030-300479 Rev. A
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WESTELL

ULTRALINE IIB (MODEL 816030)

USER GUIDE

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1. PRODUCT DESCRIPTION

Your Westell® UltraLine IIB functions as a Gateway or Router and enables you to connect multiple PCs on your LAN to the Internet. The UltraLine's 802.11 wireless interface enables you to establish a secure wireless connection with mobile computing devices.

Hereafter, the Westell® UltraLine IIB will be referred to as "Gateway" or "modem."

2. SAFETY INSTRUCTIONS

The following important safety instructions should be followed when using your telephone equipment.

WARNING: Please save these instructions.

- Do not use this product near water, for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- Do not connect this equipment in an environment that is unsuitable. The voice over IP (VoIP) ports of the equipment are suitable for connection to intra-building or nonexposed wiring only.
- Never install any telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch non-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

WARNING

Risk of electric shock. Voltages up to 140 Vdc (with reference to ground) may be present on telecommunications circuits.

3. REGULATORY INFORMATION

3.1 FCC Compliance Note

(FCC ID: CH8A9081XXYY-07)

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

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

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

Modifications made to the product, unless expressly approved by Westell Inc., could void the users' right to operate the equipment.

RF EXPOSURE

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

PART 68 – COMPLIANCE REGISTRATION

This equipment is designated to connect to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. An FCC compliant telephone cord and modular plug is provided with the equipment. Refer to the installations instructions in this User Guide for details.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. Refer to the installation instructions in this User Guide for details.

If this terminal equipment (Model 816030) causes harm to the telephone network, the telephone company may request you to disconnect the equipment until the problem is resolved. The telephone company will notify you in advance if temporary discontinuance of service is required. If advance notification is not practical, the telephone company will notify you as soon as possible. You will be advised of your right to file a complaint with the FCC if you believe such action is necessary. If you experience trouble with this equipment (Model 816030), do not try to repair the equipment yourself. The equipment cannot be repaired in the field. Contact your ISP, or contact the original provider of your DSL equipment.

The telephone company may make changes to their facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice in order for you to make the modifications necessary to maintain uninterrupted service.

If your home has specially wired alarm equipment connected to the telephone line, ensure that the installation of this equipment (Model 816030) does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer. This equipment cannot be used on public coin phone service provided by the telephone company. Connection of this equipment to party line service is subject to state tariffs.

3.2 Canada Certification Notice

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operations and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The department does not guarantee the equipment will operate to the user's satisfaction.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specification. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specification were met. It does not imply that Industry Canada approved the equipment. The Ringer Equivalence Number (REN) is 0.0. The Ringer Equivalence Number that is assigned to each piece of terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local Telecommunication Company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Connection to a party line service is subject to state tariffs. Contact the state public utility commission, public service commission, or corporation commission for information.

If your home has specially wired alarm equipment connected to the telephone line, ensure that the installation of this equipment (Model 816030) does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

If you experience trouble with this equipment (Model 816030) do not try to repair the equipment yourself. The equipment cannot be repaired in the field and must be returned to the manufacturer. Repairs to certified equipment should be coordinated by a representative, and designated by the supplier. Refer to section 20 in this User Guide for further details. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

Operation of this equipment (Model 816030) is subject to the following conditions: (1) This device may not cause harmful interference, and (2) This equipment must accept any interference received, including interference that may cause undesired operation.

To reduce potential radio interference to users when a detachable antenna is used with this equipment the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication." Users should ensure, for their own protection, that the electrical ground connections of the power utility, telephone lines, and internal, metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION

Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

4. NETWORKING REQUIREMENTS

The following system specifications are required for optimum performance of the Gateway via 10/100 Base-T Ethernet, Wireless installations.

CONNECTION TYPE	MINIMUM SYSTEM REQUIREMENTS
ETHERNET (E1, E2, E3, E4)	• Pentium® or equivalent class machines • Microsoft® Windows® (98 SE, ME, 2000, NT 4.0, or XP) Macintosh® OS X, or Linux installed • Microsoft® Server 2003 (all versions) • Internet Explorer 4.x or Netscape Navigator 4.x or higher • 64 MB RAM (128 MB recommended) • 10 MB of free hard drive space • TCP/IP Protocol stack installed • 10/100 Base-T Network Interface Card (NIC) • Computer Operating System CD-ROM on hand
WIRELESS IEEE 802.11b/g	• Pentium® or equivalent class machines • Microsoft® Windows® (98 SE, ME, 2000, or XP) or Macintosh® OS X installed • Microsoft® Server 2003 (all versions) • Computer Operating System CD-ROM on hand • Internet Explorer 4.x or Netscape Navigator 4.x or higher • 64 MB RAM (128 MB recommended) • 10 MB of free hard drive space • An available IEEE 802.11b/g PC adapter

5. HARDWARE FEATURES

5.1 LED Indicators

This section explains the LED States and Descriptions of your Gateway. LED indicators are used to verify the unit's operation and status.

LED States and Descriptions

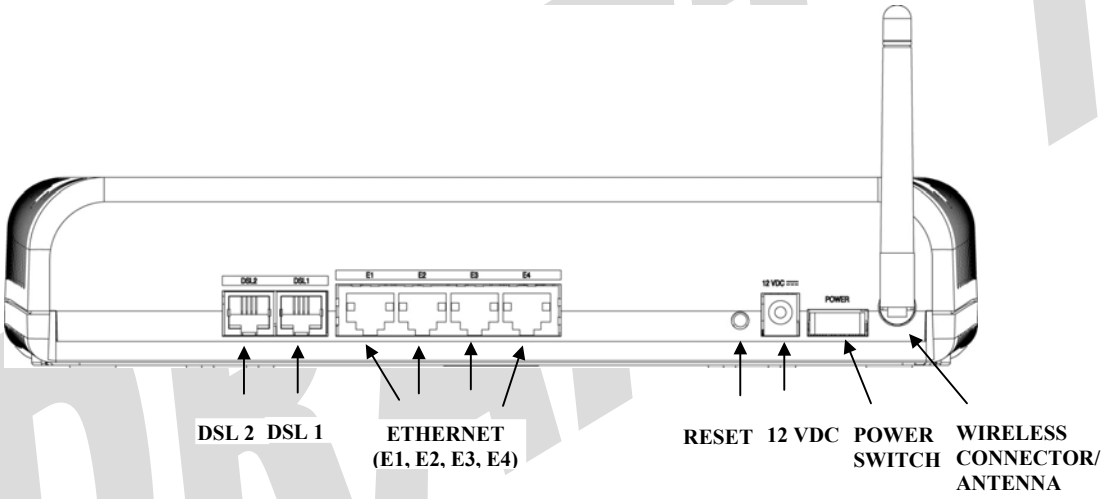
LED	State	Description
POWER (PWR)	**Solid Green**	Gateway power is ON.
	Solid Red	POST (Power On Self Test), Failure (not bootable) or Device Malfunction. Note: The Power LED should be red no longer than two seconds after the power on self test passes.
	OFF	Gateway power is OFF.
E1, E2, E3, E4 (Ethernet LAN)	**Solid Green**	Powered device is connected to the associated port (includes devices with wake-on LAN capability where slight voltage is supplied to an Ethernet connection).
	Flashing Green	10/100 Base-T Ethernet LAN activity is present (LAN traffic in either direction).
	OFF	Gateway power is OFF, no cable or no powered device is connected to the associated port.
WI FI	**Solid Green**	Wireless is enabled and functioning.
	Flashing Green	Wireless LAN activity present (traffic in either direction).
	Off	Wireless is disabled or not functioning.
DSL1 DSL2	**Solid Green**	Good DSL sync.
	Flashing Green	DSL attempting to sync.
	Solid Red	DSL failed to sync at the physical layer. Gateway is in safeboot mode.
	Off	No DSL signal detected. Gateway power is OFF.
BONDED	**Solid Green**	Bonded operation is functioning properly.
	Off	No Bonding between the two DSL lines.
INTERNET	**Solid Green**	Internet link established.
	Flashing Green	IP connection established and IP Traffic is passing through device (in either direction). Note: If the IP or PPP session is dropped due to an idle timeout, the light will remain solid green, if an ADSL connection is still present. If the session is dropped for any other reason, the light is turned OFF. The light will turn red when it attempts to reconnect and DHCP or PPP fails).
	Solid Red	Device attempted to become IP connected and failed (no DHCP response, no PPP response, PPP authentication failed, no IP address from IPCP, etc.).
	OFF	Modem power is OFF, Modem is in Bridge Mode, or the connection is not present.

