



User Manual

Wireless AC1200 Dual-Band Gigabit Cloud Router USB 3.0

DIR-860L

Preface

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes.

Manual Revisions

Revision	Date	Description
1.0	January 15, 2013	• Initial release

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Package Contents



DIR-860L Wireless AC1200 Dual-Band Gigabit Cloud Router USB 3.0



Ethernet Cable



Power Adapter



Wi-Fi Configuration Note

If any of the above items are missing, please contact your reseller.

Note: Using a power supply with a different voltage rating than the one included with the DIR-860L will cause damage and void the warranty for this product.

System Requirements

Network Requirements	• An Ethernet-based Cable or DSL modem • An 802.11 ac (draft), n, g, b, or a wireless adaptor, or an Ethernet port
Web-based Configuration Utility Requirements	Computer with the following: • Windows®, Macintosh, or Linux-based operating system • An installed Ethernet adapter Browser Requirements: • Internet Explorer 7 or higher • Firefox 3.5 or higher • Safari 4 or higher • Chrome 8 or higher Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.
mydlink Requirements	• iPhone/iPad/iPod Touch (iOS 3.0 or higher) • Android device (1.6 or higher) • Computer with the following browser requirements: • Internet Explorer 7 or higher • Firefox 3 or higher • Safari 5 or higher • Chrome 5 or higher iPhone, iPad, and iPod touch are registered trademarks of Apple Inc. Android is a trademark of Google, Inc.

Introduction

The D-Link Wireless AC1200 Dual-Band Gigabit Cloud Router USB 3.0 (DIR-860L) comes equipped with four Gigabit ports to provide speeds up to 10x faster than standard 10/100 ports. It also uses 802.11ac (draft) technology with multiple intelligent antennas to maximize the speed and range of your wireless signal and significantly outperform 802.11n devices. With the addition of Intelligent Quality of Service (QoS), data streams are separated, helping to organize and prioritize your network traffic so that your video streaming, gaming, and VoIP calls run smoother over both your wired and wireless network.

The DIR-860L supports a host of cloud features including QRS Mobile, which allows you to set up and configure the router using a mobile app. You can set up your router right from your sofa, no PC required.

The Wireless AC1200 Dual-Band Gigabit Cloud Router USB 3.0 is also mydlink-enabled, which gives you access to your home network no matter where you are. Now you can monitor and manage your home network right from your laptop, iPhone®, iPad®, or Android™ device. mydlink-enabled routers can be configured to send an email to keep you informed anywhere, anytime when new devices are connecting to your network or unwanted access is detected. Monitor in real-time websites that are being visited with recent browser history displayed on the mydlink™ Lite app – great for parents.

SharePort Mobile technology lets you take advantage of the USB 3.0 port found on the back of your DIR-860L. Plug in a USB storage drive and you can use the SharePort Mobile app for iOS and Android to access files, stream videos, view photos, or listen to music on your laptop or mobile devices. Plug in a printer and you can use the SharePort Mobile Plus app to share that printer with all of your devices.

The DIR-860L Wireless AC1200 Dual-Band Gigabit Cloud Router USB 3.0 provides incredible speeds, smart antenna technology, fast ports, cloud features, and terrific security features. It also features an innovative design and easy installation options.

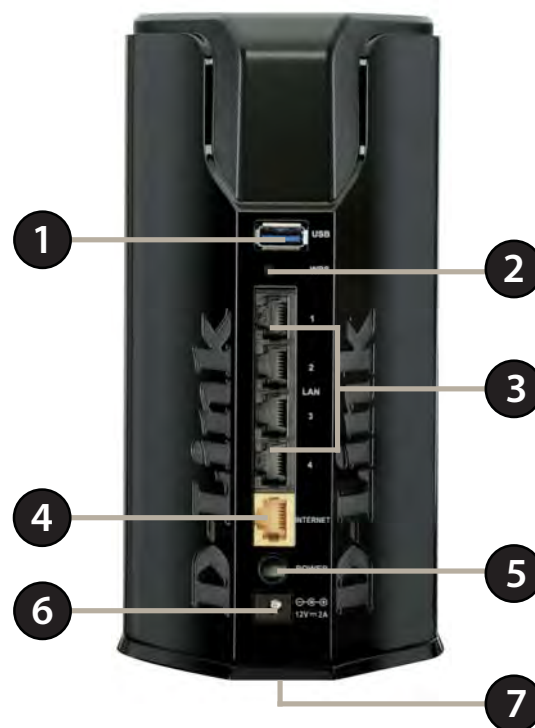
Features

- **Faster Wireless Networking** - The DIR-860L can provide up to a full 1750Mbps* wireless connection with concurrent 801.11ac and 802.11n wireless clients . It also operates on both the 2.4 GHz and 5 GHz bands, to allow separation of traffic so users can participate in high-bandwidth activities, such as video streaming, online gaming, and real-time audio, without affecting low-priority traffic like email and web surfing.
- **Cloud Features** - The DIR-860L support the QRS Mobile app to setup the router using a mobile device. It is also mydlink-enabled so you can remotely access and manage your DIR-860L from a mobile device. SharePort Mobile can be used to share files, stream videos, view photos, and play music. SharePort Plus lets you share a printer.
- **Compatible with 802.11a/b/g/n Devices** - The DIR-860L is still fully compatible with the 802.11n, IEEE 802.11g and 802.11a standards, so it can connect with existing 802.11n, 802.11g, 802.11b, and 802.11a wireless devices.
- **Advanced Firewall Features** - The Web-based user interface displays a number of advanced network management features including:
 - **Content Filtering** - Easily applied content filtering based on MAC Address, URL, and/or Domain Name.
 - **Filter Scheduling** - These filters can be scheduled to be active on certain days or for a duration of hours or minutes.
 - **Secure Multiple/Concurrent Sessions** - The DIR-860L can pass through VPN sessions. It supports multiple and concurrent IPSec and PPTP sessions, so users behind the DIR-860L can securely access corporate networks.
- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-860L lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your router to your specific settings within minutes.

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

Hardware Overview

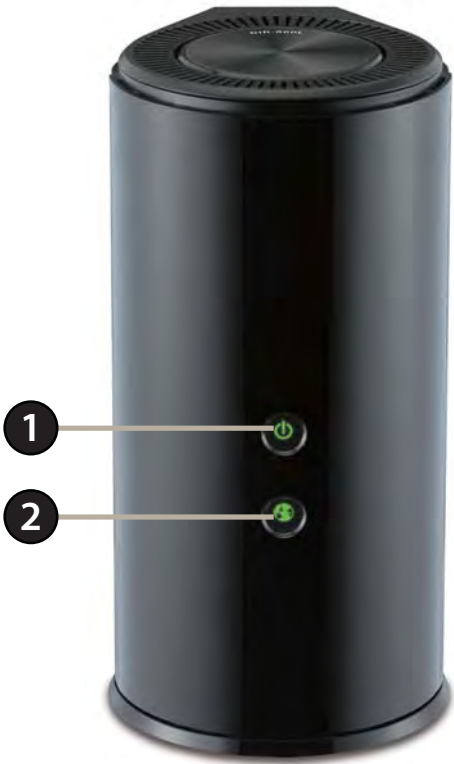
Connections



1	USB 3.0 Port	Connect a USB flash drive to share content , or connect it to a USB printer to share it on your network.
2	WPS Button	Press to start the WPS process and automatically create a secure connection to a WPS client.
3	Gigabit LAN Ports (1-4)	Connect Ethernet devices such as computers, switches, storage (NAS) devices and game consoles.
4	Gigabit Internet Port	Using an Ethernet cable, connect your broadband modem to this port.
5	Power Button	Press the power button to power on and off.
6	Power Receptor	Receptor for the supplied power adapter.
7	Reset Button	Insert a paperclip in to the hole and hold for several seconds to reset the router to default settings.

Hardware Overview

LEDs



1	Power LED	A solid green light indicates a proper connection to the power supply. The light will blink green during the WPS process. The light will be a solid orange during boot up.
2	Internet LED	A solid light indicates connection on the Internet port. If the LED is orange, the connection is good but the router cannot connect to the Internet.

Installation

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

Before you Begin

- Please configure the router with the computer that was last connected directly to your modem.
- You can only use the Ethernet port on your modem. If you were using a USB connection before using the router, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the Internet port on the router, and then turn the modem back on. In some cases, you may need to call your ISP to change connection types (USB to Ethernet).
- If you have DSL and are connecting via PPPoE, make sure you disable or uninstall any PPPoE software such as WinPoet, Broadjump, or Enternet 300 from your computer or you will not be able to connect to the Internet.

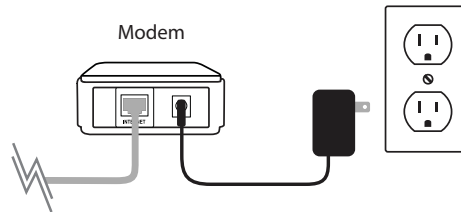
Wireless Installation Considerations

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

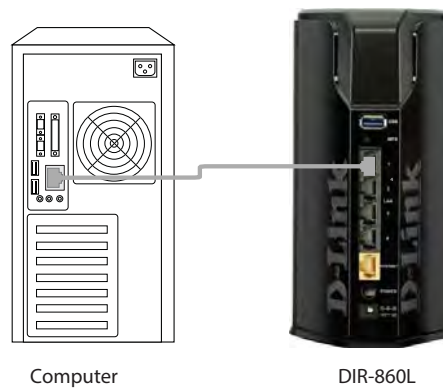
1. Keep the number of walls and ceilings between the D-Link router and other network devices to a minimum - each wall or ceiling can reduce your device's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between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

Manual Setup

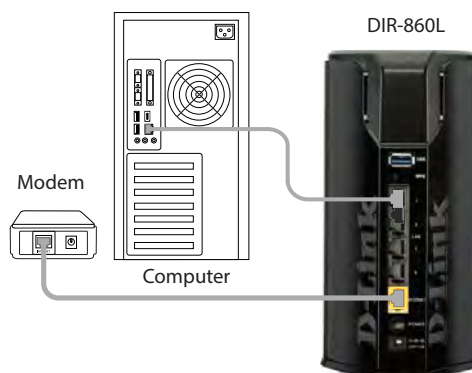
1. Turn off and unplug your cable or DSL broadband modem. This is required.



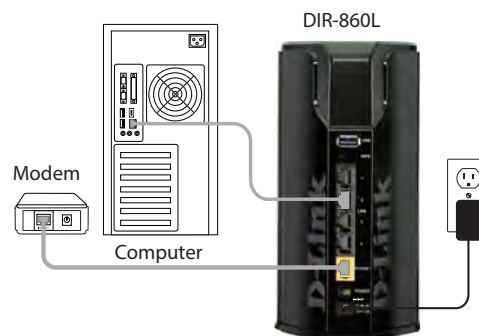
2. Position your router close to your modem and a computer. Place the router in an open area of your intended work area for better wireless coverage.
3. Unplug the Ethernet cable from your modem (or existing router if upgrading) that is connected to your computer. Plug it into the LAN port labeled **1** on the back of your router. The router is now connected to your computer.



4. Plug one end of the included Ethernet cable that came with your router into the yellow port labeled INTERNET on the back of the router. Plug the other end of this cable into the Ethernet port on your modem.



5. Reconnect the power adapter to your cable or DSL broadband modem and wait for two minutes.
6. Connect the supplied power adapter into the power receptor on the back of the router and then plug it into a power outlet or surge protector. Press the power button and verify that the power LED is lit. Allow 1 minute for the router to boot up.



7. If you are connecting to a Broadband service, you may be online already and further configuration will be optional.

Configuration

There are several different ways you can configure your router to connect to the Internet and connect to your clients:

- **D-Link Setup Wizard** - This wizard will launch when you log into the router for the first time. Refer to page 12.
- **QRS Mobile App** - Use your iPhone, iPad, or iPod Touch to configure your router. Refer to page 19.
- **Manual Setup** - Log into the router and manually configure your router (advanced users only). Refer to pagepage 26.

D-Link Quick Setup Wizard

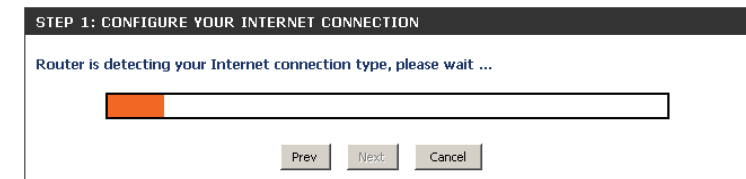
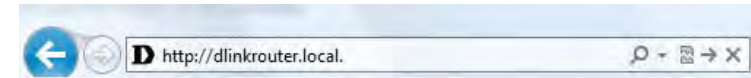
If this is your first time installing the router, open your web browser. You will automatically be directed to the **Wizard Setup Screen**.

If the wizard does not open automatically, you can alternatively reach the configuration utility by entering “**http://dlinkrouter.local.**” or the IP address of the router (**http://192.168.0.1**). Please refer to page 24.

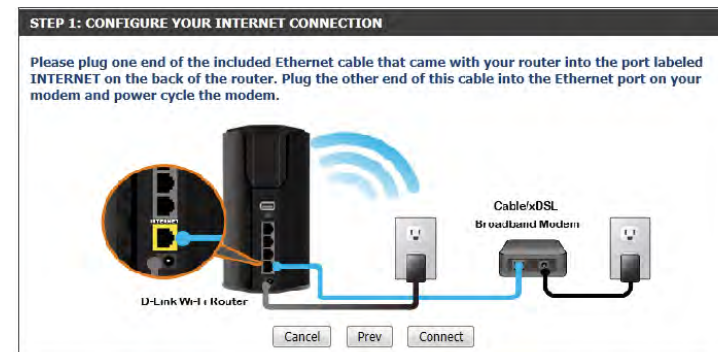
This wizard is designed to guide you through a step-by-step process to configure your new D-Link router and connect to the Internet.

Click **Next** to continue.

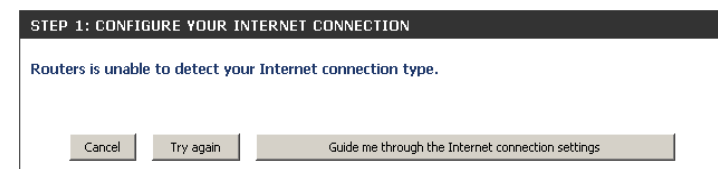
Please wait while your router detects your internet connection type. If the router detects your Internet connection, you may need to enter your ISP information such as username and password.



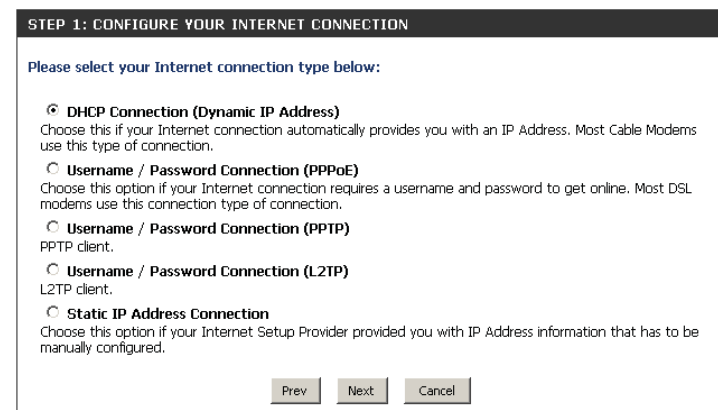
If the router does not detect a valid Ethernet connection from the Internet port, this screen will appear. Connect your broadband modem to the Internet port and then click **Try Again**.



If the router detects an Ethernet connection but does not detect the type of Internet connection you have, this screen will appear. Click **Guide me through the Internet Connection Settings** to display a list of connection types to choose from.



Select your Internet connection type and click **Next** to continue.



If the router detected or you selected **PPPoE**, enter your PPPoE username and password and click **Next** to continue.

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

If the router detected or you selected **PPTP**, enter your PPTP username, password, and other information supplied by your ISP. Click **Next** to continue.

If the router detected or you selected **L2TP**, enter your L2TP username, password, and other information supplied by your ISP. Click **Next** to continue.

SET USERNAME AND PASSWORD CONNECTION (PPPoE)

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

User Name :

Password :

Prev Next Cancel

SET USERNAME AND PASSWORD CONNECTION (PPTP)

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

Address Mode : ☒ Dynamic IP ☐ Static IP

PPTP IP Address :

PPTP Subnet Mask :

PPTP Gateway IP Address :

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

User Name :

Password :

Verify Password :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

Prev Next Cancel

SET USERNAME AND PASSWORD CONNECTION (L2TP)

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

Address Mode : ☒ Dynamic IP ☐ Static IP

L2TP IP Address :

L2TP Subnet Mask :

L2TP Gateway IP Address :

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

User Name :

Password :

Verify Password :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

Prev Next Cancel

If the router detected or you selected **Static**, enter the IP and DNS settings supplied by your ISP. Click **Next** to continue.

For both the 2.4GHz and 5GHz segments, create a Wi-Fi network name (SSID) using up to 32 characters.

Create a Wi-Fi password (between 8-63 characters). Your wireless clients will need to have this passphrase or key entered to be able to connect to your wireless network.

Click **Next** to continue.

In order to secure your router, please enter a new password to use when accessing the web-based configuration utility (where the password field was previously left blank). Check the **Enable Graphical Authentication** box to enable CAPTCHA authentication for added security. Be sure to make a record of this password for future use. Click **Next** to continue.

SET STATIC IP ADDRESS CONNECTION

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

IP Address :

Subnet Mask :

Gateway Address :

DNS SETTINGS

Primary DNS Address :

Secondary DNS Address :

STEP 2: CONFIGURE YOUR WI-FI SECURITY

Give your Wi-Fi network a name and a password. (2.4GHz Band)

Wi-Fi Network Name (SSID) : (Using up to 32 characters)

Wi-Fi Password : (Between 8 and 63 characters)

Give your Wi-Fi network a name and a password. (5GHz Band)

Wi-Fi Network Name (SSID) : (Using up to 32 characters)

Wi-Fi Password : (Between 8 and 63 characters)

STEP 3: SET YOUR PASSWORD

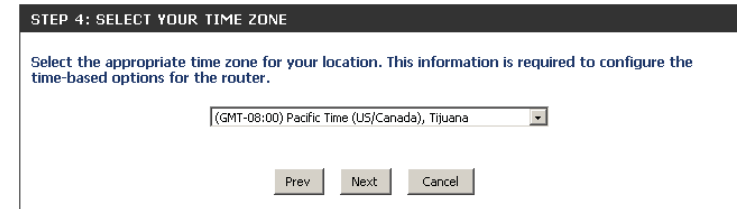
By default, your new D-Link Router does not have a password configured for administrator access to the Web-based configuration pages. To secure your new networking device, please set and verify a password below, and enabling CAPTCHA Graphical Authentication provides added security protection to prevent unauthorized online users and hacker software from accessing your network settings.

Password:

Verify Password :

Enable Graphical Authentication : ☐

Select your time zone from the drop-down menu and click **Next** to continue.



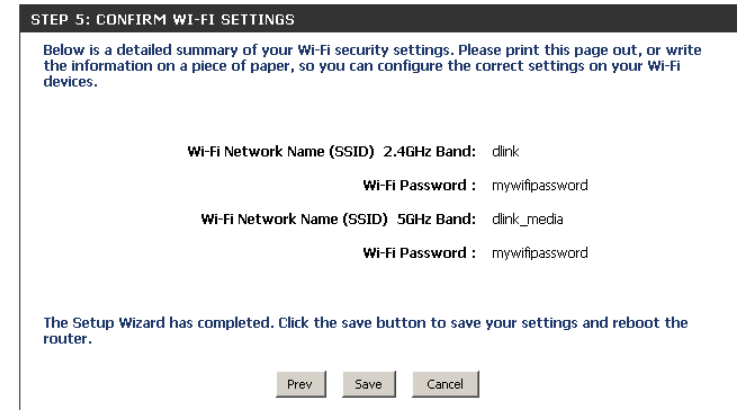
STEP 4: SELECT YOUR TIME ZONE

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

(GMT-08:00) Pacific Time (US/Canada), Tijuana

Prev Next Cancel

The Setup Complete window will display your Wi-Fi settings. Click **Save and Connect** to continue.



STEP 5: CONFIRM WI-FI SETTINGS

Below is a detailed summary of your Wi-Fi security settings. Please print this page out, or write the information on a piece of paper, so you can configure the correct settings on your Wi-Fi devices.

Wi-Fi Network Name (SSID) 2.4GHz Band: dlink
Wi-Fi Password : mywifi password

Wi-Fi Network Name (SSID) 5GHz Band: dlink_media
Wi-Fi Password : mywifi password

The Setup Wizard has completed. Click the save button to save your settings and reboot the router.

Prev Save Cancel

If you want to create a bookmark to the router, click **OK**. Click **Cancel** if you do not want to create a bookmark.

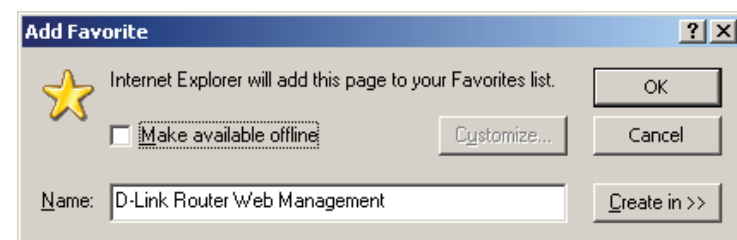


Microsoft Internet Explorer

Do you want to bookmark "D-Link Router Web Management"

OK Cancel

If you clicked **Yes**, a window may appear (depending on what web browser you are using) to create a bookmark.



Add Favorite

Internet Explorer will add this page to your Favorites list.

