ARRIS Router Setup - Web GUI User's Guide

Standard 1.1

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Section 1

Configuring your Router and your Wireless LAN Connection

1 Introduction

This section explains how to set up your router and configure your wireless connection, including:

- Basic Configuration
- Advanced Configuration

1.1 Pre-Configuration Requirements

IMPORTANT: In order to configure your router, you should have already done the following:

- Installed the router hardware as described in *Installing and Connecting your (Product Name)* in the User's Guide for your specific product.
- Established a wired Ethernet connection between your computer and your ARRIS router, as follows:
  - Connect an Ethernet cable to your computer and to an available Ethernet port on the back of your router.
  - Configure the Ethernet connection as explained in *Configuring Your Ethernet Connection* in the User's Guide for your specific product.

1.1.1 User Guides

If you do not have the User Guide for your product, you can download one here:

http://www.arrisi.com/support/guides/

2 Basic Configuration

The router ships with a basic factory default configuration that should allow you to immediately access the Internet after installing the hardware according to your User's Guide.

If you need to modify the routers default basic settings, or if you want to configure advanced settings, refer to the appropriate instructions in this document.

As a minimum, it is recommended that you:

- Change the default login password
- Change the default wireless network name, also called the Service Set Identifier (SSID)

Wireless LAN Default Security Setting

The router ships with wireless LAN security set by default. See the security label on your product for the factory security settings: network name (SSID), encryption method, network key, and WPS PIN.

If you need to modify the router's default wireless security settings, or if you want to configure any other settings, refer to the appropriate instructions in this document.

Note: You must set up your computer and other client devices to work with the security settings on the router. Refer to the documentation for your client device for instructions on setting security. If your computer or client device supports WiFi Alliance WPS (Wireless Protected Setup), activate WPS on your computer or client device and the router simultaneously to easily set up your system security.

2.1 Accessing the Configuration Interface

Perform the following steps to access the configuration interface.

Note: You should have already performed the steps described in paragraph 1.1 Pre-Configuration Requirements.

1. If security has been properly set up on your computer to access the wireless LAN on the router, use the connection utility for your operating system to connect to the wireless LAN using its network name (SSID), as shown on the security label.

   Note: If you cannot access the wireless LAN, you must first establish a wired Ethernet connection between your computer and the router.

2. In your web browser, open the page http://192.168.0.1/ to access the wireless router setup. The Login screen displays.

3. Enter the user name and password and click the Apply button to log in.

Note: The default user name is "admin". The default password is "password", in lower case letters.

The System Basic Setup screen displays.

4. Set basic setup configuration parameters as required for your system.

Note: Most configuration parameters that you may want to set can be accessed on the System Basic Setup screen, including the security mode and setting a system password.

2.2 Configuring Your Wireless Network

Perform the following procedures to make the basic configuration settings for your wireless network.

2.2.1 Enabling or Disabling the Wireless Network

Perform the following steps to enable the wireless network.

1. Access and log into the configuration interface.
2. Click the **Basic Setup** tab.
3. Click the **Enable Wireless** checkbox to enable wireless networking.
4. Click the **Apply** button at the bottom of the screen.

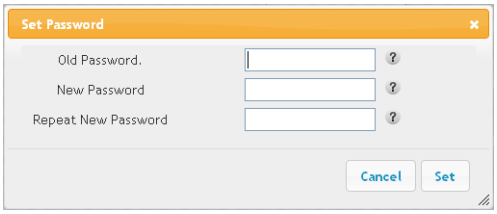
2.2.2 Changing Your Login Password

You should change your login password to something other than the default password.

Note: The default user name is "admin". The default password is "password", in lower case letters.

Perform the following steps to change your password.

1. Access and log into the configuration interface.
2. Click the **Basic Setup** tab.
3. Click the **Change Password** button to display the change password dialog box.



4. Enter your old password.
5. Enter your new password twice.

Note: Passwords are case-sensitive. Valid characters are the numbers 0 to 9, the letters a through z and A through Z, and printable special characters (such as $, !, ?, &, #, @, and others.)

6. Click the **Set** button.

2.2.3 Changing the Default Wireless Network Name (SSID)

While still on the **Basic Setup** screen, perform the following steps to change your wireless network name.

1. Enter a unique user friendly name to identify your wireless network in the **Wireless Network Name (SSID)** field.

Note: This name is also referred to as the Service Set Identifier (SSID). The name can be up to 32 characters long.

2. Set the Broadcast Network Name (SSID) option.

Note: – Checking this checkbox allows the SSID to be broadcast by the router. If enabled, your SSID could be obtained allowing unauthorized access to your network. If you would like others not to see your access point, uncheck the checkbox to hide the SSID.

3. Click the **Apply** button at the bottom of the screen.

2.2.4 Selecting the Operating Channel

While still on the **Basic Setup** screen, perform the following steps to select a communications channel for your router.

1. Select **AUTO** or a specific channel number from the **Channel** drop-down list.

Note: The default setting is "Auto", in which the router selects a channel with the least amount of interference to use. If you set a specific channel, for best performance it's best to choose channel 1, 6, or 11, since these channels do not overlap. If another unit is operating in the area, choose a channel that is farthest away from the channel that unit uses. For example, if one is using channel 11, set yours to channel 1. If you experience interference or poor performance on a particular channel, try a different channel.

2.2.5 Setting the Wireless Network Security Mode

The router ships with wireless LAN security set by default. See the security label on your product for the factory security settings: network name (SSID), encryption method, network key, and WPS PIN.

Note: You must set up your computer and other client devices to work with the security settings on the router. Refer to the documentation for your client device for instructions on setting security. If your computer or client device supports WiFi Alliance WPS (Wireless Protected Setup), activate WPS on your computer or client device and the router simultaneously to easily set up your system security.

If you need to modify the router's default wireless security settings perform the following steps:.

1. Access and log into the configuration interface.
2. Click the **Basic Setup** tab.
3. Select the desired security mode from the **Security Mode** drop-down list.

   The screen will change and be populated with a section for configuring the specific security mode that you selected.
4. Set the required configuration parameters for the security mode you selected.

   Note: Refer to Basic Setup in Section 2 Web GUI Screens and Configuration Parameter Reference for specific information on the security mode configuration parameters.
5. Click the **Apply** button at the bottom of the screen.

2.3 Configuring Wi-Fi Protected Setup (WPS)

WPS is a standard method for easily configuring a secure connection between your router and computers or other wireless devices (known as enrollees) that support WPS. When WPS is enabled you can attach other wireless devices by pressing the WPS buttons on the device (if equipped) and on your router, or by entering the enrollee's PIN and then clicking the Start WPS Association icon.

Perform the following steps to enable the wireless network.

1. Access and log into the configuration interface.
2. Click the **Basic Setup** tab.
3. Click the **WPS Enable** checkbox to enable WPS on your system.
4. Select the Encryption Mode from the **Encryption Mode** drop-down menu. It can be set to PBC (Push Button Control) or PIN Code.

   If your client device has a WPS button, select PBC and go to step 5a.

   If your client device has a PIN number select PIN Code and go to step 5b.
5. a) If using PBC, press the WPS buttons on the client device and on your router simultaneously to start the WPS association.

b) If using PIN codes, enter the enrollee's PIN in the Enrollee PIN Code field, and then click the **Start WPS Association** icon. Enter the router's PIN code in the Device PIN Code field if requested during connection.

6. If the connection is successful, the WPS indicator light on the router stops flashing and remains lit. If unsuccessful, the WPS light continues to flash for up to two minutes (indicating that it's ready to accept a client connection) and then turns off. If the WPS light turns off, start the association process over.

2.4 Troubleshooting Your Wireless Connection

The three main factors that affect wireless network performance are:

- Range from the Client Devices
- Interference from other Wireless Devices
- Client Device hardware/software Configuration

2.4.1 Factors Affecting Wireless Range

How close are your wireless devices to your router? The router's wireless connection range is typically 100 to 200 feet (30m to 65m).

A number of factors can affect the usable range for wireless connections, as described in this table.

Affect on Range	Factor
Increases Range	• Raising the unit above the devices (for example, installing the router in the upper floor of a multi-story dwelling) • Setting the transmit power level to High
Decreases Range	• Lowering the unit below the devices (for example, installing the router in a basement) • Metal or concrete walls between the router and client devices • Large metal appliances, aquariums, or metal cabinets between the router and client devices • Interference and RF noise (2.4 GHz cordless phones, microwave ovens, or other wireless networks) • Setting the trasmit power level to Medium or Low

Note: Decreasing the range of your wireless network may be beneficial, as long as the decreased range is sufficient for your needs. By limiting your network's range, you reduce interference with other networks and make it harder for unwanted users to find and connect to your network.

2.4.2 Interference from Other Wireless Devices

Interference from other equipment operating at 2.4 GHz in the area of your wireless network can significantly affect the range and performance of your network, such as:

- Cordless phones
- Wireless speakers
- Microwave ovens
- Baby monitors
- Gaming Consoles: such as Wii, X-Box, and Play Station
- Any other devices operating at 2.4 GHz

Note: If your cordless phones or other wireless devices are interfereing with your wireless network's performance, replace them with a similar device that operates on a different frequency if possible. For example, change to 5.8 GHz cordless phones.

2.4.3 Client Device Hardware/Software Configuration

Client device hardware/software configuration can also affect your wireless network performance.

For example, your computer's operating system, network adapter, processor, and hard drive access speed can all affect the transfer speeds that you experience across the network.

If your client device network adapters s use the older 802.11b or 802.11g standards, you should upgrade them to the 802.11n standard. Network adapters using the older standards can reduce the performance of your entire network.

2.5 Setting Up Your WAN Connection

A Dynamic or DHCP (Dynamic Host Configuration Protocol) connection is the most commonly used WAN connection type. Do not change this setting unless your Internet Service Provider tells you to use another connection type, either Static IP or L2TP.

Perform the following steps to change your connection type.

1. Access and log into the configuration interface.
2. Click the **WAN Setup** tab.
3. Click Dynamic, Dynamic (IPV6), Static, Static (IPV6), or L2TP in the side menu to display the appropriate screen for configuring that type of WAN connection.

4. Set the required configuration parameters for the connection type you selected as provided by your Internet Service Provider.

   Note: Refer to WAN Setup in Section 2 Web GUI Screens and Configuration Parameter Reference for specific instructions on setting the various connection type configuration parameters.

5. Click the **Apply** button at the bottom of the screen.

3 Advanced Configuration Options

3.1 Introduction

This section explains how to use the most common advanced configuration options for your router in the following areas:

- WAN Setup
- LAN Setup
- Wireless Setup
- Firewall
- Utilities

Note: Refer to Section 2 Web GUI Screens and Configuration Parameter Reference for additional advanced configuration options.

3.2 WAN Setup – Configuring Dynamic Routing (RIP)

Enabling Dynamic Routing or RIP (Router Information Protocol) allows your router to operate in a network environment with other routers. This is primarily used for office environments or multiple dwelling units where a network with existing routers already exists. Only enable Dynamic Routing if your service provider recommends that you do so.

Requirements

To successfully configure RIP, you must have:

- A static IP address assigned by our service provider.
- Disabled NAT (Network Address Translation) on your router, which also means you must either assign a static IP address to all devices on your local network or use a DHCP server to assign addresses.

Perform the following steps to enable Dynamic Routing.

1. Access and log into the configuration interface.
2. Click the **WAN Setup** tab.
3. Click **Routing** in the side menu to display the routing screen.
4. Click the **Enable Dynamic Routing (RIP)** checkbox.

Note: Refer to WAN Setup in Section 2 Web GUI Screens and Configuration Parameter Reference for specific instructions on setting the various dynamic routingconfiguration parameters.

5. After setting the necessary configuration parameters, click the **Apply** button at the bottom of the screen.
6. Set **NAT Mode** to Bridged on the LAN Setup – LAN Settings screen.

3.3 WAN Setup – Configuring Dynamic Routing (RIPng)

Enabling Dynamic Routing for IPV6 or RIPng (Router Information Protocol next generation) allows your router to operate in a network environment with other routers. This is primarily used for office environments or multiple dwelling units where a network with existing routers already exists. Only enable Dynamic Routing if your service provider recommends that you do so.

Requirements

To successfully configure RIPng, you must have:

- A static IP address assigned by our service provider.
- You must either assign a static IP address to all devices on your local network or use a DHCP server to assign addresses.

Perform the following steps to enable Dynamic Routing for IPV6.

1. Access and log into the configuration interface.
2. Click the **WAN Setup** tab.
3. Click **Routing (RIPng)** in the side menu to display the RIPng configuration screen.
4. Click the **Enable Dynamic Routing** checkbox.

Note: Refer to WAN Setup in Section 2 Web GUI Screens and Configuration Parameter Reference for specific instructions on setting the various dynamic routingconfiguration parameters.

5. After setting the necessary configuration parameters, click the **Apply** button at the bottom of the screen.

3.4 WAN Setup – DS-Lite

Dual-Stack Lite (DS-Lite) enables IPV4 to tunnel through an IPV6 AFTR (Address Family Transition Router). Set these fields as your Internet Service Provider recommends.

Perform the following steps to enable DS-Lite.

1. Access and log into the configuration interface.
2. Click the **WAN Setup** tab.

3. Click **DS-Lite** in the side menu to display the DS-Lite configuration screen.
4. Click the **Enable DS-Lite** checkbox.

Note: The AFTR Address field displays the IP address of the AFTR that provides DS-Lite.

5. Click the **Apply** button at the bottom of the screen.

3.5 LAN Setup – Configuring DHCP

DHCP (Dynamic Host Protocol Configuration) is enabled by default on your router which allows your router to act as a DHCP server and automatically assign an IP address to each device on your network.

DHCP is a set of rules used by devices such as a computer, router, or network adapter to allow the device to request and obtain an IP address from a server which maintains a list of addresses available for use. The DHCP server ensures that all IP addresses are unique, e.g., no IP address is assigned to a second device while the first device's assignment is valid (its lease has not expired).

Without DHCP, the IP addresses must be entered manually at each computer or device and a new IP address must be entered each time it moves to a new location on the network.

Perform the following steps to configure DHCP.

1. Access and log into the configuration interface.
2. Click the **LAN Setup** tab.
3. Click **LAN Settings** in the side menu to display the LAN Settings screen.
4. Click the **Enable DHCP Server** checkbox.
5. Enter the Start IP Address and End IP Address for the range of IP addresses that the DHCP Server will be allowed to assign to a network device.
6. Enter the Lease Time in seconds before the assigned IP address will expire. (After the lease time is up, the user is automatically assigned a new dynamic IP address.)

Note: Refer to LAN Setup in Section 2 Web GUI Screens and Configuration Parameter Reference for specific instructions on setting the various DHCP configuration parameters.

7. Click the **Apply** button at the bottom of the screen.

3.5.1 LAN Setup – Adding and Deleting DHCP Clients

The DHCP Client screen shows the host Name, IP address, and MAC Address of each computer that is connected to your network. If a computer does not have a specified host name, then the host Name field will be blank.

Perform the following steps to configure the DHCP Clients.

1. Access and log into the configuration interface.
2. Click the **LAN Setup** tab.
3. Click **Dynamic Configuration** in the side menu to display the DHCP Client list.
4. Click the **Add** button to create a new fixed DHCP lease. Select a DHCP client and then click the **Delete** button to delete the DHCP client. Click the **Refresh** button to update the DHCP Clients list

3.6 LAN Setup – Selecting the NAT Mode

NAT (Network Address Translation) allows your router to manipulate IP addresses so that just one single IP address can represent an entire group of computers on your network and let them all communicate with the Internet. This conserves IP addresses and is necessary since there are a finite number of available IP addresses for use.

Perform the following steps to select the NAT Mode.

1. Access and log into the configuration interface.
2. Click the **LAN Setup** tab.
3. Click **LAN Settings i**n the side menu to display the LAN Settings screen.
4. Select the **NAT Mode** from the NAT Mode field drop-down list. The optional modes are:

   Bridged - Data will pass through the device directly without any routing.

   Routed with NAT - Data will be routed by the device and all the outgoing packets will be NATed.

   Routed without NAT - Data will be routed by the device but all the outgoing packets will not be NATed.
5. Click the **Apply** button at the bottom of the screen.

3.7 Wireless Setup – Setting the Wireless Mode

You can set your wireless mode to optimize performance based on the type of network adapters being used by your network devices, e.g., 802.11b, 820.11g, and 802.11n. Select the proper mode to support all of the wireless devices that will connect to your router.

Perform the following steps to set your wireless mode.

1. Access and log into the configuration interface.
2. Click the **Wireless Setup** tab.
3. Click **Advanced** in the side menu to display the Advanced Settings screen.
4. Under **Wireless Network Settings** select the proper mode from the **Wireless Mode** drop-down list.
   Options are: B/G mixed, B only, G only, N only, G/N mixed, and B/G/N mixed.
5. Click the **Apply** button at the bottom of the screen.

Note: Refer to the Wireless Setup – Advanced screen in Section 2 Web GUI Screens and Configuration Parameter Reference for instructions on setting additional advanced wireless configuration parameters.

3.8 Wireless Setup – Setting the 802.11n Operating Mode

The 802.11 operating mode must be set to work properly with the selected wireless mode setting. The default setting, **Mixed Mode**, is for networks with a mix of 802.11b/g/n client devices. Mixed Mode can be used with any Wireless Mode setting. If all of your network devices are 802.11n devices, you can improve the efficiency of your network by setting the Wireless Mode to "N only" and setting the 802.11n operating mode to **Greenfield**.

Perform the following steps to set your 802.11n operating mode.

1. Access and log into the configuration interface.
2. Click the **Wireless Setup** tab.
3. Click **Advanced** in the side menu to display the Advanced Settings screen.
4. Under **802.11n Specific Settings** select the proper mode from the **Operation Mode** drop-down list.
   Options are: Greenfield and Mixed Mode.
5. Click the **Apply** button at the bottom of the screen.

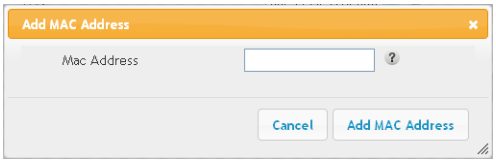
Note: Refer to the Wireless Setup – Advanced screen in Section 2 Web GUI Screens and Configuration Parameter Reference for instructions on setting additional advanced wireless configuration parameters.

3.9 Wireless Setup – Using MAC Address Filtering

MAC address filtering allows you to restrict access to your wireless network to those computers you specifically authorize to connect. This filter type is called a Whitelist. Optionally, you can block specific computers from accessing your network. This filter type is called a Blacklist. You have to choose one type or the other.

Perform the following steps to set up MAC address filtering.

1. Access and log into the configuration interface.
2. Click the **Wireless Setup** tab.
3. Click **MAC Address Control** in the side menu to display the MAC Address Control screen.
4. Under **MAC Address Filtering** select the proper filter type from the **MAC Address Filter Type** drop-down list.
   Options are: None, Whitelist, and Blacklist.
5. Under **MAC Address Filter List** click the **Add** button t display the Add MAC Address dialog box.



6. Enter the MAC address of a computer that you want to add to the filter list, and then click the **Add MAC Address** button.

Note: If you don't know how to find your computer's MAC address, see 3.8.1 Finding the MAC Address of a Computer.

7. Repeat Step 6 for each MAC address you want to add.

Note: To delete a MAC address, first select a MAC address in the list and then click the Delete button.

8. Click the **Apply** button at the bottom of the screen.

3.9.1 Finding the MAC Address of a Computer

Use the specific operating system of your computer to find its MAC address, as follows.

Windows:

From the Start menu, find and select the **Control Panel**. Double-click **Network Connections** (Windows XP), or **Network & Sharing Center** (Windows Vista or Windows 7). Then double-click either "Wireless Network Connection" for a wireless connection, or "Local Area Connection" for an Ethernet connection. Next click the **Details** button (Windows Vista or Windows 7), or click the Support tab and then the **Details** button (Windows XP). The "Physical Address" line shows the MAC address.

MacOS X:

Open System Preferences and click the Network icon. To find the Ethernet MAC address, select **Built-in Ethernet** from the Show drop-down, then click the Ethernet tab. The "Ethernet ID" field shows the MAC address. To find the wireless MAC address, select **Airport** from the Show drop-down, then click the Airport tab. The "Airport ID" field shows the MAC address.

Linux:

Open a shell window and type **/sbin/ifconfig** (and press Enter). The wireless interface is eth1 (unless there is no Ethernet adapter, in which case the interface is eth0).

3.10 Firewall – General Firewall Configuration Settings

Your router is equipped with a firewall that will protect your network from a wide array of common hacker attacks, including Ping of Death (PoD) and Denial of Service (DoS) attacks. You can also configure VPN pass-through to enable VPN tunneling using IPSec, PPTP, or L2TP protocols to pass through the router's firewall so that you can connect to a Virtual Private Network at your office, for example.

You can disable the firewall function if needed. Turning off the firewall protection will not leave your network completely vulnerable to hacker attacks, but it is recommended that you enable the firewall whenever possible.

Perform the following steps to enable the firewall and make general firewall settings.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Firewall Settings** in the side menu to display the Firewall Settings screen.
4. Check the **Enable Firewall** checkbox to enable the firewall on your network.
5. Check the **Enable DoS Attack Protection Firewall** checkbox to protect against DoS attacks.
6. Check the **Enable Ping Blocking** checkbox to protect against PoD attacks.
7. Check the **Enable IPSec Pass Through** checkbox to allow IPSec tunnels to pass through the router.
8. Check Check the **Enable PPTP Pass Through** checkbox to allow PPTP tunnels to pass through the router.
9. Check Check the **Enable L2TP Pass Through** checkbox to allow L2TP tunnels to pass through the router.
10. Click the **Apply** button at the bottom of the screen.

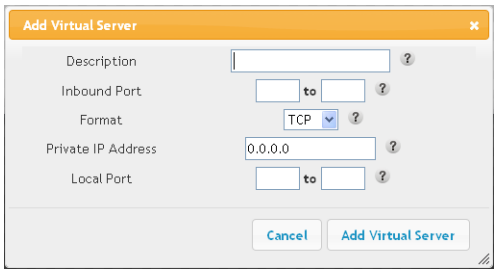
3.11 Firewall – Configuring a Virtual Server (Port Forwarding)

The port forwarding function forwards inbound traffic from the Internet to a specified single device on your network. Examples include allowing access to a web server on your network, peer-to-peer file sharing, applications that allow remote access to your computer, some gaming and videoconferencing applications, and others.

If you have a server in your network that you want to make available to the general Internet, you can configure a virtual server. The firewall passes requests from the Internet to the designated computer on your network. This function works by allowing you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your router to your internal network.

Perform the following steps to configure a virtual server.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Virtual Servers** in the side menu to display the Virtual Server Configuration screen.
4. Check the **Add** button to display the **Add Virtual Server** dialog box.



5. Enter the following parameters in the dialog box.

   Description – Enter a name for the virtual server.

