

# Routing

The Routing option is an advanced method of customizing specific routes of data through your network.

**Name:** Enter a name for your route.

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

**Netmask:** Enter the netmask of the route, please note that the octets must match your destination IP address.

**Gateway:** Enter your next hop gateway to be taken if this route is used.

**Metric:** The route metric is a value from 1 to 16 that indicates the cost of using this route. A value 1 is the lowest cost and 15 is the highest cost.

**Interface:** Select the interface that the IP packet must use to transit out of the router when this route is used.

The screenshot shows the D-Link DIR-820L Advanced Routing configuration page. The page is titled "ROUTING" and includes a "Helpful Hints..." sidebar. The main content area shows the "ROUTE LIST" table with columns for Name, Destination IP, Metric, and Interface. The table is currently empty, and the remaining number of rules that can be created is 32.

| Name                     | Destination IP       | Metric | Interface |
|--------------------------|----------------------|--------|-----------|
| <input type="checkbox"/> | <input type="text"/> | 1      | WAN 0     |
| <input type="checkbox"/> | <input type="text"/> | 1      | WAN 0     |
| <input type="checkbox"/> | <input type="text"/> | 1      | WAN 0     |

Remaining number of rules that can be created: 32

**Helpful Hints...**

- Enable:** Specifies whether the entry will be enabled or disabled.
- Interface:** Specifies the interface -- WAN -- that the IP packet must use to transit out of the router, when this route is used.
- Destination IP:** The IP address of packets that will take this route.
- Netmask:** One bit in the mask specifies which bits of the IP address must match.
- Gateway:** The gateway IP address is the IP address of the router, if any, used to reach the specified destination.
- More...**

# Advanced Wireless

**Transmit Power:** Set the transmit power of the antennas.

**WLAN Partition:** This enables 802.11d operation. 802.11d is a wireless specification developed to allow implementation of wireless networks in countries that cannot use the 802.11 standard. This feature should only be enabled if you are in a country that requires it.

**WMM Enable:** WMM is QoS for your wireless network. This will improve the quality of video and voice applications for your wireless clients.

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

**HT20/40 Coexistence:** Enable this option to reduce interference from other wireless networks in your area. If the channel width is operating at 40MHz and there is another wireless network's channel over-lapping and causing interference, the router will automatically change to 20MHz.

**D-Link**

DIR-850L //

SETUP ADVANCED TOOLS STATUS SUPPORT

**ADVANCED WIRELESS**

If you are not familiar with these Advanced Wireless settings, please read the help section before attempting to modify these settings.

Save Settings Don't Save Settings

**ADVANCED WIRELESS SETTINGS**

Wireless Band : 2.4GHz  
 Transmit Power : High  
 WLAN Partition :   
 WMM Enable :   
 Short GI :   
 HT 20/40 MHz Coexistence :  Enable  Disable

**ADVANCED WIRELESS SETTINGS**

Wireless Band : 5GHz  
 Transmit Power : High  
 WLAN Partition :   
 WMM Enable :   
 Short GI :

**Helpful Hints ...**

It is recommended that you leave these parameters at their default values. Adjusting them could limit the performance of your wireless network.

Enabling WMM can help control latency and jitter when transmitting multimedia content over a wireless connection.

[More...](#)

**WIRELESS**

## Wi-Fi Protected Setup (WPS)

Wi-Fi Protected Setup (WPS) System is a simplified method for securing your wireless network during the “Initial setup” as well as the “Add New Device” processes. The Wi-Fi Alliance (WFA) has certified it across different products as well as manufactures. The process is just as easy as pressing a button for the Push-Button Method or correctly entering the 8-digit code for the Pin Code Method. The time reduction in setup and ease of use are quite beneficial, while the highest wireless Security setting of WPA2 is automatically used.

**Enable:** Enable the Wi-Fi Protected Setup feature.

**Note:** if this option is unchecked, the WPS button on the side of the router will be disabled.

**Lock Wireless Security Settings:** Tick this option to lock the configured wireless security settings.

**PIN Settings:** A PIN is a unique number that can be used to add the router to an existing network or to create a new network. Only the Administrator (“admin” account) can change or reset the PIN.

**Current PIN:** Shows the current PIN.

**Reset PIN to Default:** Restore the default PIN of the router.

**Generate New PIN:** Create a random number that is a valid PIN. This becomes the router’s PIN. You can then copy this PIN to the user interface of the wireless client.

The screenshot displays the D-Link router's configuration page for WPS. The main content area is titled "WI-FI PROTECTED SETUP" and includes the following elements:

- Enable:** A checkbox that is currently checked.
- WiFi Protected Setup:** Status is "Enable/Not Configured".
- Lock WPS-PIN Setup:** A checkbox that is currently unchecked.
- Buttons:** "Save Settings" and "Don't Save Settings" are located at the top and bottom of the main section.
- PIN SETTINGS:** Shows the current PIN as "85679832". Includes buttons for "Reset PIN to Default" and "Generate New PIN".
- ADD WIRELESS STATION:** Includes a button labeled "Connect your Wireless Device".

A sidebar on the left lists navigation options: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP (highlighted), ADVANCED NETWORK, DDNS SETTINGS, ITUNES SERVER, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING.

On the right side, there is a "Helpful Hints..." section with the following text:

- Enable if other wireless devices you wish to include in the local network support Wi-Fi Protected Setup.
- Only "Admin" account can change security settings.
- Lock WPS-PIN Setup Locking the WPS-PIN Method prevents the settings from being changed by any new external registrar using its PIN. Devices can still be added to the wireless network using Wi-Fi Protected Setup Push Button Configuration (WPS-PIN).
- Click Connect your Wireless Device to use Wi-Fi Protected Setup to add wireless devices to the wireless network.
- More...

**Add Wireless Station:** This Wizard helps you add wireless devices to the wireless network.

The wizard will either display the wireless network settings to guide you through manual configuration, prompt you to enter the PIN for the device, or ask you to press the configuration button on the device. If the device supports Wi-Fi Protected Setup and has a configuration button, you can add it to the network by pressing the configuration button on the device and then the on the router within 120 seconds. The status LED on the router will flash three times if the device has been successfully added to the network.

There are several ways to add a wireless device to your network. A “registrar” controls access to the wireless network. A registrar only allows devices onto the wireless network if you have entered the PIN, or pressed a special Wi-Fi Protected Setup button on the device. The router acts as a registrar for the network, although other devices may act as a registrar as well.

**Add Wireless Device Wizard:** Click to start the wizard and skip to page 48.

## WPS Button

You can also simply press the WPS button on the side of the router, and then press the WPS button on your wireless client to automatically connect without logging into the router.

Refer to page 130 for more information.



# Advanced Network Settings

**Enable UPnP:** To use the Universal Plug and Play (UPnP™) feature click on **Enabled**. UPnP provides compatibility with networking equipment, software and peripherals.

**WAN Ping:** Checking the box will allow the DIR-820L to respond to pings. Unchecking the box may provide some extra security from hackers.

**WAN Port Speed:** You may set the port speed of the Internet port to 10Mbps, 100Mbps, or Auto (recommended).

**Enable IPv4 Multicast Streams:** Check the box to allow multicast traffic to pass through the router from the Internet (IPv4).

**Enable IPv6 Multicast Streams:** Check the box to allow multicast traffic to pass through the router from the Internet (IPv6).

The screenshot displays the 'Advanced Network Settings' page for a D-Link DIR-820L router. The page is organized into several sections:

- ADVANCED NETWORK SETTINGS:** A warning message states: "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." Below this are 'Save Settings' and 'Don't Save Settings' buttons.
- UPNP:** A section titled 'Universal Plug and Play(UPnP) supports peer-to-peer Plug and Play functionality for network devices.' with the option 'Enable UPnP IGD' checked.
- WAN PING:** A section with the text: '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.' and the option 'Enable WAN Ping Response' unchecked.
- WAN PORT SPEED:** A section with 'WAN Port Speed' set to 'Auto 10/100/1000Mbps'.
- IPv4 MULTICAST STREAMS:** A section with the option 'Enable IPv4 Multicast Streams' unchecked.
- IPv6 MULTICAST STREAMS:** A section with the option 'Enable IPv6 Multicast Streams' checked.

On the right side of the page, there is a 'Helpful Hints...' section with several bullet points providing additional information and warnings about UPnP, WAN Ping, and WAN Port Speed settings.

## Guest Zone

The Guest Zone feature will allow you to create temporary zones that can be used by guests to access the Internet. These zones will be separate from your main wireless network. You may configure different zones for the 2.4GHz and 5GHz wireless bands.

**Enable Guest Zone:** Check to enable the Guest Zone feature.

**Schedule:** The schedule of time when the Guest Zone will be active. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section or click **Add New**.