NOTE: Safe Boot is reflected when the Power and Internet LED's are both Red and all other LED's are off.

5.2 Rear Panel Components

- DSL2 connector (RJ-11)
- DSL1 connector (RJ-11)
- (4) Ethernet connector (RJ-45)
- Reset button
- Power connector (barrel)
- Power switch
- Wireless IEEE 802.11b/g SMA connector and antenna

Figure 1. Rear View of UltraLine IIB



5.3 Connector Descriptions

The following chart displays the connector types for the UltraLine IIB.

SYMBOL	NAME	TYPE	FUNCTION
	DSL2 LINE	RJ-11	Connects to an ADSL-equipped telephone jack or DSL connection of a POTS splitter.
	DSL1 LINE	RJ-11	Connects to an ADSL-equipped telephone jack or DSL connection of a POTS splitter.
	ETHERNET (1, 2, 3, 4)	RJ-45	10/100 Base-T Ethernet Connection to PC or Hub.
12 VDC ⎓	POWER	Barrel connector	Connection to DC (12V) Power Connector.
Wireless	ANTENNA	SMA connector and antenna	Connects to wireless IEEE 802.11b/g device.

5.4 Pin-out Descriptions

The following table lists the Gateway's port pin-outs and descriptions.

Port	Pin-out	Description
DSL2 DSL1	1,2,5,6	Not Used
	3	DSL TIP
	4	DSL Ring
ETHERNET E1, E2, E3, E4	1	Rx+
	2	Rx-
	3	Tx+
	4,5,7,8	Not Used
	6	Tx-

6. INSTALLING THE HARDWARE

6.1 Installation Requirements

To install your Gateway, you will need one of the following:

- A Network Interface Card (NIC) installed in your PC
- An IEEE 802.11b/g adapter

IMPORTANT: Please wait until you have received notification from your Internet service provider (ISP) that your DSL line has been activated before installing the Gateway and the software. Internet service provider subscriber software and connection requirements may vary. Consult your ISP for installation instructions.

6.2 Before you begin

Make sure your kit contains the following items:

- Westell® UltraLine IIB
- Power Supply
- RJ-45 Ethernet cable (straight-through) (yellow)
- SMA Antenna
- Westell CD-ROM containing User Guide in PDF format
- Quick Start Guide

6.3 Microfilters

ADSL signals must be blocked from reaching each telephone, answering machine, fax machine, computer modem or any similar conventional device. Failure to do so may degrade telephone voice quality and ADSL performance. Install a microfilter if you desire to use the DSL-equipped line jack for telephone, answering machine, fax machine or other telephone device connections. Microfilter installation requires no tools or telephone rewiring. Just unplug the telephone device from the baseboard or wall mount and snap in a microfilter. Next, snap in the telephone device. You can purchase microfilters from your local electronics retailer or contact the original provider of your DSL equipment.

6.4 Hardware Installations

NOTE: If you are using your Gateway in conjunction with an Ethernet Hub or Switch, refer to the manufacturer's instructions for proper installation and configuration. When using a Microfilter, be certain that the DSL phone cable is connected to the "DSL/HPN" non-filtered jack. Please wait until you have received notification from your ISP that your DSL line has been activated before installing the Gateway. **Westell recommends the use of a surge suppressor to protect equipment attached to the power supply.** An additional Ethernet cable may be required depending on the installation method you are using. Ethernet cables can be purchased at your local computer hardware retailer.

6.4.1 Installation via DSL1/DSL2

IMPORTANT: Before you connect via 10/100 Base-T, you must have an available Ethernet card installed in your computer. If your Ethernet card does not auto-negotiate, you must set it to half duplex. Refer to the Ethernet card manufacturer's instructions for installing and configuring your Ethernet card.

1. Connect the DSL phone cable from the connector marked **DSL** on the rear panel of the Gateway to the DSL-equipped telephone line jack on the wall. **IMPORTANT:** Do not use a DSL filter on this connection. You must use the phone cord that was provided with the kit.
2. Connect the yellow Ethernet cable (provided with your kit) from any one of the Ethernet jacks marked **ETHERNET** on the rear panel of the Gateway to the Ethernet port on your computer. **Repeat this step to connect up to three additional PCs to your Westell Gateway.**

   NOTE: When using the yellow VERSAPORT™2 jack in **Private LAN** mode, you may connect either the yellow Ethernet cable (provided with your kit) or any other Ethernet cable to the VERSAPORT™2 jack as the VERSAPORT™2 jack will function as a fifth Ethernet switch. You may also connect to any of the four black Ethernet jacks on the rear panel of the Gateway as they serve as an Ethernet switch.
3. Connect the power supply cord to the power connector marked 12 **VDC** on the rear panel of the Gateway. Plug the other end of the power supply into a wall socket, and then turn on the power switch (if it is not already turned on).
4. Check to see if the DSL LED is solid green. If the DSL LED is solid green, the Gateway is functioning properly.
5. Check to see if the Ethernet LED is solid green. Solid green indicates that the Ethernet connection is functioning properly.
6. Check to see if the Internet LED is solid green. Solid green indicates that an Internet link has been established.

Congratulations! You have completed the DSL installation for your Gateway. No software installation is required when using only an Ethernet connection. You must now proceed to section 7, "Configuring the Gateway for Internet Connection."