☐ Make available offline

Name: D-Link Router Web Management

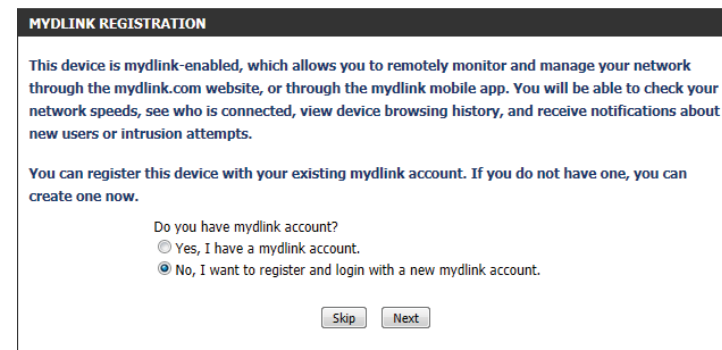
OK Cancel Customize... Create in >>

To use the mydlink service (mydlink.com or the mydlink Lite app), you must have an account. Select if you do have a mydlink account or if you need to create one. Click **Next** to continue.

If you do not want to register at this time, click **Cancel**.

If you selected **Yes**, enter your mydlink account name (email address) and password. Click **Login** to register your router.

If you selected **No**, fill out the requested information and click **Next** to create your mydlink account.



MYDLINK REGISTRATION

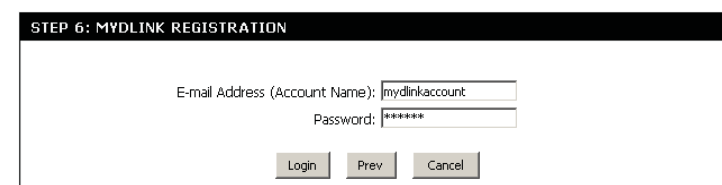
This device is mydlink-enabled, which allows you to remotely monitor and manage your network through the mydlink.com website, or through the mydlink mobile app. You will be able to check your network speeds, see who is connected, view device browsing history, and receive notifications about new users or intrusion attempts.

You can register this device with your existing mydlink account. If you do not have one, you can create one now.

Do you have mydlink account?

☐ Yes, I have a mydlink account.

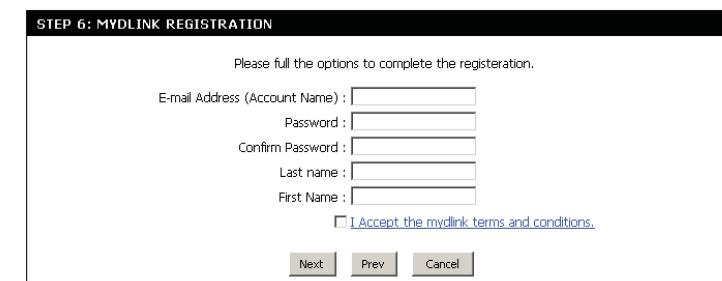
☒ No, I want to register and login with a new mydlink account.



STEP 6: MYDLINK REGISTRATION

E-mail Address (Account Name):

Password:



STEP 6: MYDLINK REGISTRATION

Please fill the options to complete the registration.

E-mail Address (Account Name) :

Password :

Confirm Password :

Last name :

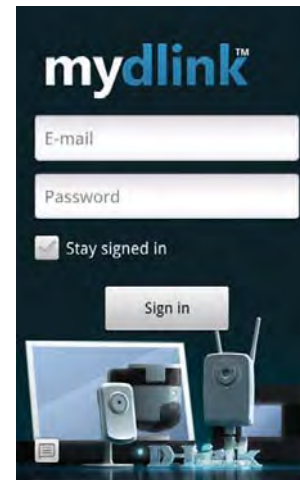
First Name :

☐ [I Accept the mydlink terms and conditions.](#)

The mydlink App will allow you to receive notices, browse network users, and configure your router from an iPhone/iPad/iPod Touch (iOS 3.0 or higher), or Android device (1.6 or higher).

To download the "mydlink Lite" app, visit the App Store, Google Play, or **<http://mydlink.com/Lite>**.

PC and Mac users can use the mydlink portal at **<http://mydlink.com>**.



QRS Mobile App (iOS, Android)

D-Link offers an app for your iOS or Android device to install and configure your router.

Step 1

From an iOS device, go to the App Store. From an Android device go to Google Play. Search for 'D-Link', select **QRS Mobile**, and download the app to your device. You may also scan the appropriate code on the right to locate the app download page.



iOS



Android

Step 2

Once your app is installed, you may now configure your router. Connect to the router wirelessly by going to your wireless utility on your device. Scan for the Wi-Fi name (SSID) as listed on the supplied info card. Select and then enter your Wi-Fi password.

D-Link DIR-860L Router Wi-Fi Configuration Note	
Web browser link:	Web browser link:
http://dlinkrouter or http://192.168.0.1	http://dlinkrouter or http://192.168.0.1
Default configuration	Your configuration
Username: "Admin"	Username: Admin
Password: "" (leave the field blank)	Password:
Wi-Fi Name (SSID): dlink-a8fa	Wi-Fi Name (SSID):
Wi-Fi Password: akbdj19368	Wi-Fi Password:

Step 3

Once you connect to the router, launch the QRS mobile app and it will guide you through the installation of your router.



SharePort Mobile App (iOS, Android)

The SharePort Mobile app will allow you to access files from a USB storage drive that is plugged into your router. You must enable file sharing from the **Setup > Storage** page (refer to page 22) for this app to work properly.

1. Plug your USB storage drive into the USB port.

Note: The DIR-860L supports hard drives with up to one terabyte of storage capacity.



2. Use your iOS or Android mobile device to scan the QR code to the right to download the **SharePort Mobile** app.

You can also search for the SharePort Mobile app directly in the iOS App Store or Google Play.



iOS



Android

3. From your iOS or Android mobile device, choose **Settings**.

Note: These steps are for the iOS version of the app. The Android version may differ slightly.



Settings

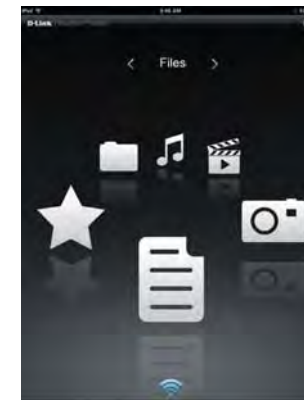
- Click **Wi-Fi**, select the Wi-Fi Network Name (SSID) that you created during setup and then enter the default Wi-Fi password located on your Wi-Fi configuration note.



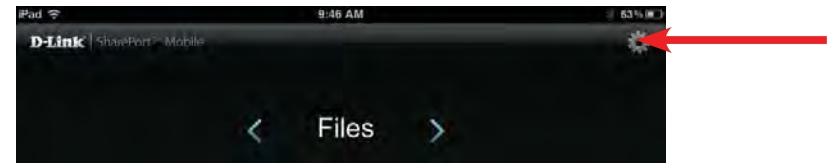
- Once connected, tap on the **SharePort Mobile** icon.



- The following screen will appear.



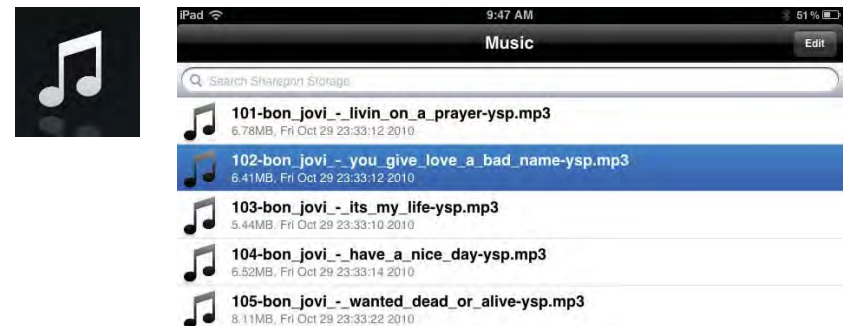
7. Tap on the **Settings** icon located on the right top corner of the screen. Tap **Edit** to enter your User Name and Password (the default username is **admin** and the password field should be left blank). Once you finish, click **Done** to continue.



8. For the Movie section, click the movie icon to play your movie from your USB flash drive.



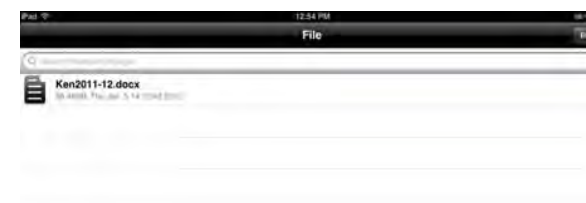
9. For the Music section, click the music icon to play your music from your USB flash drive.



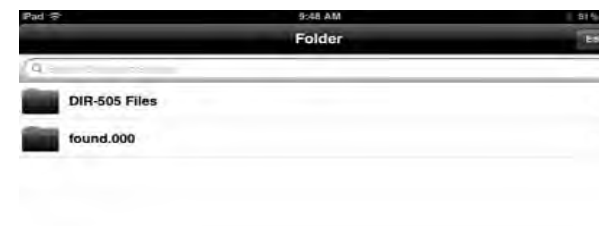
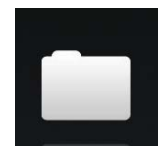
10. For the Photo section, click the Photo icon to view your photos from your USB flash drive.



11. For the Files section, click on the Files icon to view your files from your USB flash drive.



12. For the Folder section, click the folder icon to view your folders from your USB flash drive.



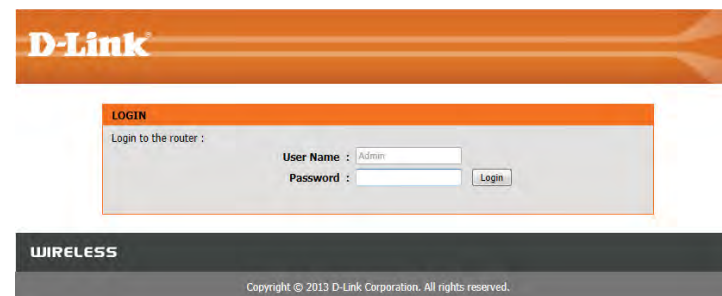
Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter **http://dlinkrouter.local**.

Users may also connect by typing the IP address of the router (**http://192.168.0.1**) in the address bar.



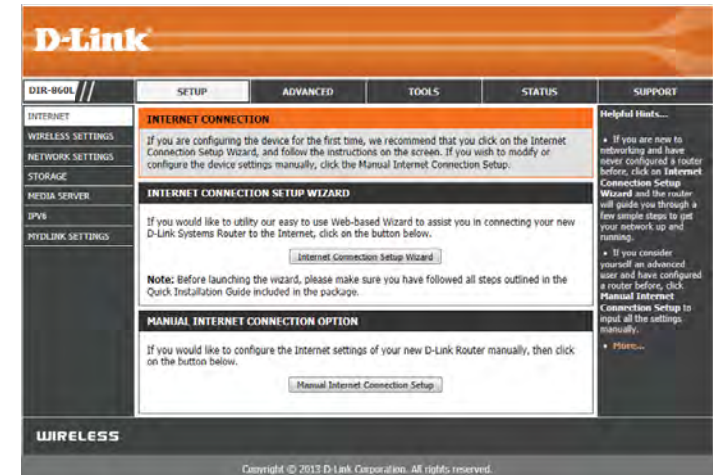
Enter your password. The password should be left blank by default.



Internet Connection Setup

If you want to configure your router to connect to the Internet using the wizard, click **Internet Connection Setup Wizard**. You will be directed to the Quick Setup Wizard. Please refer to page 12.

Click **Manual Internet Connection Setup** to configure your connection manually and continue to the next page.



Manual Internet Setup

Static IP

Select your connection type from the **My Internet Connection Is** drop-down box. Choose Static IP if all of the necessary IP information has been provided by your ISP. You will need to enter the IP address, subnet mask, gateway address, and DNS address(es). Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

My Internet Connection Is: Select **Static IP** to manually enter the IP settings supplied by your ISP.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

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

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

Default Gateway: Enter the Gateway assigned by your ISP.

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

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

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

The screenshot shows the 'WAN' configuration page of a D-Link router. The 'My Internet Connection is' dropdown is set to 'Static IP'. Below this, the 'STATIC IP ADDRESS INTERNET CONNECTION TYPE' section contains fields for IP Address, Subnet Mask (0.0.0.0), Default Gateway, Primary DNS Server, Secondary DNS Server (optional), MTU (1500), and MAC Address. A 'Clone Your PC's MAC Address' button is located below the MAC Address field. At the bottom of the form are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with additional instructions and a 'Support' link.

Dynamic IP (DHCP)

If you are unsure what method you use to connect to the Internet, try this first. Cable modems usually use this type of connection

My Internet Connection: Select **Dynamic IP (DHCP)** to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for cable modem services.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no warranty as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Host Name: The Host Name is optional but may be required by some ISPs. Leave blank if you are not sure.

Use Unicasting: Check the box if you are having problems obtaining an IP address from your ISP.

Primary/Secondary DNS Server: Enter the Primary and secondary DNS server IP addresses assigned by your ISP. These addresses are usually obtained automatically from your ISP. Leave at 0.0.0.0 if you did not specifically receive these from your ISP.

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

MAC Address: The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

The screenshot shows the D-Link router's configuration interface. The 'WAN' section is active, displaying the 'INTERNET CONNECTION TYPE' as 'Dynamic IP (DHCP)'. Below this, the 'DYNAMIC IP (DHCP) INTERNET CONNECTION TYPE' section is visible, containing fields for Host Name (set to 'dlinkrouter'), Primary DNS Server, Secondary DNS Server, MTU (set to 1500), and MAC Address. A 'Clone Your PC's MAC Address' button is located below the MAC Address field. The page also features 'Save Settings' and 'Don't Save Settings' buttons at the bottom.

PPPoE (Username/Password)

Choose PPPoE (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services. Make sure to remove any PPPoE software from your computer. The software is not needed and will not work through a router.

My Internet Connection: Select **PPPoE (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no warranty as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode: Select **Static IP** if your ISP assigned you IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

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

User Name: Enter your PPPoE user name.

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

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

Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

The screenshot shows the D-Link router's web interface for configuring the WAN connection. The 'WAN' tab is selected under the 'SETUP' menu. The 'INTERNET CONNECTION TYPE' is set to 'PPPoE (Username / Password)'. The configuration fields include:

- Address Mode:** Radio buttons for 'Dynamic IP' (selected) and 'Static IP'.
- IP Address:** Text input field.
- Username:** Text input field.
- Password:** Text input field.
- Verify Password:** Text input field.
- Service Name:** Text input field (optional).
- Reconnect Mode:** Radio buttons for 'Always-on' (selected), 'On demand', and 'Manual'. There is a 'New Schedule' link next to 'Always-on'.
- Maximum Idle Time:** Text input field with '5' entered, followed by '(minutes, 0=infinite)'.
- DNS Mode:** Radio buttons for 'Receive DNS from ISP' (selected) and 'Enter DNS Manually'.
- Primary DNS Server:** Text input field.
- Secondary DNS Server:** Text input field (optional).
- MTU:** Text input field with '1492' entered.
- MAC Address:** Text input field with a 'Clone Your PC's MAC Address' button next to it.

At the bottom, there are 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with links for 'Internet Connections', 'Support', and 'More...'. The left sidebar shows navigation options like 'INTERNET', 'WIRELESS SETTINGS', 'NETWORK SETTINGS', 'STORAGE', 'MEDIA SERVER', 'IPv6', and 'MYDLINK SETTINGS'.

Maximum

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

DNS

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

MTU:

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

MAC Address:

The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

PPTP

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

My Internet Connection: Select **PPTP (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no warranty as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode:

Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

PPTP IP Address:

Enter the IP address (Static PPTP only).

PPTP Subnet Mask:

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

PPTP Gateway:

PPTP Server IP:

Enter the Gateway IP Address provided by your ISP.

Username:

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

Password:

Enter your PPTP username.

Reconnect Mode:

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

The screenshot shows the D-Link router's configuration page for the WAN (Wide Area Network) settings. The 'My Internet Connection' is set to 'PPTP (Username / Password)'. The 'PPTP Internet Connection Type' section is expanded, showing fields for PPTP IP Address, Subnet Mask, Gateway IP Address, Server IP Address, Username, Password, and Verify Password. The 'Reconnect Mode' is set to 'On demand'. The 'Maximum Idle Time' is set to 5 minutes. The 'Primary DNS Server' and 'Secondary DNS Server' fields are empty. The 'MTU' is set to 1400. The 'MAC Address' field has a 'Clone Your PC's MAC Address' button next to it. The 'Save Settings' and 'Don't Save Settings' buttons are at the bottom.

L2TP

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

My Internet Connection: Select **L2TP (Username/Password)** from the drop-down menu.

Enable Advanced DNS Service: Advanced Domain Name System (DNS) services enhances your Internet performance by getting you the information and web pages you are looking for faster and more reliably. In addition, it improves your overall Internet experience by correcting many common typing mistakes automatically, taking you where you intended to go and saving you valuable time.

Disclaimer: D-Link makes no warranty as to the availability, reliability, functionality and operation of the Advanced DNS service or its features.

Enable True Gigabit Routing Connectivity: Check to enable true Gigabit routing. This will increase the throughput of the WAN-LAN connectivity of the router.

Address Mode: Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

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

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

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

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

Username: Enter your PPTP username.

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

Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

The screenshot shows the D-Link DIR-860L web interface. The 'WAN' tab is selected. Under 'INTERNET CONNECTION TYPE', 'My Internet Connection is' is set to 'L2TP (Username / Password)'. The 'L2TP INTERNET CONNECTION TYPE' section is expanded, showing the following fields and settings:

- Address Mode: ☒ Dynamic IP ☐ Static IP
- L2TP IP Address: [text box]
- L2TP Subnet Mask: [text box]
- L2TP Gateway IP Address: [text box]
- L2TP Server IP Address: [text box]
- Username: [text box]
- Password: [text box]
- Verify Password: [text box]
- Reconnect Mode: ☒ Always-on ☐ On demand ☐ Manual
- Maximum Idle Time: 5 (minutes, 0=infinite)
- Primary DNS Server: [text box]
- Secondary DNS Server: [text box] (optional)
- MTU: 1400
- MAC Address: [text box]
- Clone Your PC's MAC Address: [button]

At the bottom of the section are 'Save Settings' and 'Don't Save Settings' buttons.

Maximum Idle Select either **Always-on**, **On-Demand**, or **Manual**.

Time:

Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable

DNS Servers: Auto-reconnect.

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

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

MAC Address: MTU.

The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

DS-Lite

DS-Lite is an IPv6 connection type. After selecting DS-Lite, the following parameters will be available for configuration:

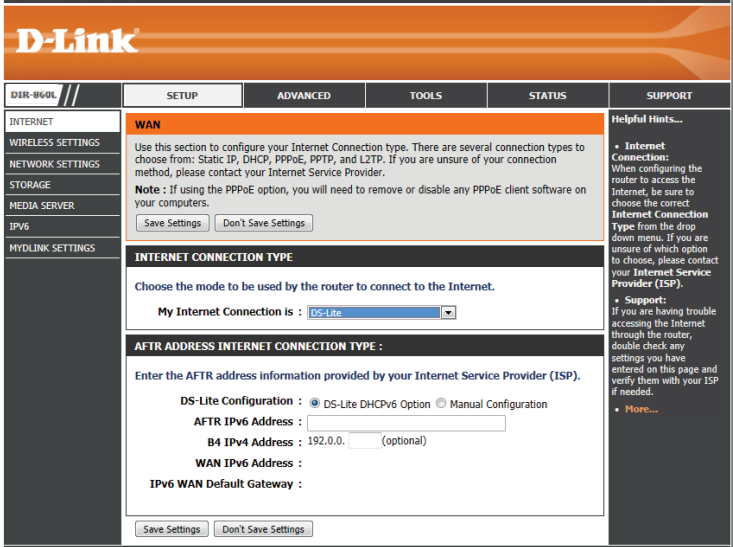
DS-Lite Configuration: Select the DS-Lite DHCPv6 option to let the router allocate the AFTR IPv6 address automatically. Select the Manual Configuration to enter the AFTR IPv6 address in manually.

AFTR IPv6 Address: After selecting the Manual Configuration option above, enter the AFTR IPv6 address used here.

B4 IPv4 Address: Enter the B4 IPv4 address value used here.

WAN IPv6 Address: Once connected, the WAN IPv6 address will be displayed here.

IPv6 WAN Default Gateway: Once connected, the IPv6 WAN Default Gateway address will be displayed here.

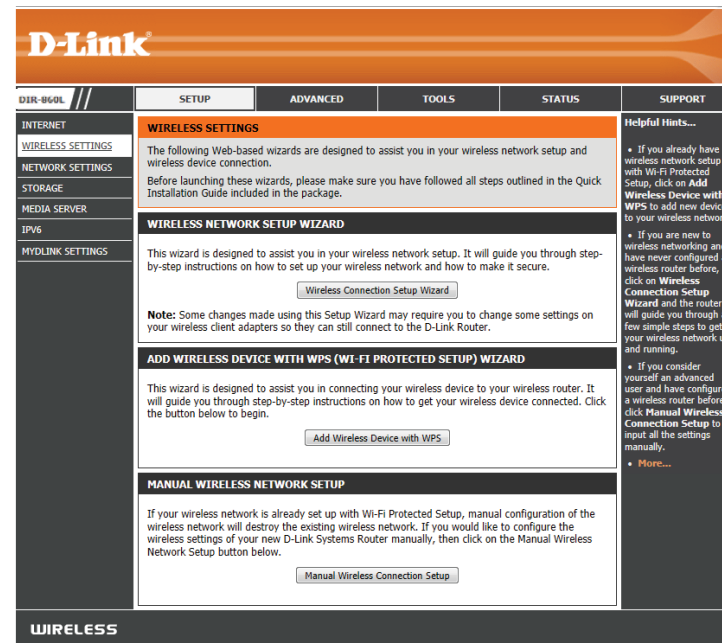


Wireless Settings

If you want to configure the wireless settings on your router using the wizard, click **Wireless Network Setup Wizard** and refer to page 42.