**Wireless Network Name:** Enter a wireless network name (SSID) that is different from your main wireless network.

**Enable Routing Between Zones:** Check to allow network connectivity between the different zones created.

**Security Mode:** Select the type of security or encryption you would like to enable for the guest zone.

The screenshot shows the D-Link DIR-820L web interface. The top navigation bar includes 'D-Link', 'DIR-820L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options, with 'GUEST ZONE' selected. The main content area is titled 'GUEST ZONE' and contains the following sections:

- GUEST ZONE:** A header section with a description: "Use this section to configure the guest zone settings of your router. The guest zone provide a separate network zone for guest to access Internet." Below this are 'Save Settings' and 'Don't Save Settings' buttons.
- Enable Routing Between Zones:** A checkbox option.
- SESSION 2.4GHZ:**
  - Enable Guest Zone:  Always  New Schedule
  - Wireless Band: 2.4GHz Band
  - Wireless Network Name:  (Also called the SSID)
  - Security Mode:
- SESSION 5GHZ:**
  - Enable Guest Zone:  Always  New Schedule
  - Wireless Band: 5GHz Band
  - Wireless Network Name:  (Also called the SSID)
  - Security Mode:

At the bottom of the 5GHz section are 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' sidebar is visible on the right.

# IPv6 Firewall

The DIR-820L's IPv6 Firewall feature allows you to configure which kind of IPv6 traffic is allowed to pass through the device. The DIR-820L's IPv6 Firewall functions in a similar way to the IP Filters feature.

**Enable Checkbox:** Check the box to enable the IPv6 firewall simple security.

**Configure IPv6 Firewall:** Select an action from the drop-down menu.

**Name:** Enter a name to identify the IPv6 firewall rule.

**Schedule:** Use the drop-down menu to select the time schedule that the IPv6 Firewall Rule will be enabled on. The schedule may be set to **Always**, which will allow the particular service to always be enabled. You can create your own times in the **Tools > Schedules** section.

**Source:** Use the **Source** drop-down menu to specify the interface that connects to the source IPv6 addresses of the firewall rule.

**IP Address Range:** Enter the source IPv6 address range in the adjacent **IP Address Range** field.

**Dest:** Use the **Dest** drop-down menu to specify the interface that connects to the destination IP addresses of the firewall rule.

**Protocol:** Select the protocol of the firewall port (**All**, **TCP**, **UDP**, or **ICMP**).

**Port Range:** Enter the first port of the range that will be used for the firewall rule in the first box and enter the last port in the field in the second box.

The screenshot displays the D-Link DIR-820L web interface for IPv6 Firewall configuration. The top navigation bar includes 'D-Link' and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options, with 'FIREWALL SETTINGS' selected. The main content area is titled 'IPv6 FIREWALL' and contains an introductory text block, 'Save Settings' and 'Don't Save Settings' buttons, and a section for '20 -- IPV6 FIREWALL RULES'. This section indicates that 20 rules can be created and provides a 'Configure IPv6 Filtering below:' section with a 'Turn IPv6 Filtering OFF' checkbox. Below this, there are two rule configuration sections, each with fields for Name, Schedule, Source Interface, IP Address Range, Dest Interface, and Port Range. A 'Helpful Hints...' section on the right provides additional information about rule creation and scheduling.

# IPv6 Routing

This page allows you to specify custom routes that determine how data is moved around your network.

**Route List:** Check the box next to the route you wish to enable.

**Name:** Enter a specific name to identify this route.

**Destination IP/ Prefix Length:** This is the IP address of the router used to reach the specified destination or enter the IPv6 address prefix length of the packets that will take this route.

**Metric:** Enter the metric value for this rule here.

**Interface:** Use the drop-down menu to specify if the IP packet must use the WAN or LAN interface to transit out of the Router.

**Gateway:** Enter the next hop that will be taken if this route is used.

The screenshot shows the D-Link DIR-820L web interface. The top navigation bar includes 'D-Link', 'DIR-820L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'ADVANCED' tab is selected, and the 'ROUTING' section is active. The main content area displays the '10 -- ROUTE LIST' table, which is currently empty. The table has columns for 'Name', 'Destination IPv6 / Prefix Length', 'Metric', and 'Interface'. The 'Interface' column has a dropdown menu set to 'NULL'. The 'Helpful Hints...' sidebar on the right provides instructions on how to use the routing table, including checking the 'Route List' checkbox, naming the route, and understanding the fields for destination IP, prefix length, metric, and gateway.

| Name                     | Destination IPv6 / Prefix Length | Metric | Interface | Gateway |
|--------------------------|----------------------------------|--------|-----------|---------|
| <input type="checkbox"/> | /                                | 64     | NULL      |         |
| <input type="checkbox"/> | /                                | 64     | NULL      |         |
| <input type="checkbox"/> | /                                |        | NULL      |         |

**Helpful Hints...**

- Each route has a check box next to it, check this box if you want the route to be enabled.
- The name field allows you to specify a name for identification of this route, e.g. 'Network Z'
- The destination IPv6 address is the address of the host or network you wish to reach.
- The prefix length field identifies the portion of the destination IP in use.
- The gateway IP address is the IP address of the router, if any, used to reach the specified destination.
- [More...](#)

# Tools

## Admin

This page will allow you to change the Administrator and User passwords. You can also enable Remote Management. There are two accounts that can access the management interface through the web browser. The accounts are admin and user. Admin has read/write access while user has read-only access. User can only view the settings but cannot make any changes. Only the admin account has the ability to change both admin and user account passwords.

**Admin Password:** Enter a new password for the Administrator Login Name. The administrator can make changes to the settings.

**User Password:** Enter the new password for the User login. If you login as the User, you cannot change the settings (you can only view them).

**Gateway name:** Enter a name for your router.

**Enable Graphical Authentication:** Enables a challenge-response test to require users to type letters or numbers from a distorted image displayed on the screen to prevent online hackers and unauthorized users from gaining access to your router's network settings.

**Enable HTTPS Server:** Check to enable HTTPS to connect to the router securely. This means to connect to the router, you must enter **https://192.168.0.1** (for example) instead of **http://192.168.0.1**.

**Enable Remote Management:** Remote management allows the DIR-820L to be configured from the Internet by a web browser. A username/password is still required to access the Web Management interface.

**Remote Admin Port:** The port number used to access the DIR-820L is used in the URL. Example: **http://x.x.x.x:8080** whereas x.x.x.x is the Internet IP address of the DIR-820L and 8080 is the port used for the Web Management interface.

If you have enabled **HTTPS Server**, you must enter **https://** as part of the URL to access the router remotely.

**Remote Admin Inbound Filter:** This section will list any rules that are created. You may click the **Edit** icon to change the settings or enable/disable the rule, or click the **Delete** icon to remove the rule. **Details** will display the current status.

The screenshot shows the D-Link DIR-820L web management interface. The top navigation bar includes 'D-Link', 'DIR-820L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'TOOLS' tab is selected, and the 'ADMIN' sub-tab is active. The main content area is titled 'ADMINISTRATOR SETTINGS' and contains the following sections:

- ADMINISTRATOR SETTINGS:** A text box explaining that the 'admin' account has read/write access and can change passwords. It recommends creating a password. Below the text are 'Save Settings' and 'Don't Save Settings' buttons.
- ADMIN PASSWORD:** A section with the instruction 'Please enter the same password into both boxes, for confirmation.' It contains two password input fields labeled 'Password' and 'Verify Password'.
- SYSTEM NAME:** A section with a 'Gateway Name' field set to 'DIR-850L'.
- ADMINISTRATION:** A section with several checkboxes and fields:
  - 'Enable Graphical Authentication' (unchecked)
  - 'Enable HTTPS Server' (checked)
  - 'Enable Remote Management' (unchecked)
  - 'Remote Admin Port' (8080) and 'Use HTTPS' (checked)
  - 'Remote Admin Inbound Filter' (Allow All)
  - 'Details' (Advanced)

On the right side of the interface, there is a 'Helpful Hints...' section with several tips, including one about changing the password for security reasons and another about enabling Remote Management.

# Time

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 Time Server. Daylight Saving can also be configured to automatically adjust the time when needed.

**Time:** Displays the current date and time of the router.

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

**Enable Daylight Saving:** To select Daylight Saving time manually, select enabled or disabled, and enter a start date and an end date for daylight saving time.

**Enable NTP Server:** NTP is short for Network Time Protocol. A NTP server will synch the time and date with your router. This will only connect to a server on the Internet, not a local server. Check the box to enable this feature.

**NTP Server Used:** Enter the IP address of a NTP server or select one from the drop-down menu.

**Manual:** To manually input the time, enter the values in these fields for the Year, Month, Day, Hour, Minute, and Second and then click **Set Time**.

You can also click **Copy Your Computer's Time Settings** to synch the date and time with the computer you are currently on.

The screenshot shows the D-Link web interface for the DIR-820L router. The main content area is titled "TIME AND DATE" and contains the following sections:

- TIME AND DATE:** A descriptive paragraph explaining the configuration options, followed by "Save Settings" and "Don't Save Settings" buttons.
- TIME AND DATE CONFIGURATION:**
  - Time: 01/01/2000 01:03:11
  - Time Zone: (GMT+08:00) Taipei
  - Enable Daylight Saving:
  - Daylight Saving Offset: -01:00
  - Daylight Saving Dates:
 

|           | Month | Week | Day of Week | Time     |
|-----------|-------|------|-------------|----------|
| DST Start | Jan   | 1st  | Sun         | 12:00 AM |
| DST End   | Jan   | 1st  | Sun         | 12:00 AM |
- AUTOMATIC TIME AND DATE CONFIGURATION:**
  - Automatically synchronize with D-Link's Internet time server
  - NTP Server Used: ntp1.dlink.com
  - Update Now button
- SET THE TIME AND DATE MANUALLY:**
  - Year: 2009
  - Month: Jan
  - Day: 1
  - Hour: 1
  - Minute: 3
  - Day: 1
  - Second: 11

# SysLog

The Broadband Router keeps a running log of events and activities occurring on the Router. You may send these logs to a SysLog server on your network.

