

Enter the rule:

**Enable** - Check to enable the rule.

**Name** - Enter a name for your rule.

**Dest IP Start** - Enter the starting IP address.

**Dest IP End** - Enter the ending IP address.

**Protocol** - Select the protocol.

**Dest Port Start** - Enter the starting port number.

**Dest Port End** - Enter the ending port number.

**STEP 5: PORT FILTER**

**Add Port Filters Rules.**

Specify rules to prohibit access to specific IP addresses and ports.

Enable	Name	Dest IP Start	Dest IP End	Protocol	Dest Port Start	Dest Port End
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535
<input type="checkbox"/>		0.0.0.0	255.255.255.255	Any	0	65535

Prev Next Save Cancel

To enable web logging, click **Enable**.

Click **Save** to save the access control rule.

**STEP 6: CONFIGURE WEB ACCESS LOGGING**

**Web Access Logging :**  Disabled  
 Enable

Prev Next Save Cancel

Your newly created policy will now show up under **Policy Table**.

**ACCESS CONTROL**

The Access Control option allows you to control access in and out of your network. Use this feature as Access Controls to only grant access to approved sites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games.

Save Settings Don't Save Settings Reboot Now

---

**ENABLE**

**Enable Access Control :**

Add Policy

---

**POLICY TABLE**

Enable	Policy	Machine	Filtering	Logged	Schedule		
<input checked="" type="checkbox"/>	dlink	192.168.0.106	Block Some Access	No	Always		

# Website Filters

Website Filters are used to allow you to set up a list of Web sites that can be viewed by multiple users through the network. To use this feature select to **Allow** or **Deny**, enter the domain or website and click **Save Settings**. You must also select **Apply Web Filter** under the *Access Control* section.

**Configure Website Filter:** Select either **DENY computers access to ONLY these sites** or **ALLOW computers access to ONLY these sites**.

**Website URL/ Domain:** Enter the keywords or URLs that you want to allow or block. Click **Save Settings**.

The screenshot displays the D-Link DIR-868L web interface. The top navigation bar includes 'D-Link', 'DIR-868L //', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'ADVANCED' tab is selected, and the 'WEBSITE FILTER' option is highlighted in the left sidebar. The main content area is titled '40 - WEBSITE FILTERING RULES' and contains the following elements:

- WEBSITE FILTER** section: A text box explaining the feature and two buttons: 'Save Settings' and 'Don't Save Settings'.
- 40 - WEBSITE FILTERING RULES** section: A dropdown menu set to 'DENY computers access to ONLY these sites', a 'Clear the list below...' button, and a table with two columns labeled 'Website URL/Domain'.
- Bottom buttons: 'Save Settings' and 'Don't Save Settings'.
- Right sidebar: 'Helpful Hints...' section with bullet points:
  - 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.
  - Use with **Advanced > Access Control**.
  - [More...](#)

The footer of the interface shows 'WIRELESS'.

# Inbound Filter

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range. Inbound Filters can be used with Virtual Server, Port Forwarding, or Remote Administration features.

**Name:** Enter a name for the inbound filter rule.

**Action:** Select **Allow** or **Deny**.

**Enable:** Check to enable rule.

**Remote IP Start:** Enter the starting IP address. Enter 0.0.0.0 if you do not want to specify an IP range.

**Remote IP End:** Enter the ending IP address. Enter 255.255.255.255 if you do not want to specify and IP range.

**Add:** Click the **Add** button to apply your settings. You must click **Save Settings** at the top to save the settings.

**Inbound Filter Rules List:** 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.

**INBOUND FILTER**

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range.

Inbound Filters can be used for limiting access to a server on your network to a system or group of systems. Filter rules can be used with Virtual Server, Port Forwarding, or Remote Administration features.

**ADD INBOUND FILTER RULE**

Name :

Action :

Remote IP Range	Enable	Remote IP Start	Remote IP End
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255
<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	255.255.255.255

**INBOUND FILTER RULES LIST**

Name	Action	Remote IP Range

**Helpful Hints...**

- Give each rule a **Name** that is meaningful to you.
- Each rule can either **Allow** or **Deny** access from the WAN.
- Up to eight ranges of WAN IP addresses can be controlled by each rule. The checkbox by each IP range can be used to disable ranges already defined.
- The starting and ending IP addresses are WAN-side address.
- Click the **Add** button to store a finished rule in the Rules List below.
- Click the **Edit** icon in the Rules List to change a rule.
- Click the **Delete** icon in the Rules List to permanently remove a rule.
- [More...](#)

# Firewall Settings

A firewall protects your network from the outside world. The DIR-868L offers a firewall type functionality. The SPI feature helps prevent cyber attacks. Sometimes you may want a computer exposed to the outside world for certain types of applications. If you choose to expose a computer, you can enable DMZ. DMZ is short for Demilitarized Zone. This option will expose the chosen computer completely to the outside world.

**Enable SPI:** SPI (Stateful Packet Inspection, also known as dynamic packet filtering) helps to prevent cyber attacks by tracking more state per session. It validates that the traffic passing through the session conforms to the protocol.

**Anti-Spoof Check:** Enable this feature to protect your network from certain kinds of “spoofing” attacks.

**Enable DMZ:** If an application has trouble working from behind the router, you can expose one computer to the Internet and run the application on that computer.

**Note:** *Placing 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.*

**DMZ IP Address:** Specify the IP address of the computer on the LAN that you want to have unrestricted Internet communication. If this computer obtains its IP address automatically using DHCP, be sure to make a static reservation on the **Setup > Network Settings** page so that the IP address of the DMZ machine does not change.

**PPTP:** Allows multiple machines on the LAN to connect to their corporate network using PPTP protocol.

**IPSEC (VPN):** Allows multiple VPN clients to connect to their corporate network using IPsec. Some VPN clients support traversal of IPsec through

The screenshot displays the D-Link DIR-868L web interface. The top navigation bar includes 'D-Link', 'DIR-868L', 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 'FIREWALL & DMZ SETTINGS' and contains the following sections:

- FIREWALL & DMZ SETTINGS:** A brief explanation of DMZ and 'Save Settings' / 'Don't Save Settings' buttons.
- FIREWALL SETTINGS:** A checkbox for 'Enable SPI'.
- ANTI-SPOOF CHECKING:** A checkbox for 'Enable anti-spoof checking'.
- DMZ HOST:** A text box for 'DMZ IP Address', a '<<' button, and a 'Computer Name' dropdown menu. A note explains the DMZ option and its risks.
- APPLICATION LEVEL GATEWAY (ALG) CONFIGURATION:** Checkboxes for 'PPTP', 'IPSec (VPN)', 'RTSP', and 'SIP', all of which are checked. 'Save Settings' / 'Don't Save Settings' buttons are at the bottom.

A 'Helpful Hints...' sidebar on the right provides additional information about the DMZ option, stating it should be used as a last resort and suggesting port opening if there are issues.

NAT. This ALG may interfere with the operation of such VPN clients. If you are having trouble connecting with your corporate network, try turning this ALG off. Please check with the system administrator of your corporate network whether your VPN client supports NAT traversal.

**RTSP:** Allows application that uses Real Time Streaming Protocol to receive streaming media from the Internet. QuickTime and Real Player are some of the common applications using this protocol.

**SIP:** Allows devices and applications using VoIP (Voice over IP) to communicate across NAT. Some VoIP applications and devices have the ability to discover NAT devices and work around them. This ALG may interfere with the operation of such devices. If you are having trouble making VoIP calls, try turning this ALG off.



# 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-868L web interface. The main content area is titled "ROUTING" and contains the following information:

- ROUTING:** The Routing option allows you to define static routes to specific destinations.
  - Buttons: Save Settings, Don't Save Settings
- 32 - ROUTE LIST:** Remaining number of rules that can be created: 32.
 

Name	Destination IP	Netmask	Gateway	Metric	Interface
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	WAN (172.17.5.129) ↓

Buttons: Save Settings, Don't Save Settings

**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

This page allows you to change some of the advanced wireless settings of the DIR-868L. It is recommended that you only change these settings if you are familiar with their functions and proper settings, or are instructed to do so.

**Wireless Band:** This will display which radio band the following settings will be used for. This top box will be the settings for the 2.4 GHz band.

**Transmit Power:** Set the transmit power of the antennas for the 2.4 GHz band.

**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.

**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.

**Wireless Band:** This will display which radio band settings will be used. This top box will be the settings for the 5 GHz band.

**Transmit Power:** Set the transmit power of the antennas for the 5 GHz band.

**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.

The screenshot displays the D-Link DIR-868L Advanced Wireless Settings interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options, with 'ADVANCED WIRELESS' selected. The main content area is divided into two sections for different wireless bands.

