Wireless N300 3G Router

DIR-514

User Manual

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	November 11, 2009	First Release

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Package Contents

D-Link DIR-514 Wireless N Router

Ethernet Cable

Power Adapter

CD-ROM with User Manual

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

System Requirements

Network Requirements	• An Ethernet-based Cable or DSL modem • IEEE 802.11n or 802.11g wireless clients • 10/100 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 • Mozilla 1.7.12 or higher • Firefox 1.5 or higher • Safari 1.0 or higher (with Java 1.3.1 or higher) • Flock 0.7.14 or higher • Opera 6.0 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® XP with Service Pack 2 or Vista® • An installed Ethernet adapter • CD-ROM drive

Features

- **Faster Wireless Networking** - The DIR-514 provides up to 150Mbps* 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.

- **Compatible with 802.11g Devices** - The DIR-514is still fully compatible with the IEEE 802.11g standard, so it can connect with existing 802.11g PCI, USB and Cardbus adapters.

- **3G Internet Connection Support** - Connect a 3G USB dongle to the DIR-514 to access 3G Internet Services.

- **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-514 can pass through VPN sessions. It supports multiple and concurrent IPSec, PPTP, and L2TP sessions, so users behind the DIR-514 can securely access corporate networks.

- **User-friendly Setup Wizard** - Through its easy-to-use Web-based user interface, the DIR-514 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 Draft 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.

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, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

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

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

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

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

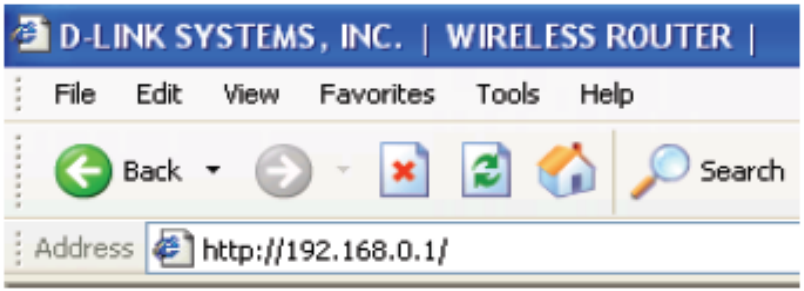
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits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

Configuration

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

Web-based Configuration Utility

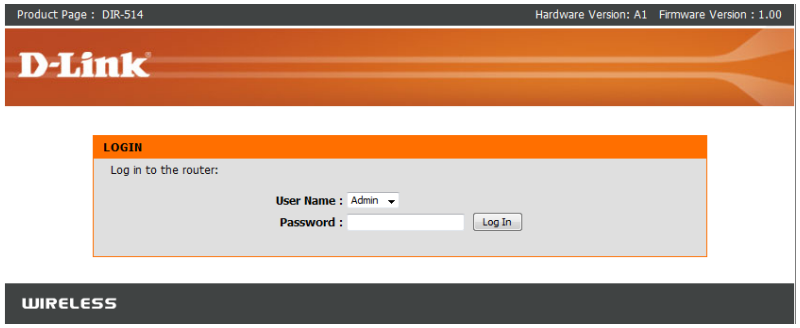
To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the router (192.168.0.1).



Type **Admin** in the **User Name** field and then enter your password. Leave the password blank by default.

Click the **Login** button to log in to the router.

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



Setup

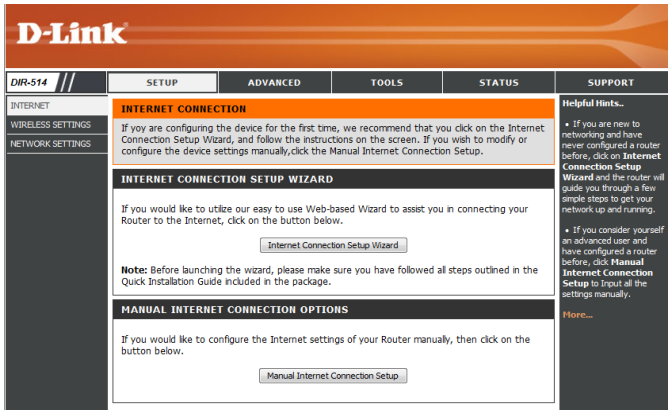
The SETUP pages allow you to configure your Internet and wireless settings, as well as manage your SMS inbox. To view the Setup configuration pages, click on **SETUP** at the top of the screen.

Internet

The Internet page allows you to configure how your router connects to the Internet. There are two ways to set up your Internet connection.

You can click on the **Internet Connection Setup Wizard** button to start a wizard that will guide you through setting up your Internet settings.

If you want to manually configure your settings, click **Manual Internet Connection Setup**

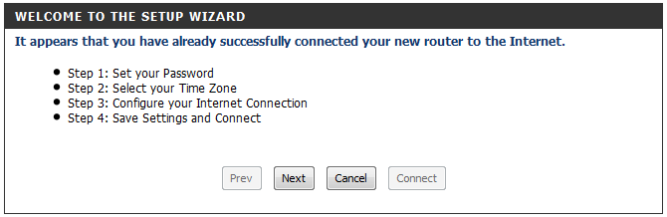


Internet Connection Setup Wizard

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

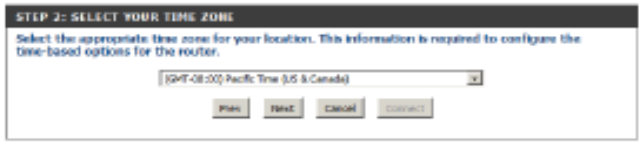
Click **Next** to continue.

Note: While using the wizard, you can click **Prev** to go back to the previous page or you can click **Cancel** to close the wizard.



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

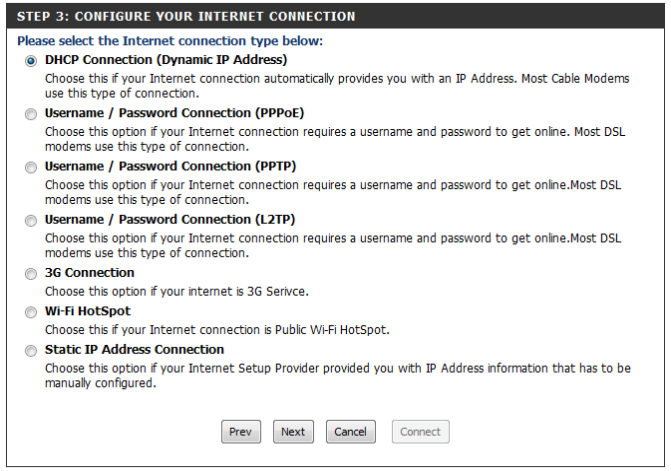
Select your time zone from the drop-down box and then click **Next** to continue.



Select the Internet connection type you use. The connection types are explained on the following page. If you are unsure which connection type you should use, contact your Internet Service Provider (ISP).

Click **Prev** to go back to the previous page or click **Cancel** to close the wizard.

Note: The DIR-514 has a WAN Failover feature that allows the router to switch to a 3G connection if the WAN connection is down or unavailable.



The subsequent configuration pages will differ depending on the selection you make on this page.

DHCP Connection (Dynamic IP Address): Choose this if your Internet connection automatically provides you with an IP Address. Most cable modems use this type of connection.

Username / Password Connection (PPPoE): Choose this option if your Internet connection requires a username and password to connect. Most DSL modems use this style of connection.

Username / Password Connection (PPTP): Choose this option if your Internet connection requires Point-to-Point Tunneling Protocol (PPTP).

Username / Password Connection (L2TP): Choose this option if your Internet connection requires Layer 2 Tunneling Protocol (L2TP).