**Enable Logging to SysLog Server:** Check this box to send the router logs to a SysLog Server.

**SysLog Server IP Address:** The address of the SysLog server that will be used to send the logs. You may also select your computer from the drop-down menu (only if receiving an IP address from the router via DHCP).

The screenshot shows the D-Link web interface for the DIR-820L router. The top navigation bar includes 'DIR-820L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'SYSLOG' page is displayed, featuring a 'SYSLOG SETTINGS' section with the following content:

The SysLog options allow you to send log information to a Syslog Server.

Save Settings Don't Save Settings

**SYSLOG SETTINGS**

Enable Logging To SysLog :  Server

Save Settings Don't Save Settings

**Helpful Hints...**

- A System Logger (syslog) is a server that collects in one place the logs from different sources. If the LAN includes a syslog server, you can use this option to send the router's logs to that server.
- [More...](#)

# Email Settings

The Email feature can be used to send the system log files, router alert messages, and firmware update notification to your email address.

**Enable Email Notification:** When this option is enabled, router activity logs are emailed to a designated email address.

**From Email Address:** This email address will appear as the sender when you receive a log file or firmware upgrade notification via email.

**To Email Address:** Enter the email address where you want the email sent.

**SMTP Server Address:** Enter the SMTP server address for sending email.

**SMTP Server Port:** Enter the SMTP port used on the server.

**Enable Authentication:** Check this box if your SMTP server requires authentication.

**Account Name:** Enter your account for sending email.

**Password:** Enter the password associated with the account. Re-type the password associated with the account.

**On Log Full:** When this option is selected, logs will be sent via email to your account when the log is full.

**On Schedule:** Selecting this option will send the logs via email according to schedule.

**Schedule:** This option is enabled when **On Schedule** is selected. You can select a schedule from the list of defined schedules. To create a schedule, go to **Tools > Schedules**.

The screenshot shows the D-Link web interface for the DIR-820L router. The top navigation bar includes 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options: ADMIN, TIME, SYSLOG, EMAIL SETTINGS (selected), SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'EMAIL SETTINGS' and contains the following sections:

- EMAIL NOTIFICATION:** A checkbox labeled 'Enable Email Notification' is currently unchecked.
- EMAIL SETTINGS:** A form with the following fields:
  - From Email Address : [text input]
  - To Email Address : [text input]
  - Email Subject : [text input]
  - SMTP Server Address : [text input]
  - SMTP Server Port : [text input]
  - Enable Authentication :
  - Account Name : [text input]
  - Password : [text input]
  - Verify Password : [text input]
- EMAIL LOG WHEN FULL OR ON SCHEDULE:**
  - On Log Full :
  - On Schedule :
  - Schedule : [dropdown menu]
  - Detail : [text input]

At the bottom of the form, there are two buttons: 'Save Settings' and 'Don't Save Settings'. A 'Helpful Hints...' section is visible on the right side of the page.

# System

This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

**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. A file dialog will appear, allowing you to 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** option to find a previously saved file of configuration settings. Then, click the **Load** button to transfer those settings to the router.

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

**Reboot Device:** Click to reboot the router.

# Firmware

You can upgrade the firmware of the access point 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 website for firmware updates at <http://support.dlink.com>. You can download firmware upgrades to your hard drive from this site.

**Browse:** After you have downloaded the new firmware, click **Browse** to locate the firmware update on your hard drive. Click **Upload** to complete the firmware upgrade.

**Upload:** Once you have a firmware update on your computer, use this option to browse for the file and then upload the information into the access point.

## Language Pack

You can change the language of the web UI by uploading available language packs.

**Browse:** After you have downloaded the new language pack, click **Browse** to locate the language pack file on your hard drive. Click **Upload** to complete the language pack upgrade.

The screenshot displays the D-Link web interface for a DIR-820L router. The top navigation bar includes 'DIR-820L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options, with 'FIRMWARE' selected. The main content area is titled 'FIRMWARE UPDATE' and contains the following text:

There may be new firmware for your router 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 Upload button to start the firmware upgrade.

The language pack allows you to change the language of the user interface on the router. We suggest that you upgrade your current language pack if you upgrade the firmware. This ensures that any changes in the firmware are displayed correctly.

To upgrade the language pack, locate the upgrade file on the local hard drive with the Browse button. Once you have found the file to be used, click the Upload button to start the language pack upgrade.

**FIRMWARE INFORMATION**

Current Firmware Version : L.00  
 Current Firmware Date : Wed 23 May 2012  
 Check Online Now for Latest :   
 Firmware Version

**FIRMWARE UPGRADE**

**Note:** Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.

To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button.

Upload :

**LANGUAGE PACK UPGRADE**

Upload :

The right sidebar contains 'Helpful Hints...' with a link to 'Firmware Update'.

# Dynamic DNS

The DDNS 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 in your domain name to connect to your server no matter what your IP address is.

**Enable** Dynamic Domain Name System is a method of **Dynamic DNS:** keeping a domain name linked to a changing IP Address. Check the box to enable DDNS.

**Server Address:** Select your DDNS provider from the drop-down menu or enter the DDNS server address.

**Host Name:** Enter the Host Name that you registered with your DDNS service provider.

**Username or Key:** Enter the Username or key for your DDNS account.

**Password or Key:** Enter the Password or key for your DDNS account.

**Timeout:** Enter a timeout time (in hours).

**Status:** Displays the current connection status.

**D-Link**

DIR-850L // SETUP ADVANCED **TOOLS** STATUS SUPPORT

ADMIN  
TIME  
SYSLOG  
EMAIL SETTINGS  
SYSTEM  
FIRMWARE  
**DYNAMIC DNS**  
SYSTEM CHECK  
SCHEDULES

**DYNAMIC DNS**

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.](#)

Save Settings Don't Save Settings

**DYNAMIC DNS SETTINGS**

Enable Dynamic DNS :

Server Address :

Host Name :

Username or Key :

Password or Key :

Verify Password or Key :

Timeout : 24 (hours)

Status : Disconnected

**DYNAMIC DNS FOR IPV6 HOSTS**

Enable :

IPv6 Address :  (e.g. Computer Name :

Host Name :  (e.g.: ipv6.mydomain.net)

Save Cancel

**IPV6 DYNAMIC DNS LIST**

| Enable | Host Name | IPv6 Address |
|--------|-----------|--------------|
|        |           |              |

Helpful Hints...

- To use this feature, you must first have a Dynamic DNS account from one of the providers in the drop-down menu.
- We could also use DDNS function for IPv6 with the same account as IPv4.
- More...

# System Check

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

**IPv6 Ping Test:** Enter the IPv6 address that you wish to Ping and click **Ping**.

**Ping Results:** The results of your ping attempts will be displayed here.

The screenshot displays the D-Link DIR-820L web interface. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options, with SYSTEM CHECK highlighted. The main content area is divided into three sections: PING TEST, IPV6 PING TEST, and PING RESULT. The PING TEST section contains a text box for 'Host Name or IP Address' and 'Ping' and 'Stop' buttons. The IPV6 PING TEST section contains a text box for 'Host Name or IPv6 Address' and 'Ping' and 'Stop' buttons. The PING RESULT section contains a text box with the instruction 'Enter a host name or IP address above and click 'Ping''. A 'Helpful Hints ...' sidebar on the right provides additional information about the ping test function.

# Schedules

Schedules can be created for use with enforcing rules. For example, if you want to restrict web access to Mon-Fri from 3pm to 8pm, you could create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a Start Time of 3pm and End Time of 8pm.

**Name:** Enter a name for your new schedule.

**Days:** Select a day, a range of days, or All Week to include every day.

**Time:** Check **All Day - 24hrs** or enter a start and end time for your schedule.

**Save:** You must click **Save Settings** at the top for your schedules to go into effect.

**Schedule Rules** The list of schedules will be listed here. Click the **List: Edit** icon to make changes or click the **Delete** icon to remove the schedule.

**D-Link**

DIR-820L // SETUP ADVANCED TOOLS STATUS SUPPORT

**SCHEDULES**

The Schedule configuration option is used to manage schedule rules for "WAN", "Wireless", "Virtual Server", "Port Forwarding", "Applications" and "Network Filter".

**10 -- ADD SCHEDULE RULE**

**Name :**

**Day(s) :**  All Week  Select Day(s)

Sun  Mon  Tue  Wed  Thu  Fri  Sat

**All Day - 24 hrs :**

**Time Format :**

**Start Time :**  :  : 0  (hour:minute)

**End Time :**  :  : 59  (hour:minute)

**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 **Add** 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.
- [More...](#)

# Status

## Device Info

This page displays the current information for the DIR-820L. It will display the LAN, WAN (Internet), and Wireless information. If your Internet connection is set up for a Dynamic IP address then a **Release** button and a **Renew** button will be displayed. Use **Release** to disconnect from your ISP and use **Renew** to connect to your ISP.

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

**General:** Displays the router's time and firmware version.

**WAN:** Displays the MAC address and the public IP settings

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

**Wireless LAN1:** Displays the 2.4GHz wireless MAC address and your wireless settings such as SSID and Channel.

**Wireless LAN2:** Displays the 5GHz wireless MAC address and your wireless settings such as SSID and Channel.

**LAN Computers:** Displays computers and devices that are connected to the router via Ethernet and that are receiving an IP address assigned by the router (DHCP).