**2.4GHz Band Settings:**

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

**5GHz Band Settings:**

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

Both sections include 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' sidebar on the right provides additional information, such as: 'It is recommended that you leave these parameters with their default values. Adjusting them could limit the performance of your wireless network.' and 'Enabling WMM can help control latency and jitter when transmitting multimedia content over a wireless connection.'

# Wi-Fi Protected Setup

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 manufacturers. 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, and 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 WPS-PIN Setup:** Check to disable the option of configuring the WPS PIN options.

**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.

**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.

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

The screenshot displays the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration categories, with 'WI-FI PROTECTED SETUP' selected. The main content area is divided into three sections:

- WI-FI PROTECTED SETUP:** Contains explanatory text about WPS and two buttons: 'Save Settings' and 'Don't Save Settings'.
- WI-FI PROTECTED SETUP (Configuration):** Shows 'Enable' checked, 'WiFi Protected Setup' as 'Enable/Configured', and 'Lock WPS-PIN Setup' as unchecked.
- PIN SETTINGS:** Displays the current PIN '01234567' and buttons for 'Reset PIN to Default' and 'Generate New PIN'.
- ADD WIRELESS STATION:** Features a 'Connect your Wireless Device' button and 'Save Settings'/'Don't Save Settings' buttons.

The right sidebar, titled 'Helpful Hints...', provides additional guidance:
 

- 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 60 seconds. The status LED on the router will flash three times if the device has been successfully added to the network.

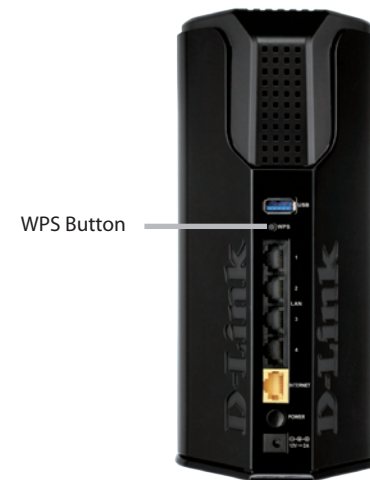
There are several ways to add a wireless device to your network. A “registrar” controls access to the wireless network. A registrar only allows devices onto the wireless network if you have entered the PIN, or pressed a special Wi-Fi Protected Setup button on the device. The router acts as a registrar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

Click to start the wizard and turn to page 40.

## 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 within 120 seconds to automatically connect without logging into the router.

Refer to page 108 for more information.



# Advanced Network

This page allows you to change some of the advanced network settings of the DIR-868L. It is recommended that you only change these settings if you are familiar with their functions and proper settings, or are instructed to do so.

**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-868L to respond to pings. Unchecking the box may provide some extra security from hackers.

**WAN Ping Inbound Filter:** Select from the drop-down menu if you would like to apply the Inbound Filter to the WAN ping. Refer to the Inbound Filters section for more information.

**WAN Port Speed:** You may set the port speed of the Internet port to 10Mbps, 100Mbps, 1000Mbps, 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-868L 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 description of Universal Plug and Play (UPnP) is provided. The 'Enable UPnP IGDP' checkbox is checked.
- WAN PING:** A description explains that enabling this feature allows the WAN port to respond to ping requests. The 'Enable WAN Ping Response' checkbox is unchecked.
- WAN PORT SPEED:** The 'WAN Port Speed' is set to 'Auto 10/100/1000Mbps' via a dropdown menu.
- IPV4 MULTICAST STREAMS:** The 'Enable IPv4 Multicast Streams' checkbox is unchecked.
- IPV6 MULTICAST STREAMS:** The 'Enable IPv6 Multicast Streams' checkbox is unchecked.

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

- UPnP helps other UPnP LAN hosts interoperate with the router. Leave the UPnP option enabled as long as the LAN has other UPnP applications.
- For added security, it is recommended that you disable the WAN Ping Response option. Ping is often used by malicious Internet users to locate active networks or PCs.
- The WAN speed is usually detected automatically. If you are having problems connecting to the WAN, try selecting the speed manually.
- If you are having trouble receiving video on demand type of service from the Internet, make sure the Multicast Stream option is enabled.
- More...

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

**Enable Guest Zone:** Check to enable the Guest Zone feature for the 2.4 GHz band.

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

**Security Mode:** If you want to choose a security mode for the 2.4 GHz band, choose from the drop-down menu.

**Enable Guest Zone:** Check to enable the Guest Zone feature for the 5 GHz band.

**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.

**Security Mode:** If you want to choose a security mode for the 5 GHz band, choose from the drop-down menu.

The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes 'D-Link', 'DIR-868L //', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration categories, 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 :** A checkbox with a dropdown menu set to 'Always' and a 'New Schedule' button.
  - Wireless Band :** 2.4GHz Band
  - Wireless Network Name :** dlink-guest (Also called the SSID)
  - Security Mode :** None
- SESSION 5GHZ:**
  - Enable Guest Zone :** A checkbox with a dropdown menu set to 'Always' and a 'New Schedule' button.
  - Wireless Band :** 5GHz Band
  - Wireless Network Name :** dlink-media-guest (Also called the SSID)
  - Security Mode :** None

At the bottom of the session sections are 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' section is visible on the right side of the interface.

# IPv6 Firewall

The DIR-868L's IPv6 Firewall feature allows you to configure which kind of IPv6 traffic is allowed to pass through the device. The DIR-868L's IPv6 Firewall functions in a similar way to the IP Filters feature.

## Enable IPv6 Simple

**Security:** 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.

**Destination:** Use the **Destination** 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-868L web interface for IPv6 Firewall configuration. The 'ADVANCED' tab is selected, showing the 'IPv6 FIREWALL' section. Below this, the 'IPv6 SIMPLE SECURITY' section has a checkbox for 'Enable IPv6 Simple Security'. The '20 - IPv6 FIREWALL RULES' section shows a list of rules with columns for Name, Schedule, Source Interface, IP Address Range, Protocol, and Port Range. The 'Source' and 'Dest' fields are highlighted in the screenshot.



# 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.

**D-Link**

DIR-868L // SETUP ADVANCED TOOLS STATUS SUPPORT

**ROUTING**

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

Save Settings Don't Save Settings

**10 - ROUTE LIST**

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

Save Settings Don't Save Settings

**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 2'
- 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...

**WIRELESS**



# 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:** Here you can enter a new password for the Administrator Login Name. The administrator can make changes to the settings.

**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). Then enter the password again for verification.

**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-868L 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-868L 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-868L 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 of the rule.

The screenshot shows the D-Link DIR-868L Web Management interface, specifically the 'Tools Admin' page. The page is divided into several sections:

- ADMINISTRATOR SETTINGS:** Contains text explaining that the 'admin' account can access the management interface and that a password should be created for security. It includes 'Save Settings' and 'Don't Save Settings' buttons.
- ADMIN PASSWORD:** A section for setting the administrator password, with a prompt to enter the same password in two boxes for confirmation. It includes 'Save Settings' and 'Don't Save Settings' buttons.
- SYSTEM NAME:** A section for setting the Gateway Name, currently set to 'DIR-868L'. It includes a 'Save Settings' button.
- ADMINISTRATION:** A section for enabling various features:
  - Enable Graphical Authentication:** Unchecked.
  - Enable HTTPS Server:** Checked.
  - Enable Remote Management:** Unchecked.
  - Remote Admin Port:** Set to 8080.
  - Use HTTPS:** Unchecked.
  - Remote Admin Inbound Filter:** Set to 'Allow All'.
  - Details:** Set to 'Allow All'.

On the right side of the page, there is a 'Helpful Hints...' section with several tips related to security and 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 **Sync Your Computer's Time Settings** to synch the date and time with the computer you are currently on.

The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists 'ADMIN', 'TIME', 'SYSLOG', 'EMAIL SETTINGS', 'SYSTEM', 'FIRMWARE', 'DYNAMIC DNS', 'SYSTEM CHECK', and 'SCHEDULES'. The main content area is titled 'TIME AND DATE' and contains the following sections:

- TIME AND DATE CONFIGURATION:** Shows the current time as 2012/12/14 17:25:40 and the time zone as (GMT+08:00) Taipei. It includes checkboxes for 'Enable Daylight Saving' (unchecked) and 'Daylight Saving Offset' (+01:00). Below this is a table for 'Daylight Saving Dates' with columns for Month, Week, Day of Week, and Time. The table shows DST Start on Jan 1st Sun at 12:00 AM and DST End on Jan 1st Sun at 12:00 AM.
- AUTOMATIC TIME AND DATE CONFIGURATION:** Includes a checked checkbox for 'Automatically synchronize with D-Link's Internet time server'. Below this, it shows 'NTP Server Used' as ntp1.dlink.com with an 'Update Now' button. A message states: 'The time has been successfully synchronized. (NTP Server Used: ntp1.dlink.com, Time: 2012/12/14 16:33:34) Next time synchronization: 2012/12/21 16:33:34'.
- SET THE TIME AND DATE MANUALLY:** Provides fields for Year (2012), Month (Dec), Day (14), Hour (17), Minute (25), and Second (40). It includes a 'Sync your computer's time settings' button and 'Save Settings' and 'Don't Save Settings' buttons.

