D-Link®

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User Manual

Wireless N300 Multi-WAN Router

DWR-116

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	May 24, 2013	• Initial release for Revision A1

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Package Contents

- D-Link DWR-116 Wireless N300 Multi-WAN Router
- Power Adapter
- Manual and Warranty on CD
- External Wi-Fi antenna

Note: Using a power supply with a different voltage rating than the one included with the DWR-116 will cause damage and void the warranty for this product.

System Requirements

- A compatible 3G/4G LTE USB modem

Computer with the following:

- Windows®, Macintosh, or Linux-based operating system
- An installed Ethernet adapter

Browser Requirements:

- Internet Explorer® 7 and higher
- Mozilla Firefox 12.0 and higher
- Google™ Chrome 20.0 and higher
- Apple Safari 4 and higher

Introduction

The D-Link Wireless N300 Multi-WAN Router allows users to access mobile broadband networks worldwide. Once connected, users can transfer data and stream media. Simply connect your USB modem to share your 3G/4G LTE Internet connection through a secure 802.11n wireless network or using the 10/100 Ethernet port.

The Wireless N300 Multi-WAN Router can be installed quickly and easily almost anywhere. This router is great for situations where an impromptu wireless network must be set up, or wherever conventional network access is unavailable. The DWR-116 can even be installed in buses, trains, or boats, allowing passengers to check e-mail or chat online while commuting.

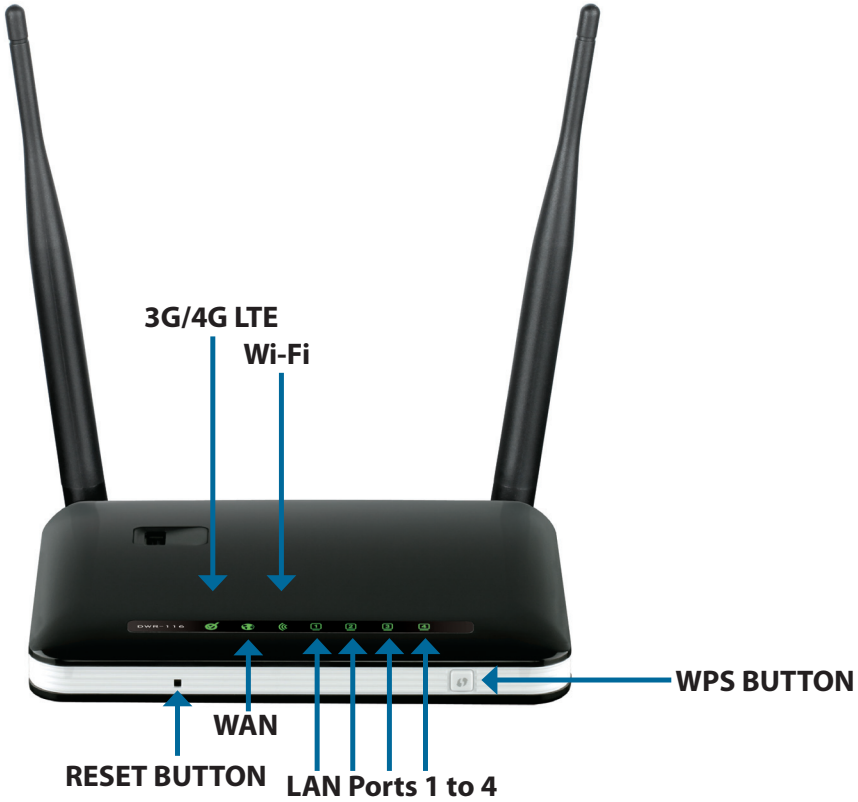
Hardware Overview

Back Panel

Port	Function
LAN Port	Connects to wired computers or devices.
WAN Port	Connects to the Internet.
Power Port	Connects to the power adapter.

Hardware Overview

Front Panel and LEDs

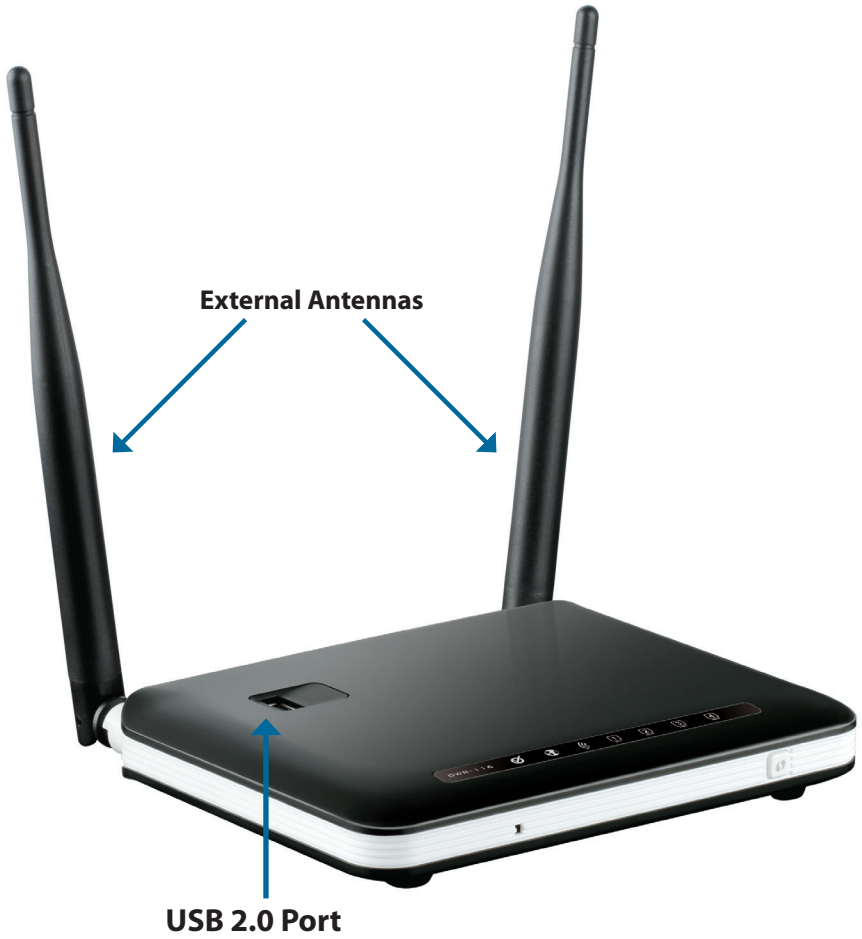


LED	Description			
	Color	Solid	Blinking	Blinking (Fast)
3G/4G LTE	Green	3G/4G LTE connection established	Data transmitting	-
WAN	Green	WAN connection established	Data transmitting	-
Wi-Fi	Green	Wi-Fi active and available	Data transmitting	Device in WPS mode
LAN 1 - LAN 4	Green	Ethernet connection established	Data transmitting	-

Note: WPS mode can be activated by pressing, and holding the WPS button until the Wi-Fi LED begins to flash rapidly. You can find more details about activating WPS mode in the section titled "Wi-Fi Protected Setup" on page 32

Hardware Overview

Top



Port	Function
USB Port	Connects to 3G/4G LTE Modem Dongle
Antennas	External WiFi Antennas

Installation

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

Connect to Your Network

Note: Ensure that your DWR-116 Wireless N300 Multi-WAN Router is disconnected and powered **off** before performing the installation steps below.

1. Connect a USB modem to the **USB** port located on the top of the router.

2. Insert an Ethernet network cable into the **LAN** port on the back of the router. Plug the other end of the Ethernet cable into the LAN port of your computer or laptop. The Ethernet LED will turn green if the Ethernet connection is successfully established.

Note: The DWR-116 Wireless N300 Multi-WAN Router's LAN ports are "Auto-MDI/MDIX." Therefore, patch or crossover Ethernet cables can be used.

3. Configure the device using the setup utility.

Wireless Installation Considerations

The DWR-116 can be accessed using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the quantity, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or office. The key to maximizing the wireless range is to follow these basic guidelines:

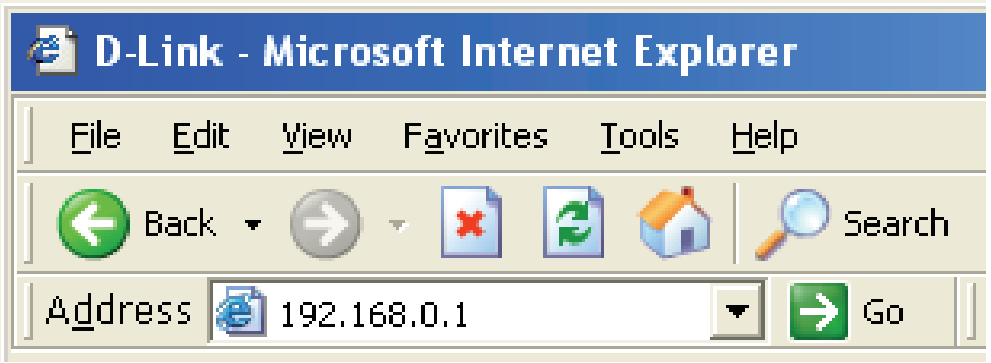
1. Minimize the number of walls and ceilings between the router and other network devices. Each wall or ceiling can reduce your adapter's range from 3 to 90 feet (1 to 30 meters).
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (0.5 meters), at a 45-degree angle 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. Try to position access points, wireless routers, and computers so that the signal passes through open doorways or drywall. Materials such as glass, metal, brick, insulation, concrete and water can affect wireless performance. Large objects such as fish tanks, mirrors, file cabinets, metal doors and aluminum studs may also have a negative effect on range.
4. If you are using 2.4 GHz cordless phones, make sure that the 2.4 GHz phone base is as far away from your wireless device as possible. The base transmits a signal even if the phone in not in use. In some cases, cordless phones, X-10 wireless devices, and electronic equipment such as ceiling fans, fluorescent lights, and home security systems may dramatically degrade wireless connectivity.

Configuration

This section will show you how to configure your new D-Link mobile 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. The default IP address of the router is 192.168.0.1.



Type **Admin** and then enter the password. By default, the password is blank.

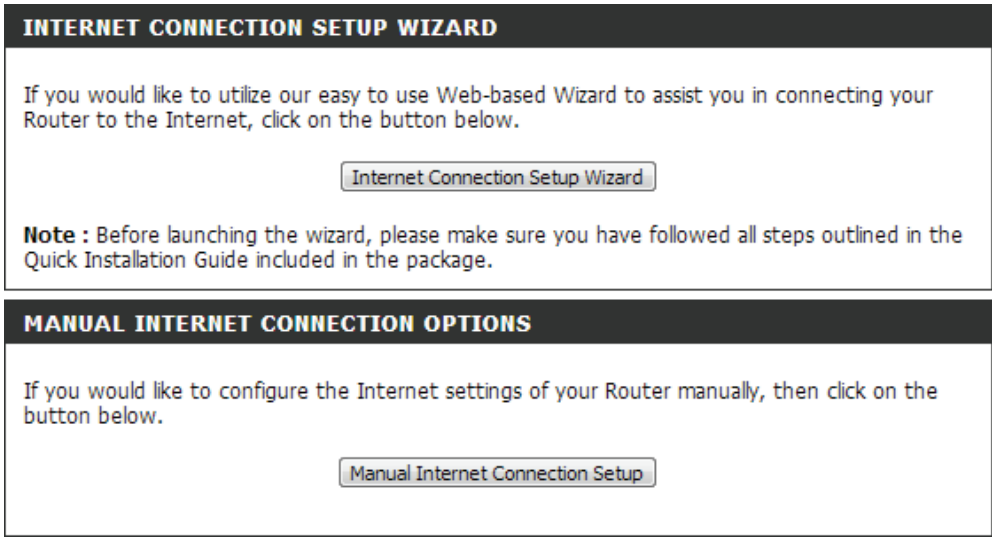
If you get a **Page Cannot be Displayed** error, please refer to the **Troubleshooting** section for assistance.