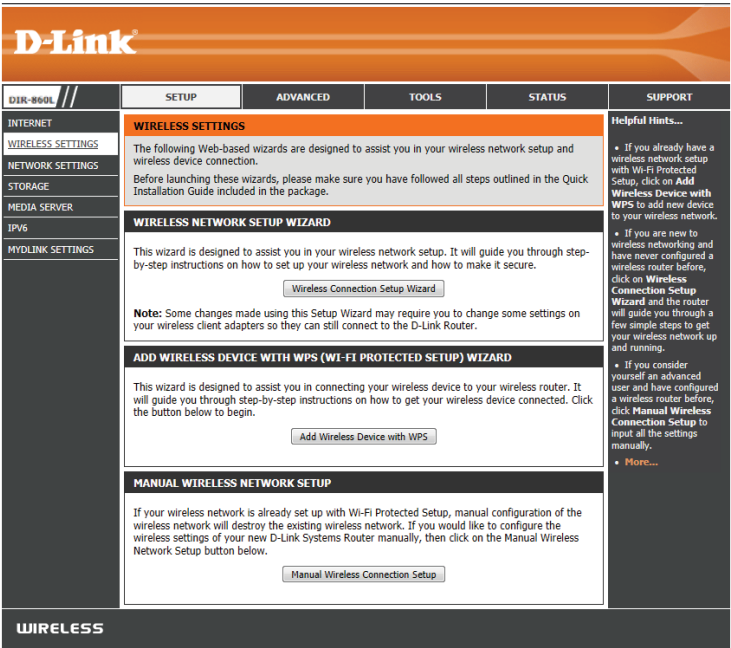
Click **Add Wireless Device with WPS** if you want to add a wireless device using Wi-Fi Protected Setup (WPS) and refer to page 44.

If you want to manually configure the wireless settings on your router click **Manual Wireless Network Setup** and refer to the next page.



Wireless Connection Setup Wizard

To run the security wizard, click on Setup at the top and then click **Wireless Connection Setup Wizard**.



STEP 1: Type your desired wireless network names (SSIDs) for both the 2.4 GHz band and the 5 GHz band.

Automatically: Select this option to automatically generate the router’s network key (password) and click **Next**.

Manually: Select this option to manually enter your network key and click **Next**.



If you selected **Automatically**, the wizard will generate a pre-shared key (password). The password will be the same for both the 2.4GHz and 5GHz bands.

Click **Next**.

You will now see a summary window that displays your settings. Write down the password and use it to access your wireless networks.

Click **Save** to save your settings.



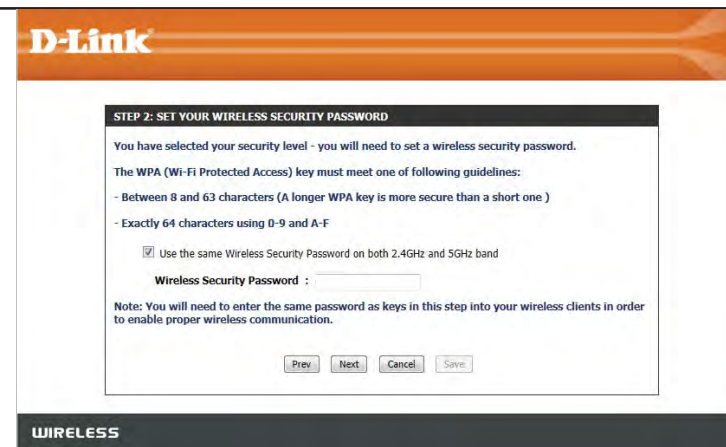
If you selected **Manually**, the option to make your password the same on both bands will be offered.

Enter your wireless password in the box below. If you chose to have different passwords for each band, you will need to enter a separate password for each band.

Click **Next**.

You will now see a summary window that displays your settings. Write down the password and use it to access your wireless networks.

Click **Save** to save your settings.



D-Link

STEP 2: SET YOUR WIRELESS SECURITY PASSWORD

You have selected your security level - you will need to set a wireless security password.

The WPA (Wi-Fi Protected Access) key must meet one of following guidelines:

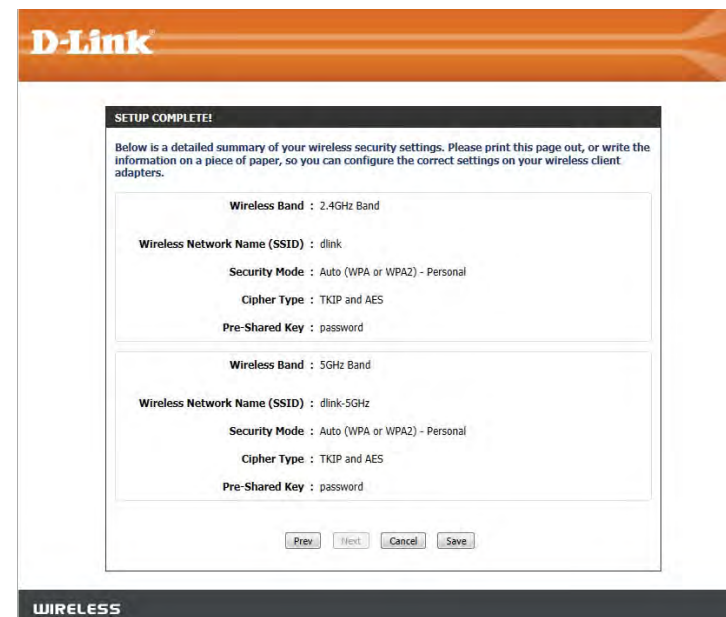
- Between 8 and 63 characters (A longer WPA key is more secure than a short one)
- Exactly 64 characters using 0-9 and A-F

☒ Use the same Wireless Security Password on both 2.4GHz and 5GHz band

Wireless Security Password :

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

WIRELESS



D-Link

SETUP COMPLETE!

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

Wireless Band : 2.4GHz Band

Wireless Network Name (SSID) : dlink

Security Mode : Auto (WPA or WPA2) - Personal

Cipher Type : TKIP and AES

Pre-Shared Key : password

Wireless Band : 5GHz Band

Wireless Network Name (SSID) : dlink-5GHz

Security Mode : Auto (WPA or WPA2) - Personal

Cipher Type : TKIP and AES

Pre-Shared Key : password

WIRELESS

Add Wireless Device with WPS Wizard

If you are unfamiliar with the types of wireless security, more information is located in the appendix at back of this manual.

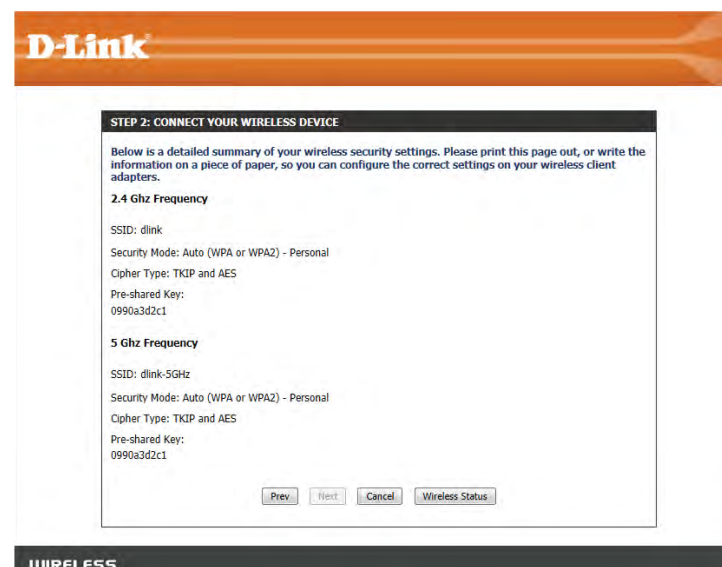
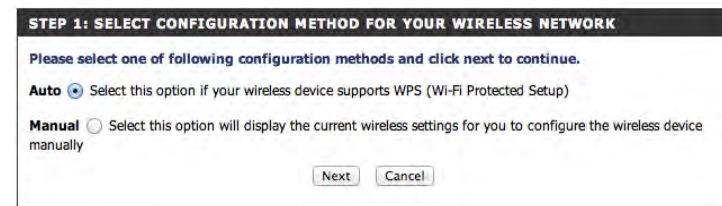
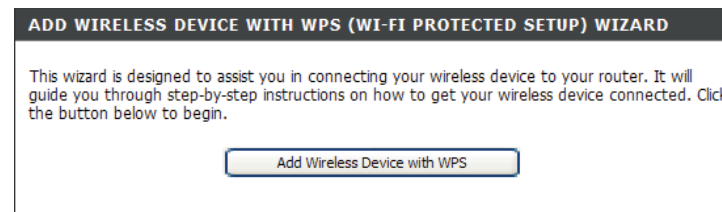
From the **Setup > Wireless Settings** screen, click **Add Wireless Device with WPS**.

Select **Auto** to add a wireless client using WPS (Wi-Fi Protected Setup) and then click

Next. Skip to the next page.

If you select **Manual**, a settings summary screen will appear. Write down the security key and use this to access your wireless networks.

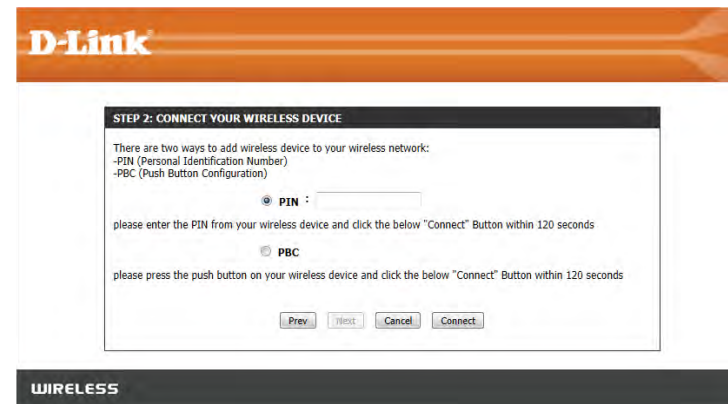
Click **OK** to finish.



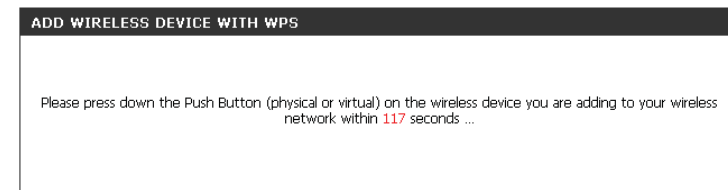
PIN: Select this option to use PIN method. In order to use this method you must know the wireless client's 8 digit PIN and click **Connect**.

PBC: Select this option to use PBC (Push Button) method to add a wireless client. Click **Connect**.

Once you click **Connect**, you will have a 120 second time limit to apply the settings to your wireless client(s) and successfully establish a connection.



The image shows a screenshot of a D-Link router's web interface. At the top is an orange banner with the "D-Link" logo. Below it is a white box titled "STEP 2: CONNECT YOUR WIRELESS DEVICE". Inside this box, it says "There are two ways to add wireless device to your wireless network: -PIN (Personal Identification Number) -PBC (Push Button Configuration)". There are two radio buttons: "PIN" (which is selected) and "PBC". Below the "PIN" option, it says "please enter the PIN from your wireless device and click the below 'Connect' Button within 120 seconds". Below the "PBC" option, it says "please press the push button on your wireless device and click the below 'Connect' Button within 120 seconds". At the bottom of the white box are four buttons: "Prev", "Next", "Cancel", and "Connect". Below the white box is a dark grey bar with the word "WIRELESS" in white capital letters.



The image shows a screenshot of a D-Link router's web interface. It is a dark grey box titled "ADD WIRELESS DEVICE WITH WPS". Inside the box, it says "Please press down the Push Button (physical or virtual) on the wireless device you are adding to your wireless network within 1:17 seconds ...".

Manual Wireless Settings

802.11ac draft (2.4GHz)

If you are unfamiliar with the types of wireless security, more information is located in the appendix at back of this manual.

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

Schedule: Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a schedule.

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

802.11 Mode: Select one of the following:
Mixed 802.11ac, 802.11n, and 802.11a - Select if you are using both 802.11ac, 802.11n, and 802.11a wireless clients.
Mixed 802.11ac and 802.11n - Select if you are using both 802.11ac and 802.11n wireless clients.
Mixed 802.11n and 802.11a - Select if you are using both 802.11n and 802.11a wireless clients.
802.11ac Only - Select only if all of your wireless clients are 802.11ac.
802.11n Only - Select only if all of your wireless clients are 802.11n.

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DIR-860L to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DIR-860L. By default the channel is set to 6. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable **Auto Channel Scan**, this option will be greyed out.

Channel Width: Select the Channel Width:
Auto 20/40 - This is the default setting. Select if you are using both 802.11n and non-802.11n wireless devices.
20MHz - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DIR-860L. If Invisible is selected, the SSID of the DIR-860L will not be seen by site survey utilities so your wireless clients will have to know the SSID of your DIR-860L in order to connect to it.

Wireless Security: Refer to the appendix in the back of the manual for more information regarding wireless security.

802.11ac draft (5GHz)

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

Schedule: Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a schedule.

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

802.11 Mode: Select one of the following:

- 802.11n Only** - Select only if all of your wireless clients are 802.11n.
- 802.11ac Only** - Select if all of your wireless clients are 802.11ac.
- Mixed 802.11n and 802.11a** - Select if you are using both 802.11n and 802.11a wireless clients.
- Mixed 802.11ac and 802.11n** - Select if you are using both 802.11ac and 802.11n wireless clients.
- Mixed 802.11ac and 802.11a** - Select if you are using both 802.11ac and 802.11a wireless clients.

The screenshot shows two configuration pages for a wireless network. The top page, titled "WIRELESS NETWORK SETTINGS", has a dark header and contains the following fields: "Wireless Band" set to "5GHz Band", "Enable Wireless" checked with a dropdown set to "Always" and a "New Schedule" button, "Wireless Network Name" set to "dlink-5GHz" with a note "(Also called the SSID)", "802.11 Mode" set to "Mixed 802.11ac", "Enable Auto Channel Scan" checked, "Wireless Channel" set to "5.180 GHz - CH 38", "Transmission Rate" set to "Best (automatic)" with a unit of "(Mbit/s)", "Channel Width" set to "20/40/80 MHz(Auto)", and "Visibility Status" with radio buttons for "Visible" (selected) and "Invisible". The bottom page, titled "WIRELESS SECURITY MODE", has a dark header and contains a "Security Mode" dropdown set to "None" and two buttons: "Save Settings" and "Don't Save Settings". A footer bar at the bottom of the second page is labeled "WIRELESS".

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DIR-860L to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DIR-860L. By default the channel is set to 6. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable **Auto Channel Scan**, this option will be greyed out.

Channel Width: Select the Channel Width:

- Auto 20/40/80** - Select if you are using both 802.11ac, 802.11n and non-802.11n wireless devices.
- Auto 20/40** - This is the default setting. Select if you are using both 802.11n and non-802.11n wireless devices.
- 20MHz** - Select if you are not using any 802.11n wireless clients.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DIR-860L. If Invisible is selected, the SSID of the DIR-860L will not be seen by site survey utilities so your wireless clients will have to know the SSID of your DIR-860L in order to connect to it.

Wireless Security: Refer to the next page for more information regarding wireless security.

Network Settings

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

DIR-860L

SETUPADVANCEDTOOLSSTATUSSUPPORT

INTERNET

WIRELESS SETTINGS

NETWORK SETTINGS

STORAGE

MEDIA SERVER

IPv6

HYDLINK SETTINGS

NETWORK SETTINGS

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

Please note that this section is optional and you do not need to change any of the settings here to get your network up and running.

Save SettingsDon't Save Settings

ROUTER SETTINGS

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

Router IP Address : 192.168.0.1

Default Subnet Mask : 255.255.255.0

Host Name : dlinkrouter

Local Domain Name : (optional)

Enable DNS Relay : ☒

DHCP SERVER SETTINGS

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

Enable DHCP Server : ☒

DHCP IP Address Range : 100 to 199 (addresses within the LAN subnet)

DHCP Lease Time : 10080 (minutes)

Always broadcast : ☒ (compatibility for some DHCP Clients)

NetBIOS announcement : ☐

Learn NetBIOS from WAN : ☐

NetBIOS Scope : (optional)

NetBIOS node type : ☐ Broadcast only (use when no WINS servers configured)
☐ Point-to-Point (no broadcast)
☒ Mixed mode (Broadcast then Point-to-Point)
☐ Hybrid (Point-to-Point then Broadcast)

Primary WINS IP Address :

Secondary WINS IP Address :

ADD DHCP RESERVATION

Enable : ☐

Computer Name : e.g. Computer Name

IP Address :

MAC Address :

Clone Your PC's MAC Address

Add / UpdateClean

DHCP RESERVATIONS LIST

EnableHost NameIP AddressMAC Address

NUMBER OF DYNAMIC DHCP CLIENTS

Host NameIP AddressMAC AddressExpired Time

07866PCVZH7E192.168.0.100cc:52:af:49:e6:9c6 Days 23 Hours 44 Minutes

Save SettingsDon't Save Settings

Helpful Hints...

- If you already have a DHCP server on your network or are using static IP addresses on all the devices on your network, uncheck Enable DHCP Server to disable this feature.
- If you have devices on your network that should always have fixed IP addresses, add a DHCP Reservation for each such device.
- More...

WIRELESS

Router Settings

This section will allow you to configure the router settings.

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

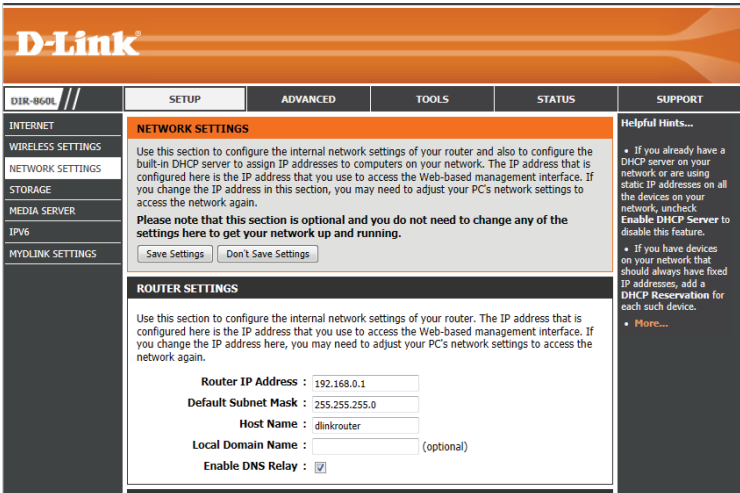
If you change the IP address, once you click **Save Settings**, you will need to enter the new IP address in your browser in order to log in to the configuration utility in the future.

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

Device Name: Enter a name for the router.

Local Domain: Enter the Domain name (Optional).

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



DHCP Server Settings

DHCP stands for Dynamic Host Control Protocol. The DIR-860L has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to "Obtain an IP Address Automatically". When you turn your computers on, they will automatically load the proper TCP/IP settings provided by the DIR-860L. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

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

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

***Note:** If you statically (manually) assign IP addresses to your computers or devices, make sure the IP addresses are outside of this range or you may have an IP conflict.*

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

Always Broadcast: Enable this feature to broadcast your network's DHCP server to LAN/WLAN clients.

NetBIOS Announcement: NetBIOS allows LAN hosts to discover all other computers within the network, enable this feature to allow the DHCP Server to offer NetBIOS configuration settings.

Learn NetBIOS from WAN: Enable this feature to allow WINS information to be learned from the WAN side, disable to allow manual configuration.

NetBIOS Scope: This feature allows the configuration of a NetBIOS 'domain' name under which network hosts operates. This setting has no effect if the 'Learn NetBIOS information from WAN' is activated.

NetBIOS Node: Select the different type of NetBIOS node; **Broadcast only**, **Point-to-Point**, **Mixed-mode**, and **Hybrid**.

WINS IP Address: Enter your WINS Server IP address(es).

DHCP SERVER SETTINGS

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

Enable DHCP Server : ☒

DHCP IP Address Range : 100 to 199 (addresses within the LAN subnet)

DHCP Lease Time : 10080 (minutes)

Always broadcast : ☒ (compatibility for some DHCP Clients)

NetBIOS announcement : ☐

Learn NetBIOS from WAN : ☐

NetBIOS Scope : (optional)

NetBIOS node type :

- ☐ Broadcast only (use when no WINS servers configured)
- ☐ Point-to-Point (no broadcast)
- ☒ Mixed-mode (Broadcast then Point-to-Point)
- ☐ Hybrid (Point-to-Point then Broadcast)

Primary WINS IP Address :

Secondary WINS IP Address :

DHCP Reservation

If you want a computer or device to always have the same IP address assigned, you can create a DHCP reservation. The router will assign the IP address only to that computer or device.

Note: This IP address must be within the DHCP IP Address Range.

Enable: Check this box to enable the reservation.

Computer Name: Enter the computer name or select from the drop-down menu and click <<.

IP Address: Enter the IP address you want to assign to the computer or device. This IP Address must be within the DHCP IP Address Range.

MAC Address: Enter the MAC address of the computer or device.

Copy Your PC's MAC Address: If you want to assign an IP address to the computer you are currently on, click this button to populate the fields.

Save: Click **Save** to save your entry. You must click **Save Settings** at the top to activate your reservations.

DHCP Reservations List

DHCP Reservations List: Displays any reservation entries. Displays the host name (name of your computer or device), MAC Address, and IP address.

Enable: Check to enable the reservation.

Edit: Click the edit icon to make changes to the reservation entry.