   Inbound Port – Enter the inbound port range for the virtual server. It should be the same range as the local port.

   Format – Sets the format for the port. Options are TCP, UDP, or BOTH.

   Private IP Address – Enter the IP address of the machine on the LAN that you want the connections to go to.

   Local Port – Enter the local port range for the virtual server. It should be the same range as the inbound port.

6. Click the **Add Virtual Server** button to add the virtual server.

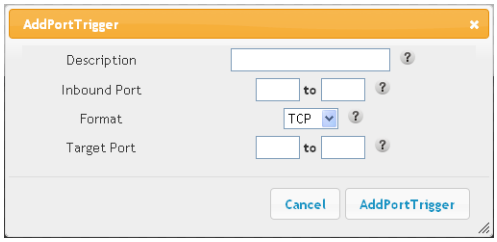
Note: To delete a virtual server, first select a virtual server in the list and then click the Delete button.

3.12 Firewall – Configuring Port Triggers

Port triggering lets you set the router to watch outgoing traffic for specific port numbers, remember the IP address of the sending computer, and then route the data back to the sending computer when the requested data returns. This is typically used for online gaming and online chat applications.

Perform the following steps to add a port trigger.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Port Triggers** in the side menu to display the Port Triggers screen.
4. Check the **Add** button to display the **Add Port Trigger** dialog box.



5. Enter the following parameters in the dialog box.

   Description – Enter a name for the port trigger.

   Inbound Port – Enter the inbound port range for the port trigger. It should be the same range as the target port.

   Format – Sets the format for the port. Options are TCP, UDP, or BOTH.

   Target Port – Enter the target port range for the port trigger. It should be the same range as the inbound port.

6. Click the **Add Port Trigger** button to add the port trigger.

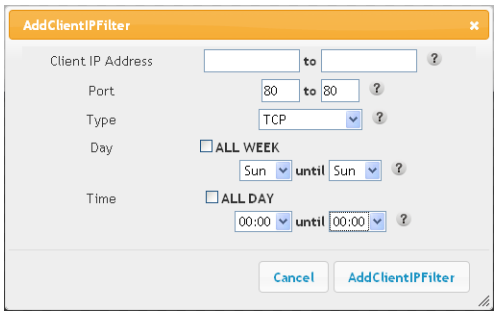
Note: To delete a port trigger, first select a port trigger in the list and then click the Delete button.

3.13 Firewall – Configuring Client IP Filters

The router can be configured to restrict access to the Internet, email, or other network services at specific days and times.

Perform the following steps to add a client IP filter.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Client IP Filters** in the side menu to display the Client IP Filter Configuration screen.
4. Check the **Add** button to display the **Add Client IP Filter** dialog box.



5. Enter the following parameters in the dialog box.

   Client IP Address – Enter the IP address of the client.

   Port – Enter the outbound traffic port number range, starting and ending.

   Type – Sets the port type. Options are TCP, UDP, or BOTH.

   Day – Sets the start day and end day for the allowed access. Click the checkbox for All Week.

   Time – Sets the start time and end time for the allowed access during the specified days (24-hour clock). 00:00 to 24:00 indicates all day, or click the checkbox for All Day.

6. Click the **Add Client IP Filter** button to add the filter.

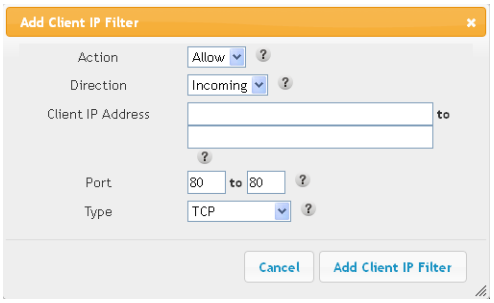
Note: To delete a client IP filter, first select aclient IP filter in the list and then click the Delete button.

3.14 Firewall – Configuring Client IPV6 Filters

The router can be configured to restrict access to the Internet, email, or other network services.

Perform the following steps to add a client IPV6 filter.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Client IPV6 Filters** in the side menu to display the Client IPV6 Filter Configuration screen.
4. Check the **Add** button to display the **Add Client IP Filter** dialog box.



5. Enter the following parameters in the dialog box.

   Action – Allow or Deny data watching this filter.

   Direction – Watch Incoming our Outgoing data.

   Client IP Address – Enter the range of IPV6 addresses to filter.

   Port – Enter the outbound traffic port number range, starting and ending.

   Type – Sets the port type. Options are TCP, UDP, or BOTH.

6. Click the **Add Client IP Filter** button to add the filter.

Note: To delete a client IP filter, first select aclient IP filter in the list and then click the Delete button.

3.15 Firewall – Configuring DMZ for Gaming or Conferencing Applications

The DMZ feature allows you to specify one computer on your network to be placed outside of the NAT firewall. This may be necessary if the NAT feature is causing problems with an application such as a game or video conferencing application.

Use this feature only on a temporary basis. The computer in the DMZ is not protected from hacker attacks.

Perform the following steps to put a computer in the DMZ.

1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **DMZ** in the side menu to display the DMZ Settings screen.
4. Enter the following parameters.

   Enable DMZ – Click this checkbox to enable DMZ on your network.

   WAN IP – Displays the public IP address.

   Private IP – Enter the IP address of the computer to be placed in the DMZ. Be sure that the address is not in the range of addresses delivered by the DHCP server if enabled. After placing the computer in the DMZ, all ports on the computer are open to the Internet and not protected.
5. Click the **Apply** button at the bottom of the screen.

Note: To remove the computer from the DMZ delete the entries and uncheck the Enable DMZ checkbox.

3.16 Firewall – Using Parental Controls

The Parental Control feature allows you to block specified keywords and web sites from being accessed and also to specify trusted computers in the network. Trusted computers are not affected by the parental control settings. You can add two trusted computers. For example, you may want the computers of the parents to be trusted, while the childrens' computers have parental controls in effect.

Perform the following steps to set up your Parental Controls.

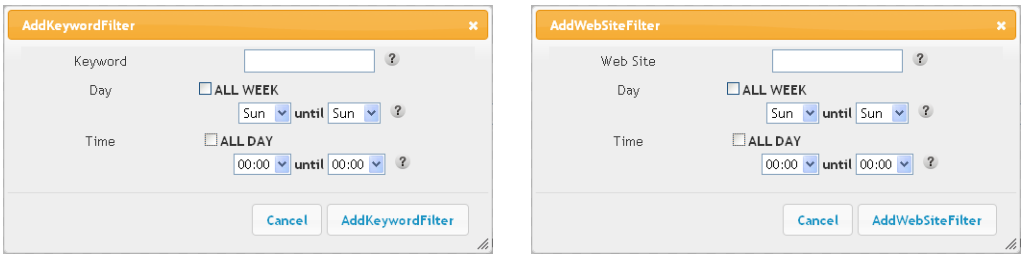
1. Access and log into the configuration interface.
2. Click the **Firewall** tab.
3. Click **Parental Controls** in the side menu to display the Parental Controls screen.
4. Check the Enable Parental Controls checkbox and click the Apply button.
5. Configure any or all of the following parental controls:

   Trusted MAC Addresses - Enter the MAC addresses of any "trusted" computers on the network and click the **Apply** button. Once added, these trusted computers will not be affected by the parental control settings.

Note: Refer to 3.8.1F inding the MAC Address of a Computer for information on determining the MAC address of your computer.

Keyword and Web Site Filtering - You can add a list of keywords and web sites that you want to block. To add a keyword or web site to the list, click the respective **Add** button. To delete a keyword or web site from the list, first click its check box and then click the **Delete**

button.



6. Adding a Keyword or Web Site Filter

   a) Enter the keyword in the Keyword field or web site URL address in the Web Site field.

   b) Set the start day and end day for the blocked access. (Sun until Sun indicates all week, or just click the All Week checkbox.)

   c) Set the start time and end time during the specified days (24-hour clock). (0:00 until 0:00 indicates all day, or just click the All Day checkbox.)

   d) Click the **Add Keyword Filter** or **Add Web Site Filter** button respectively. Then click the Apply button.

3.17 Utilities – Viewing the Network Status

You can view status and system information for your network on the Utilities – Status screen.

Perform the following steps to view system status information.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Status** in the side menu to display the System Information screen.

Note: Refer to 10.1 Utilities – Status/System Information for an explanation of the various status information parameters.

3.18 Utilities – Restarting the Router

It may be necessary to restart (reboot) the router if it begins working improperly. Restarting the router will not delete any of your configuration settings.

Perform the following steps to restart the router.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Restart Router** in the side menu to display the Restart Router screen.
4. Click the **Restart** button to restart the router.

3.19 Utilities – Reverting to Factory Default Settings

This function restores all of the router's configuration settings to the factory default setting. Before restoring the factory defaults, you should back up your current configuration settings using the Save/Backup Settings function.

Perform the following steps to revert to factory default settings.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Factory Defaults** in the side menu to display the Factory Defaults screen.
4. Click the **Factory Defaults** button to reset the router to factory default settings.

3.20 Utilities – Backing up your Settings

This function saves your current configuration settings, which allows you to restore them later if your settings are lost or changed.

Note: Always backup your current settings before performing a firmware update.

Perform the following steps to revert to backup your settings.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Save/Backup Settings** in the side menu to display the Save/Backup Settings screen.
4. Click the **Save** button to backup your router's settings.
5. Follow the "file download" and "save as" dialog box instructions for your specific browser to select a location for and save the router.data backup file.

3.21 Utilities –Restoring your Settings

This function allows you to restore a previously saved router configuration.

Perform the following steps to restore previously saved settings.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Restore Settings** in the side menu to display the Restore Settings screen.
4. Use the **Browse** button to locate and select the previously saved backup file.
5. click the **Restore Chosen File** button to restore your router's settings.

3.22 Utilities – Using System Logs

3.22.1 Configuring the Logs

The Utilities – Log Configuration screen allows you to set system log event configuration.

Perform the following steps to configure the system logs.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **Log Configuration** in the side menu to display the Log Configuration screen.
4. Enter the following parameters.

   Email Alerts – Click this checkbox to enable Email Alerts. Alerts will be sent to the email address entered in the Contact Email Address field.

   Contact Email Address – Enter the email address to which you want email alerts sent.

   SMTP Server Address – Enter the SMTP server IP address.
5. Click the **Apply** button at the bottom of the screen.

3.22.2 Viewing the Logs

The Utilities - System Logs screen displays the system logs.

When viewing the logs, click the **Refresh** button to update the list. Click the **Clear Log** button to clear the list.

3.23 Utilities – DDNS

DDNS (Dynamic DNS) allows you to provide Internet users with a fixed domain name (instead of an IP address which may periodically change). This allows your gateway and applications set up in your gateway's virtual servers to be accessed from various locations on the Internet without knowing your current IP address.

Requirements

In order to use DDNS you must first create an account with a DDNS provider. The DDNS provider maps your chosen domain name to your IP address.

Once your account is established, perform the following steps to enable DDNS.

1. Access and log into the configuration interface.
2. Click the **Utilities** tab.
3. Click **DDNS** in the side menu to display the DDNS configuration screen.
4. Click the **Enable DDNS** checkbox.

   Note: Refer to Utilities- DDNS in Section 2 Web GUI Screens and Configuration Parameter Reference for specific instructions on setting the various DDNS configuration parameters.
5. After setting the necessary configuration parameters, click the **Apply** button at the bottom of the screen.

Section 2

Web GUI Screens and Configuration Parameter Reference

4 Introduction

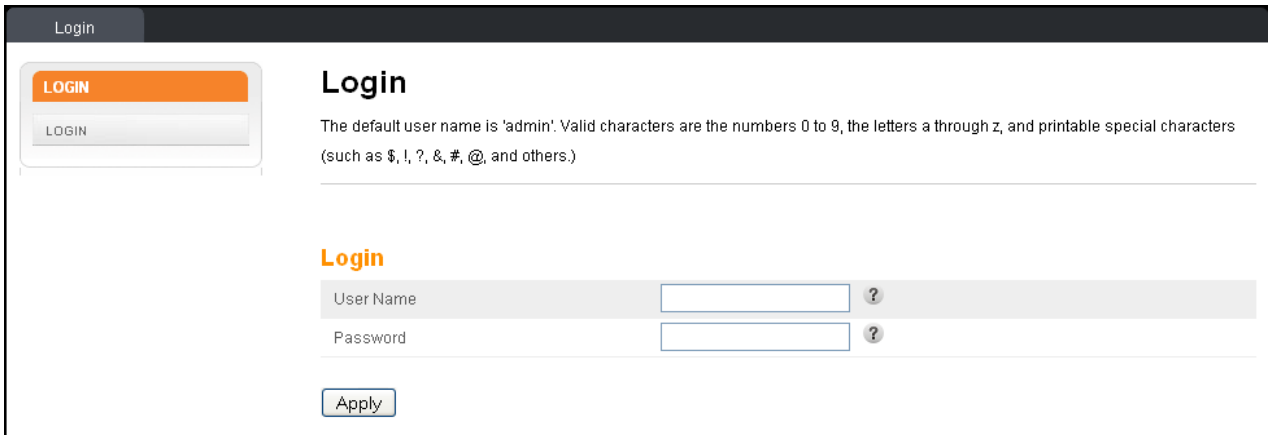
This section shows the ARRIS graphical user interface (GUI) router setup screens.

Each of the following six tabs in the GUI and their individual sub-menus and configuration parameters are explained in detail:

- Basic Setup
- WAN Setup
- LAN Setup
- Wireless Setup
- Firewall
- Utilities

5 Basic Setup

5.1 BASIC SETUP – Login



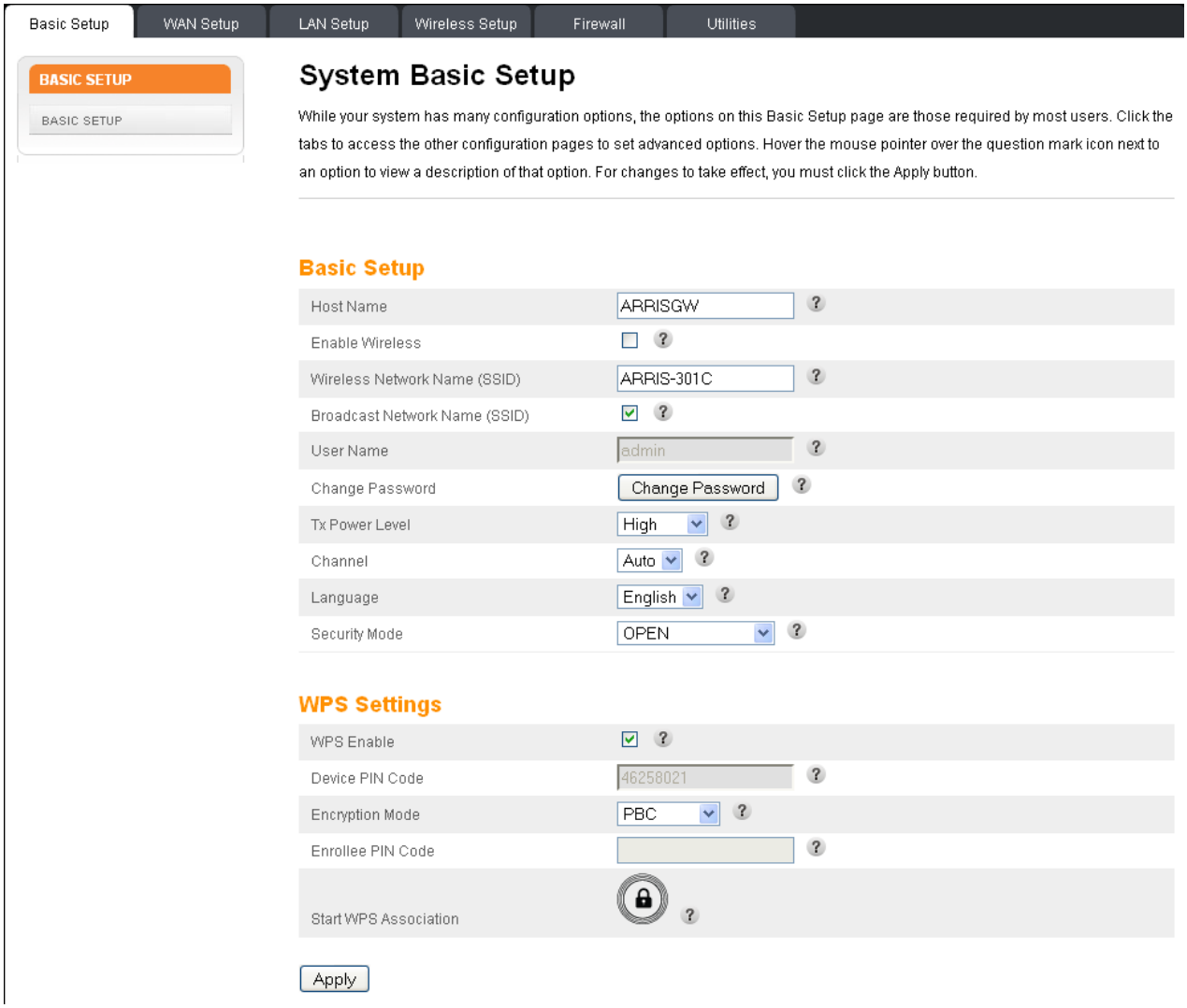
The default user name is “admin”. Valid characters are the numbers 0 to 9, the letters a through z, and printable special characters (such as $, !, ?, &, #, @, and others.)

Login:

User Name – Current user name.

Password – Enter a password for this user. Passwords are case-sensitive. Valid characters are the numbers 0 to 9, the letters a through z and A through Z, and printable special characters (such as $, !, ?, &, #, @, and others.)

5.2 Basic SETUP – System Basic Setup – Open



While your system has many configuration options, the options on this Basic Setup page are those required by most users. Click the tabs to access the other configuration pages to set advanced options. Hover the mouse pointer over the question mark icon next to an option to view a description of that option. For changes to take effect, you must click the Apply button.

Basic Setup:

Host Name – The host name of the router.

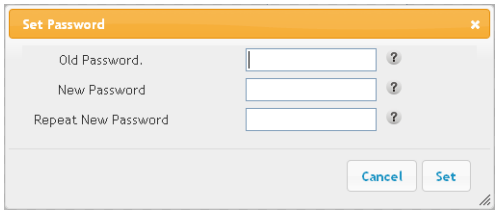
Enable Wireless – Click this checkbox to enable the wireless network on your system.

Wireless Network Name – Enter a user friendly name to identify your wireless network. This name is also referred to as the Service Set Identifier (SSID). The name can be up to 32 characters long.

Broadcast Network Name (SSID) – Click this checkbox to allow the SSID to be broadcast by the router. If enabled, your SSID could be obtained allowing unauthorized access to your network. If you would like others not to see your access point, uncheck the checkbox to hide the SSID.

User Name – Current user name.

Change Password – Click this button and follow the screen instructions to change your password. Use a password that will not be easy to guess. Passwords are case-sensitive. Valid characters are the numbers 0 to 9, the letters a through z and A through Z, and printable special characters (such as $, !, ?, &, #, @, and others.)



Old Password – Enter your existing password.

New Password – Enter your new password.

Repeat New Password – Re-enter your new password.

Tx Power Level – Sets the transmit power level, which is the output power level of the wireless radio. Can be set to High, Medium, or Low.

Channel – Sets a communications channel for your router. The default setting is “Auto”, in which the router selects a channel with the least amount of interference to use. If you set a specific channel, for best performance it’s best to choose channel 1, 6, or 11, since these channels do not overlap. If another unit is operating in the area, choose a channel that is farthest away from the channel that unit uses. For example, if one is using channel 11, set yours to channel 1. If you experience interference or poor performance on a particular channel, choose a different channel.

Language – Sets the language for the screen display text.

Security Mode – Sets the security mode for your router. Can be set to OPEN (no security) WEP (Wired Equivalency Privacy), WPA-PSK (Wi-Fi Protected Access – Pre-Shared Key), WPA2-PSK (Wi-Fi Protected Access 2 – Pre-Shared Key), or WPA/WPA2-PSK. WPA is a stronger security mode than WEP. WPA2 is a stronger version of WPA. 802.11n performance is only available in Open or WPA2 with AES encryption.

WPS Settings:

WPS Enable - Click this checkbox to enable WPS (Wi-Fi Protected Setup) on your system. WPS is a standard method for easily configuring a secure connection between your router and computers or other wireless devices (known as enrollees) that support WPS. When WPS is enabled you can attach other wireless devices by pressing the WPS buttons on the device (if

equipped) and on your router, or by entering the enrollee's PIN and then clicking the Start WPS Association icon.

Device PIN Code: - Enter this code on your computer if requested during connection.

Encryption Mode – Sets the encryption method for WPS. Can be set to PBC (Push Button Control) or PIN Code.

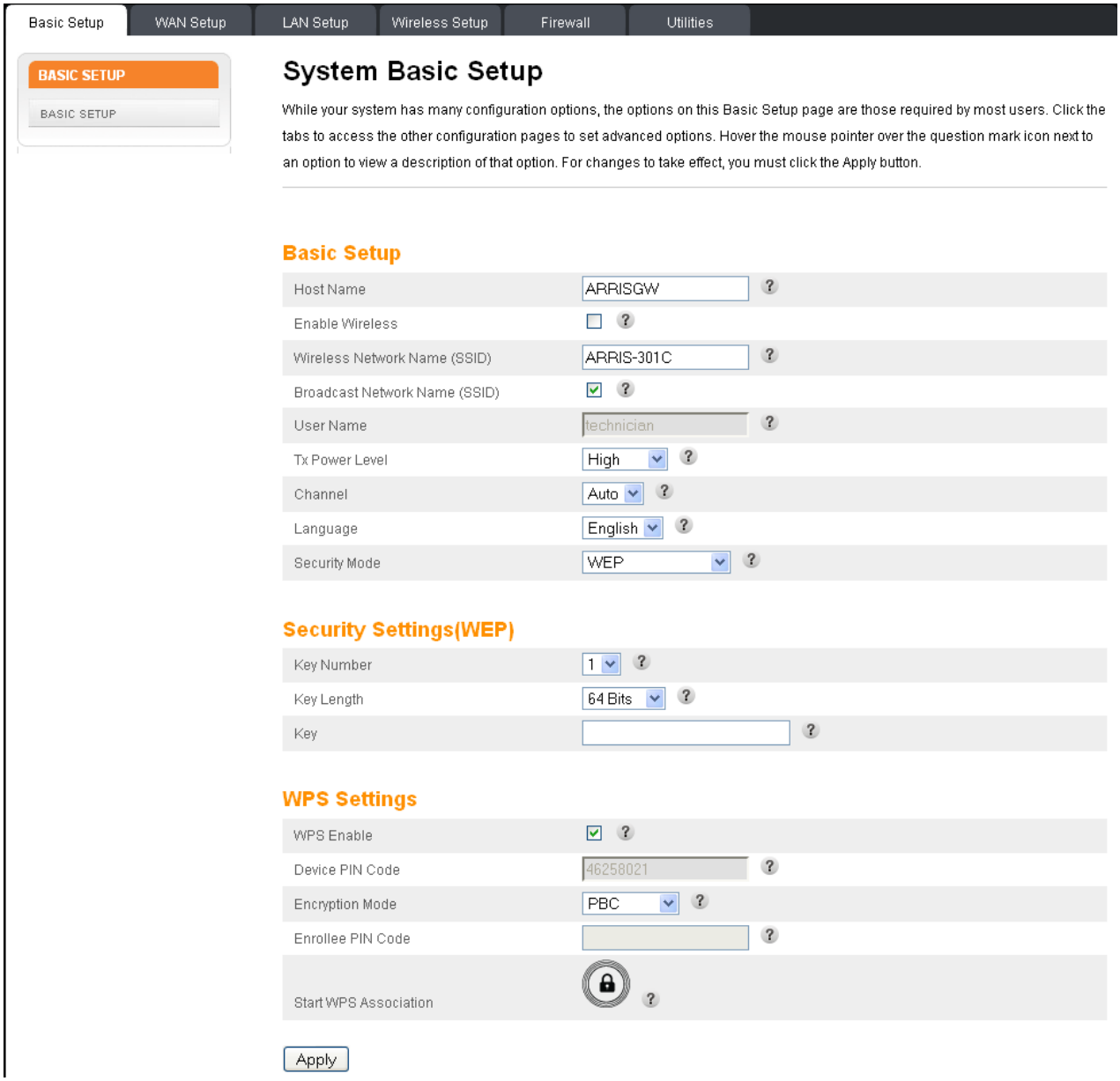
If using PBC, press the WPS buttons on the client device and on your router simultaneously to start the WPS association. If using PIN codes, enter the enrollee's PIN in the Enrollee PIN Code field, and then click the Start WPS Association icon.

