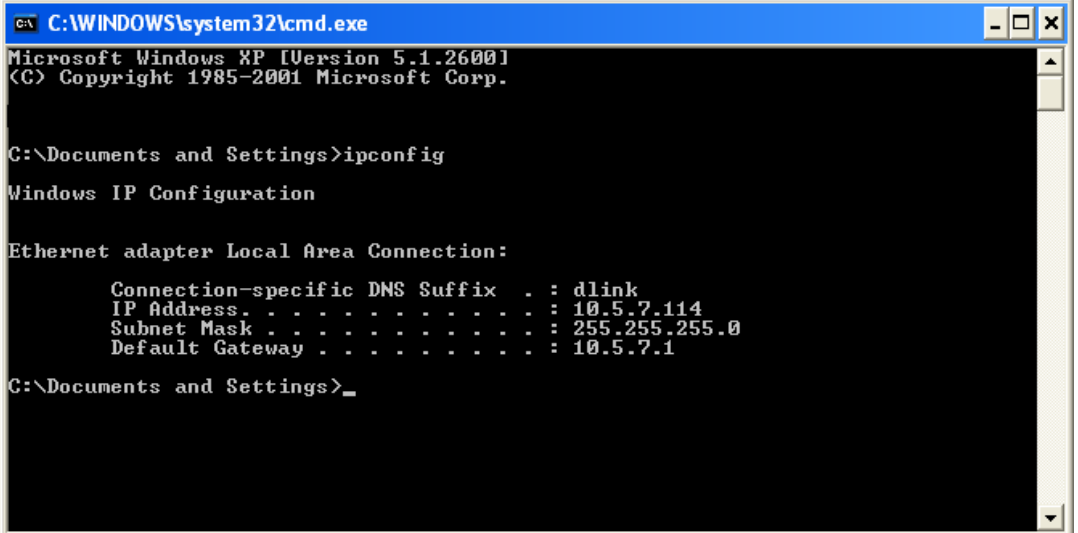
Click on **Start > Run**. In the run box type **command** and click **OK**.

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.

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.



```
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>_
```

Assigning a static IP address

If you are not using a DHCP capable gateway/router, or if 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

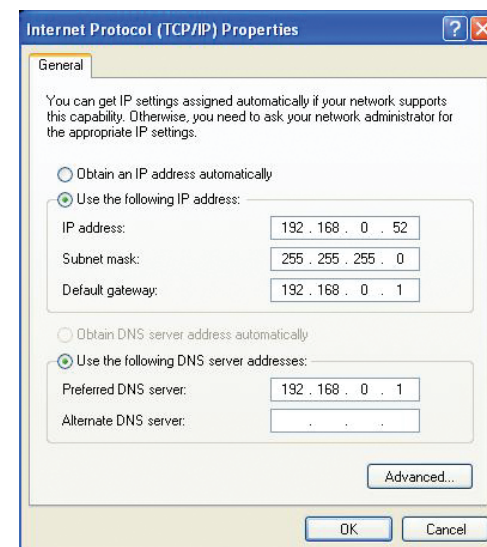
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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, though 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 802.3
- IEEE 802.3u

Wireless Signal Rates*

- 108Mbps
- 54Mbps
- 48Mbps
- 36Mbps
- 24Mbps
- 18Mbps
- 12Mbps
- 11Mbps
- 9Mbps
- 6Mbps
- 5.5Mbps
- 2Mbps
- 1Mbps

Security

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

Modulation Technology

Orthogonal Frequency Division Multiplexing (OFDM)

Receiver Sensitivity

- 54Mbps OFDM, 10% PER,-68dBm)
- 48Mbps OFDM, 10% PER,-68dBm)
- 36Mbps OFDM, 10% PER,-75dBm)
- 24Mbps OFDM, 10% PER,-79dBm)
- 18Mbps OFDM, 10% PER,-82dBm)

- 12Mbps OFDM, 10% PER,-84dBm)
- 11Mbps CCK, 8% PER,-82dBm)
- 9Mbps OFDM, 10% PER,-87dBm)
- 6Mbps OFDM, 10% PER,-88dBm)
- 5.5Mbps CCK, 8% PER,-85dBm)
- 2Mbps QPSK, 8% PER,-86dBm)
- 1Mbps BPSK, 8% PER,-89dBm)

VPN Pass Through/ Multi-Sessions

- PPTP
- L2TP
- IPSec

Device Management

- Web-based Internet Explorer v6 or later; Mozilla Firefox 1.5 or later; or another Java-enabled browser
- DHCP Server and Client

Wireless Frequency Range

2.4GHz to 2.462GHz

Wireless Operating Range²

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

Wireless Transmit Power

15dBm ± 2dBm

External Antenna Type

Single detachable reverse SMA

Advanced Firewall Features

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

Weight
7.8 oz (0.22kg)

Warranty
1 Year

Operating Temperature

32°F to 131°F (0°C to 55°C)

Humidity

95% maximum (non-condensing)

Safety and Emissions

FCC

LEDs

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

Dimensions

- L = 5.6 (142mm)
- W = 4.3 (109mm)
- H = 1.2 inches (31mm)

* 108Mbps Turbo mode operates only with other D-Link 108 G products. Maximum wireless signal rate derived from IEEE Standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range.

Contacting Technical Support

D-Link provides free technical support for customers within the United States and within Canada for the duration of the warranty period on this product. U.S. and Canadian customers can contact D-Link technical support through our web site or by phone.

Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DIR-400)
- Hardware Revision (located on the label on the bottom of the router (e.g. rev A1))
- Serial Number (s/n number located on the label on the bottom of the router).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:

(877) 453-5465

24 hours a day, seven days a week.

Internet Support:

<http://support.dlink.com>

support@dlink.com

For customers within Canada:

Phone Support:

(800) 361-5265

Monday to Friday 7:30am to 9:00pm EST

Internet Support:

<http://support.dlink.ca>

[email:support@dlink.ca](mailto:support@dlink.ca)

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. (“D-Link”) provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty:

D-Link warrants that the hardware portion of the D-Link product described below (“Hardware”) will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below (“Warranty Period”), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty:

D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days (“Software Warranty Period”), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer’s sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link’s option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link’s functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by DLink in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty:

The Limited Warranty provided hereunder for Hardware and Software portions of D-Link’s products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold “As-Is” without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim:

The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow DLink to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization (“RMA”) number by completing the RMA form and entering the assigned Case ID Number at <https://rma.dlink.com/>.
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do

not include any manuals or accessories in the shipping package. DLink will only replace the defective portion of the product and will not ship back any accessories.

- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery (“COD”) is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer. D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link’s reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered:

The Limited Warranty provided herein by D-Link does not cover:

Products that, in D-Link’s judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product.

While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties:

EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED “AS-IS” WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY,

SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability:

TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NONCONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law:

This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

Trademarks:

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Copyright Statement:

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CE Mark Warning:

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

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 communication. 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.

For detailed warranty information applicable to products purchased outside the United States, please contact the corresponding local D-Link office.

Industry Canada Statement

Operation is subject to the following two conditions:

- 1) this device may not cause interference and
- 2) this device must accept any interference, including interference that may cause undesired operation of the device

This device has been designed to operate with an antenna having a maximum gain of 2dBi.

Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.