6.4.2 Connecting PCs via Wireless

IMPORTANT: If you are connecting to the Gateway via a wireless network adapter, the SSID must be the same for both the Gateway and your PC's wireless network adapter. The default SSID for the Gateway is the serial number of the unit (located below the bar code on the bottom of the unit and also on the Westell shipping carton). Locate and run the utility software provided with your PC's Wireless network adapter and enter the SSID value. The PC's wireless network adapter must be configured with the SSID (in order to communicate with the Gateway) before you begin the account setup and configuration procedures. Later, for privacy you can change the SSID by following the procedures outlined in section 15.8 (Wireless Configuration).

IMPORTANT: Client PCs can use any Wireless Fidelity (Wi-Fi) 802.11b/g/g+ certified card to communicate with the Gateway. The Wireless card and Gateway must use the same security code type. **If you use WPA-PSK or WEP wireless security, you must configure your computer's wireless adapter for the security code that you use. You can access the settings in the advanced properties of your wireless network adapter.**

To network the Gateway to additional computers in your home or office using a wireless installation, you will need to confirm the following:

1. Ensure that an 802.11b/g wireless network adapter has been installed in each PC on your wireless network.
2. Install the appropriate drivers for your Wireless IEEE802.11b or IEEE802.11g adapter.
3. Make sure the SMA antenna connector is loose. Orient the antenna in the proper configuration. Then, tighten the antenna knob to lock it into place.
4. Connect the DSL phone cable from the connector marked **DSL** on the rear panel of the Gateway to the DSL-equipped telephone line jack on the wall. **IMPORTANT:** Do not use a DSL filter on this connection. You must use the phone cord that was provided with the Gateway kit.
5. Connect the power supply cord to the power connector marked **12 VDC** on the rear panel of the Gateway. Plug the other end of the power supply into a wall socket, and then turn on the power switch (if it is not already turned on).
6. Check to see if the DSL LED is solid green. If the DSL LED is solid green, the Gateway is functioning properly.
7. Check to see if the Gateway's Wireless LED is solid green. This means that the Wireless interface is functioning properly.
8. Check to see if the Internet LED is solid green. Solid green indicates that an Internet link as been established.

Congratulations! You have completed the Wireless installation for your Gateway. You must now proceed section 7, "Configuring the Gateway for Internet Connection."

7. CONFIGURING THE GATEWAY FOR INTERNET CONNECTION

To browse the Internet using your UltraLine IIB, you must confirm your DSL sync, set up your account profile, and establish a PPP session with your Internet service provider (ISP).

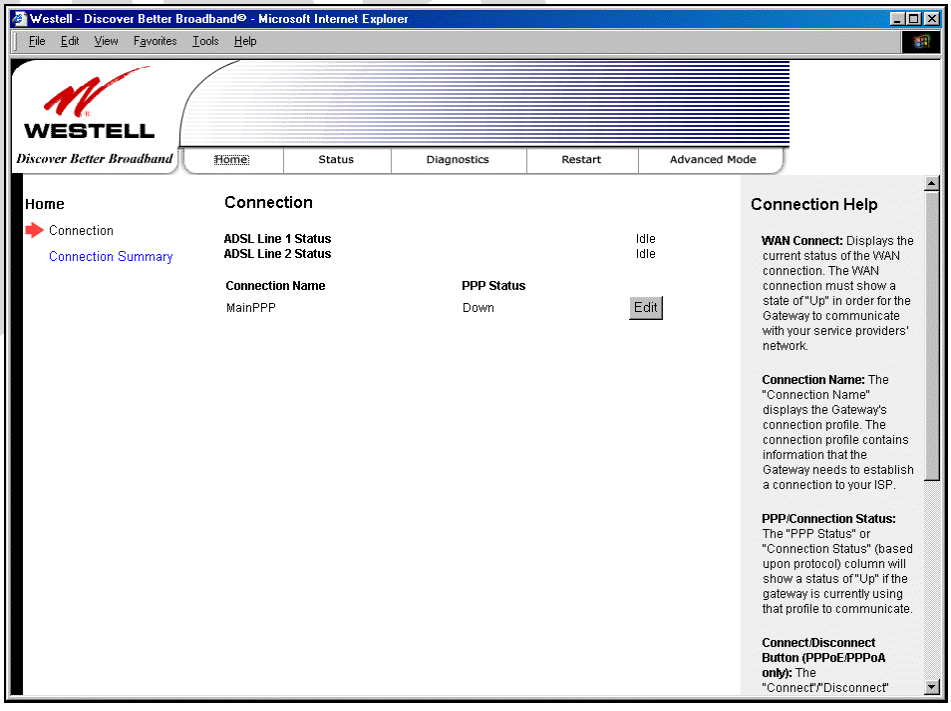
NOTE: Internet service provider subscriber software and connection requirements may vary. Refer to the Internet service provider's installation manual to install the software required for your Internet connection.

7.1 Confirming a DSL Sync

After connecting the hardware for the UltraLine IIB, start your Internet browser and type **http://192.168.1.1/** in the browser's address bar. Next, press 'Enter' on your keyboard. The following **Connection Overview** screen will be displayed.

You must have active DSL service before the UltraLine IIB can synchronize with your ISP's equipment. To determine if the Gateway has a DSL sync, view the DSL Connection Rate at the **Connection Overview** field. If the status reads **No DSL Connection**, check the DSL physical connection, explained in section 6 (INSTALLING THE HARDWARE) of this User Guide. The following screen shows the DSL connection rate with values that indicate a successful DSL SYNC has been established. The connection rate values represent the transmission speed of your DSL line. (The Gateway may take time to report these values.)

NOTE: If no DSL sync is established, the **Connection** button will not be displayed in the **Connection Overview** screen. To determine if the DSL sync is established, check the Gateway's DSL LED. If the DSL LED is not solid green, you do not have a DSL sync established. Contact your Internet service provider for further instructions. The Gateway will handle transmission rates up to 8 Mbps. Your actual DSL rates may vary depending on your Internet service provider.



Connection Overview	Displays your ADSL connection rate.
Connection Name	The name of the connection profile you are using.
PPP Status	UP = PPP session established DOWN = No PPP session established.
Connect/Disconnect	Click Connect to establish a PPP session. Click Disconnect to disconnect a PPP session
Edit	Click Edit to edit the connection profile.