Delete: Click to remove the reservation from the list.

ADD DHCP RESERVATION

Enable : ☐

Computer Name : << Computer Name ▼

IP Address :

MAC Address :

Clone Your PC's MAC Address

Add / Update Clear

DHCP RESERVATIONS LIST				
Enable	Host Name	IP Address	MAC Address	
NUMBER OF DYNAMIC DHCP CLIENTS				
Host Name	IP Address	MAC Address	Expired Time	
DaveBook-Pro-2	192.168.0.100	00:25:4b:c3:55:3c	6 Days 23 Hours 57 Minutes	

Storage

This page will allow you to set up access to files on an external USB hard drive¹ or thumb drive that is plugged into the router. You can do this through local network or from the Internet using either a web browser or an app on your smartphone or tablet. You can create users that can be allowed access to these files through SharePort Mobile services accessible through a web UI or on mobile devices using the SharePort Mobile app available for iOS and Android.

Enable SharePort Web Access Check this box if you wish to be able to access SharePort through a browser as well as the mobile app.

HTTP Access Port: Enter the port you want to use when accessing SharePort using a web browser.

HTTPS Access Port: Enter the port you want to use when accessing SharePort through a secure connection using a web browser.

Allow Remote Access: Check this box if you wish to be able to access SharePort through a web browser over the Internet.

User Creation: To give a new user access to your SharePort storage, enter a User Name and Password here. You can Add new users or choose existing users from the drop-down menu if you wish to Edit or Delete them.

Note: The Admin password is the same as the admin password for the router. The Guest password is "guest" and cannot be changed.

User List: This list displays all of the users with access to the SharePort Mobile content, what they can access, and their Read/Write Permissions.

Number of Devices: All devices you have set up for SharePort access will be listed here.

SharePort Web Access Link: This area will display the HTTP and HTTPS links to connect to your SharePort drive through a web browser from a device on your network.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various settings categories: INTERNET, WIRELESS SETTINGS, NETWORK SETTINGS, STORAGE, MEDIA SERVER, IPV6, and MYDLINK SETTINGS. The main content area is titled 'STORAGE' and contains the following sections:

- STORAGE:** A text box explaining that Web File Access allows remote access to files on an SD card or USB storage drive. It includes a checkbox for 'Enable Web File Access' and buttons for 'Save Settings' and 'Don't Save Settings'.
- SHAREPORT WEB ACCESS:** A section with a checkbox for 'Enable SharePort Web Access' (checked), and input fields for 'HTTP Access Port' (8181) and 'HTTPS Access Port' (4433). There is also a checkbox for 'Allow Remote Access'.
- 10 -- USER CREATION:** A section for creating new users, featuring input fields for 'User Name', 'Password', and 'Verify Password', along with a dropdown menu for 'User Name' and an 'Add/Edit' button.
- USER LIST:** A table listing existing users with columns for No., User Name, Access Path, Permission, Edit, and Delete.

No.	User Name	Access Path	Permission	Edit	Delete
1	admin	/	Read/Write		
2	Guest	(1) none	Read Only		
- NUMBER DEVICES:0:** A section showing the number of devices connected, with a table for 'Device', 'Total Space', and 'Free Space'.
- SHAREPORT ACCESS LINK:** A section providing a link to connect to the SharePort drive, with a text box and buttons for 'Save Settings' and 'Don't Save Settings'.

The bottom of the page shows the 'WIRELESS' section.

¹ Supports capacities of up to 1TB for USB storage drives.

Media Server

This page will allow you to enable a DLNA Media Server. DLNA (Digital Living Network Alliance) is the standard for the interoperability of Network Media Devices (NMDs). The user can enjoy multimedia applications (music, pictures and videos) on your network connected PC or media devices. If you agree to share media with devices, any computer or device that connects to your network can play your shared music, pictures and videos.

Note: The shared media may not be secure. Allowing any devices to stream is recommended only on secure networks.

DLNA Server: Check to enable DLNA Media Server functions.

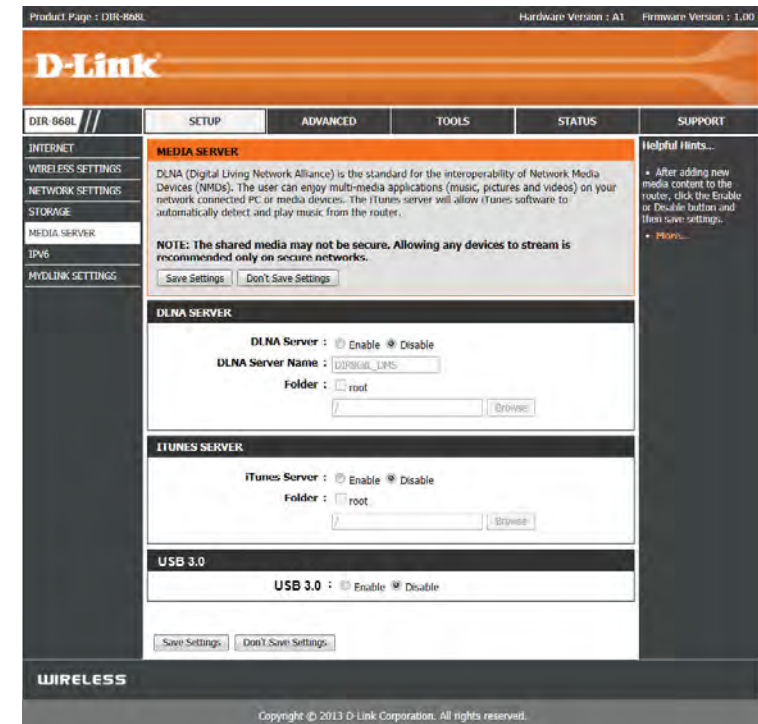
DLNA Server Choose a name for your DLNA media server so that it can be
Name: found.

Folder: Choose the location of the folder you wish to share or check the box to use the root folder of the entire drive.

iTunes Server: Check to enable iTunes Server functions.

Folder: Choose the location of the iTunes Library folder you wish to share or check the box to use the root folder if it is located on the root folder of the connected drive.

USB 3.0 Use this setting to enable USB 3.0 functionality for the USB port on the back of the router. USB 3.0 provides high-speed transfer speeds with compatible devices. This setting is disabled by default, which means that the USB port will operate at the USB 2.0 specification.

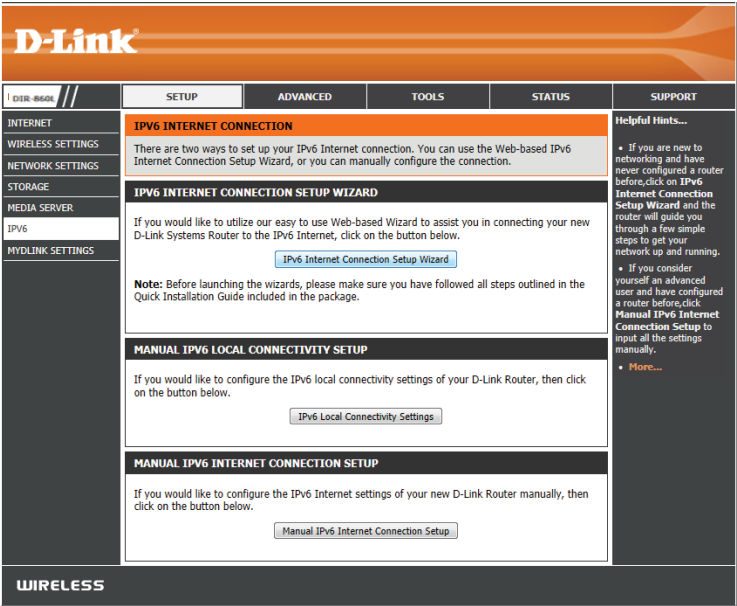


IPv6

On this page, you can configure the IPv6 Connection type. There are two ways to set up the IPv6 Internet connection. You can use the Web-based IPv6 Internet Connection Setup Wizard, or you can manually configure the connection.

If you are a beginner who has not configured a router before, click on the **IPv6 Internet Connection Setup Wizard** button and the router will guide you through a few simple steps to get your network up and running.

If you are an advanced user who has configured a router before, click on the **Manual IPv6 Internet Connection Setup** button to input all the settings manually.



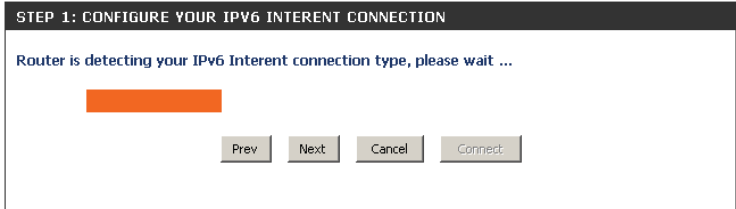
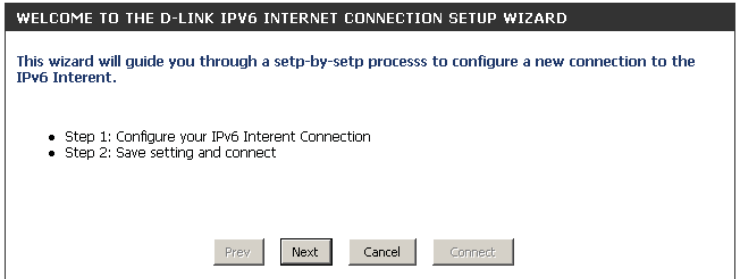
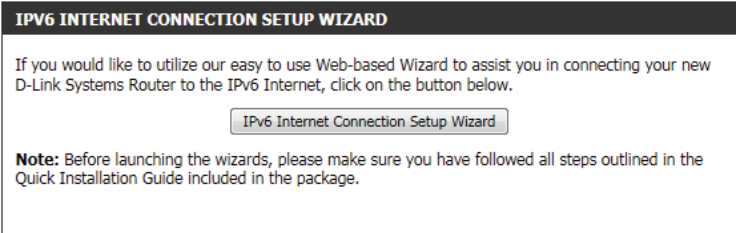
IPv6 Internet Connection Setup Wizard

On this page, the you can configure the IPv6 Connection type using the IPv6 Internet Connection Setup Wizard.

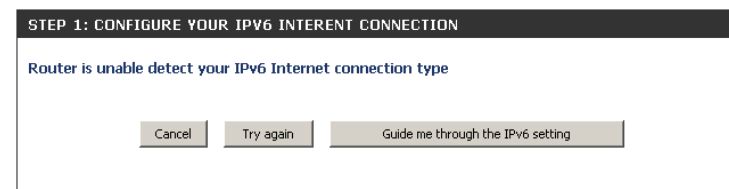
Click the **IPv6 Internet Connection Setup Wizard** button and the router will guide you through a few simple steps to get your network up and running.

Click **Next** to continue to the next page. Click **Cancel** to discard the changes made and return to the main page.

The router will attempt to detect whether it is possible to obtain the IPv6 Internet connection type automatically. If this succeeds then you will be guided through the input of the appropriate parameters for the connection type found.



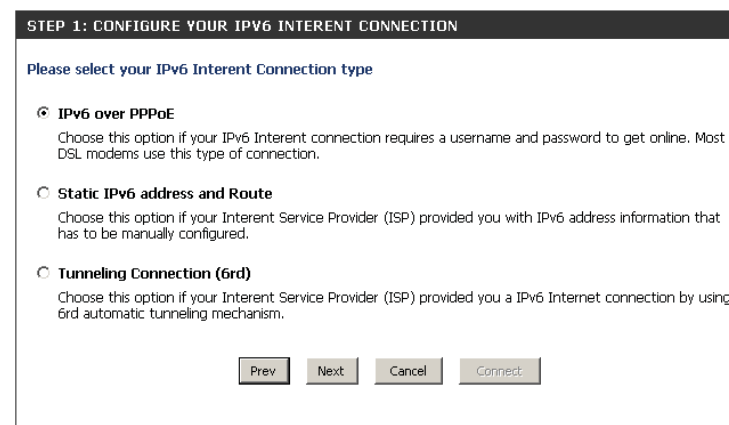
However, if the automatic detection fails, you will be prompt to either **Try again** or to click on the **Guide me through the IPv6 settings** button to initiate the manual continuation of the wizard.



There are several connection types to choose from. If you are unsure of your connection method, please contact your IPv6 Internet Service Provider.

Note: If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled. The 3 options available on this page are **IPv6 over PPPoE**, **Static IPv6 address and Route**, and **Tunneling Connection**.

Choose the required IPv6 Internet Connection type and click on the **Next** button to continue. Click on the **Prev** button to return to the previous page. Click on the **Cancel** button to discard all the changes made and return to the main page.



Click on the **Next** button to continue. Click on the **Prev** button to return to the previous page.

Click on the **Cancel** button to discard all the changes made and return to the main page.

IPv6 over PPPoE

After selecting the IPv6 over PPPoE option, you will be able to configure the IPv6 Internet connection that requires a username and password to get online. Most DSL modems use this type of connection.

The following parameters will be available for configuration:

PPPoE Session: Select the PPPoE Session value used here. This option will state that this connection shares its information with the already configured IPv6 PPPoE connection, or the user can create a new PPPoE connection here.

User Name: Enter the PPPoE username used here. If you do not know your user name, please contact your ISP.

Password: Enter the PPPoE password used here. If you do not know your password, please contact your ISP.

Verify Password: Re-enter the PPPoE password used here.

Service Name: Enter the service name for this connection here. This option is optional.

SET USERNAME AND PASSWORD CONNECTION (PPPOE)

To set up this connection you will need to have a Username and Password from your IPv6 Internet Service Provider. If you do not have this information, please contact your ISP.

PPPoE Session :
☒ Share with IPv4
 ☐ Create a new session

User Name :

Password :

Verify Password :

Service Name : (optional)

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

Prev

Next

Cancel

Connect

Static IPv6 Address Connection

This mode is used when your ISP provides you with a set IPv6 addresses that does not change. The IPv6 information is manually entered in your IPv6 configuration settings. You must enter the IPv6 address, Subnet Prefix Length, Default Gateway, Primary DNS Server, and Secondary DNS Server. Your ISP provides you with all of this information.

Use Link-Local The Link-local address is used by nodes and routers when communicating with neighboring nodes on the same link. This mode enables IPv6-capable devices to communicate with each other on the LAN side.

IPv6 Address: Enter the WAN IPv6 address for the router here.

Subnet Prefix Length: Enter the WAN subnet prefix length value used here.

Default Gateway: Enter the WAN default gateway IPv6 address used here.

Primary DNS Address: Enter the WAN primary DNS Server address used here.

Secondary DNS Address: Enter the WAN secondary DNS Server address used here.

LAN IPv6 Address: These are the settings of the LAN (Local Area Network) IPv6 interface for the router. The router’s LAN IPv6 Address configuration is based on the IPv6 Address and Subnet assigned by your ISP. (A subnet with prefix /64 is supported in LAN.)

SET STATIC IPV6 ADDRESS CONNECTION

To set up this connection you will need to have a complete list of IPv6 information provided by your IPv6 Internet Service Provider. If you have a Static IPv6 connection and do not have this information, please contact your ISP.

Use Link-Local Address :

☒

IPv6 Address :

FE80::218:E7FF:FE95:689F

Subnet Prefix Length :

64

Default Gateway :

Primary DNS Address :

Secondary DNS Address :

LAN IPv6 Address :

/64

Prev

Next

Cancel

Connect

Tunneling Connection (6rd)

After selecting the Tunneling Connection (6rd) option, you can configure the IPv6 6rd connection settings.

6rd IPv6 Prefix: Enter the 6rd IPv6 address and prefix value used here.

IPv4 Address: Enter the IPv4 address used here.

Mask Length: Enter the IPv4 mask length used here.

Assigned

IPv6 Prefix: Displays the IPv6 assigned prefix value here.

6rd Border Relay IPv4 Address: Enter the 6rd border relay IPv4 address used here.

IPv6 DNS Server: Enter the primary DNS Server address used here.

SET UP 6RD TUNNELING CONNECTION

To set up this 6rd tunneling connection you will need to have the following information from your IPv6 Internet Service Provider. If you do not have this information, please contact your ISP.

6rd IPv6 Prefix :

/ 32

IPv4 Address :

192.168.1.2

Mask Length :

0

Assign IPv6 Prefix :

None

Tunnel Link-Local Address :

FE80::C0A8:0102/64

6rd Border Relay IPv4 Address :

IPv6 DNS Server :

Prev

Next

Cancel

Connect

The IPv6 Internet Connection Setup Wizard is complete.

Click on the **Connect** button to continue. Click on the **Prev** button to return to the previous page. Click on the **Cancel** button to discard all the changes made and return to the main page.

SETUP COMPLETE!

The IPv6 Internet Connection Setup Wizard has completed. Click the Connect button to save your settings and reboot the router.

Prev

Next

Cancel

Connect

Manual IPv6 Local Connectivity Setup

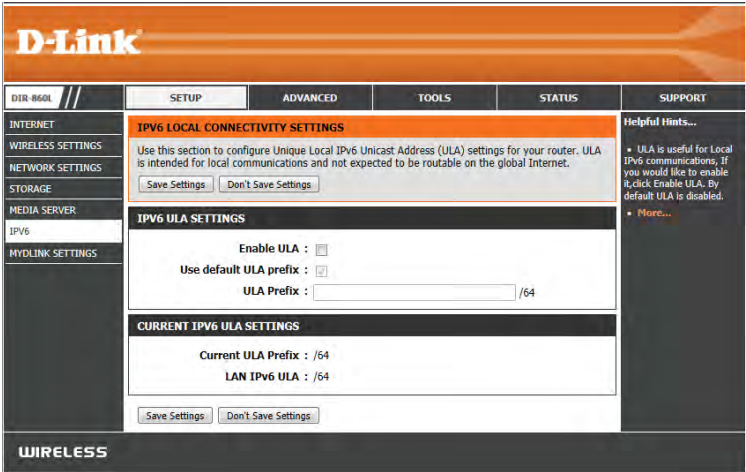
You can set up a local-only IPv6 Internet connection as well. If you want to configure an IPv6 connection that will not connect to the Internet, click on the **Manual IPv6 Local Connectivity Settings** button.

Enable ULA: Click here to enable Unique Local IPv6 Unicast Addresses settings.

Use Default Checking this box will automatically configure
ULA Prefix: the ULA prefix for the default setting.

ULA Prefix: If you wish to choose your own ULA prefix, enter it here.

Current IPv6 This section will display the current settings for your IPv6 ULA.
ULA Settings:



IPv6 Manual Setup

There are several connection types to choose from: Auto Detection, Static IPv6, Autoconfiguration (SLAAC/DHCPv6), PPPoE, IPv6 in IPv4 Tunnel, 6to4, 6rd, and Link-local. If you are unsure of your connection method, please contact your IPv6 Internet Service Provider.

Note: If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled.

D-Link

DIR-860L // **SETUP** ADVANCED TOOLS STATUS SUPPORT

INTERNET

WIRELESS SETTINGS

NETWORK SETTINGS

STORAGE

MEDIA SERVER

IPV6

MYDLINK SETTINGS

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : Auto Detection

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

Obtain IPv6 DNS Servers automatically

Use the following IPv6 DNS Servers

Primary DNS Server :

Secondary DNS Server :

LAN IPv6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD : ☒

LAN IPv6 Address : /64

LAN IPv6 Link-Local Address : fe80::2de:faff:fe1a:100 /64

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network. You can also enable DHCP-PD to delegate prefixes for routers in your LAN.

Enable Automatic IPv6 address assignment : ☒

Enable Automatic DHCP-PD in LAN : ☒

Autoconfiguration Type : SLAAC+Stateless DHCP

Router Advertisement Lifetime : (minutes)

Save Settings Don't Save Settings

WIRELESS

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your Internet Service Provider (ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.
- More...

Static IPv6

My IPv6 Connection Is: Select **Static IPv6** from the drop-down menu.

Use Link-Local Address: Enter the address settings supplied by your Internet provider (ISP).

Subnet Prefix Length: Enter a subnet prefix length.

IPv6 Default Gateway: Enter the default gateway for your IPv6 connection.

Primary/Secondary IPv6 DNS Servers: Enter the primary and secondary DNS server addresses.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Autoconfiguration feature.

Autoconfiguration Type: Choose either **Stateful DHCPv6**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6** from the drop-down menu.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

Auto Configuration

My IPv6 Connection Is: Select **Auto Detection** from the drop-down menu.

IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

Enable DHCP-PD: Check this box to enable DHCP-PD services.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic DHCP-PD in LAN: Check this box to automatically enable DHCP-PD services.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : Autoconfiguration(SLAAC/DHCPv6)

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

Obtain IPv6 DNS Servers automatically

Use the following IPv6 DNS Servers

Primary DNS Server :

Secondary DNS Server :

LAN IPv6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD : ☒

LAN IPv6 Address : /64

LAN IPv6 Link-Local Address : fe80::2de:fa1a:100/64

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network. You can also enable DHCP-PD to delegate prefixes for routers in your LAN.

Enable Automatic IPv6 address assignment : ☒

Enable Automatic DHCP-PD in LAN : ☒

Autoconfiguration Type : SLAAC+Stateless DHCP

Router Advertisement Lifetime : (minutes)

Save Settings Don't Save Settings

WIRELESS

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your internet Service Provider(ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.
- More...

PPPoE

My IPv6 Select **PPPoE** from the drop-down menu.
Connection Is:

PPPoE Session: Enter the PPPoE account settings supplied by your Internet provider.

Address Mode: Select **Static** if your ISP assigned you an IP address, subnet mask, gateway, and DNS server addresses. In most cases, select **Dynamic**.

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

Username: Enter your PPPoE user name.

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

Enter the ISP Service Name (optional).

Service Name:

Select either **Always-on**, **On-Demand**, or **Manual**.

Reconnection mode:

Enter a maximum idle time during which the Internet connection is maintained during inactivity.