Setup

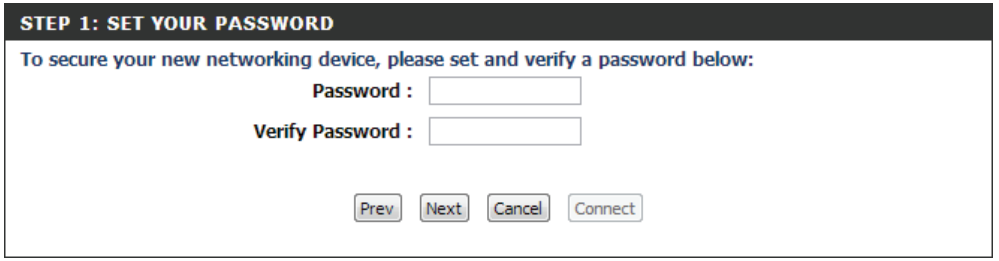
Internet Connection Setup Wizard

The setup wizard guides you through the initial setup of your router. There are two ways to setup your Internet connection. You can use the Web-based **Internet Connection Setup Wizard** or you can manually configure using the **Manual 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 **Internet Connection Setup Wizard** to begin.

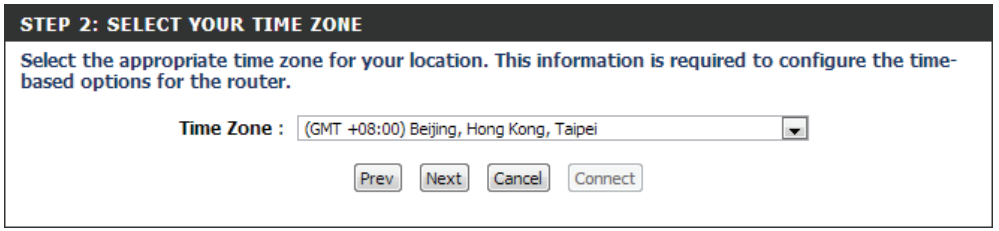
If you want to enter your settings without running the wizard, click **Manual Internet Connection Setup** and skip to page "Manual Internet Connection Setup" on page 16.



Create a new password that will be used to access the router and then click **Next** to continue.
Click **Prev** to go back to the previous page or click **Cancel** to close the wizard.

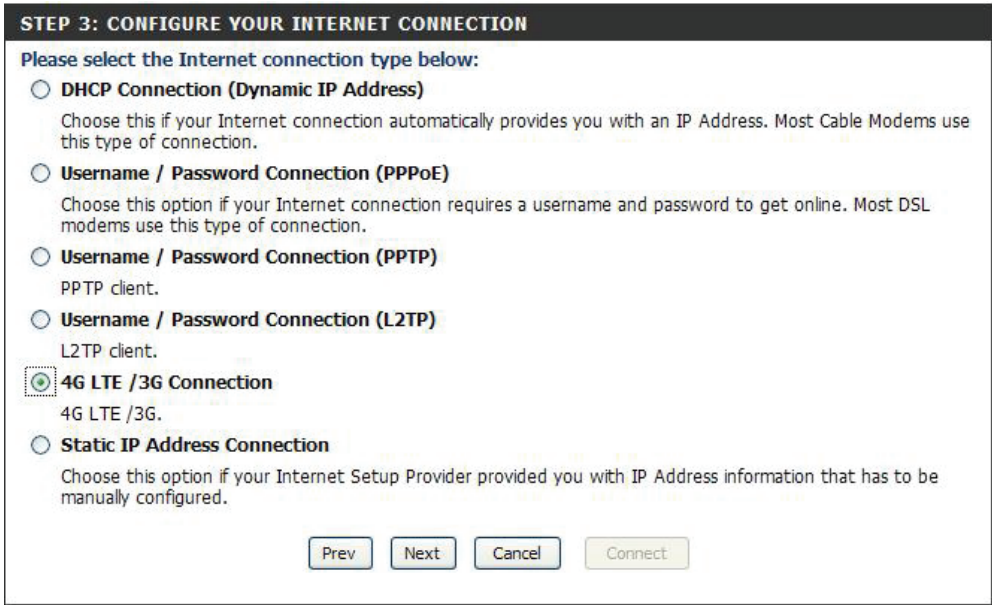


Select your time zone from the drop-down box and then click **Next** to continue.
Click **Prev** to go back to the previous page or click **Cancel** to close the wizard.



Select the Internet connection type. The connection types are explained on the following page. If you are unsure of the correct connection type, you may have to contact your Internet Service Provider (ISP).
Click **Prev** to go back to the previous page or click **Cancel** to close the wizard.

Note: The DWR-116 supports several kinds of WAN interfaces, allowing you to assign either a WAN or a WWAN(3G/4G LTE) connection as the backup WAN. If the Primary WAN is down or unavailable, configure the backup WAN to **Enable**, and all the traffic will be routed through backup WAN. This feature is called **WAN Failover**. You can use WAN Failover if you need redundancy to your Internet connection or any other network.



The subsequent configuration pages will differ depending on the selection you make during step 3 of the wizard.

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. See page 12 for information about how to configure 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. See page 12 for information about how to configure this type of connection.

Username / Password Connection (PPTP): Choose this option if your Internet connection requires Point-to-Point Tunneling Protocol (PPTP). See page 13 for information about how to configure this type of connection.

Username / Password Connection (L2TP): Choose this option if your Internet connection requires Layer 2 Tunneling Protocol (L2TP). See page 13 for information about how to configure this type of connection.

3G/4G LTE Connection: Choose this option if your Internet Setup Provider provided you with a user name and password to use with your 3G / 4G LTE enabled USB Dongle. See page 14 for information about how to configure this type of connection.

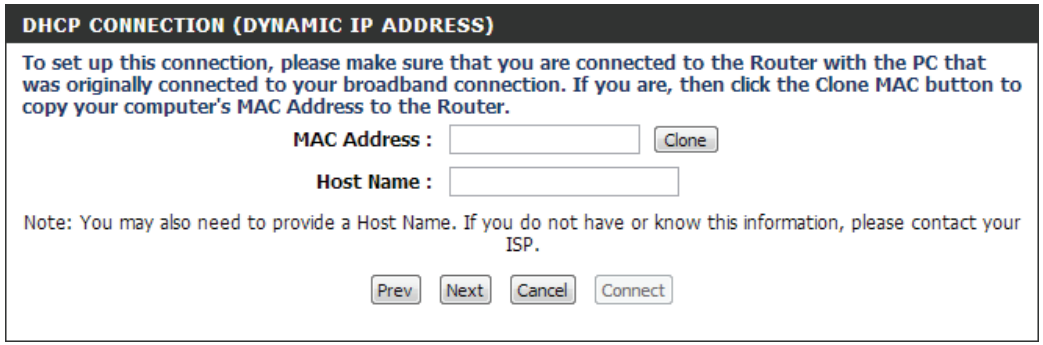
Static IP Address Connection: Choose this option if your Internet Setup Provider provided you with IP Address information that has to be manually configured. See page 14 for information about how to configure this type of connection.

DHCP Connection (Dynamic IP Address):

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** button to replace the Internet port's MAC address with the MAC address of your PC.

Host Name: Enter the host name for your router or computer.

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



Username / Password Connection (PPPoE):

IP Address: Fill in if provided by your ISP. If not, keep the default value.

Username: The username/account name that your ISP provides to you for PPPoE dial-up.

Password: Password that your ISP provides to you for PPPoE dial-up.

Service Name: (Optional) Fill in if provided by your ISP.

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

Username / Password Connection (PPTP):

Address Mode: Choose Static IP only if your ISP assigns you an IP address. Otherwise, please choose Dynamic IP.

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

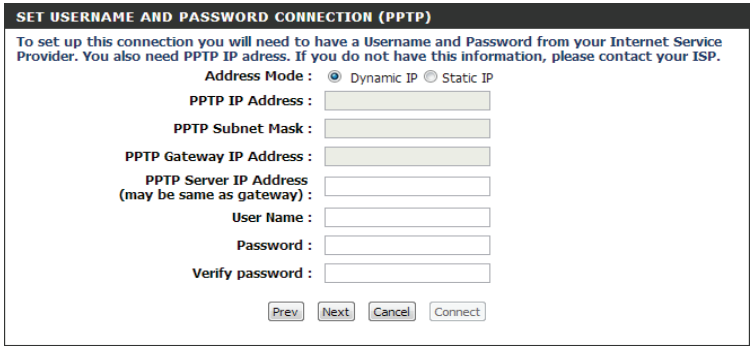
PPTP Subnet Mask: Enter the information provided by your ISP.

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

PPTP Server IP Address: IP address of PPTP server.

User Name: User/account name that your ISP provides to you for PPTP dialup.

Password: Password that your ISP provides to you for PPTP dial-up.



Username / Password Connection (L2TP):

Address Mode: Choose Static IP only if your ISP assigns you an IP address. Otherwise, please choose Dynamic IP.

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

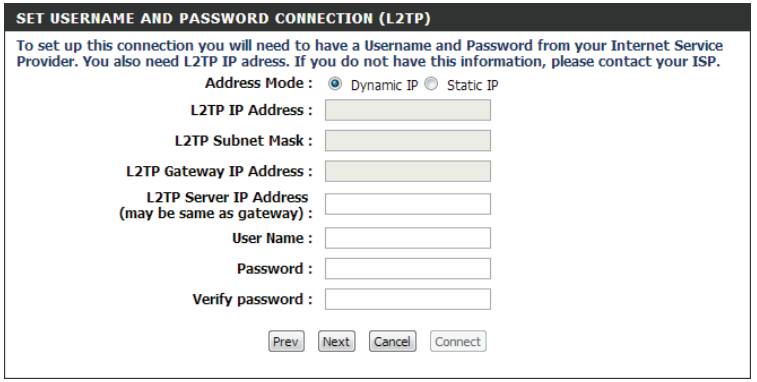
L2TP Subnet Mask: Enter the information provided by your ISP.

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

L2TP Server IP Address: IP address of PPTP server.

User Name: User/account name that your ISP provides to you for PPTP dialup.

Password: Password that your ISP provides to you for PPTP dial-up.



3G/4G LTE Connection

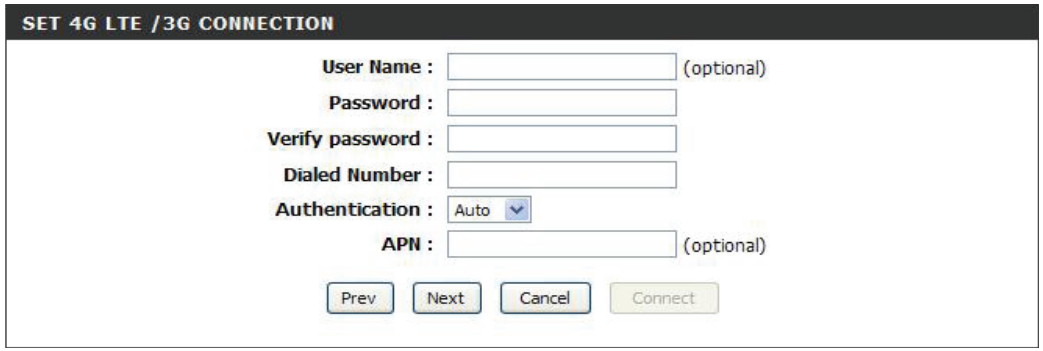
User Name: (Optional) Fill in only if requested by ISP.

