D-Link®

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User Manual

Wireless N Gigabit Home Router

DIR-652

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	July 19, 2011	• Initial release

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Package Contents

DIR-652 Wireless N Gigabit Home Router

Ethernet Cable

Power Adapter

CD-ROM with Manual and Setup Wizard

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-652 will cause damage and void the warranty.*

System Requirements

Network Requirements	• An Ethernet-based Cable or DSL modem • IEEE 802.11n or 802.11g wireless clients • 10/100/1000 Ethernet
Web-based Configuration Utility Requirements	**Computer with the following:** • Windows®, Macintosh, or Linux-based operating system • An installed Ethernet adapter **Browser Requirements:** • Internet Explorer 6.0 or higher • Chrome 2.0 or higher • Firefox 3.0 or higher • Safari 3.0 or higher (with Java 1.3.1 or higher) **Windows® Users:** Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.
CD Installation Wizard Requirements	**Computer with the following:** • Windows® 7, Vista®, or XP with Service Pack 2 • An installed Ethernet adapter • CD-ROM drive

Introduction

TOTAL PERFORMANCE
Combines award winning router features and 802.11n wireless technology to provide the best wireless performance.

TOTAL SECURITY
The most complete set of security features including Active Firewall and WPA2™ to protect your network against outside intruders.

TOTAL COVERAGE
Provides greater wireless signal rates even at farther distances for best-in-class Whole Home Coverage.

ULTIMATE PERFORMANCE
The D-Link Wireless N Gigabit Home Router (DIR-652) is a 802.11n compliant device that delivers real world performance of up to 650% faster than an 802.11g wireless connection (also faster than a 100Mbps wired Ethernet connection). Create a secure wireless network to share photos, files, music, video, printers, and network storage throughout your home. Connect the Wireless N Gigabit Home Router to a cable or DSL modem and share your high-speed Internet access with everyone on the network. In addition, this Router includes a Quality of Service (QoS) engine that keeps digital phone calls (VoIP) and online gaming smooth and responsive, providing a better Internet experience.

EXTENDED WHOLE HOME COVERAGE
This high performance router provides superior Whole Home Coverage while reducing dead spots. The Wireless N Gigabit Home Router is designed for use in bigger homes and for users who demand higher performance networking. Add a notebook or desktop adapter and stay connected to your network from virtually anywhere in your home.

TOTAL NETWORK SECURITY
The Wireless N Gigabit Home Router supports all of the latest wireless security features to prevent unauthorized access, be it from over the wireless network or from the Internet. Support for WPA standards ensure that you'll be able to use the best possible encryption method, regardless of your client devices. In addition, this Wireless N Gigabit Home Router utilizes dual active firewalls (SPI and NAT) to prevent potential attacks from across the Internet.

* Maximum wireless signal rate derived from IEEE Standard 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 conditions will adversely affect wireless signal range.

Features

- **Faster Wireless Networking** - The DIR-652 provides up to 300Mbps* wireless connection with other 802.11n wireless clients. This capability allows users to participate in real-time activities online, such as video streaming, online gaming, and real-time audio. The performance of this 802.11n wireless router gives you the freedom of wireless networking at speeds 650% faster than 802.11g.

- **Compatible with 802.11g Devices** - The DIR-652 is still fully compatible with the IEEE 802.11g standard, so it can connect with existing 802.11g PCI, USB and Cardbus adapters.

- **Advanced Firewall Features** - The Web-based user interface displays a number of advanced network management features including:

    - **Content Filtering** - Easily applied content filtering based on MAC Address, URL, and/or Domain Name.

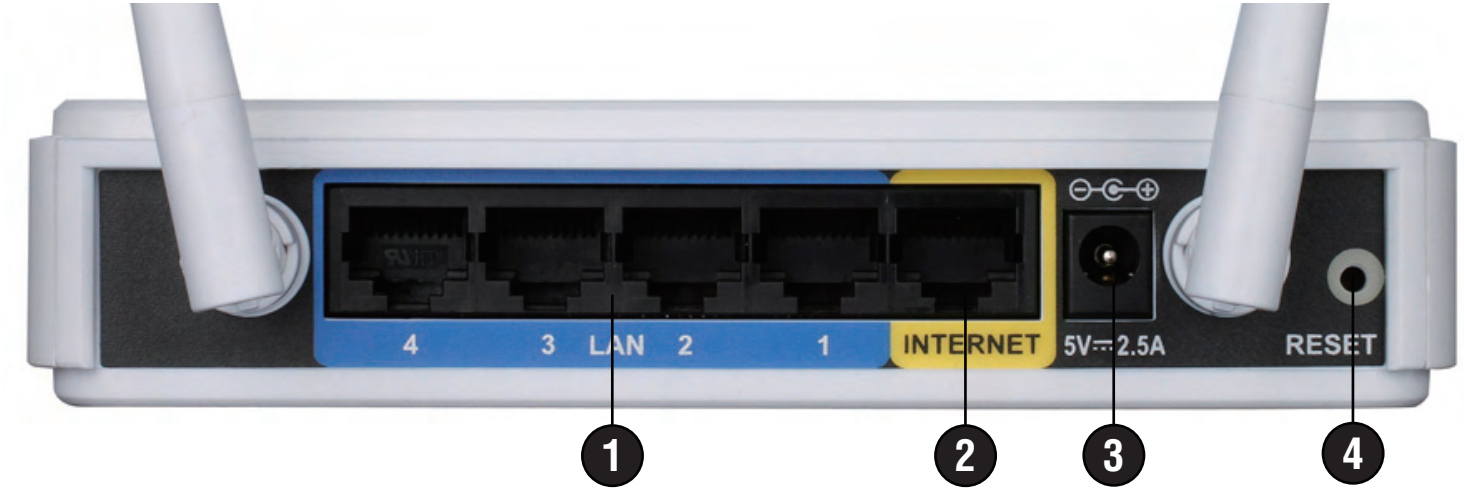
    - **Filter Scheduling** - These filters can be scheduled to be active on certain days or for a duration of hours or minutes.

    - **Secure Multiple/Concurrent Sessions** - The DIR-652 can pass through VPN sessions. It supports multiple and concurrent IPSec and PPTP sessions, so users behind the DIR-652 can securely access corporate networks.

- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-652 lets you control what information is accessible to those on the wireless network, whether from the Internet or from your company's server. Configure your router to your specific settings within minutes.

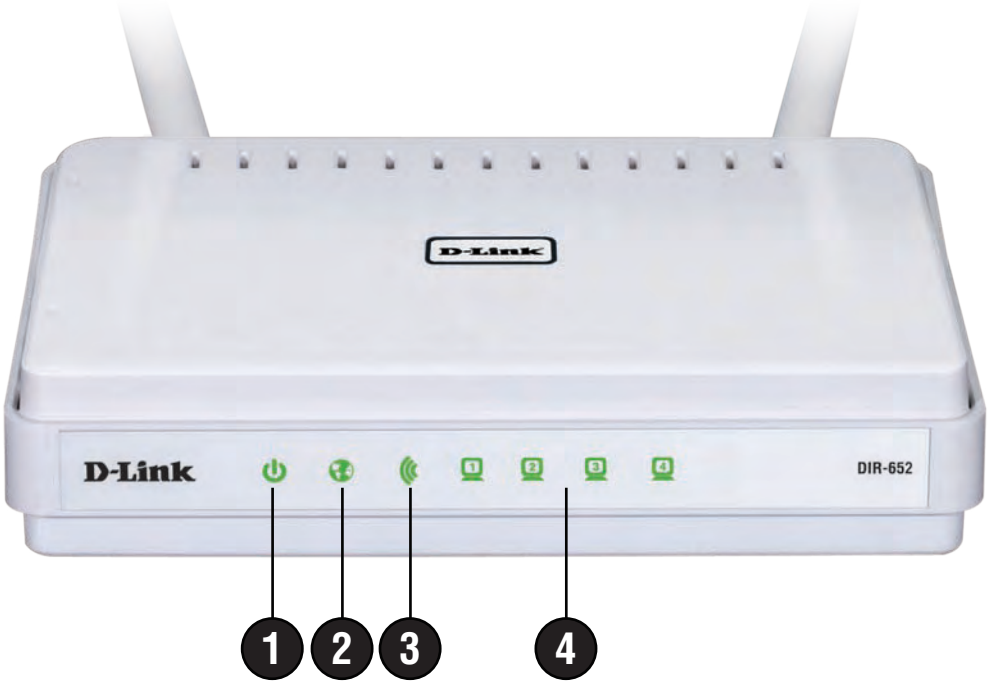
* Maximum wireless signal rate derived from IEEE Standard 802.11g and 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.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

Hardware Overview
Connections



1	LAN Ports (1-4)	Connect Ethernet devices such as computers, switches, and hubs.
2	Internet Port	The auto MDI/MDIX Internet port is the connection for the Ethernet cable to the cable or DSL modem.
3	Power Receptor	Receptor for the supplied power adapter.
4	Reset	Press and hold the reset button to restore the router to its original factory settings.

LEDs



1	Power LED	A solid light indicates a proper connection to the power supply.
2	Internet LED	A solid light indicates connection on the Internet port. This LED blinks during data transmission. A solid blue light indicates that there is an Internet connection, an orange light indicates that there is none.
3	WLAN LED	A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission.
4	Local Network's LED	A solid light indicates a connection to an Ethernet-enabled computer on ports 1-4. This LED blinks during data transmission.

Installation

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

Before you Begin

Please configure the router with the computer that was last connected directly to your modem. Also, you can only use the Ethernet port on your modem. If you were using the USB connection before using the router, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the 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 that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the D-Link router and other network devices to a minimum - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.

2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

3. Building Materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.

4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone in not in use.

Getting Started

The DIR-652 includes a Quick Router Setup Wizard CD. Follow the simple steps below to run the Setup Wizard to guide you quickly through the installation process.

Insert the **Wizard CD** in the CD-ROM drive. The step-by-step instructions that follow are shown in Windows® XP. The steps and screens are similar for the other Windows operating systems.

If the CD Autorun function does not automatically start on your computer, go to **Start** > **Run**. In the run box type "**D:\DWizard.exe**" (where ***D:*** represents the drive letter of your CD-ROM drive).

When the autorun screen appears, click **START.**

Note: *It is recommended to write down the SSID and Security Key, followed by the login password on the provided CD holder.*

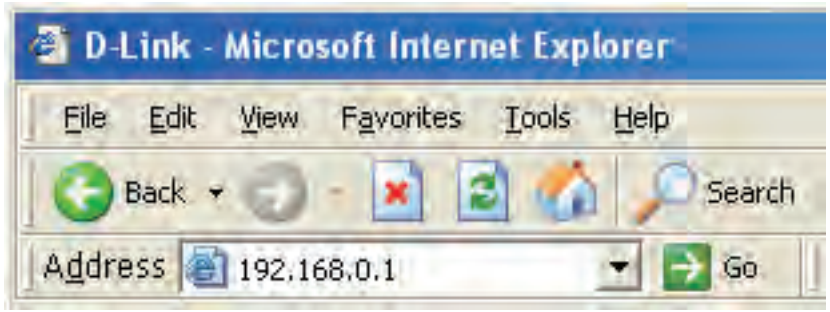
Configuration

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

Note: *If you have successfully completed the setup on your router with the CD, the Quick Setup Wizard will not appear. Please refer to page 16.*

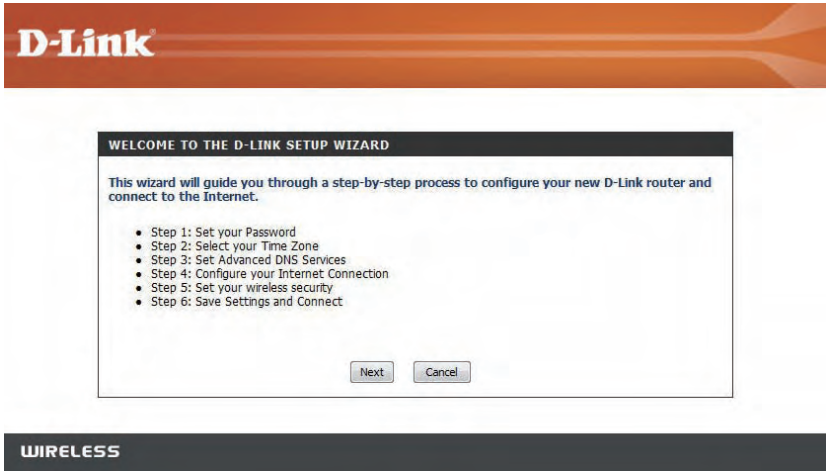
Quick Setup Wizard

To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the router (192.168.0.1).

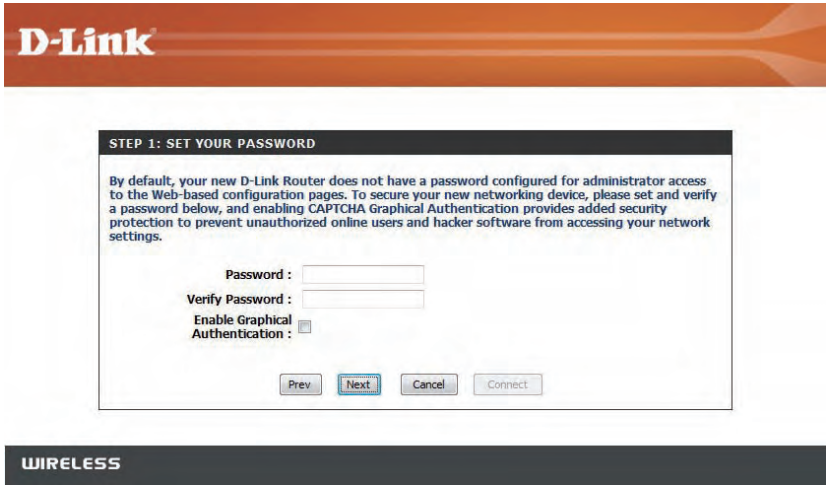


This wizard is designed to guide you through a step-by step process to configure your new D-Link router and connect to the Internet.

Click **Next** to continue.

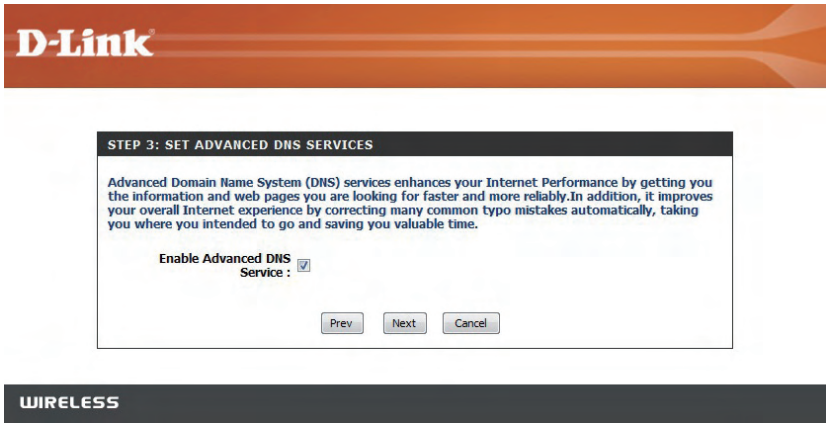


In order to secure your new networking device, please enter a password and click Next.