Maximum Idle Time:

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

MTU: MTU.

Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

IPv6 DNS Settings:

Enter the primary and secondary DNS server addresses.

Primary/Secondary DNS Address:

Check this box to enable DHCP prefix delegation for each LAN on the network.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : PPPoE

PPPOE INTERNET CONNECTION TYPE :

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

PPPoE Session : ☒ Share with IPv4 ☐ Create a new session

Address Mode : ☒ Dynamic IP ☐ Static IP

IP Address :

Username :

Password :

Verify Password :

Service Name : (optional)

Reconnect Mode : ☐ Always on ☒ On demand ☐ Manual

Maximum Idle Time : (minutes, 0=infinite)

MTU : 1492 (bytes) MTU default = 1492

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

☒ Obtain IPv6 DNS Servers automatically

☐ Use the following IPv6 DNS Servers

Primary DNS Server :

Secondary DNS Server :

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your Internet Service Provider (ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.
- [More...](#)

Enable DHCP-D:

Enter the LAN (local) IPv6 address for the router.

LAN IPv6 Address: Displays the router's LAN Link-Local Address.

LAN Link-Local

Address: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic IPv6 Address

Assignment: Check this box to enable automatic configuration of the DHCP prefix delegation for each LAN on the network.

Enable Automatic DHCP-PD in LAN:

Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Autoconfiguration Type:

Enter the IPv6 Address Lifetime (in minutes).

IPv6 Address Lifetime:

The screenshot displays the IPv6 configuration interface, divided into two main sections: LAN IPv6 ADDRESS SETTINGS and ADDRESS AUTOCONFIGURATION SETTINGS.

LAN IPv6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD : ☒

LAN IPv6 Address : /64

LAN IPv6 Link-Local Address : fe80::2de:fa11:fe1a:100 /64

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network. You can also enable DHCP-PD to delegate prefixes for routers in your LAN.

Enable Automatic IPv6 address : ☒

assignment

Enable Automatic DHCP-PD in : ☒

LAN

Autoconfiguration Type : SLAAC+Stateless DHCP (dropdown menu)

Router Advertisement Lifetime : (minutes)

Save Settings Don't Save Settings

IPv6 in IPv4 Tunneling

My IPv6 Connection Is: Select **IPv6 in IPv4 Tunnel** from the drop-down menu.

Remote IPv4 Address: Enter the IPv4 remote address you will use.

Remote IPv6 Address: Enter the IPv6 remote address you will use.

Local IPv4 Address: Enter the IPv4 local address you will use.

Local IPv6 Address: Enter the IPv6 local address you will use.

IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

Primary/Secondary

DNS Address: Enter the primary and secondary DNS server addresses.

Enable DHCP-D: Check this box to enable DHCP prefix delegation for each LAN.

LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN IPv6 Lin-Local Address: Displays the router's LAN Link-Local Address.

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DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

IPv6

Use this section to configure your IPv6 Connection Type. If you are unsure of your connection method, please contact your Internet Service Provider.

Save Settings Don't Save Settings

IPv6 CONNECTION TYPE

Choose the mode to be used by the router to connect to the IPv6 Internet.

My IPv6 Connection is : IPv6 in IPv4 Tunnel

IPv6 IN IPV4 TUNNEL SETTINGS

Enter the IPv6 in IPv4 Tunnel information provided by your Tunnel Broker.

Remote IPv4 Address :

Remote IPv6 Address :

Local IPv4 Address :

Local IPv6 Address :

Subnet Prefix Length :

IPv6 DNS SETTINGS

Obtain DNS server address automatically or enter a specific DNS server address.

☒ Obtain IPv6 DNS Servers automatically

☐ Use the following IPv6 DNS Servers

Primary DNS Server :

Secondary DNS Server :

LAN IPV6 ADDRESS SETTINGS

Use this section to configure the internal network settings of your router. If you change the LAN IPv6 Address here, you may need to adjust your PC network settings to access the network again.

Enable DHCP-PD : ☒

LAN IPv6 Address : /64

LAN IPv6 Link-Local Address : fe80::2de:fa:ff:fe1a:100 /64

Helpful Hints...

- When configuring the router to access the IPv6 internet, be sure to choose the correct IPv6 Connection Type from the drop down menu. If you are unsure of which option to choose, contact your Internet Service Provider(ISP).
- If you are having trouble accessing the IPv6 internet through the router, double check any settings you have entered on this page and verify them with your ISP if needed.

[More...](#)

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Enable Automatic DHCP-PD in LAN: Check this box to enable automatic configuration of the DHCP prefix delegation for each LAN on the network.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the Router Advertisement Lifetime (in minutes).

ADDRESS AUTOCONFIGURATION SETTINGS

Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network.

Enable Automatic IPv6 address : assignment ☒

Enable Automatic DHCP-PD in : LAN ☒

Autoconfiguration Type : SLAAC+Stateless DHCP ▾

Router Advertisement Lifetime : (minutes)

WIRELESS

6to4

My IPv6 Connection Is: Select **6to4** from the drop-down menu.

6to4 Address: Enter the IPv6 settings supplied by your ISP.

6to4 Relay: Enter the IPv6 relay supplied by your ISP.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

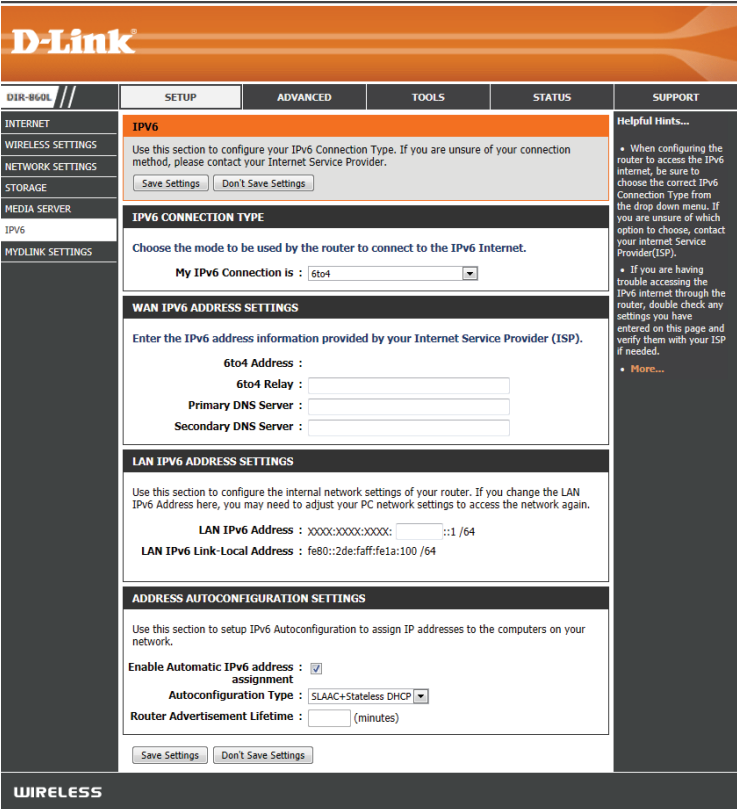
LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router’s LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).



6rd

My IPv6 Connection Is: Select **6rd** from the drop-down menu.

Enable Hub and Spoke Mode: Check this box if you want to minimize the number of routes to the destination by using a hub and spoke method of networking.

6rd Configuration: Choose the **6rd DHCPv4 Option** to automatically discover and populate the data values, or **Manual Configuration** to enter the settings yourself.

6rd IPv6 Prefix: Enter the 6rd IPv6 prefix settings supplied by your ISP.

IPv4 Address: Your IPv4 address will appear here.

Mask Length: Enter the desired IPv4 mask length.

Assigned IPv6 Prefix: When an IPv6 prefix is assigned, it will appear here.

6rd Border Relay IPv4 Address: Enter the 6rd Border Relay IPv4 address settings supplied by your ISP.

Primary/Secondary DNS Address: Enter the primary and secondary DNS server addresses.

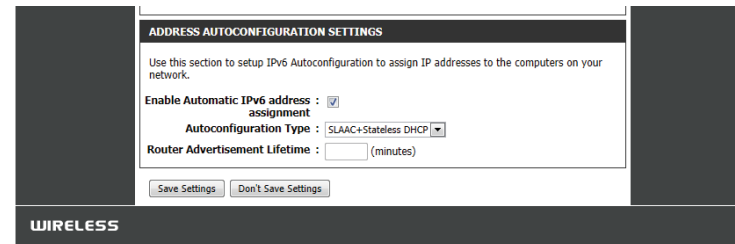
LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

LAN Link-Local Address: Displays the Router's LAN Link-Local Address.

Enable Automatic IPv6 Address Assignment: Check to enable the Automatic IPv6 Address Assignment feature.

Autoconfiguration Type: Select **Stateful (DHCPv6)**, **SLAAC + RDNSS** or **SLAAC + Stateless DHCPv6**.

Router Advertisement Lifetime: Enter the IPv6 Address Lifetime (in minutes).

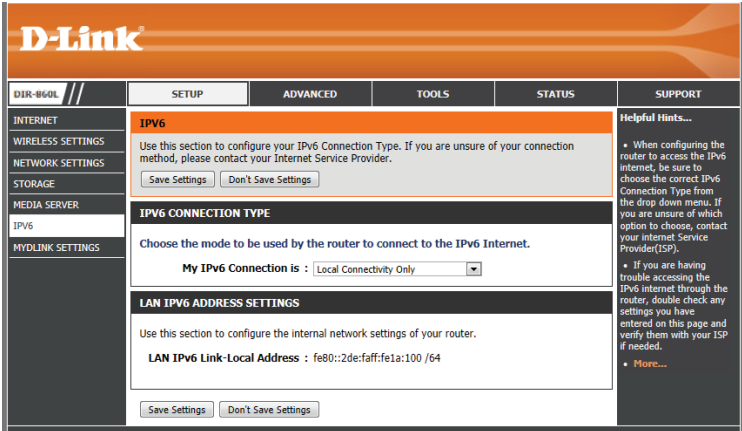


The screenshot shows a web interface for configuring IPv6 autoconfiguration settings. The title is "ADDRESS AUTOCONFIGURATION SETTINGS". Below the title is a descriptive text: "Use this section to setup IPv6 Autoconfiguration to assign IP addresses to the computers on your network." There are three main settings: "Enable Automatic IPv6 address assignment" with a checked checkbox, "Autoconfiguration Type" with a dropdown menu set to "SLAAC+Stateless DHCP", and "Router Advertisement Lifetime" with a text input field and a "(minutes)" label. At the bottom of the settings area are two buttons: "Save Settings" and "Don't Save Settings". The interface has a dark sidebar on the left with the word "WIRELESS" visible at the bottom.

Link-Local Connectivity

My IPv6 Connection Is: Select **Link-Local Only** from the drop-down menu.

LAN IPv6 Address Settings: Displays the IPv6 address of the router.



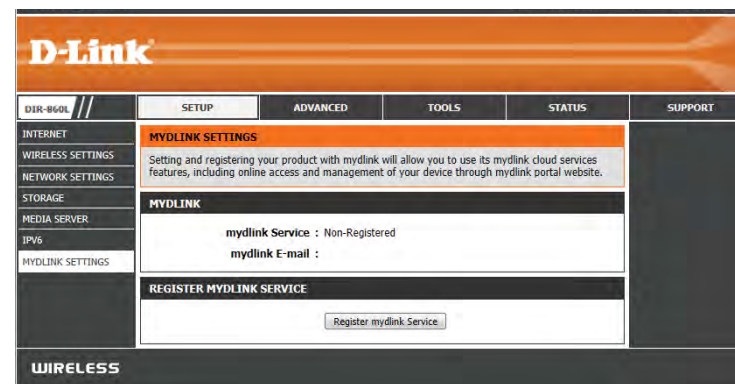
mydlink Settings

Devices that are mydlink-enabled can be accessed and managed through the mydlink website and by using mydlink mobile apps for iOS and Android. You cannot take advantage of these features without a mydlink account. If you have a mydlink account already, you can log in when you first set up the router, or by visiting this setup page.

mydlink Service: Displays whether your device is registered with a mydlink account or not.

mydlink E-mail: Displays the email address associated with your mydlink account if you have an active account.

Register mydlink Service: Click to go to the mydlink website to register your device or edit your settings.



Advanced Virtual Server

This page will allow you to open a single port. If you would like to open a range of ports, refer to the next page.

Name: Enter a name for the rule or select an application from the drop-down menu. Select an application and click << to populate the fields.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), your computer will be listed in the "Computer Name" drop-down menu.

Private Port/ Public Port: Enter the port that you want to open next to Private Port and Public Port. The private and public ports are usually the same. The public port is seen from the Internet side, and the private port is used by the application on the computer within your local network.

Protocol: Select **TCP**, **UDP**, or **Both** from the drop-down menu.

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

Inbound Filter: Select **Allow All** (most common) or a created Inbound filter. You may create your own inbound filters in the **Advanced > Inbound Filter** page.

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SETUP ADVANCED TOOLS STATUS SUPPORT

VIRTUAL SERVER

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

Save Settings Don't Save Settings

24 - VIRTUAL SERVERS LIST

Remaining number of rules that can be created: 24

Name	IP Address	Port	Protocol	Schedule	Inbound Filter
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
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<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Public Port	Protocol Both	Schedule Always	Allow All
<< Application name >>	<< Computer Name >>	Private Port	Protocol Both	Schedule Always	Allow All

Helpful Hints...

- Check the **Application Name** drop down menu for a list of predefined server types. If you select one of the predefined server types, click the arrow button next to the drop down menu to fill out the corresponding field.
- You can select a computer from the list of DHCP clients in the **Computer Name** drop down menu, or you can manually enter the IP address of the computer at which you would like to open the specified port.
- Select a schedule for when the virtual server will be enabled. If you do not see the schedule you need in the list of schedules, go to the **Tools > Schedules** screen and create a new schedule.
- Select a filter that restricts the Internet hosts that can access this virtual server to hosts that you trust. If you do not see the filter you need in the list of filters, go to the **Advanced > Inbound Filter** screen and create a new filter.
- More...

Port Forwarding

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

Name: Enter a name for the rule or select an application from the drop-down menu. Select an application and click to populate the fields.

IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), you computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <<.

TCP/UDP: Enter the TCP and/or UDP port or ports that you want to open. You can enter a single port or a range of ports. Separate ports with a comma. Example: 24,1009,3000-4000

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

Inbound Filter: Select **Allow All** (most common) or a created Inbound filter. You may create your own inbound filters in the **Advanced > Inbound Filter** page.

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DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

VIRTUAL SERVER

PORT FORWARDING

This option is used to open multiple ports or a range of ports in your router and redirect data through those ports to a single PC on your network. This feature allows you to enter ports in the format, Port Ranges (100-150), Individual Ports (80, 68, 888), or Mixed (1020-5000, 689). This option is only applicable to the INTERNET session.

Save Settings Don't Save Settings

24 -- PORT FORWARDING RULES

Remaining number of rules that can be created: 24

Name	IP Address	Application Name	Computer Name	Ports to Open	Schedule	Inbound Filter
☐				TCP		
☐				UDP		
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Application Rules

Some applications, such as Internet gaming, video conferencing, Internet telephony and others, require multiple connections. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DIR-860L. If you need to run applications that require multiple connections, specify the port normally associated with an application in the “Trigger Port” field, select the protocol type as TCP or UDP, then enter the firewall (public) ports associated with the trigger port to open them for inbound traffic.

Name: Enter a name for the rule. You may select a pre-defined application from the drop-down menu and click.

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

Traffic Type: Select the protocol of the trigger port (TCP, UDP, or Both).

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

Traffic Type: Select the protocol of the firewall port (TCP, UDP, or Both).

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

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APPLICATION RULES

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

Save Settings Don't Save Settings

24 -- APPLICATION RULES

Remaining number of rules that can be created: 24

	Name	Application	Port	Traffic Type	Schedule
☐		Application Name	Trigger	All	Always
☐		Application Name	Firewall	All	Always
☐		Application Name	Trigger	All	Always
☐		Application Name	Firewall	All	Always
☐		Application Name	Trigger	All	Always
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☐		Application Name	Trigger	All	Always
☐		Application Name	Firewall	All	Always
☐		Application Name	Trigger	All	Always
☐		Application Name	Firewall	All	Always

Helpful Hints...

- Use this feature if you are trying to execute one of the listed network applications and it is not communicating as expected.
- Use the **Application Name** drop-down menu to view a list of pre-defined applications that you can select from. If you select one of the pre-defined applications, click the arrow button next to the drop-down menu to fill out the appropriate fields.
- Select a schedule for when the service will be enabled. If you do not see the schedule you need in the list of schedules, go to the **Tools > Schedules** screen and create a new schedule.
- [More...](#)

QoS Engine

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

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

Automatic Uplink Speed: This option is enabled by default when the QoS Engine option is enabled. This option will allow your router to automatically determine the uplink speed of your Internet connection.

Measured Uplink Speed: This displays the detected uplink speed.

Manual Uplink Speed: The speed at which data can be transferred from the router to your ISP. This is determined by your ISP. ISPs state often speed as a download/upload pair (eg: 1.5Mbps/284Kbits). Using this example, you would enter 284. Alternatively you can test your uplink speed using an online speed testing website or service.

QoS Engine Rules: A QoS Engine Rule identifies a specific message flow and assigns a priority to that flow. For most applications, automatic classification will be adequate, and specific QoS Engine Rules will not be required.

The QoS Engine supports overlaps between rules, where more than one rule can match for a specific message flow. If more than one rule is found to match, the rule with the highest priority will be used.

Name: Create a name for the rule that is meaningful to you.

Priority: The priority of the message flow is entered here -- 1 receives the highest priority (most urgent) and 255 receives the lowest priority (least urgent).

Protocol: The protocol used by the messages.

The screenshot shows the D-Link DIR-860L web interface. The left sidebar contains a menu with options: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QoS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'QoS SETTINGS' and includes a 'QoS SETUP' section. In the 'QoS SETUP' section, 'Enable QoS' is checked. 'Uplink Speed' is set to 2048 kbps and 'Downlink Speed' is set to 8192 kbps. 'Queue Type' is set to 'Strict Priority Queue'. Below this is a table showing four queues with their respective weights and priorities.

Queue ID	Queue Weight
1	40 %
2	30 %
3	20 %
4	10 %

Below the table is the '32 -- CLASSIFICATION RULES' section. It shows a list of rules with columns for Name, Queue ID, and Protocol. The rules listed are: Youtube (Queue ID 1 - Highest, Protocol TCP), Google_talk (Queue ID 1 - Highest, Protocol TCP), Web_audio (Queue ID 1 - Highest, Protocol TCP), Web_video (Queue ID 2 - Higher, Protocol TCP), and Web_download (Queue ID 4 - Best Effort, Protocol TCP). Each rule has fields for Local IP Range, Remote IP Range, and Application Port.

Local IP Range: The rule applies to a flow of messages whose LAN-side IP address falls within the range set here.

Local Port Range: The rule applies to a flow of messages whose LAN-side port number is within the range set here.

Remote IP Range: The rule applies to a flow of messages whose WAN-side IP address falls within the range set here.

Remote Port Range: The rule applies to a flow of messages whose WAN-side port number is within the range set here.

Network Filters

Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers from accessing the network according to their MAC addresses. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the DIR-860L.

Configure MAC Select **Turn MAC Filtering Off, Allow MAC addresses listed Filtering: below, or Deny MAC addresses listed below** from the drop-down menu.

MAC Address: Enter the MAC address you would like to filter.

To find the MAC address on a computer, please refer to the *Networking Basics* section in this manual.

DHCP Client: Select a DHCP client from the drop-down menu and click << to copy that MAC Address.

Clear: Click to remove the MAC address.

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MAC ADDRESS FILTER

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

Save Settings Don't Save Settings

24 -- MAC FILTERING RULES

Configure MAC Filtering below:
Turn MAC Filtering ON and ALLOW computers listed to access the network

Remaining number of rules that can be created: 24

	MAC Address	DHCP Client List	Schedule
☐		Computer Name	Always New Schedule
☐		Computer Name	Always New Schedule
☐		Computer Name	Always New Schedule
☐		Computer Name	Always New Schedule
☐		Computer Name	Always New Schedule
☐		Computer Name	Always New Schedule
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☐		Computer Name	Always New Schedule

Save Settings Don't Save Settings

WIRELESS

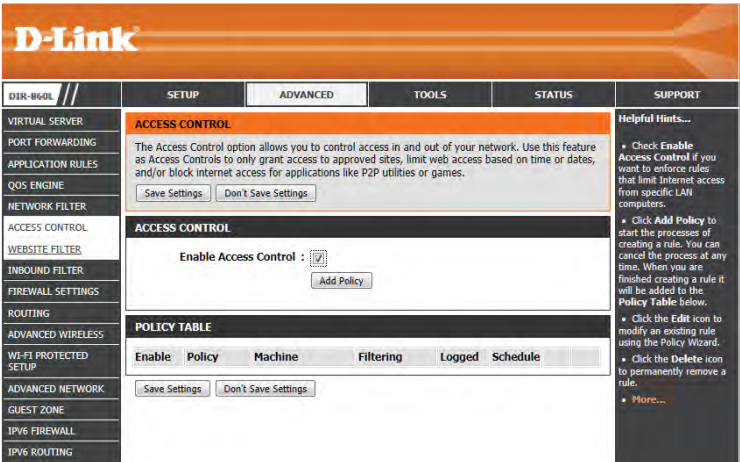
Helpful Hints...

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

Access Control

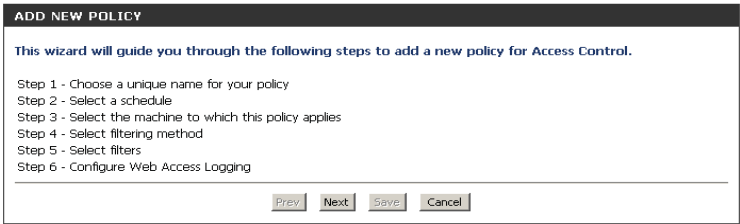
The Access Control section allows you to control access in and out of your network. Use this feature as a parental control to only grant access to approved sites, limit web access based on time or date, and/or block access from applications like P2P utilities or games.