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.



Static IP Address Connection

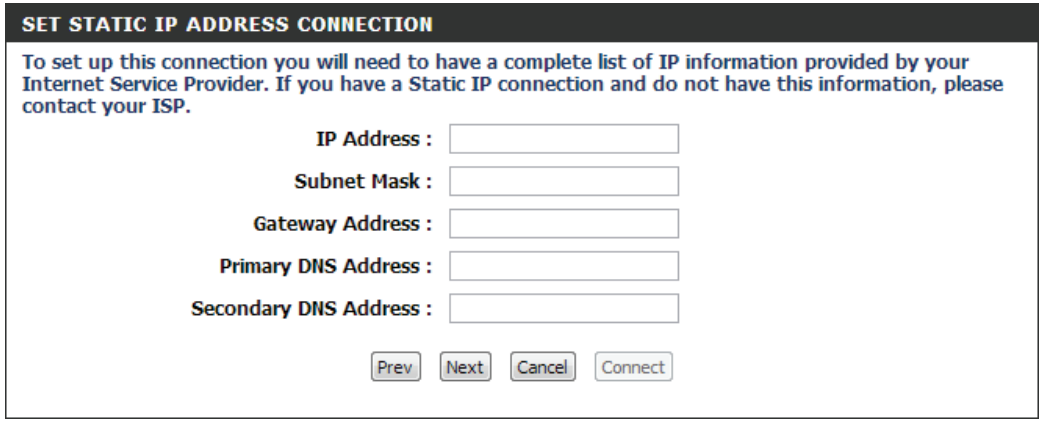
IP Address: Enter the IP address assigned to your network connection.

Subnet Mask: Enter the subnet mask.

Gateway Address: Enter the default gateway.

Primary DNS Address: Enter the primary DNS server.

Secondary DNS Address Enter the secondary DNS server.

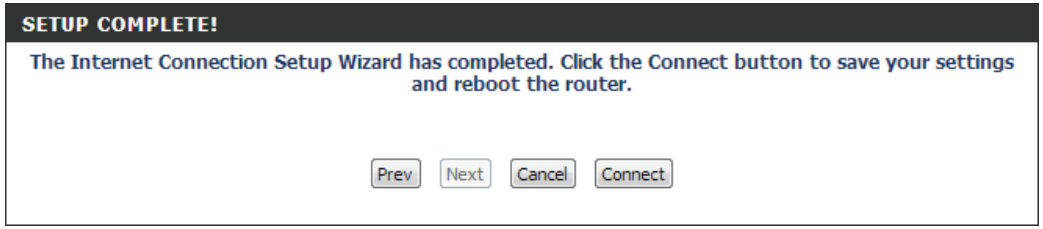


You have completed the **Setup Wizard**.

Click **Connect** to save your settings.

A popup will appear, to confirm your settings.

Click **OK** to save your settings.



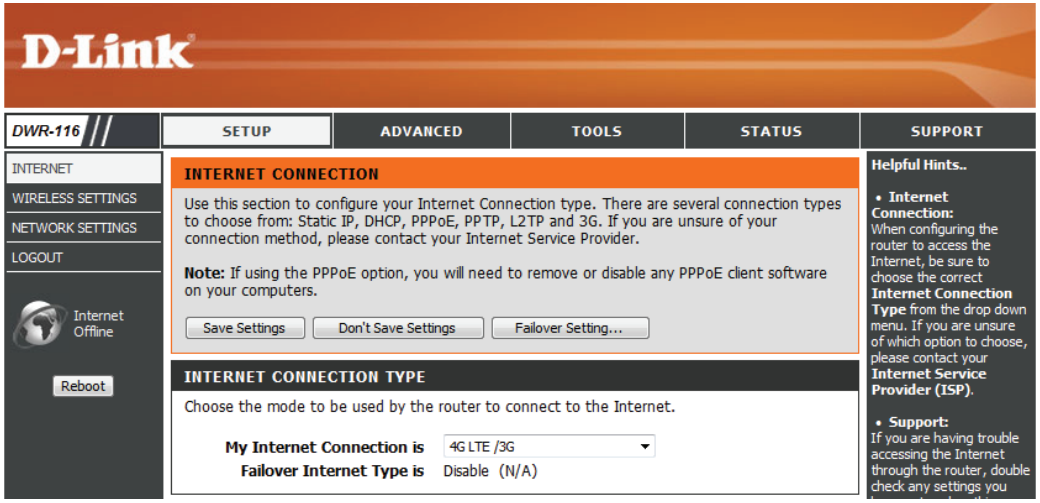
Manual Internet Connection Setup

Internet Connection Type

Several different Internet connection types can be selected depending upon the specifications of your Internet Service Provider (ISP).

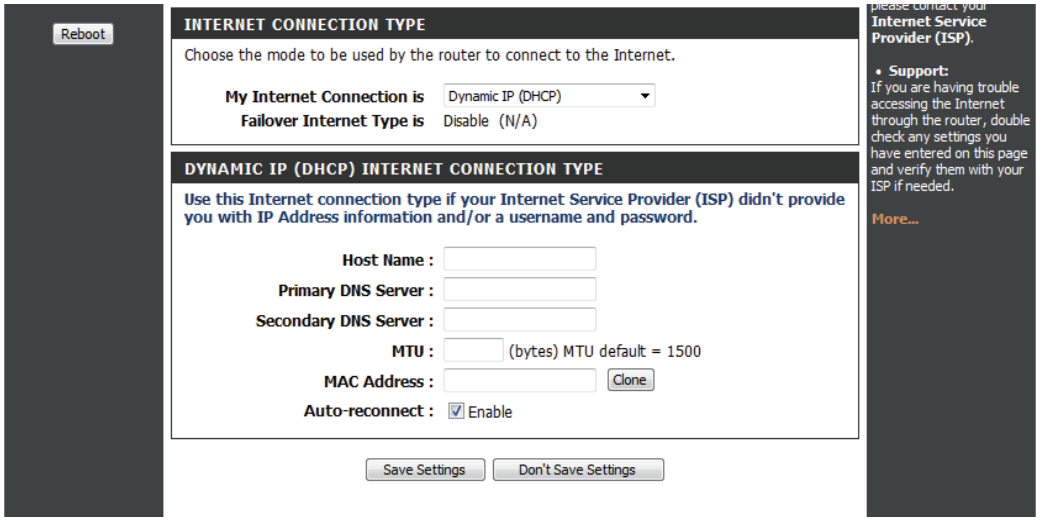
My Internet Connection is: Select the Internet connection type specified by your Internet Service Provider (ISP). The corresponding settings will be displayed below. Please see the following pages for details on how to configure these different connection types.

Failover Internet Connection is: This connection can serve as a backup for your default connection. Click on the **Failover Setting** dropdown box in order to configure this setting. Please refer to page "Failover Setting" on page 23 for more details on how to configure settings.



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.



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.

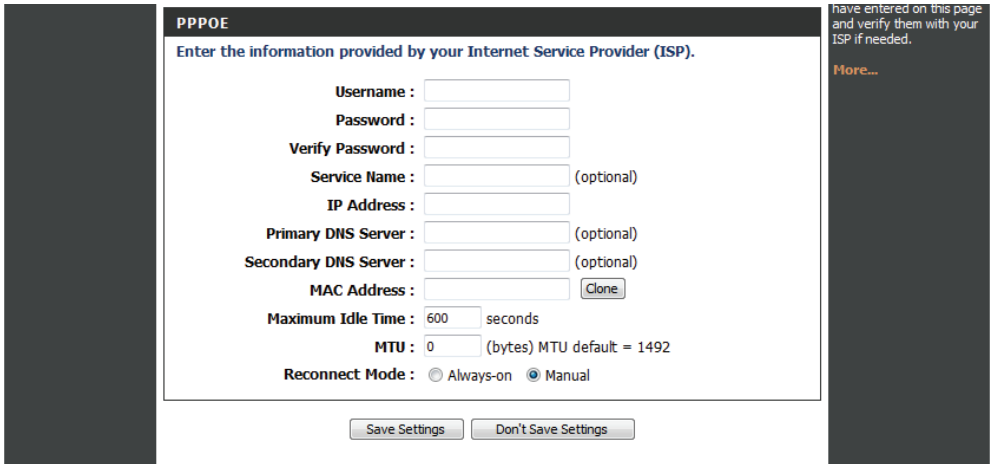
MAC Address: The default MAC address is set to the Internet port's physical interface MAC address on the broadband router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone** button to replace the Internet port's MAC address with the MAC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

Auto-reconnect: This feature enables this product to renew WAN IP address automatically when the lease time is expiring.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

PPPoE

Choose this Internet connection if your ISP provides you with a PPPoE account.



Username: The username/account name that your ISP provides to you for PPPoE dial-up.

Password: Password that your ISP provides to you for PPPoE dial-up.

Verify Password: Fill in with the same password in Password field.

Service Name: (Optional) Fill in if provided by your ISP.

IP Address: (Optional) Fill in if provided by your ISP. If not, keep the default value.

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.

MAC Address: MAC address of WAN interface. You can also copy MAC address of your PC to its WAN interface by pressing the **Clone** button. The **Restore MAC** button will reset the router to its default MAC address.

Maximum Idle Time: The amount of time of inactivity before disconnecting established PPPoE session. Setting it to zero or enabling **Reconnect Mode: Always-on** setting will disable this feature.

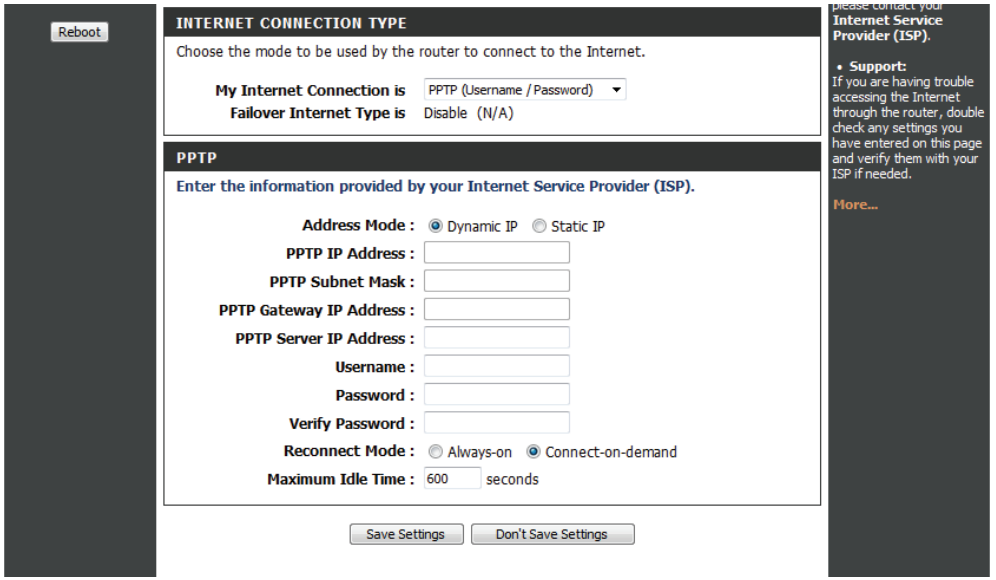
Maximum Transmission Unit (MTU): You may need to change the Maximum Transmission Unit (MTU) for optimal performance. The default setting of PPPoE is 1492.