The screenshot shows the D-Link DIR-820L web interface. The main content area is titled "DEVICE INFORMATION" and contains the following sections:

- GENERAL:**
  - Time: Sunday, January 02, 2011 12:45:06 AM
  - Firmware Version: 1.00, Tue, 16, Mar, 2010
- WAN:**
  - Connection Type: Dynamic IP (DHCP)
  - Cable Status: Disconnected
  - Network Status: Disconnected (with Release and Renew buttons)
  - Connection Up Time: N/A
  - MAC Address: 00:18:87:95:70:A1
  - IP Address: 0.0.0.0
  - Subnet Mask: 0.0.0.0
  - Default Gateway: 0.0.0.0
  - Primary DNS Server: 0.0.0.0
  - Secondary DNS Server: 0.0.0.0
  - Advanced DNS: Disabled
- LAN:**
  - MAC Address: 00:18:87:95:70:A0
  - IP Address: 192.168.0.1
  - Subnet Mask: 255.255.255.0
  - DHCP Server: ENABLED
- WIRELESS LAN1:**
  - Wireless Band: 2.4GHz
  - Wireless Radio: Enable
  - 802.11 Mode: 802.11bgn
  - Channel Width: 20/40MHz
  - Channel: 2
  - WiFi Protected Setup: Enabled/Not Configured
  - SSID List:
 

| Network Name (SSID) | Guest | MAC Address       | Security Mode |
|---------------------|-------|-------------------|---------------|
| dlink               | No    | 00:18:87:95:70:A0 | Off           |
- WIRELESS LAN2:**
  - Wireless Band: 5GHz Band
  - Wireless Radio: Enable
  - 802.11 Mode: 802.11n
  - Channel Width: 20/40MHz
  - Channel: 36
  - WiFi Protected Setup: Enabled/Not Configured
  - SSID List:
 

| Network Name (SSID) | Guest | MAC Address       | Security Mode |
|---------------------|-------|-------------------|---------------|
| dlink_medea         | No    | 00:18:87:95:70:A2 | Off           |
- LAN COMPUTERS:**

| IP Address    | Name (if any) | MAC               |
|---------------|---------------|-------------------|
| 192.168.0.100 | TM_bea01      | 00:04:23:2C:51:A3 |
- IGMP MULTICAST MEMBERSHIPS:**
  - Multicast Group Address:

# Logs

The router automatically logs (records) events of possible interest in its internal memory. If there isn't enough internal memory for all events, logs of older events are deleted but logs of the latest events are retained. The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of the events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.

**Log Options:** You can select the types of messages that you want to display from the log. System Activity, Debug Information, Attacks, Dropped Packets, and Notice messages can be selected. Click **Apply Log Settings Now** to activate your settings.

**Refresh:** Updates the log details on the screen so it displays any recent activity.

**First Page:** Click to go to the first page.

**Last Page:** Click to go to the last page.

**Previous:** Click to go back one page.

**Next:** Click to go to the next page.

**Clear:** Clears all of the log contents.

**Email Now:** This option will send a copy of the router log to your email address configured in the **Tools > Email Settings** screen.

**Save Log:** This option will save the router log to a file on your computer.

**D-Link**

DIR-820L

SETUP ADVANCED TOOLS STATUS SUPPORT

DEVICE INFO  
LOGS  
STATISTICS  
INTERNET SESSIONS  
ROUTING  
WIRELESS  
IPv6  
IPv6 ROUTING

**LOGS**

Use this option to view the router logs. You can define what types of events you want to view and the event levels to view. This router also has internal syslog server support so you can send the log files to a computer on your network that is running a syslog utility.

**LOG OPTIONS**

**Log Options :**  System Activity  
 Debug Information  
 Attacks  
 Dropped Packets  
 Notice

Apply Log Settings Now

**LOG DETAILS**

First Page Last Page Previous Next  
Refresh Clear Email Now Save Log

1/9

| Time           | Message  |
|----------------|--|
| Jan 1 00:19:32 | cron.err: crond[11725]: crond (busybox 1.12.1) started, log level 8  |
| Jan 1 00:19:31 | cron.err: crond[11673]: crond (busybox 1.12.1) started, log level 8  |
| Jan 1 00:19:30 | cron.err: crond[11557]: crond (busybox 1.12.1) started, log level 8  |
| Jan 1 00:19:30 | cron.err: crond[11349]: crond (busybox 1.12.1) started, log level 8  |
| Jan 1 00:19:30 | user.crit: kernel: Argh. No free space left for GC. nr_erasing_blocks is 0. nr_free_blocks is 0. (erasableempty: yes, erasingempty: yes, erasependingempty: yes) |
| Jan 1 00:00:24 | user.info: kernel: br0: port 2(ra00_0) entering forwarding state   |
| Jan 1 00:00:13 | user.info: kernel: br0: port 2(ra00_0) entering learning state   |
| Jan 1 00:00:13 | user.info: kernel: br0: port 2(ra00_0) entering learning state   |
| Jan 1 00:00:13 | user.info: kernel: device ra00_0 entered promiscuous mode  |
| Jan 1 00:00:13 | user.warn: kernel: 0x1300 = 00064380   |

Helpful Hints...  
Check the log frequently to detect unauthorized network usage.  
You can also have the log mailed to you periodically. Refer to **Tools -> Email**.  
More...

WIRELESS

# Statistics

The screen below displays the **Traffic Statistics**. Here you can view the amount of packets that pass through the DIR-820L on both the WAN, LAN ports and the wireless segments. The traffic counter will reset if the device is rebooted.

**D-Link**

DIR-820L // SETUP ADVANCED TOOLS **STATUS** SUPPORT

DEVICE INFO  
LOGS  
**STATISTICS**  
INTERNET SESSIONS  
ROUTING  
WIRELESS  
IPV6  
IPV6 ROUTING

**TRAFFIC STATISTICS**  
Traffic Statistics display Receive and Transmit packets passing through your router.  
[Refresh Statistics](#) [Clear Statistics](#)

**LAN STATISTICS**

|                |                  |
|----------------|------------------|
| Sent : 133656  | Received : 28232 |
| TX Packets     | RX Packets       |
| Dropped : 0    | Dropped : 0      |
| Collisions : 0 | Errors : 0       |

**WAN STATISTICS**

|                |              |
|----------------|--------------|
| Sent : 66      | Received : 0 |
| TX Packets     | RX Packets   |
| Dropped : 0    | Dropped : 0  |
| Collisions : 0 | Errors : 0   |

**WIRELESS STATISTICS**

|              |                   |
|--------------|-------------------|
| Sent : 17694 | Received : 484764 |
| TX Packets   | RX Packets        |
| Dropped : 0  | Dropped : 0       |
|              | Errors : 0        |

**WIRELESS STATISTICS2**

|              |                 |
|--------------|-----------------|
| Sent : 11865 | Received : 7405 |
| TX Packets   | RX Packets      |
| Dropped : 0  | Dropped : 0     |
|              | Errors : 0      |

**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.  
[More...](#)

**WIRELESS**

# Internet Sessions

The Internet Sessions page displays full details of active Internet sessions through your router. An Internet session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.



| DIR-820L   | SETUP   | ADVANCED | TOOLS             | STATUS   | SUPPORT   |     |          |
|--|---|----------|-------------------|----------|---|-----|----------|
| DEVICE INFO<br>LOGS<br>STATISTICS<br><b>INTERNET SESSIONS</b><br>ROUTING<br>WIRELESS<br>IPV6<br>IPV6 ROUTING | <b>INTERNET SESSIONS</b><br>This page displays the full details of active internet sessions to your router. |          |                   |          | <b>Helpful Hints...</b><br>This is a list of all active conversations between WAN computers and LAN computers.<br><br><a href="#">More...</a> |     |          |
|  | <b>INTERNET SESSIONS</b>  |          |                   |          |   |     |          |
|  | Local   | NAT      | Internet          | Protocol | State   | Dir | Time Out |
|  | 192.168.0.1:137   | 137      | 192.168.0.100:137 | udp      | -   | OUT | 170      |
|  | 192.168.0.100:3600  | 3600     | 192.168.0.1:53    | udp      | -   | OUT | 111      |
|  | 192.168.0.100:3704  | 3704     | 192.168.0.1:80    | tcp      | EST   | OUT | 432000   |
|  | 192.168.0.100:3702  | 3702     | 192.168.0.1:80    | tcp      | TW  | OUT | 119      |
|  | 192.168.0.100:3701  | 3701     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3700  | 3700     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3699  | 3699     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3698  | 3698     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3697  | 3697     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3696  | 3696     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3695  | 3695     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3694  | 3694     | 192.168.0.1:80    | tcp      | CL  | OUT | 9        |
|  | 192.168.0.100:3693  | 3693     | 192.168.0.1:80    | tcp      | TW  | OUT | 119      |
|  | 192.168.0.100:3689  | 3689     | 192.168.0.1:80    | tcp      | TW  | OUT | 105      |
|  | 192.168.0.100:3688  | 3688     | 192.168.0.1:80    | tcp      | TW  | OUT | 105      |
|  | 192.168.0.100:3679  | 3679     | 192.168.0.1:80    | tcp      | TW  | OUT | 105      |
|  | 192.168.0.100:3675  | 3675     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3674  | 3674     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3673  | 3673     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3672  | 3672     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3663  | 3663     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3662  | 3662     | 192.168.0.1:80    | tcp      | TW  | OUT | 101      |
|  | 192.168.0.100:3661  | 3661     | 192.168.0.1:80    | tcp      | TW  | OUT | 97       |
|  | 192.168.0.100:3660  | 3660     | 192.168.0.1:80    | tcp      | TW  | OUT | 93       |

# Routing

This page will display your current routing table.