If the connection is successful, the WPS indicator light on the router stops flashing and remains lit. If unsuccessful, the WPS light continues to flash for up to two minutes (indicating that it's ready to accept a client connection) and then turns off. If the WPS light turns off, start the association process over.

Enrollee PIN Code – If your client device has a WPS PIN number, enter it here, then click the Start WPS Association icon.

Start WPS Association – Click the WPS icon after entering the enrollee's PIN to configure the network connection to the device.

5.3 BASIC SETUP – System Basic Setup – WEP Security



Basic Setup:

See paragraph 5.2 for Basic parameter descriptions.

Security Settings (WEP):

Note: This is not a preferred security mode. Refer to paragraph 5.4 for the preferred security mode.

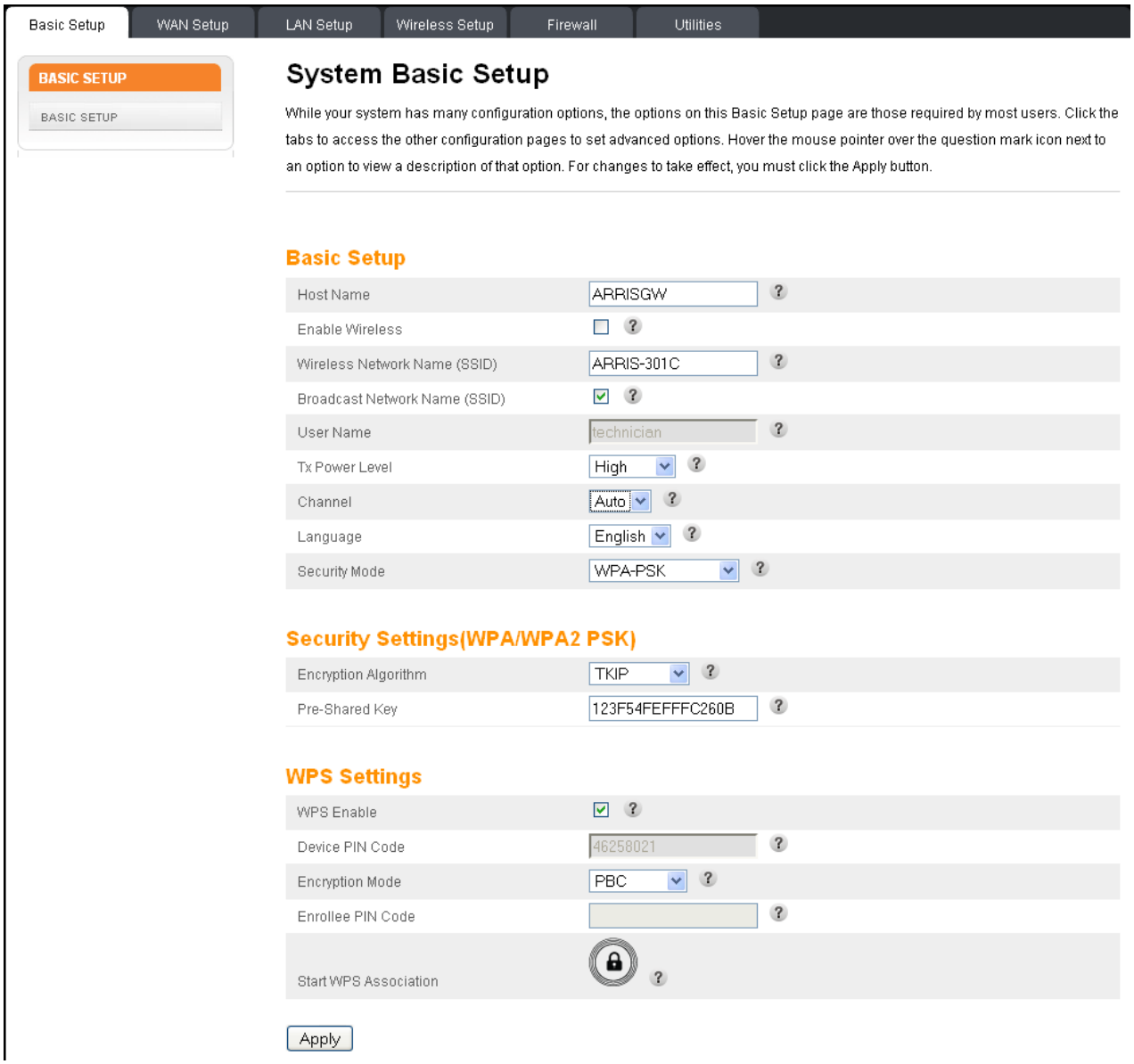
Key Length – Sets the encryption key length for WEP encryption, either 64 bits (5 ASCII characters or 10 hexadecimal digits) or 128 bits (13 ASCII characters or 26 hexadecimal digits).

Key – Enter the encryption key. The key can be either ASCII (text) or Hex (hexadecimal). An ASCII text key must be 5 characters long (for 64-bit encryption) or 13 characters long (for 128-bit encryption). Valid characters are numbers "0" through "9" and letters "a" through "z". A hexadecimal key must be 10 characters long (for 64-bit encryption) or 26 characters long (for 128-bit encryption). Valid characters are numbers "0" through "9" and letters "a" through "f".

WPS Settings:

See paragraph 5.2 for WPS parameter descriptions.

5.4 BASIC SETUP – System Basic Setup – WPA-PSK or WPA2/PSK Security



Basic Setup:

See paragraph 5.2 for Basic parameter descriptions.

Security Settings (WPA/WPA2 PSK):

Note: The preferred security mode is WPA2-PSK with AES encryption.

Encryption Algorithm – Sets the security encryption method. Can be set to TKIP (Temporal Key Integrity Protocol), AES (Advanced Encryption Standard), or TKIPAES (allows both to be used). 802.11n performance is only available with AES or TKIP/AES encryption along with the security mode being WAP2-PSK or WPA/WPA2-PSK.

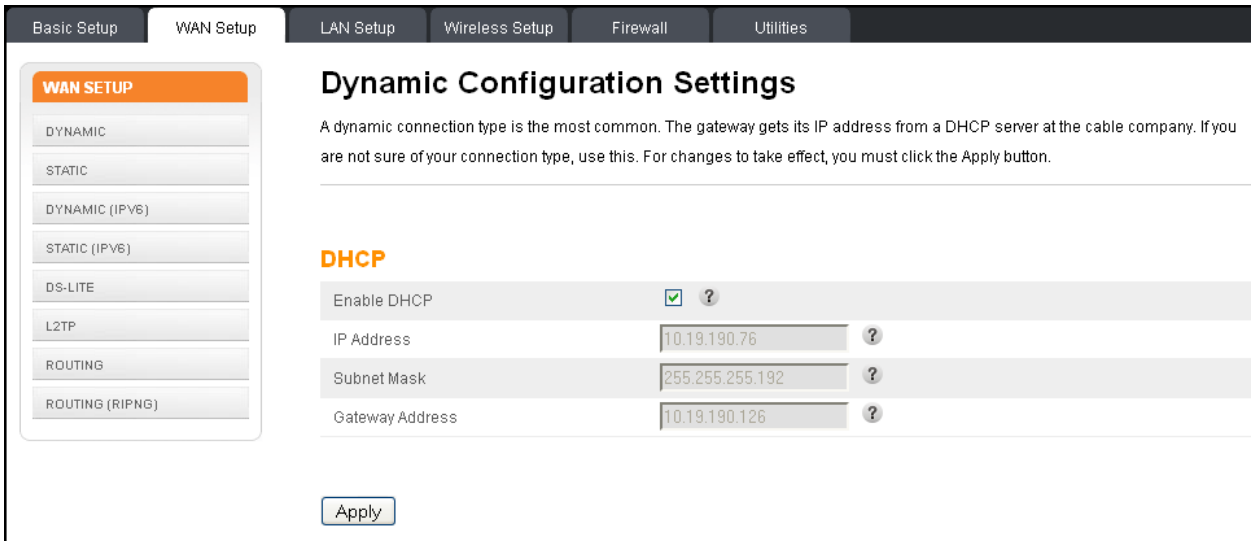
Pre-Shared Key - Sets your WPA Pre-Shared Key. This text string is used to generate a unique set of encryption keys for your network. Enter a text string in this field. The key can be either ASCII (text) or Hex (hexadecimal). An ASCII text key can be from 8 to 63 characters long. Valid characters are numbers "0" through "9" and letters "a" through "z". A hexadecimal key must be 64 characters long. Valid characters are numbers "0" through "9" and letters "a" through "f".

WPS Settings:

See paragraph 5.2 for WPS parameter descriptions.

6 WAN Setup

6.1 WAN SETUP – Dynamic Configuration Settings



A dynamic connection type is the most common. The router gets its IP address from a DHCP server at the cable company. If you are not sure of your connection type, us this type. For changes to take effect, you must click the **Apply** button.

Dynamic Configuration:

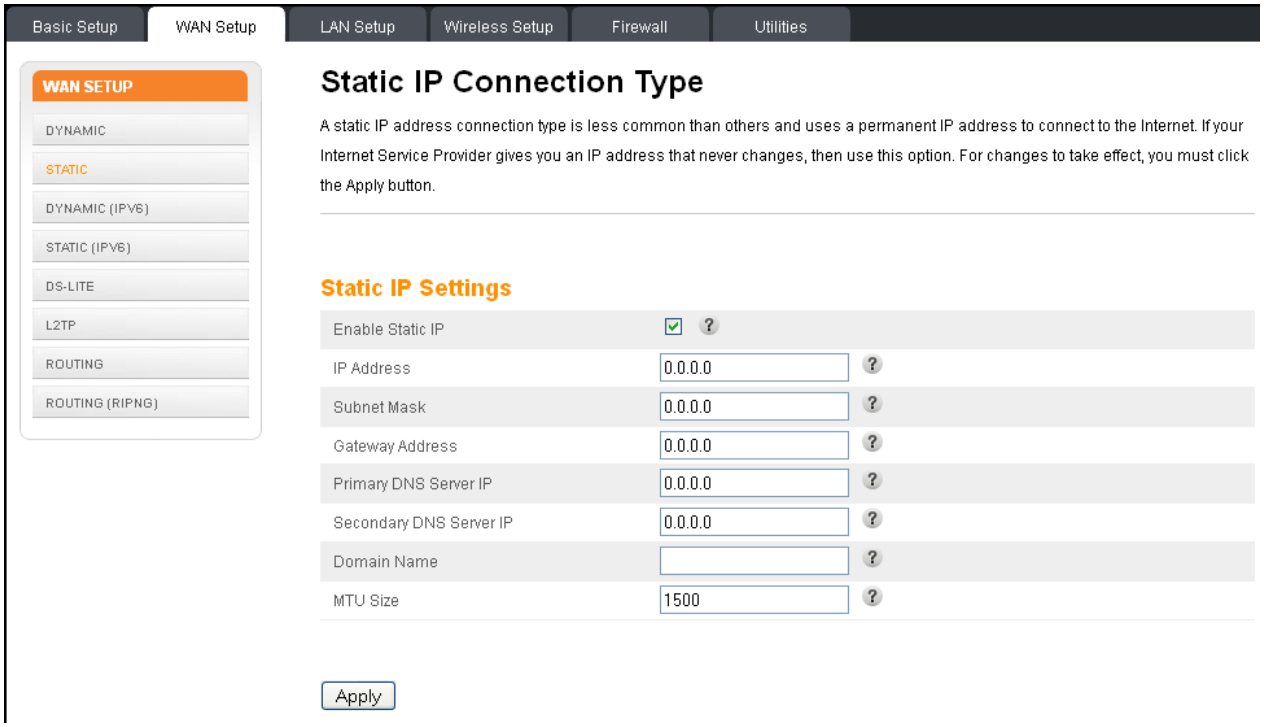
Enable DHCP – Click this checkbox to enable a DHCP connection for your system.

IP Address – This field displays the IP address.

Subnet Mask – This field displays the subnet mask.

Gateway Address – This field displays the gateway address.

6.2 WAN SETUP – Static IP Connection Type



A static IP address connection type is less common than others and uses a permanent IP address to connect to the Internet. If your Internet Service Provider gives you an IP address that never changes, then use this option. For changes to take effect, you must click the **Apply** button.

Static IP Settings:

Enable Static IP - Click this checkbox to enable a static IP address connection for your system.

IP Address – Enter the IP address assigned by your ISP or static IP operation.

Subnet Mask – Enter the subnet mask assigned for your device by your ISP or static IP operation.

Gateway Address – Enter the gateway address assigned for your device by your ISP or static IP operation.

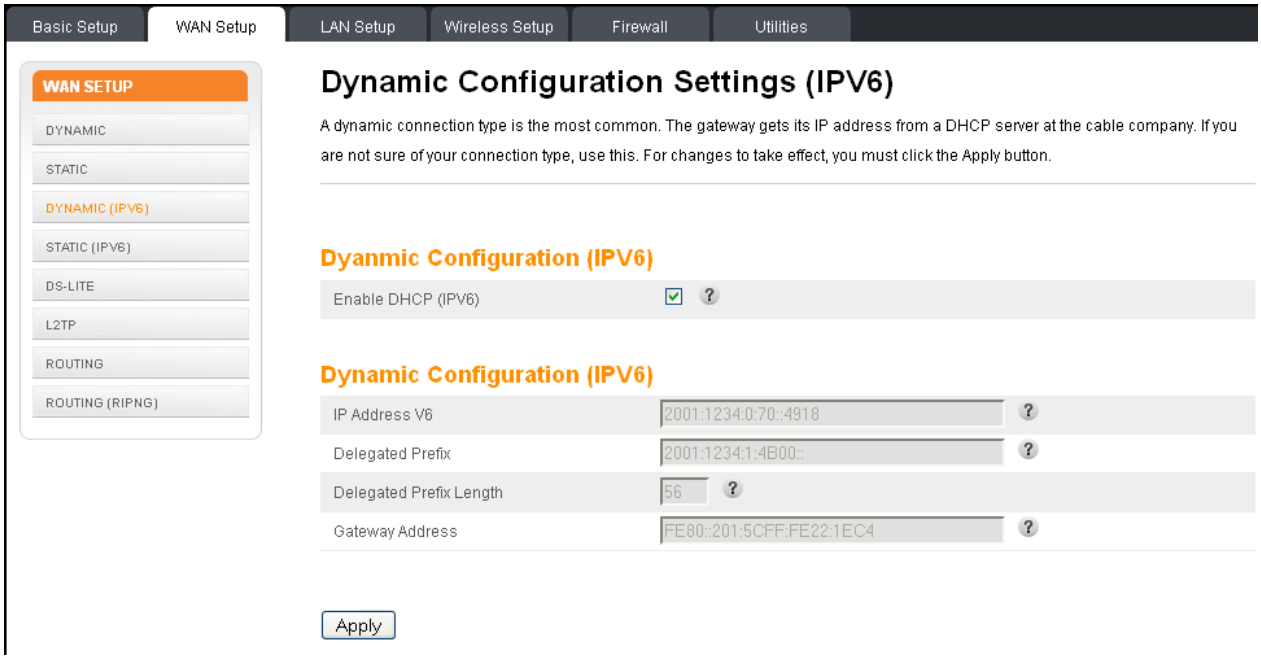
Primary DNS Server IP – Enter the IP address of the primary DNS server. Your ISP will provide this information.

Secondary DNS Server IP Enter the IP address of the secondary DNS server. Your ISP will provide this information.

Domain Name – The entry here will be displayed as the domain name on your client devices. It can be specified by your ISP or by you.

MTU Size – This field displays the size of the maximum transmission unit (MTU) for the network connection. The default value is 0 (zero). Advanced option – do not change unless instructed by your Service Provider.

6.3 WAN SETUP – Dynamic Configuration Settings (IPV6)



This screen enables a DHCPv6 configured IPV6 stack. A dynamic connection type is the most common.

The router gets its IP address from a DHCP server at the cable company. If you are not sure of your connection type, use this type. For changes to take effect, you must click the **Apply** button.

Dynamic Configuration (IPV6):

Enable DHCP (IPV6) – Click this checkbox to enable a DHCP (IPV6) connection for your system.

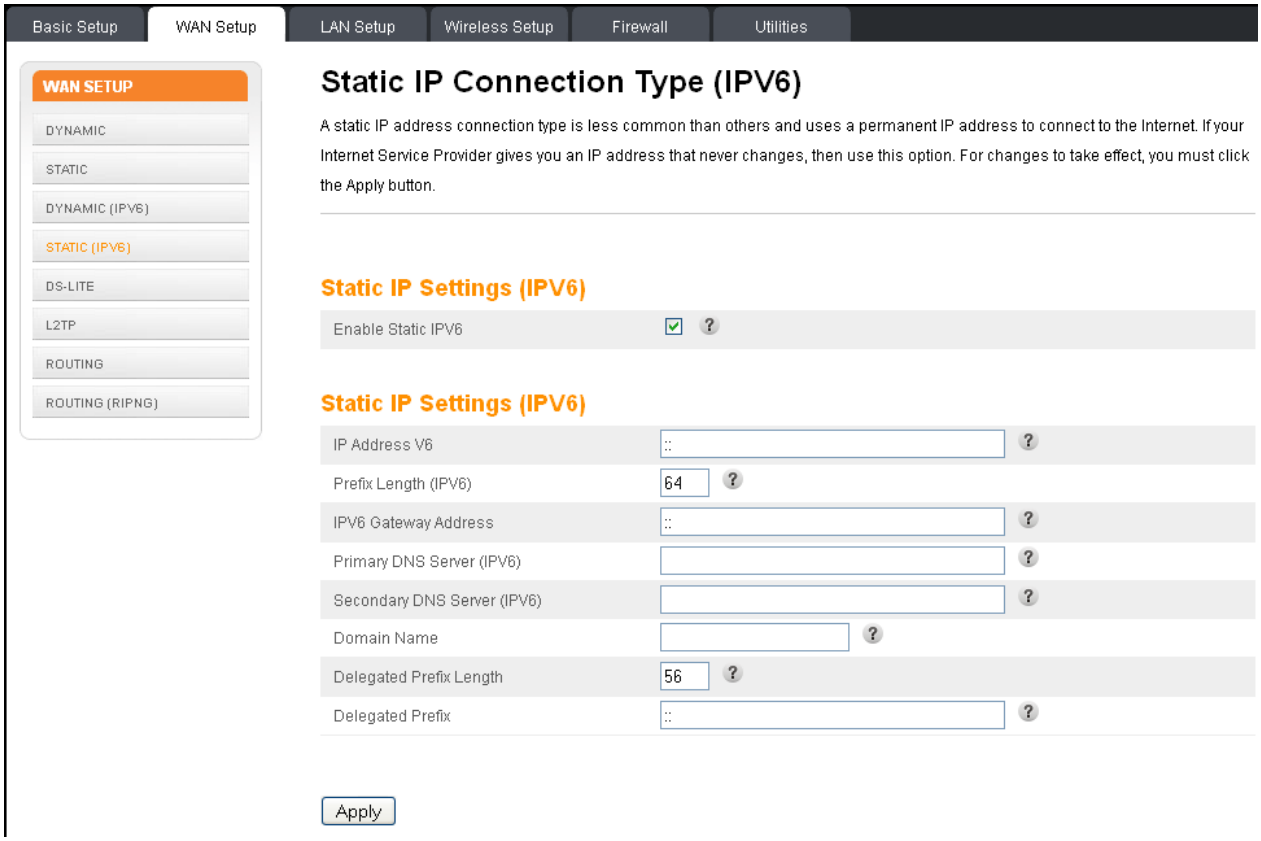
IP Address V6 – This field displays the IPV6 address automatically assigned by the MSO. An IPV6 address has eight groups of four hexadecimal digits (0-9, a-f). The groups are separated by colons (:) e.g. 2001:0db8:85a3:0000:0000:8a2e:0370:7334. A double colon (::) is shorthand for an address of all zeros.

Delegated Prefix – This field displays the assigned IPV6 prefix to be used by addresses allocated in the local network.

Delegated Prefix Length – This field displays the assigned IPV6 prefix length.

Gateway Address – This field displays the gateway address.

6.4 WAN SETUP – Static IP Connection Type (IPV6)



This screen enables a statically configured IPV6 stack. A static IP address connection type is less common than others and uses a permanent IP address to connect to the Internet. If your Internet Service Provider gives you an IP address that never changes, then use this option. For changes to take effect, you must click the **Apply** button.

Static IP Settings (IPV6):

Enable Static IPV6 - Click this checkbox to enable a static IPV6 address connection for your system.

IP Address V6– Enter the IPV6 address assigned by your ISP or static IP operation. An IPV6 address has eight groups of four hexadecimal digits (0-9, a-f). The groups are separated by colons (:) e.g. 2001:0db8:85a3:0000:0000:8a2e:0370:7334. A double colon (::) is shorthand for an address of all zeros.

Prefix Length (IPV6) – The length of the network portion of this address.

IPV6 Gateway Address – Enter the gateway address assigned for your device by your ISP or static IP operation.