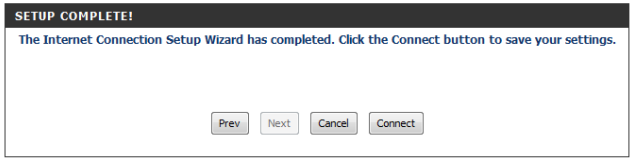
3G Connection: Choose this connection if you have installed a SIM card into the DIR-514

WiFi HotSpot ：Choose this if your Internet connection is Public Wi-Fi HotSpot.

Static IP Address Connection: Choose this option if your Internet Setup Provider provided you with IP Address information that has to be manually configured.

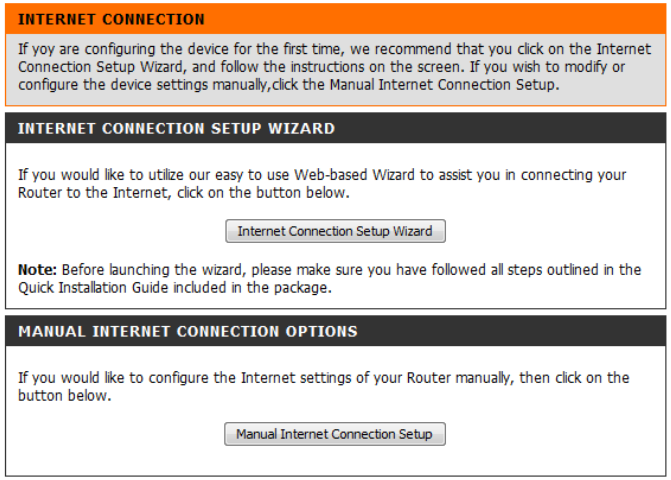
After entering the requested information,click **Next** to continue.

This completes the Internet Connection Setup Wizard. Click **Connect** to save your changes and reboot the router.



Manual Internet Connection Setup

To set up your Internet connection manually, click **Manual Internet Connection Setup**.



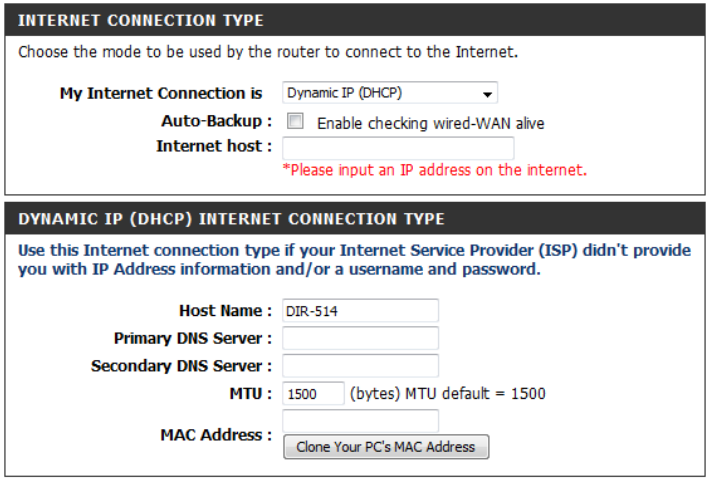
Internet Connection

Several different Internet Connection types can be selected depending upon the specifications of your Internet Service Provider (ISP). You can also set up the Auto-Backup feature, which allows you to use a 3G connection for your Internet connection if your main connection fails.

My Internet Connection is: Select the Internet Connection type specified by your Internet Service Provider (ISP). The corresponding settings will be displayed below. Please see the following pages for details on how to configure these different connection types.

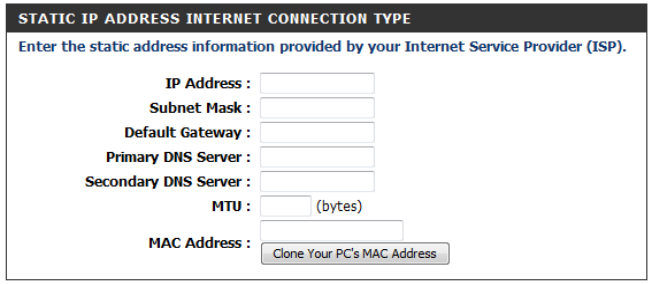
Auto-Backup: When this box is checked, the router will switch over to a 3G connection if the Internet Host (specified below) is unreachable.

Internet Host: Enter an IP address for the router to use to check if it is connected to the Internet. If Auto-Backup is enabled and the IP address cannot be reached, the router will switch over to a 3G connection.



Static IP

Choose this Internet connection if your ISP assigns you a static IP address. After modifying any settings, click **Save Settings** to save your changes.



IP Address: Enter the IP address assigned to your network connection.

Subnet Mask: Enter the subnet mask.

Default Gateway: Enter the default gateway.

Primary DNS Server: Enter the primary DNS server.

Secondary DNS Server: Enter the secondary DNS server.

MTU: You may need to change the Maximum Transmission Unit (MTU) for optimal performance. The default value is 1500.

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.

Dynamic IP (DHCP)

This section will help you to obtain IP Address information automatically from your ISP. Use this option if your ISP didn't provide you with IP Address information and/or a username and password. After modifying any settings, click **Save Settings** to save your changes.

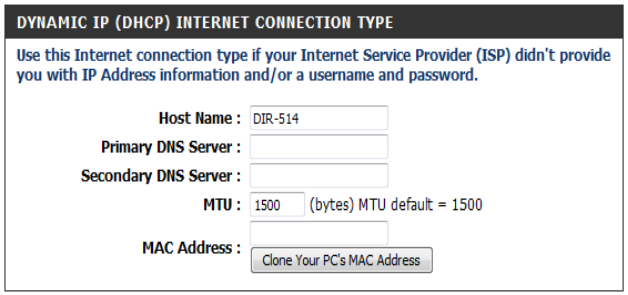
Host Name: (Optional) Required by some ISPs.

Primary DNS Server: (Optional) Fill in with IP address of primary DNS server.

Secondary DNS Server: (Optional) Fill in with IP address of secondary DNS server.

MTU (Maximum Transmission Unit): You may need to change the Maximum Transmission Unit (MTU) for optimal performance. The default value is 1500.

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 PC.



Manual Configuration (WAN Mode)
PPPoE (Username/Password)

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

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).

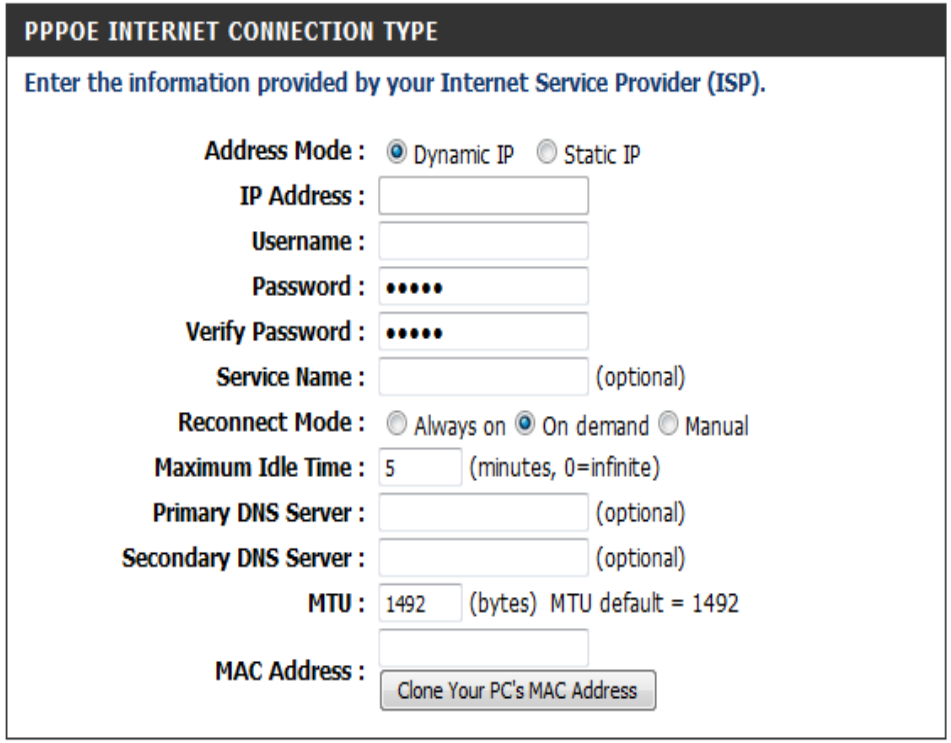
User Name: Enter your PPPoE user name.