The screenshot shows the D-Link web interface for a DIR-820L router. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains a menu with options: DEVICE INFO, LOGS, STATISTICS, INTERNET SESSIONS, WIRELESS, ROUTING (selected), IPv6, and IPV6 ROUTING. The main content area is titled 'ROUTING' and contains a 'Routing Table' section with the text: 'This page displays the routing details configured for your router.' Below this is a table titled 'ROUTING TABLE' with the following data:

| Destination | Gateway | Genmask       | Metric | Iface | Creator |
|-------------|---------|---------------|--------|-------|---------|
| 192.168.7.0 | 0.0.0.0 | 255.255.255.0 | 0      | LAN   | SYSTEM  |
| 192.168.0.0 | 0.0.0.0 | 255.255.255.0 | 0      | LAN   | SYSTEM  |
| 239.0.0.0   | 0.0.0.0 | 255.0.0.0     | 0      | LAN   | SYSTEM  |

On the right side of the interface, there is a 'Helpful Hints...' section with the following text:

- This is a list of all routing rules on router.
- [More...](#)

The bottom of the interface features a 'WIRELESS' tab.

# Wireless

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

**D-Link**

DIR-820L // SETUP ADVANCED TOOLS STATUS SUPPORT

DEVICE INFO  
LOGS  
STATISTICS  
INTERNET SESSIONS  
**WIRELESS**  
ROUTING  
IPv6  
IPv6 ROUTING

**CONNECTED WIRELESS CLIENT LIST**  
View the wireless clients that are connected to the router. (A client might linger in the list for a few minutes after an unexpected disconnect.)

**NUMBER OF WIRELESS CLIENTS - 2.4GHZ BAND : 0**

| MAC Address | IP Address | Mode | Rate (Mbps) | Signal (%) |
|-------------|------------|------|-------------|------------|
|             |            |      |             |            |

**NUMBER OF WIRELESS CLIENTS - 5GHZ BAND : 0**

| MAC Address | IP Address | Mode | Rate (Mbps) | Signal (%) |
|-------------|------------|------|-------------|------------|
|             |            |      |             |            |

**Helpful Hints...**

- This is a list of all wireless clients that are currently connected to your wireless router.
- [More...](#)

**WIRELESS**

# IPv6

The IPv6 page displays a summary of the Router's IPv6 settings and lists the IPv6 address and host name of any IPv6 clients.

| D-Link            |   |          |       |        |   |              |              |  |
|-------------------|---|----------|-------|--------|---|--------------|--------------|--|
| DIR-820L          | SETUP   | ADVANCED | TOOLS | STATUS | SUPPORT   |              |              |  |
| DEVICE INFO       | <b>IPv6 NETWORK INFORMATION</b>   |          |       |        | <b>Helpful Hints...</b> <ul style="list-style-type: none"> <li>All of your WAN and LAN connection details are displayed here.</li> <li><a href="#">More...</a></li> </ul> |              |              |  |
| LOGS              | All of your Internet and network connection details are displayed on this page. The firmware version is also displayed here.                          |          |       |        |   |              |              |  |
| STATISTICS        | <b>IPv6 CONNECTION INFORMATION</b>  |          |       |        |   |              |              |  |
| INTERNET SESSIONS | <b>IPv6 Connection Type</b> : Link-Local<br><b>IPv6 Default Gateway</b> : None<br><b>LAN IPv6 Link-Local Address</b> : fe80::bef6:85ff:fed2:4a35 /64  |          |       |        |   |              |              |  |
| WIRELESS          | <b>LAN IPv6 COMPUTERS</b>   |          |       |        |   |              |              |  |
| ROUTING           | <table border="1"> <thead> <tr> <th>IPv6 Address</th> <th>Name(if any)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> |          |       |        |   | IPv6 Address | Name(if any) |  |
| IPv6 Address      | Name(if any)  |          |       |        |   |              |              |  |
|                   |   |          |       |        |   |              |              |  |
| IPv6              | <b>WIRELESS</b>   |          |       |        |   |              |              |  |
| IPv6 ROUTING      |   |          |       |        |   |              |              |  |

# IPV6 Routing

This page displays the IPV6 routing details configured for your router.

The screenshot shows the D-Link web interface for a DIR-820L router. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains a menu with options: DEVICE INFO, LOGS, STATISTICS, INTERNET SESSIONS, ROUTING, WIRELESS, IPV6, and IPv6 Routing. The main content area is titled "IPV6 ROUTING" and contains a sub-section "IPv6 Routing Table" with the text: "This page displays the routing details configured for your router." Below this is a table header for "IPV6 ROUTING TABLE" with columns: Destination IP, Gateway, Metric, and Interface. The table body is currently empty. A "More..." link is visible on the right side of the main content area. The bottom left corner of the interface features the "WIRELESS" logo.

# Support

This page provides help and explanations for different sections of the firmware.

The screenshot displays the D-Link DIR-850L web interface. At the top, the D-Link logo and model number DIR-850L are visible. Below the logo is a navigation bar with tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The SUPPORT tab is selected, and the main content area is titled 'SUPPORT MENU'. This menu contains links to Setup, Advanced, Tools, Status, and mylink Settings. Below the support menu are four help sections: SETUP HELP, ADVANCED HELP, TOOLS HELP, and STATUS HELP, each containing a list of links to specific help topics.

| DIR-826L // | SETUP   | ADVANCED | TOOLS | STATUS | SUPPORT |
|-------------|---|----------|-------|--------|---------|
| MENU        | <b>SUPPORT MENU</b>   |          |       |        |         |
| SETUP       | <ul style="list-style-type: none"> <li>• <a href="#">Setup</a></li> <li>• <a href="#">Advanced</a></li> <li>• <a href="#">Tools</a></li> <li>• <a href="#">Status</a></li> <li>• <a href="#">mylink Settings</a></li> </ul>   |          |       |        |         |
| ADVANCED    | <b>SETUP HELP</b>   |          |       |        |         |
| TOOLS       | <ul style="list-style-type: none"> <li>• <a href="#">Internet Connection</a></li> <li>• <a href="#">WAN</a></li> <li>• <a href="#">Wireless</a></li> <li>• <a href="#">Network Settings</a></li> <li>• <a href="#">STORAGE</a></li> <li>• <a href="#">IPv6</a></li> </ul>   |          |       |        |         |
| STATUS      | <b>ADVANCED HELP</b>  |          |       |        |         |
|             | <ul style="list-style-type: none"> <li>• <a href="#">Virtual Server</a></li> <li>• <a href="#">Port Forwarding</a></li> <li>• <a href="#">Application Rules</a></li> <li>• <a href="#">QoS Engine</a></li> <li>• <a href="#">Network Filter</a></li> <li>• <a href="#">Access Control</a></li> <li>• <a href="#">Website Filter</a></li> <li>• <a href="#">Inbound Filter</a></li> <li>• <a href="#">Firewall Settings</a></li> <li>• <a href="#">Routing</a></li> <li>• <a href="#">Advanced Wireless</a></li> <li>• <a href="#">Wi-Fi Protected Setup</a></li> <li>• <a href="#">Advanced Network</a></li> <li>• <a href="#">GUEST_ZONE</a></li> <li>• <a href="#">IPv6 FIREWALL RULES</a></li> <li>• <a href="#">IPv6 Routing</a></li> </ul> |          |       |        |         |
|             | <b>TOOLS HELP</b>   |          |       |        |         |
|             | <ul style="list-style-type: none"> <li>• <a href="#">Admin</a></li> <li>• <a href="#">Time</a></li> <li>• <a href="#">Syslog</a></li> <li>• <a href="#">Email Settings</a></li> <li>• <a href="#">System</a></li> <li>• <a href="#">Firmware</a></li> <li>• <a href="#">Dynamic DNS</a></li> <li>• <a href="#">System Check</a></li> <li>• <a href="#">Schedules</a></li> </ul>   |          |       |        |         |
|             | <b>STATUS HELP</b>  |          |       |        |         |
|             | <ul style="list-style-type: none"> <li>• <a href="#">Device Info</a></li> <li>• <a href="#">Logs</a></li> <li>• <a href="#">Statistics</a></li> <li>• <a href="#">Internet Sessions</a></li> <li>• <a href="#">Wireless</a></li> <li>• <a href="#">IPv6</a></li> <li>• <a href="#">IPv6 Routing</a></li> </ul>  |          |       |        |         |

# Connect a Wireless Client to your Router

## WPS Button

The easiest and most secure way to connect your wireless devices to the router is WPS (Wi-Fi Protected Setup). Most wireless devices such as wireless adapters, media players, Blu-ray DVD players, wireless printers and cameras will have a WPS button (or a software utility with WPS) that you can press to connect to the DIR-820L router. Please refer to your user manual for the wireless device you want to connect to make sure you understand how to enable WPS. Once you know, follow the steps below:

**Step 1** - Press the WPS button on the DIR-820L for about 1 second. The Internet LED on the front will start to blink.



**Step 2** - Within 2 minutes, press the WPS button on your wireless client (or launch the software utility and start the WPS process).