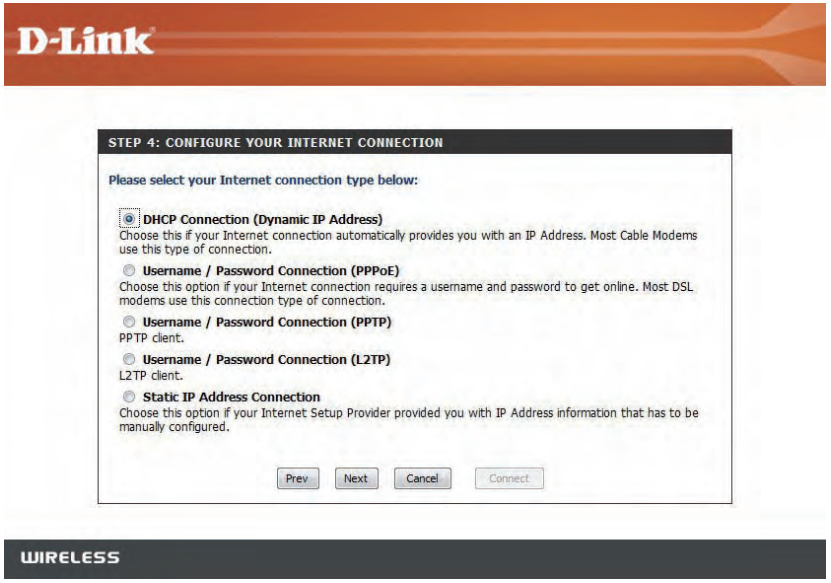


Select Enable Advanced DNS Services to allow this function to improve your overall Internet experience.

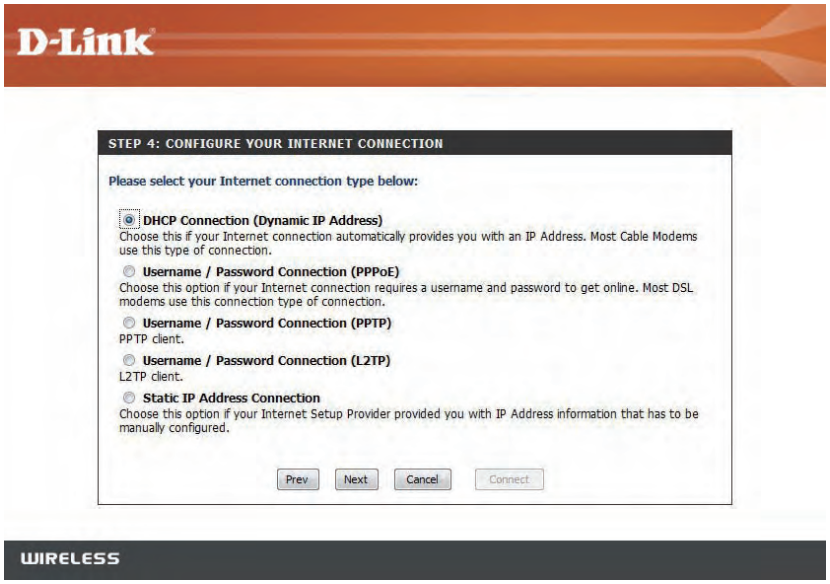
Click **Next** to continue.



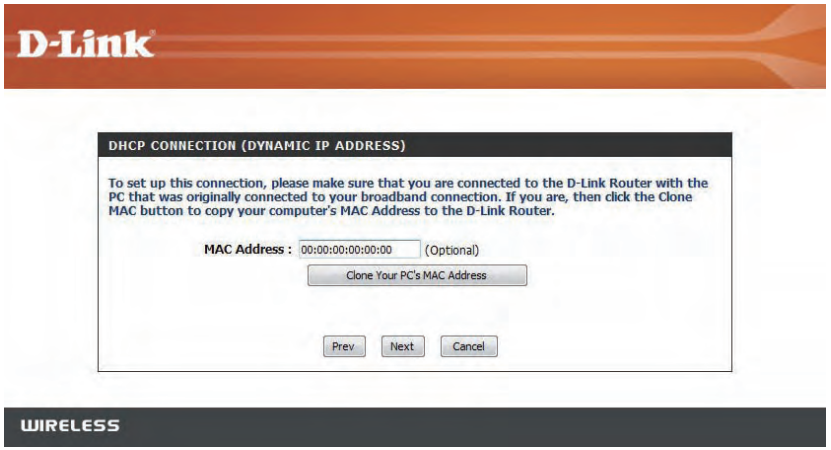
Please wait while your router detects your internet connection type.



Select your Internet connection type and click Next to continue.



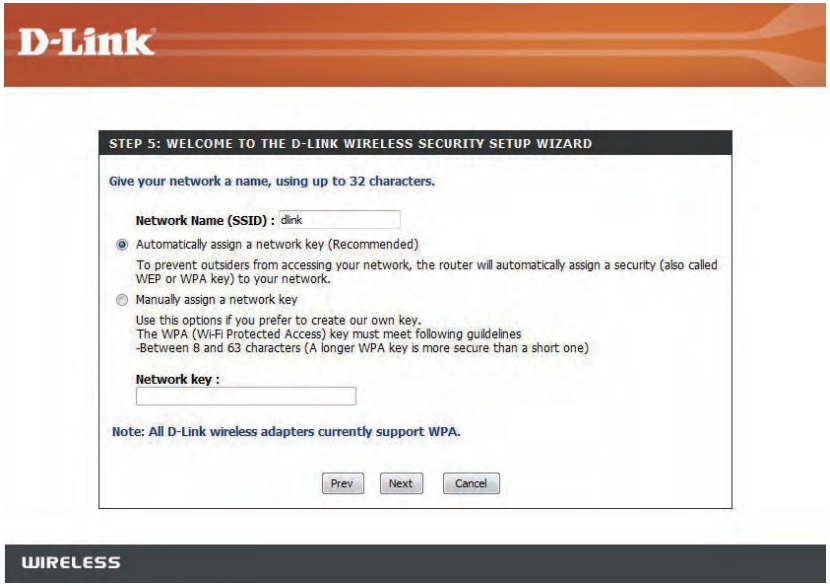
If you selected DHCP Connection, make suer that you are connected to the D-Link router with the PC that was originally connected to your broadband connection. Then, click the Clone MAC button to copy your computer's MAC address. Click Next to continue.



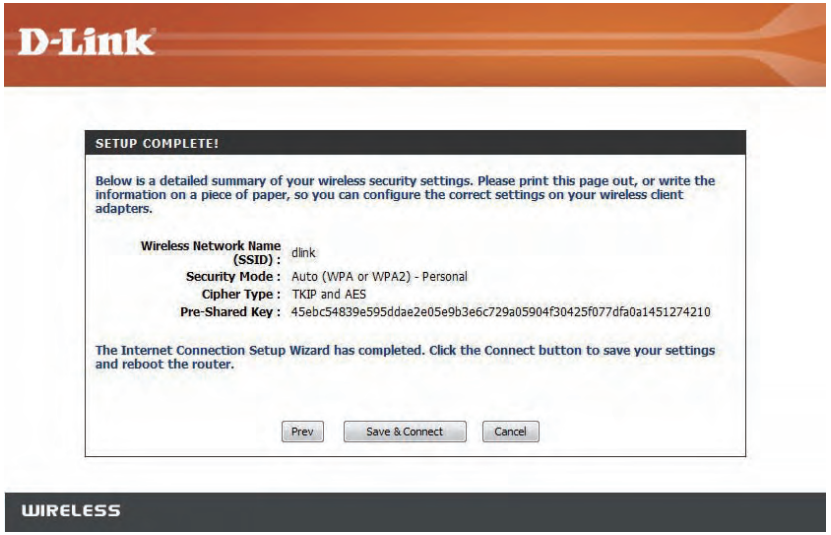
Please give your network a name using up to 32 characters.

It is highly recommended the you have a security key for your network. If you would like the router to automatically assign a security key, choose Automatically assign a network key or you may choose Manually assign a network key and you may enter your own Network key.

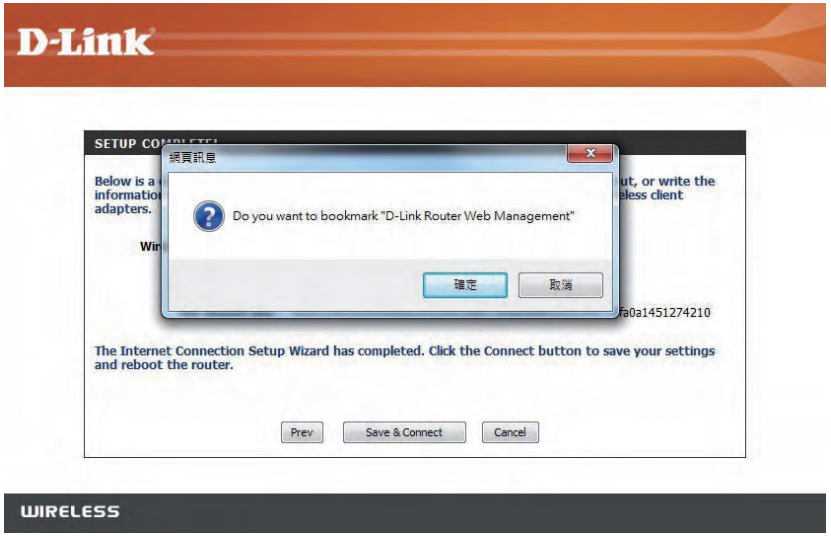
Click **Next** to continue.



Once this screen appears, your setup is complete. Click Save & Connect to reboot the router.



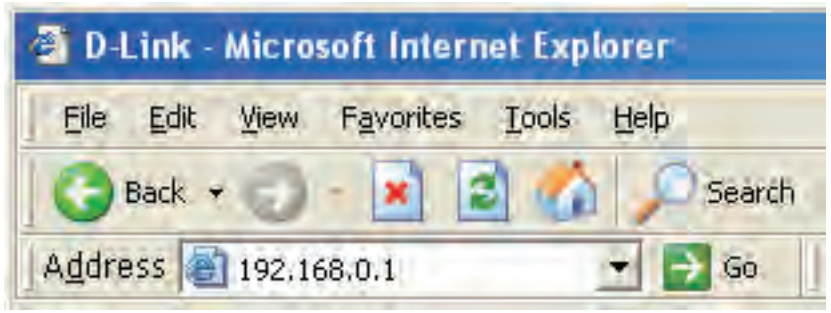
Before your router reboots, you will be asked if you want to bookmark '**D-Link Router Web Management**," click **Ok** to finish.



Web-based Configuration Utility

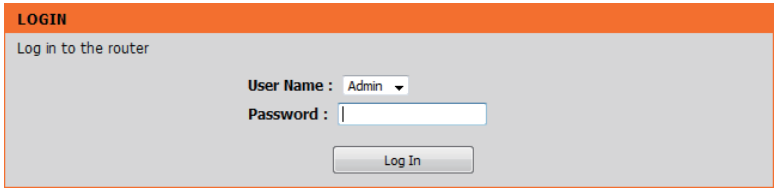
To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the router (192.168.0.1).

You may also connect using the NetBIOS name in the address bar (**http://dlinkrouter**).



Select **Admin** from the drop-down menu and then enter your password. The password is left blank by default.

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

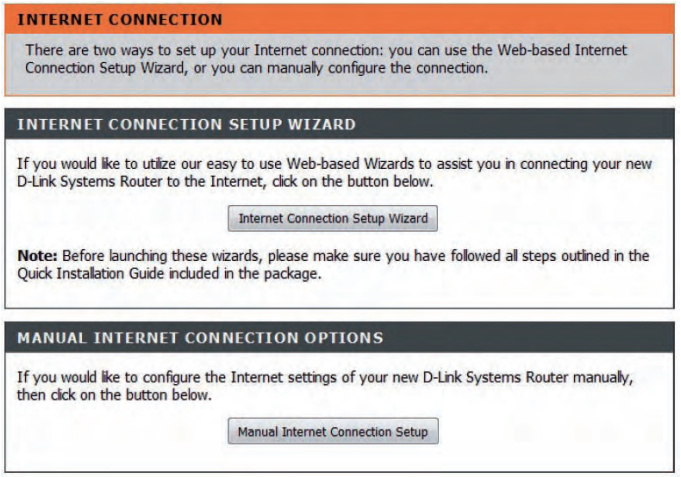


Setup Wizard

Internet Connection

Click **Internet Connection Setup Wizard** to quickly configure your router. Skip to the next page.

If you want to enter your settings without running the wizard, click **Manual Configuration** and skip to page 21.

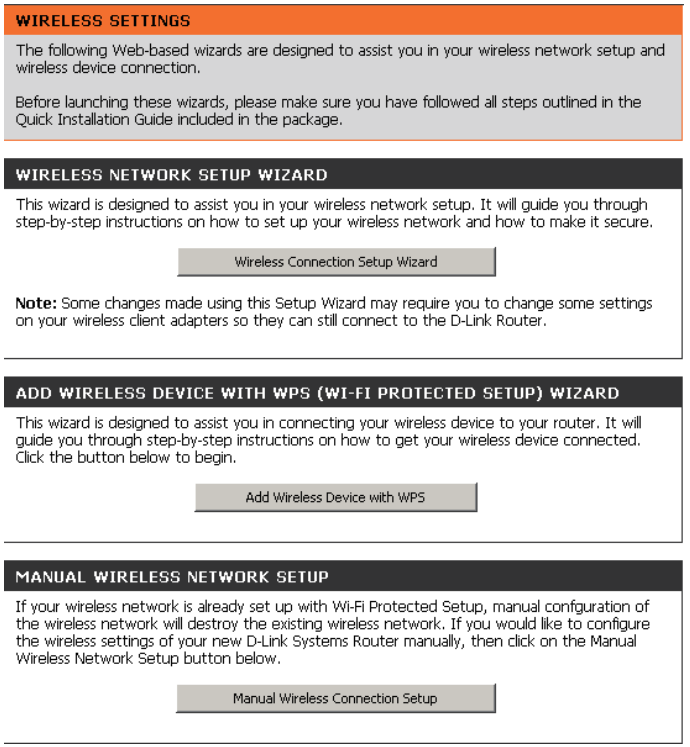


Wireless Settings

Click **Wireless Connection Setup Wizard** to begin.