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

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

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 Mode: Click the **Receive DNS from ISP** radio button if you want to dynamically receive the DNS Server IP addresses from your ISP. To manually enter the DNS Server IP addresses, click the **Enter DNS Manually** radio button and enter the DNS Server IP addresses in the **Primary DNS Server** and **Secondary DNS Server** fields.

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.

Manual Configuration (WAN Mode)
PPTP (Username/Password)

Choose **PPTP (Username/Password)** from the **My Internet Connection is** drop-down menu 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 Subnet Mask (Static PPTP only).

PPTP Gateway IP Address: Enter the Gateway IP address provided by your ISP (Static PPTP only).

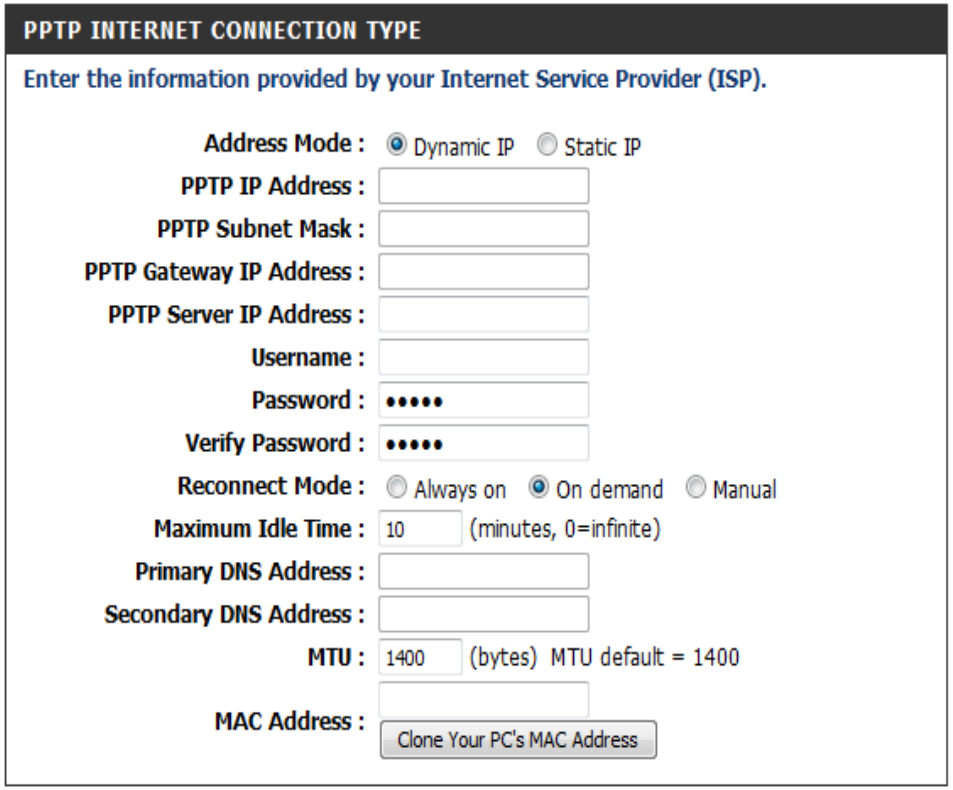
PPTP Server IP Address: Enter the Server IP provided by your ISP (optional).

Username: Enter your PPTP username.

Password: Enter your PPTP password and 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 PPTP only).

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.

Manual Configuration (WAN Mode)
L2TP (Username/Password)

Choose **L2TP (Username/Password)** from the **My Internet Connection is** drop-down menu if your ISP uses an L2TP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

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

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

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

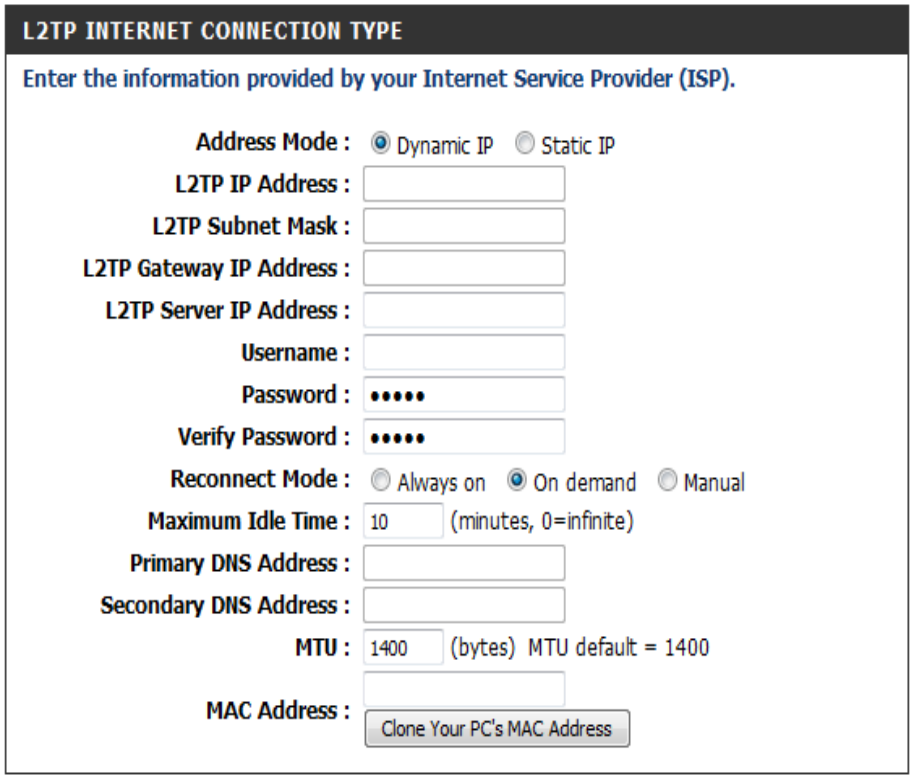
L2TP Gateway IP Address: Enter the Gateway IP address provided by your ISP (Static L2TP only).

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

User Name: Enter your L2TP user name.

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.

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.

3G

Choose this Internet connection if you already use a SIM card for 3G Internet service from your Telecom company. The fields here may not be necessary for your connection. The information on this page should only be used if required by your service provider. After modifying any settings, click **Save Settings** to save your changes.

Account/Profile Name: Fill in a name to identify the following 3G configuration.

Username: (Optional) Fill in only if requested by ISP.

Password: (Optional) Fill in only if requested by ISP.

Dialed Number: Enter the number to be dialed.

Authentication: Select PAP, CHAP, or Auto detection. The default authentication method is Auto.

APN: (Optional) Enter the APN information.