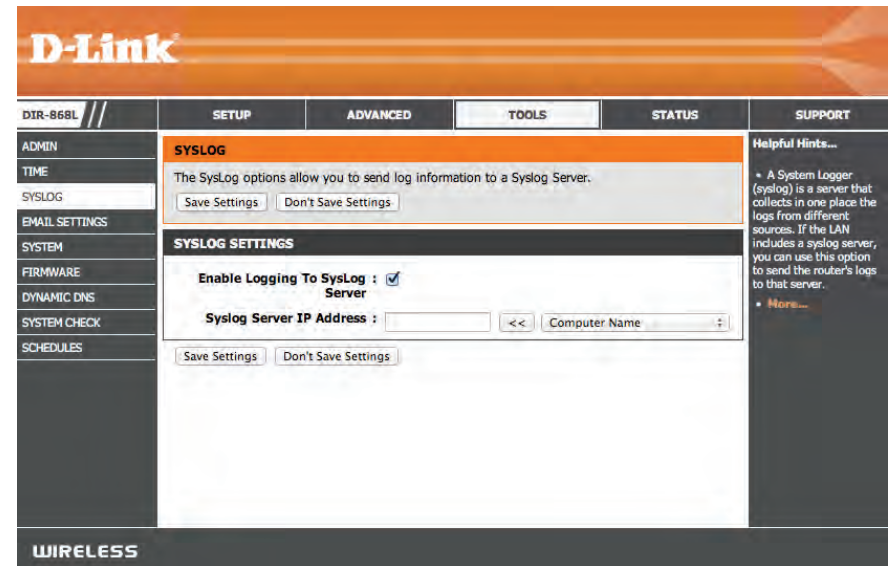
On the right side of the interface, there is a 'Helpful Hints...' section with a note: 'Either enter the time manually by clicking the Sync Your Computer's Time Settings button, or use the Automatic Time Configuration option to have your router synchronize with a time server on the Internet.' A 'More...' link is also present.

# 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.



The screenshot displays the D-Link web management interface for the DIR-868L router. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration categories: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'SYSLOG' and contains the following information:

- SYSLOG**: The SysLog options allow you to send log information to a Syslog Server. Below this text are 'Save Settings' and 'Don't Save Settings' buttons.
- SYSLOG SETTINGS**: This section includes a checkbox for 'Enable Logging To SysLog Server', which is checked. Below the checkbox is a text input field for 'Syslog Server IP Address' and a dropdown menu for 'Computer Name'. 'Save Settings' and 'Don't Save Settings' buttons are located at the bottom of this section.
- Helpful Hints...**: A sidebar on the right provides a definition of a System Logger (syslog) and a note: 'None...'

The bottom of the interface features a 'WIRELESS' section header.

# 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**.

**Details:** Here you can choose from a drop down menu whether email details are kept in the log or not.

The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists menu items: ADMIN, TIME, SYSLOG, EMAIL SETTINGS (highlighted), SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'EMAIL SETTINGS' and contains the following sections:

- EMAIL SETTINGS:** A text box explaining the feature and 'Save Settings' / 'Don't Save Settings' buttons.
- EMAIL NOTIFICATION:** 'Enable Email Notification' checkbox is checked.
- EMAIL SETTINGS:** Fields for 'From Email Address', 'To Email Address', 'Email Subject', 'SMTP Server Address', 'SMTP Server Port' (set to 25), 'Enable Authentication' (unchecked), 'Account Name', 'Password', and 'Verify Password'. A 'Send Mail Now' button is present.
- EMAIL LOG WHEN FULL OR ON SCHEDULE:** 'On Log Full' and 'On Schedule' checkboxes are unchecked. 'Schedule' is a dropdown menu set to 'Never'. A 'Detail' field is present. 'Save Settings' / 'Don't Save Settings' buttons are at the bottom.

The bottom of the page features a 'WIRELESS' logo.



# System

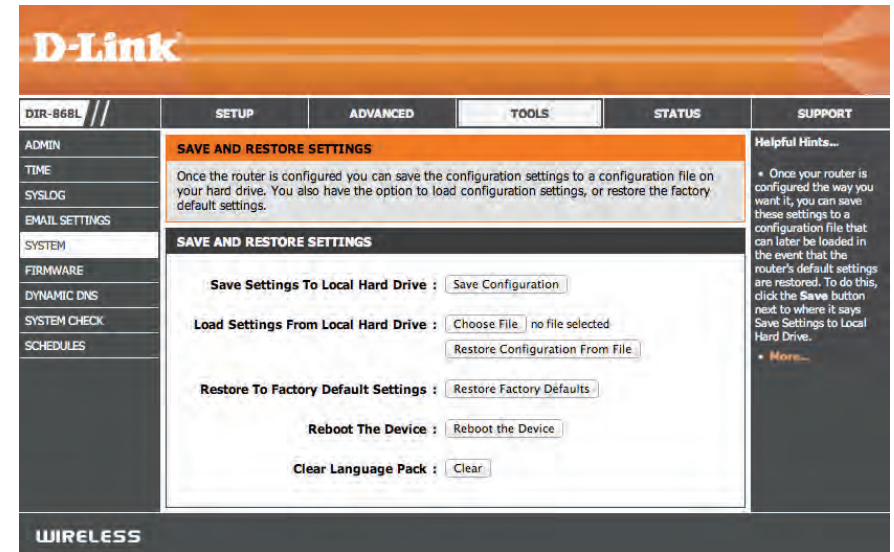
This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

**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 Configuration** 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 **Choose File** 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.

**Check Now:** Click **Check Now** to check for new firmware and language pack versions online.

## Firmware Upgrade

You can change update the internal router software by uploading a new firmware version.

**Choose File:** After you have downloaded the new firmware, click **Choose File** to locate the firmware update on your hard drive.

**Upload:** Click **Upload** to complete the firmware upgrade.

## Language Pack

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

**Choose File:** After you have downloaded the new language pack, click **Choose File** to locate the language pack file on your hard drive.

**Upload:** Click **Upload** to complete the language pack upgrade.

The screenshot shows the D-Link web interface for the DIR-868L router. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar contains a menu with options like ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE (selected), DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'FIRMWARE UPDATE' and contains the following sections:

- FIRMWARE UPDATE:** A message stating 'There may be new firmware for your router to improve functionality and performance. Click here to check for an upgrade on our support site.' Below this, instructions are provided for upgrading the firmware and the language pack, both requiring a file to be selected and an 'Upload' button to be clicked.
- FIRMWARE INFORMATION:** Displays 'Current Firmware Version : 1.00' and 'Current Firmware Time : 12/06/2012 16:45:00'. It includes a 'Check Online Now for Latest Firmware Version' button.
- FIRMWARE UPGRADE:** A note in red text states: 'Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.' Below this, instructions for upgrading the firmware are provided, along with an 'Upload' button.
- LANGUAGE PACK UPGRADE:** Similar to the firmware upgrade section, it includes an 'Upload' button.

The bottom of the page features a 'WIRELESS' section header.

# 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.yourname.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 DNS:** Dynamic Domain Name System is a method of 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.

**Enable DDNS for**

**IPv6 Hosts** Check the **Enable** box to enable DDNS for IPv6 Hosts.

**IPv6 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.

**IPv6 DDNS List:** Displays the list of active IPv6 Dynamic DNS addresses.

**D-Link**

DIR-868L // SETUP ADVANCED TOOLS STATUS SUPPORT

**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.whateveryourname.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 : 567 (hours)

Status : Disconnected

**DYNAMIC DNS FOR IPV6 HOSTS**

Enable :

IPv6 Address :  << Computer Name >>

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

Save Clear

**IPV6 DYNAMIC DNS LIST**

Enable	Host Name	IPv6 Address
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>

Save Settings | Don't Save Settings

WIRELESS

**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 shows the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The 'TOOLS' tab is selected. On the left sidebar, the 'SYSTEM CHECK' option is highlighted. The main content area is divided into several sections:

- PING TEST:** Contains the text 'Ping Test sends "ping" packets to test a computer on the Internet.' and a sub-section with a text input field labeled 'Host Name or IP Address :', a 'Ping' button, and a 'Cancel' button.
- IPv6 PING TEST:** Contains a text input field labeled 'Host Name or IPv6 Address :', a 'Ping' button, and a 'Cancel' button.
- PING RESULT:** Contains the instruction 'Enter a host name or IP address above and click "Ping"!' and a large empty text area for results.
- Helpful Hints...:** Located on the right side, it explains that the 'Ping' function checks if a computer is online and provides instructions on how to use it. It includes a 'More...' link.