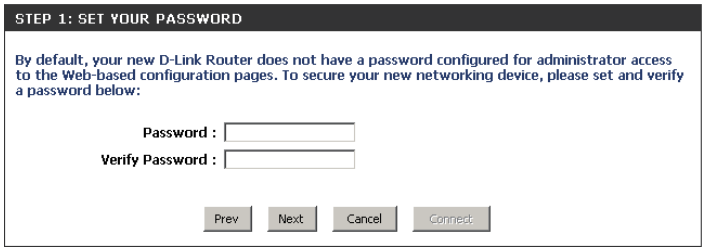
If you want to add your wireless clients to your router using WPS, click **Add Wireless Device with WPS** and skip to page 84.

If you want to configure your wireless settings manually, click **Manual Wireless Connection Setup** and skip to page 28.

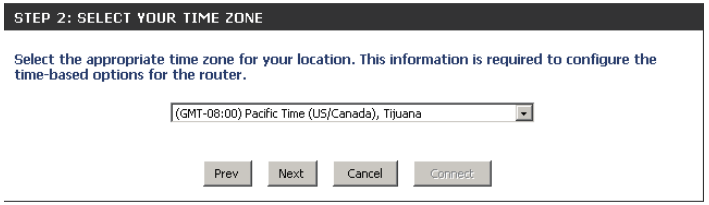


Click **Next** to continue.

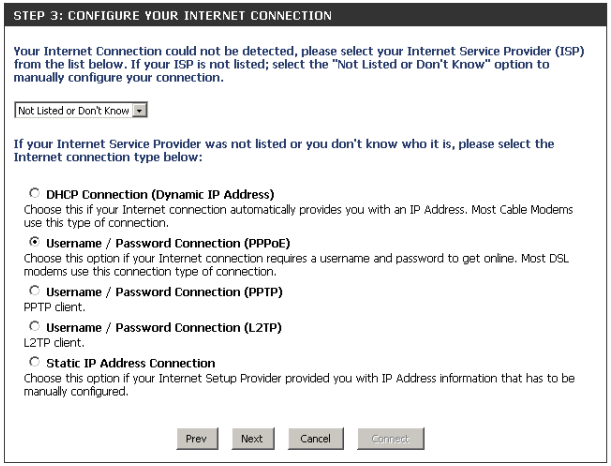
Create a new password and then click **Next** to continue.



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

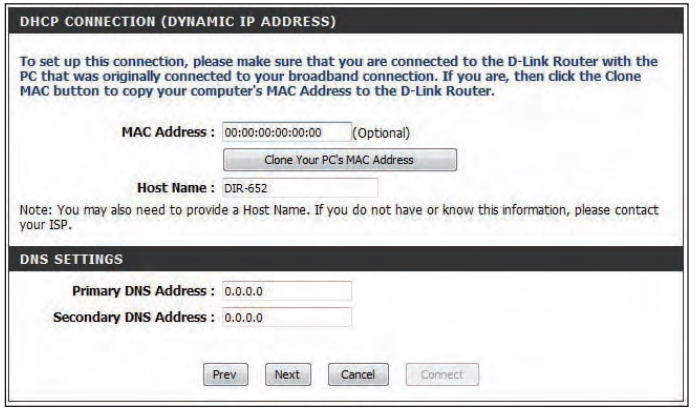


Select the type of Internet connection you use and then click **Next** to continue.



If you selected Dynamic, you may need to enter the MAC address of the computer that was last connected directly to your modem. If you are currently using that computer, click **Clone Your PC's MAC Address** and then click **Next** to continue.

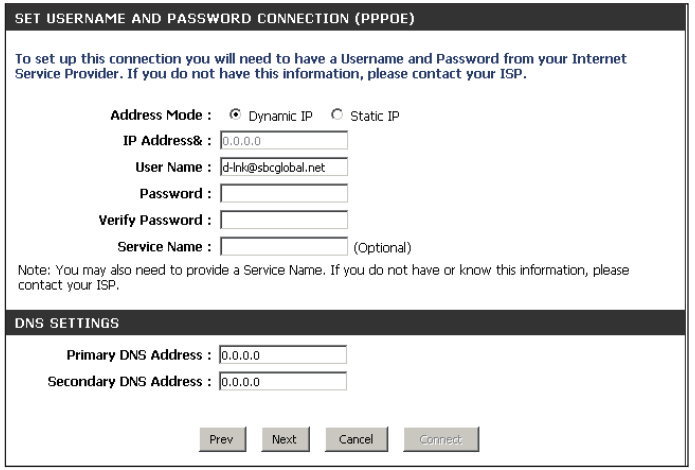
The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.



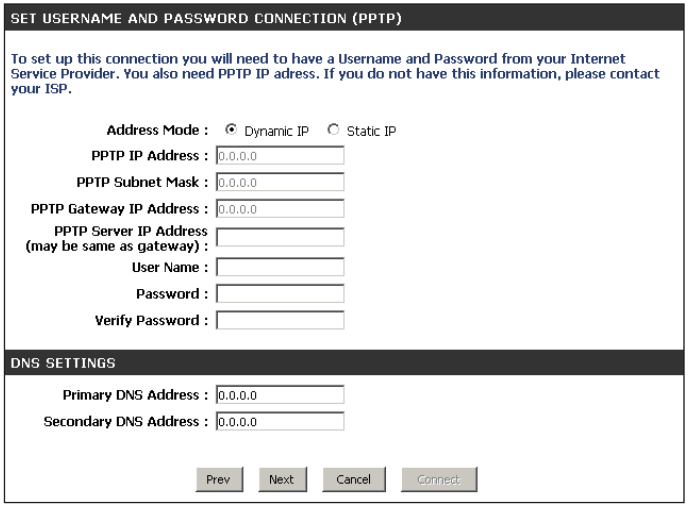
If you selected PPPoE, enter your PPPoE username and password. Click **Next** to continue.

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

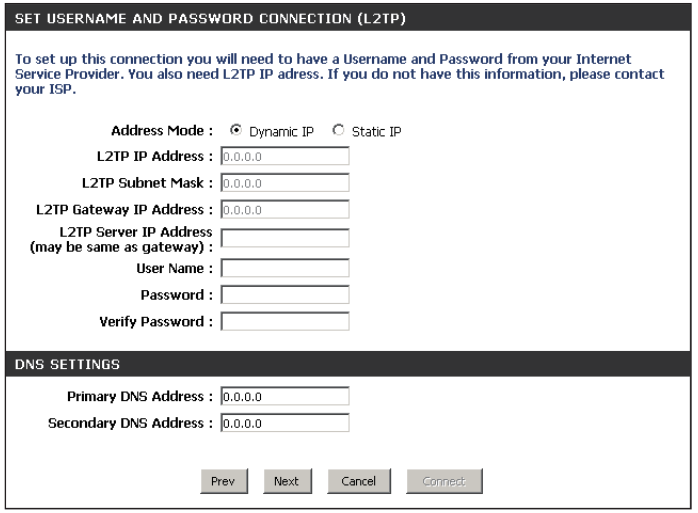
Note: *Make sure to remove your PPPoE software from your computer. The software is no longer needed and will not work through a router.*



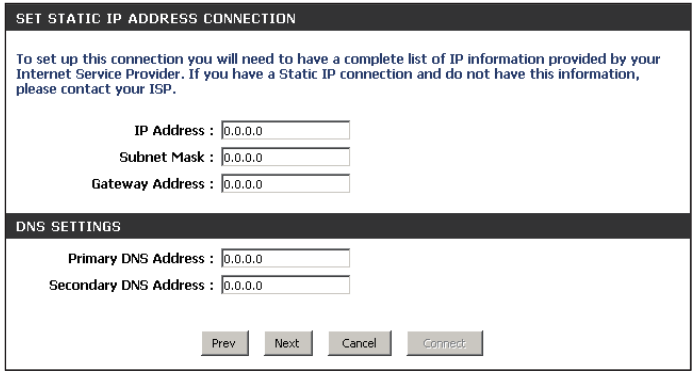
If you selected PPTP, enter your PPTP username and password. Click **Next** to continue.



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

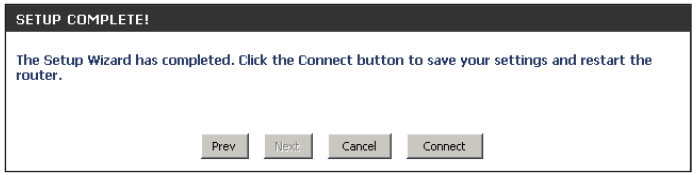


If you selected Static, enter your network settings supplied by your Internet provider. Click **Next** to continue.



Click **Connect** to save your settings. Once the router is finished rebooting, click **Continue**. Please allow 1-2 minutes to connect.

Close your browser window and reopen it to test your Internet connection. It may take a few tries to initially connect to the Internet.



Manual Configuration

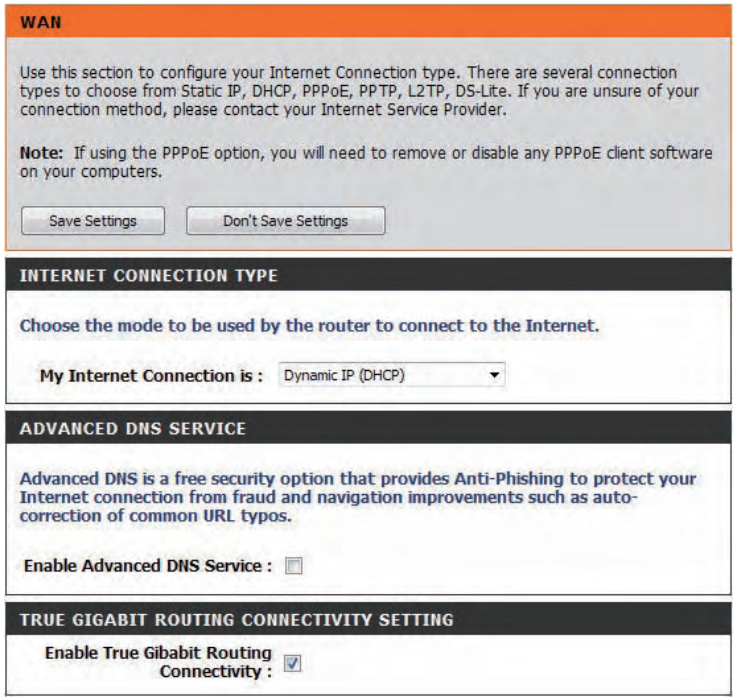
My Internet Connection is: Select the type of Internet connection you have. Select **Dynamic IP (DHCP), PPPoE, PPTP, L2TP, Static,** or **DS-Lite**. Refer to the next few pages for more information.

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 typo 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: When this option is enabled, the router will speed up NAT performance by hardware acceleration mechanism.

Note: SPI and the QoS engine will be disabled automatically when hardware NAT is enabled.



Dynamic (Cable)

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 such as Comcast and Cox.

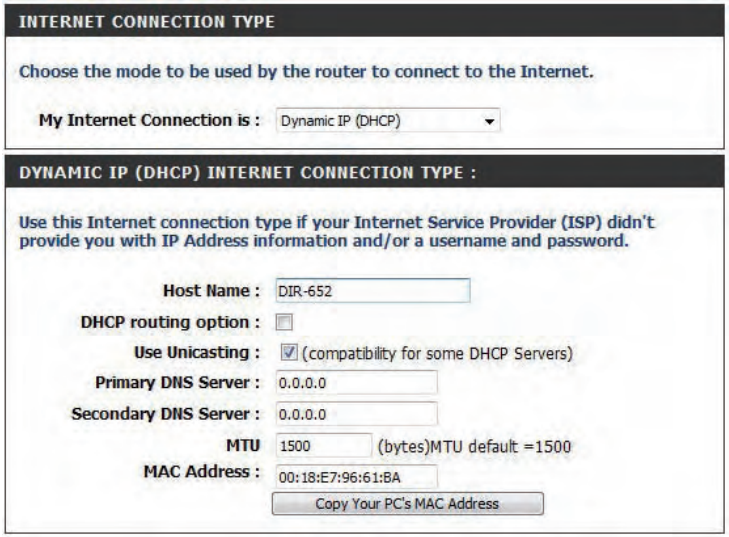
Host Name: The Host Name is optional but may be required by some ISPs. Leave blank if you are not sure.

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.



Internet Setup
PPPoE (DSL)

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

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

Address Mode: Select **Static** if your ISP assigned you the 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).

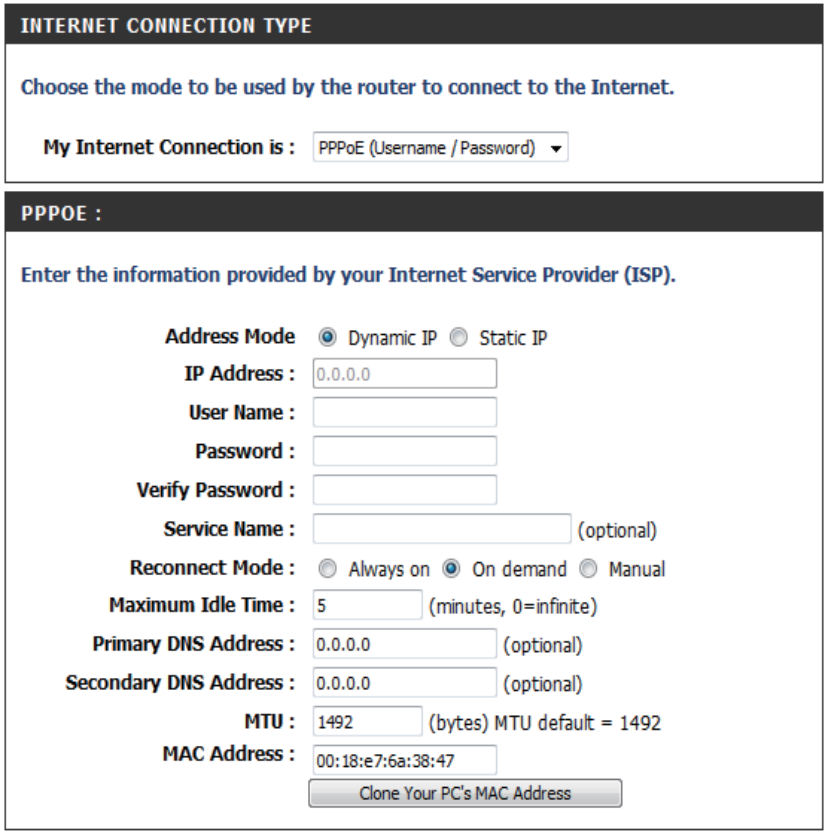
Reconnection Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

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.

Address Mode: Select **Static** if your ISP assigned you the 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.