Auto-reconnect: The device will dial-up PPPoE connection automatically.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

PPTP

Choose this Internet connection if your ISP provides you PPTP account.



Address Mode: Choose Static IP only if your ISP assigns you an IP address. Otherwise, please choose Dynamic IP.

PPTP IP Address: Enter the information provided by your ISP. (Only applicable for Static IP PPTP.)

PPTP Subnet Mask: Enter the information provided by your ISP. (Only applicable for Static IP PPTP.)

PPTP Gateway IP Address: Enter the information provided by your ISP. (Only applicable for Static IP PPTP.)

PPTP Server IP Address: IP address of PPTP server.

Username: User/account name that your ISP provides to you for PPTP dial-up.

Password: Password that your ISP provides to you for PPTP dial-up.

Verify Password: Fill in with the same password in Password field.

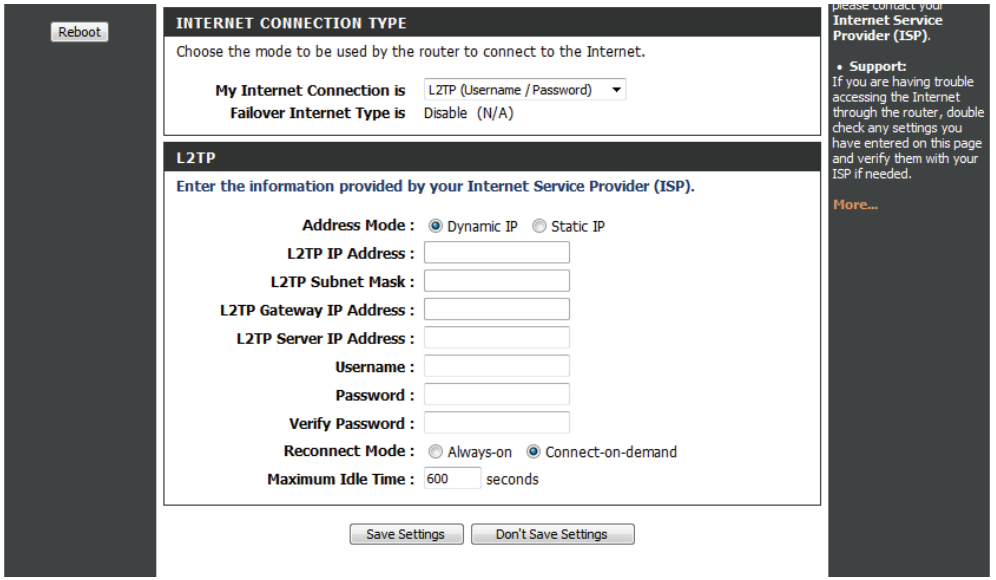
Reconnect Mode: Choose **Always-on** when you want to establish PPTP connection all the time. If you choose **Connect-on-demand**, the device will establish PPTP connection when local users want to surf the Internet, and disconnect if there is no traffic after the time period set under Maximum Idle Time.

Maximum Idle Time: The time of no activity to disconnect your PPTP session. Set it to zero or choose Always-on to disable this feature.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

L2TP

Choose this Internet connection if your ISP provides you L2TP account.



Address Mode: Choose Static IP only if your ISP assigns you an IP address. Otherwise, please choose Dynamic IP.

L2TP IP Address: Enter the information provided by your ISP. (Only applicable for Static IP L2TP.)

L2TP Subnet Mask: Enter the information provided by your ISP. (Only applicable for Static IP L2TP.)

L2TP Gateway IP Address: Enter the information provided by your ISP. (Only applicable for Static IP L2TP.)

L2TP Server IP Address: IP address of L2TP server.

Username: User/account name that your ISP provides to you for L2TP dial-up.

Password: Password that your ISP provides to you for L2TP dial-up.

Verify Password: Fill in with the same password in Password field.

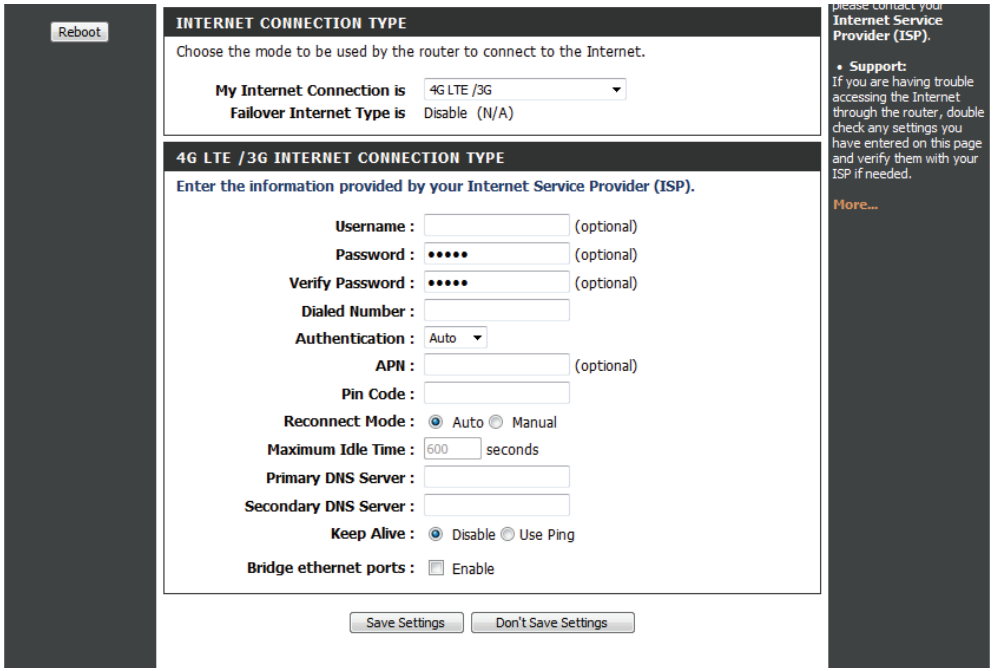
Reconnect Mode: Choose Always-on when you want to establish L2TP connection all the time. Choose Connect-on-demand and the device will establish L2TP connection when local users want to surf Internet, and disconnect if no traffic after time period of Maximum Idle Time.

Maximum Idle Time: The time of no activity to disconnect your L2TP session. Set it to zero or choose Always-on to disable this feature.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

3G / 4G LTE

Choose this Internet connection if you already use a SIM card for 3G/4G LTE Internet service from your mobile service provider 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.



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: 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: Choose whether the device will reconnect to the 3G/4G network automatically or manually

Maximum Idle Time: The time of no activity required to disconnect the established 3G/4G LTE session. Set it to zero or choose Auto in Reconnect Mode to disable.

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.

Keep Alive: Disable or Use LCP Echo Request. This depends on ISP requirement.

Bridge Ethernet Ports: Activate this feature to change Ethernet WAN port to LAN port.

Static IP

Choose this Internet connection if your ISP assigns you a static IP address.

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

Subnet Mask: Enter the subnet mask.

Default Gateway: Enter the default gateway.

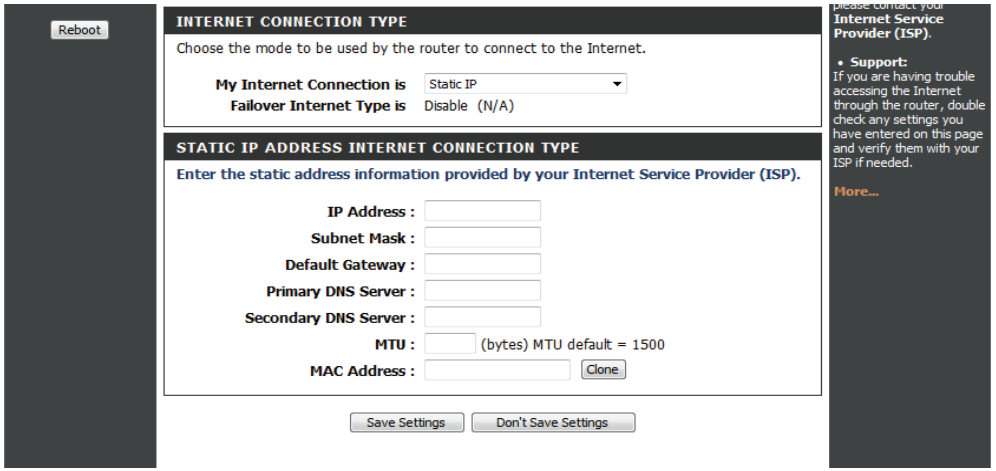
Primary DNS Server: Enter the primary DNS server.

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** button to replace the Internet port's MAC address with the MAC address of your Ethernet card.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.



Failover Setting

This connection can serve as a backup for your default connection.

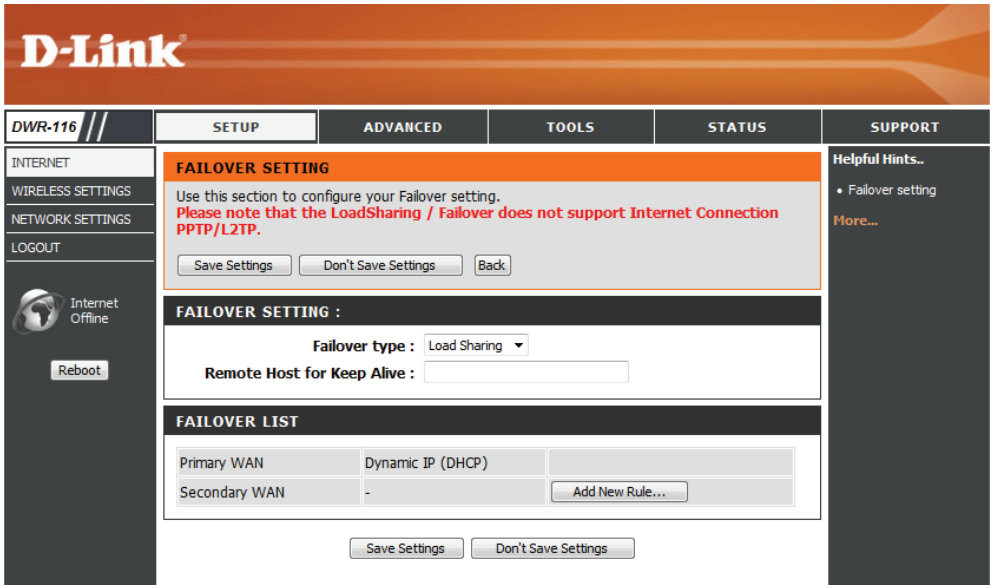
Failover Type: This option can be set to either **Load Sharing** or to **Failover**. With **Load Sharing**, the data usage is distributed evenly over the two different internet connections. With **Failover**, the secondary Internet connection will be in standby mode, until the primary Internet connection fails.