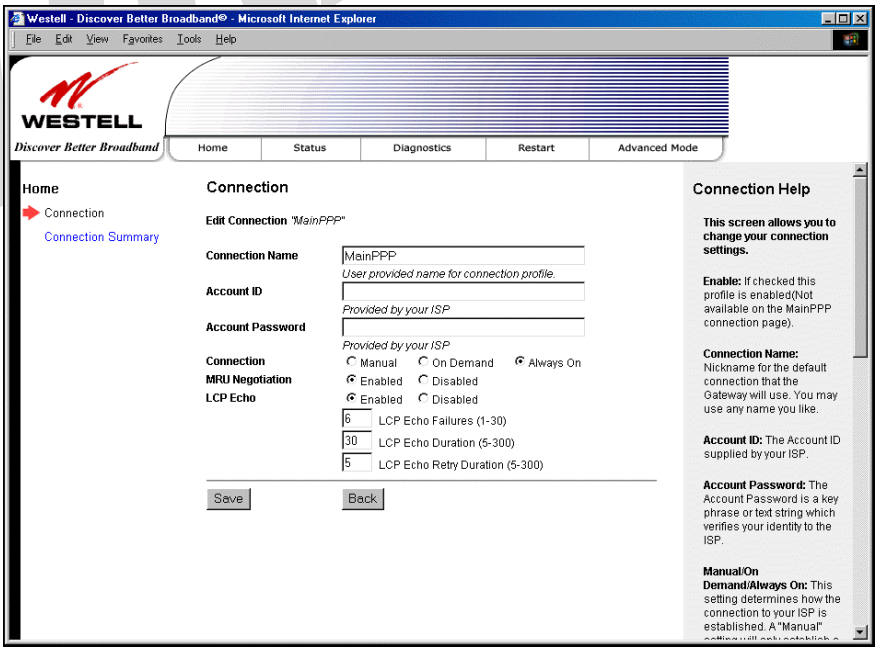
7.2 Setting Up a Connection Profile

After you have confirmed your DSL sync, click **Edit** in the **Connection Overview** screen to set up your connection profile. The following **Edit Connection** screen enables you to add new connection profiles or to edit existing connection profiles. Connection profiles can be associated with specific service settings, such as connection settings or NAT services, enabling you to customize your Gateway for specific users. The **Connection Name** field allows you to enter the desired name that you wish to use for each profile that you set up. You may create and store up to eight unique connection profiles in your Gateway, which you can use once you establish a PPP session with your Internet service provider (ISP).

Important: Before you set up a connection profile, you must obtain your **Account ID**, **Account Password,** and **VPI/VCI** values from your Internet service provider. You will use information when you set up your account parameters. If you are at a screen and need help, refer to the **Help** section located at the right of the screen.

Profile Parameters include:

- **Connection Name**-the Connection Name is a word or phrase that you use to identify your account. (You may enter up 64 characters in this field.)
- **Account ID**-the Account ID is provided by your Internet Service Provider. (You may enter up 255 characters in this field.)
- **Account Password**-the Account Password is provided by your Internet Service Provider. (You may enter up 255 characters in this field.)



At the **Edit Connection** screen, complete the following steps to set up your connection profile:

1) Type your **Connection Name, Account ID** and **Account Password** in the fields provided. The Account Password field will be masked with asterisks for security purposes.

IMPORTANT: Initially, you must use the factory default connection name "MainPPP" to establish a PPP session with your ISP. Then, if you want set up additional profiles, you may use connection names of your choice.The Connection Name is the name associated each connection profile. The Account ID and Account Password are provided by your Internet service provider and will be used for connection profile that you set up.

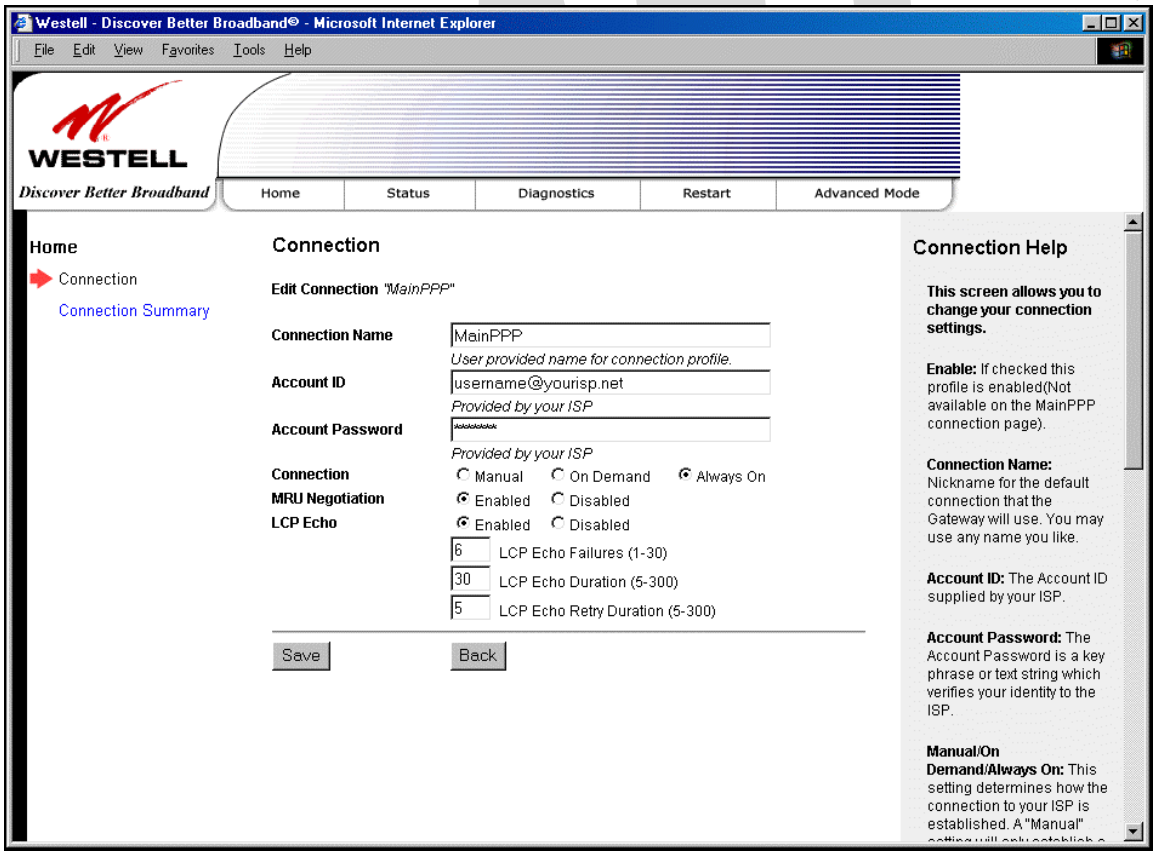
2) At the field labeled **Connection**, select the connection type (Manual, On Demand, Always On) that you want to use with this connection name. The factory default connection type is "Always On."

3) Select the MRU Negotiation and LCP settings that you want to use with this connection name. For details on these settings, refer to the following table.

4) Click **Save** to save any changes that you have made to this screen.

5) Click **Back** to return to the main **Connection** screen.

NOTE: If you click **Back** before you click **Save,** the previously saved settings will remain active, and any recent changes that you have made to this screen will not take effect. You must click **Save** to save the settings.