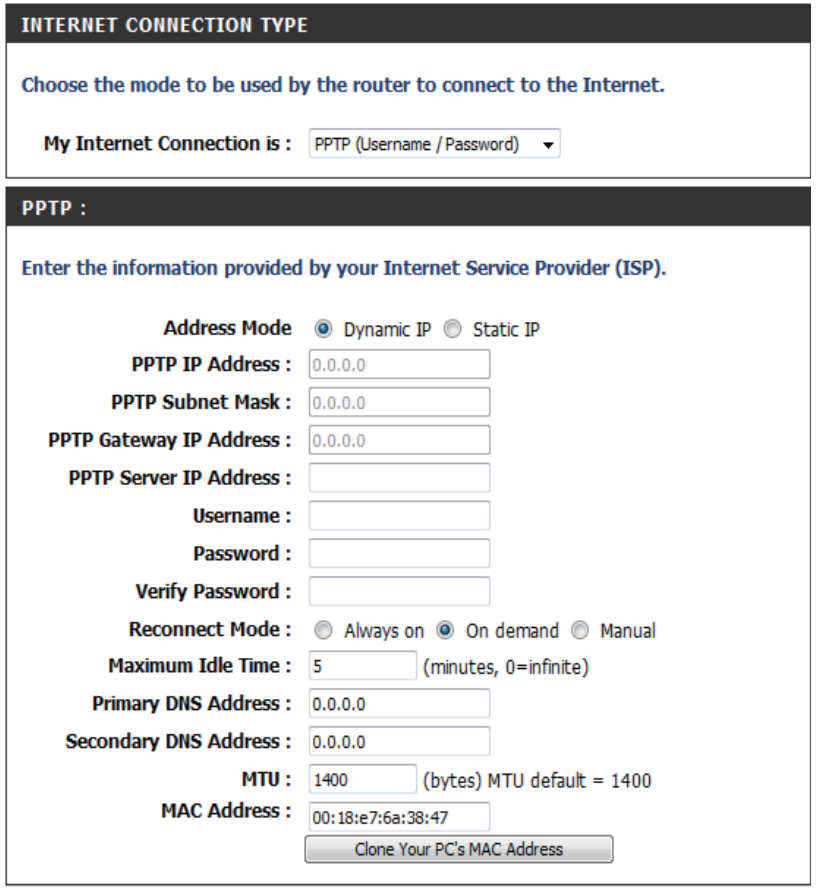
Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

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

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



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.

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

L2TP IP Address: Enter the L2TP IP address supplied by your ISP (Static only).

L2TP Subnet Mask: Enter the Subnet Mask supplied by your ISP (Static only).

L2TP Gateway: Enter the Gateway IP Address provided by your ISP.

L2TP Server IP: Enter the Server IP provided by your ISP (optional).

Username: Enter your L2TP username.

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

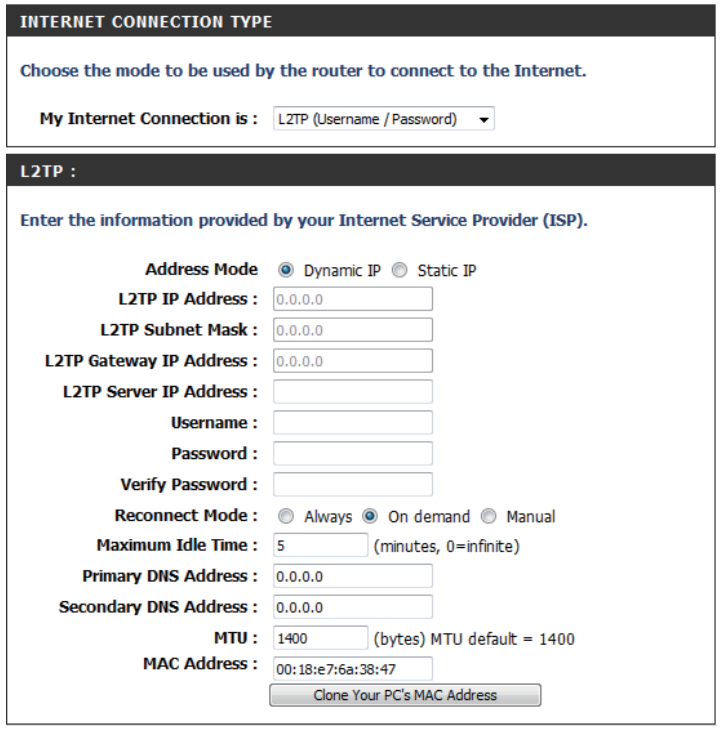
Reconnect Mode: Select either **Always-on**, **On-Demand**, or **Manual**.

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

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

Clone 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.



Static (assigned by ISP)

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

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

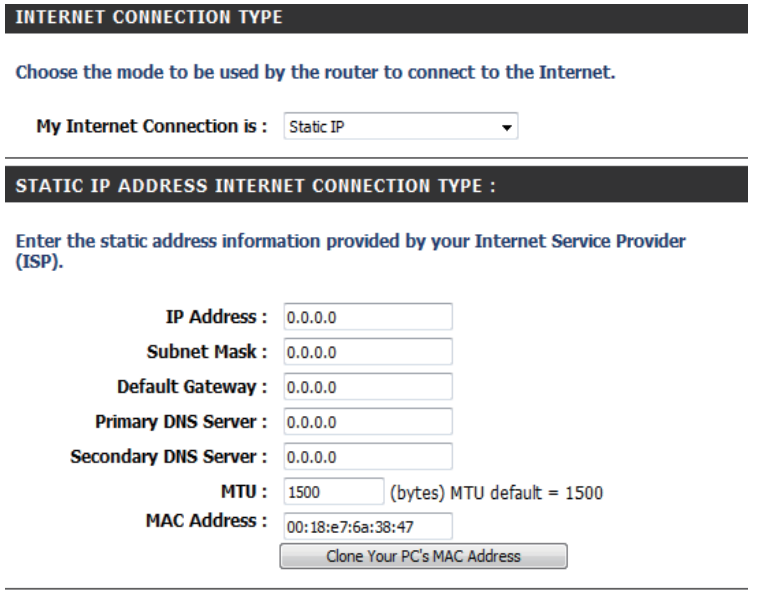
Subnet Mask: Enter the Subnet Mask assigned by your ISP.

Default Gateway: Enter the Gateway assigned by your ISP.

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

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.



DS-Lite

Another Internet Connection type is DS-Lite.

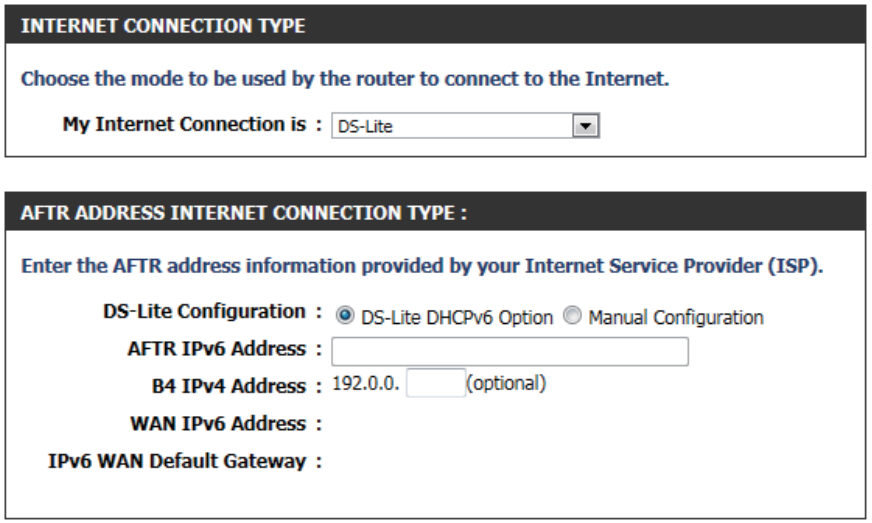
DS-Lite Configuration: Select the **DS-Lite DHCPv6 Option** to let the router allocate the AFTR IPv6 address automatically. Select the **Manual Configuration** to enter the AFTR IPv6 address in manually.

AFTR IPv6 Address: After selecting the Manual Configuration option above, the user can 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.



Click on the Save Settings button to accept the changes made.
Click on the Don't Save Settings button to discard the changes made.

Wireless Settings

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: The schedule of time when the wireless settings rules 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.

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

Enable Auto Channel Scan: The **Auto Channel Scan** setting can be selected to allow the DIR-652 to choose the channel with the least amount of interference.

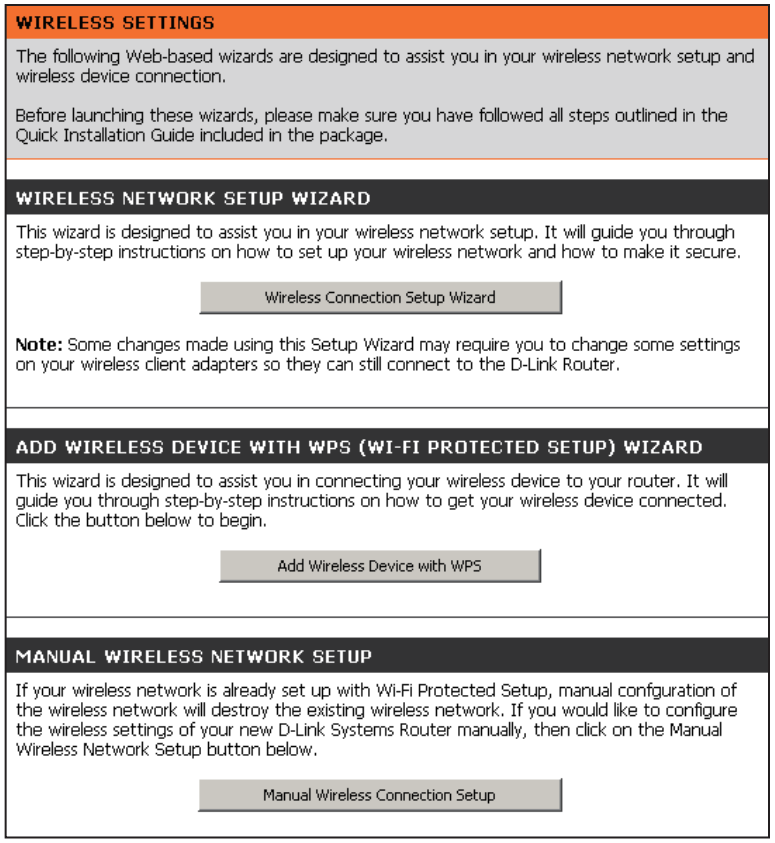
Wireless Channel: Indicates the channel setting for the DIR-652. By default the channel is set to 6. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable **Auto Channel Scan**, this option will be greyed out.

802.11 Mode: Select one of the following:
802.11g Only - Select if all of your wireless clients are 802.11g.
802.11n Only - Select only if all of your wireless clients are 802.11n.
Mixed 802.11n and 802.11g - Select if you are using a mix of 802.11n and 11g wireless clients.

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.
40MHz - Select if using only 802.11n wireless clients.

Transmission Rate: Select the transmit rate. It is strongly suggested to select **Best (Auto)** for best performance.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcasted by the DIR-652. If Invisible is selected, the SSID of the DIR-652 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DIR-652



Network Settings

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

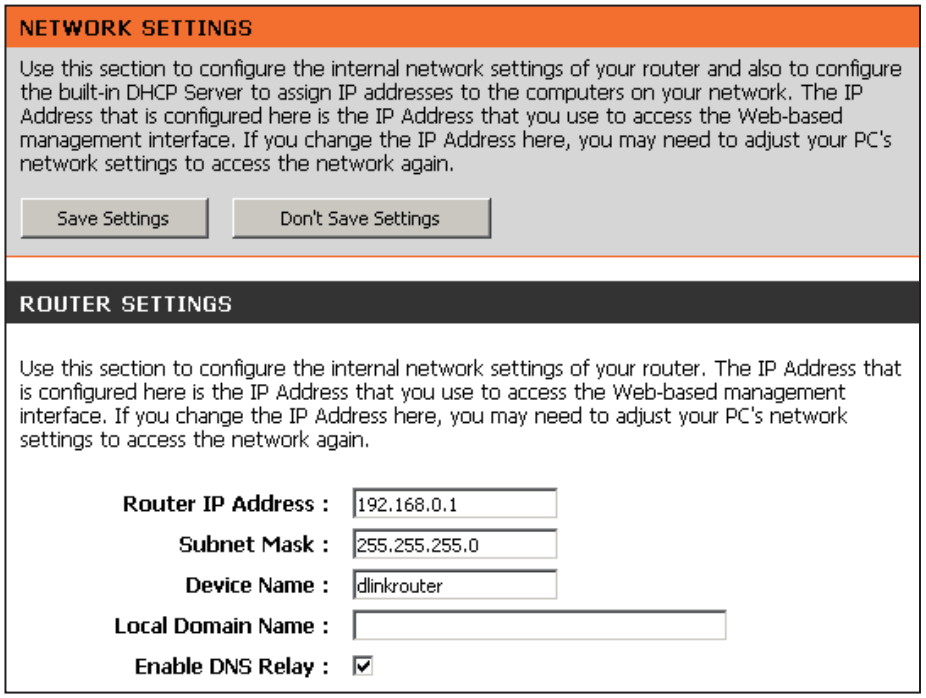
IP Address: Enter the IP address of the router. The default IP address is 192.168.0.1.

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

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

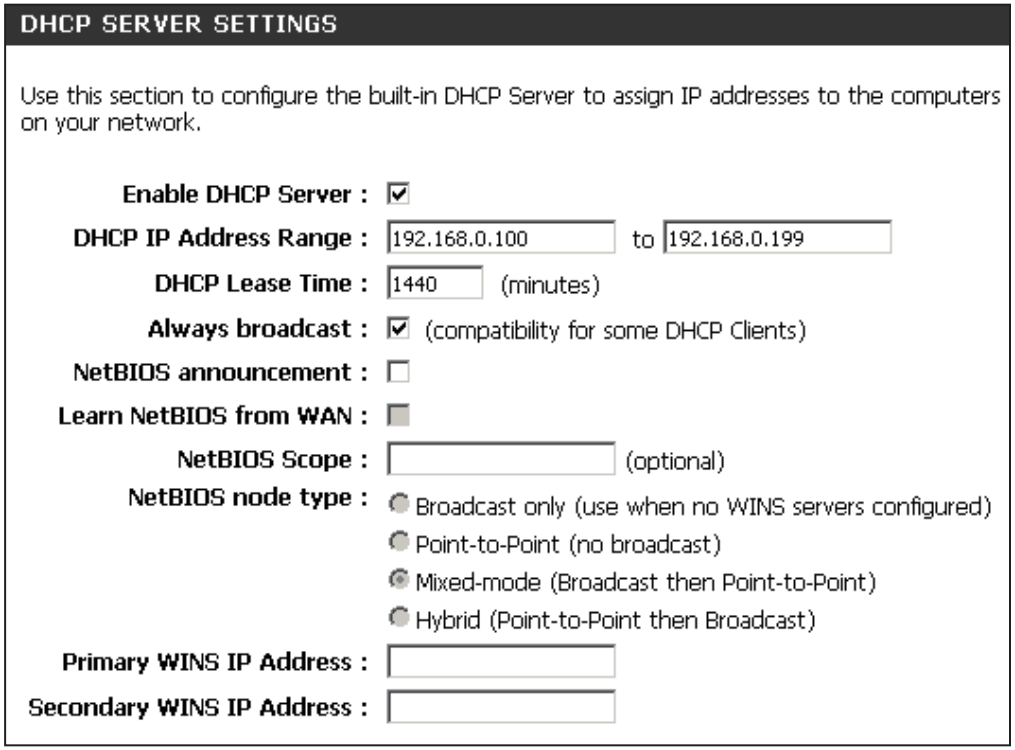
Local Domain: Enter the Domain name (Optional).