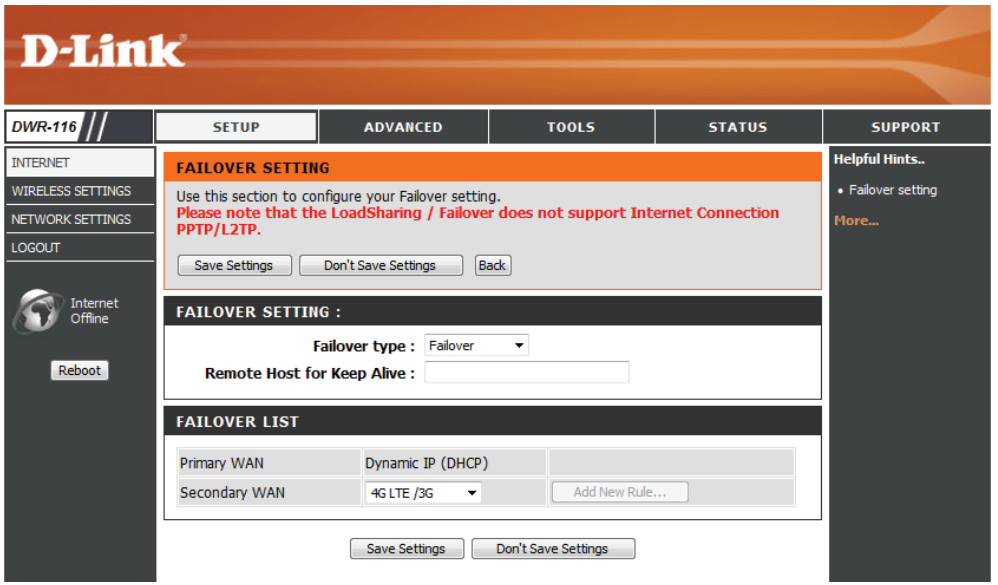
Remote Host for Keep Alive: This option should be set to an external IP address that can be used to ensure that the 3G/4G LTE connection will be kept from going offline due to inactivity. An example would be Google's public DNS servers (8.8.8.8 or 8.8.4.4) or your Internet service providers DNS servers.

Primary WAN: This will automatically be set to the connection type selected during the **Internet connection Setup Wizard**, or set to the **My Internet Connection is** option which is found on the Manual Internet Connections settings page.

Secondary WAN: This can be set by clicking on **Add New Rule,** the available options will be shown in the drop down box that appears.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.





Wireless Connection Setup Wizard

This section will help you to manually configure the wireless settings of your router. Please note that changes made on this section may also need to be duplicated on your wireless devices and clients. The Wireless Settings page allows you to configure how your router connects to the Internet. There are several ways to set up your wireless connection.

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

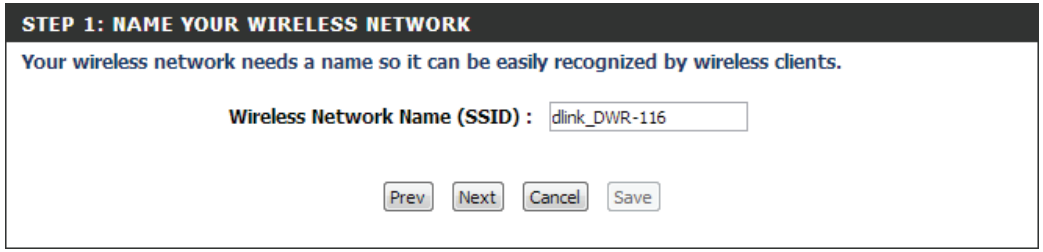
If you want to manually configure your settings, click the Manual Wireless Connection Setup button and skip to "Manual Wireless Connection Setup" on page 28.

You can also set up a wireless connection to a device automatically, or configure your router automatically through Windows by clicking the Wi-Fi Protected Setup button. This is described in "Wi-Fi Protected Setup (WPS)" on page 32.

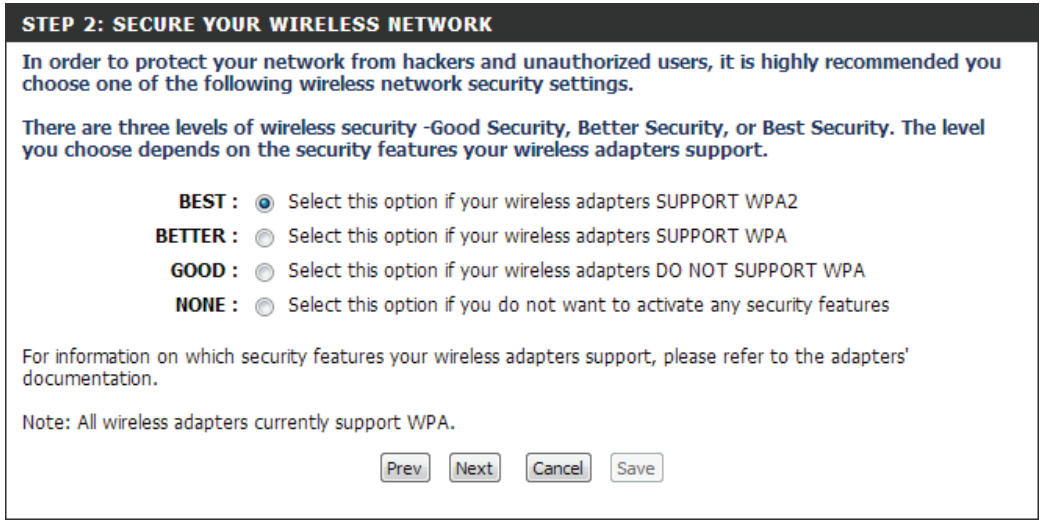
This wizard will guide you through a step-by-step process to configure your D-Link router's wireless . Click **Next** to continue.

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

Enter a name for your wireless network, then click **Next** to continue.

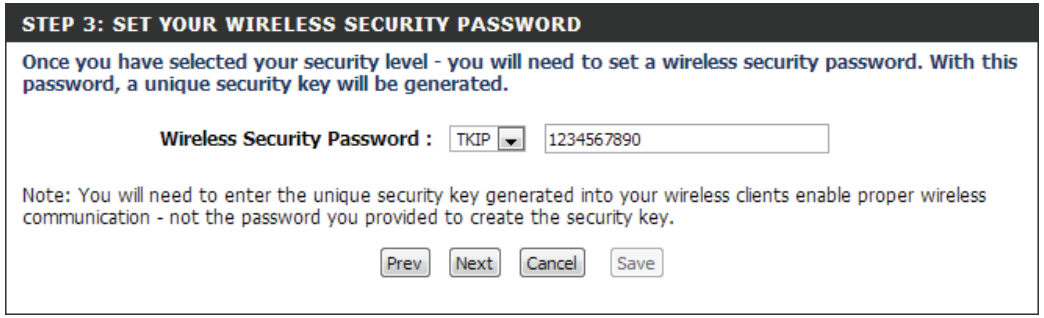


Select a level of wireless security to use, then click **Next** to continue.

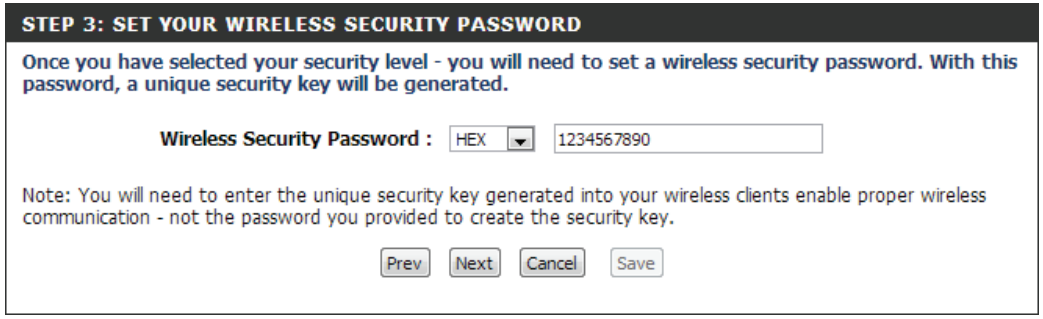


If you chose **BEST** or **BETTER**, select whether to use TKIP or AES encryption, then enter a password to use for your wireless network. It is recommended that you use AES if your wireless computers and devices support it, as it is more secure.

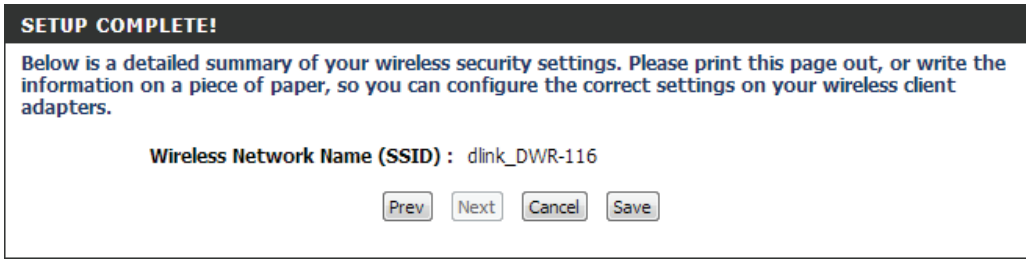
Click **Next** to continue.



If you chose GOOD, select whether to use a HEX or ASCII password, then enter a password to use for your wireless network. If you choose HEX, you will need to enter a 10 or 26 digit password using only hex characters (0-9, A-F). If you choose ASCII, the password can be between 5 to 13 alphanumeric characters. Click **Next** to continue.

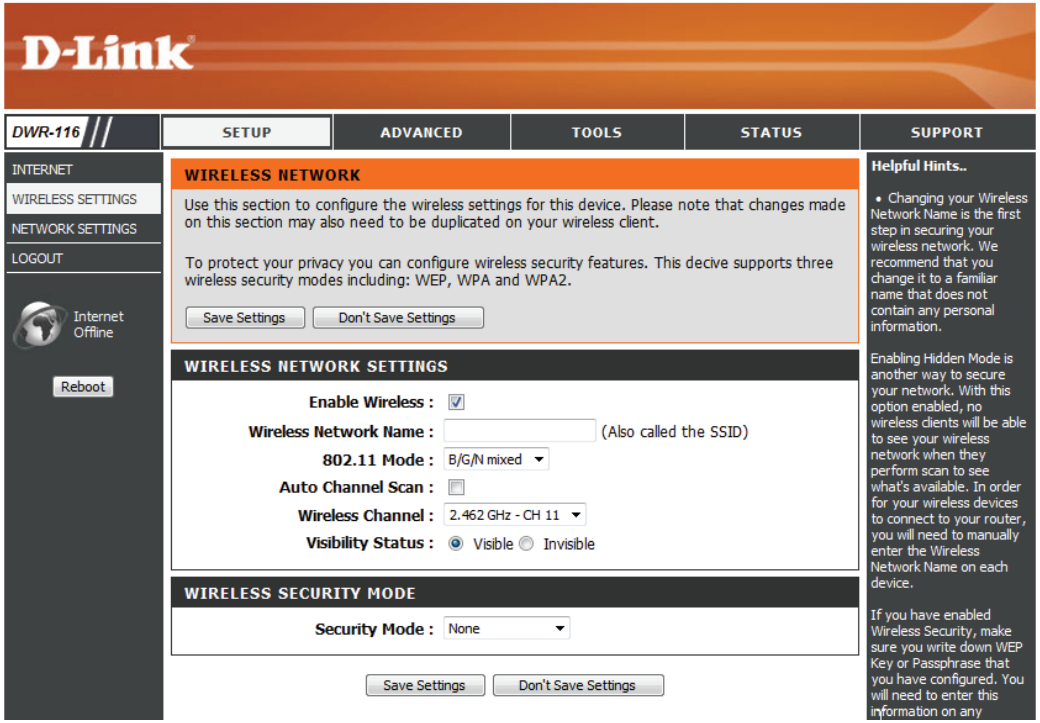


This completes the Wireless Connection Setup Wizard. Click **Save** to save your changes and reboot the router.



Wireless Settings

This section will help you to manually configure the wireless settings of your router. Please note that changes made on this section may also need to be duplicated on your Wireless Client.