Primary DNS Server (IPV6) – Enter the IPV6 address of the primary DNS server. Your ISP will provide this information.

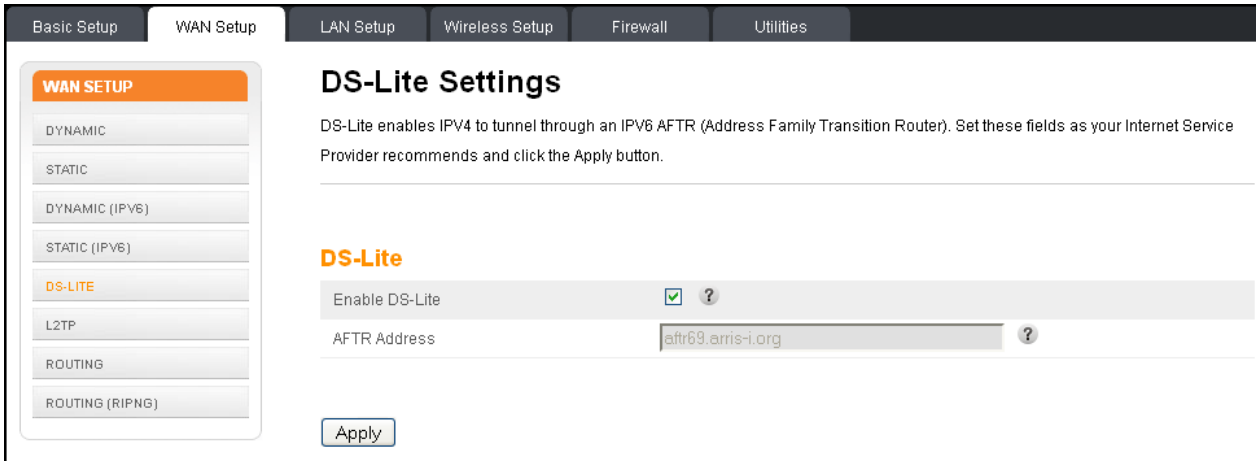
Secondary DNS Server (IPV6) – Enter the IPV6 address of the secondary DNS server. Your ISP will provide this information.

Domain Name – The entry here will be displayed as the domain name on your client devices. It can be specified by your ISP or by you.

Delegated Prefix Length – The length of the network portion of the IPV6 addresses to be allocated to local clients.

Delegated Prefix – The network portion of the IPV6 addresses to be allocated to local clients.

6.5 WAN SETUP – DS-Lite Settings



This screen enables Dual-Stack Lite. DS-Lite allows IPV4 to tunnel through an IPV6 AFTR (Address Family Transition Router). Set these fields as your Internet Service Provider recommends. For changes to take effect, you must click the **Apply** button.

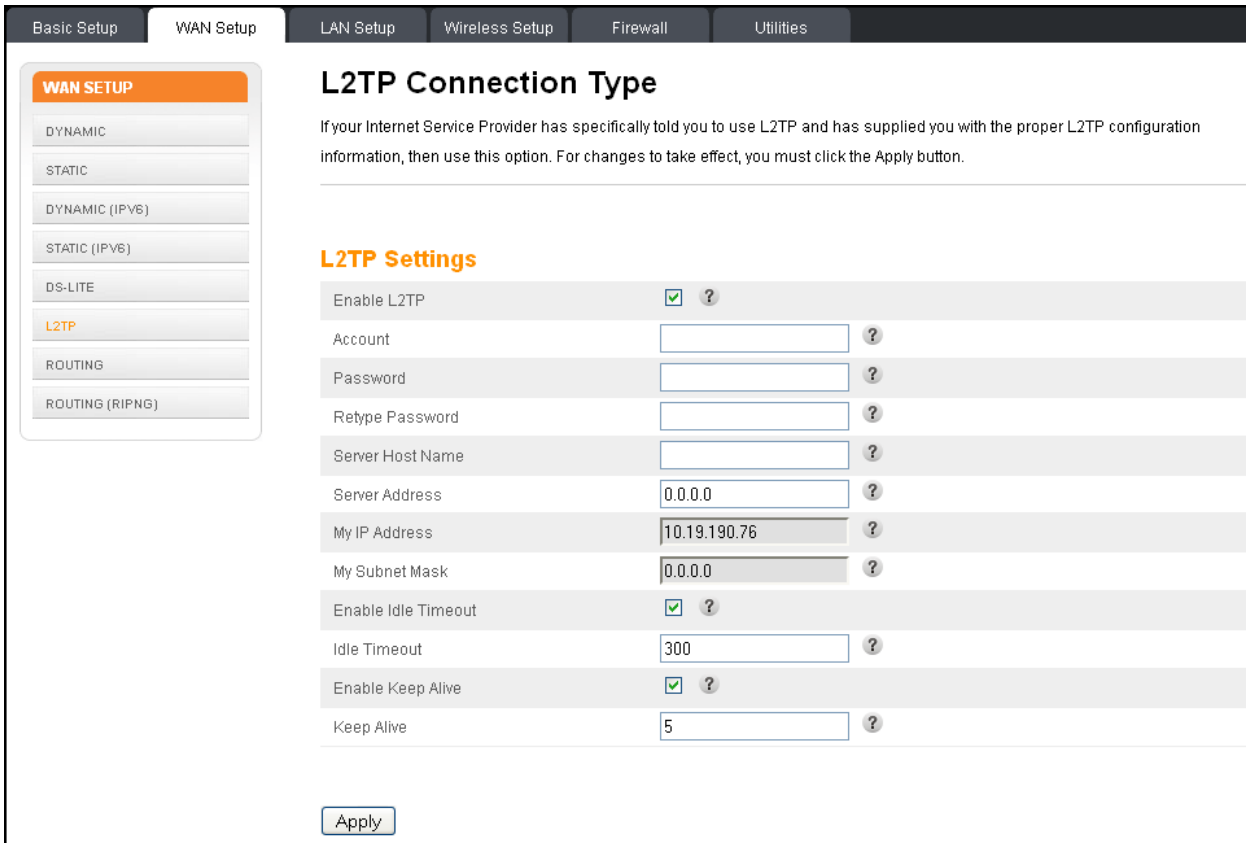
DS-Lite:

Enable DS-Lite – Click this checkbox to enable DS-Lite on your system.

AFTR Address – This field displays the IP address of the AFTR that provides DS-Lite.

6.6 WAN SETUP – L2TP Connection Type

Note: This screen is not used on all models.



If your Internet Service Provider has specifically told you to use L2TP and has supplied you with the proper L2TP configuration information, then use this option. For changes to take effect, you must click the **Apply** button.

L2TP Settings:

Enable L2TP - Click this checkbox to enable an L2TP connection for your system.

Host Name – The host name of the router.

Account – The username to log into the L2TP server.

Password – Enter a password for this user. Passwords are case-sensitive. Valid characters are the numbers 0 to 9, the letters a through z and A through Z, and printable special characters (such as $, !, ?, &, #, @, and others.)

Retype Password – Re-enter the password.

Server Address – This field displays the IP address of the L2TP server.

My IP Address – This field displays the IP address for your router.

My Subnet Mask – This field displays the subnet mask for your router.

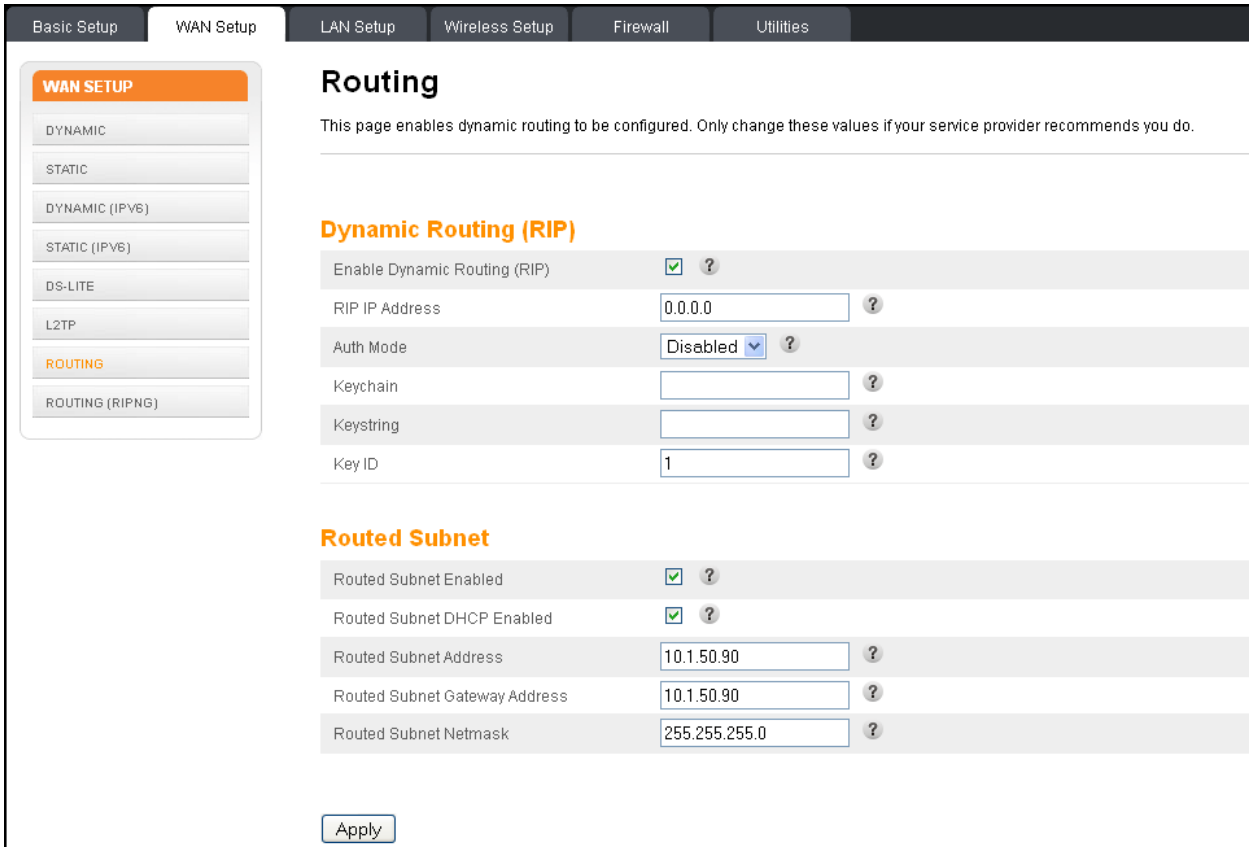
Enable Idle Timeout - Click this checkbox to enable idle timeout.

Idle Timeout – Displays the idle timeout value. Default is 300 seconds.

Enable Keep Alive - Click this checkbox to enable keep alive.

Keep Alive – Displays the keep alive value. Default is 5 seconds.

6.7 WAN SETUP – Routing (Technician Level Only)



This screen allows dynamic routing to be enabled and configured. Only change these values if your service provider recommends that you do so.

Dynamic Routing (RIP):

Enable Dynamic Routing (RIP) - Click this checkbox to enable Dynamic Routing on your system.

RIP IP Address – Enter the router IP address.

Auth Mode – Select Disabled, Text, or MD5 as appropriate for your network.

Keychain – For MD5, enter the keychain name.

Keystring – For MD5, enter the keystring name.

Key ID – For MD5, enter the RIP authentication key ID.

Routed Subnet:

Routed Subnet Enabled – Click this checkbox to route the selected subnet.

Note: If enabled, the RIP routed subnet network IP address will be advertised with the next hop as the CM IP address.

Routed Subnet DHCP Enabled – Click this checkbox to provide DHCP to devices on this network.

Note: If enabled, then a DHCP server will be started on the device for the routed subnet. If disabled then the DHCP server will not be started and all LAN-based CPE devices will need to be assigned static IP addresses.

Routed Subnet NAT Enabled – Click this checkbox to NAT service to devices with private IP addresses.

Note: If enabled, then the Routed Subnet will be NATed using the Gateway IP Address. If disabled then the NAT will be disabled for the routed subnet.

Routed Subnet Address – Enter the subnet address.

Note: The specific network in the configured subnet that will be advertised and routed. This feature allows for the configuration of a public LAN-side subnet of hosts which is not necessarily on the same subnet as the CMTS HFC IP address(s), CM IP address, or WAN-MAN IP address subnet.

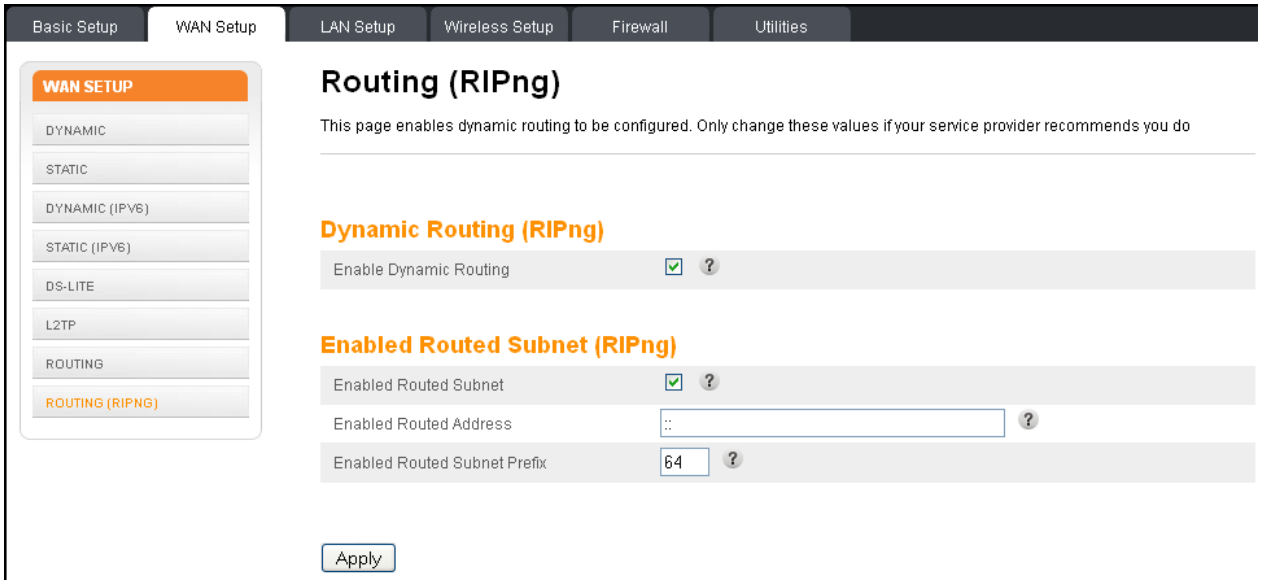
Routed Subnet Gateway Address – Enter the address of the router that handles traffic between this subnet and the rest of the Internet.

Note: This is the gateway IP address for the routable subnet.

Routed Subnet Netmask – Enter the subnet mask.

Note: This is the subnet mask used for the routed subnet.

6.8 WAN SETUP – Routing (RIPng) (Technician Level Only)



This screen allows dynamic routing of IPV6 (RIPng) to be enabled and configured. Only change these values if your service provider recommends that you do so.

Dynamic Routing (RIPng):

Enable Dynamic Routing – Click this checkbox to enable Dynamic Routing of IPV6 (RIPng) on your system.

Enabled Routed Subnet (RIPng):

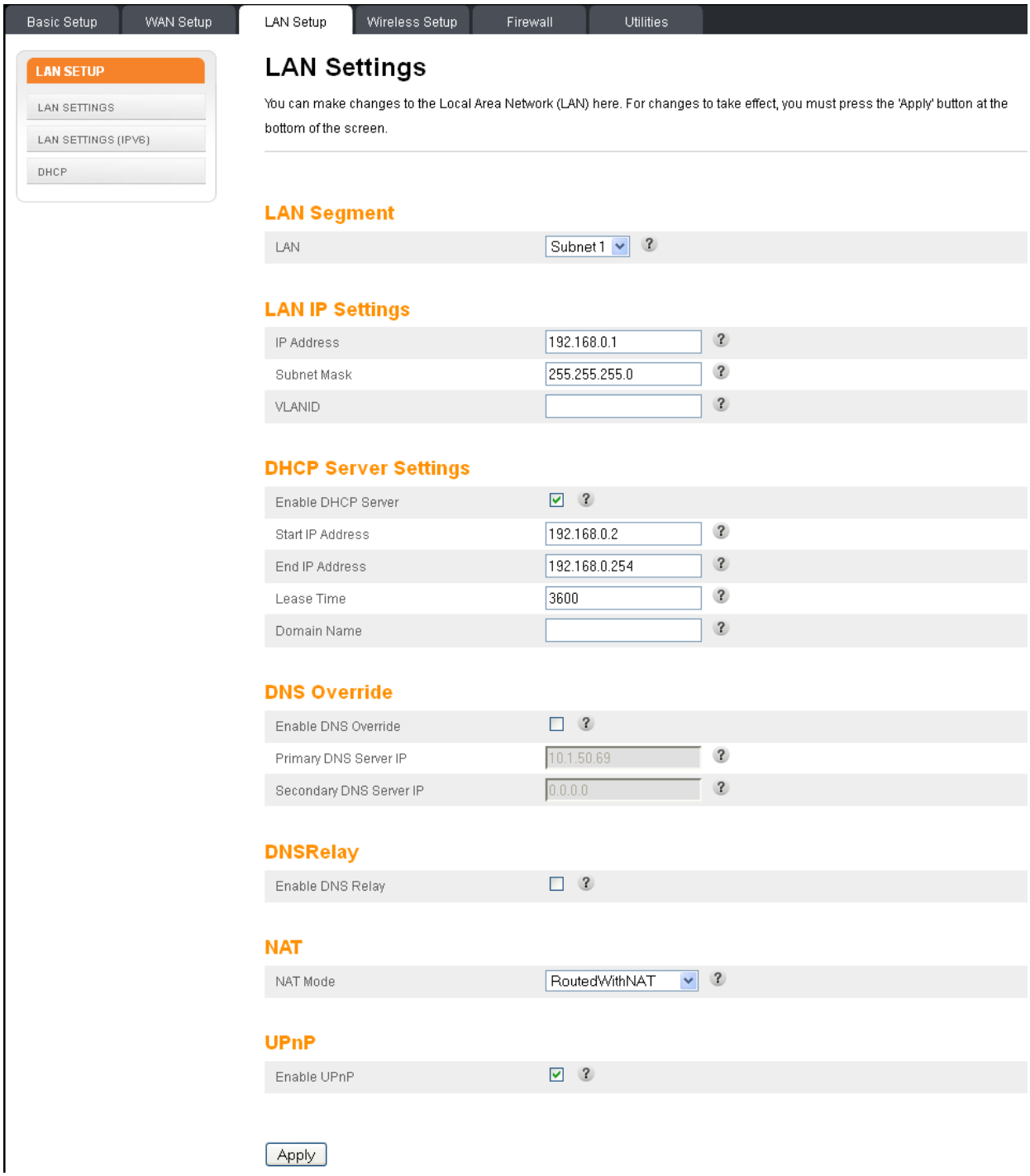
Enabled Routed Subnet – Click this checkbox to enable routed subnet.

Enabled Routed Address – IPV6 address for routed address.

Enabled Routed Subnet Prefix – IPV6 prefix to assign to routed subnet.

7 LAN Setup

7.1 LAN SETUP – LAN Settings



You can make changes to the Local Area Network (LAN) configuration here. For changes to take effect, you must click the **Apply** button.

LAN Segment: (Technician Level Only)

LAN – Sets the LAN index or identifier for each individual LAN on your network.

Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

LAN IP Settings:

IP Address – This field displays the IP address of your LAN.

Subnet Mask – This field displays the subnet mask of your LAN.

VLANID – the ID of this VLAN. Value should be between 1 and 4095. A VLAN ID is only added if the frame is forwarded out of a port configured as a trunk link. If the frame is to be forwarded out of a port configured as an access link, the ISL encapsulation is removed. (Advanced option – contact your Service Provider for more information.)

DHCP Server Settings:

Enable DHCP Server – Click this checkbox to enable the use of a Dynamic Host Configuration Protocol (DHCP) Server on your network.

DHCP is a set of rules used by devices such as a computer, router, or network adapter to allow the device to request and obtain an IP address from a server which maintains a list of addresses available for use.

The DHCP server ensures that all IP addresses are unique, e.g., no IP address is assigned to a second device while the first device's assignment is valid (its lease has not expired).

Without DHCP, the IP addresses must be entered manually at each computer in an organization and a new IP address must be entered each time a computer moves to a new location on the network.

Start IP Address – Enter the starting address in the range of IP addresses that the DHCP Server will be allowed to assign to a network device.

End IP Address – Enter the ending address in the range of IP addresses that the DHCP Server will be allowed to assign to a network device.

Lease Time – Enter the lease time in seconds before the assigned IP address will expire. (After the lease time is up, the user is automatically assigned a new dynamic IP address.)

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer or other network device. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. Using very short leases, DHCP can dynamically reconfigure networks where there are more computers than available IP addresses, such as educational environments.

Domain Name – This field displays the domain name.

DNS Override:

Enable DNS Override – Click this checkbox to enable DNS Override and replace the DNS server addresses provided by your service provider.

Primary DNS Server IP – Enter the IP address of the primary DNS server. Your ISP will provide this information.

Secondary DNS Server IP – Enter the IP address of the secondary DNS server. Your ISP will provide this information.

DNS Relay:

Enable DNS Relay – Click this checkbox to enable DNS Relay and mask the DNS address.

Click this checkbox to enable Domain Name System (DNS) relay functionality on your system. The DNS Relay feature allows the system to act as a DNS server to other IP stations, while it simply forwards the requests to real DNS servers and then sends their responses back to the original requesters. Your gateway basically acts as an intermediate between the requester and the real DNS servers. When DNS Relay is enabled, the gateway will act as a DNS server, send requests to the Internet Service Provider's DNS server, and cache the information for later access. When DNS relay is disabled, the computer will pull domain name/IP address information directly from the ISP's DNS server.

Note: This configuration parameter is only used on 8xx series gateways.