Connection	
Edit Connection	Factory Default = MainPPP The name of the default connection profile. Westell recommends that you use the Default parameter.
Connection Name	This field allows you to enter a new connection name of your choice (up to 64 characters).
Account ID	The account ID (provided by your Internet service provider).
Account Password	The account password that you are using to connect to your Internet service provider (provided by your Internet service provider).
Connection	Factory default = Always On Manual: Selecting this feature allows you to manually establish your PPP session. On Demand: Selecting this feature allows the Gateway to automatically re-establish your PPP session on demand anytime your PC requests Internet activity (for example, browsing the Internet, email, etc.). When you have traffic, it may cause a delay. Always On: Selecting this feature allows the Gateway to automatically establish a PPP session when you log on or if the PPP session goes down.
MRU Negotiation	Factory Default = Enabled When Enabled is selected, the Maximum Received Unit (MRU) will enforce MRU negotiations. If Disabled, this function will not be activated.
LCP Echo	Factory Default = Enable If Disabled is selected, this option will disable the modem LCP Echo transmissions.
LCP Echo Failures	Factory Default = 6 Indicates number of continuous LCP echo non-responses received before the PPP session is terminated. This value must be between 1 and 30 inclusive.
LCP Echo Duration	Factory Default = 30 The interval between LCP Echo transmissions with responses. This value must be between 5 and 300 seconds inclusive and greater than or equal to the Retry Duration.
LCP Echo Retry Duration	Factory Default = 5 The interval between LCP. Echo after no response. This value must be between 5 and 300 seconds inclusive.

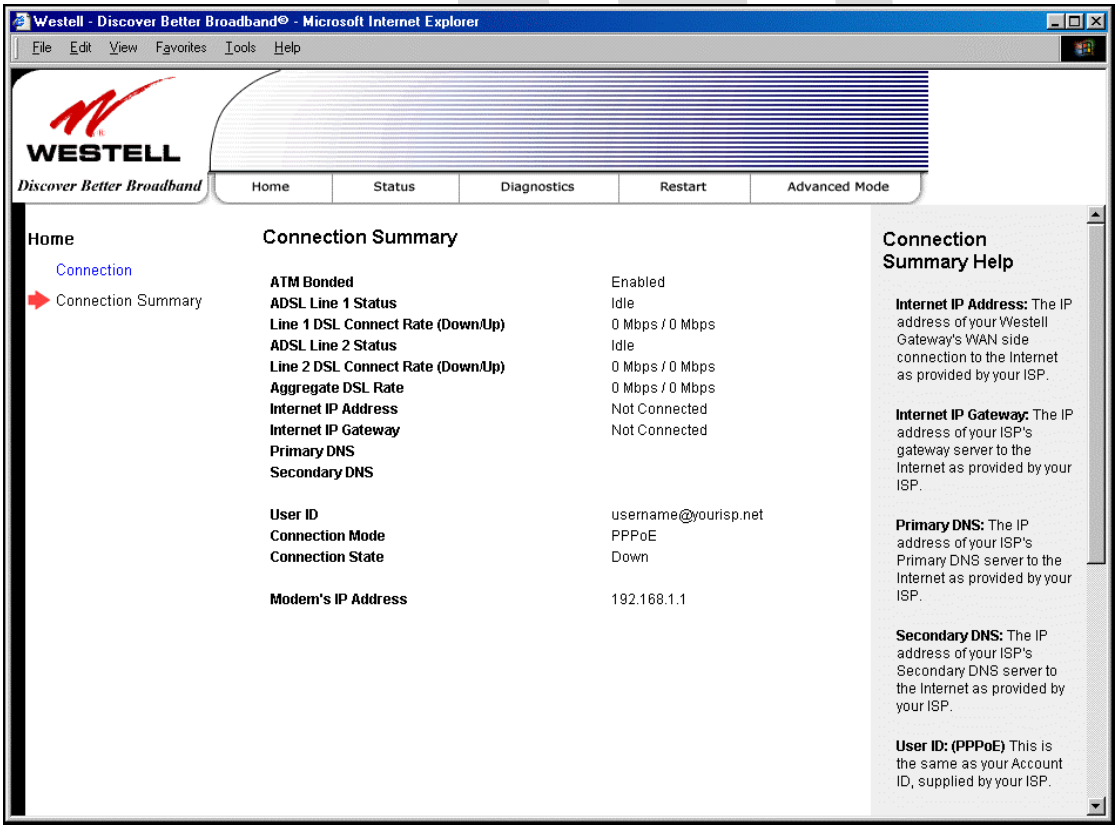
7.3 Establishing a PPP Session

After you have set up your connection profile and clicked **Save,** view the **PPP Status** field at the **Connection Overview** screen. If the PPP Status displays **Down,** click the **Connect** button to establish a PPP session.

NOTE: Whenever the PPP Status displays **Down,** you do not have a PPP session established. If your Gateway's connection setting is set to "Always On" or "On Demand," after a brief delay, the PPP session will be established automatically and the PPP Status will display **Up.** If the connection setting is set to "Manual," you must click on the **Connect** button to establish a PPP session. Once the PPP session has been established (PPP Status displays **Up**), you may proceed with your Gateway's configuration. **(**Refer to the preceding **Edit Connection** screen to change your connection setting.) The factory default connection setting is "Always On."

When the **Connection** screen displays **Up** in the **PPP Status** field, this indicates that you have established a PPP session with your ISP. As shown in the following screen, **MainPPP** is the factory default connection name used to establish a PPP session with your ISP. After you have established your PPP session, you may use other connection profiles that you have created via the **Edit** button. The name of the profile will be displayed in the **Connection Name** field. If needed, refer to section 7.2 for details on setting up a connection profile.

NOTE: If you experience problems establishing a PPP session, contact your ISP for further instructions.



After you have established a PPP session with your ISP, you are ready to browse the Internet. For example, to visit Westell's home page, type **http://www.westell.com** in your Internet browser's address bar and then press 'Enter' on your keyboard.

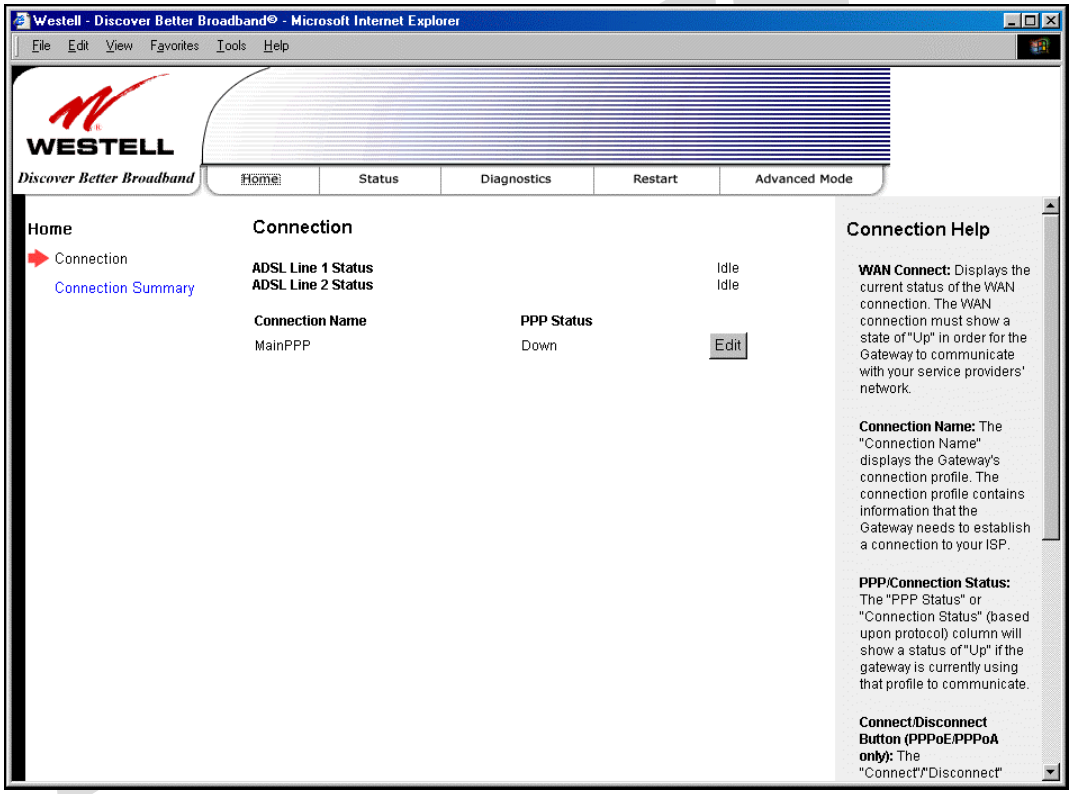
When you are ready to return to the Gateway's interface, type **http://192.168.1.1** in your browser's address bar, and then press 'Enter' on your keyboard.