Add Policy: Click the **Add Policy** button to start the Access Control Wizard.



Access Control Wizard

Click **Next** to continue with the wizard.



Enter a name for the policy and then click **Next** to continue.

STEP 1: CHOOSE POLICY NAME

Choose a unique name for your policy.

Policy Name :

Select a schedule (eg: Always) from the drop-down menu and then click **Next** to continue.

STEP 2: SELECT SCHEDULE

Choose a schedule to apply to this policy.

Details :

Enter the following information and then click **Next** to continue.

- **Address Type** - Select IP address, MAC address, or Other Machines.
- **IP Address** - Enter the IP address of the computer you want to apply the rule to.
- **Machine Address** - Enter the PC MAC address (i.e. 00:00:00.00.00).

STEP 3: SELECT MACHINE

Select the machine to which this policy applies.

Specify a machine with its IP or MAC address, or select "Other Machines" for machines that do not have a policy.

Address Type : ☒ IP ☐ MAC ☐ Other Machines

IP Address : <<

Machine Address : <<

Machine		
192.168.0.112		

Select the filtering method and then click **Next** to continue.

STEP 4: SELECT FILTERING METHOD

Select the method for filtering.

Method : ☐ Log Web Access Only ☐ Block All Access ☒ Block Some Access

Apply Web Filter : ☐

Apply Advanced Port Filters : ☐

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
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		0.0.0.0	255.255.255.255	Any	0	65535
☐		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		
☒	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 shows the D-Link DIR-860L web interface. The top navigation bar includes the D-Link logo and tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration sections: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER (highlighted), INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'WEBSITE FILTER' and contains the following text: 'The Website Filter option allows you to set up a list of Web sites you would like to allow or deny through your network. To use this feature, you must also select the "Apply Web Filter" checkbox in the Access Control section.' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. A section titled '40 - WEBSITE FILTERING RULES' contains the instruction 'Configure Website Filter below:' and a dropdown menu set to 'ALLOW computers access to ONLY these sites'. Below the dropdown is a 'Clear the list below...' button. A table with the header 'Website URL/Domain' has 10 empty rows for input. At the bottom of the table are 'Save Settings' and 'Don't Save Settings' buttons. On the right side of the interface, there is a 'Helpful Hints...' section with the following text: '• 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...'

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.

D-Link

DIR-860L

SETUP ADVANCED TOOLS STATUS SUPPORT

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

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

INBOUND FILTER RULES LIST

Name	Action	Remote IP Range

WIRELESS

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-860L 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 Demilitarized Zone (DMZ). 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 the state of each 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.

DMZ IP Address: ***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.*

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

PPTP: DMZ machine does not change.

IPSEC (VPN): Allows multiple machines on the LAN to connect to their corporate network using PPTP protocol.

Allows multiple VPN clients to connect to their corporate network using IPsec. Some VPN clients support traversal of IPsec through NAT. This Application-level Gateway (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

The screenshot displays the D-Link DIR-860L web interface. The top navigation bar includes links for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration categories: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS (selected), ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'FIREWALL & DMZ SETTINGS' and contains several sections:

- FIREWALL & DMZ SETTINGS:** A brief explanation of DMZ and buttons for 'Save Settings' and 'Don't Save Settings'.
- FIREWALL SETTINGS:** An option to 'Enable SPI' with a checkbox.
- ANTI-SPOOF CHECKING:** An option to 'Enable anti-spoof checking' with a checkbox.
- DMZ HOST:** A section explaining the DMZ option, a 'Note' about security risks, and fields for 'Enable DMZ' (checkbox), 'DMZ IP Address' (text input), and 'Computer Name' (dropdown menu). Buttons for 'Save Settings' and 'Don't Save Settings' are at the bottom.
- APPLICATION LEVEL GATEWAY (ALG) CONFIGURATION:** A section with checkboxes for 'PPTP', 'IPSec (VPN)', 'RTSP', and 'SIP', all of which are currently checked. Buttons for 'Save Settings' and 'Don't Save Settings' are at the bottom.

A 'Helpful Hints...' sidebar on the right provides additional information about the DMZ option.

RTSP: administrator of your corporate network whether your VPN client supports NAT traversal.

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

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.

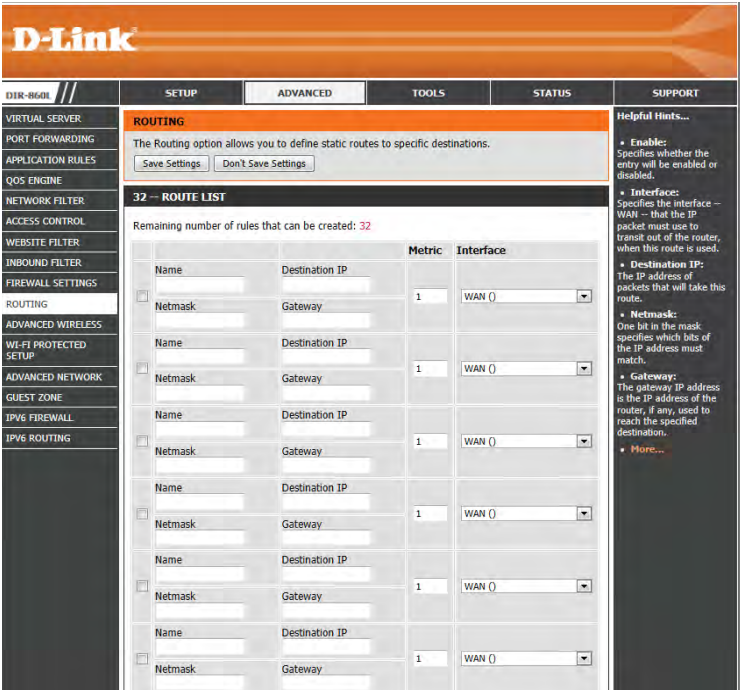
Destination IP: Enter the IP address of packets that will take this route.

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.



Advanced Wireless

This page allows you to change some of the advanced wireless settings of the DIR-860L. 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.

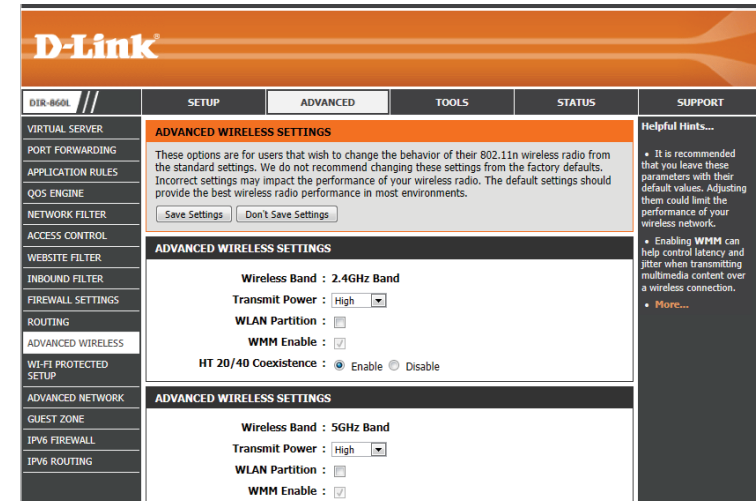
Wireless Band This section will allow you to adjust the settings for the **2.4GHz band**

Transmit Power: Set the transmission 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 section will allow you to adjust the settings for the **5 GHz band**.

Transmit Power: Set the transmission 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.

Wi-Fi Protected Setup

Wi-Fi Protected Setup (WPS) 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 WPS across many different products and manufacturers. The process as simple as pressing a button for the Push-Button Method or correctly entering an 8-digit code for the PIN Code Method. The time reduction in setup and ease of use are significant, 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 use this pin to access your wireless network.

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

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options, with 'WIFI PROTECTED SETUP' highlighted. The main content area is titled 'WI-FI PROTECTED SETUP' and contains the following sections:

- WI-FI PROTECTED SETUP:** A text box explaining the WPS process and buttons for 'Save Settings' and 'Don't Save Settings'.
- WI-FI PROTECTED SETUP:** A section with 'Enable' checked, 'WIFI Protected Setup' set to 'Enable/Not Configured', and 'Lock WPS-PIN Setup' unchecked.
- PIN SETTINGS:** A section showing the current PIN and buttons for 'Reset PIN to Default' and 'Generate New PIN'.
- ADD WIRELESS STATION:** A section with a 'Connect your Wireless Device' button and 'Save Settings'/'Don't Save Settings' buttons.

On the right side, there is a 'Helpful Hints...' section with several bullet points providing additional information about WPS and PIN settings.

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

The wizard will either display the wireless network settings to guide you through manual configuration, prompt you to enter the PIN for the device, or ask you to press the configuration button on the device. If the device supports Wi-Fi Protected Setup and has a configuration button, you can add it to the network by pressing the configuration button on the device and then the on the router within 120 seconds. The status LED on the router will flash three times if a 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 correct PIN, or pressed a special WPS 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 refer to page 38 for further instructions.

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 106 for more information.



Advanced Network

This page allows you to change some of the advanced network settings of the DIR-860L. 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 plug and play functionality with compatible networking equipment, software and peripherals.

WAN Ping: Checking the box will allow the DIR-860L 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/WAN 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 shows the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration categories: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WIRELESS PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'ADVANCED WIRELESS SETTINGS' and contains two sections. The first section is for the '2.4GHz Band' and includes settings for 'Wireless Band' (2.4GHz Band), 'Transmit Power' (High), 'WLAN Partition' (unchecked), 'WMM Enable' (checked), and 'HT 20/40 Coexistence' (Enable selected, Disable unselected). The second section is for the '5GHz Band' and includes settings for 'Wireless Band' (5GHz Band), 'Transmit Power' (High), 'WLAN Partition' (unchecked), 'WMM Enable' (checked), 'Beamformer' (unchecked), and 'Beamformee' (unchecked). Both sections have 'Save Settings' and 'Don't Save Settings' buttons. On the right side, there is a 'Helpful Hints...' section with text about leaving parameters at default values and a link to 'More...'. The bottom of the page has a 'WIRELESS' tab.

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 zones
Between Zones: created.

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

Schedule: The timeframe 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 that of 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 timeframe 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 that of your main wireless network and 2.4GHz band guest zone (if enabled).

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

The screenshot displays the D-Link DIR-860L web interface. The top navigation bar includes 'D-Link', 'DIR-860L', and tabs for 'SETUP', 'ADVANCED', 'TOOLS', 'STATUS', and 'SUPPORT'. The left sidebar lists various configuration options: VIRTUAL SERVER, PORT FORWARDING, APPLICATION RULES, QOS ENGINE, NETWORK FILTER, ACCESS CONTROL, WEBSITE FILTER, INBOUND FILTER, FIREWALL SETTINGS, ROUTING, ADVANCED WIRELESS, WI-FI PROTECTED SETUP, ADVANCED NETWORK, GUEST ZONE, IPV6 FIREWALL, and IPV6 ROUTING. The main content area is titled 'GUEST ZONE' and contains instructions: '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. The 'GUEST ZONE' section includes a checkbox for 'Enable Routing Between Zones'. The 'SESSION 2.4GHZ' section shows 'Enable Guest Zone' checked, 'Wireless Band' set to '2.4GHz Band', 'Wireless Network Name' as 'dlink-guest' (with a note '(Also called the SSID)'), and 'Security Mode' set to 'None'. The 'SESSION 5GHZ' section shows 'Enable Guest Zone' checked, 'Wireless Band' set to '5GHz Band', 'Wireless Network Name' as 'dlink-5GHz-guest' (with a note '(Also called the SSID)'), and 'Security Mode' set to 'None'. At the bottom of the 5GHz section are 'Save Settings' and 'Don't Save Settings' buttons. A 'Helpful Hints...' section on the right provides additional guidance.

IPv6 Firewall

The DIR-860L's IPv6 Firewall feature allows you to configure which kind of IPv6 traffic is allowed to pass through the device. The DIR-860L'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 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.

DIR-800L

SETUP

ADVANCED

TOOLS

STATUS

SUPPORT

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

IPv6 FIREWALL

The firewall settings section is an advance feature used to allow or deny traffic from passing through the device. It works in the same way as IP Filters with additional settings. You can create more detailed rules for the device.

Save Settings

Don't Save Settings

IPv6 SIMPLE SECURITY

Enable IPv6 Simple Security : ☐

20 -- IPv6 FIREWALL RULES

Remaining number of rules that can be created: 20

Configure IPv6 Filtering below:

Turn IPv6 Filtering ON and ALLOW rules listed

Name

Schedule

Always

Source

Interface

Protocol

ALL

Dest

Interface

Port Range

Name

Schedule

Always

Source

Interface

Protocol

ALL

Dest

Interface

Port Range

Helpful Hints...

- For each rule you create a name and control the direction of traffic. You can also allow or deny a range IP Addresses the protocol and a port range.
- In order to apply a schedule to a Firewall rule, you must first define a schedule on the Tools -> Schedules page.
- More...

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. You can also enter the IPv6 address prefix length of the packets that will take this route.

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: 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.



Tools Admin

This page will allow you to change the Administrator password. You can also enable Remote Management. Admin has full read/write access to the router's settings.

Admin Password: Here you can enter a new password for the Administrator Login Name. The administrator can make changes to the settings. Enter the new password twice for verification.

Gateway Name: Enter a name for your router.

Enable Graphical Authentication: Enables a CAPTCHA challenge-response test, which requires users to type letters or numbers from a distorted image displayed on the screen. This prevents unauthorized users from using automated methods to gain access to your wireless network.

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

Enable Remote Management: Remote management allows the DIR-860L 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-860L is used in the URL. Example: **http://x.x.x.x:8080** where x.x.x.x is the Internet IP address of the DIR-860L 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-860L Web Management interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration sections: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'ADMINISTRATOR SETTINGS' and contains the following sections:

- ADMINISTRATOR SETTINGS:** A message states that the 'admin' account can access the management interface and that it is recommended to create a password. There are 'Save Settings' and 'Don't Save Settings' buttons.
- ADMIN PASSWORD:** A section for entering a new password, with fields for 'Password' and 'Verify Password'.
- SYSTEM NAME:** A section for entering the 'Gateway Name', which is currently set to 'DIR-860'.
- ADMINISTRATION:** A section for enabling various features:
 - Enable Graphical Authentication:** A checkbox that is currently unchecked.
 - Enable HTTPS Server:** A checkbox that is currently checked.
 - Enable Remote Management:** A checkbox that is currently unchecked.
 - Remote Admin Port:** A text field set to '8080'.
 - Use HTTPS:** A checkbox that is currently unchecked.
 - Remote Admin Inbound Filter:** A dropdown menu set to 'Allow All'.
 - Details:** A text field set to 'Allow All'.

At the bottom of the main content area, there are 'Save Settings' and 'Don't Save Settings' buttons. The bottom navigation bar includes a 'WIRELESS' tab.

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. An NTP server will synchronize 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 an 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 sync the date and time with that of the computer you are currently using.

The screenshot shows the D-Link DIR-860L web interface. The top navigation bar includes tabs for SETUP, ADVANCED, TOOLS, STATUS, and SUPPORT. The left sidebar lists various configuration options: 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:**
 - Time: 2000/01/01 00:35:29
 - Time Zone: (GMT+08:00) Taipei
 - Enable Daylight Saving: ☐
 - Daylight Saving Offset: +01:00
 - Daylight Saving Dates:

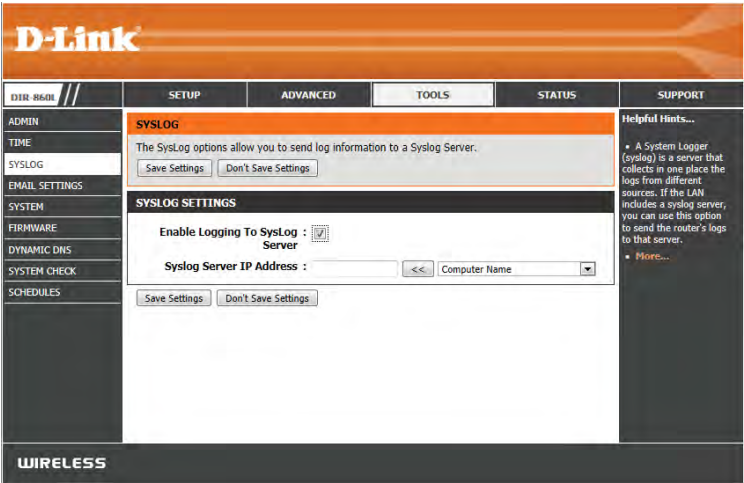
DST Start	Month	Week	Day of Week	Time
Jan	1st	Sun	12:00 AM	
Jan	1st	Sun	12:00 AM	
- AUTOMATIC TIME AND DATE CONFIGURATION:**
 - ☒ Automatically synchronize with D-Link's Internet time server
 - NTP Server Used: ntp1.dlink.com
 - Update Now
- SET THE TIME AND DATE MANUALLY:**
 - Year: 2009, Month: Jan, Day: 1, Hour: 0, Minute: 25, Second: 28
 - Sync your computer's time settings
 - Save Settings, Don't Save Settings

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

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.



Email Settings

The Email feature can be used to send the system log files, router alert messages, and firmware update notifications to an 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 to be 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-860L web interface. The top navigation bar includes links for ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, and SCHEDULES. The main content area is titled 'EMAIL SETTINGS' and contains the following sections:

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

A sidebar on the right contains 'Helpful Hints...' and a note about email settings.

System

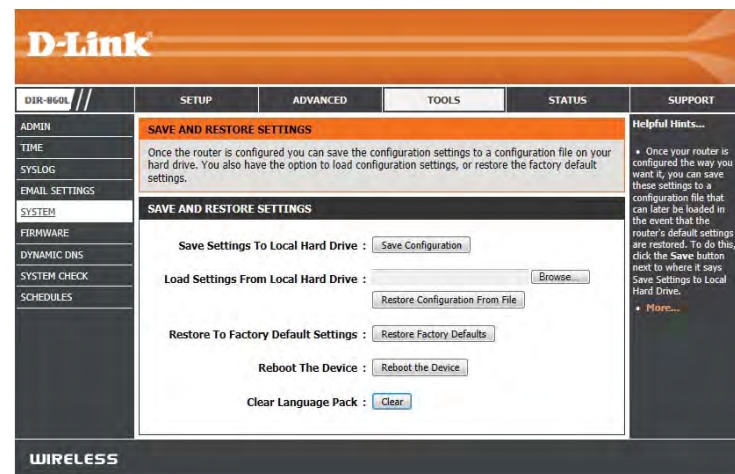
This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

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 router's firmware using this feature. Make sure the firmware you want to use is on the local hard drive of the computer you are using. 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.

Firmware Information This section shows the details of the current firmware version that is installed. Click on the **check now** button to check online for new firmware versions.

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 displays the D-Link DIR-860L web management interface. The top navigation bar includes 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 '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 upload from the local hard drive.
- FIRMWARE INFORMATION:** Displays the 'Current Firmware Version : 1.00' and 'Current Firmware Time : 01/03/2013 18:13:00'. It includes a 'Check Online Now for Latest Firmware Version' button with a 'Check Now' sub-button.
- FIRMWARE UPGRADE:** Contains a red note: 'Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration.' It also states, 'To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button.' Below this is an 'Upload' section with a text input field and 'Upload' and 'Browse...' buttons.
- LANGUAGE PACK UPGRADE:** Similar to the firmware section, it has an 'Upload' section with a text input field and 'Upload' and 'Browse...' buttons.

The bottom of the interface features a 'WIRELESS' section and a copyright notice: 'Copyright © 2013 D-Link Corporation. All rights reserved.'

Dynamic DNS

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc.) using a domain name that you have purchased 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 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.

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DIR-860L // 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.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your host name to connect to your game server no matter what your IP address is.

[Sign up for D-Link's Free DDNS service at www.DLinkDDNS.com.](#)

Save Settings Don't Save Settings

DYNAMIC DNS SETTINGS

Enable Dynamic DNS : ☒

Server Address : dlinkdns.com(Free)

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

Save Settings Don't Save Settings

WIRELESS

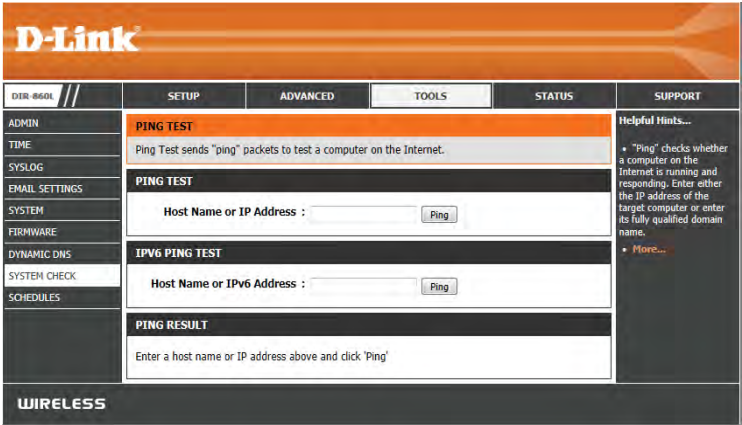
Copyright © 2013 D-Link Corporation. All rights reserved.

System Check

Ping Test: The Ping Test is used to send Ping packets to test if a computer is connected to 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.



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 can 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.

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

SCHEDULES

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

10 -- ADD SCHEDULE RULE

Name :

Day(s) : ☐ All Week ☒ Select Day(s)

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

All Day - 24 hrs : ☐

Time Format : 12-hour

Start Time : 12 : 0 AM (hour:minute)

End Time : 11 : 59 PM (hour:minute)

SCHEDULE RULES LIST

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

Helpful Hints...