The bottom of the interface features a 'WIRELESS' section header.

# 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.

**All Day - 24 Hrs:** Check **All Day - 24hrs** to schedule the entire day.

**Time Format:** Choose a 24 hour or 12 hour clock-style.

**Start Time:** Enter a start time for your schedule.

**End Time:** Enter an end time for your schedule.

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

The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration categories: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'SCHEDULES' and contains a '10 - ADD SCHEDULE RULE' form. The form includes a 'Name' field, a 'Day(s)' section with radio buttons for 'All Week' and 'Select Day(s)', and checkboxes for 'Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', and 'Sat'. There is also an 'All Day - 24 hrs' checkbox. The 'Time Format' is set to '12-hour'. The 'Start Time' is '12:00 AM' and the 'End Time' is '11:59 PM'. 'Add' and 'Cancel' buttons are at the bottom of the form. Below the form is a 'SCHEDULE RULES LIST' table with columns for 'Name', 'Day(s)', and 'Time Frame'. On the right side, there is a 'Helpful Hints...' section with several bullet points providing instructions on how to use the schedule feature.

# Status Device Info

This page displays the current information for the DIR-868L. 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).

## IGMP Multicast

**Memberships:** Displays the group address of any IGMP multicasts.

The screenshot shows the 'Status Device Info' page for a D-Link DIR-868L router. The page is organized into several sections:

- GENERAL:** Shows the current time (2012/12/14 17:33:23), firmware version (1.00 Thu 06 Dec 2012), myLink Service (Not Registered), and myLink E-mail.
- WAN:** Displays connection type (DHCP Client), cable status (Connected), network status (Connected), connection up time (0 Day 1 Hour 0 Min 3 Sec), MAC address, IP address (172.17.5.129), subnet mask (255.255.255.0), default gateway (172.17.3.254), primary DNS server (192.168.168.249), and secondary DNS server (192.168.168.201).
- LAN:** Shows MAC address, IP address (192.168.0.1), subnet mask (255.255.255.0), and DHCP server (Enabled).
- WIRELESS LAN1:** Displays wireless radio status (Enabled), MAC address, 802.11 mode (Mixed 802.11g and 802.11b), channel width (20MHz), channel (1), network name (SSID) (dir-868-1), Wi-Fi Protected Setup (Enabled/Configured), security (WPA/WPA2 PSK), guest zone wireless radio (Disabled), guest zone network name (SSID) (dir8-guest), and guest zone security (Disabled).
- WIRELESS LAN2:** Displays wireless radio status (Enabled), MAC address, 802.11 mode (Mixed 802.11n), channel width (20Hz/40Hz), channel (16), network name (SSID) (dir-868-2), Wi-Fi Protected Setup (Enabled/Configured), security (WPA/WPA2 PSK), guest zone wireless radio (Disabled), guest zone network name (SSID) (dir8-media-guest), and guest zone security (Disabled).
- LAN COMPUTERS:** Shows a table with columns for MAC Address, IP Address, and Name (if any). One entry is listed: 192.168.0.100, DlinkBook-Pro-2.
- IGMP MULTICAST MEMBERSHIPS:** Shows a table with columns for IPv4 Multicast Group Address and IPv6 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.

The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration categories like DEVICE INFO, LOGS, STATISTICS, etc. The main content area is titled 'VIEW LOG' and contains the following sections:

- VIEW LOG:** A text box stating 'The View Log displays the activities occurring on the router.' with 'Save Settings' and 'Don't Save Settings' buttons.
- SAVE LOG FILE:** A section with the text 'Save Log File To Local Hard Drive.' and a 'Save' button.
- LOG TYPE & LEVEL:** Radio buttons for Log Type (System, Firewall & Security, Router Status) and Log Level (Critical, Warning, Information).
- LOG FILES:** A table with columns 'Time' and 'Message'. Navigation buttons (First Page, Last Page, Previous, Next, Clear, Link To Email Log Settings) are at the top. The table shows 1/2 pages of logs.

Log Files Table:

Time	Message
Fri Dec 14 17:32:24 2012	DHCP: Server sending ACK to 192.168.0.100. (Lease time = 604800)
Fri Dec 14 17:32:24 2012	DHCP: Server receive REQUEST from 00:25:4b:c3:55:3c.
Fri Dec 14 17:26:02 2012	DHCP: Server sending ACK to 192.168.0.100. (Lease time = 604800)
Fri Dec 14 17:26:02 2012	DHCP: Server receive REQUEST from 00:25:4b:c3:55:3c.
Fri Dec 14 16:37:15 2012	((1580)action 1,major 8,minor 1)
Fri Dec 14 16:37:15 2012	((1579)action 1,major 8,minor 0)
Fri Dec 14 16:33:34 2012	DHCP: Server sending ACK to 192.168.0.100. (Lease time = 604800)
Fri Dec 14 16:33:34 2012	DHCP: Server receive REQUEST from 00:25:4b:c3:55:3c.
Fri Dec 14 16:33:33 2012	Time synchronized
Fri Dec 14 16:33:33 2012	DHCP: Server sending OFFER of 192.168.0.100.

Helpful Hints... (on the right side):

- Click on the Save button to save log file to local hard drive which can later send to the network administrator for troubleshooting. You can also select what type of event you would like to be logged from Log Type & Level.
- Check the log frequently to detect unauthorized network usage.
- You can also have the log mailed to you periodically. Refer to **Tools -> Email**.
- More...

# Statistics

The screen below displays the **Traffic Statistics**. Here you can view the amount of packets that pass through the DIR-868L on both the WAN, LAN ports and the wireless segments. The traffic counter will reset if the device is rebooted.

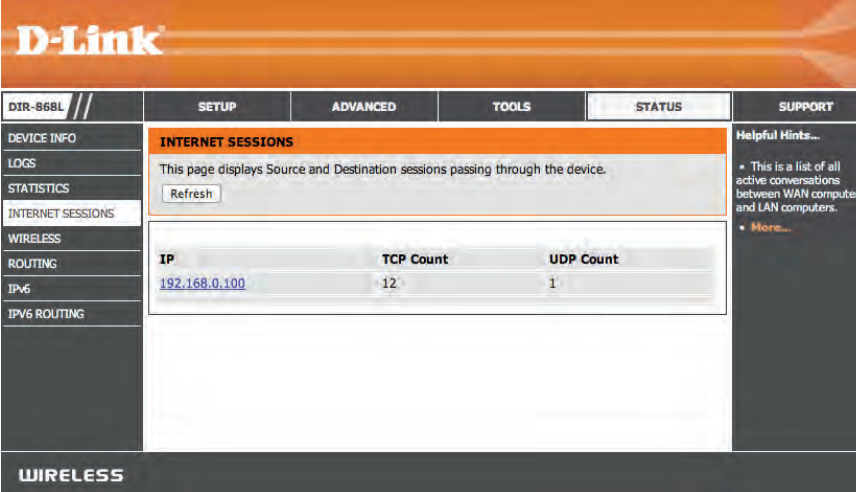
The screenshot shows the D-Link DIR-868L web interface. The top navigation bar includes 'DIR-868L //', 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar contains 'DEVICE INFO', 'LOGS', 'STATISTICS', 'INTERNET SESSIONS', 'WIRELESS', 'ROUTING', 'IPv6', and 'IPv6 ROUTING'. The main content area is titled 'TRAFFIC STATISTICS' and includes a description: 'Traffic Statistics displays Receive and Transmit packets passing through the device.' Below this are buttons for 'Refresh Statistics' and 'Reset Statistics'. The statistics are organized into four sections: LAN, WAN, and two Wireless sections (2.4GHz and 5GHz). Each section displays 'Sent', 'Received', 'TX Packets Dropped', 'RX Packets Dropped', and 'Collisions'.

Category	Sent	Received	TX Packets Dropped	RX Packets Dropped	Collisions	Errors
LAN STATISTICS	5748	7325	0	0	0	0
WAN STATISTICS	21192	71269	0	0	0	0
WIRELESS STATISTICS - 2.4GHZ BAND	2511	0	0	0	0	0
WIRELESS STATISTICS - 5GHZ BAND	2509	0	0	0	0	0

Helpful Hints...  
 \* This is a summary displaying the number of packets that have passed between the Internet and the LAN since the router was last initialized.  
 \* [More...](#)

# 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.



**D-Link**

DIR-868L // SETUP ADVANCED TOOLS STATUS SUPPORT

**INTERNET SESSIONS**

This page displays Source and Destination sessions passing through the device.