7.4 Disconnecting a PPP Session

If you have finished browsing the Internet and want to disconnect from your Internet service provider, click the **Disconnect** button in the **Connection Overview** screen. A pop-up screen will appear. Click **OK** to disconnect the PPP session.

IMPORTANT: If you disconnect the PPP session, this will disconnect the Gateway from the Internet, and all users will be disconnected until the PPP session is re-established.

If you clicked the **Disconnect** button in the **Connection Overview** screen, the PPP Status should display **Down.** This means that you no longer have a PPP session (no IP connection to your Internet service provider); however, your DSL session will not be affected. When you are ready to end your DSL session, simply power down the Gateway via the power switch on the Gateway's rear panel.



When you are ready to establish a PPP session, click the **Connect** button. (If you powered down the Gateway, you must first power up the Gateway and then log on to your account profile to establish a PPP session.)

NOTE: When you are ready to exit the Gateway's interface, click the **X** (close) in the upper-right corner of the screen. Closing the window will not affect your PPP Status (your PPP session will not be disconnected). You must click the **disconnect** button to disconnect your PPP session. When you are ready to restore the Gateway's interface, you must start your Internet browser and type **http://dslrouter/** or type **http://192.168.1.1/** in the browser's address bar and then press 'Enter' on your keyboard.

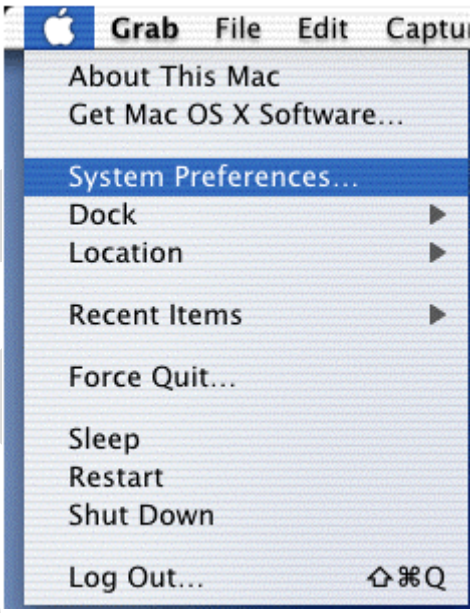
8. SETTING UP MACINTOSH OS X

This section provides instructions on how to use Macintosh Operating System 10 with the Gateway. Follow the instructions in this section to create a new network configuration for Macintosh OS X.

NOTE: Macintosh computers must use the Modem Ethernet installation. Refer to section 6 (INSTALLING THE HARDWARE).

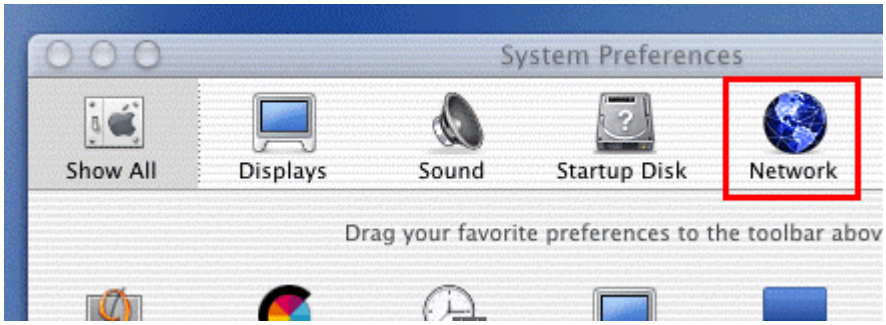
Open the System Preference Screen

After you have connected the Westell Gateway to the Ethernet port of your Macintosh, the screen below will appear. Click on the "**Apple**" icon in the upper-right corner of the screen and select **System Preferences**.



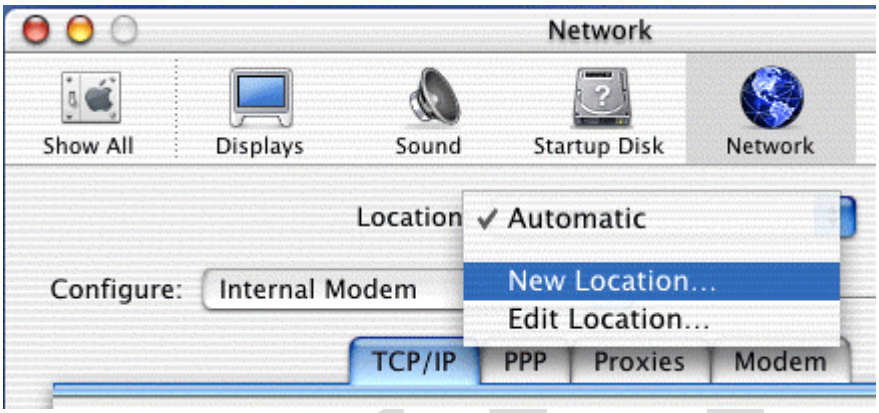
Choose the Network Preferences

After selecting **System Preferences…**, from the previous screen, the **System Preferences** screen will be displayed. From the **System Preferences** screen, click on the **Network** icon.



Create a New Location

After selecting the **Network** icon at the **System Preferences** screen, the **Network** screen will be displayed. Select **New Location** from the **Location** field.



Name the New Location

After selecting **New Location** from the **Network** screen, the following screen will be displayed. In the field labeled **Name your new location:**, change the text from "**Untitled**" to "**Westell.**" Click **OK**.

Select the Ethernet Configuration

After clicking on **OK** in the preceding screen, the **Network** screen will be displayed. The **Network** screen shows the settings for the newly created location. From the **Configure** field in the **Network** screen, select **Built-in Ethernet**. Click on **Save**.