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

Status Device Info

This page displays the current information for the DIR-860L. 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

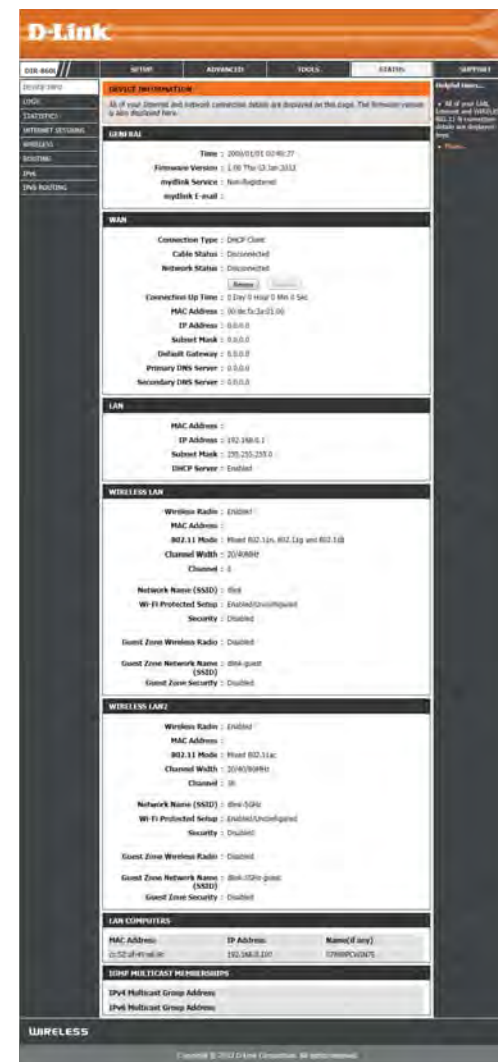
LAN: Displays the MAC address and the private (local) IP settings for the router.

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.



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 the oldest events are deleted first and replaced with logs of the most recent events. 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 the email address configured in the **Tools > Email Settings** screen.

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

D-Link

DIR-860L // SETUP ADVANCED TOOLS STATUS SUPPORT

VIEW LOG

The View Log displays the activities occurring on the router.

Save Settings Don't Save Settings

SAVE LOG FILE

Save Log File To Local Hard Drive. Save

LOG TYPE & LEVEL

Log Type: ☒ System ☐ Firewall & Security ☐ Router Status

Log Level: ☐ Critical ☐ Warning ☒ Information

LOG FILES

First Page Last Page Previous Next Clear Link To Email Log Settings

1/8

Time	Message
Sat Jan 1 00:40:42 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:26 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:18 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:40:14 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:38:09 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:37 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:21 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:13 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:37:09 2000	DHCP: Client send DISCOVER.
Sat Jan 1 00:35:05 2000	DHCP: Client send DISCOVER.

WIRELESS

Helpful Hints...

- Click on the Save button to save log file to local hard drive which can later send to the network administrator for troubleshooting. You can also select what type of event you would like to be logged from Log Type & Level.
- 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-860L on both the WAN, LAN ports and the wireless segments. The traffic counter will reset if the device is rebooted.

D-Link®																																																	
DIR-860L //	SETUP ADVANCED TOOLS STATUS SUPPORT																																																
DEVICE INFO LOGS STATISTICS INTERNET SESSIONS WIRELESS ROUTING IPV6 IPV6 ROUTING	TRAFFIC STATISTICS Traffic Statistics displays Receive and Transmit packets passing through the device. Refresh Statistics Reset Statistics LAN STATISTICS <table> <tr> <td>Sent :</td> <td>7279</td> <td>Received :</td> <td>9975</td> </tr> <tr> <td>TX Packets Dropped :</td> <td>0</td> <td>RX Packets Dropped :</td> <td>0</td> </tr> <tr> <td>Collisions :</td> <td>0</td> <td>Errors :</td> <td>0</td> </tr> </table> WAN STATISTICS <table> <tr> <td>Sent :</td> <td>7356</td> <td>Received :</td> <td>9974</td> </tr> <tr> <td>TX Packets Dropped :</td> <td>0</td> <td>RX Packets Dropped :</td> <td>0</td> </tr> <tr> <td>Collisions :</td> <td>0</td> <td>Errors :</td> <td>0</td> </tr> </table> WIRELESS STATISTICS - 2.4GHZ BAND <table> <tr> <td>Sent :</td> <td>858</td> <td>Received :</td> <td>0</td> </tr> <tr> <td>TX Packets Dropped :</td> <td>0</td> <td>RX Packets Dropped :</td> <td>0</td> </tr> <tr> <td>Collisions :</td> <td>0</td> <td>Errors :</td> <td>0</td> </tr> </table> WIRELESS STATISTICS - 5GHZ BAND <table> <tr> <td>Sent :</td> <td>857</td> <td>Received :</td> <td>0</td> </tr> <tr> <td>TX Packets Dropped :</td> <td>0</td> <td>RX Packets Dropped :</td> <td>0</td> </tr> <tr> <td>Collisions :</td> <td>0</td> <td>Errors :</td> <td>0</td> </tr> </table>	Sent :	7279	Received :	9975	TX Packets Dropped :	0	RX Packets Dropped :	0	Collisions :	0	Errors :	0	Sent :	7356	Received :	9974	TX Packets Dropped :	0	RX Packets Dropped :	0	Collisions :	0	Errors :	0	Sent :	858	Received :	0	TX Packets Dropped :	0	RX Packets Dropped :	0	Collisions :	0	Errors :	0	Sent :	857	Received :	0	TX Packets Dropped :	0	RX Packets Dropped :	0	Collisions :	0	Errors :	0
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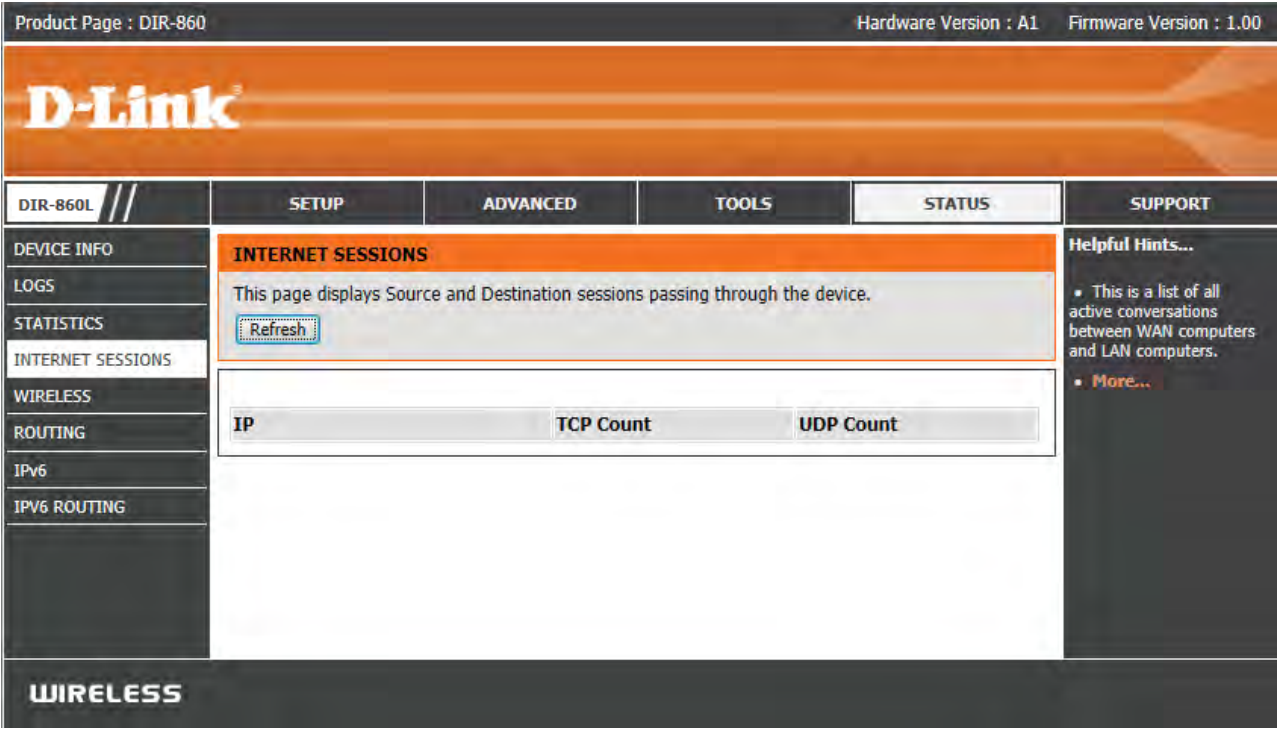
Helpful Hints...

- 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...](#)

WIRELESS

Internet Sessions

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



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.

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

Routing

This page will display your current routing table.

DIR-860L

ROUTING

IPV6

IPV6 ROUTING

DEVICE INFO

LOGS

STATISTICS

INTERNET SESSIONS

WIRELESS

ROUTING

ROUTING

Routing Table

This page displays the routing details configured for your router.

ROUTING TABLE

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

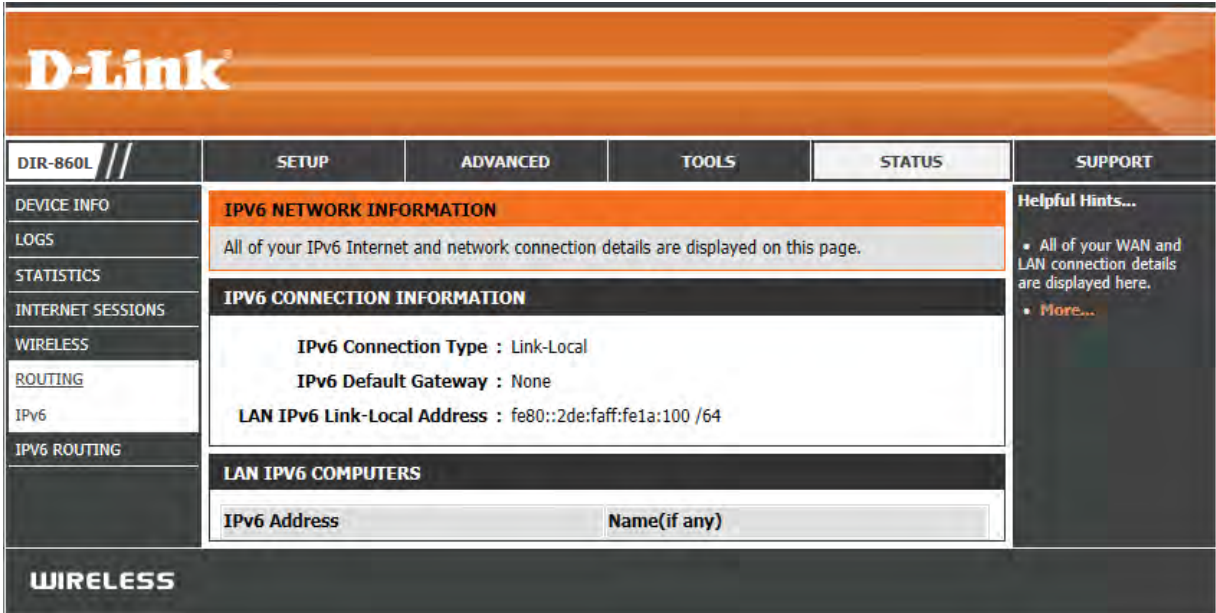
Helpful Hints...

- This is a list of all routing rules on router.
- More...

WIRELESS

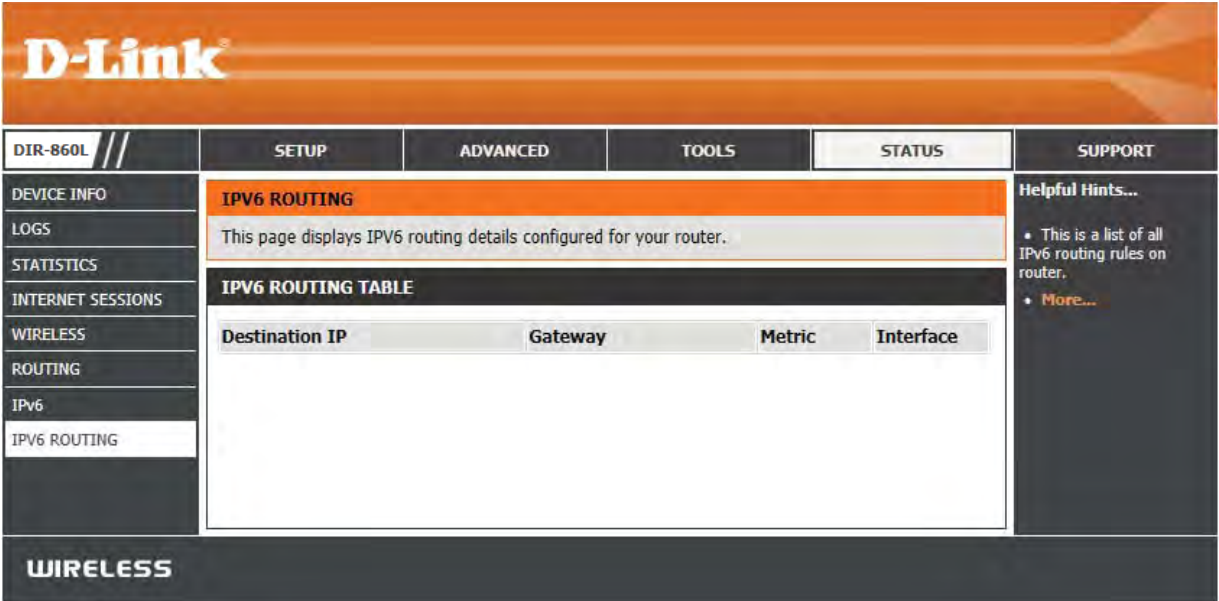
IPv6

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



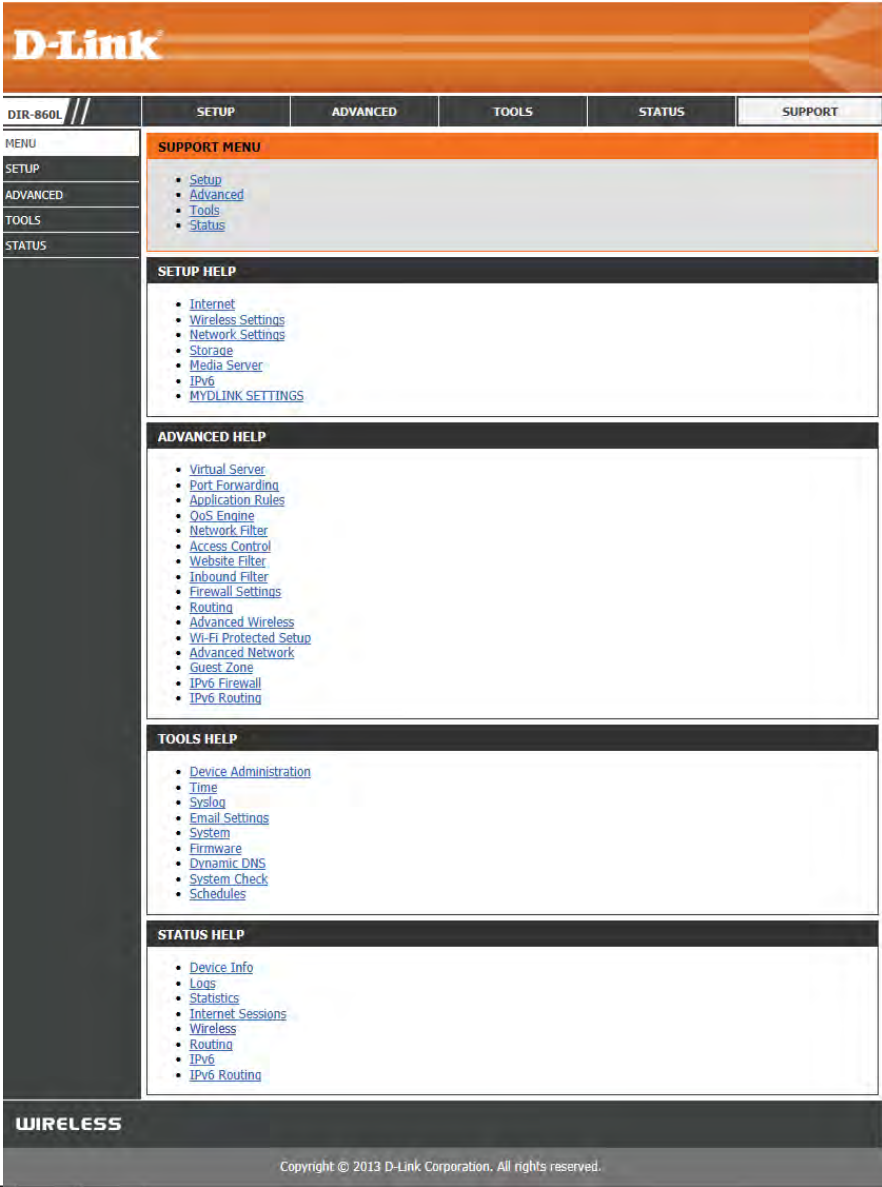
IPv6 Routing

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



Support

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



Connect a Wireless Client to your Router

WPS Button

The easiest way to securely connect your wireless devices to the router is using 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-860L router. Please refer to the user manual for the wireless device you want to connect to make sure you understand how to enable WPS. Once ready, follow the steps below:

Step 1 - Press the WPS button on the DIR-860L for about 1 second. The Internet LED on the front will start to blink.



Step 2 - Within 120 seconds, 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 password 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.

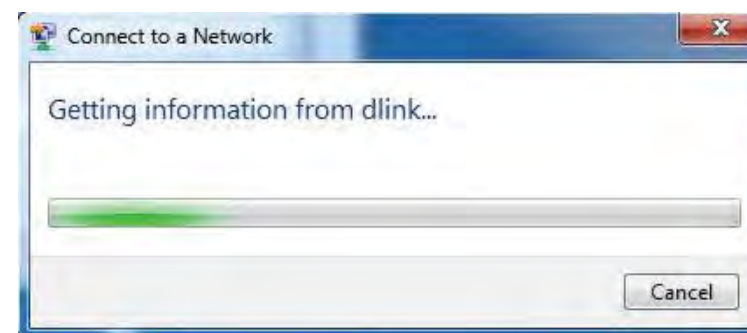


3. Highlight the wireless connection with Wi-Fi name (SSID) you would like to connect to and click the **Connect** button.

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) was set for your router and click **Connect**. You can also connect by pushing the WPS button on the router.

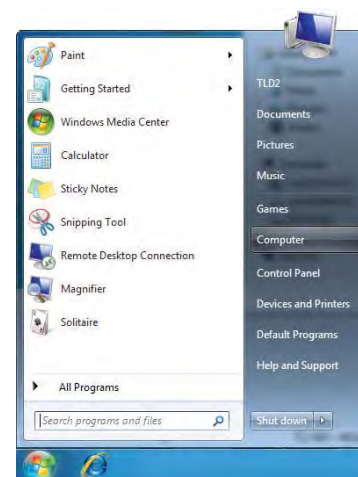
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.



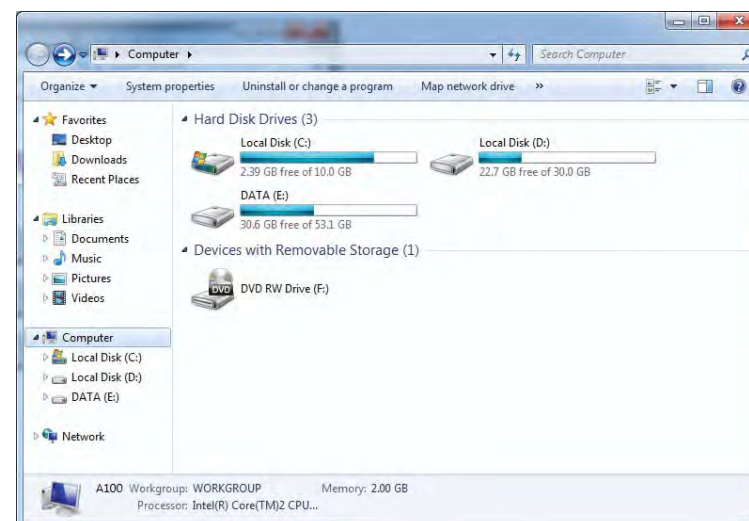
WPS

The WPS feature of the DIR-860L can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature:

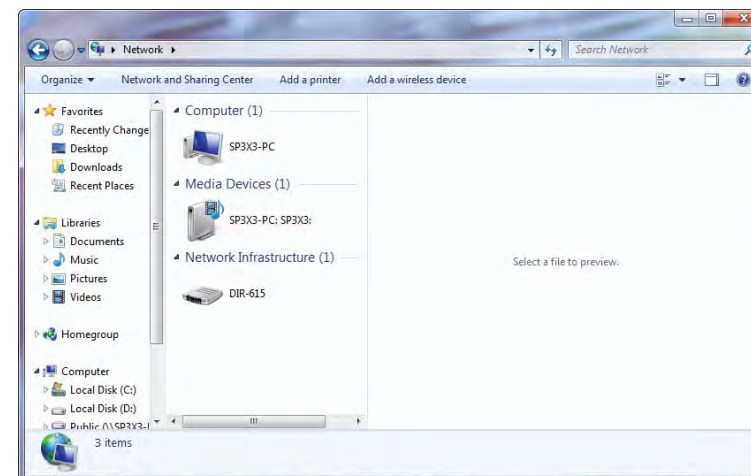
1. Click the **Start** button and select **Computer** from the Start menu.