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-652 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-652. 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.

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

Primary/Secondary WINS IP Address: Enter your Primary (and Secondary) WINS IP address(es).

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.

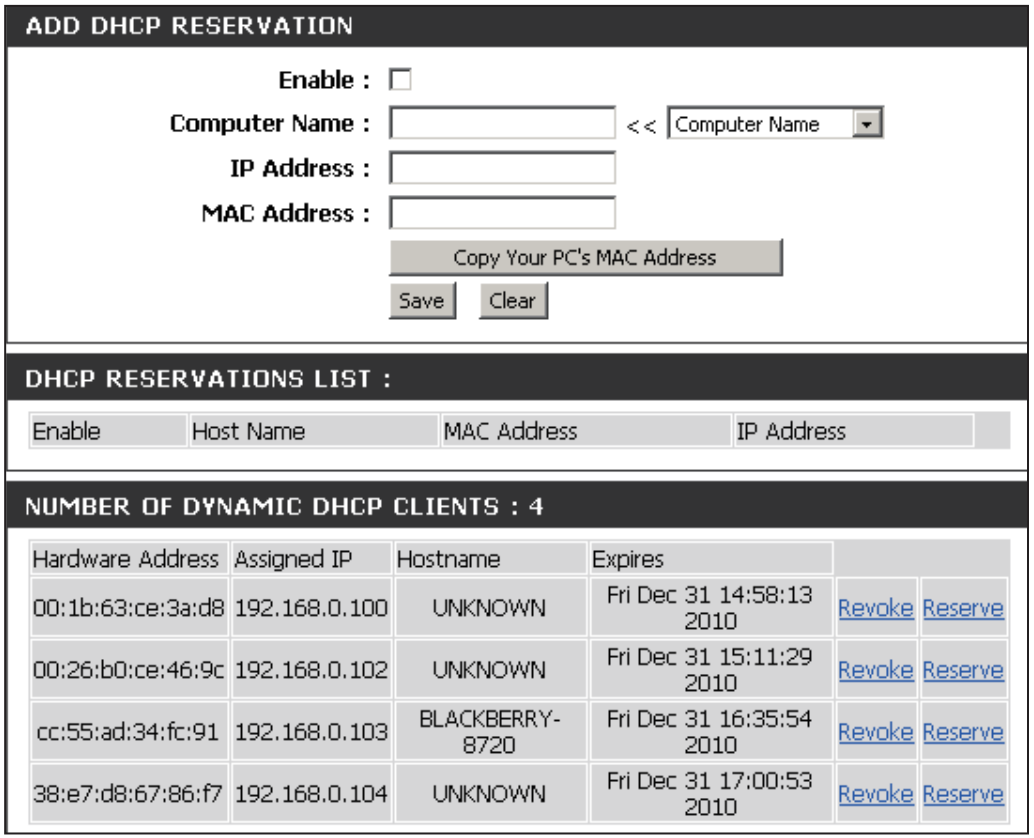
Copy Your PC's MAC Address: If you want to assign an IP address to the computer you are currently on, click this button to populate the fields.

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

Number of Dynamic DHCP Clients: In this section you can see what LAN devices are currently leasing IP addresses.

Revoke: Click **Revoke** to cancel the lease for a specific LAN device and free an entry in the lease table. Do this only if the device no longer needs the leased IP address, because, for example, it has been removed from the network.

Note: *The Revoke option will not disconnect a PC with a current network session from the network; you would need to use MAC Address Filter to do that. Revoke will only free up a DHCP Address for the very next requester. If the previous owner is still available, those two devices may both receive an IP Address Conflict error, or the second device may still not receive an IP Address; in that case, you may still need to extend the "DHCP IP Address Range" to address the issue, it is located in the DHCP Server section.*

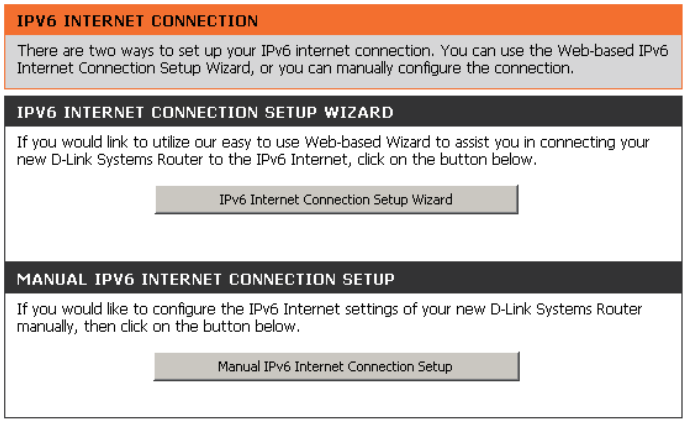


Reserve: The Reserve option converts this dynamic IP allocation into a DHCP Reservation and adds the corresponding entry to the DHCP Reservations List.

IPv6 Internet Connection

Click **IPv6 Internet Connection Setup Wizard** to begin.

If you want to configure your IPv6 Internet Connection manually, click **Manual IPv6 Internet Connection Setup** and skip to page 39.

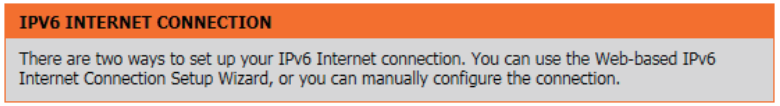


IPv6 Internet Connection Setup Wizard

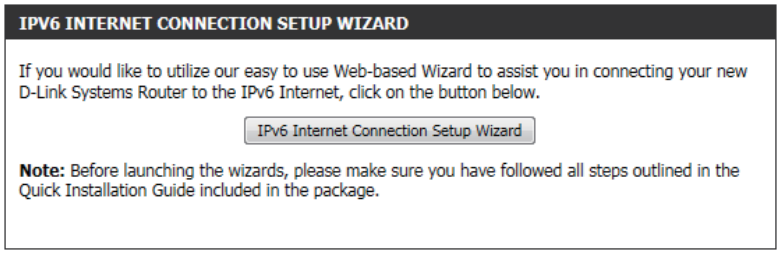
On this page, the user can configure the IPv6 Connection type. There are two ways to set up the IPv6 Internet connection. You can use the Web-based IPv6 Internet Connection Setup Wizard, or you can manually configure the connection.

IPv6 Internet Connection Setup Wizard

For the beginner user that have 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.

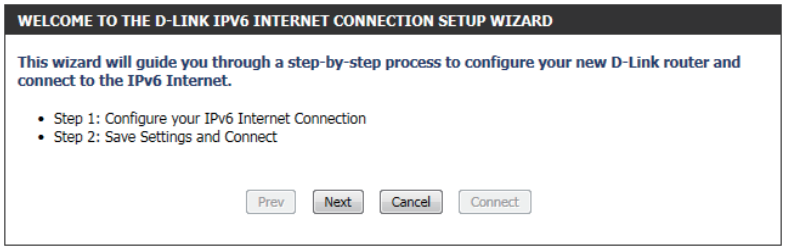


After clicking on the IPv6 Internet Connection Setup Wizard button, this page will appear.



Welcome to the D-Link IPv6 Internet Connection Setup Wizard

This wizard will guide you through a step-by-step process to configure your new D-Link router and connect to the IPv6 Internet.

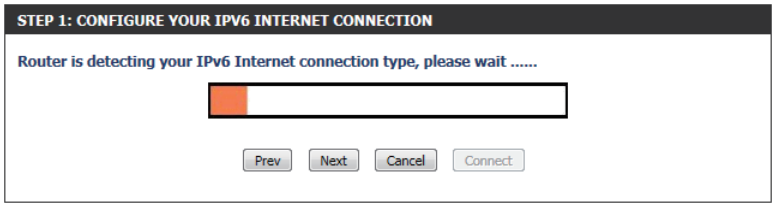


Click **Next** to continue to the next page. Click **Cancel** to discard the changes made and return to the main page.

Step 1: Configure Your IPv6 Internet Connection

The router will try and detect whether its possible to obtain the IPv6 Internet Connection type automatically. If this succeeds then the user will be guided through the input of the appropriate parameters for the connection type found.

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

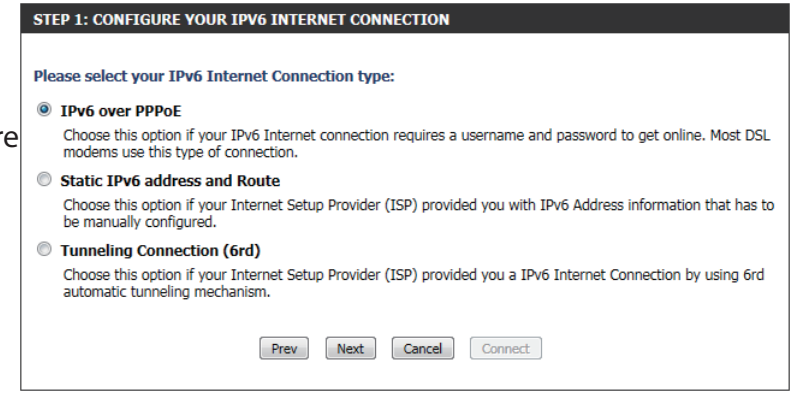


Step 1: Configure Your IPv6 Internet Connection

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

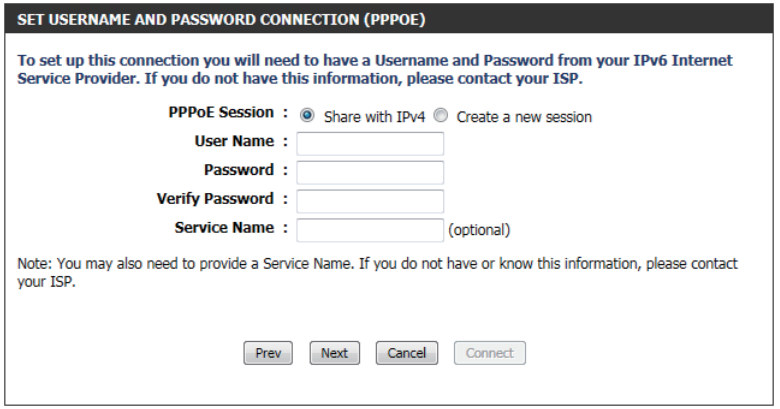
Note: If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled. The 3 options available on this page is **IPv6 over PPPoE**, **Static IPv6 address and Route**, and **Tunneling Connection**.

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.



Set Username and Password Connection (PPPoE)

After selecting the IPv6 over PPPoE option, the user 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.



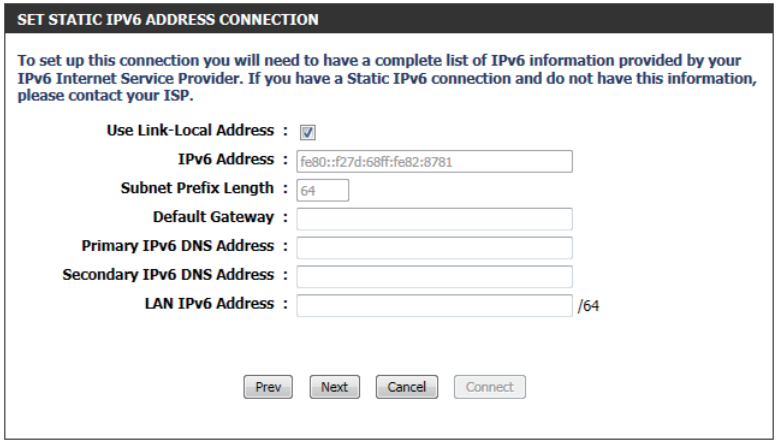
The following parameters will be available for configuration:

PPPoE Session:	Select the PPPoE Session value used here. This option will state that this connection shares it's 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. This information is obtainable from the ISP.
Password:	Enter the PPPoE password used here. This information is obtainable from the ISP.
Verify Password:	Re-enter the PPPoE password used here.
Service Name:	Enter the service name for this connection here. This option is optional.

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.

Set 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 this information.



Use Link-Local Address: 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 IPv6 DNS Address: Enter the WAN primary DNS Server address used here.

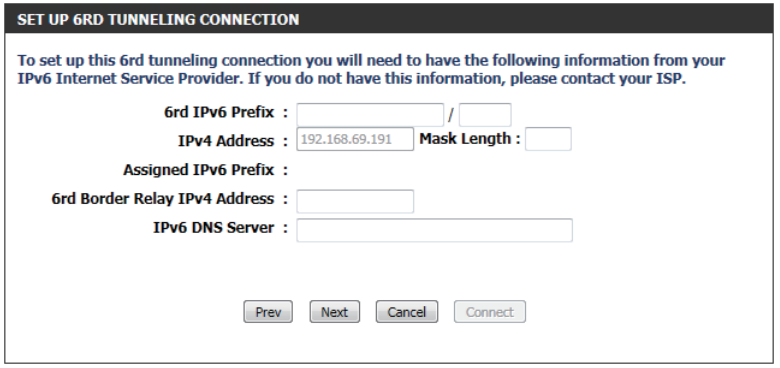
Secondary IPv6 DNS Address: Enter the WAN secondary DNS Server address used here.

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.)

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.

Tunneling Connection (6rd)

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



The following parameters will be available for configuration:

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.

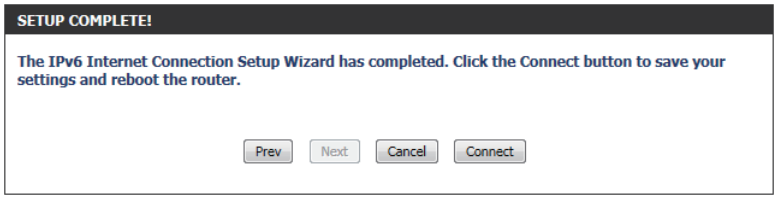
6rd Border Relay IPv4 Address: Enter the 6rd border relay IPv4 address used here.

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

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.

Setup Complete

The IPv6 Internet Connection Setup Wizard was completed.



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.