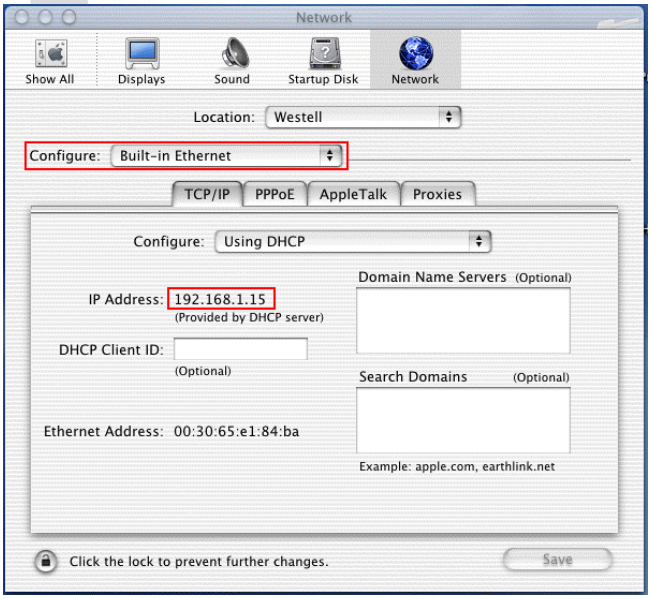
NOTE: Default settings for the Built-in Ethernet configuration are sufficient to operate the Gateway.

Check the IP Connection

To verify that the computer is communicating with the Gateway, follow the instructions below.

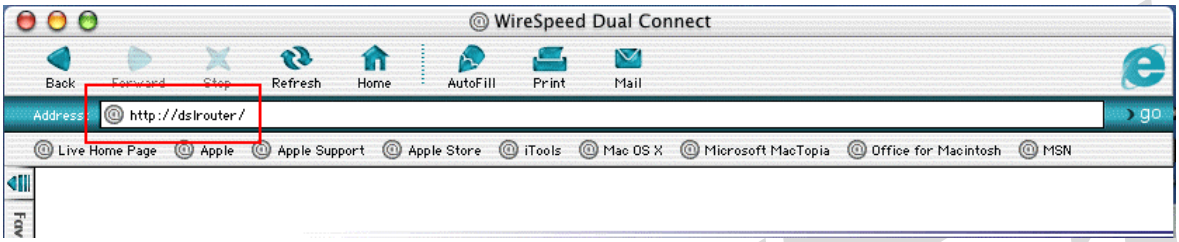
1. Go to the "**Apple**" icon in the upper-right corner of the screen and select **System Preferences**.
2. From the **System Preferences screen**, click on the **Network** icon. The **Network** screen will be displayed.
3. From the **Configure** field in the **Network** screen, select **Built-in Ethernet**.
4. View the IP address field. An IP address that begins with **192.168.1** should be displayed.

NOTE: The DHCP server provides this IP address. If this IP address is not displayed, check the Gateway's wiring connection to the PC. If necessary, refer to section 6 for hardware installation instructions.

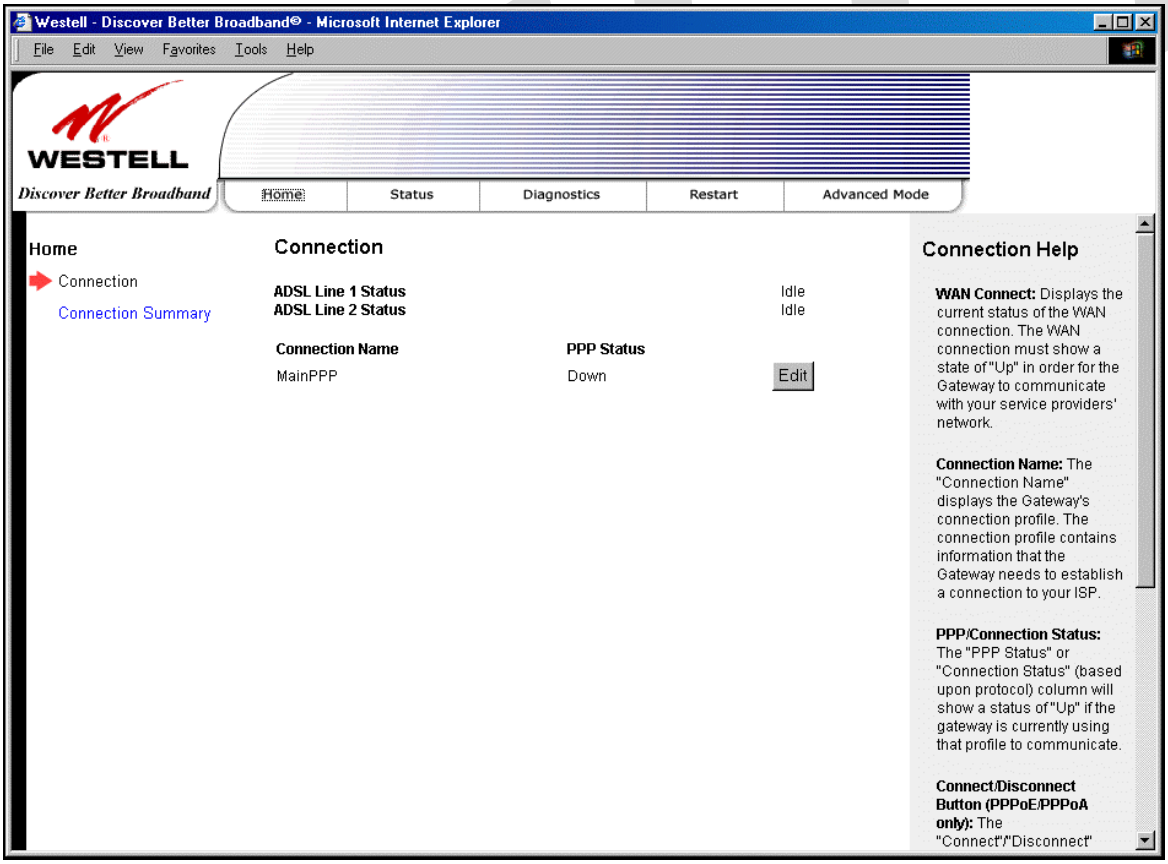


Create a User Account

In the address window of your Internet Explorer web browser, type **http://dslrouter/**, and then press 'Enter' on your keyboard.



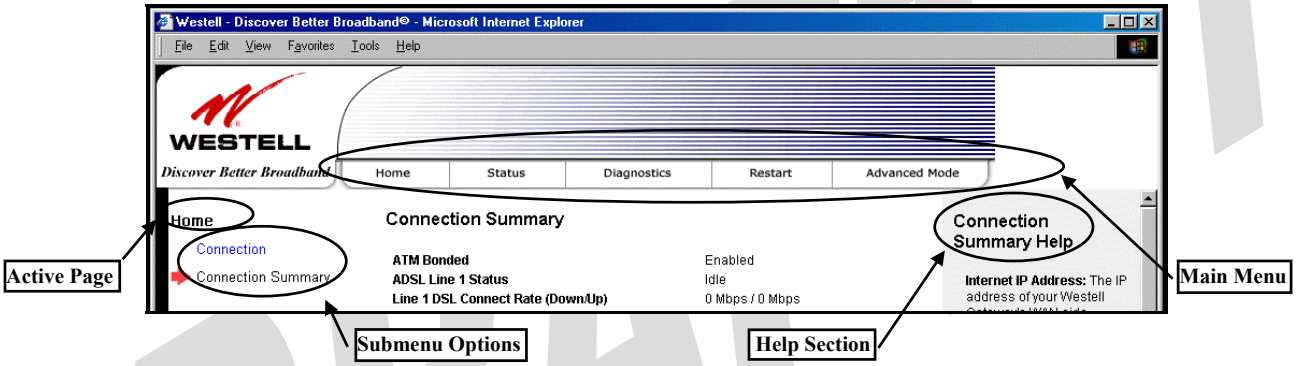
The **Connection Overview** screen will be displayed. You may now begin your Account Setup. Refer to section 7 of this User Guide to configure your Westell Gateway for Internet connection.