NAT:

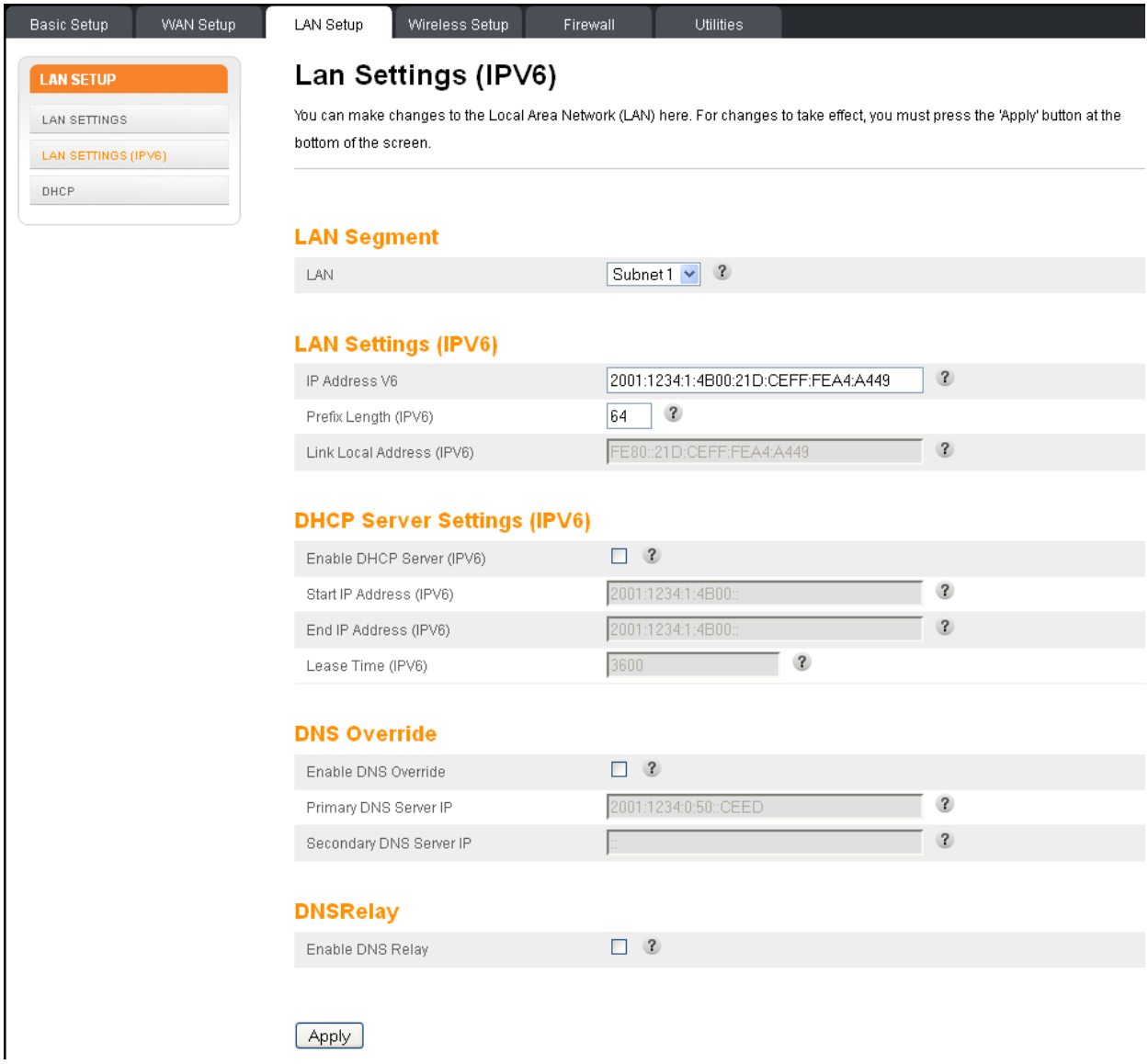
NAT Mode – Select the NAT Mode. Bridged - Data will pass through the device directly without any routing. Routed with NAT - Data will be routed by the device and all the outgoing packets will be NATed. Routed without NAT - Data will be routed by the device but all the outgoing packets will not be NATed.

Note: Some settings are not available on certain models.

UPnP:

Enable UPnP – Click this checkbox to enable UPnP (Universal Plug and Play) on the system.

7.2 LAN SETUP – LAN Settings (IPV6)



This screen configures LAN side support for IPV6. You can make changes to the Local Area Network (LAN) configuration here. For changes to take effect, you must click the **Apply** button.

LAN Segment: (Technician Level Only)

LAN – Sets the LAN index or identifier for each individual LAN on your network.

Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

LAN Settings (IPV6):

IP Address (IPV6) – This field displays the IPV6 address of your LAN. An IPV6 address has eight groups of four hexadecimal digits (0-9, a-f). The groups are separated by colons (:) e.g. 2001:0db8:85a3:0000:0000:8a2e:0370:7334. A double colon (::) is shorthand for an address of all zeros.

Prefix Length V6 – Length of the network portion of the IPV6 address.

Link Local Address (IPV6) – IPV6 address that can be used only on this network.

DHCP Server Settings (IPV6):

Enable DHCP Server (IPV6) – Click this checkbox to enable the use of a V6 Dynamic Host Configuration Protocol (DHCP) Server on your network.

DHCP is a set of rules used by devices such as a computer, router, or network adapter to allow the device to request and obtain an IP address from a server which maintains a list of addresses available for use.

The DHCP server ensures that all IP addresses are unique, e.g., no IP address is assigned to a second device while the first device's assignment is valid (its lease has not expired).

Without DHCP, the IP addresses must be entered manually at each computer in an organization and a new IP address must be entered each time a computer moves to a new location on the network.

Start IP Address (IPV6) – Enter the starting address in the range of IPV6 addresses that the DHCP Server will be allowed to assign to a network device.

End IP Address (IPV6) – Enter the ending address in the range of IPV6 addresses that the DHCP Server will be allowed to assign to a network device.

Lease Time V6 – Enter the lease time in seconds before the assigned IPV6 address will expire. (After the lease time is up, the user is automatically assigned a new dynamic IP address.)

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer or other network device. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. Using very short leases, DHCP can dynamically reconfigure networks where there are more computers than available IP addresses, such as educational environments.

DNS Override:

Enable DNS Override – Click this checkbox to enable DNS Override and replace the DNS server addresses provided by your service provider.

Primary DNS Server IP – Enter the IP address of the primary DNS server. Your ISP will provide this information.

Secondary DNS Server IP – Enter the IP address of the secondary DNS server. Your ISP will provide this information.

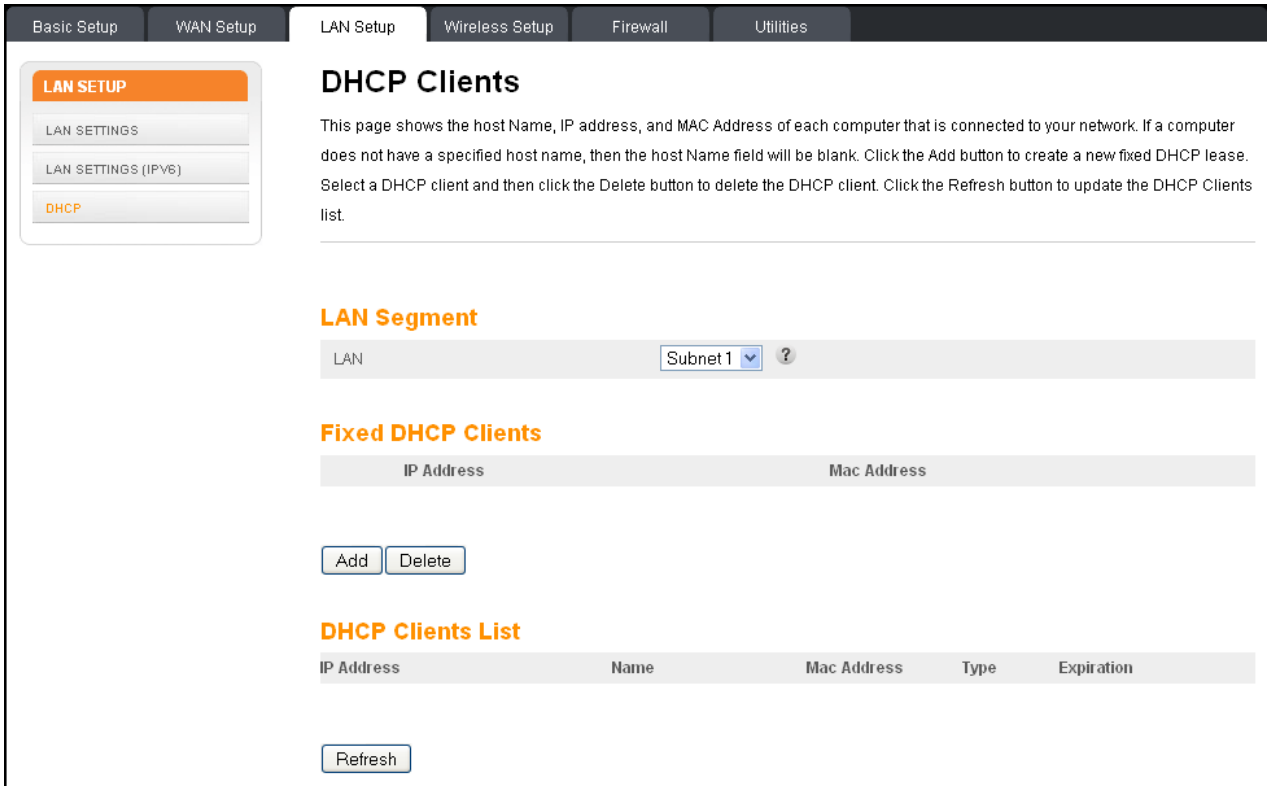
DNS Relay:

Enable DNS Relay – Click this checkbox to enable DNS Relay and mask the DNS address.

Click this checkbox to enable Domain Name System (DNS) relay functionality on your system. The DNS Relay feature allows the system to act as a DNS server to other IP stations, while it simply forwards the requests to real DNS servers and then sends their responses back to the original requesters. Your gateway basically acts as an intermediate between the requester and the real DNS servers. When DNS Relay is enabled, the gateway will act as a DNS server, send requests to the Internet Service Provider's DNS server, and cache the information for later access. When DNS relay is disabled, the computer will pull domain name/IP address information directly from the ISP's DNS server.

Note: This configuration parameter is only used on 8xx series gateways.

7.3 LAN Setup – DHCP Clients



This page shows the host Name, IP address, and MAC Address of each computer that is connected to your network. If a computer does not have a specified host name, then the host Name field will be blank.

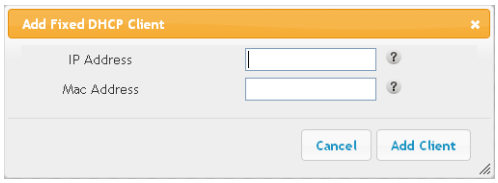
LAN Segment: (Technician Level Only)

LAN – Sets the LAN index or identifier for each individual LAN on your network.

Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

Fixed DHCP Clients:

Click the **Add** button to create a new fixed DHCP client.



IP Address – Enter the client's IP address.

MAC Address – Enter the client's MAC address.

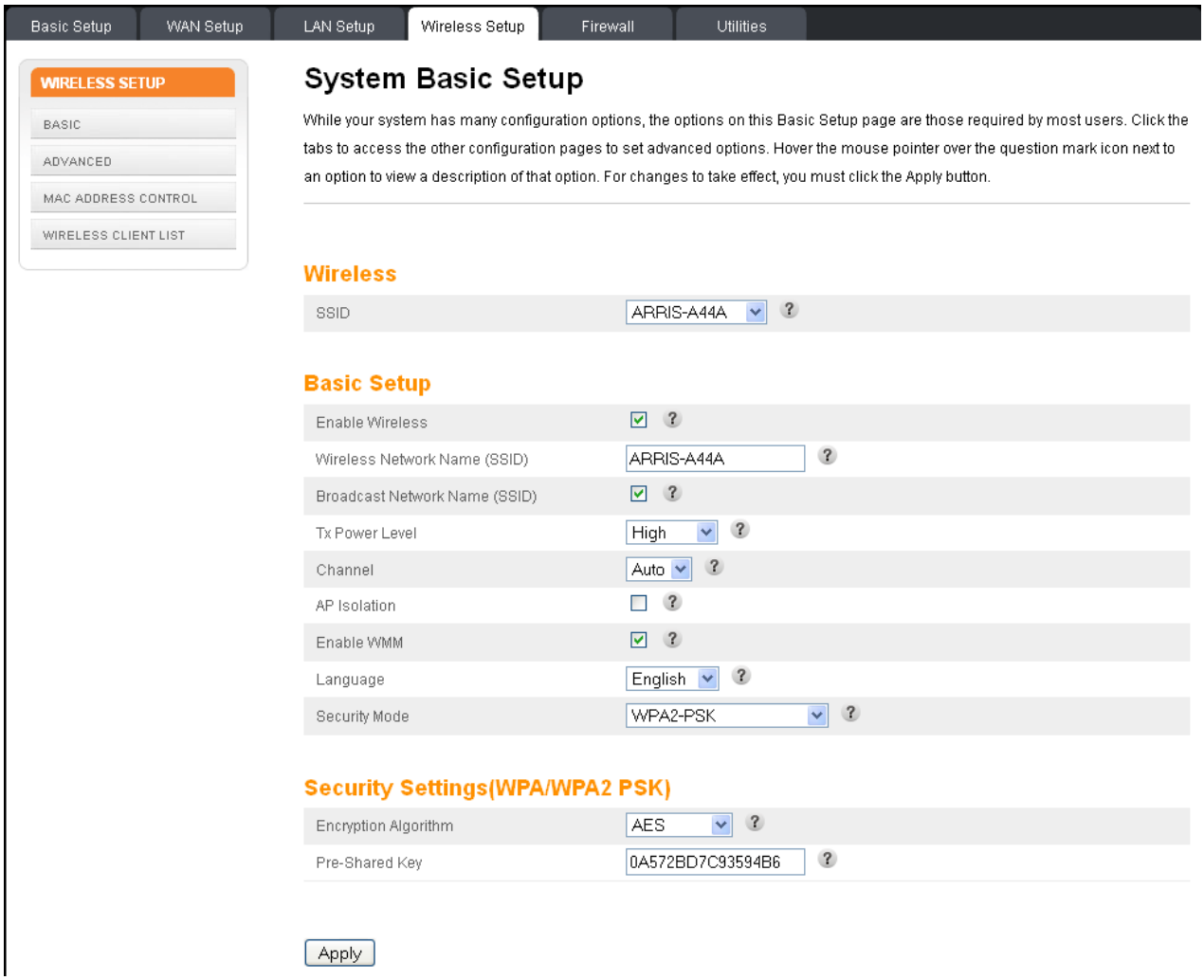
Select a DHCP client and then click the **Delete** button to delete the DHCP client.

DHCP Clients List:

Click the **Refresh** button to update the DHCP Clients list.

8 Wireless Setup

8.1 Wireless Setup – Basic Setup



While your system has many configuration options, the options on this Basic Setup page are those required by most users. Click the tabs to access the other configuration pages to set advanced options. Hover the mouse pointer over the question mark icon next to an option to view a description of that option. For changes to take effect, you must click the **Apply** button.

Wireless: (Technician Level Only)

SSID – Sets the SSID for each individual LAN on your network.

Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

Basic Setup:

See paragraph 5.2 for duplicate parameter descriptions on this screen. New parameters on this screen are described below:

Channel – Sets a communications channel for your router. The default setting is "Auto", in which the router selects a channel with the least amount of interference to use. If you manually select a channel, it's best to choose channel 1, 6, or 11, since these channels do not overlap. If another unit is operating in the area, choose a channel that is farthest away from the channel that unit uses. For example, if one is using channel 11, set yours to channel 1. If you experience interference or poor performance on a particular channel, try a different channel.

AP Isolation – Click this checkbox to enable AP isolation. When enabled each of your wireless clients will be in its own virtual network and will not be able to communicate with one another. This may be useful if you have many quests using your network.

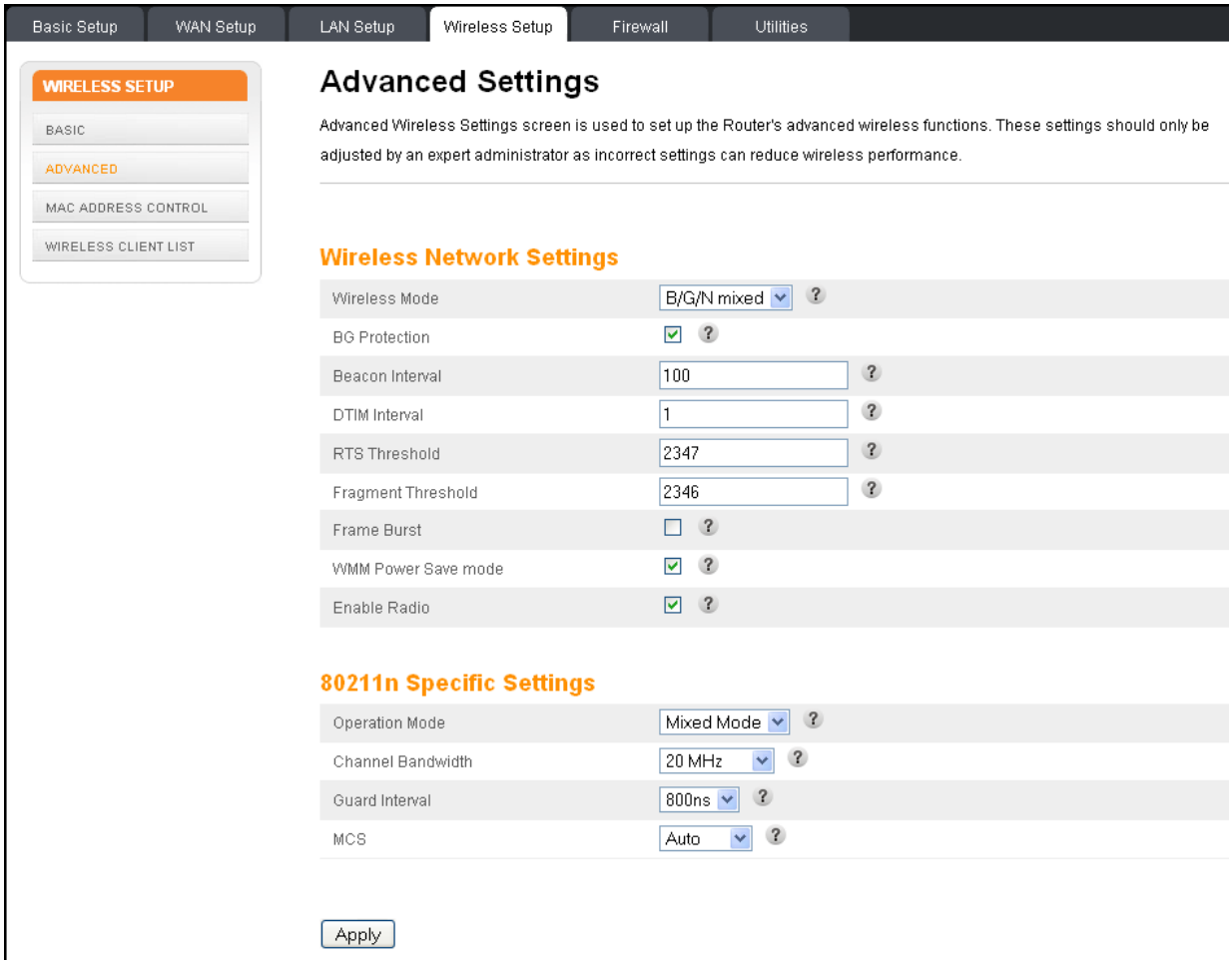
Enable WMM – Click this checkbox to enable Wi-Fi Multimedia (WMM) functionality. Enabling WMM can help control latency and jitter when transmitting multimedia content over a wireless connection.

This quality of service mechanism uses four access categories, which in order of priority are: voice, video, best effort, and background. This ensures that applications with low tolerance for latency and jitter are treated with higher priority than less-sensitive data applications. WMM sets different wait times for the four categories in order to provide priority network access for applications that are less tolerant of packet delays.

Security Settings (WPA/WPA2 PSK):

See paragraph 5.4 for these parameter descriptions.

8.2 Wireless Setup – Advanced Settings



The Advanced Settings page is used to set up the router's advanced wireless functions. These settings should only be adjusted by an expert administrator since incorrect settings can reduce wireless performance. For changes to take effect, you must click the **Apply** button.

Wireless Network Settings:

Wireless Mode – Sets the wireless mode. Options are: B/G mixed, B only, G only, N only, and B/G/N mixed. Select the proper mode to support all of the wireless devices that will connect to your router. 802.11b supports bandwidth up to 11 Mb/s. 802.11g supports bandwidth up to 54 Mb/s. 802.11n supports bandwidth up to 300 Mb/s.

BG Protection – Sets the BG protection mode. Options are ON, OFF, or AUTO. Default is AUTO.

BG protection allows you to operate 802.11b client devices in 802.11g networks. Set to ON to allow 802.11b client devices to operate in the 802.11g wireless network. This will impact the performance of the 802.11g client devices on the network. If your network consists of ONLY 802.11g client devices, set this to OFF for maximum performance

Beacon Interval – Sets the time interval between beacon transmissions in milliseconds. The router uses these transmissions to synchronize the wireless network and its client devices. For compliance with most client devices, the Beacon Interval should remain set at the default of 100ms. The allowable setting range is from 20 to 1024ms.

DTM Interval – Sets the DTIM (Delivery Traffic Indication Message) Interval. The DTIM Interval informs the wireless client devices of the next available window for listening to broadcast and multicast messages. When the router sends a DTIM beacon the client devices hear the beacon and then listen for the messages. For compliance with most client devices, the DTIM Interval should be left at 1 ms. The allowable setting range is from 1 to 255 ms.

RTS Threshold – Sets the packet size limit. When the threshold is passed, the ready to send/clear to send (RTS/CTS) function is invoked. The default setting is 2347 bytes. The allowable setting range is from 1 to 2347 bytes.

Fragment Threshold – Sets the fragmentation threshold. This threshold should be set to equal the maximum Ethernet frame size allowable on the link including overhead. Setting a lower threshold can damage data throughput since large frames could be fragmented and/or collisions could occur. The default setting is 2346. The allowable setting range is from 255 to 2346 bytes.

Frame Burst – Click this checkbox to enable Frame Burst on your network. Frame Bursting is a transmission technique that increases the throughput of point-to-point 802.11a, b, or g links by reducing the overhead associated with the wireless transmissions. This results in the ability to support higher data throughput in mixed and uniform networks. It can, however, result in unfair allocation of airtime where there are a mix of client devices on the network, of which only some support Frame-Bursting.

WMM Power Save Mode – Click this checkbox to enable WMM Power Save Mode. WMM Power Save delivery is a more efficient power management method than legacy 802.11 power save polling.

Enable Radio (Technician level only) – Click this checkbox to enable or disable the WiFi radio.

80211n Specific Settings:

Operation Mode – Sets the 802.11n Operation Mode. Options are Mixed Mode or Greenfield. The default, Mixed Mode, is for networks with a mix of 802.11a/b/g/n client devices. The optional Greenfield mode improves efficiency of networks using only 802.11n devices by eliminating support for the 802.11a/b/g client devices.