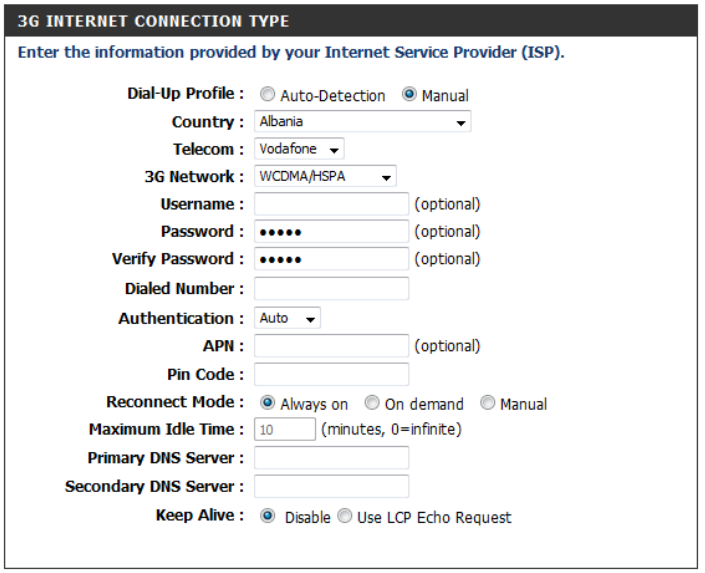
PIN: Enter the PIN associated with your SIM card.

Reconnect Mode: Select Auto or Manual to decide whether the routher should reconnect to your 3G network automatically or manually.

Maximum Idle Time: Set the maximum time your connection can be idle before disconnecting. Set it to 0 or choose Auto in Reconnect Mode to disable this feature.

Primary DNS Server: (Optional) Fill in if provided by your ISP. If not, keep the default value.

Secondary DNS Server: (Optional) Fill in if provided by your ISP. If not, keep the default value.



WiFi HotSpot

Choose this internet connection if you already to use a wifi hotspot to get internet access in public locations.

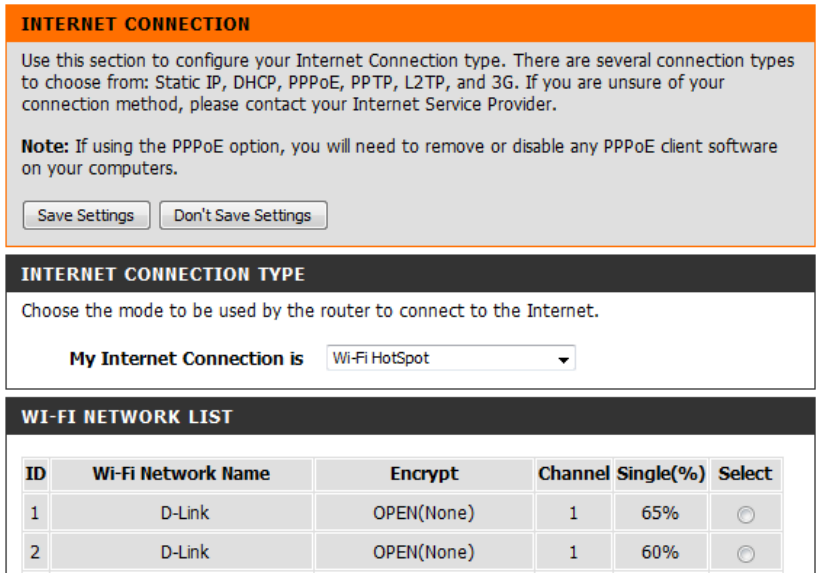
WiFi Netwrok Name : public location router SSID.

Encrypt: wireless security mode for public location router.

Channel: wireless channel use for public location router.

Single(%): wireless signal strength.

Select: join the public location router.

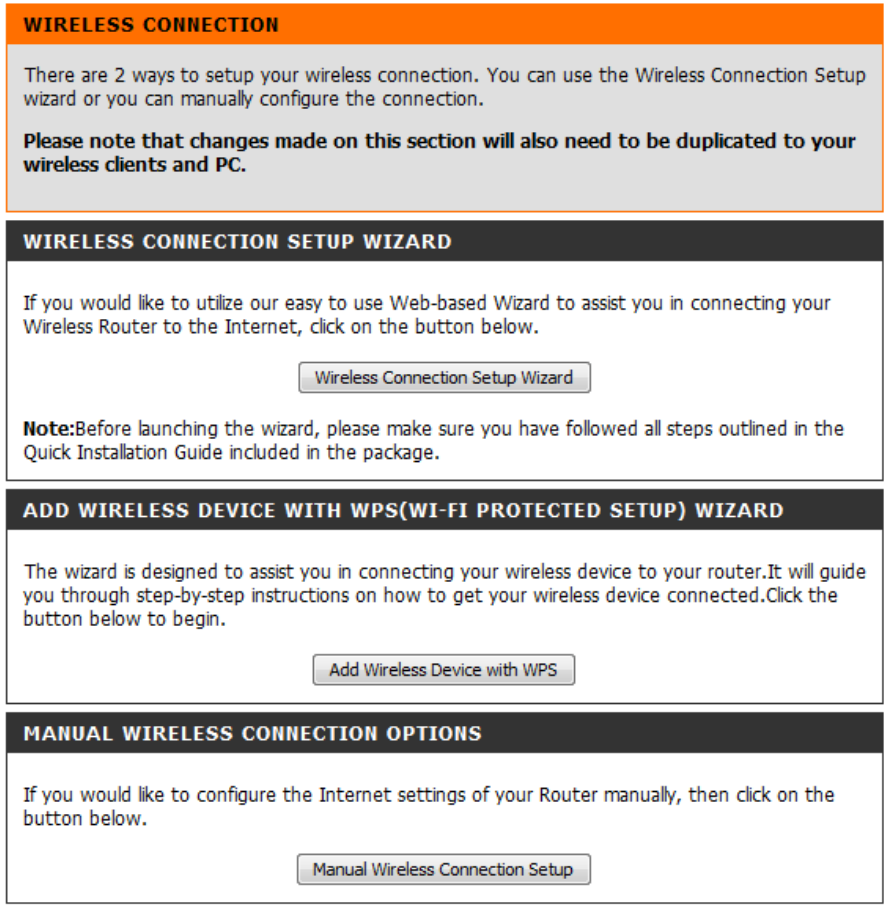


Wireless Settings

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

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

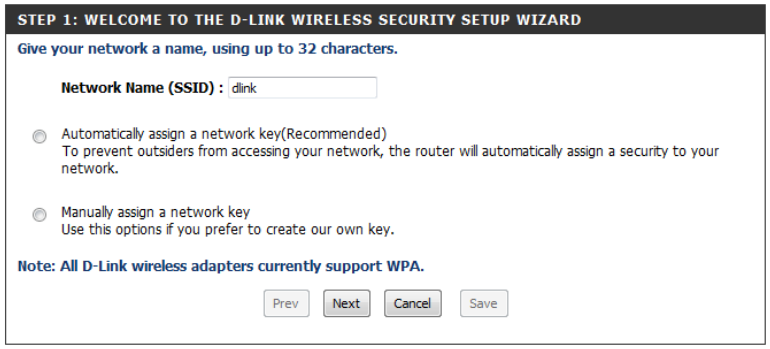
If you want to manually configure the wireless settings on your router click **Manual Wireless Network Setup** and refer to the next page.



Wireless Security Setup Wizard

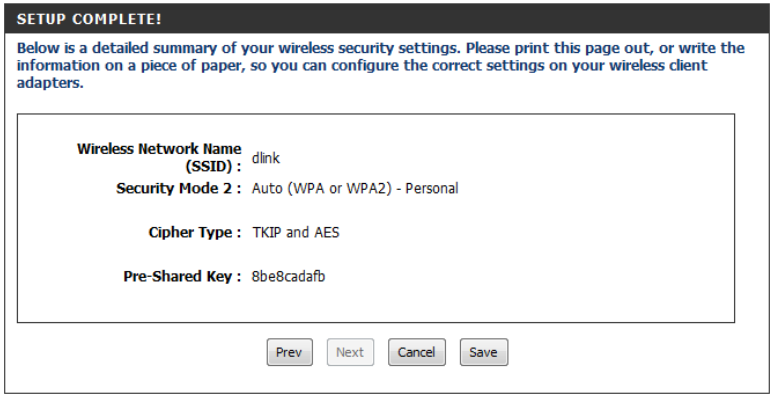
To run the security wizard, click on Setup at the top and then click **Launch Wireless Security Setup Wizard**.