**Step 3** - Allow up to 1 minute to configure. Once the Internet light stops blinking, you will be connected and your wireless connection will be secure with WPA2.

# Windows® 7

## WPA/WPA2

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

1. Click on the wireless icon in your system tray (lower-right corner).



Wireless Icon

2. The utility will display any available wireless networks in your area.

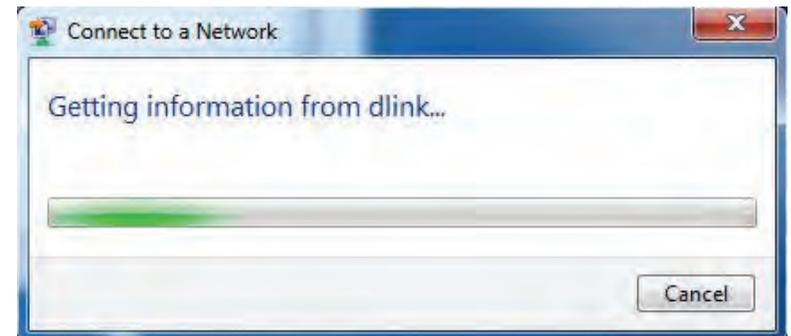


3. Highlight the wireless connection with Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

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.



4. The following window appears while your computer tries to connect to the router.



5. Enter the same security key or passphrase (Wi-Fi password) that is on your router and click **Connect**. You can also connect by pushing the WPS button on the router.

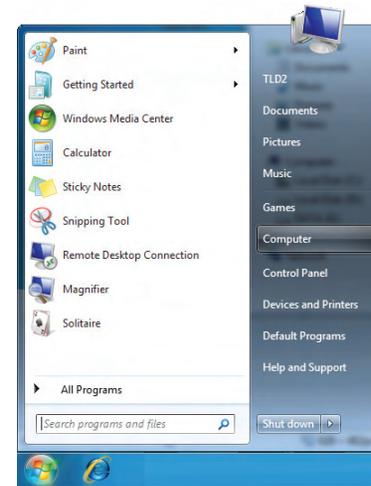
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



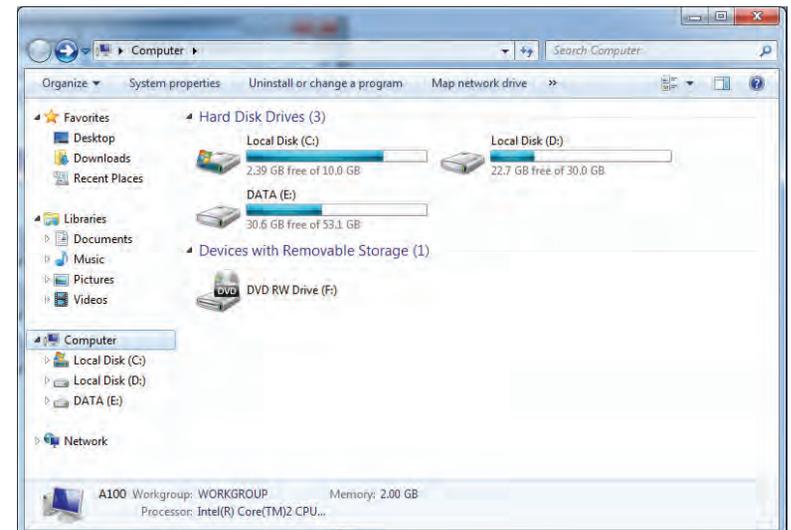
# WPS

The WPS feature of the DIR-820L can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature:

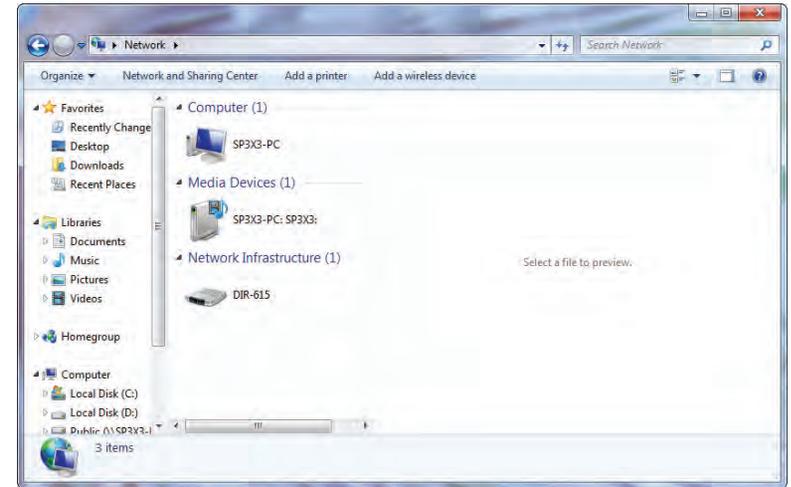
1. Click the **Start** button and select **Computer** from the Start menu.



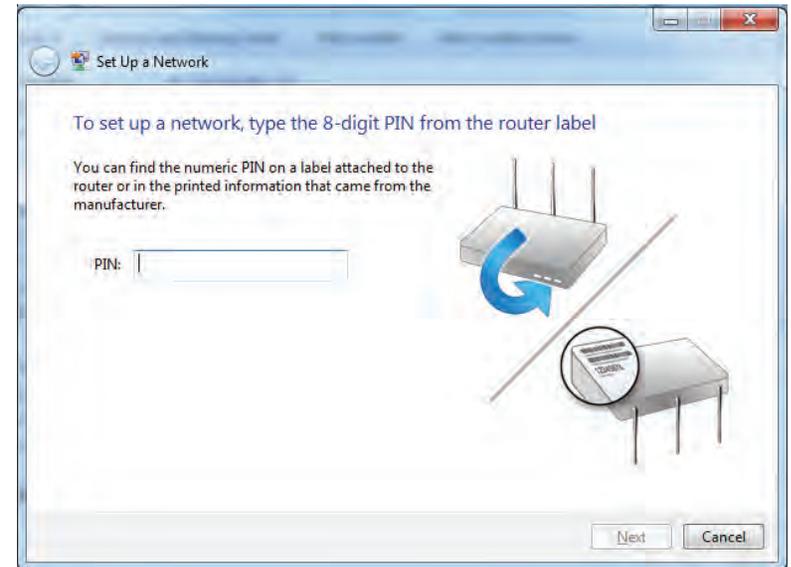
2. Click **Network** on the left side.



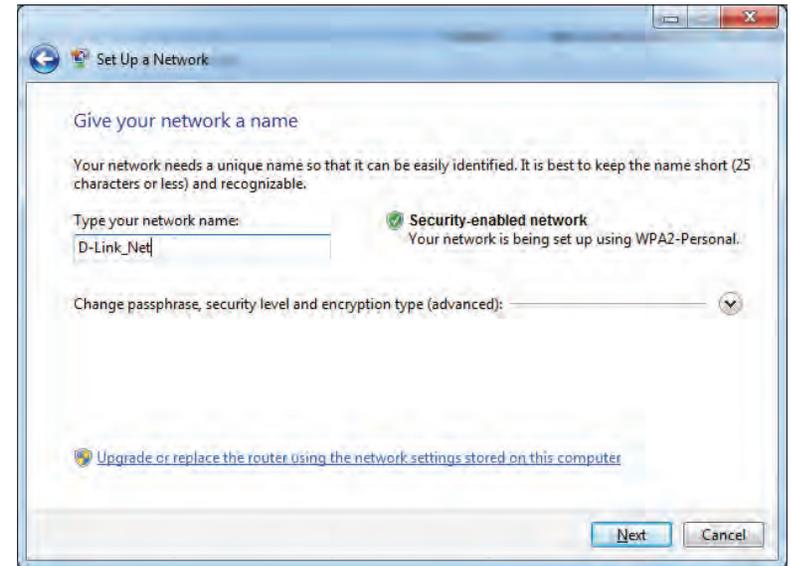
3. Double-click the DIR-820L.



4. Input the WPS PIN number (displayed in the WPS window on the Router's LCD screen or in the **Setup** > **Wireless Setup** menu in the Router's Web UI) and click **Next**.