IP	TCP Count	UDP Count
<a href="#">192.168.0.100</a>	12	1

**Helpful Hints...**

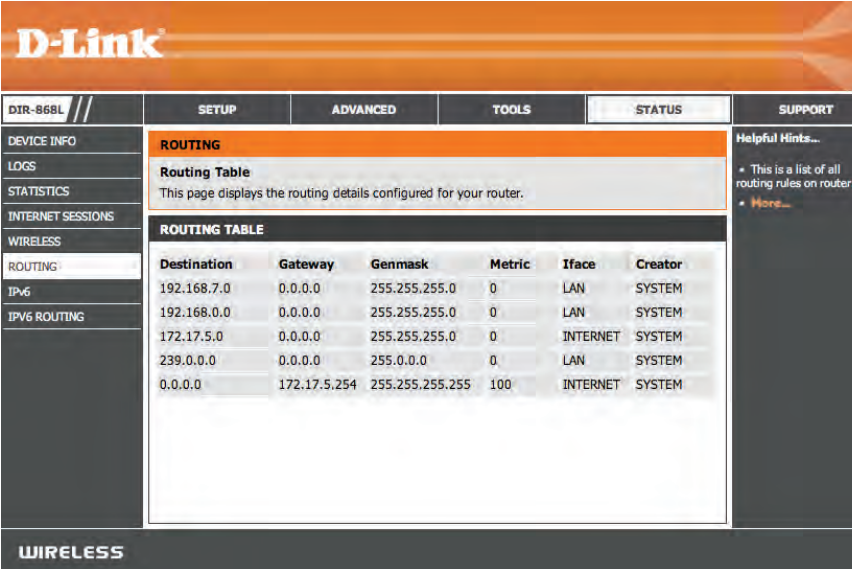
- This is a list of all active conversations between WAN computers and LAN computers.

[More...](#)

**WIRELESS**

# Routing

This page will display your current routing table.



The screenshot shows the D-Link DIR-868L web interface. 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 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
172.17.5.0	0.0.0.0	255.255.255.0	0	INTERNET	SYSTEM
239.0.0.0	0.0.0.0	255.0.0.0	0	LAN	SYSTEM
0.0.0.0	172.17.5.254	255.255.255.255	100	INTERNET	SYSTEM

On the right side of the interface, there is a "Helpful Hints..." section with a bullet point: "• This is a list of all routing rules on router." and a link for "• More...". The bottom of the page features a "WIRELESS" section header.

# 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-868L // 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.

The screenshot shows the D-Link web interface for the DIR-868L 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, WIRELESS, ROUTING, IPv6, and IPv6 ROUTING. The main content area is titled "IPv6 NETWORK INFORMATION" and contains the following text:

All of your IPv6 Internet and network connection details are displayed on this page.

**IPv6 CONNECTION INFORMATION**

- IPv6 Connection Type : Link-Local
- IPv6 Default Gateway : None
- LAN IPv6 Link-Local Address : fe80::249:5ff:fe11:2234 /64

**LAN IPv6 COMPUTERS**

IPv6 Address	Name(if any)
--------------	--------------

At the bottom of the page, there is a "WIRELESS" section header. On the right side, there is a "Helpful Hints..." section with a bullet point: "All of your WAN and LAN connection details are displayed here." and a link to "More..."

# IPv6 Routing

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

The screenshot shows the D-Link DIR-868L web interface. 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, WIRELESS, ROUTING, IPv6, and IPv6 ROUTING. The main content area is titled "IPv6 ROUTING" and contains the text: "This page displays IPV6 routing details configured for your router." Below this is a section titled "IPv6 ROUTING TABLE" with a table header: Destination IP, Gateway, Metric, and Interface. The table body is currently empty. On the right side, there is a "Helpful Hints..." section with a bullet point: "• This is a list of all IPv6 routing rules on router." and a link for "• More...". The bottom of the page features a "WIRELESS" section header.

# Support

The Support pages let you jump to descriptions of the settings and their functions.

The screenshot displays the D-Link DIR-868L web interface. At the top, the D-Link logo is visible. Below it, a navigation bar contains tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The SUPPORT tab is selected, and the main content area is titled "SUPPORT MENU".

The left sidebar contains a "MENU" section with links to SETUP, ADVANCED, TOOLS, and STATUS. The main content area is divided into four sections:

- SUPPORT MENU**
  - [Setup](#)
  - [Advanced](#)
  - [Tools](#)
  - [Status](#)
- SETUP HELP**
  - [Internet](#)
  - [Wireless Settings](#)
  - [Network Settings](#)
  - [Parental Control](#)
  - [Storage](#)
  - [Media Server](#)
  - [IPv6](#)
  - [MYDLINK SETTINGS](#)
- ADVANCED HELP**
  - [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](#)
  - [Advanced Network](#)
  - [Guest Zone](#)
  - [IPv6 Firewall](#)
  - [IPv6 Routing](#)
- TOOLS HELP**
  - [Device Administration](#)
  - [Time](#)
  - [Syslog](#)
  - [Email Settings](#)
  - [System](#)
  - [Firmware](#)
  - [Dynamic DNS](#)
  - [System Check](#)
  - [Schedules](#)
- STATUS HELP**
  - [Device Info](#)
  - [Logs](#)
  - [Statistics](#)
  - [Internet Sessions](#)
  - [Wireless](#)
  - [Routing](#)
  - [IPv6](#)
  - [IPv6 Routing](#)

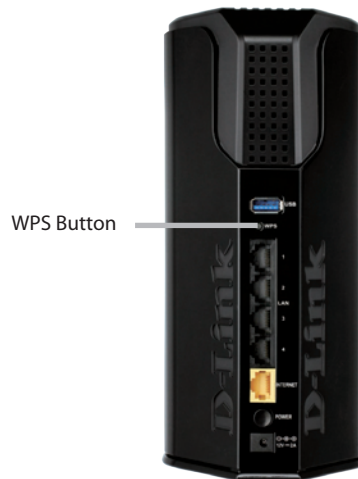
At the bottom of the page, the word "WIRELESS" is displayed in a dark bar.

# 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-868L 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-868L 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).

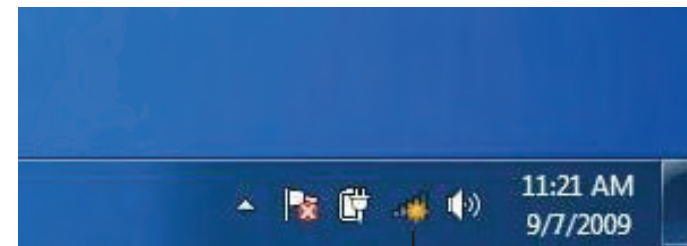
**Step 3** - Allow up to 1 minute while your connection is configured. Once the Internet light stops blinking, you will be connected and your wireless connection will be secure with WPA2.

# 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.



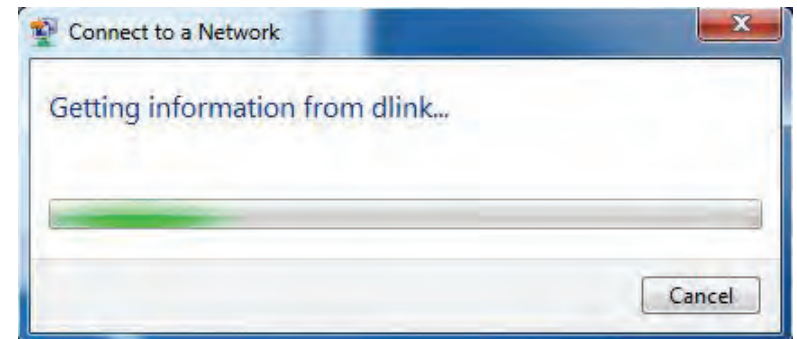


3. Highlight the wireless connection with Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

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.