Enable Wireless: Select this checkbox to enable wireless access. When you set this option, the following parameters take effect.

Wireless Network Name: Also known as the SSID (Service Set Identifier), this is the name of your Wireless Local Area Network (WLAN). Enter a name using up to 32 alphanumeric characters. The SSID is case-sensitive. The default name is "dlink_DWR-116".

802.11 Mode: B/G/N mixed: Enable this mode if your network contains a mix of 802.11b and 802.11g devices. G mode: Enable this mode if your network has only 802.11g devices. If you have both 802.11b and 802.11g wireless clients, disable this mode.

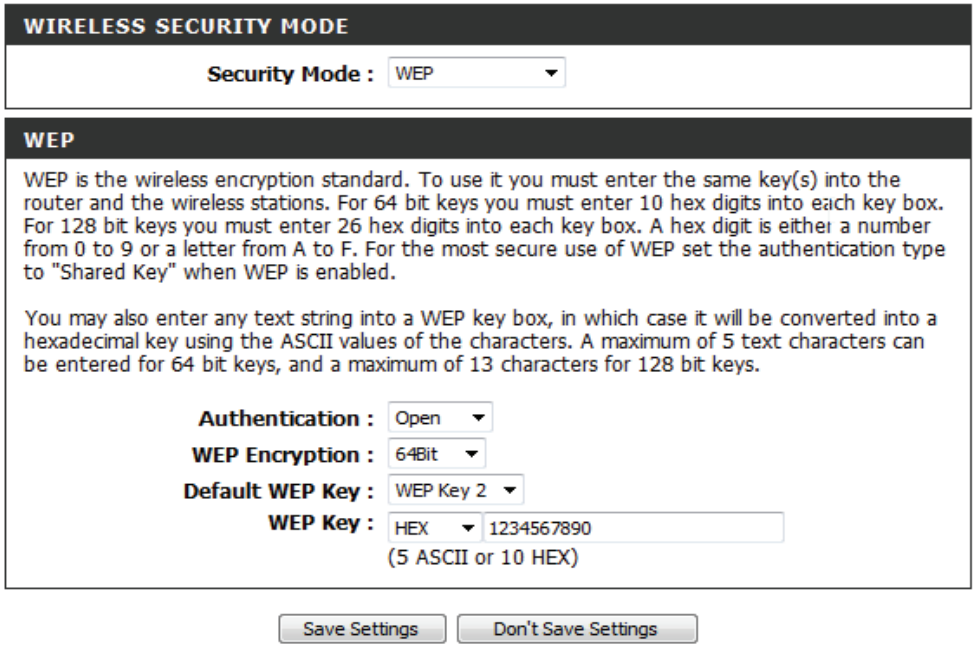
Auto Channel Scan: Click **Auto Channel Scan** to automatically select the channel that it will operate on. This option is recommended because the router will choose the channel with the least amount of interference.

Wireless Channel: Choose the clearest channel to help optimize the performance and coverage of your wireless network. By default the channel is set to 11. This can be changed to fit the channel setting for an existing wireless network or to customize your wireless network.

Visibility Status: Select **Invisible** if you do not want the SSID of your wireless network to be broadcast by the DWR-116. The SSID of your router will not be seen by site survey utilities. Therefore while setting up your wireless clients, you will have to manually enter your SSID to connect to the router.

Security Mode: This device supports three wireless security modes, **WEP**, **WPA-Personal**, **WPA-Enterprise** or **None**. WEP is the original wireless encryption standard. WPA provides a higher level of security and WPA-Personal does not require an authentication server. When WPA-Enterprise is enabled, the router uses EAP (802.1x) to authenticate clients via a remote RADIUS server.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.



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).

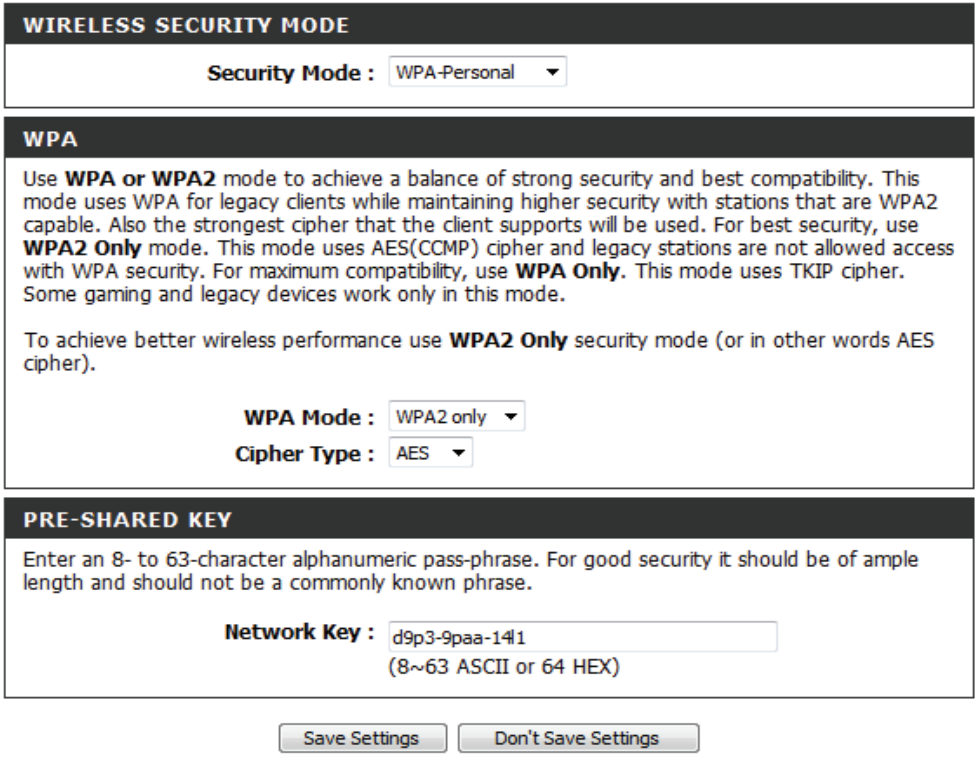
WEP Key: Set the WEP key/password for your wireless network. Based on whether you are using 64 or 128-bit encryption, and whether you are using a HEX or ASCII key, you will need to enter different numbers of characters for your key, as indicated below the WEP Key text box. ASCII keys may use letters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

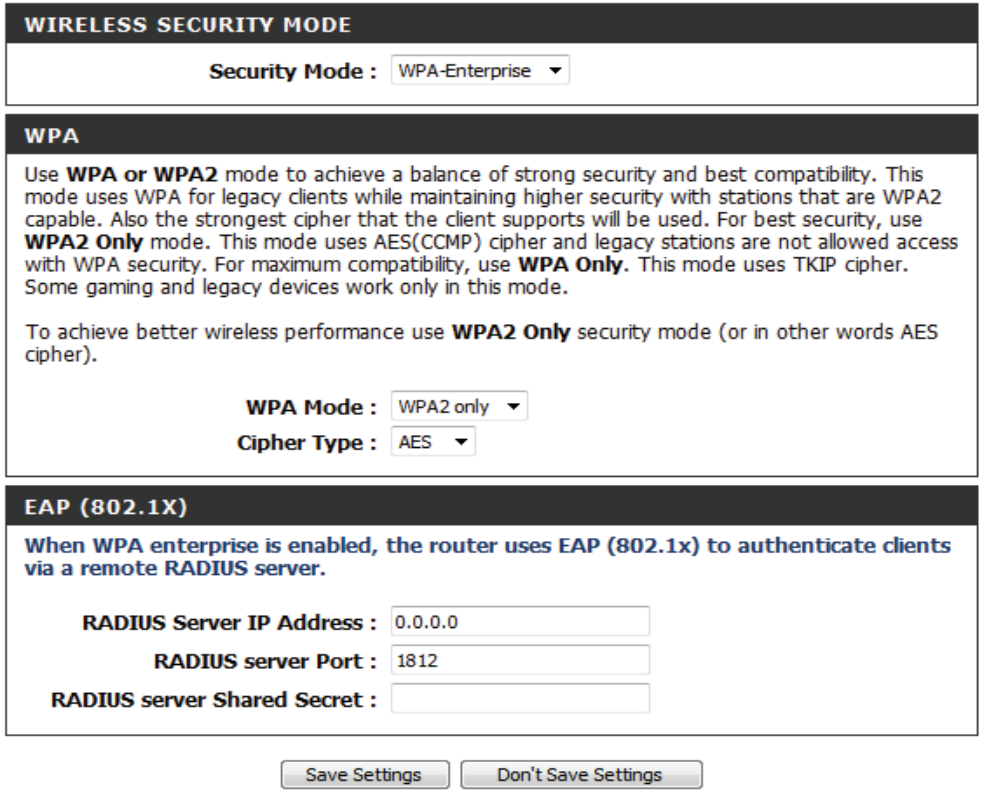
WPA Mode: Select whether to use WPA2 only or WPA only. WPA2 only is the most secure, provided that all of your clients can support it.

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.

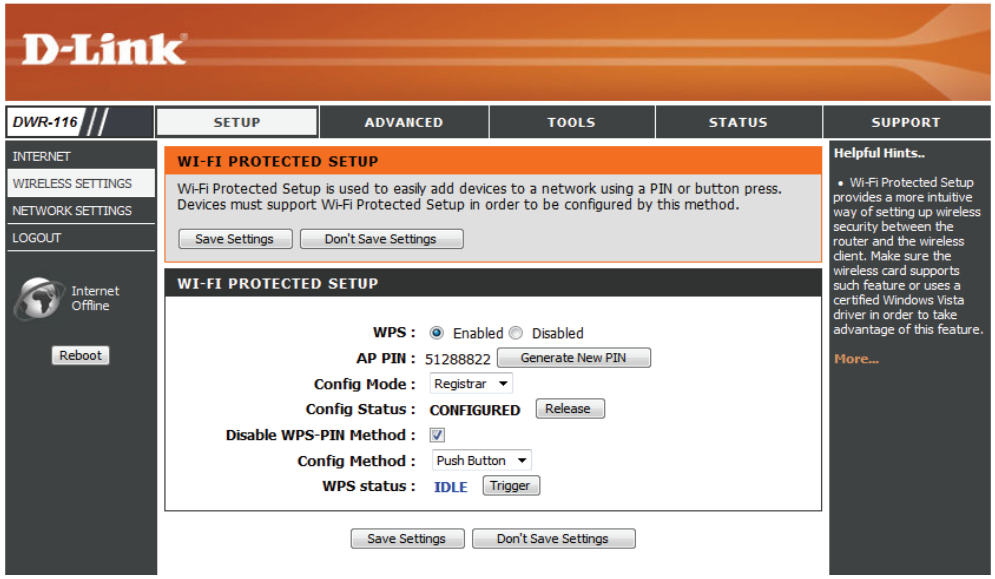
RADIUS Server Port: Enter the port used for your RADIUS server.

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



Wi-Fi Protected Setup

Wi-Fi Protected Setup (WPS) System is a simplified method for securing your wireless network during the "Initial setup" as well as the "Add New Device" processes. The process is just as easy as pressing a button for the Push-Button Method or correctly entering an 8-digit code.



Enable: Enable/disable the Wi-Fi Protected Setup feature.

AP PIN: Shows the current PIN.

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

Config Mode: Select whether the router is the **Enrollee** or the **Registrar**. If this is set to enrollee, the router will try to connect to other devices. If it is set to registrar, other devices will try to connect to the router.

Config Status: Displays the current state of WPS configuration. Clicking the **Release** button will disable any previously paired devices from connecting. You will need to reconfigure WPS on those devices to connect them again.