Click **Next** to continue.



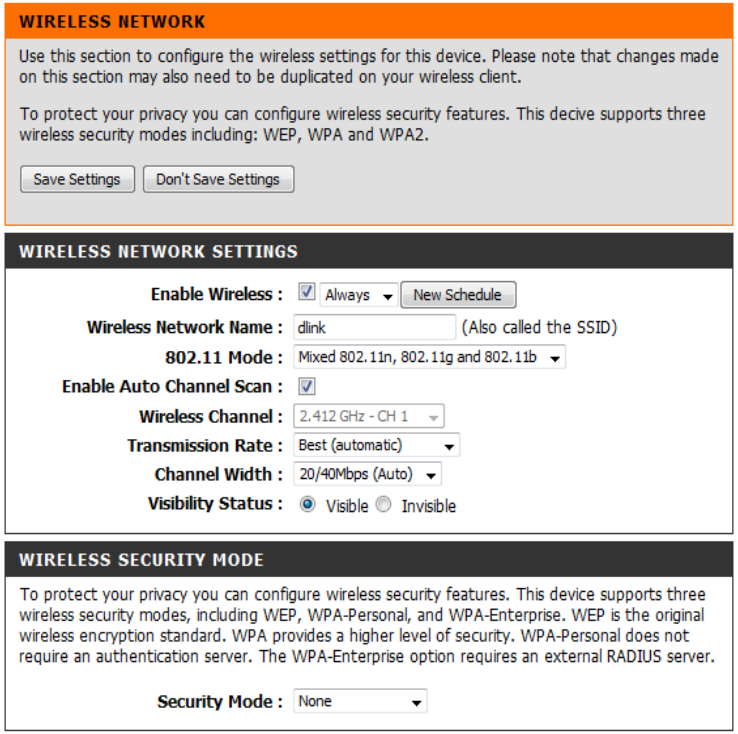
The following screen will show you your Pre-Shared Key to enter on your wireless clients.

Click **Save** to finish the Security Wizard.



If you selected WPA-Enterprise, the RADIUS information will be displayed. Click **Save** to finish the Security Wizard.

Manual Wireless Network Setup



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-655 to choose the channel with the least amount of interference.

Wireless Channel: Indicates the channel setting for the DIR-655. 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.

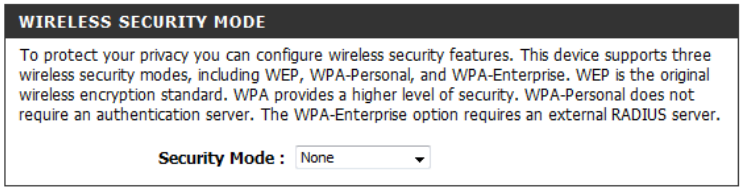
Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcasted by the DIR-655. If Invisible is selected, the SSID of the DIR-655 will not be seen by Site Survey utilities so your wireless clients will have to know the SSID of your DIR-655

Wireless Security Mode

You can choose from several different wireless security modes. After selecting a mode, the settings for that mode will appear. After modifying any settings, click **Save Settings** to save your changes.

Security Mode: You can choose from 4 different security modes.

- **None:** No security will be used. This setting is not recommended.
- **WEP:** WEP encryption will be used. This setting is only recommended if your wireless devices cannot support WPA or WPA2.
- **WPA-Personal:** WPA-PSK encryption will be used. This setting is recommended for most users.
- **WPA-Enterprise:** WPA-EAP encryption will be used. This setting is only recommended if you have a RADIUS authentication server. Otherwise, **WPA-Personal** should be used.



If you choose **WEP**, the following options will appear:

Authentication: Select whether to use Open or Shared authentication.

WEP Encryption: Select whether to use **64-bit** or **128-bit** encryption.

Default WEP Key: Select which WEP key (1-4) to use as the default key. This will also change the WEP Key text box to that WEP key for your to configure(1-4).

WEP Key: Set the WEP key/password for your wireless network. Based on whether you are using 64 or 128-bit encryption, and whether you are using a HEX or ASCII key, you will need to enter different numbers of characters for your key, as indicated below the WEP Key text box. ASCII keys may use letters and numbers only, and HEX keys may use numbers 0-9 and letters A-F only.

If you choose **WPA-Personal**, the following options will appear:

WPA Mode: Select whether to use **WPA2 only** or **WPA only**. **WPA2 only** is the most secure, provided that all of your clients can support it.

Cipher Type: Select whether to use the **TKIP** or **AES** cipher. The **AES** cipher is the most secure, provided that all of your clients can support it.

Network Key: Enter the key/password you want to use for your wireless network. The key must be 8 to 63 characters long, and may only contain letters and numbers.

If you choose **WPA-Enterprise**, the following options will appear:

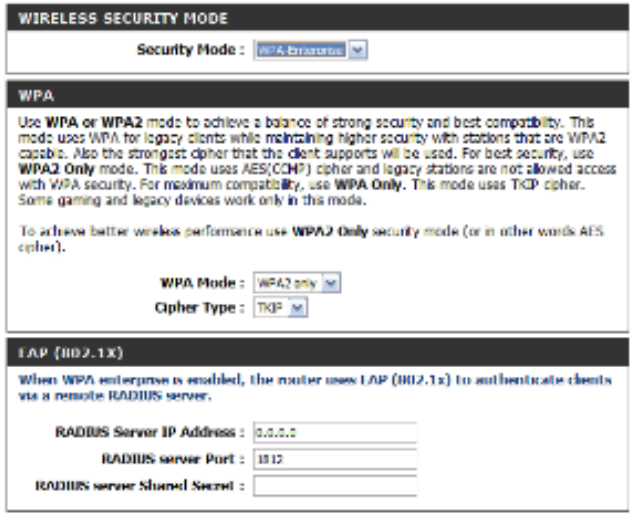
WPA Mode: Select whether to use **WPA2 only** or **WPA only**. **WPA2 only** is the most secure, provided that all of your clients can support it.

Cipher Type: Select whether to use the **TKIP** or **AES** cipher. The **AES** cipher is the most secure, provided that all of your clients can support it.

RADIUS Server IP Address: Enter the IP address of your RADIUS server.

RADIUS Server Port: Enter the port used for your RADIUS server.

RADIUS Server Shared Secret: Enter the Shared Secret/password for your RADIUS server.

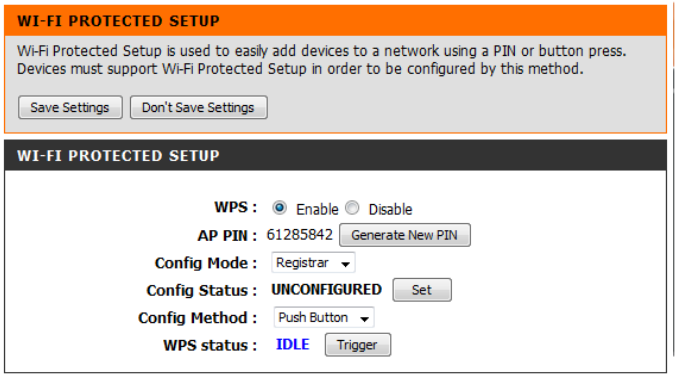


Wi-Fi Protected Setup

To open the Wi-Fi Protected Setup page, click **Wi-Fi Protected Setup**.