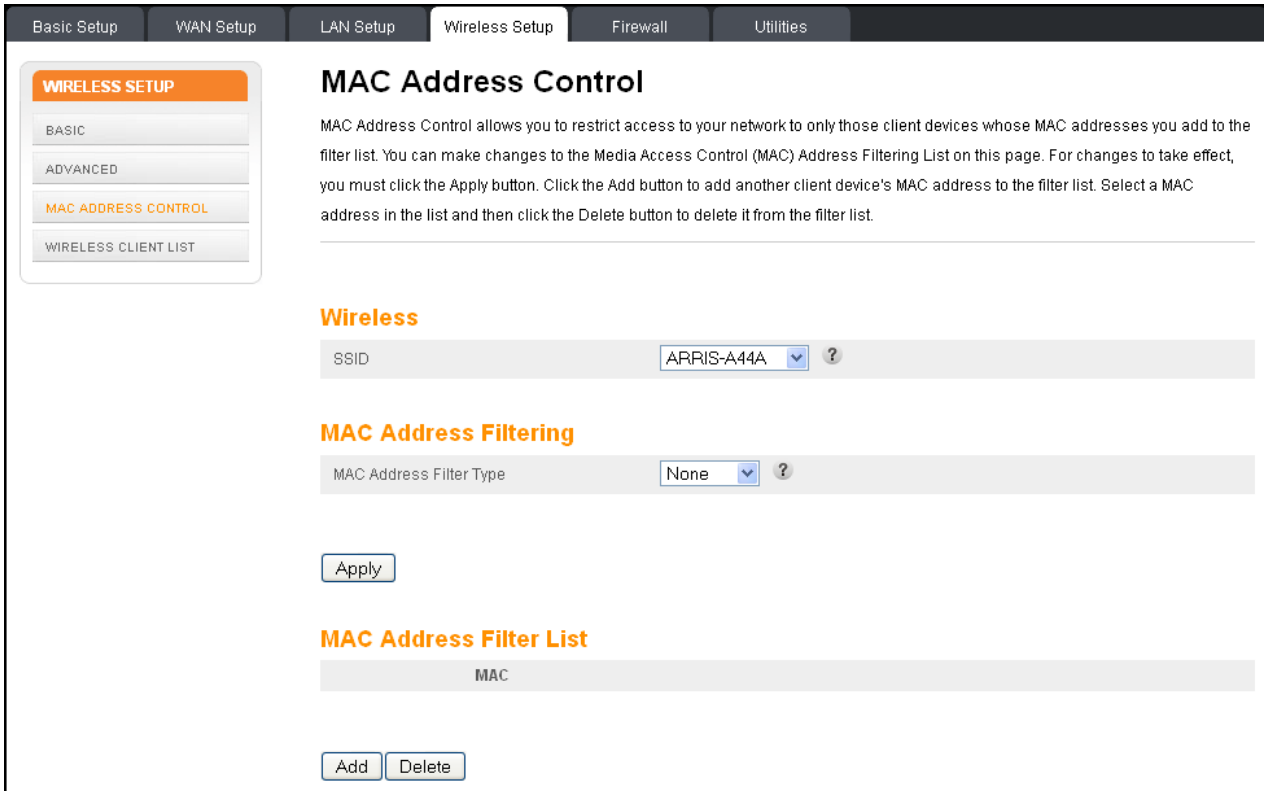
Channel Bandwidth – Sets the 802.11n Channel Bandwidth. Options are 20 MHz or 20/40 MHz. The default setting is 20 MHz.

Guard Interval – The spacing between transmission of symbols in nanoseconds. Can be set to 400ns or 800ns.

MCS – Sets the 802.11n Modulation and Coding Scheme to be used. Options are 1 through 15 and AUTO. The default is AUTO. The 802.11n standard defines a total of 77 MCS. Each MCS specifies a certain modulation type (BPSK, QPSK, 64-QAM), coding rate (1/2, 3/4), guard interval

(800 or 400ns), and number of spatial streams. Support for MCS 0 - 15 is mandatory for 802.11n access points while support for MCS 0 - 7 is mandatory for 802.11n clients.

8.3 Wireless Setup – MAC Address Control



MAC Address Control allows you to restrict access to your network to only those client devices whose MAC addresses you add to the filter list. You can make changes to the Media Access Control (MAC) Address Filtering List on this page. For changes to take effect, you must click the **Apply** button.

Wireless: (Technician Level only)

SSID – Sets the SSID for each individual LAN on your network.

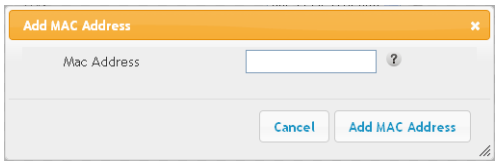
Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

MAC Address Filtering:

MAC Address Filter Type – Sets the MAC address filter type. None – Allows any device to try to connect. Whitelist – Allows any listed device to connect. Blacklist – Allows any device not listed to connect. Note that the correct access keys must still be entered if required.

MAC Address Filter List:

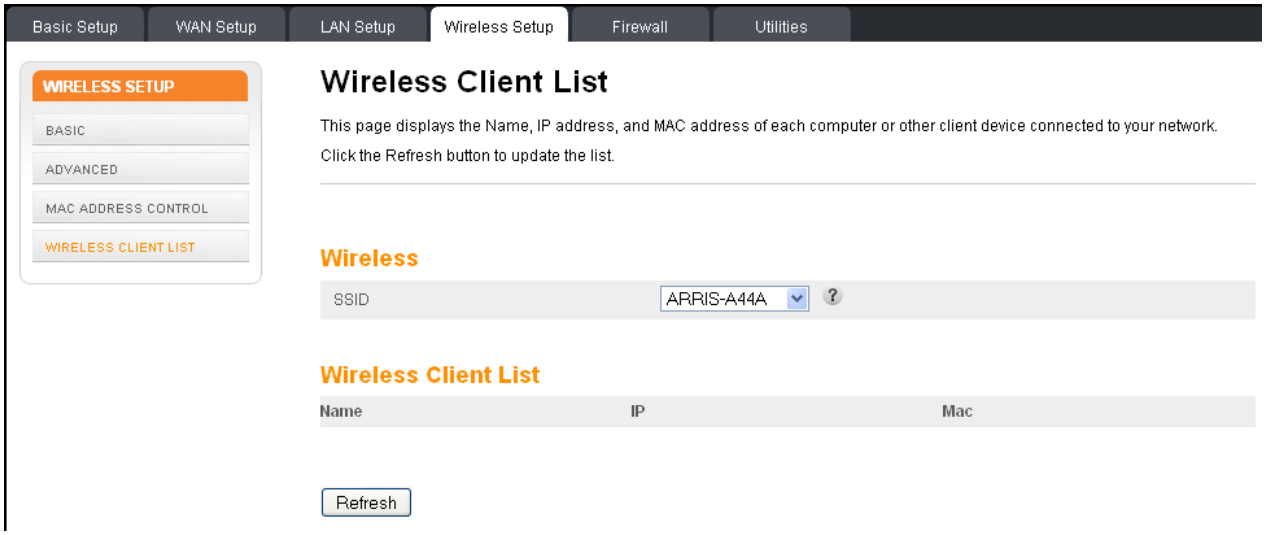
Click the **Add** button to add another client device's MAC address to the filter list.



MAC Address – Enter the MAC address of the wireless client device.

Select a MAC address in the list and then click the **Delete** button to delete it from the filter list.

8.4 Wireless Setup – Wireless Client List



This page displays the Name, IP address, and MAC address of each computer or other client device connected to your network. Click the **Refresh** button to update the list.

Wireless: (Technician Level only)

SSID – Sets the SSID for each individual LAN on your network.

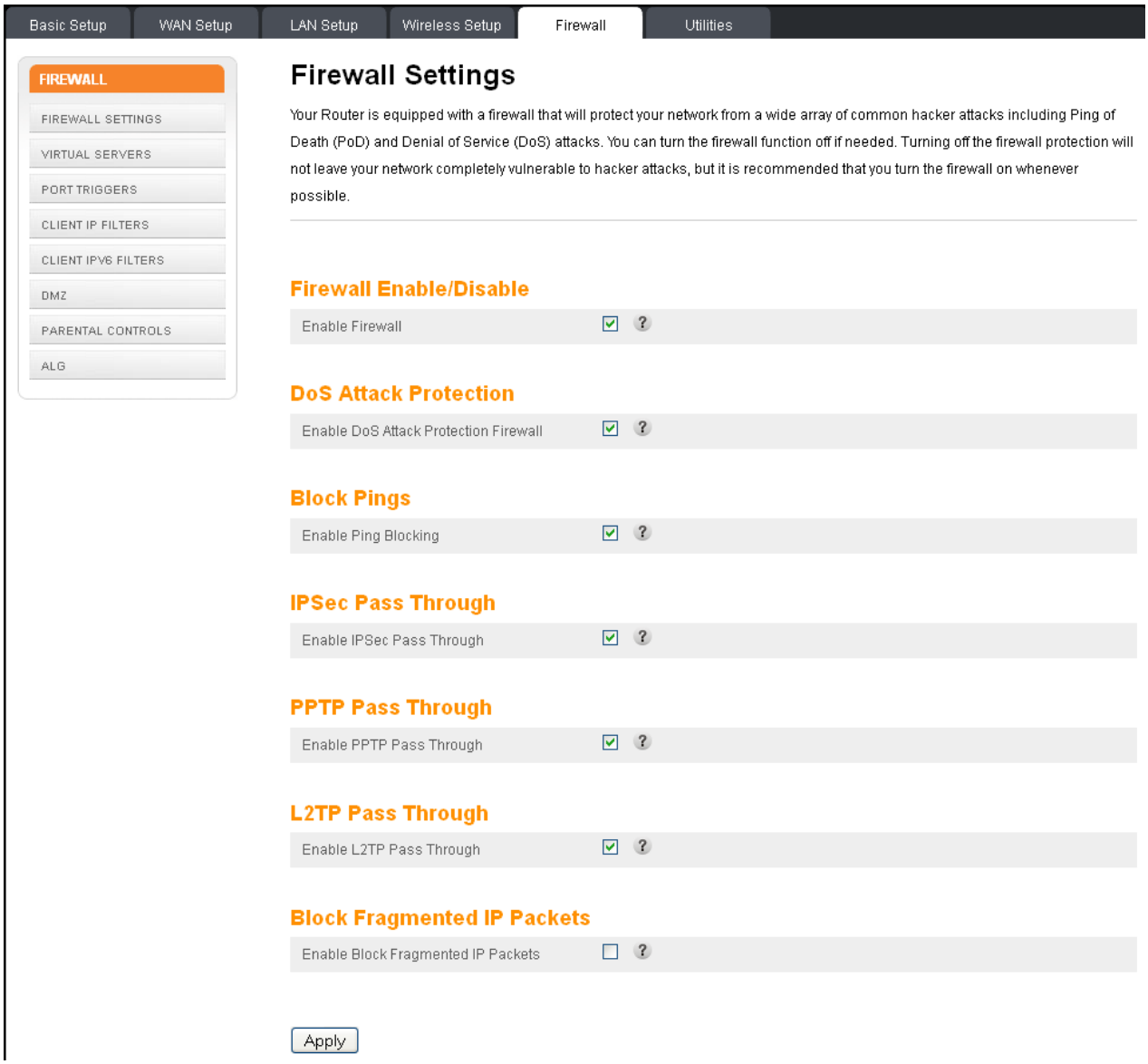
Note: You can optionally set up the system so that there is more than one LAN in your network. This is most useful for commercial applications not home use. All of the "LAN Setup" and "Wireless Setup" configuration parameters can be set independently for each individual LAN.

Wireless Client List:

Click the **Refresh** button to update the wireless client list.

9 Firewall

9.1 Firewall – Firewall Settings



Your router is equipped with a firewall that will protect your network from a wide array of common hacker attacks, including Ping of Death (PoD) and Denial of Service (DoS) attacks. You can also configure VPN pass-through to enable VPN tunneling using IPSec, PPTP, or L2TP protocols to pass through the router's firewall so that you can connect to a Virtual Private Network at your office, for example.

You can disable the firewall function if needed. Turning off the firewall protection will not leave your network completely vulnerable to hacker attacks, but it is recommended that you enable the firewall whenever possible. For changes to take effect, you must click the **Apply** button.

Firewall Enable/Disable

Enable Firewall – Click this checkbox to enable the firewall on your system.

DoS Attack Protection:

Enable DoS Attack Protection Firewall – Click this checkbox to enable DoS attack protection.

Block Pings:

Enable Block Pings – Click this checkbox to enable ping blocking.

IPSec Pass Through:

Enable IPSec Pass Through – Click this checkbox to enable IPSec (Internet Protocol Security) pass through. This allows IPSec tunnels to pass through the firewall.

PPTP Pass Through:

Enable PPTP Pass Through – Click this checkbox to enable PPTP (Point-to-Point Tunneling Protocol) pass through. This allows PPTP tunnels to pass through the firewall.

L2TP Pass Through:

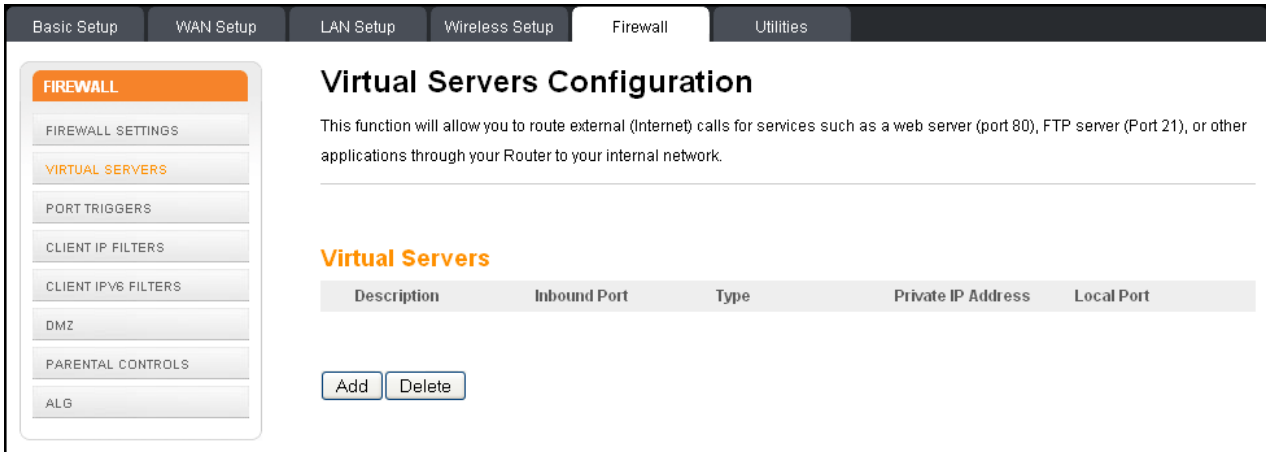
Enable L2TP Pass Through – Click this checkbox to enable L2TP (Layer 2 Tunneling Protocol) pass through. This allows L2TP tunnels to pass through the firewall.

Block Fragmented IP Packets:

Note: This parameter is not used on all models.

Enable Block Fragmented IP Packets – Click this checkbox to enable fragmented IP packet blocking.

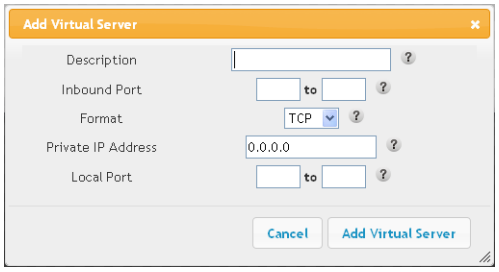
9.2 Firewall –Virtual Servers (Port Forwarding)



The port forwarding function forwards inbound traffic from the Internet to a specified single device on your network. Examples include allowing access to a web server on your network, peer-to-peer file sharing, some gaming and videoconferencing applications, and others. This function allows you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your router to your internal network.

Click the **Add** button to add a virtual server. Select a virtual server from the list and click the **Delete** button to delete a virtual server.

Virtual Servers:



Description – Enter a name for the virtual server.

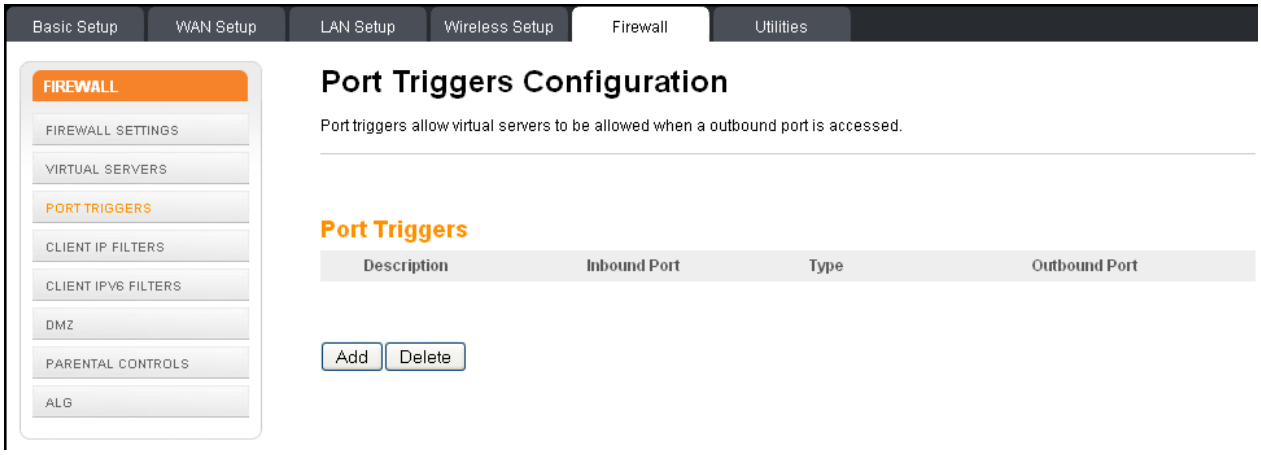
Inbound Port – Enter the inbound port range for the virtual server. It should be the same range as the local port.

Format – Sets the format for the port. Options are TCP, UDP, or BOTH.

Private IP Address – Enter the IP address of the machine on the LAN that you want the connections to go to.

Local Port – Enter the local port range for the virtual server. It should be the same range as the inbound port.

9.3 Firewall – Port Triggers

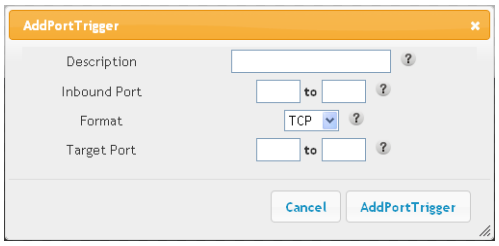


Port triggering lets you set the router to watch outgoing traffic for specific port numbers, remember the IP address of the sending computer, and then route the data back to the sending computer when the requested data returns. This is typically used for online gaming and online chat applications.

Port triggers allow virtual servers to be allowed when an outbound port is accessed.

Click the **Add** button to add a port trigger. Select a port trigger from the list and click the **Delete** button to delete a port trigger.

Port Triggers:



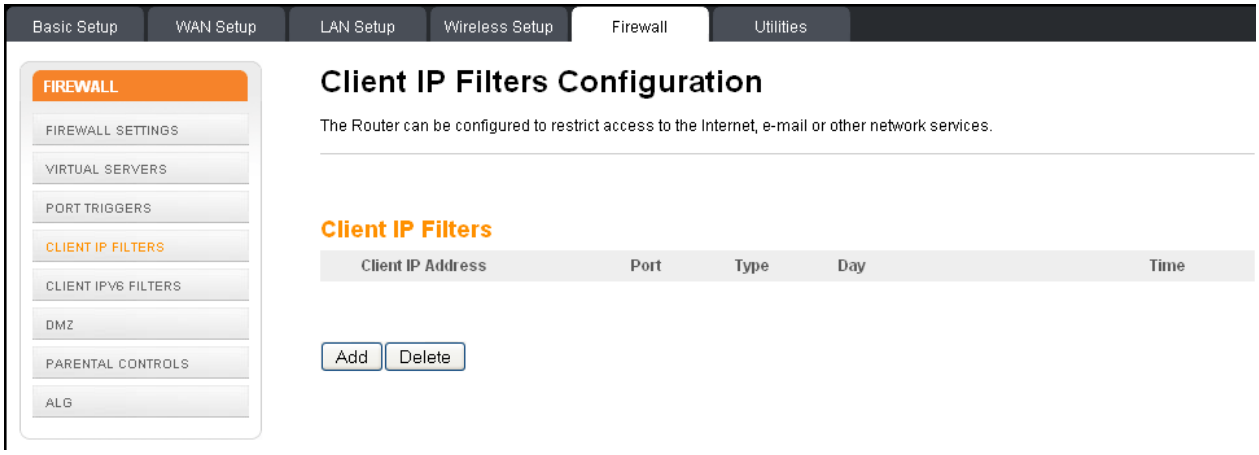
Description – Enter a name for the port trigger.

Inbound Port – Enter the inbound port range for the port trigger. It should be the same range as the target port.

Format – Sets the format for the port. Options are TCP, UDP, or BOTH.

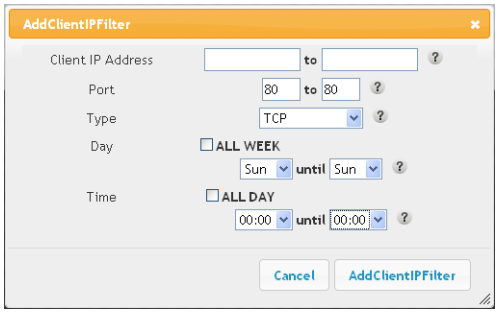
Target Port – Enter the target port range for the port trigger. It should be the same range as the inbound port.

9.4 Firewall – Client IP Filters



The router can be configured to restrict access to the Internet, email, or other network services at specific days and times.

Client IP Filters:



Client IP Address – Enter the IP address of the client.

Port – Enter the outbound traffic port number range, starting and ending.

Type – Sets the port type. Options are TCP, UDP, or BOTH.

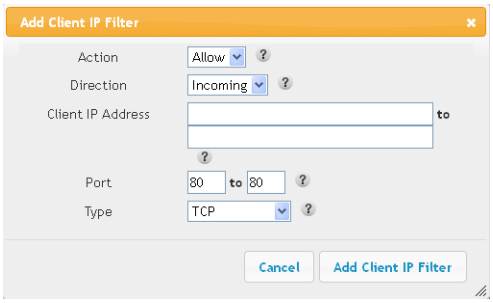
Day – Sets the start day and end day for the allowed access. Click the checkbox for All Week.

Time – Sets the start time and end time for the allowed access during the specified days (24-hour clock). 00:00 to 24:00 indicates all day, or click the checkbox for All Day.

9.5 Firewall – Client IP Filters (IPV6)

The router can be configured to restrict access to the Internet, email, or other network services. This screen adds and deletes filters for IPV6.

Client IP Filters:



Action – Allow or Deny data watching this filter.