Disable WPS-PIN Method: This checkbox will disable pin authentication for WPS. You will have to use the push button on the router and the device you are trying to connect in order to establish a WPS pairing.

Config Method: Select whether the WPS authentication will use Pin code or push button method.

WPS Status: Displays the current state of the router's WPS system.

Trigger: The **Trigger** button acts like the physical WPS push button, and will search for devices nearby that are trying to establish a WPS connection.

Note: The DWR-116 has a WPS push button on the front panel that will activate WPS mode by pressing and holding the button for approximately 6 seconds. The Wi-Fi LED will begin to flash rapidly when WPS mode has been activated.

Network Settings
Router Settings

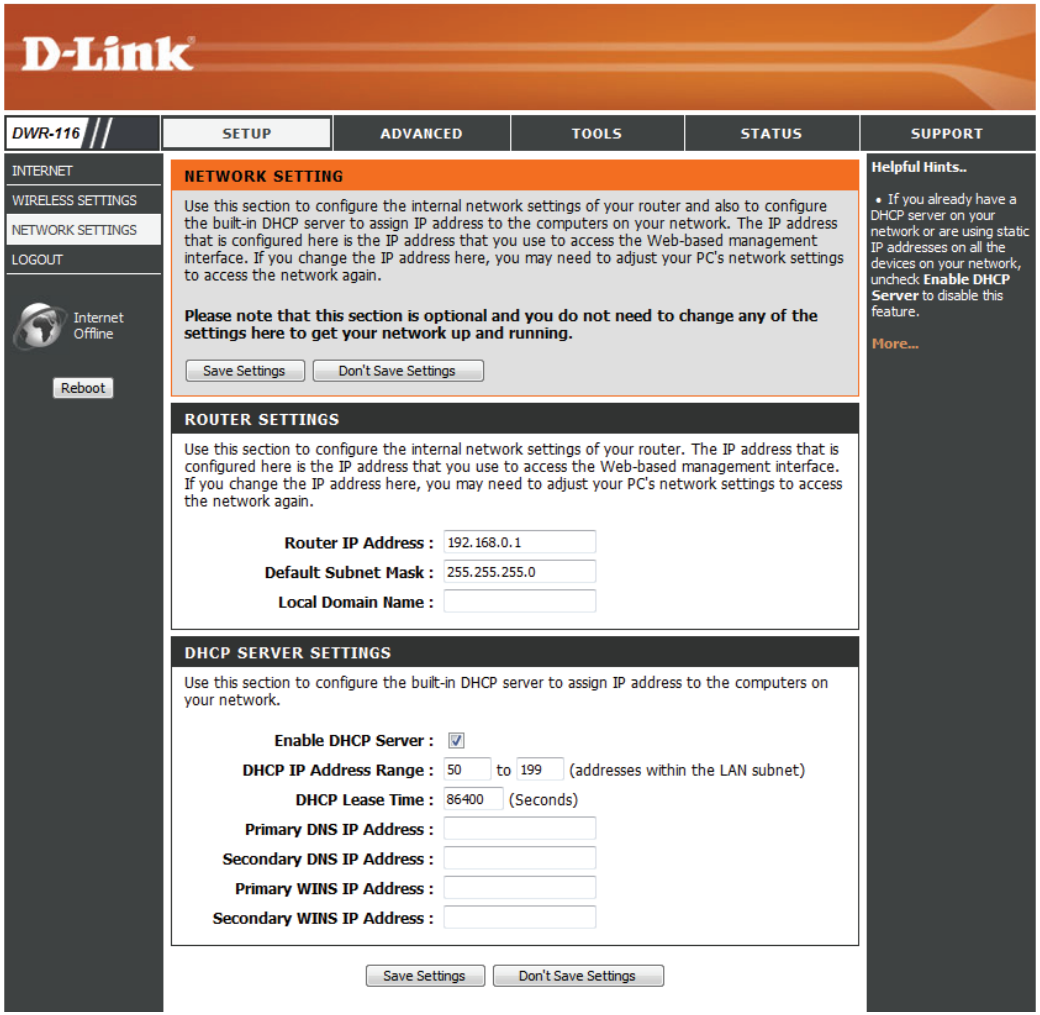
This section will help you to change the internal network settings of your router and to configure the DHCP Server settings.

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, you will need to enter the new IP address in your browser in order to access the web-based configuration utility.

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

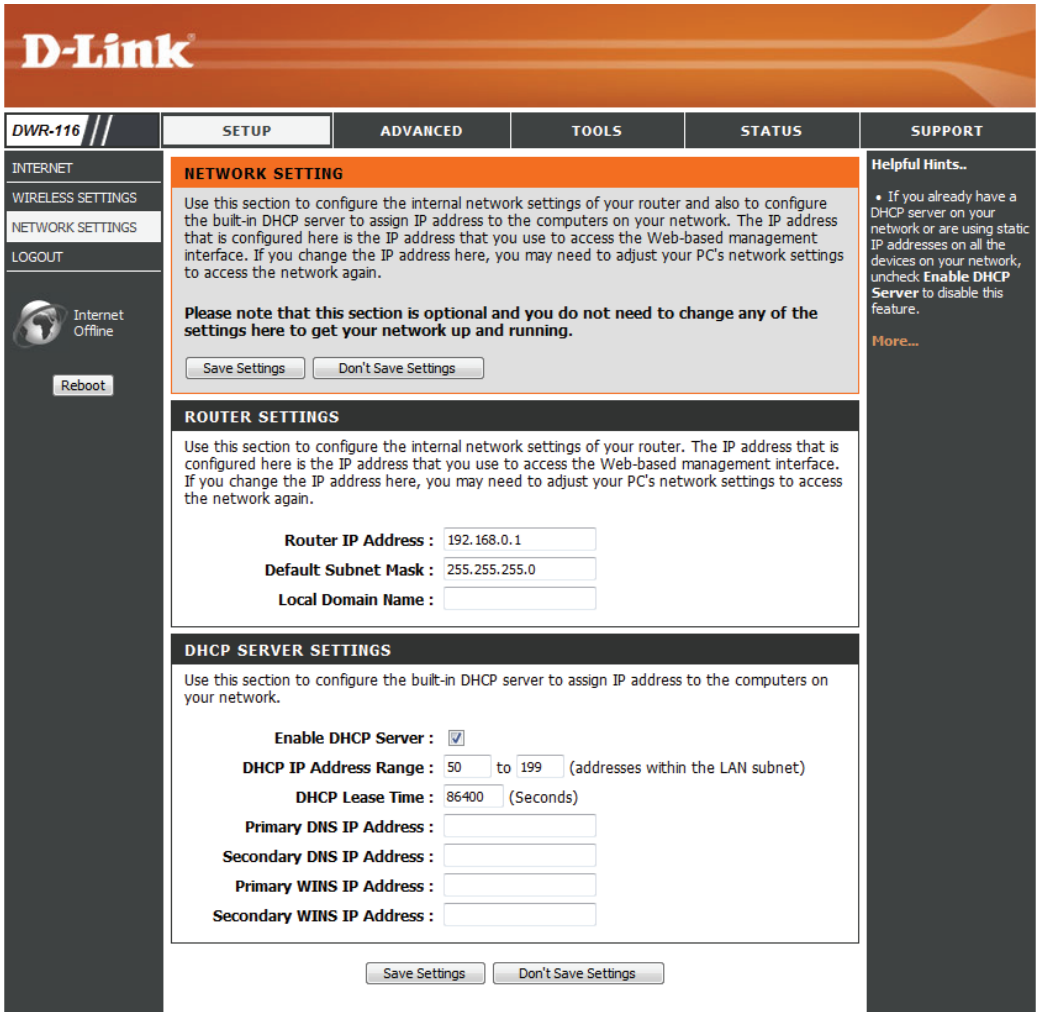
Local Domain Name: Enter the local domain name for your network.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.



DHCP Server Settings

The DWR-116 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 are automatically assigned to the clients on the network.



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

DHCP IP Address Range: Enter the starting and ending IP address for the server's IP address pool.

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

Primary DNS IP Address: Assign a primary DNS Server to DHCP clients.

Secondary DNS IP Address: Assign a DNS Server to DHCP clients.

Primary WINS IP Address: Assign a primary WINS Server to DHCP clients.

Secondary WINS IP Address: Assign a WINS Server to DHCP clients.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

Advanced
Virtual Server

The device can be configured as a virtual server so that users can access services such as Web or FTP via the public (WAN) IP address of the router.

Well-known Services: This contains a list of pre-defined services.

Copy to: Copies the rule to the line of the specified ID.

Use schedule rule: You may select **Always On** or choose the number of a schedule rule that you have defined.

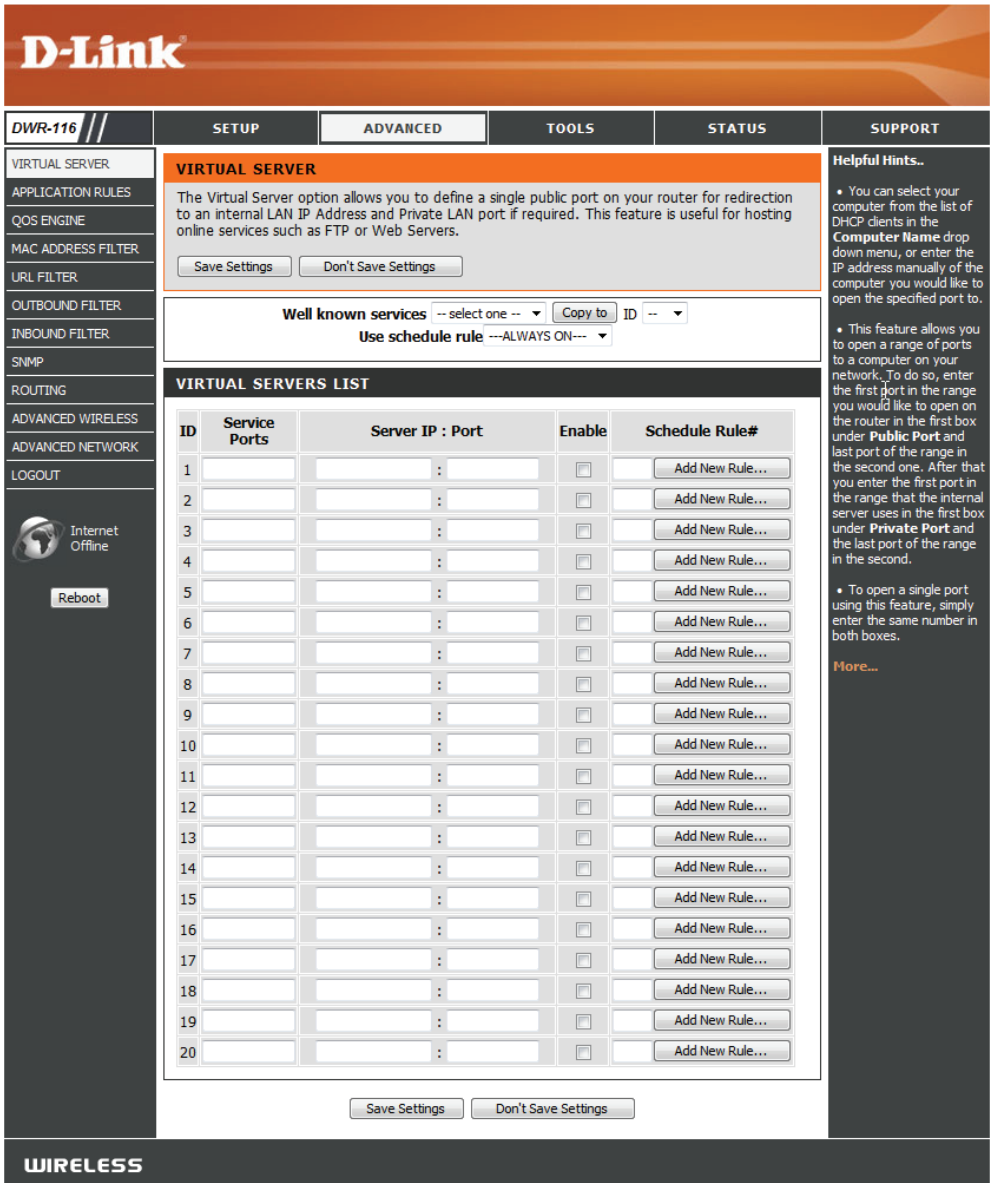
ID: Identifies the virtual server.