The Wi-Fi Protected Setup page allows you to create a wireless connection between your router and a device automatically by simply pushing a button or entering a PIN code.

You can also use Windows 7 to do initial configuration of your router by using the **Connect to a network** wizard in Windows, and entering the WPS PIN/AP PIN of the router when prompted. After modifying any settings, click **Save Settings** to save your changes.



WPS: Select whether you would like to enable or disable WPS features.

AP PIN (also known as WPS PIN): If you use Windows 7's **Connect to a network** wizard to do initial configuration of the router, you will need to enter the WPS PIN/AP PIN into the wizard when prompted. The factory default WPS PIN/ AP PIN is printed on a label located on the bottom of the router. You can click the **Generate New PIN** button to change it to a randomly generated PIN.

Config Mode: Select whether the WPS config mode should be set to **Registrar** or **Enrollee**. In most cases, this should be set to **Registrar** so that you can use WPS to connect new wireless clients.

Config Status: If this is set to **CONFIGURED**, the router will be marked as "already configured" to computers that try to use WPS configuration, such as Windows 7's **Connect to a network** wizard. You can click the **Release** button to change the status to **UNCONFIGURED** to allow for WPS configuration of the router.

If this is set to **UNCONFIGURED**, you can click the **Set** button to change the status to **CONFIGURED** to block WPS configuration of the router.

Config Method: This lets you choose whether to use the **Push Button** connection method (PBC) or **PIN** method to connect to a wireless client when the **Trigger** button is clicked. If you choose the **PIN** method, you will need to enter a 8-digit PIN number that the wireless client need to use to connect to your router.

WPS Status: This will show the current WPS connection process status. Click the **Trigger** button to initiate a WPS connection.

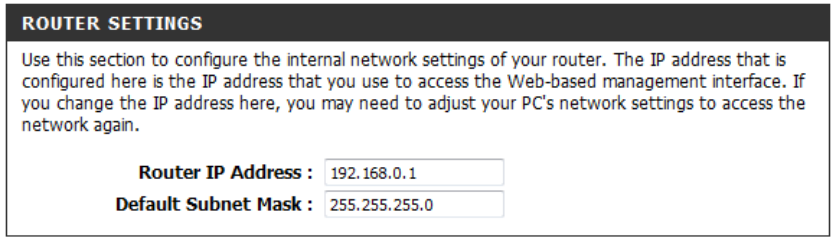
Network Settings

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

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

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

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



DHCP Server Settings

The DIR-514 has a built-in DHCP (Dynamic Host Control Protocol) server. The DHCP server assigns IP addresses to devices on the network that request them. By default, the DHCP Server is enabled on the device. The DHCP address pool contains a range of IP addresses, which is automatically assigned to the clients on the network. After modifying any settings, click **Save Settings** to save your changes.

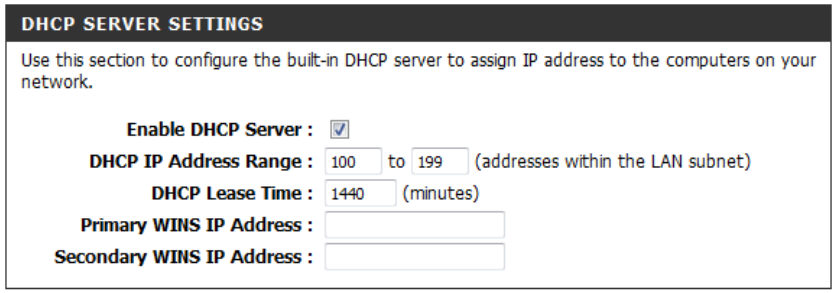
Enable DHCP Server: Select this box to enable the DHCP server on your router.

DHCP IP Address Range: Enter the range of IPs for the DHCP server to use to assign IP addresses to devices on your network.

DHCP Lease Time: Enter lease time for IP address assignments.

Primary WINS IP Address: Enter the primary WINS IP Address that will be assigned to DHCP clients.

Secondary WINS IP Address: Enter the secondary WINS IP Address that will be assigned to DHCP clients.



Virtual Server

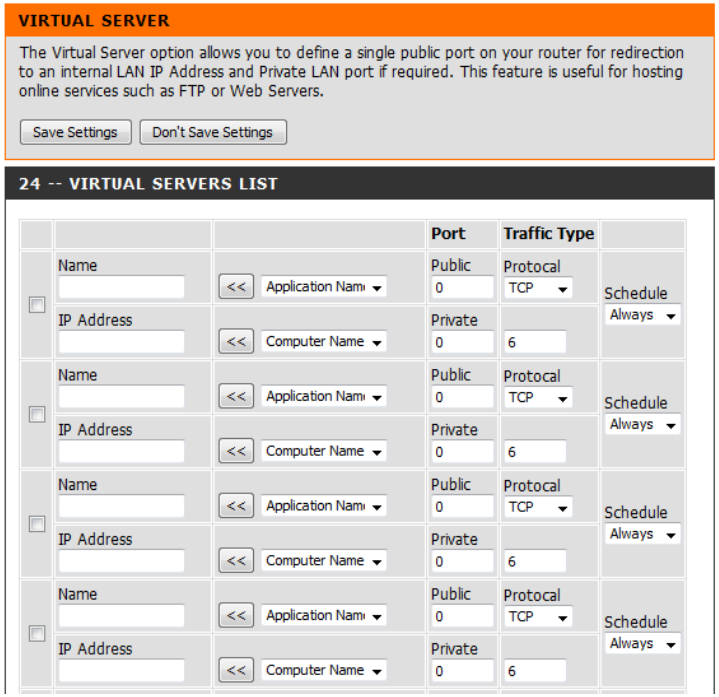
The DIR-514 can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP address can be automatically redirected to local servers in the LAN (Local Area Network).

The DIR-514 firewall feature filters out unrecognized packets to protect your LAN network so all computers networked with the DIR-514 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-514 redirects the external service request to the appropriate server within the LAN network.

The DIR-514 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. Pre-defined virtual services are already listed 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 the **Support** section for more information.

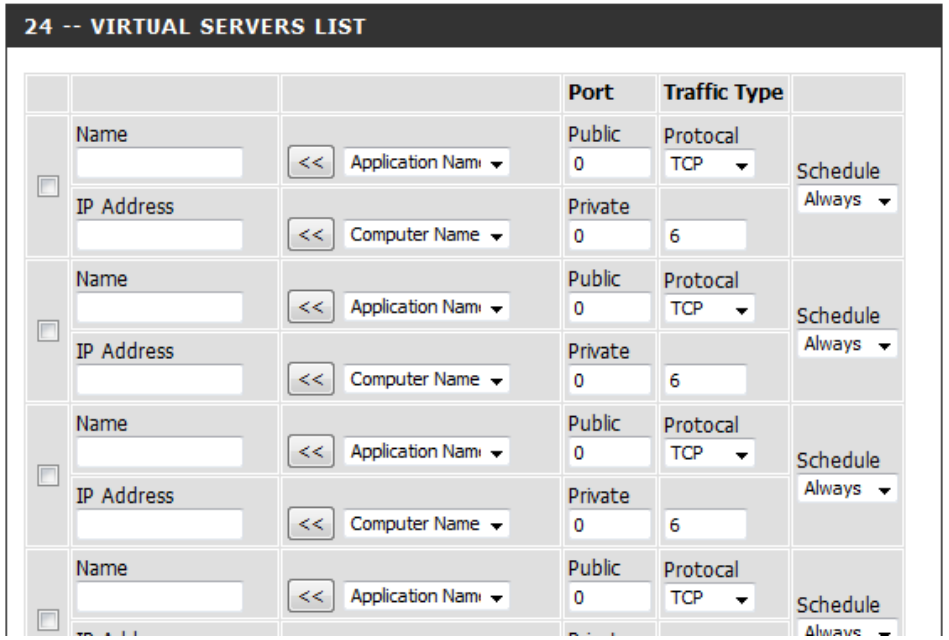


The Virtual Server feature allows you to open a single port. If you would like to open a range of ports, refer to the next page. Configure the parameters, as described below, to create a new Virtual Server entry.