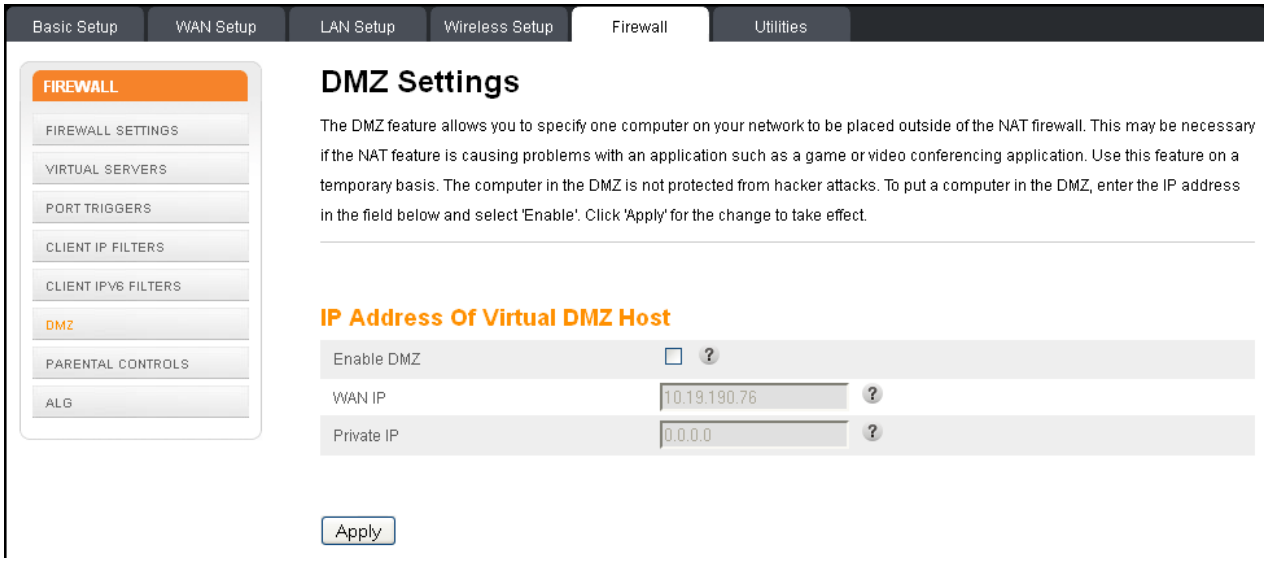
Direction – Watch Incoming or Outgoing data.

Client IP Address – Enter the range of IPV6 addresses to filter.

Port – Enter the outbound traffic port number range, starting and ending.

Type – Sets the port type. Options are TCP, UDP, or BOTH.

9.6 Firewall – DMZ Settings



The DMZ feature allows you to specify one computer on your network to be placed outside of the NAT firewall. This may be necessary if the NAT feature is causing problems with an application such as a game or video conferencing application.

Use this feature only on a temporary basis. The computer in the DMZ is not protected from hacker attacks.

To put a computer in the DMZ, click the Enable DMZ checkbox enter its IP address, and click the **Apply** button.

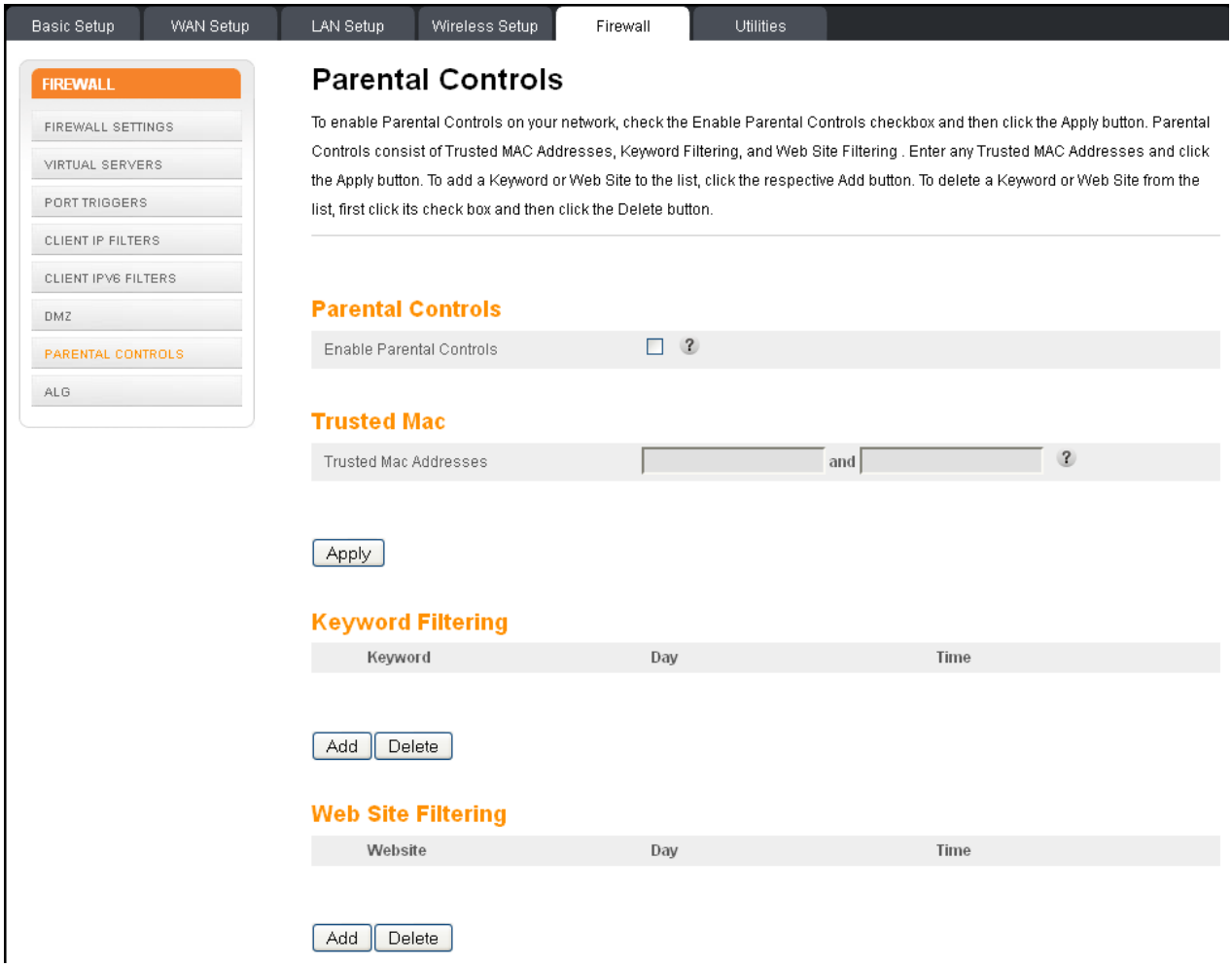
IP Address Of Virtual DMZ Host:

Enable DMZ – Click this checkbox to enable DMZ on your network.

WAN IP – Displays the public IP address.

Private IP – Enter the IP address of the computer to be placed in the DMZ. Be sure that the address is not in the range of addresses delivered by the DHCP server if enabled. After placing the computer in the DMZ, all ports on the computer are open to the Internet and not protected.

9.7 Firewall – Parental Controls



Note to ARRIS Whole Home Solutions users: The parental control settings made here only affect your high-speed data network and are not the parental controls you can set on the Media Player's menus for restricting TV viewing, etc.

Parental Controls:

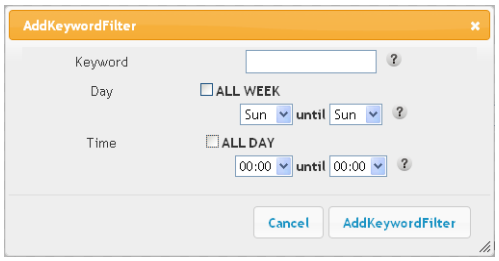
To enable Parental Controls on your network, check the Enable Parental Controls checkbox and then click the **Apply** button. Parental Controls consist of Trusted MAC Addresses, Keyword Filtering and Web Site Filtering. Enter any Trusted MAC Addresses and click the **Apply** button.

To add a Keyword or Web Site filter to the list, click the respective **Add** button. To delete a Keyword or Web Site from the list, first click its checkbox and then click the **Delete** button.

Trusted MAC:

Trusted MAC Addresses – Enter the trusted MAC addresses. These MAC addresses will not be affected by Parental Control settings. You can add a total of two trusted MAC addresses. If the Trusted MAC Addresses fields are left empty, all source MAC addresses are trusted.

Keyword Filtering:

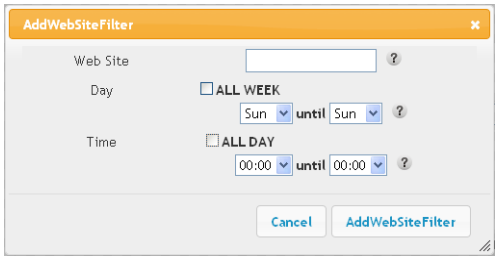


Keyword – Enter a keyword that you want to filter out.

Day – Sets the start day and end day for the allowed access. Click the checkbox for All Week.

Time – Sets the start time and end time for the allowed access during the specified days (24-hour clock). 00:00 to 24:00 indicates all day, or click the checkbox for All Day.

Web Site Filtering:



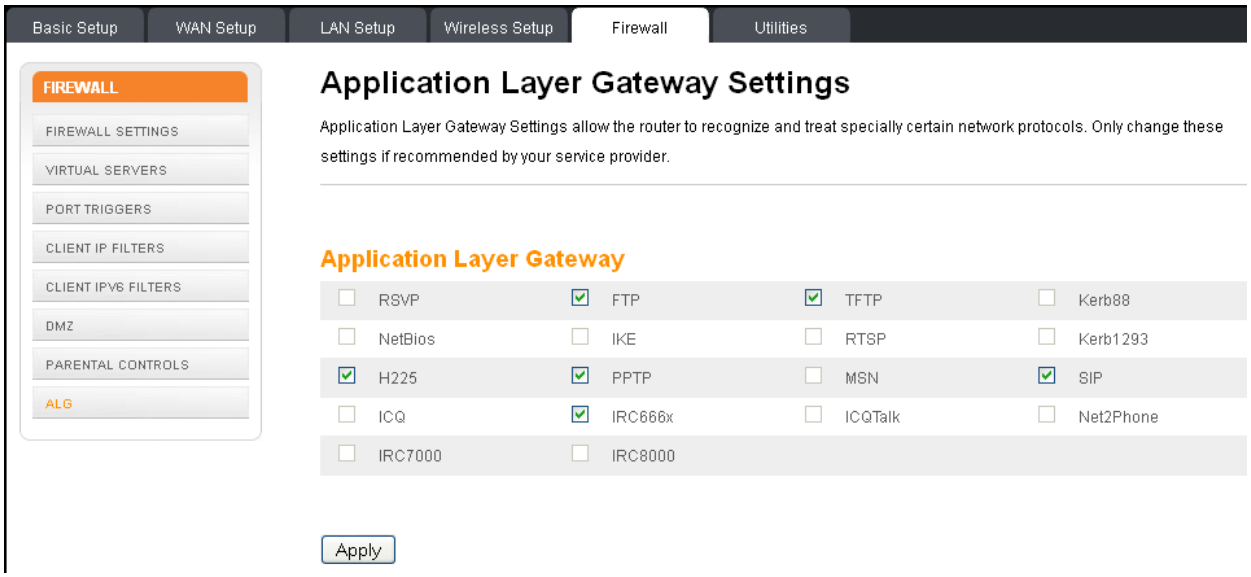
Web Site – Enter the domain name of a web site that you want to filter out.

Day – Sets the start day and end day for the allowed access. Click the checkbox for All Week.

Time – Sets the start time and end time for the allowed access during the specified days (24-hour clock). 00:00 to 24:00 indicates all day, or click the checkbox for All Day.

9.8 Firewall – ALG Settings

Note: This screen is not used on all models.



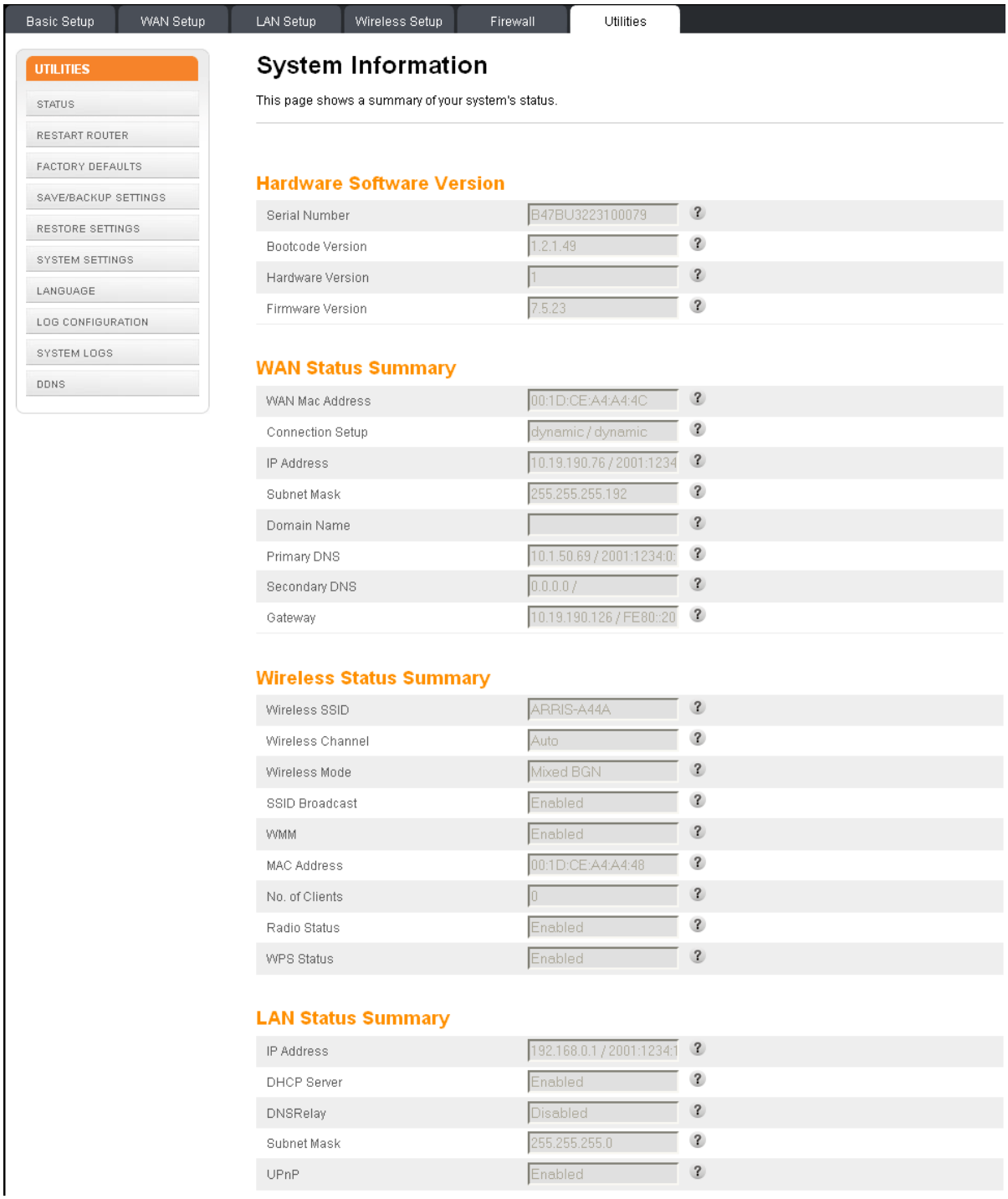
Application layer gateway settings allow the router to recognize and treat certain network protocols specially.

Application Layer Gateway:

Click the checkbox for each network protocol for which you want special handling.

10 Utilities

10.1 Utilities – Status/System Information



This page shows a summary of your system's status.

Hardware Software Version:

SerialNum Version – This field displays the product serial number.

Bootcode Version – This field displays the bootcode version.

Hardware Version – This field displays the hardware version.

Firmware Version – This field displays the firmware version.

WAN Status Summary:

WAN MAC Address – This field displays the WAN MAC address.

Connection Setup – This field displays the connection type: Dynamic, Static, or L2TP

IP Address – This field displays the WAN IP address.

Subnet Mask – This field displays the WAN subnet mask.

Domain Name – This field displays the domain name.

Primary DNS – This field displays the Primary DNS IP address.

Secondary DNS – This field displays the Secondary DNS IP address.

Gateway – This field displays the gateway IP address.

Wireless Status Summary:

Wireless SSID – This field displays the Service Set Identifier (SSID), which is the wireless network name.

Wireless Channel – This field displays the communications channel for your router.

Wireless Mode – This field displays the wireless mode: B/G mixed, B only, G only, N only, or B/G/N mixed.

SSID Broadcast – This field displays the status of the SSID Broadcast function: Enabled or Disabled.

WMM – This field displays the status of the Wi-Fi Multimedia (WMM) function: Enabled or Disabled.

MAC Address – This field displays the wireless adapter MAC Address.

No. of Clients – This field displays the number of wireless client devices connected to the router.

Radio Status – This field displays the status of the wireless radio: Enabled or Disabled.

WPS Status - This field displays the status of the WPS function: Enabled or Disabled.

LAN Status Summary:

IP Address – This field displays the IP Address of your LAN.

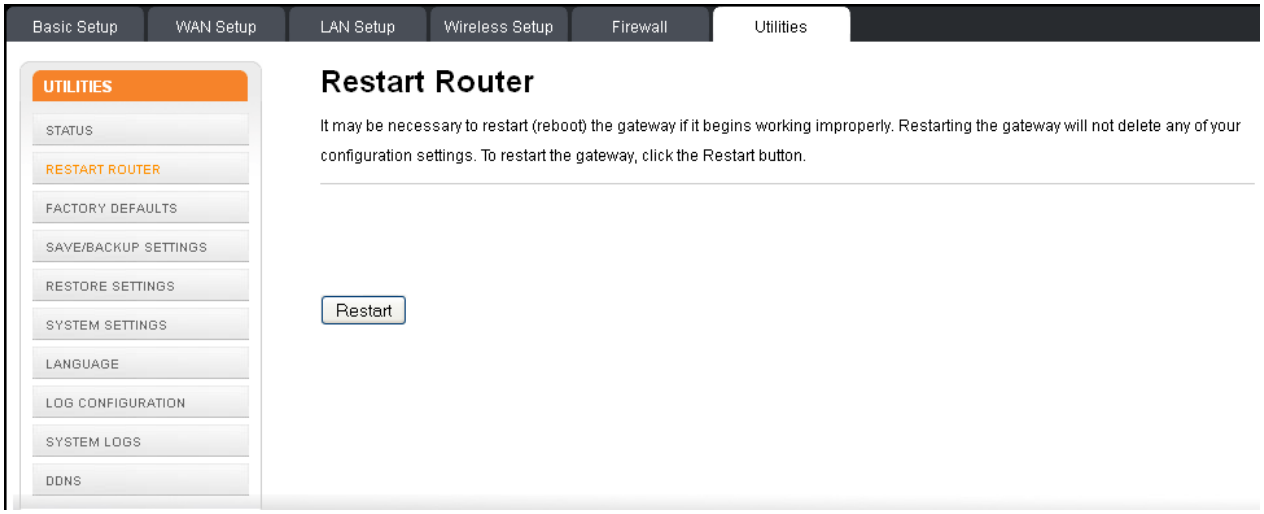
DHCP Server – This field displays the status of the DHCP Server: Enabled or Disabled.

DNS Relay – This field displays the status of the DNS Relay function: Enabled or Disabled.

Subnet Mask – This field displays the subnet mask of your LAN.

UPnp – This field displays the status of the UPnP feature: Enabled or Disabled.

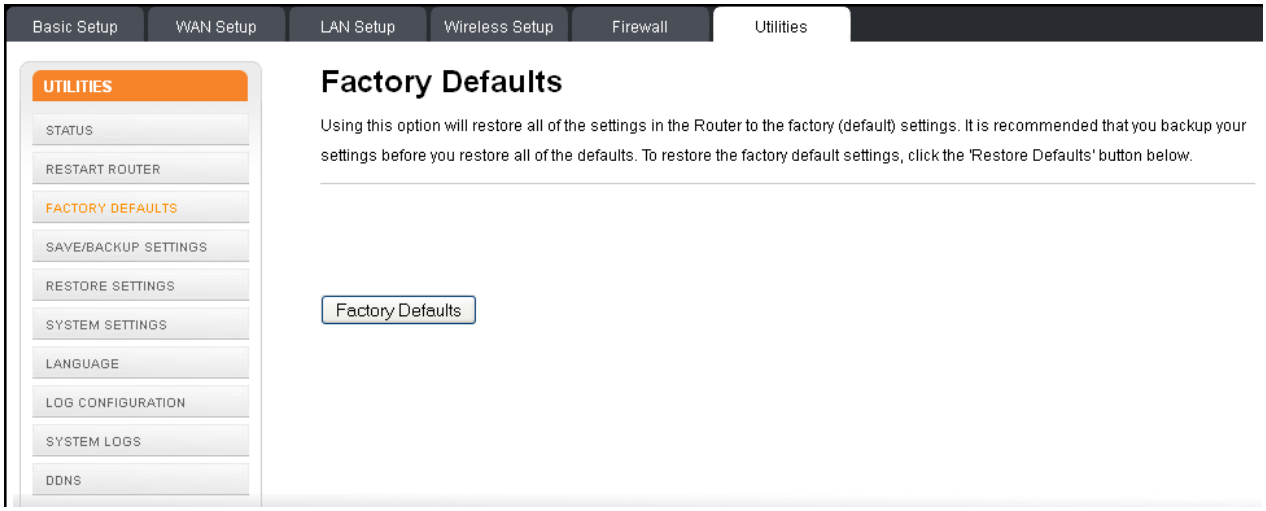
10.2 Utilities –Restart Router



It may be necessary to restart (reboot) the router if it begins working improperly. Restarting the router will not delete any of your configuration settings.

To restart the router, click the **Restart** button.