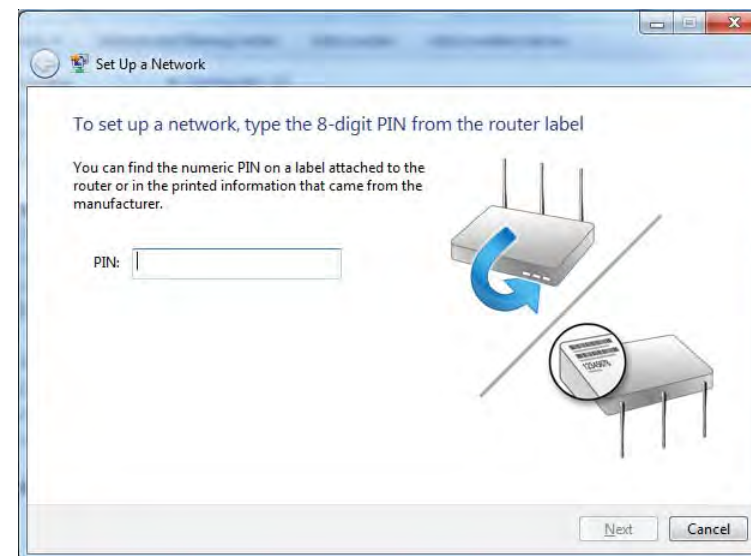
2. Click **Network** on the left side.



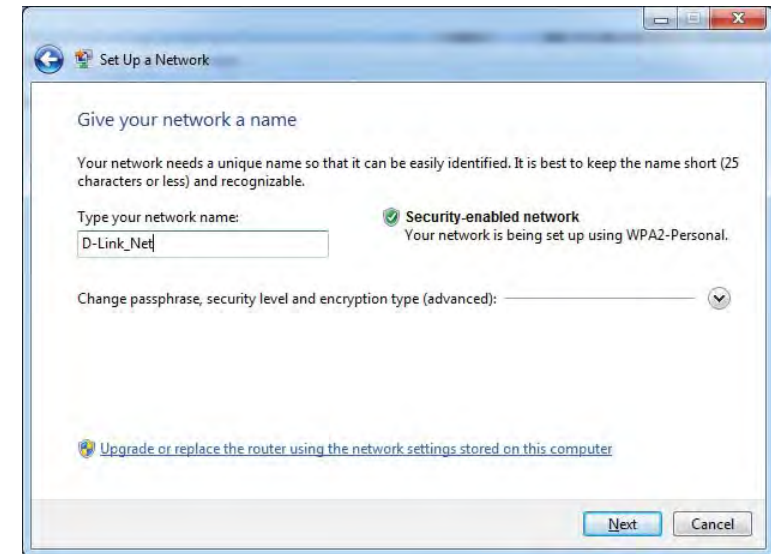
3. Double-click the DIR-860L.



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

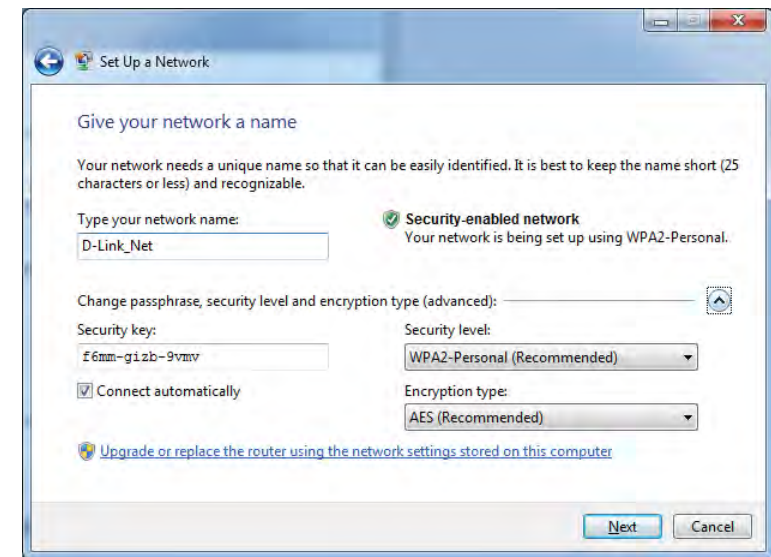


5. Type a name to identify the network.



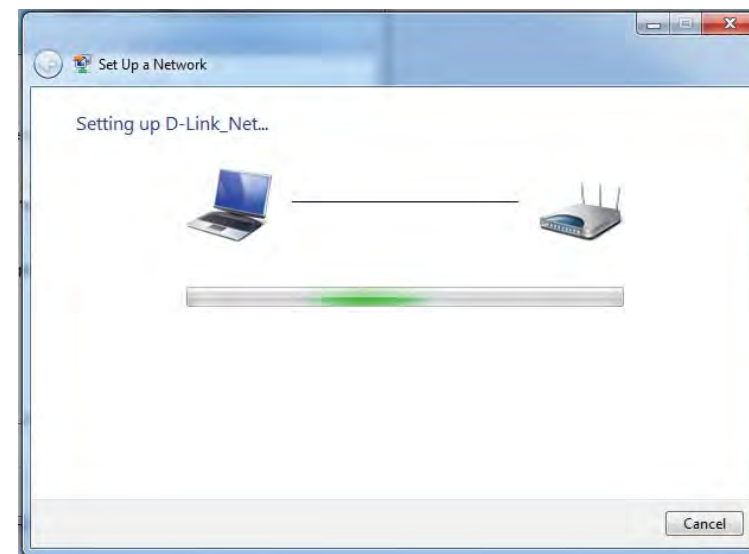
6. To configure advanced settings, click the  icon.

Click **Next** to continue.



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

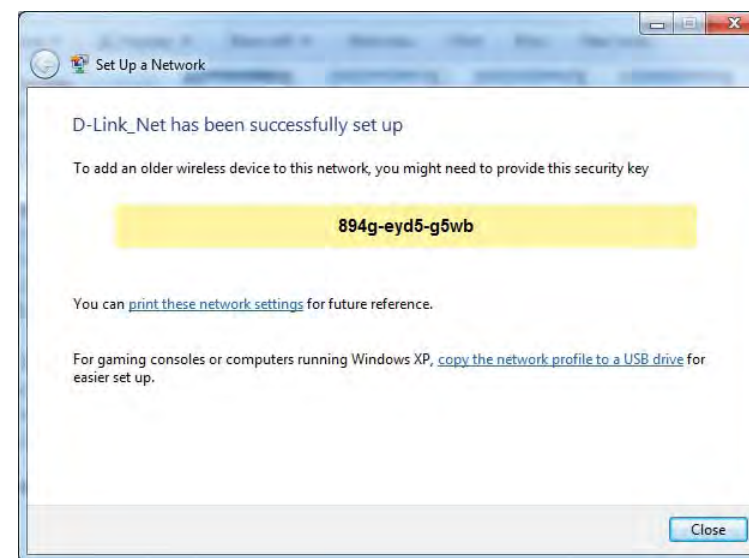
Wait for the configuration to complete.



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 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.

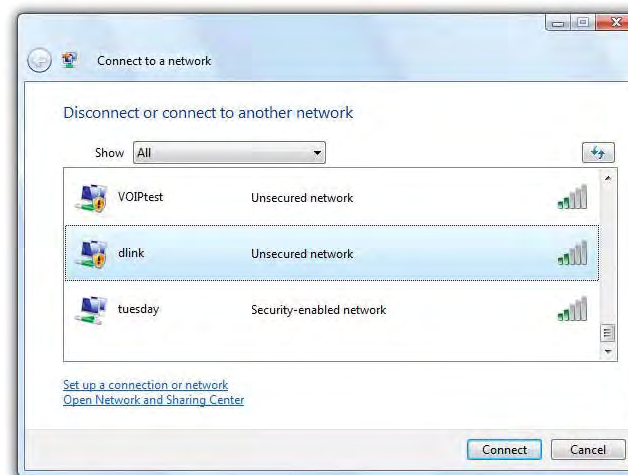
or

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.



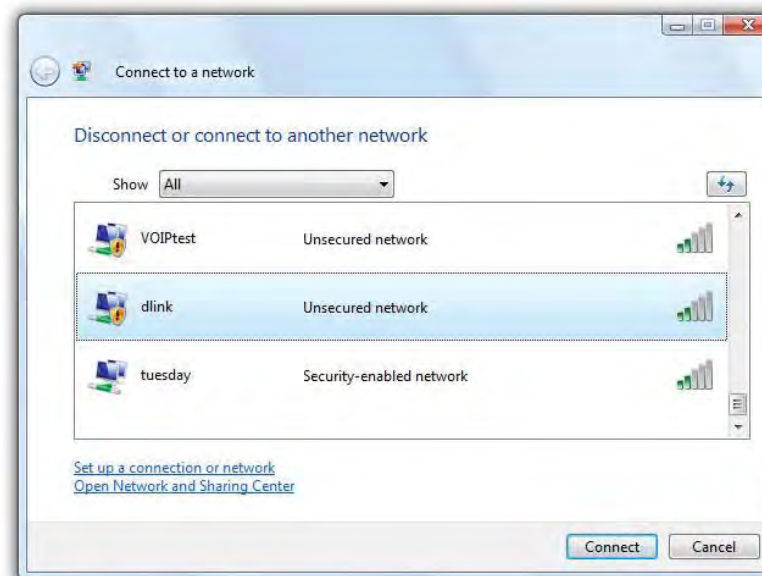
WPA/WPA2

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**.

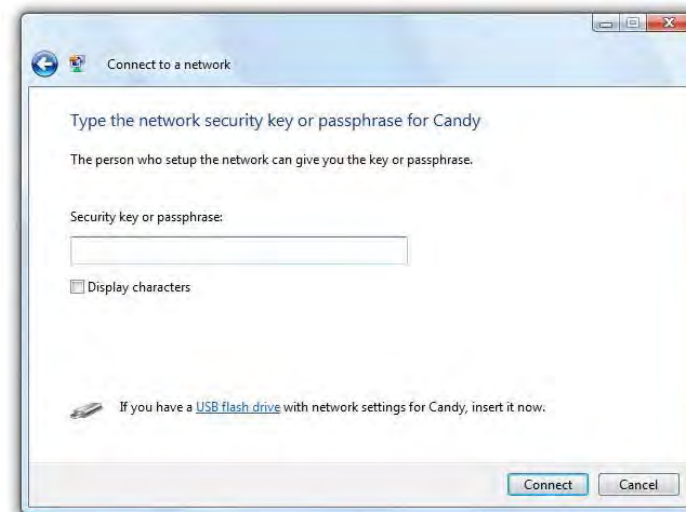


2. Highlight the Wi-Fi name (SSID) you would like to connect to and click **Connect**.



3. Enter the same security key or passphrase (Wi-Fi password) was set for 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.

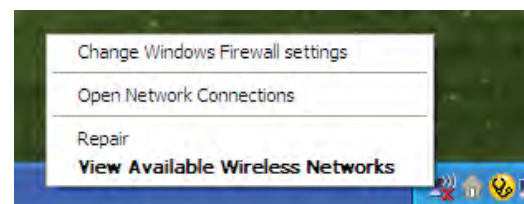
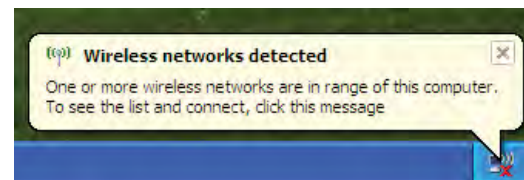
Windows® XP

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 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.

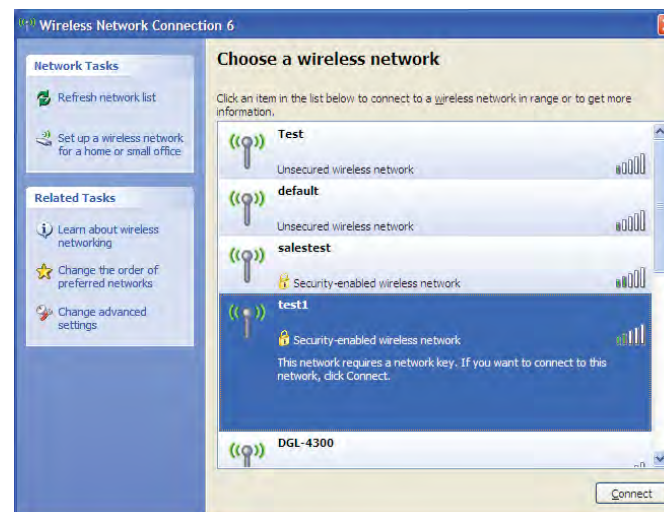
or

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.

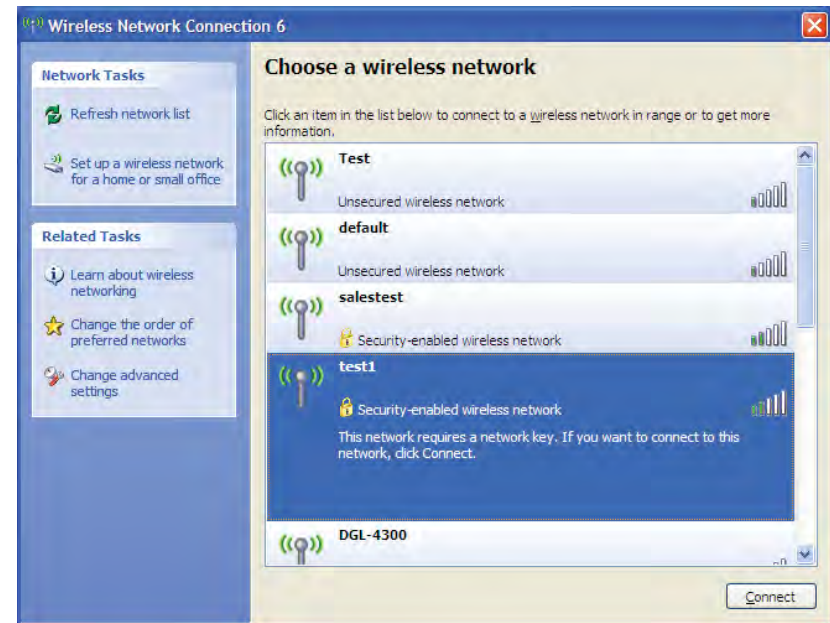
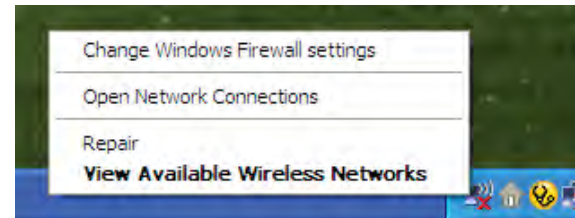
If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the **Networking Basics** section in this manual for more information.



WPA/WPA2

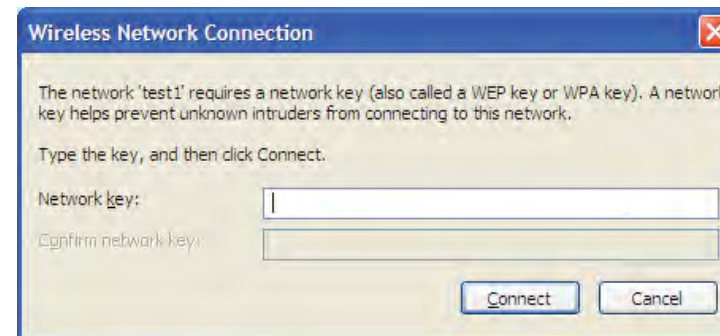
It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

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-860L. 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 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, if 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network you'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 a way of connecting your computer to the network without using wires. Wi-Fi uses radio frequencies to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office to your network.

Why D-Link Wireless?

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

How does wireless work?

Wireless works similarly to how cordless phones work, using radio signals to transmit data from one point to another. In order to access a network wirelessly you must be within the wireless network range area. 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 using radio signals. With an indoor access point such as the DIR-860L, the signal can travel up to 300 feet. With an outdoor access point the signal can reach up to 30 miles to serve places like manufacturing plants, industrial locations, 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 within a range of up to 30 feet.

Compared to WLAN, the speed and wireless operation range are both reduced when using WPAN, however WPAN doesn't use less 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 increasingly popular in recent years, whether it's for home, office, or business, D-Link has a wireless solution.

Home

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

Small Office and Home Office

- Reduced cost of setting up a network
- Remotely access your office network from home
- Share Internet connections and printers with multiple computers
- No need to dedicate office space

Where is wireless used?

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

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

A wireless network is simple to setup, but if you're installing one for the first time it could be quite a task if you do not know 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 in order 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 can significantly reduce any interference that these appliances might cause since they operate on same frequency.

Security

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

Wireless Modes

There are two basic modes for wireless networking:

- **Infrastructure** – All wireless clients will connect to an access point or wireless router.
- **Ad-Hoc** – Devices connect directly to one another, for peer-to-peer communication, using wireless network adapters on each computer, such as two computers with wireless adapters.

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

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

Networking Basics

Check your IP address

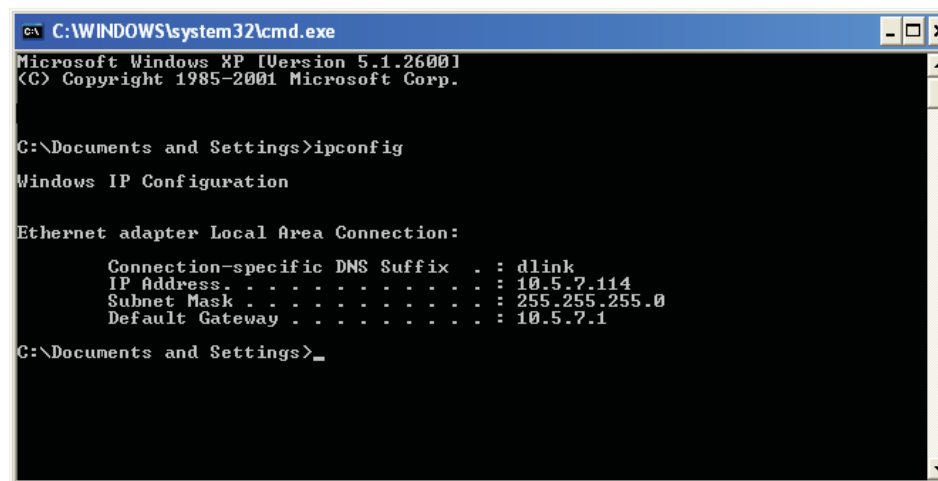
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

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

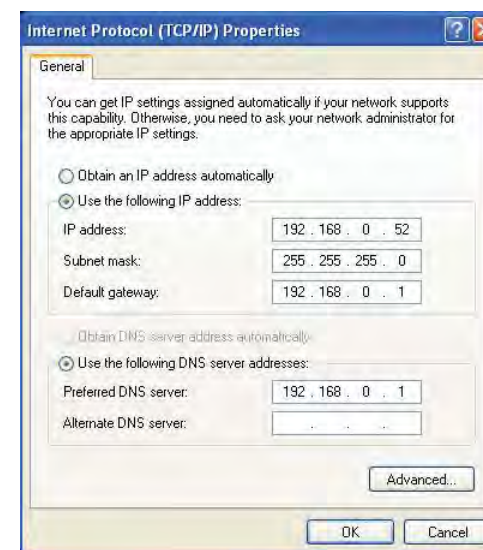
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

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-860L 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 was 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/draft ac wireless LAN
- Four 10/100/1000 Gigabit LAN ports
- 10/100/1000 Gigabit WAN port
- USB 3.0 port

Antenna Types

- 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 A

USB Port Power

- 5 V / 0.9 A

Operating Temperature

- 0°C to 40°C (32°F to 104°F)

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 cm (4.03 inches)
- W = 123.3 cm (4.85 inches)
- H = 217 cm (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-860L does not include 5.25-5.35GHz & 5.47-5.725GHz in some regions.

FCC Statement

Federal Communication Commission Interference Statement

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

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

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

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

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

Chain	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Loss of External Cable (dB)	True Gain (dBi)	Remark
1	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX
2	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX

Note: The EUT has two Chains.

5G Module FCC Statement

Federal Communication Commission Interference Statement

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

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

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

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

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

This device is going to be operated in 5.15~5.25GHz frequency range, it is restricted in indoor environment only.

Devices will not permit operations on channels 120-132 for 11a and 11n/a which overlap the 5600 - 5650 MHz band.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

Chain	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Loss of External Cable (dB)	True Gain (dBi)	Remark
1	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX
2	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX

Note: The EUT has two Chains.

5G Module IC Statement

This Class [B] digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.

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

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 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.

Declaración de exposición a la radiación de Canada:

Este equipo cumple con los límites de exposición a la radiación de la IC establecidos para un ambiente no controlado.

Este equipo se debe instalar y operar con una distancia mínima de 20 cm entre el radiador y su cuerpo.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

Le dispositif pourrait automatiquement cesser d'émettre en cas d'absence d'informations à transmettre, ou une défaillance opérationnelle. Notez que ce n'est pas l'intention d'interdire la transmission des informations de contrôle ou de signalisation ou l'utilisation de codes répétitifs lorsque requis par la technologie.

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Dynamic Frequency Selection (DFS) for devices operating in the bands 5250- 5350 MHz, 5470-5600 MHz and 5650-5725 MHz

Sélection dynamique de fréquences (DFS) pour les dispositifs fonctionnant dans les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5725 MHz

The maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit.

le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.;

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. IC statement is required to be available in the users manual: This Class B digital apparatus complies with Canadian ICES-003. 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.

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.

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.

This radio transmitter (identify the device by certification number, or model number if Category II) 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.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) 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.

Chain	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Loss of External Cable (dB)	True Gain (dBi)	Remark
1	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX
2	WHA YU	SSR-30247	PCB Antenna	I-PEX	4	0.18	3.82	TX / RX

Note: The EUT has two Chains.