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 <<.

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



Protocol Type: 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.

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-514 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-514 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 <<.

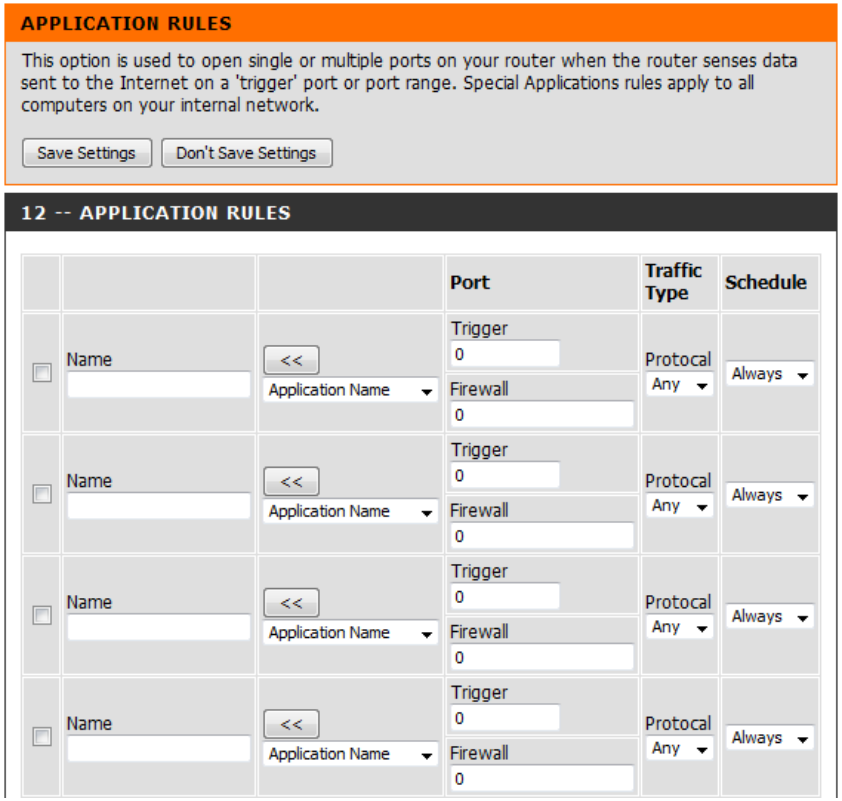
Trigger: This is the port used to trigger the application. It can be either a single port or a range of ports.

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

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.

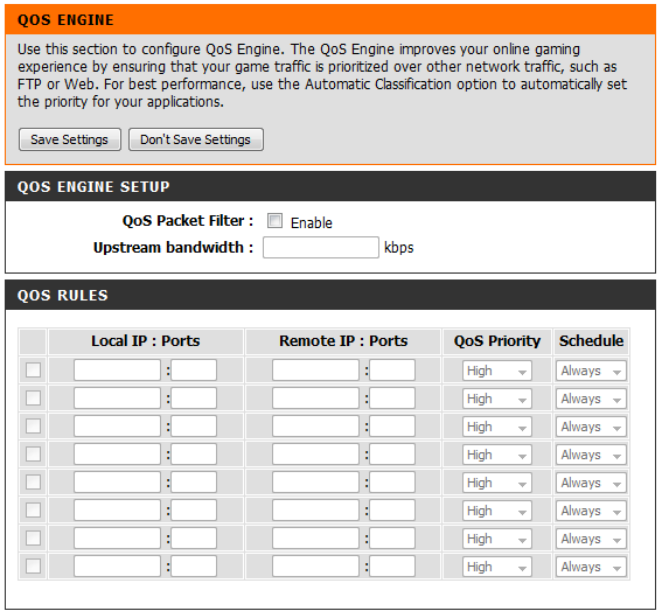
Traffic Type: Select the protocol of the firewall port (TCP, UDP, or All).

Schedule: Select a schedule for when the Application Rule 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.



QoS Engine

The **QoS Engine** improves your online gaming or streaming media experience by ensuring that your game or media traffic is prioritized over other network traffic, such as FTP or Web. For best performance, use the Automatic Classification option to automatically set the priority for your applications. After modifying any settings, click **Save Settings** to save your changes.



QOS ENGINE SETUP

Enable QOS Packet Filter: Select this box to enable the QoS feature.

Upstream Bandwidth: Specify the maximum upstream bandwidth here (e.g. 400 kbps).

QOS RULES

Local IP : Ports: Specify the local IP address(es) and port(s) for the rule to affect.

Remote IP : Ports: Specify the remote IP address(es) and port(s) for the rule to affect.

QoS Priority: Select what priority level to use for traffic affected by the rule: **Low, Normal, or High**.

Schedule: Select a schedule for when the Application Rule 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.

Network Filters

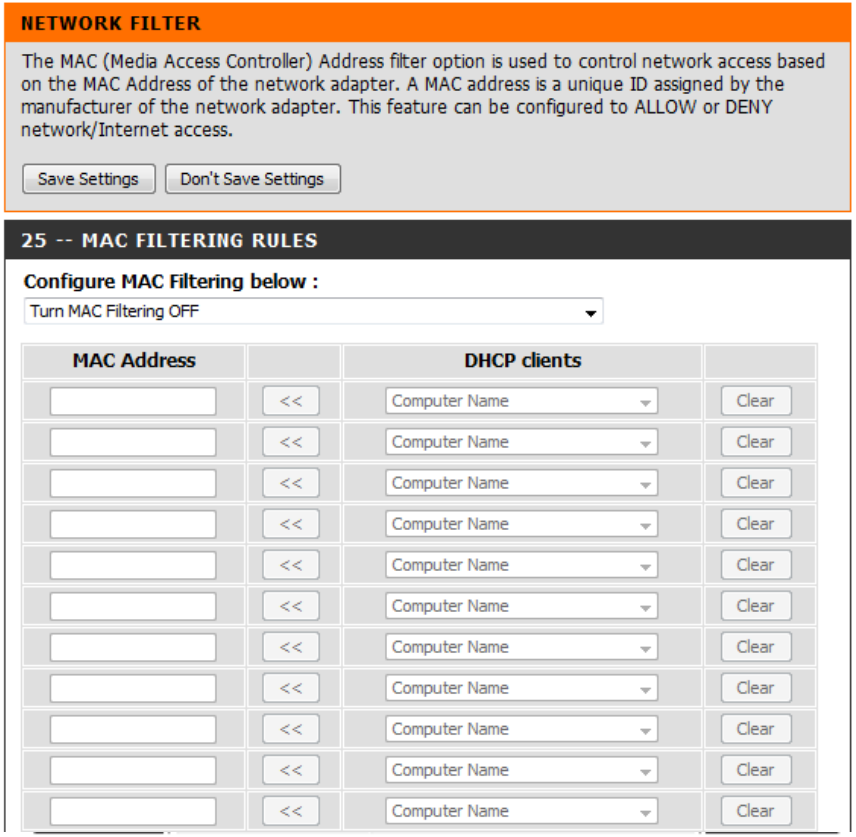
Use MAC (Media Access Control) Filters to allow or deny LAN (Local Area Network) computers by their MAC addresses from accessing the Network. You can either manually add a MAC address or select the MAC address from the list of clients that are currently connected to the Broadband Router.

Configure MAC Filtering: Select Turn MAC Filtering Off, allow MAC addresses listed 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 the MAC Address from the DHCP client.