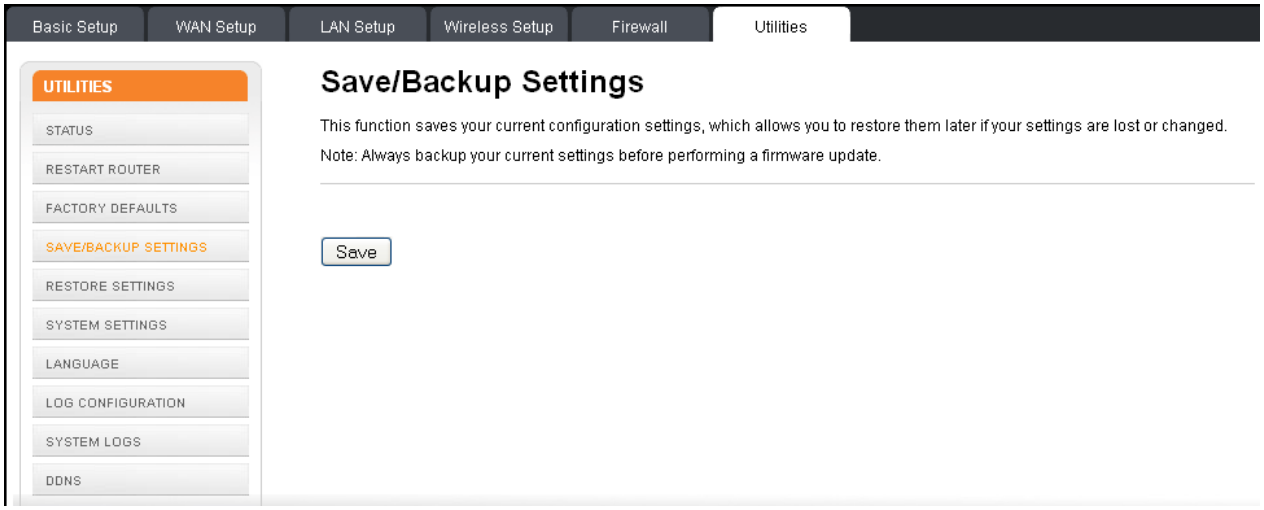
10.3 Utilities – Factory Defaults



This function restores all of the router's configuration settings to the factory default setting. Before restoring the factory defaults, you should back up your current configuration settings using the Save/Backup Settings page.

Click the **Factory Defaults** button to restore the factory default configuration settings.

10.4 Utilities – Save/Backup Settings

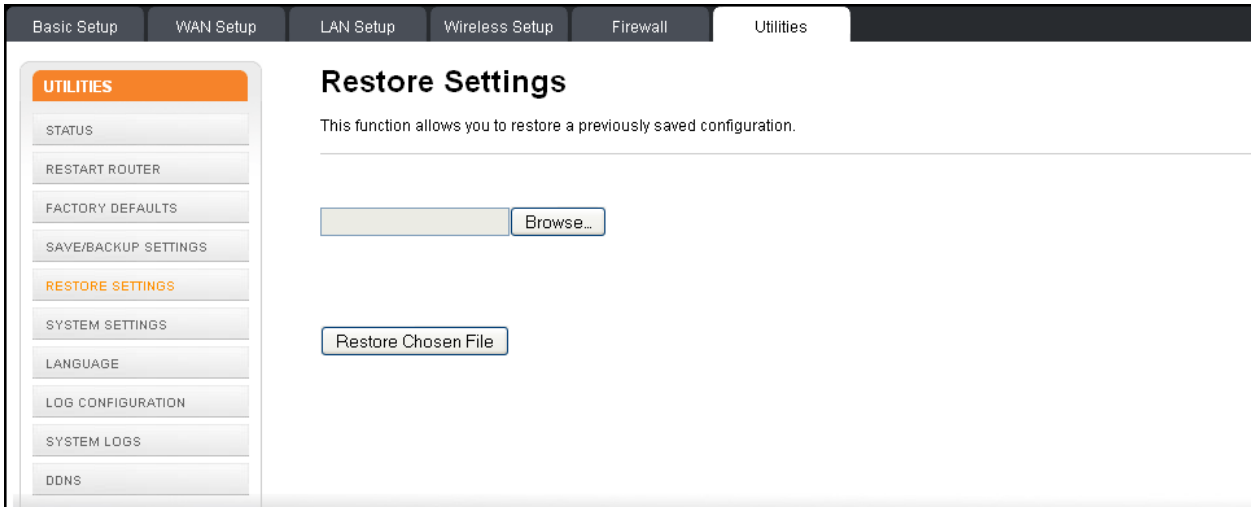


This function saves your current configuration settings, which allows you to restore them later if your settings are lost or changed. Click the **Save** button to backup your current settings.

Note: Follow the "file download" and "save as" dialog box instructions for your specific browser to select a location for and save the router.data backup file.

Important: Always backup your current settings before performing a firmware update.

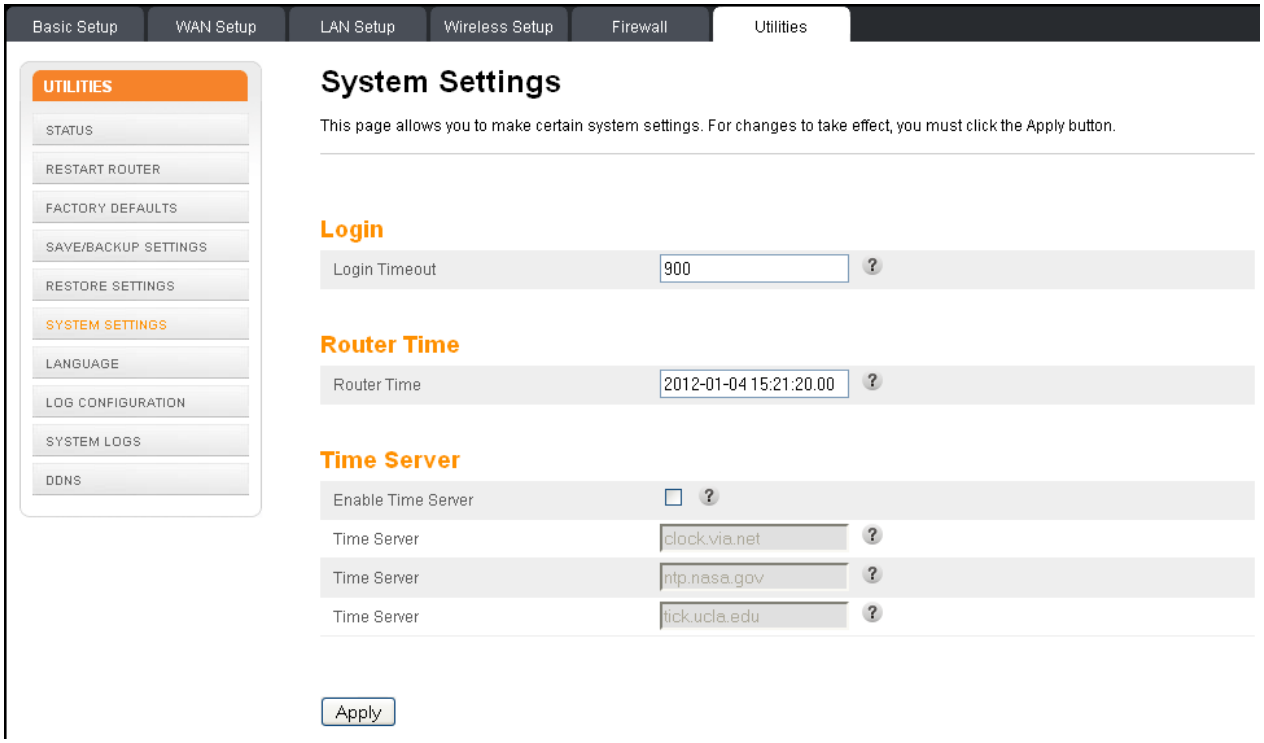
10.5 Utilities – Restore Settings



This function allows you to restore a previously saved configuration.

To restore a previous configuration: Use the **Browse** button to locate and select the previously saved backup file. Then click the **Restore Chosen File** button.

10.6 Utilities – System Settings



This page allows you to make certain system settings. For changes to take effect, you must click the **Apply** button.

Login:

Login Timeout – Number of seconds before web page logs out.

Router Time:

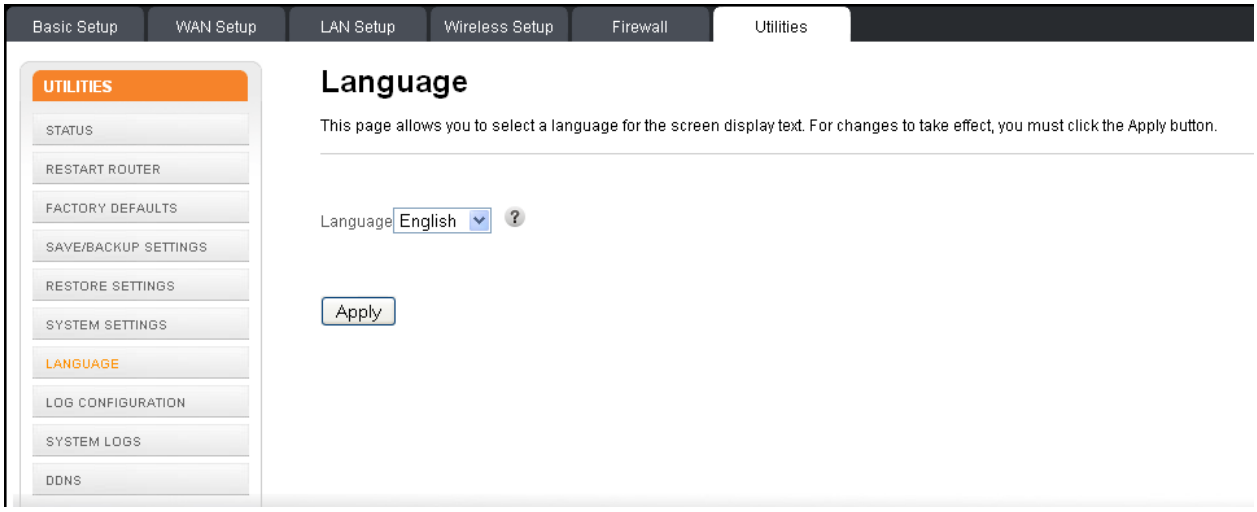
Router Time – Date and time on the router. (yyyy-mm-dd hh:mm:ss.ss)

Time Server:

Enable Time Server – Click this checkbox to set the time via these servers.

Time Server – The host name or IP address of the time server.

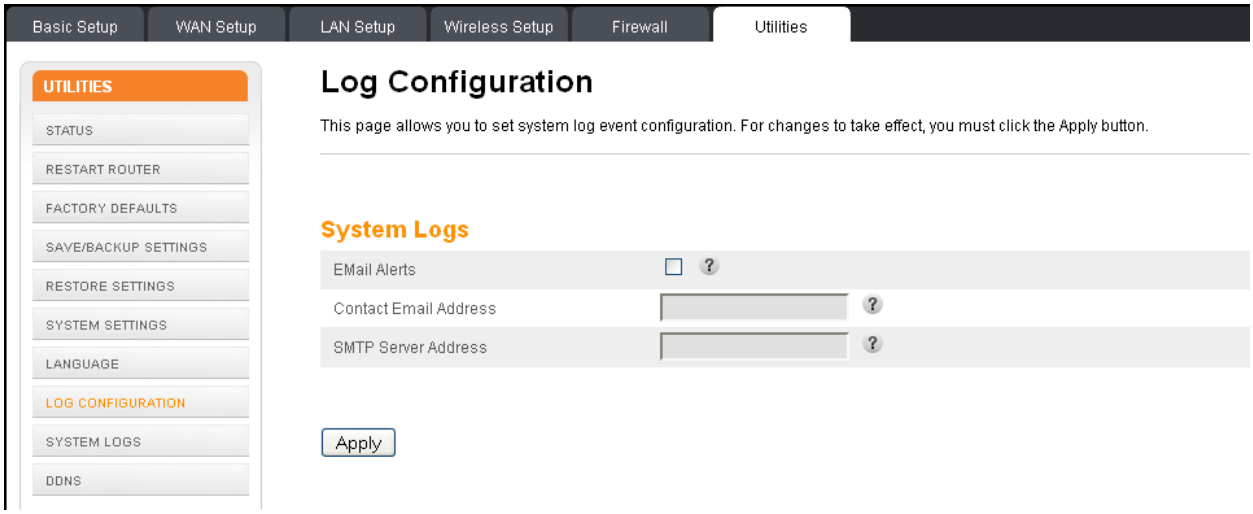
10.7 Utilities – Language



This page allows you to select a language for the screen display text. For changes to take effect, you must click the **Apply** button.

Language – Sets the language for the screen display text.

10.8 Utilities – Log Configuration



This page allows you to set system log event configuration. For changes to take effect, you must click the **Apply** button.

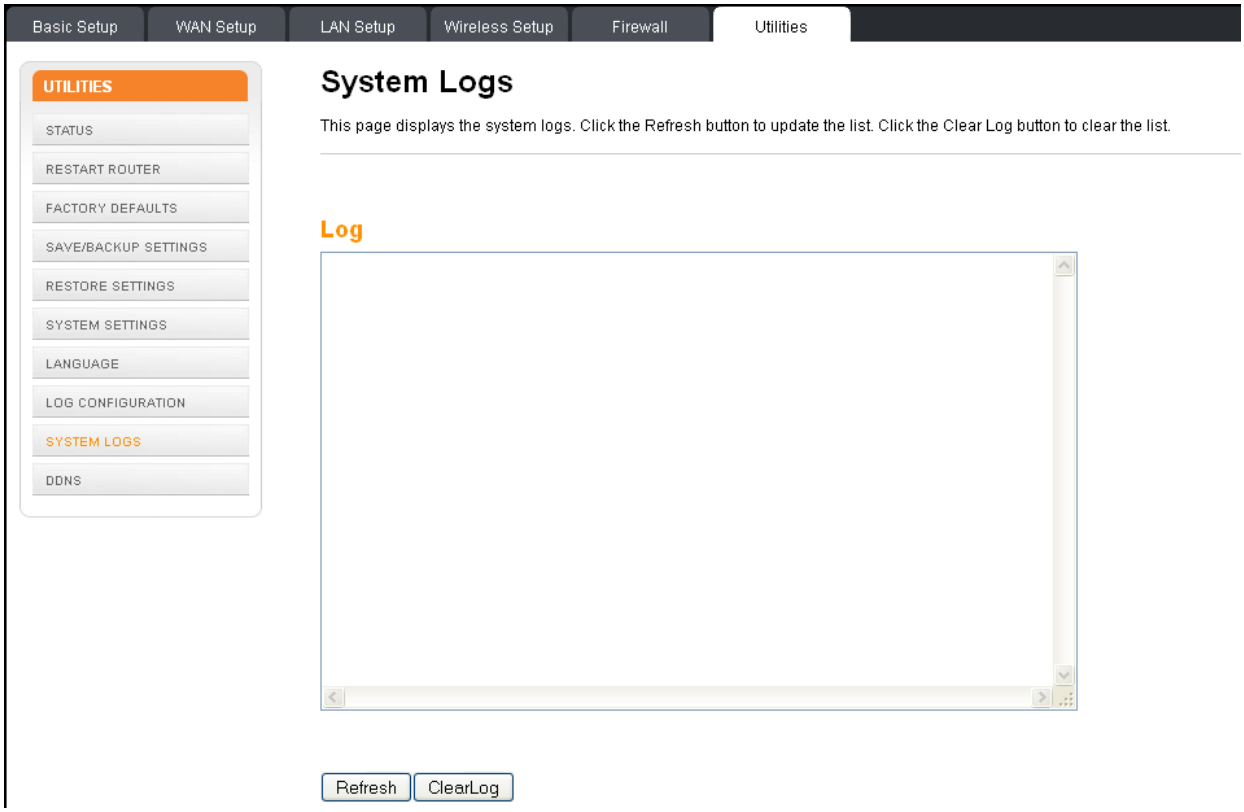
System Logs:

Email Alerts – Click this checkbox to enable Email Alerts. Alerts will be sent to the email address entered in the Contact Email Address field.

Contact Email Address – Enter the email address to which you want email alerts sent.

SMTP Server Address – Enter the SMTP server IP address.

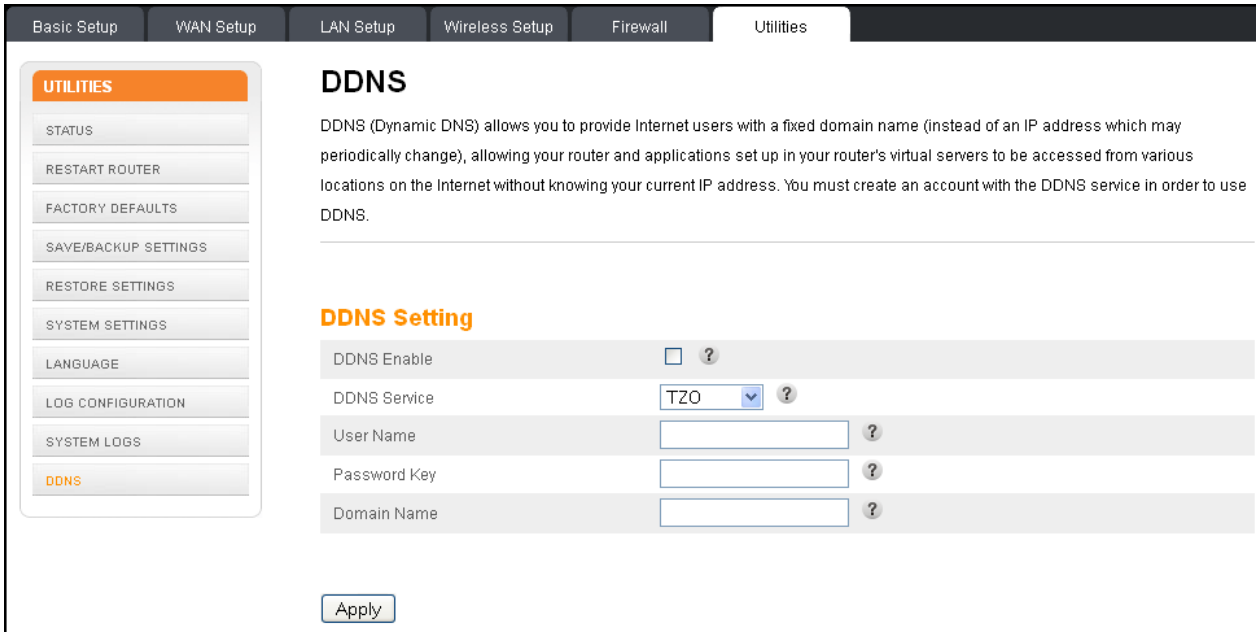
10.9 Utilities – System Logs



Log:

This page displays the system logs. Click the **Refresh** button to update the list. Click the **Clear Log** button to clear the list.

10.10 Utilities –DDNS



DDNS (Dynamic DNS) allows you to provide Internet users with a fixed domain name (instead of an IP address which may periodically change). This allows your gateway and applications set up in your gateway's virtual servers to be accessed from various locations on the Internet without knowing your current IP address. For changes to take effect, you must click the **Apply** button.

Note: You must first create an account with a DDNS provider in order to use DDNS. The DDNS provider maps your chosen domain name to your IP address.

DDNS Setting:

DDNS Enable – Click this checkbox to enable DDNS on your system.

DDNS Service – Sets the DDNS provider that our account is with. The options are DynDNS and TZO.

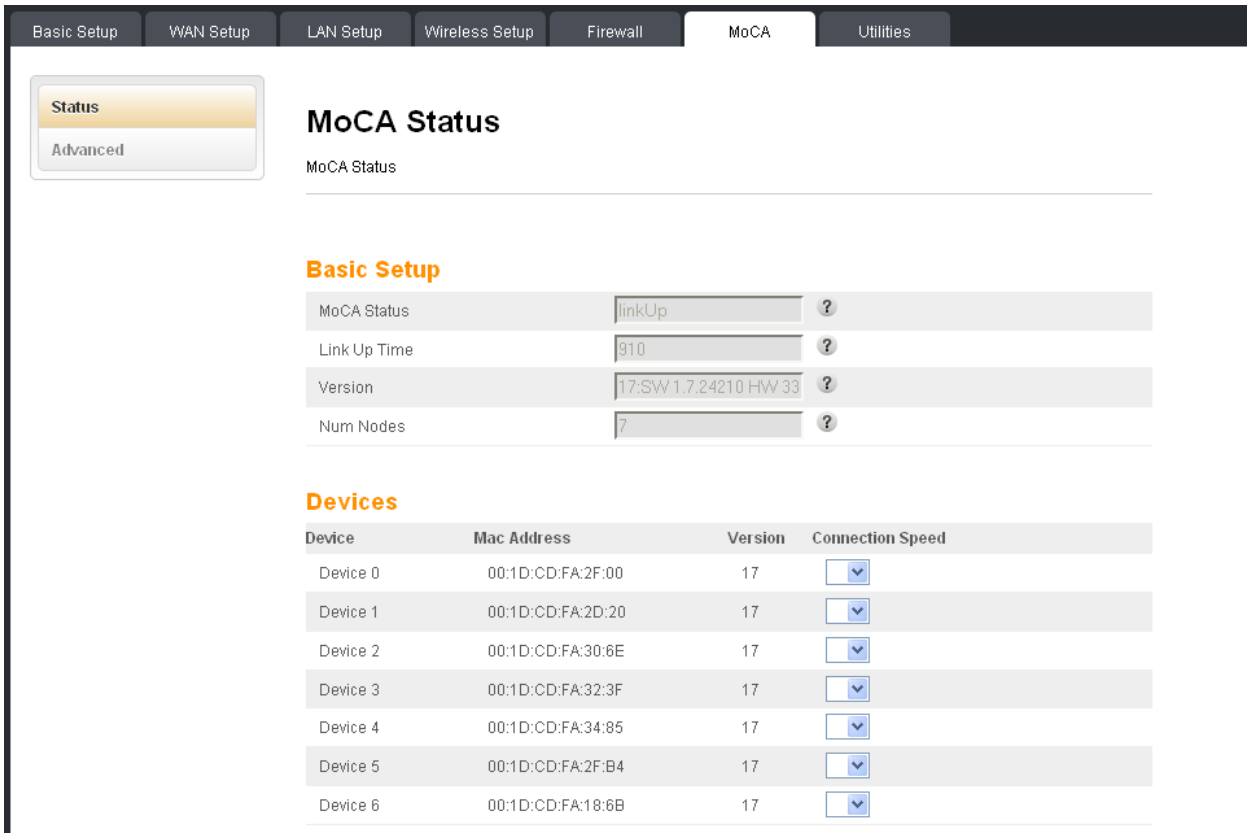
User Name – Enter the user name for your DDNS account.

Password Key – Enter the password for your DDNS account. (Provided by your DDNS provider.)

Domain Name – Enter the domain name you selected to use with your DDNS account.

11 MoCA Status

Note: This screen only applies to the ARRIS Whole Home Solutions Media Gateway.



Unless using a wired Ethernet connection, the Media Gateway communicates with the Media Players using Multimedia over Coax Alliance (MoCA) over the home coax network. All MoCA traffic is between the Media Gateway and up to six Media Players.

Basic Setup:

MoCA Status – Displays the status of MoCA, either noLink, linkup, or disable.

Link Up Time – Displays the number of seconds the MoCA interface has been up.

Version – Displays the MoCA version.

Num Nodes – Displays the number of MoCA devices

Devices:

The devices table lists MAC address, MoCA version, and performance data (if any is available) of the nodes.