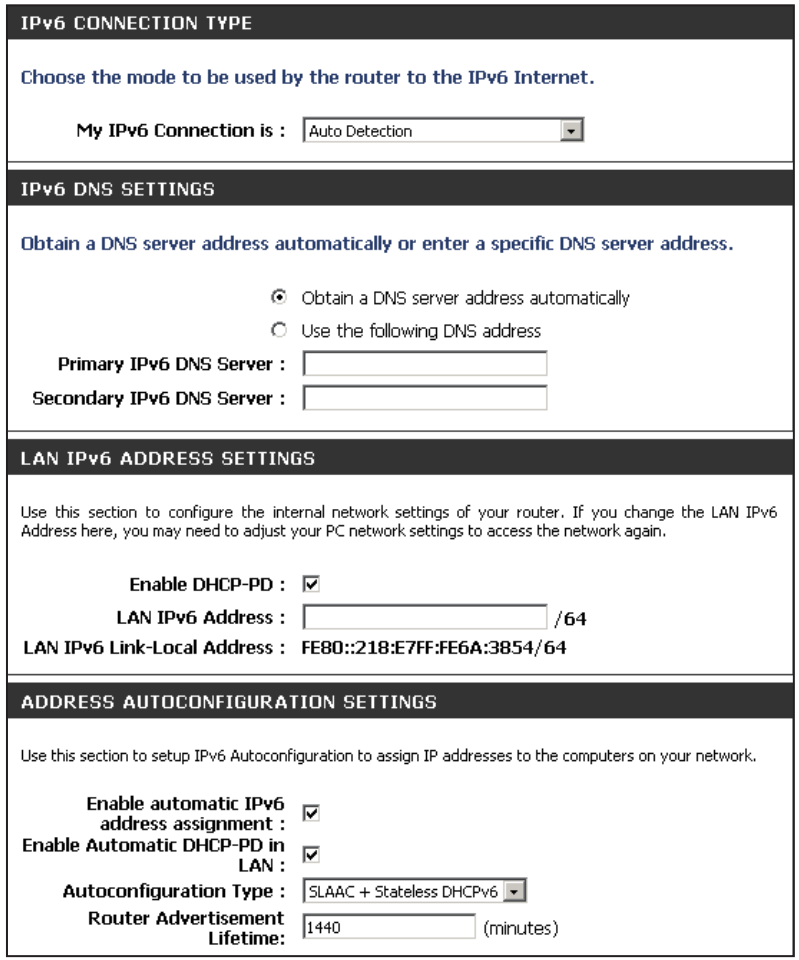
IPv6 Manual Setup

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.

Auto Detection

Select Auto Detection to have the router detect and automatically configure your IPv6 setting from your ISP.



Static IPv6

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

WAN IPv6 Address Settings: Enter the address settings supplied by your Internet provider (ISP).

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

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

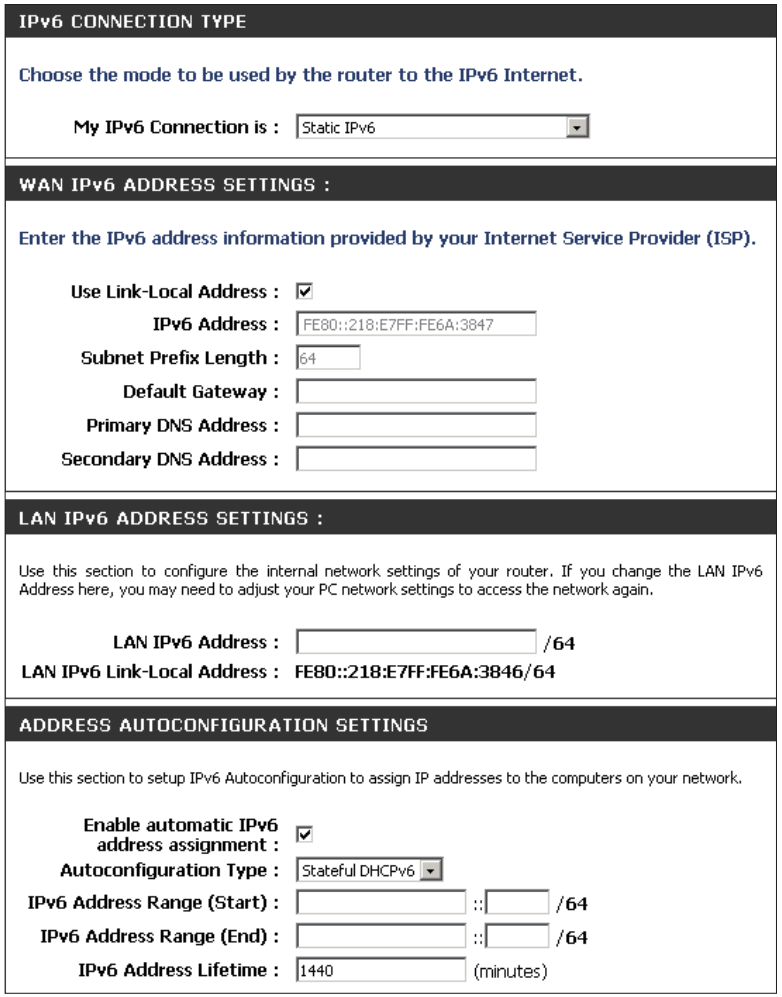
Enable Autoconfiguration: Check to enable the Autoconfiguration feature.

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

IPv6 Address Range Start: Enter the start IPv6 Address for the DHCPv6 range for your local computers.

IPv6 Address Range End: Enter the end IPv6 Address for the DHCPv6 range for your local computers.

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



Autoconfiguration

My IPv6 Connection: Select **Autoconfiguration (Stateless/DHCPv6)** 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.

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

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

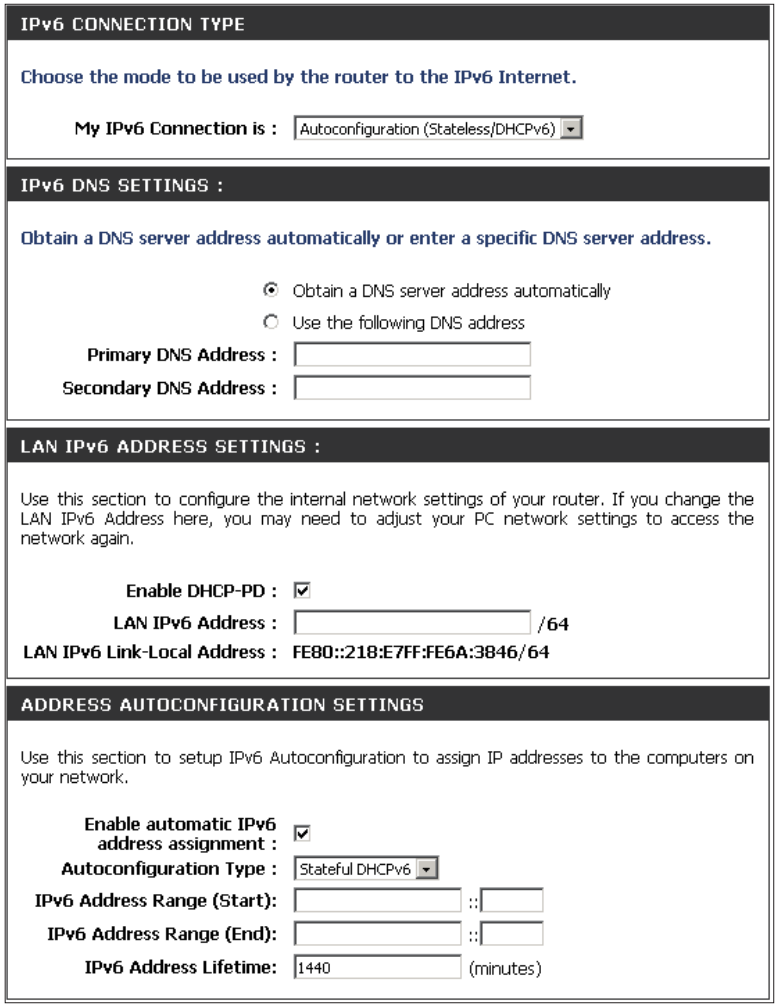
Enable Autoconfiguration: Check to enable the Autoconfiguration feature.

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

IPv6 Address Range Start: Enter the start IPv6 Address for the DHCPv6 range for your local computers.

IPv6 Address Range End: Enter the end IPv6 Address for the DHCPv6 range for your local computers.

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



PPPoE

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

PPPoE: Enter the PPPoE account settings supplied by your Internet provider (ISP).

Address Mode: Select **Static** if your ISP assigned you the 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).

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

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

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

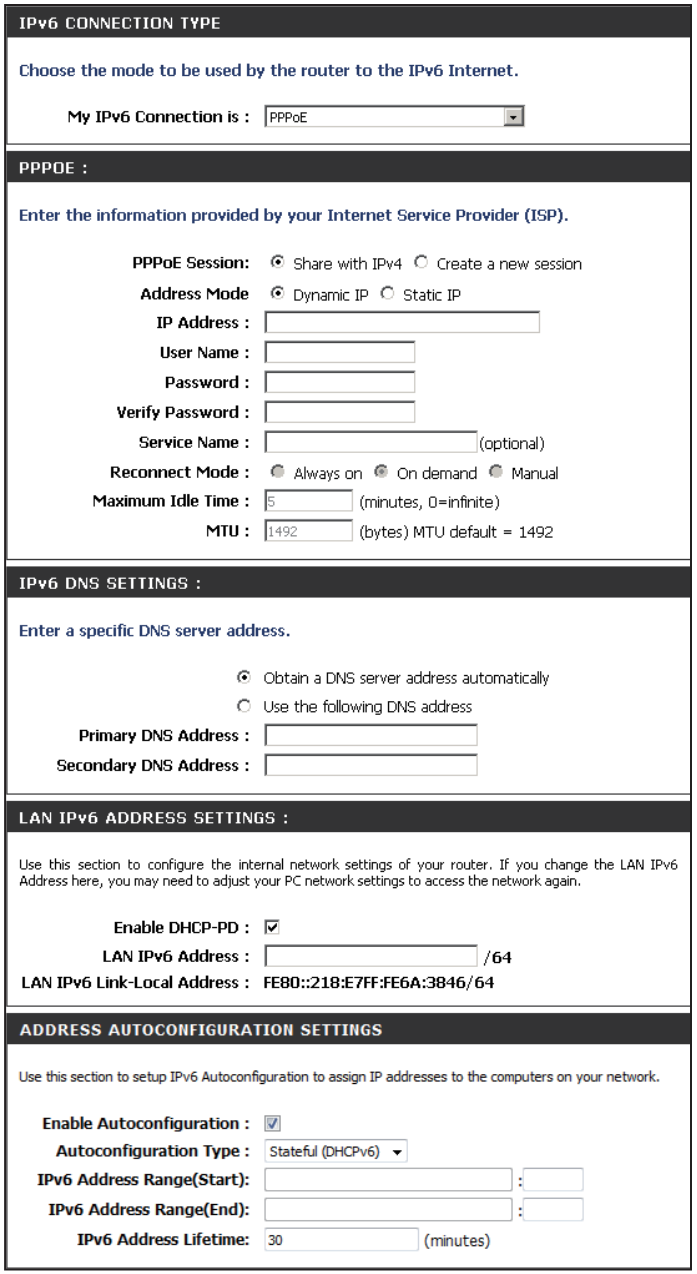
IPv6 DNS Settings: Select either **Obtain DNS server address automatically** or **Use the following DNS Address**.

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

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 Autoconfiguration: Check to enable the Autoconfiguration feature.



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

IPv6 Address Range Start: Enter the start IPv6 Address for the DHCPv6 range for your local computers.

IPv6 Address Range End: Enter the end IPv6 Address for the DHCPv6 range for your local computers.

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

IPv6 in IPv4 Tunneling

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

IPv6 in IPv4 Tunnel Settings: Enter the settings supplied by your Internet provider (ISP).

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

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

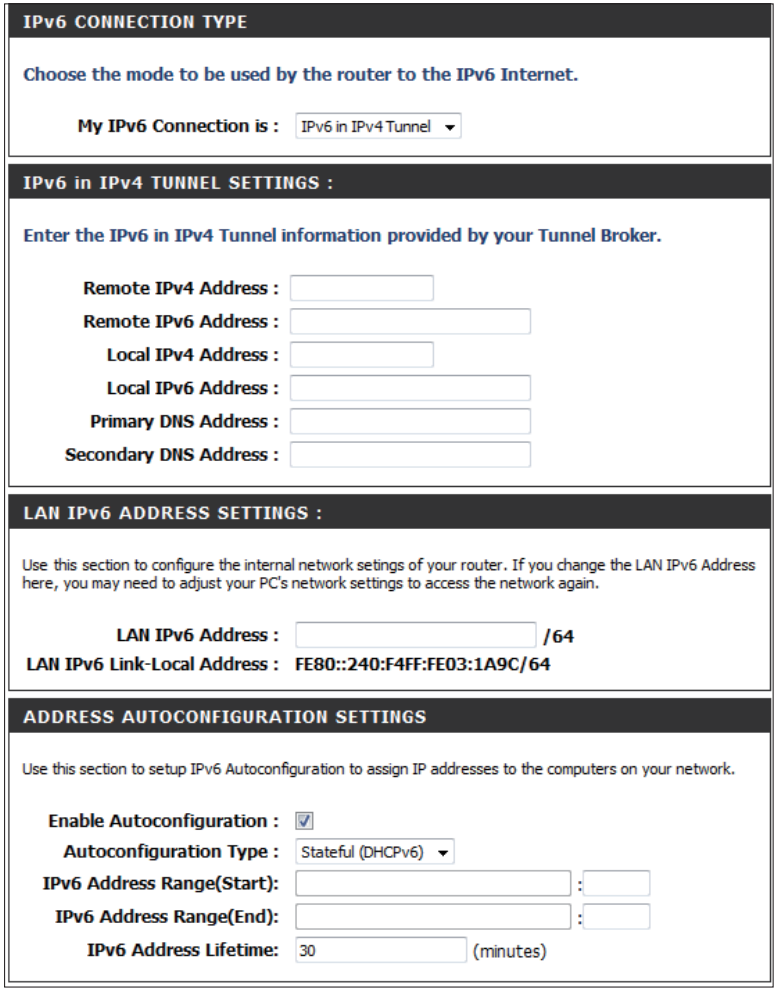
Enable Autoconfiguration: Check to enable the Autoconfiguration feature.

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

IPv6 Address Range Start: Enter the start IPv6 Address for the DHCPv6 range for your local computers.

IPv6 Address Range End: Enter the end IPv6 Address for the DHCPv6 range for your local computers.

Pv6 Address Lifetime: Enter the Router Advertisement Lifetime (in minutes).



6 to 4 Tunneling

My IPv6 Connection: Select **6 to 4** from the drop-down menu.

6 to 4 Settings: Enter the IPv6 settings supplied by your Internet provider (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.