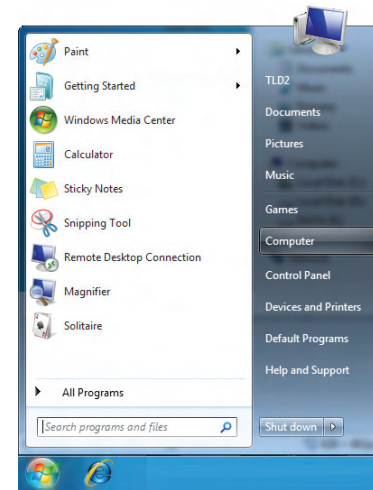
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



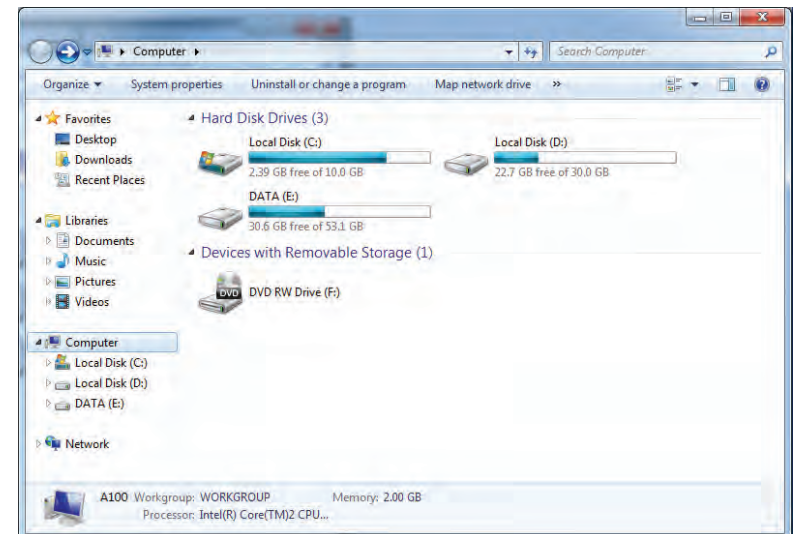
# WPS

The WPS feature of the DIR-868L can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature:

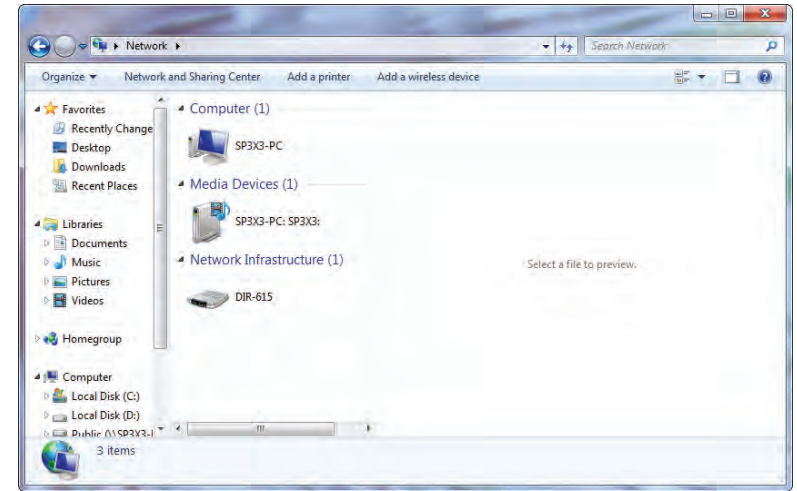
1. Click the **Start** button and select **Computer** from the Start menu.



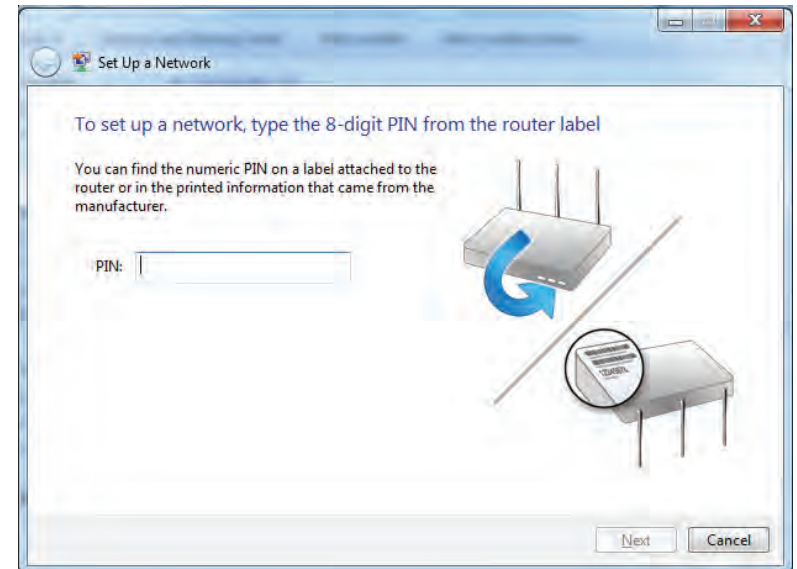
2. Click **Network** on the left side.



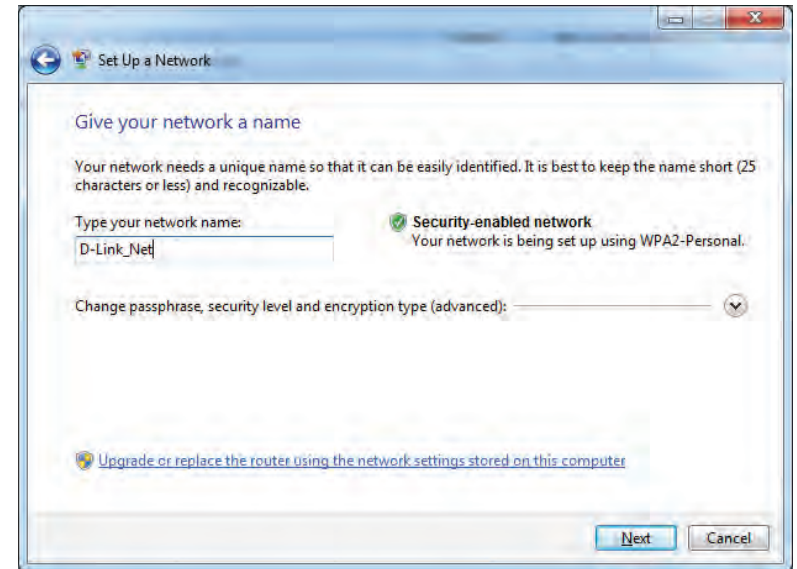
3. Double-click the DIR-868L.



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**.

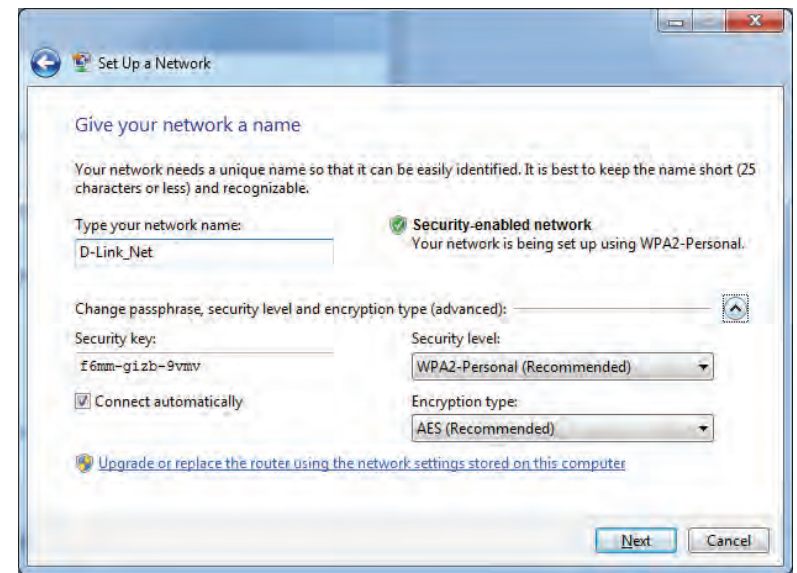


5. Type a name to identify the network.



6. To configure advanced settings, click the  icon.

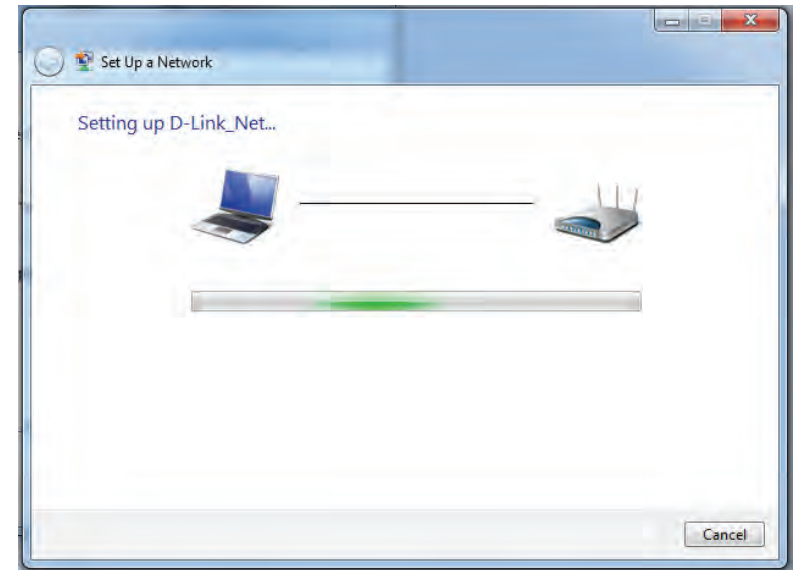
Click **Next** to continue.