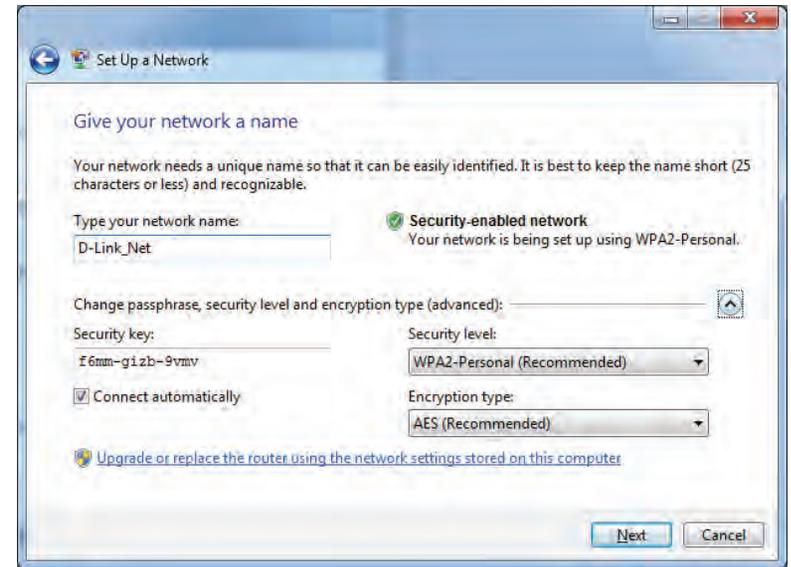


5. Type a name to identify the network.



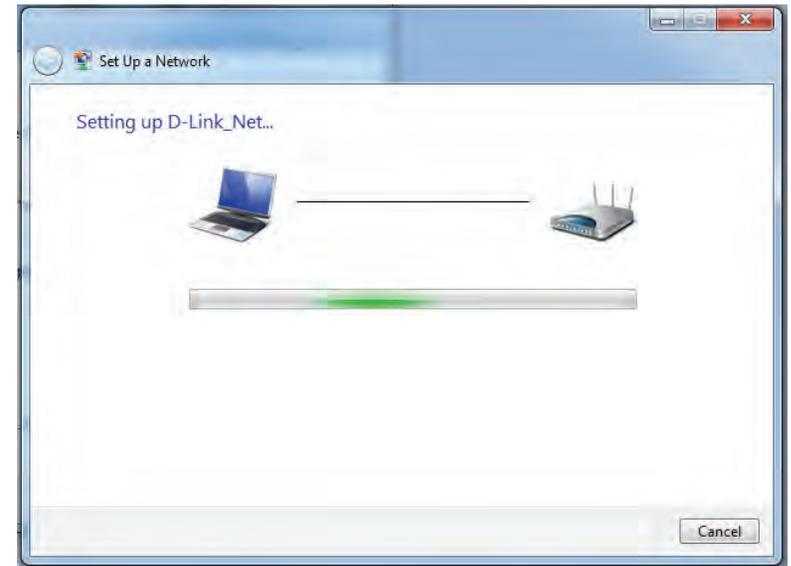
6. To configure advanced settings, click the  icon.

Click **Next** to continue.



7. The following window appears while the Router is being configured.

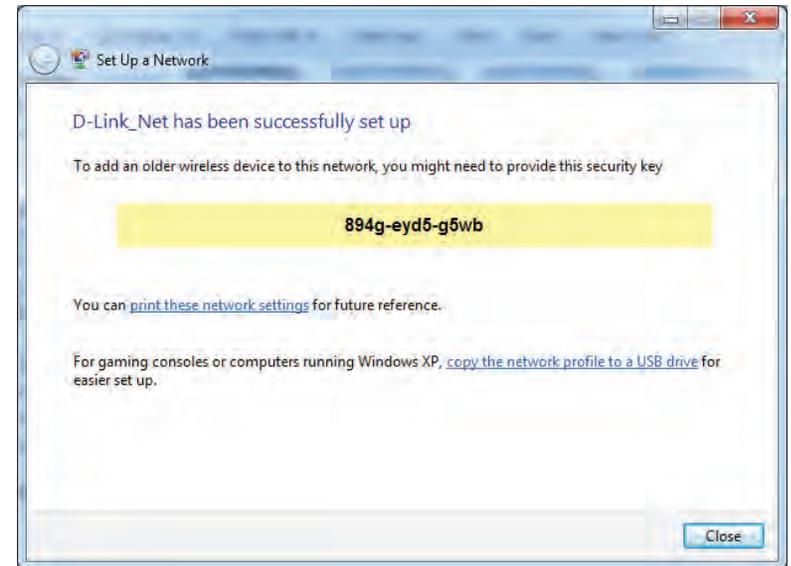
Wait for the configuration to complete.



8. The following window informs you that WPS on the router has been setup successfully.

Make a note of the security key as you may need to provide this security key if adding an older wireless device to the network in the future.

9. Click **Close** to complete WPS setup.



# Windows Vista®

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

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

or

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

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

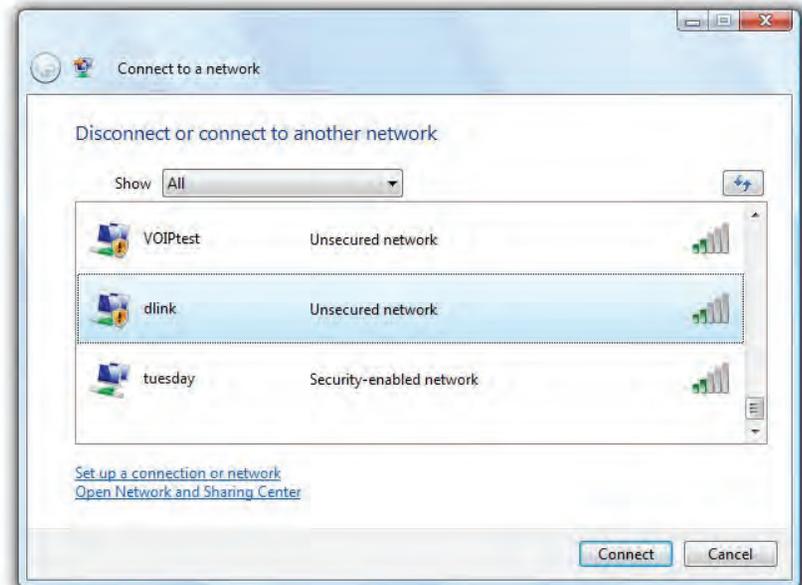
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



## WPA/WPA2

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

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



3. Enter the same security key or passphrase (Wi-Fi password) that is on your router and click **Connect**.

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

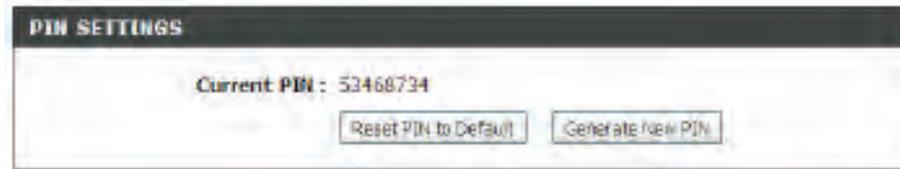


## WPS/WCN 2.0

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

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 manually configure.

If you are running Windows Vista®, log into the router and click the **Enable** checkbox in the **Basic > Wireless** section. Use the Current PIN that is displayed on the **Advanced > Wi-Fi Protected Setup** section or choose to click the **Generate New PIN** button or **Reset PIN to Default** button.



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

# Windows® XP

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

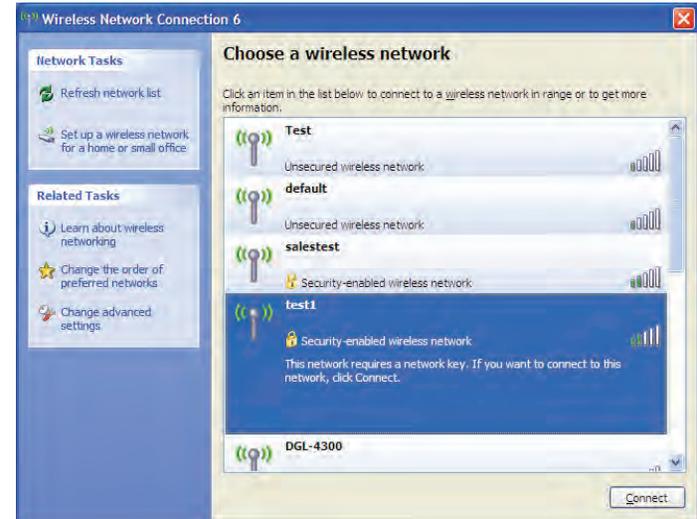
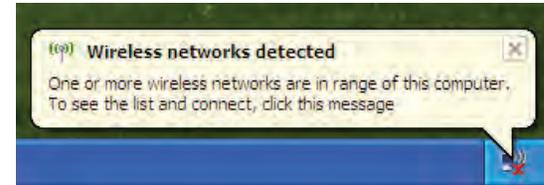
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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 Wi-Fi network (displayed using the SSID) and click the **Connect** button.