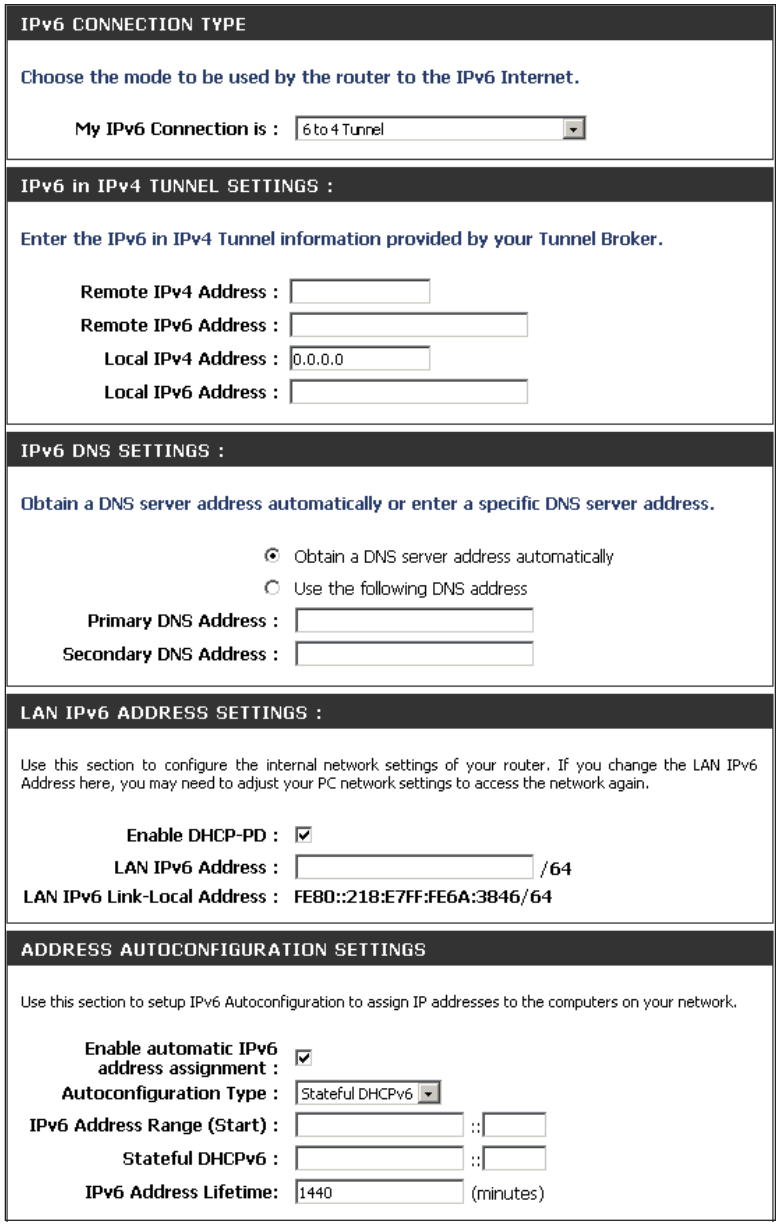
Enable Autoconfiguration: Check to enable the Autoconfiguration feature.

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

IPv6 Address Range Start: Enter the start IPv6 Address for the DHCPv6 range for your local computers.

IPv6 Address Range End: Enter the end IPv6 Address for the DHCPv6 range for your local computers.

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



6rd

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

6RD Settings: Enter the address settings supplied by your Internet provider (ISP).

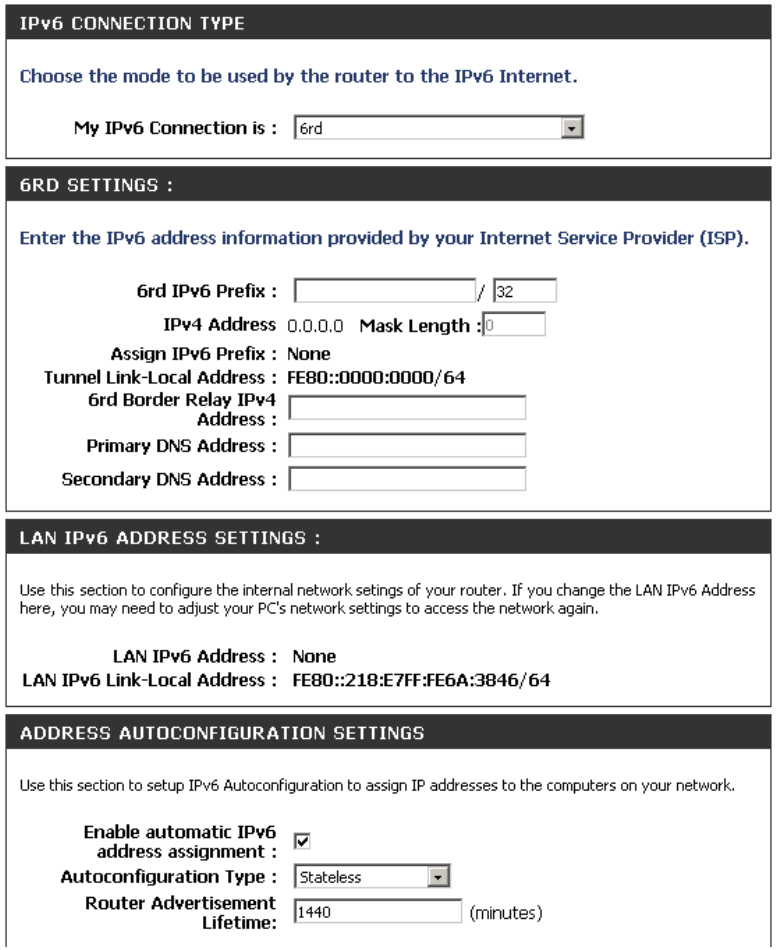
LAN IPv6 Address: Enter the LAN (local) IPv6 address for the router.

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

Enable Autoconfiguration: Check to enable the Autoconfiguration feature.

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

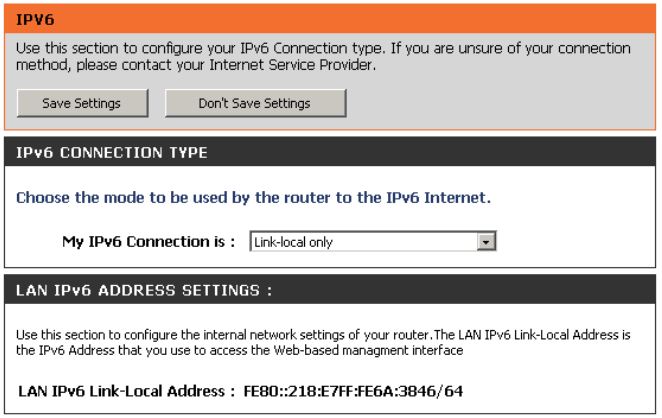
Router Advertisement Lifetime: Enter the Router Advertisement Lifetime (in minutes).



Link-Local Connectivity

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

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



Virtual Server

The DIR-652 can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP address can be automatically redirected to local servers in the LAN (Local Area Network).

The DIR-652 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DIR-652 are invisible to the outside world. If you wish, you can make some of the LAN computers accessible from the Internet by enabling Virtual Server. Depending on the requested service, the DIR-652 redirects the external service request to the appropriate server within the LAN network.

The DIR-652 is also capable of port-redirection meaning incoming traffic to a particular port may be redirected to a different port on the server computer.

Each virtual service that is created will be listed at the bottom of the screen in the Virtual Servers List. There are pre-defined virtual services already in the table. You may use them by enabling them and assigning the server IP to use that particular virtual service.

For a list of ports for common applications, please visit **http://support.dlink.com/faq/view.asp?prod_id=1191**.

This 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), you computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <<.

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 the port seen from the Internet side, and the private port is the port being used by the application on the computer within your local network.

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

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.

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.

Port Forwarding

This 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.

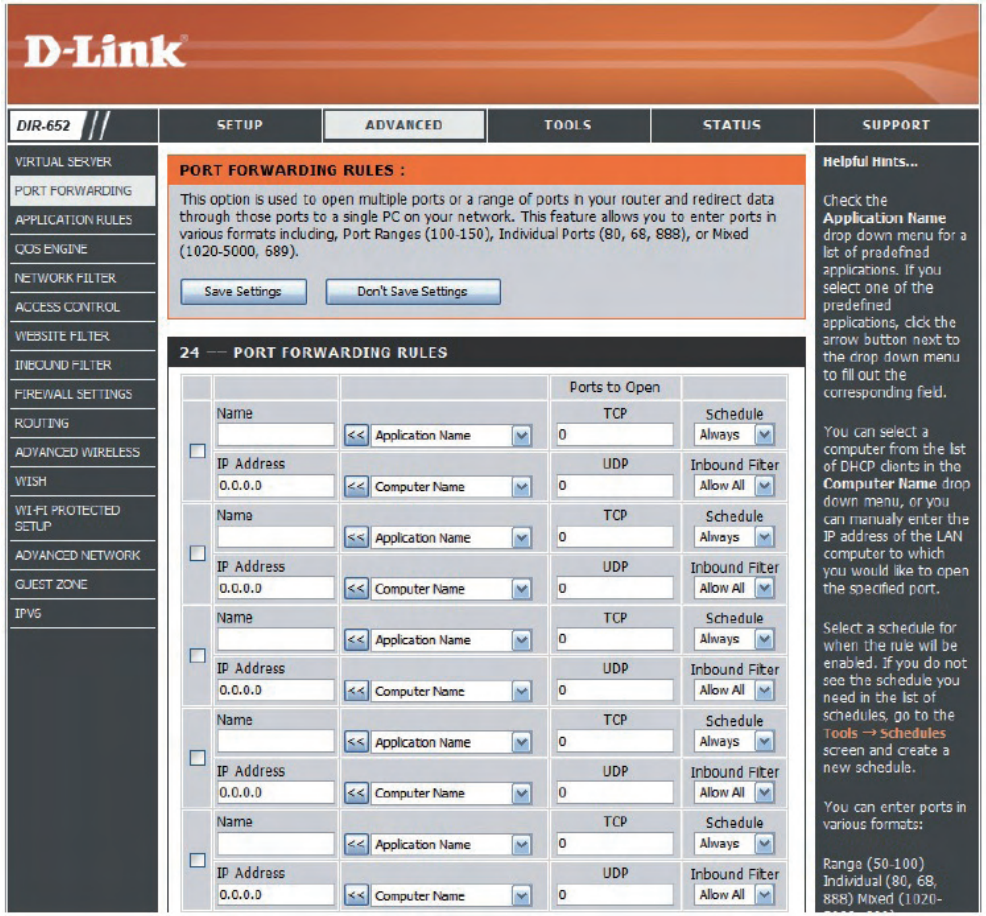
IP Address: Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), you computer will be listed in the "Computer Name" drop-down menu. Select your computer and click <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

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 common.

Example: 24,1009,3000-4000

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.

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.



Application Rules

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the DIR-652. 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.

The DIR-652 provides some predefined applications in the table on the bottom of the web page. Select the application you want to use and enable it.

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

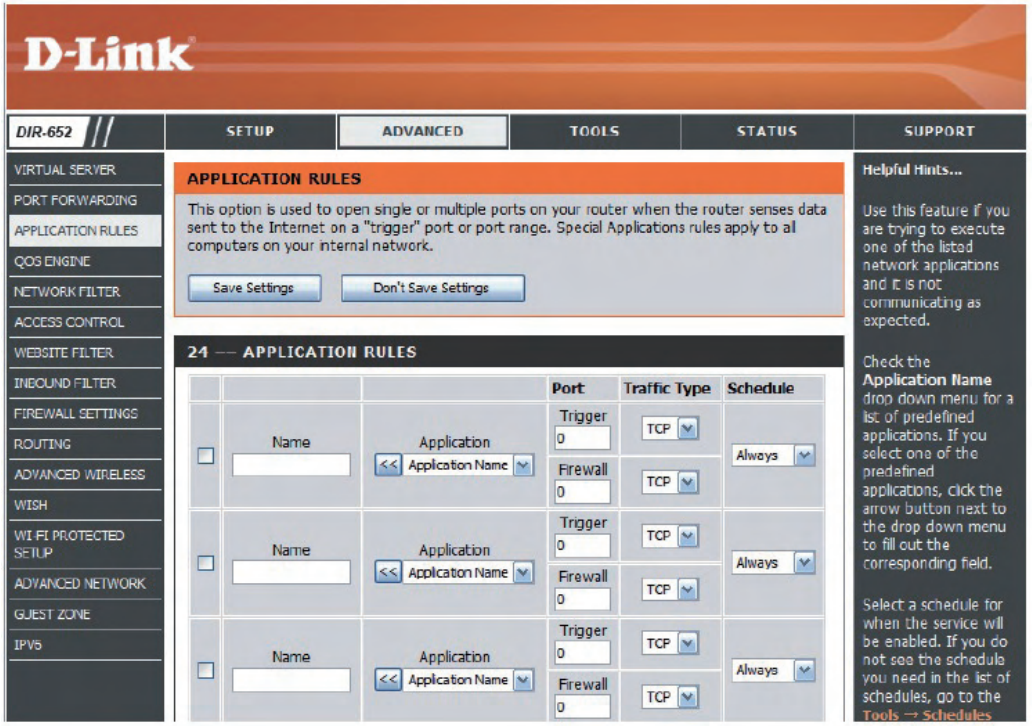
Trigger: This is the port used to trigger the application. It can be either a single port or a range of ports.

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.



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 Traffic Shaping: 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.

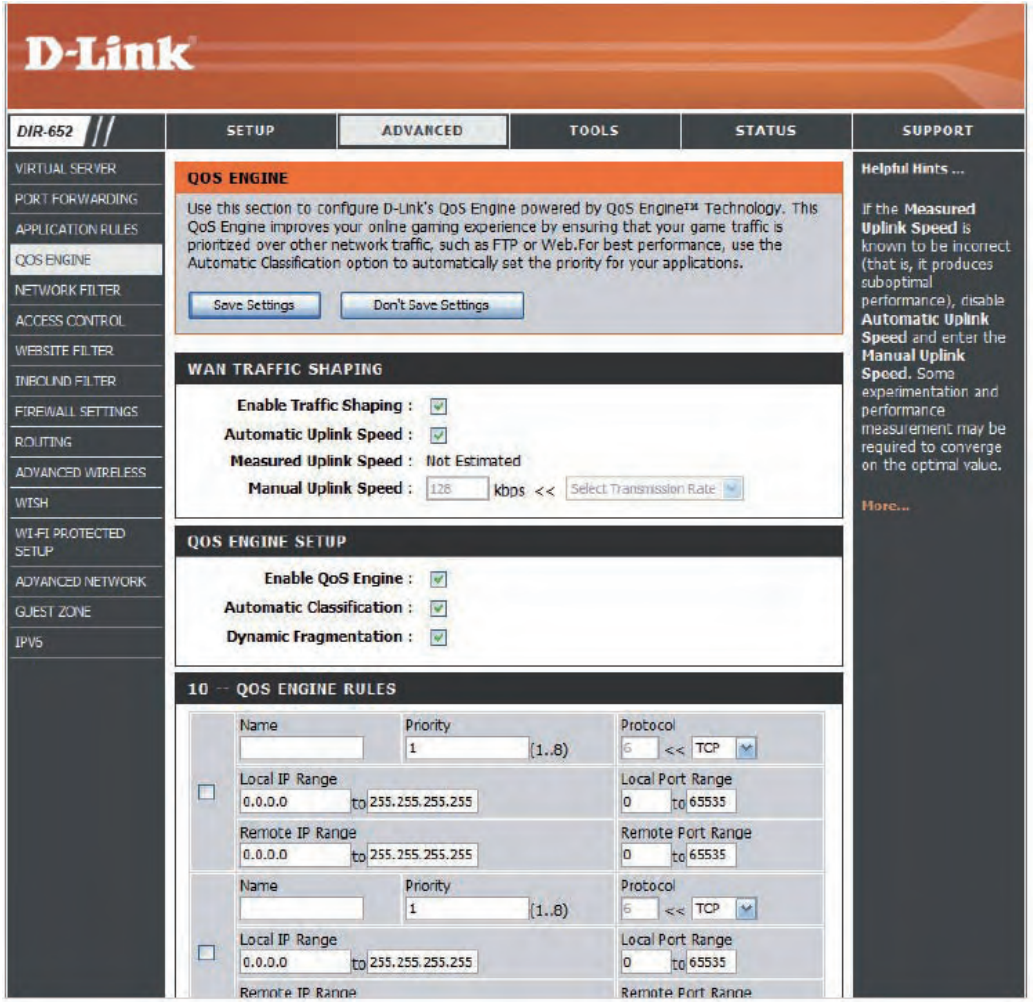
Measured Uplink Speed: This displays the detected uplink speed.