Server IP: Port: Enter the IP address of the computer on your local network that you want to allow the incoming service. In the next box, enter the port number that you would like to open.

Enable: Select this box to enable the rule.

Schedule Rule #: Specify the schedule rule number.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.



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). **Application Rules** allow some of these applications work with the DWR-116.

Popular Applications: Select from a list of popular applications.

Copy to ID: Copies the predefined application rule to the line of the specified ID.

ID: Identifies the rule.

Trigger: The name of the trigger.

Incoming Ports: Specify the incoming port for the trigger rule.

Enable: Select this box to enable the rule.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

QoS Engine

The **QoS Engine** improves your online experience by ensuring that certain applications 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 the applications.

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

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

ID: Identifies the rule.

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

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

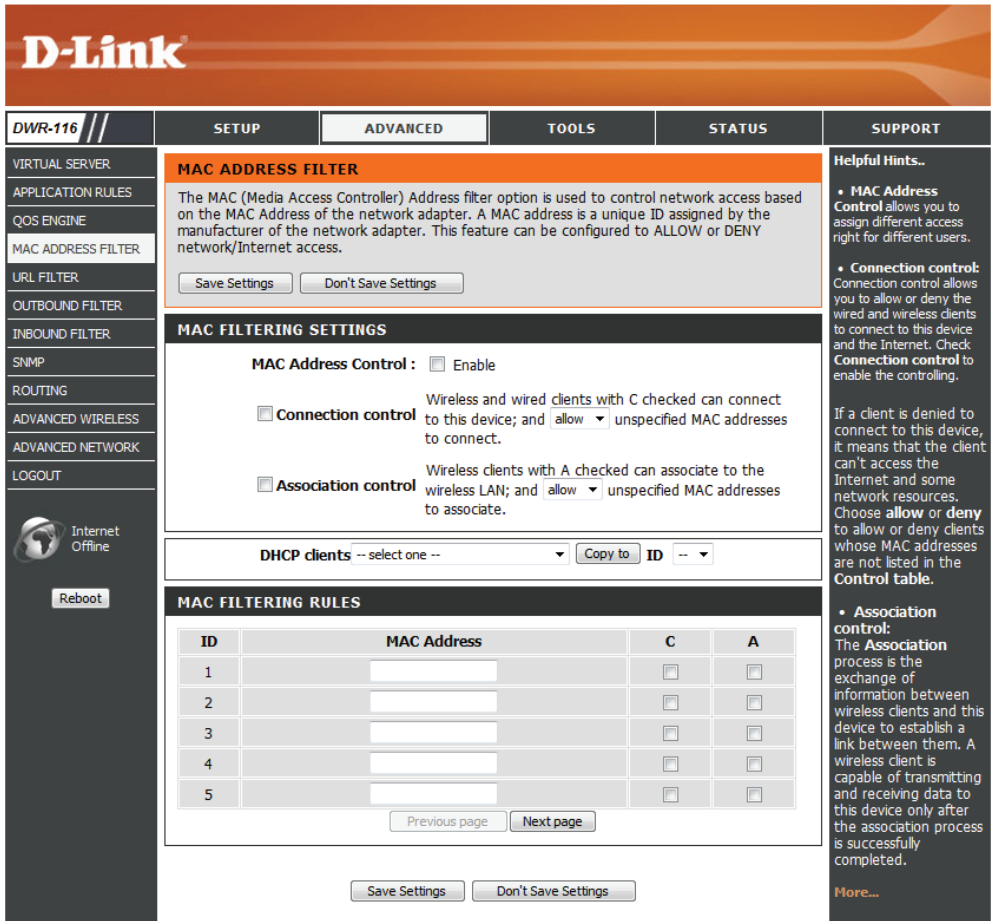
QoS Priority: Select **Low, Normal, or High**.

Enable: Select a checkbox to enable the particular QoS rules individually.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

MAC Address Filter

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



MAC Address Control: Select this box to enable MAC filtering.

Connection Control: Wireless and wired clients with **C** selected can connect to this device and **allow/deny** connections from unspecified MAC addresses.

Association Control: Wireless clients with **A** selected can associate to the wireless LAN; and **allow/deny** connections from unspecified MAC addresses.

ID: Identifies the rule.

MAC Address: Specify the MAC address of the computer to be filtered.

IP Address: Specify the last section of the IP address.

Wake On LAN: Click **Trigger** to configure Wake On LAN.

C: If this box is selected, the rule will follow the connection control setting specified in MAC filtering settings.

A: If this box is selected, the rule will follow the connection control setting specified in MAC filtering settings.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.

URL Filter

URL Filter allows you to set up a list of websites that will be blocked from users on your network.

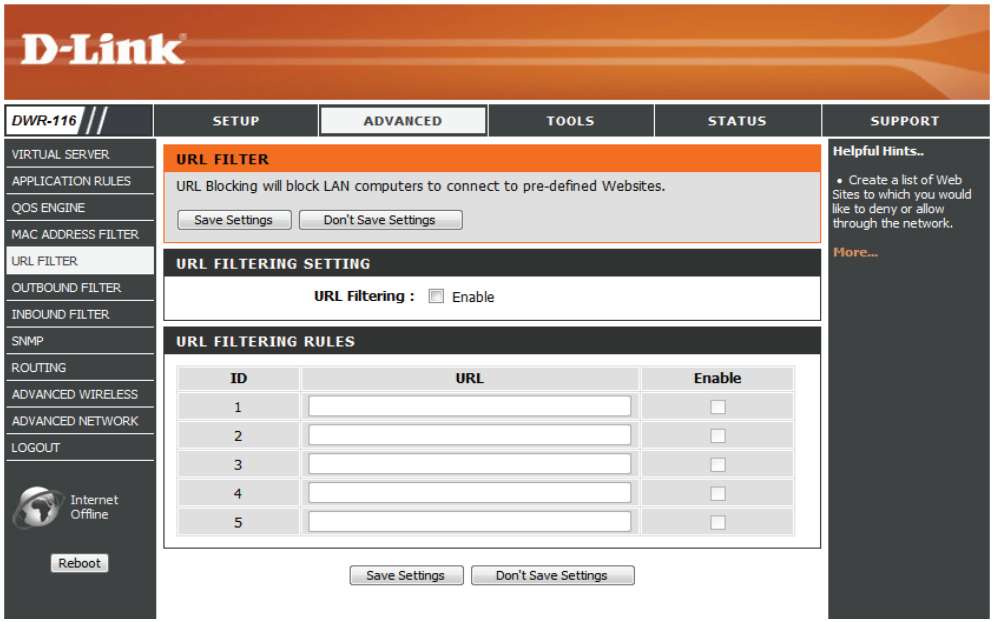
URL Filtering: Select this box to enable URL Filtering.

ID: Identifies the rule.

URL: Enter URL that you would like to block.

Enable: Click to enable the specific URL filter.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.



Outbound Filter

Outbound Filter enables you to control what packets are allowed to pass through the router. Outbound filter applies on all outbound packets.

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

Use Schedule Rule: You may select **Always On** or choose the number of a schedule rule that you have defined.

Copy to ID: Copies the predefined filter to the specified ID

ID: Identifies the filter.

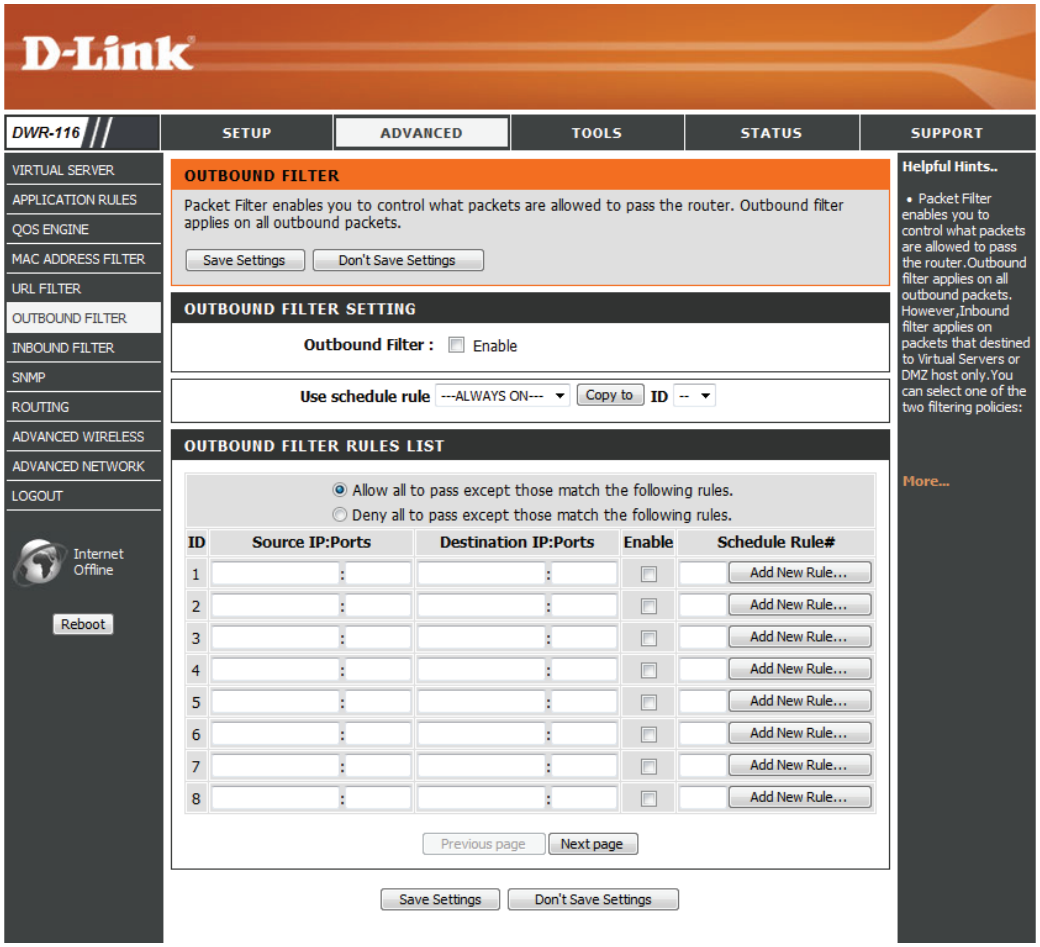
Source IP : Ports: Specify the local IP address and then specify the port after the colon.

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

Enable: Select this box to enable the filter.

Schedule Rule #: Specify the schedule rule number.

Previous Page: Go back to the previous filter page.

Next Page: Advance to the next filter page.

Click **Save Settings** to save your changes, or click **Don't Save Settings** to discard your changes.