Website Filters

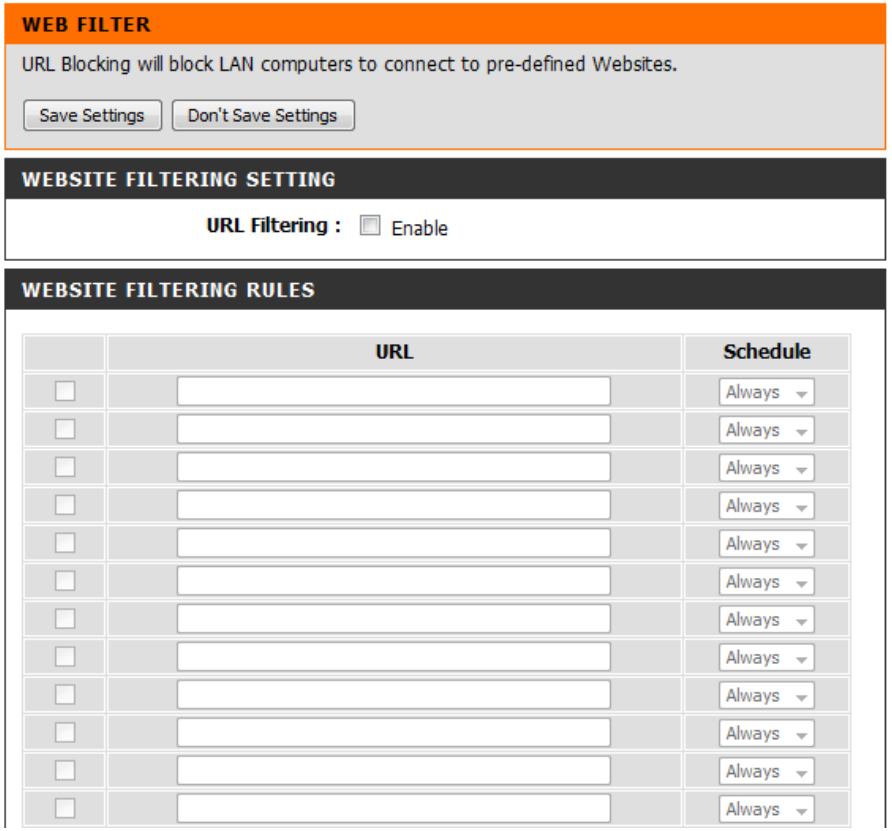
Website Filters are used to allow you to set up a list of allowed Web sites that can be used by multiple users through the network. To use this feature select to **Allow** or **Deny**, enter the domain or website and click **Add**, and then click **Save Settings**. You must also select **Apply Web Filter**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

URL Filtering: Select this box to enable URL Filtering.

URL FILTERING RULES

URL: Enter URL that you would like to block. All URLs that begin with this URL will be blocked.

Schedule: Select a schedule for when the Application Rule 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.



Outbound Filter

Outbound Filter enables you to control what packets are allowed to be sent out to the Internet. The outbound filter applies to all outbound packets. After modifying any settings, click **Save Settings** to save your changes.

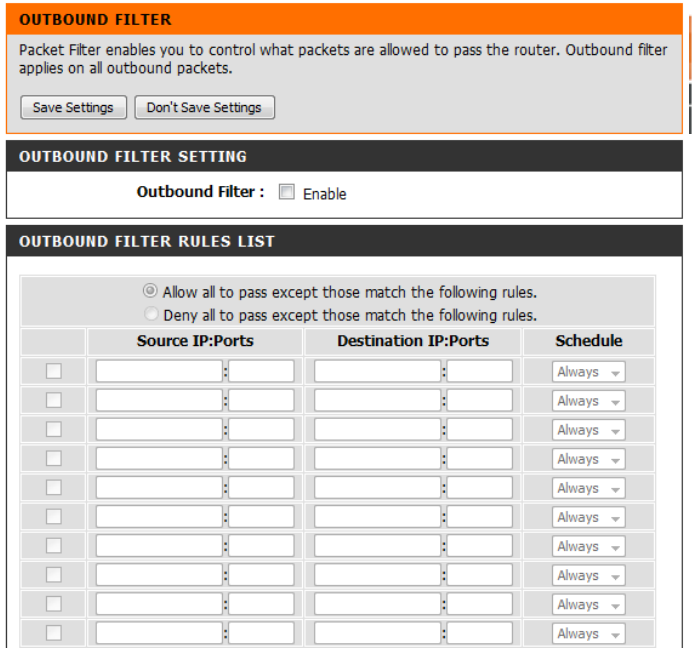
OUTBOUND FILTER SETTING

Outbound Filter: Select this box to **Enable** outbound filtering.

Source IP : Ports: Specify the local IP address and then specify the port after the colon.

Destination IP : Ports: Specify the remote IP address and then the port after the colon.

Schedule: Select a schedule for when the Application Rule 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.



Inbound Filter

Inbound Filter enables you to control what packets are allowed to come in to your network from the Internet. The inbound filter only applies to packets that are destined for Virtual Servers or DMZ hosts. After modifying any settings, click **Save Settings** to save your changes.

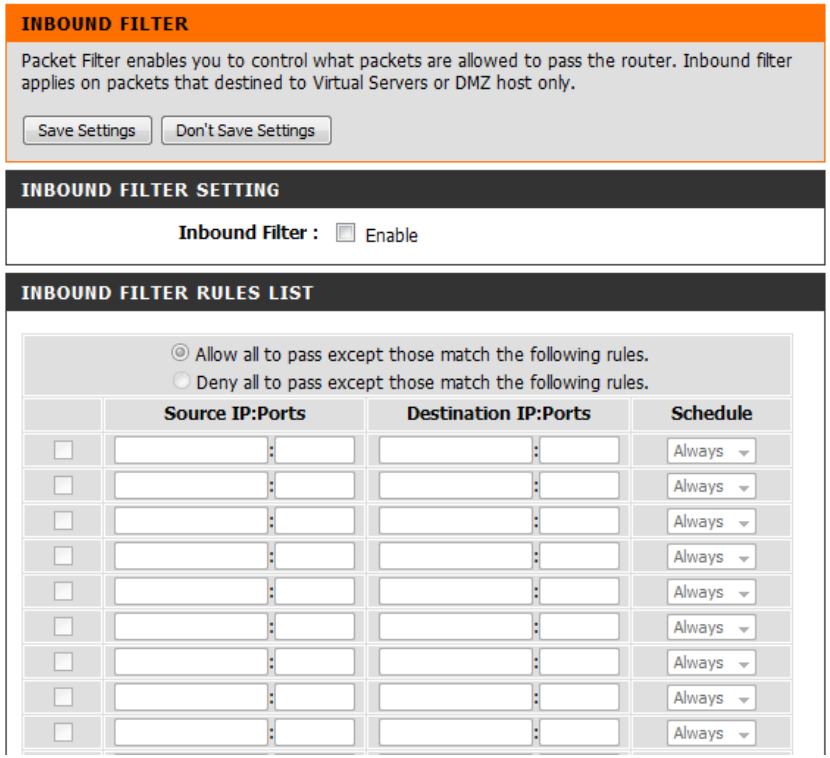
INBOUND FILTER SETTING

Inbound Filter: Select this box to **Enable** the filter.

Source IP : Ports: Specify the local IP address and then specify the port after the colon.

Destination IP : Ports: Specify the remote IP address and then the port after the colon.

Schedule: Select a schedule for when the Application Rule 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.



Advanced Wireless Settings

Transmit Power: Set the transmit power of the antennas.

WLAN Partition: Enable this option to prevent associated wireless clients from communicating with each other.

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

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

HT20/ 40 Mhz Coexistence: Select to Enable or Disable this feature.