Manual Uplink Speed: The speed at which data can be transferred from the router to your ISP. This is determined by your ISP.

Enabled QoS Engine: This option is enabled by default. This will allow your router to automatically determine the network priority of running programs.

Automatic Classification: This option is enabled by default so that your router will automatically determine which programs should have network priority. For best performance, use the Automatic Classification option to automatically set the priority for your applications.

Dynamic Fragmentation: This option should be enabled when you have a slow Internet uplink. It helps to reduce the impact that large low priority network packets can have on more urgent ones.



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).

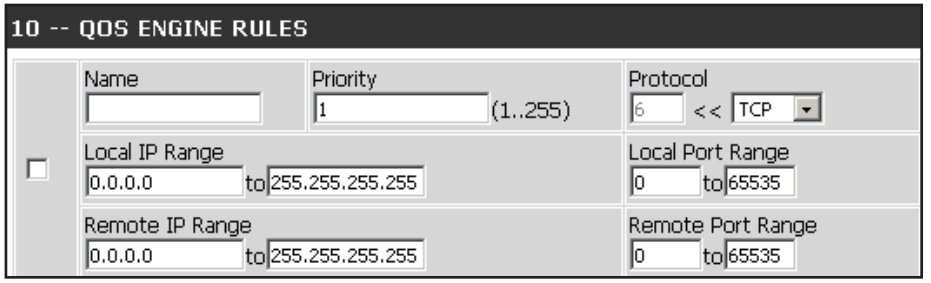
Protocol: The protocol used by the messages.

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

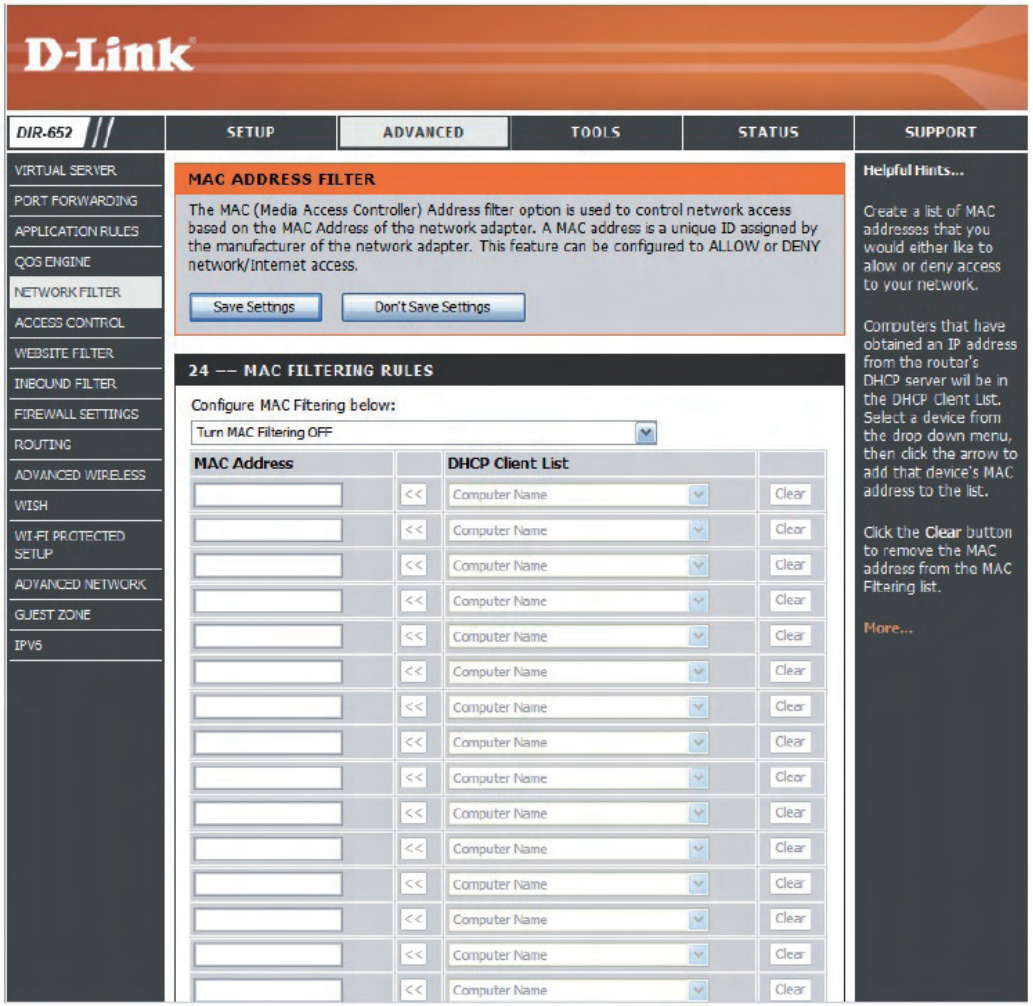
Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Network. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

Configure MAC Filtering: Select **Turn MAC Filtering Off**, **Turn MAC Filtering ON and ALLOW computers listed to access the network**, or **Turn MAC Filtering ON and DENY computers listed to access the network** 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.

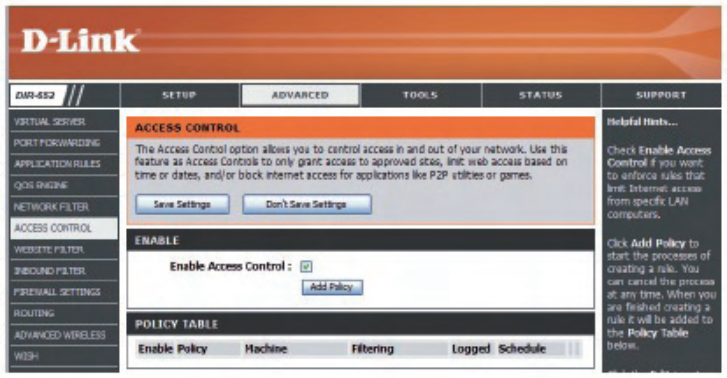
Clear: Click to remove the MAC address.



Access Control

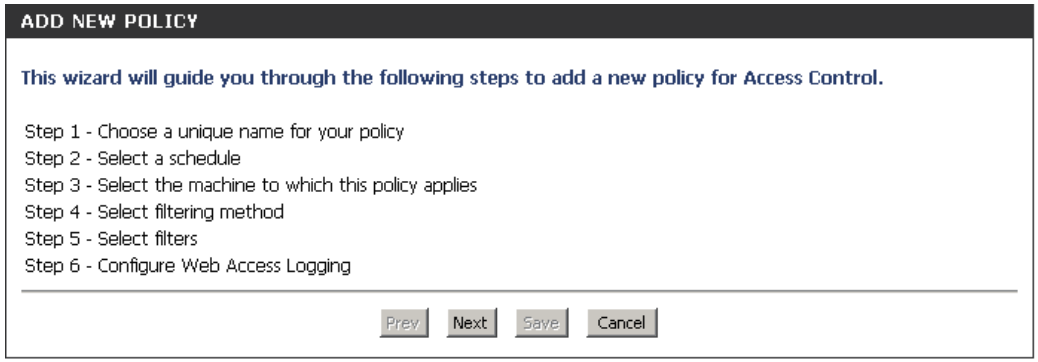
The Access Control section allows you to control access in and out of your network. Use this feature as Parental Controls to only grant access to approved sites, limit web access based on time or dates, and/or block access from applications like P2P utilities or games.

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



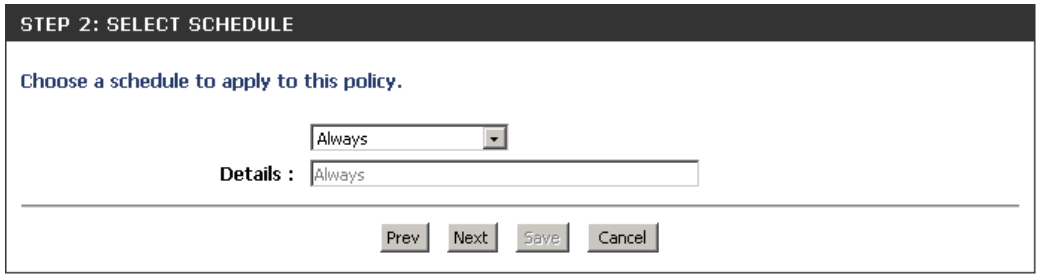
Access Control Wizard

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



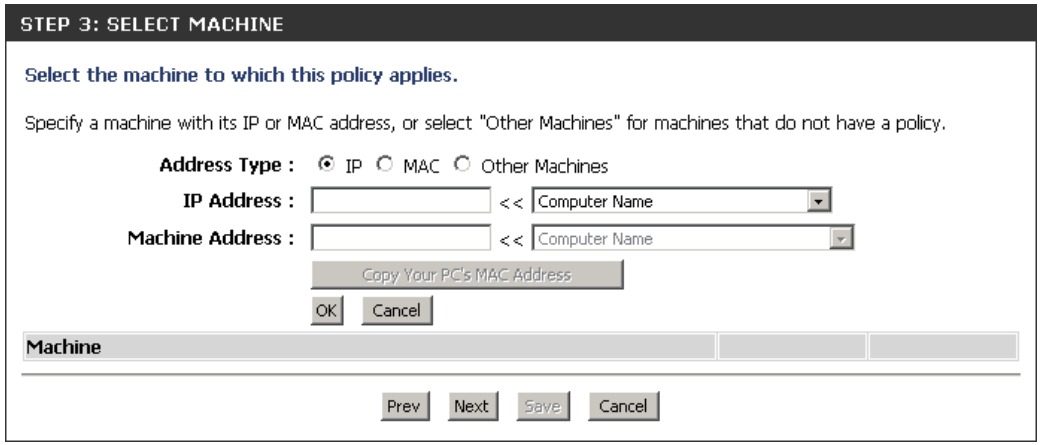
Enter a name for the policy and then click **Next** to continue.

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

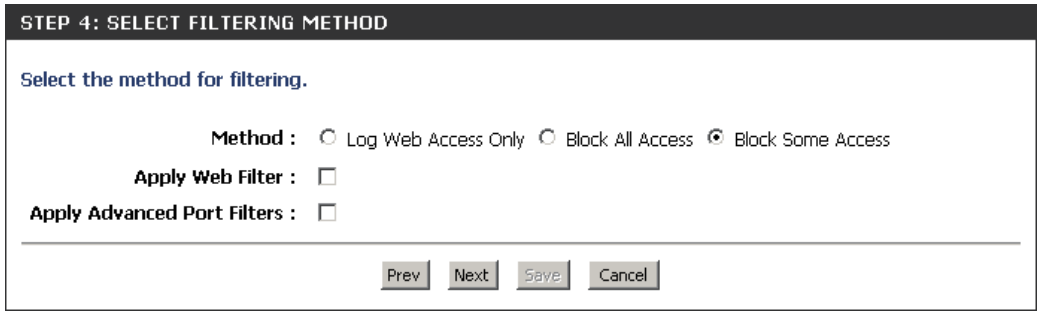


Enter the following information and then click **Next** to continue.

- **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.

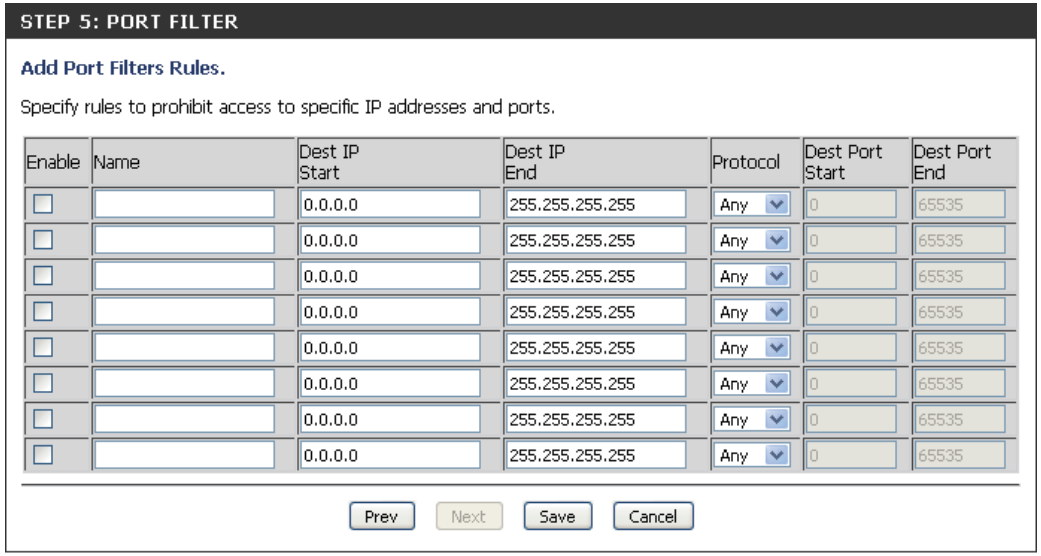


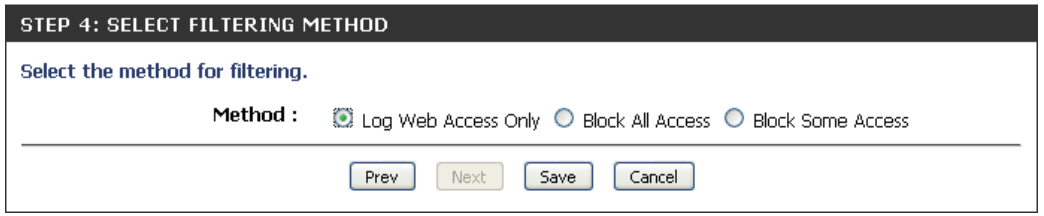
Select the filtering method and then click **Next** to continue.



If you selected **Apply Advanced Port Filters**, then 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.



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

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