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

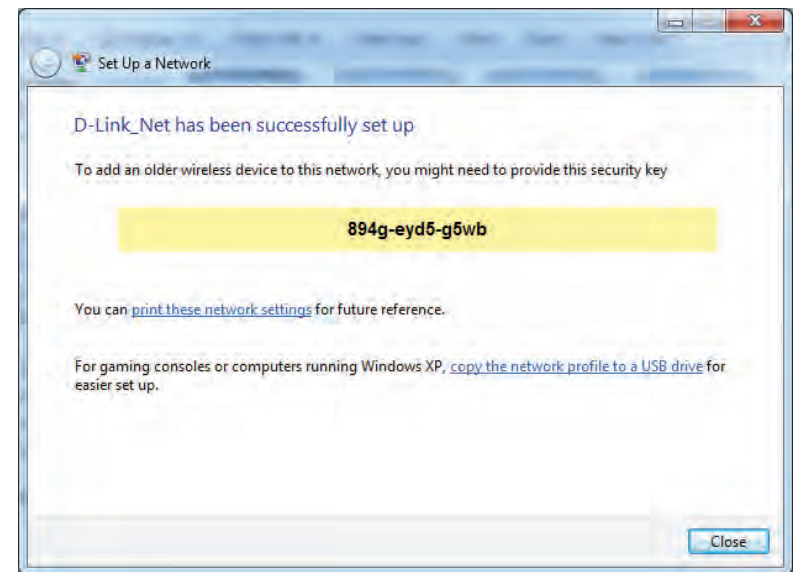
Wait for the configuration to complete.



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.

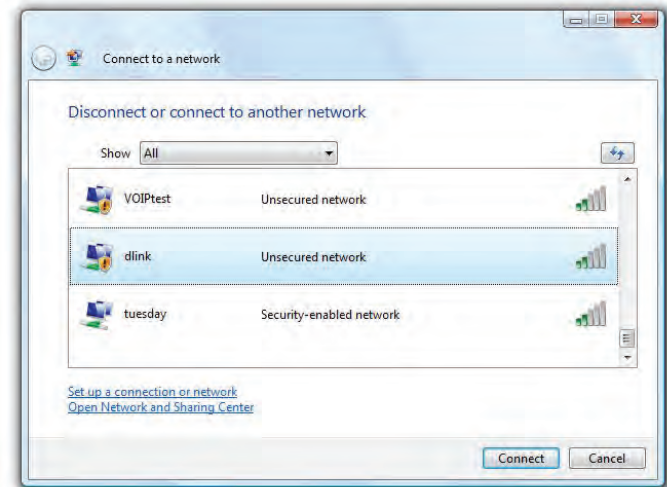
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

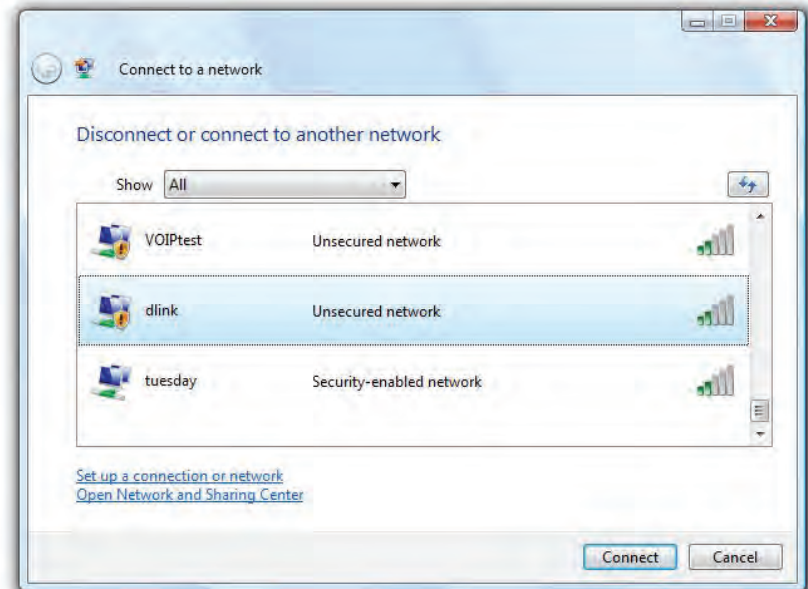
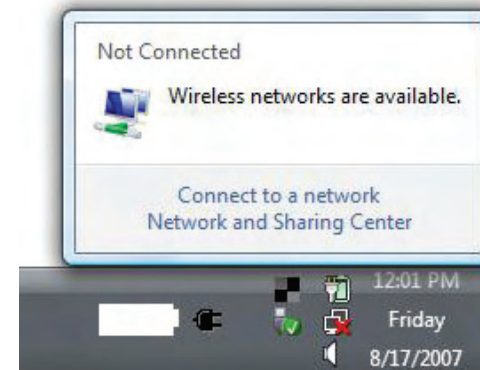
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



## WPA/WPA2

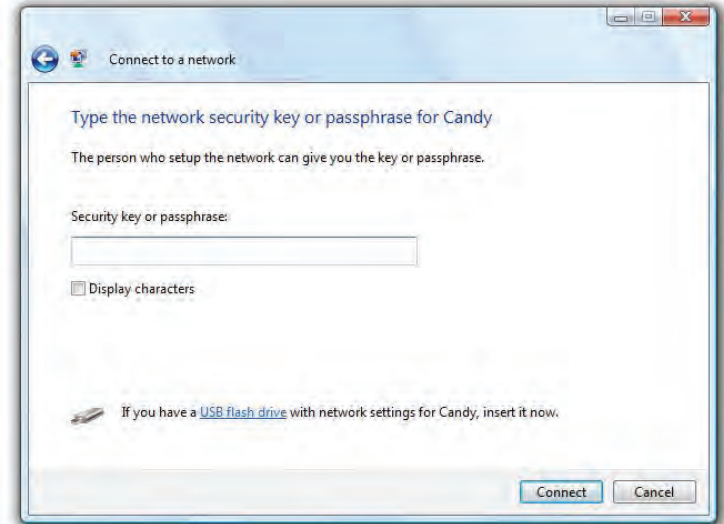
It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

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.

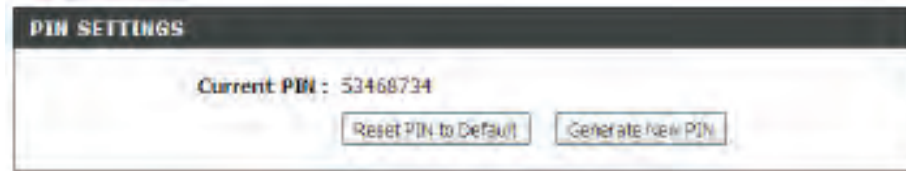


## WPS/WCN 2.0

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.

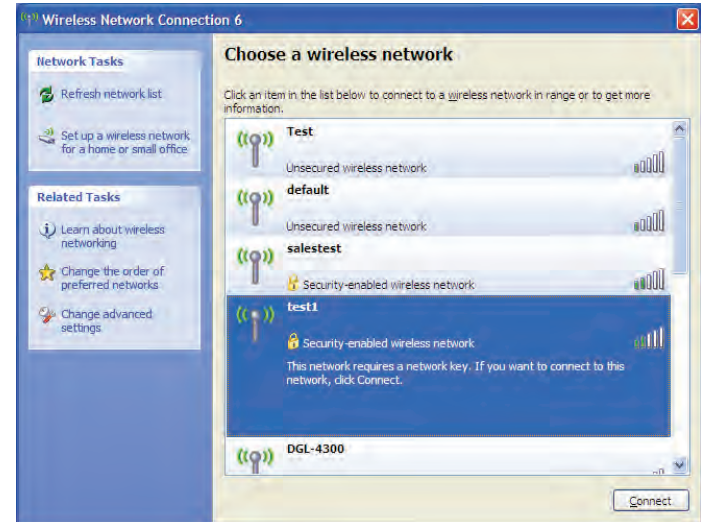
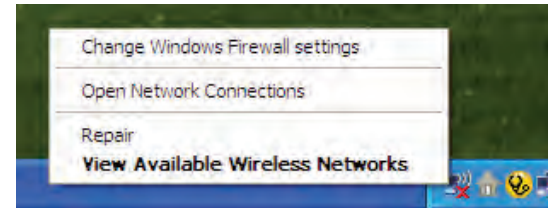
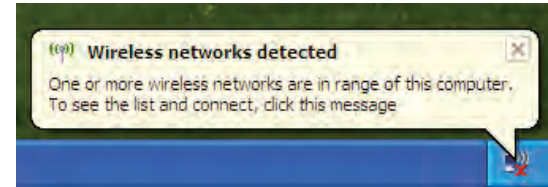
If you receive the **Wireless Networks Detected** bubble, click on the center of the bubble to access the utility.

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.