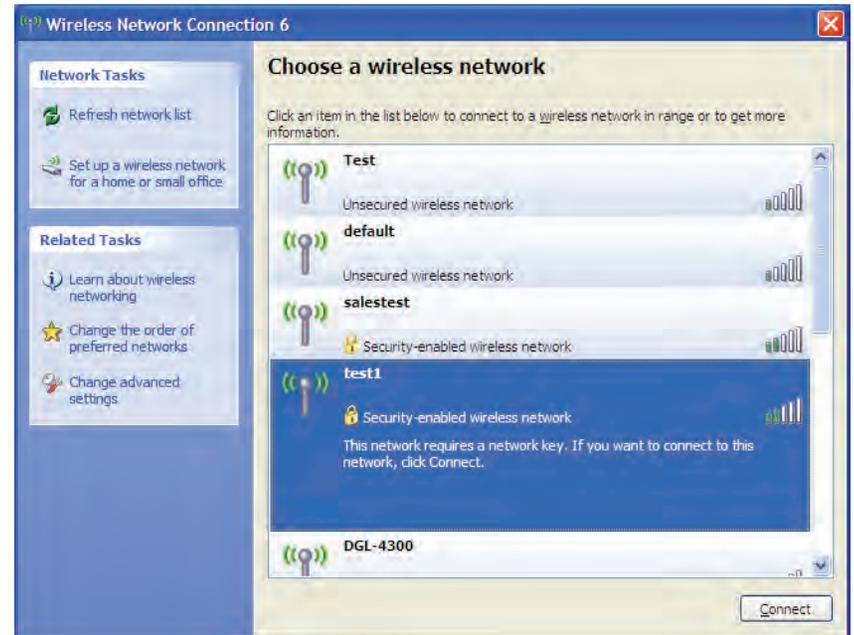
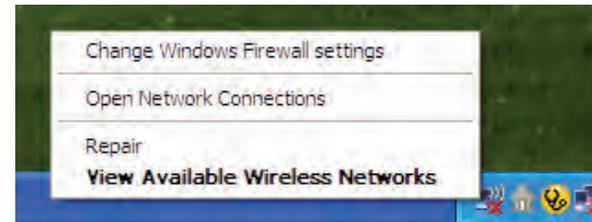
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



## WPA/WPA2

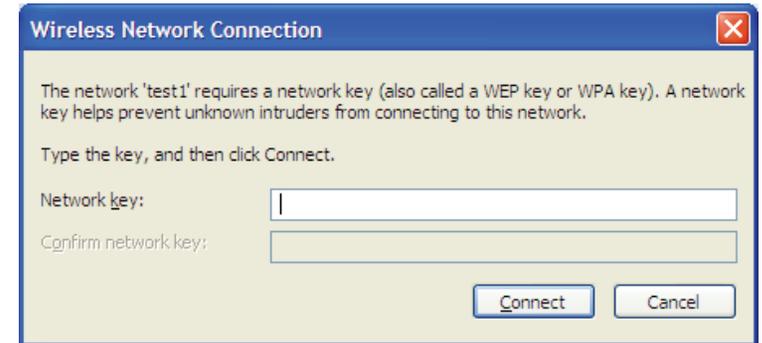
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

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



3. The **Wireless Network Connection** box will appear. Enter the WPA-PSK Wi-Fi password 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 Wi-Fi password must be exactly the same as on the wireless router.



# Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DIR-820L. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.

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

When entering the IP address of the D-Link router (192.168.0.1 for example), you are not connecting to a website nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
  - Microsoft Internet Explorer® 7 and higher
  - Mozilla Firefox 3.5 and higher
  - Google™ Chrome 8 and higher
  - Apple Safari 4 and higher
- Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.
- Disable any Internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

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

## 2. What can I do if I forgot my password?

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

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

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

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

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

- Click on **Start** and then click **Run**.
- Windows® 95, 98, and Me users type in **command** (Windows® NT, 2000, XP, Vista®, and 7 users type in **cmd**) and press **Enter** (or click **OK**).
- Once the window opens, you'll need to do a special ping. Use the following syntax:

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

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

```
C:\>ping yahoo.com -f -l 1482
Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:
Packet needs to be fragmented but DF set.
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 93ms, Maximum = 203ms, Average = 132ms
C:\>
```

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

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

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

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

# Wireless Basics

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

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

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

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

## **What is Wireless?**

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

## **Why D-Link Wireless?**

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

## **How does wireless work?**

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

### **Wireless Local Area Network (WLAN)**

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

## **Wireless Personal Area Network (WPAN)**

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

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

## **Who uses wireless?**

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

### **Home**

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

### **Small Office and Home Office**

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

## **Where is wireless used?**

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

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

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

## **Tips**

Here are a few things to keep in mind, when you install a wireless network.

### **Centralize your router or Access Point**

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

### **Eliminate Interference**

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

### **Security**

Don't let 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 product manual for detail information on how to set it up.

## Wireless Modes

There are basically two modes of networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more DIR-820L wireless network Cardbus adapters.

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

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

# Networking Basics

## Check your IP address

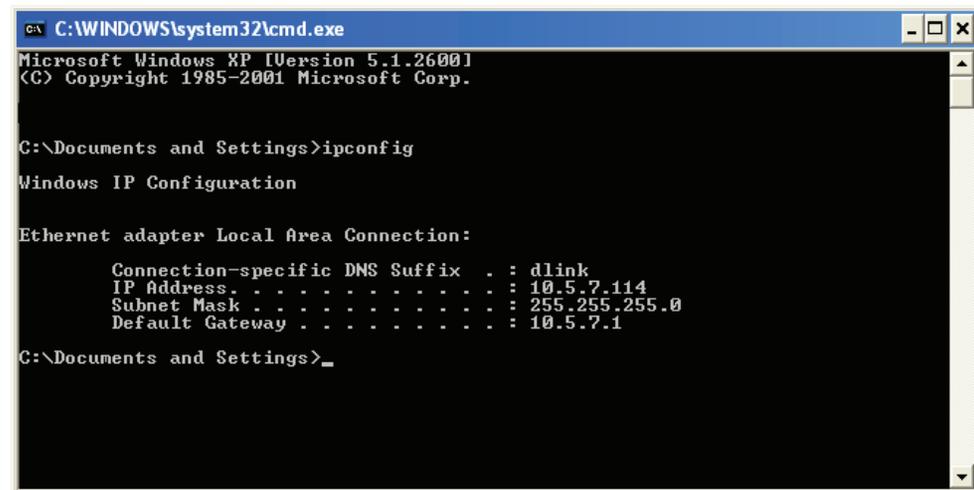
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start > Run**. In the run box type **cmd** and click **OK**. (Windows® 7/Vista® users type **cmd** in the **Start Search** box.)

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

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

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.



```
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>_
```

## Statically Assign an IP address

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

- Step 1**
- Windows® 7 - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center.**
  - Windows Vista® - Click on **Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections.**
  - Windows® XP - Click on **Start > Control Panel > Network Connections.**
  - Windows® 2000 - From the desktop, right-click **My Network Places > Properties.**

**Step 2**  
Right-click on the **Local Area Connection** which represents your network adapter and select **Properties.**

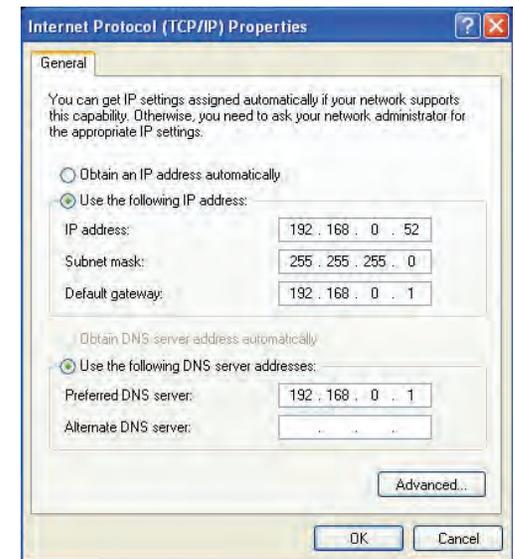
**Step 3**  
Highlight **Internet Protocol (TCP/IP)** and click **Properties.**

**Step 4**  
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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

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

**Step 5**  
Click **OK** twice to save your settings.



# Technical Specifications

## Hardware Specifications

- LAN Interface: Four 10/100 Mbps LAN ports
- WAN Interface: One 10/100 Mbps Internet port
- Wireless Interface (2.4GHz): IEEE 802.11b/g/n
- Wireless Interface (5GHz): IEEE 802.11a/n/ac
- USB Interface: Complaint USB 2.0

## Operating Voltage

- Input: 100~240V ( $\pm 20\%$ ), 50~60Hz
- Output: DC12V, 2A

## Temperature

- Operating: 32 ~ 104°F (0 ~ 40°C)
- Non-Operating: -4 ~ 149°F (-20 ~ 65°C)

## Humidity

- Operating: 10% - 90% non-condensing
- Non-Operating: 5% - 95% non-condensing

## Wireless Frequency Range

- IEEE 802.11a: 5180 MHz~5240 MHz, 5745 MHz~5825 MHz
- IEEE 802.11b: 2400 MHz~2483 MHz
- IEEE 802.11g: 2400 MHz~2484 MHz
- IEEE 802.11n: 2400 MHz~2484 MHz, 5180 MHz~5240 MHz, 5745 MHz~5825 MHz
- IEEE 802.11ac: 5180 MHz~5240 MHz, 5745 MHz~5825 MHz

## Wireless Bandwidth Rate

- IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, and 6 Mbps
- IEEE 802.11b: 11, 5.5, 2, and 1 Mbps
- IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, and 6 Mbps
- IEEE 802.11n: 6.5 to 300 Mbps
- IEEE 802.11ac: 6.5 to 1300 Mbps

## Antenna Type

- Four Internal Antennas (Two 2.4 GHz Antennas, Two 5 GHz Antennas)

## Wireless Security

- 64/128bit WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise, WPS (PIN & PBC)

## Certifications

- FCC, CE, C-Tick.
- CSA internation
- Wi-Fi / WPS
- DLNA
- IPv6 Ready
- WIN 7
- CCC

## Dimensions & Weight

- 93 x 116 x 145mm (3.7 x 4.6 x 5.76 inch)
- 330 grams (0.73lbs)

### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

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

#### **Industry Canada statement:**

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

**Caution :**

- (i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
- (ii) high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

**Avertissement:**

- (i) les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
- (ii) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

**Radiation Exposure Statement:**

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

**Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.