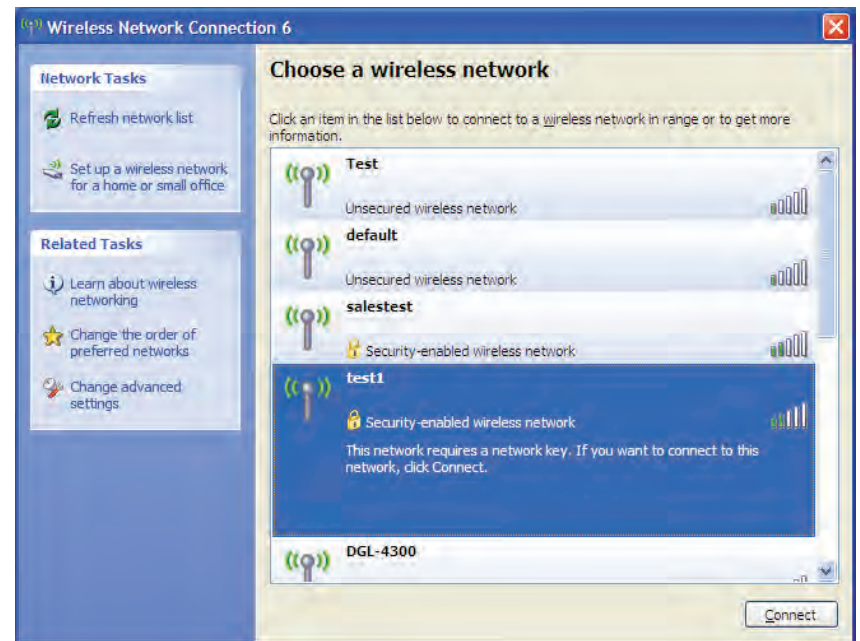
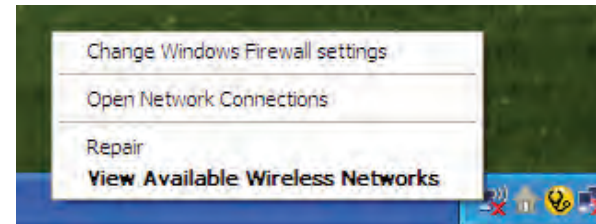
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



## WPA/WPA2

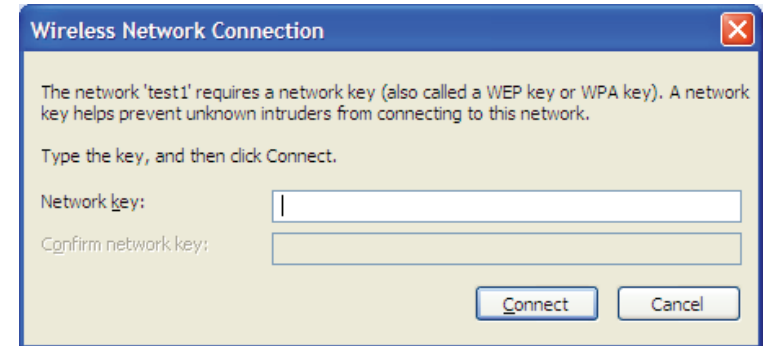
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

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-868L. 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.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52
Ping statistics for 66.94.234.13:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 93ms, Maximum = 203ms, Average = 132ms
C:\>
```

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, 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-868L 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

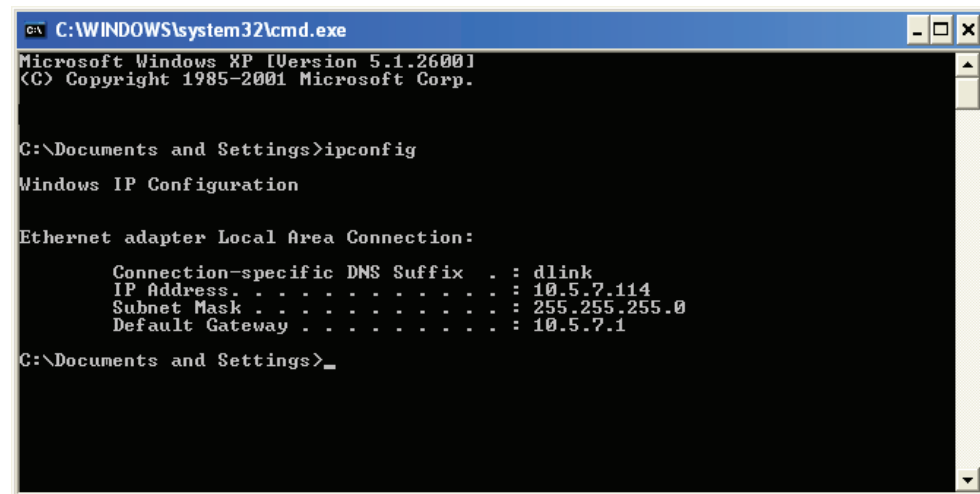
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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.**

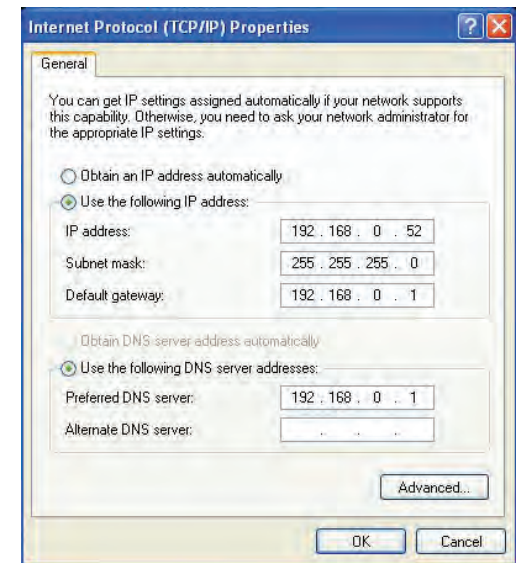
**Step 3**  
Highlight **Internet Protocol (TCP/IP)** and click **Properties.**

**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.



## Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The DIR-868L offers the following types of security:

- WPA2 (Wi-Fi Protected Access 2)
- WPA (Wi-Fi Protected Access)
- WPA2-PSK (Pre-Shared Key)
- WPA-PSK (Pre-Shared Key)

### What is WPA?

WPA (Wi-Fi Protected Access), is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.
- User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?\*&\_) and spaces. This key must be the exact same key entered on your wireless router or access point.

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

# Technical Specifications

## Device Interfaces

- 802.11 a/b/g/n/ac wireless LAN
- Four 10/100/1000 Gigabit LAN ports
- 10/100/1000 Gigabit WAN port
- USB 3.0 port

## Antenna Types

- Six internal antennas

## Standards

- IEEE 802.11ac (draft)
- IEEE 802.11n
- IEEE 802.11g
- IEEE 802.11b
- IEEE 802.11a
- IEEE 802.3
- IEEE 802.3u

## Security

- WPA™ - Personal/Enterprise
- WPA2™ - Personal/Enterprise
- Wi-Fi Protected Setup (WPS) PIN/PBC

## Power

- Input: 100 to 240 V AC, 50/60 Hz
- Output: 12 V DC, 2.5 A

## USB Port Power

- 5 V / 0.9 A

## Operating Temperature

- 32°F to 104°F ( 0°C to 40°C)

## Humidity

- 95% maximum (non-condensing)

## Safety & Emissions

- FCC Class B
- CE Class B
- C-Tick
- DLNA
- IPv6 Ready
- Wi-Fi Protected Setup (WPS)
- Wi-Fi Multimedia (WMM)
- Compatible with Windows 8

## Dimensions

- L = 102.3 mm (4.03 inches)
- W = 123.3 mm (4.85 inches)
- H = 217 mm (8.54 inches)

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

2 Frequency Range varies depending on country's regulation.

3 The DIR-868L does not include 5.25-5.35GHz & 5.47-5.725GHz in some regions.



## **Federal Communication Commission Interference Statement**

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

**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.

**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.

**DETACHABLE ANTENNA USAGE**

This device has been designed to operate with an antenna having a maximum gain of [4] dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power

(e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter (IC: 4216A-IR868LA1 / Model: DIR-868LA1) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Ce dispositif a été conçu pour fonctionner avec une antenne ayant un gain maximal de dBi [4]. Une antenne à gain plus élevé est strictement interdite par les règlements d'Industrie Canada. L'impédance d'antenne requise est de 50 ohms.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio (IC: 4216A-IR868LA1 / Model: DIR-868LA1) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

#### Approved antenna(s) list

Ant	Model	Gain (dBi) Exclude cable loss	Antenna Type	Frequency range (MHz to MHz)	Cable Loss(dB)	Cable Lenth
A	C037-511228-A	2.5	PCB	2400~2500	0.468	130mm
B	C037-511233-A	2	PCB	2400~2500	0.36	100mm
C	C037-511234-A	4	PCB	2400~2500	0.396	110mm
D	C037-511225-A	4	PCB	4900~5825	0.572	110mm
E	C037-511226-A	4	PCB	4900~5825	0.416	80mm