9. BASIC MODE

The following sections explain the basic configurations of your Gateway. The Gateway's web pages contain a main navigation menu displayed at the top of the screens. As you navigate through the various pages of the Gateway, the active page that you have selected from the Main menu will appear in the left corner of the screen. The submenu options for that page will appear in the left-side navigation menu, as shown below. A red arrow will be displayed adjacent to the active submenu option. Please note that the values displayed in the screens might differ from the actual values reported by your Gateway. If you are at a screen and need help, refer to the Help section, displayed on the right side of the screen. Additional details are displayed in the tables below the screens.

Some screens allow you to change the configurable settings of your Gateway and require that you save the settings. To save your settings, click the **Save** button. To discard any changes you have made to the screen, click the **Discard** button. If you click the **Discard** button, the screen will refresh and display the previously saved settings.



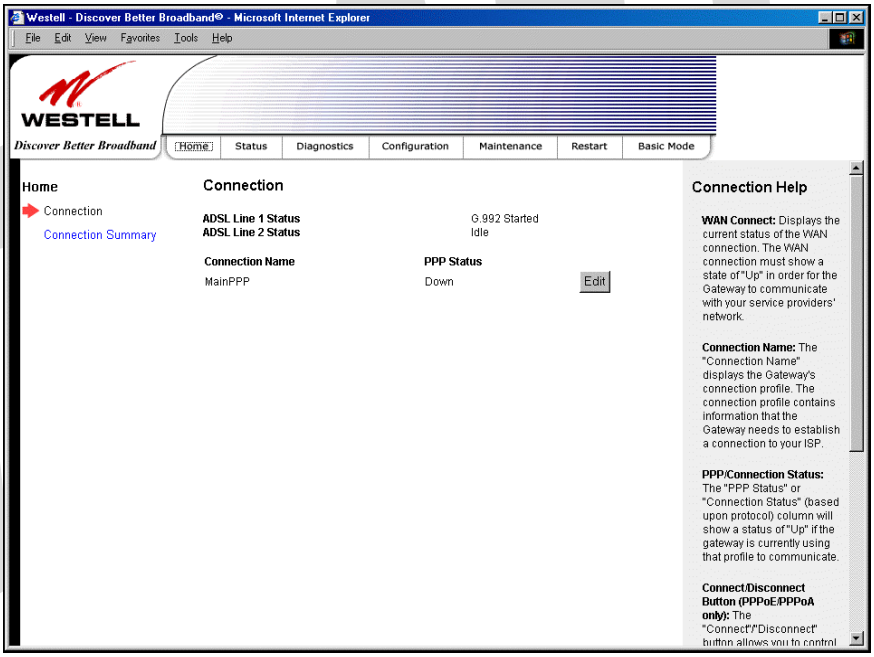
10. HOME

10.1 Connection

After you have set up your account profile and established your PPP session with your Internet service provider (ISP), as previously discussed in section 7, you are ready to configure your Gateway. The following screen will be displayed if you select **Home > Connection** from the menu options.

Description: The **Connection** screen enables you to view your ADSL and PPP connection status, set up account profiles (via the Edit button), and establish your PPP session. If needed, please refer to section 7 for details on the Connection screen. View this screen after you have reset your modem, restarted your PC, or anytime you want to check the connectivity status of the UltraLine IIB connections.

NOTE: The following screen displays "**MainPPP"** as the active connection profile. This is the factory default profile that you must use to establish a PPP session with your ISP. After you have established a PPP session, you may use other connection profiles that you may have created via the **Edit** button. Refer to section 7.2 for details on setting up a connection profile.

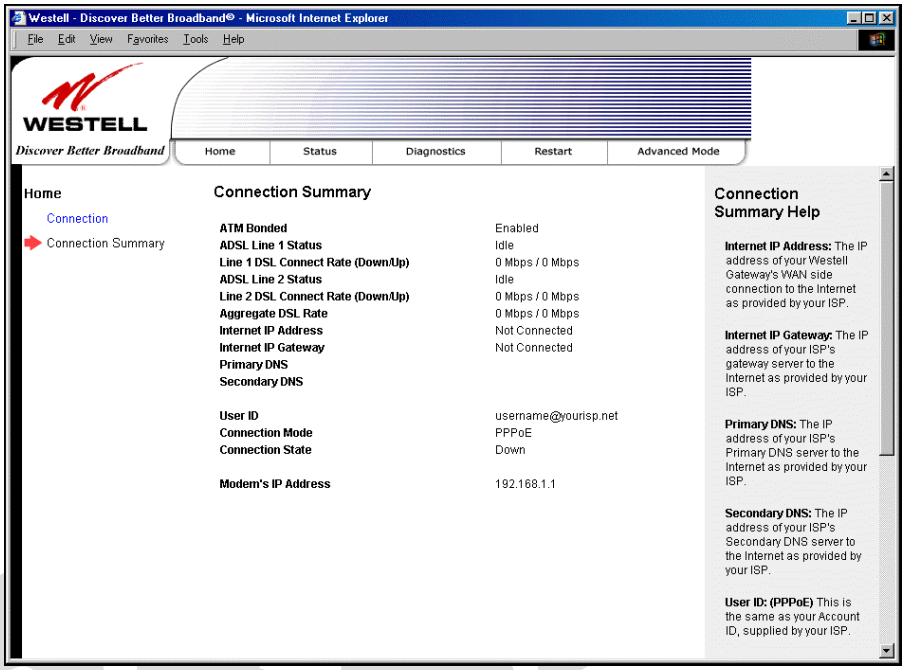


Connection	
ADSL Line 1 Status	Displays the connectivity status of ADSL Line 1.
ADSL Line 2 Status	Displays the connectivity status of ADSL Line 2.
Connection Name	The Connection Name is from the connection profile that you set up in section 7.2.
PPP Status	Up = PPP session established Down = No PPP session established.
Connect/Disconnect	Click Connect to establish a PPP session. Click Disconnect to disconnect a PPP session Note: This button will not be displayed until a DSL sync has been established.
Edit	Click Edit to add or edit a connection profile. Refer to section 7.2 for details on connections profiles.

10.2 Connection Summary

The following screen will be displayed if you select **Home** > **Connection Summary** from the menu options.

Description: The **Connection Summary** screen displays general information about your Gateway's ADSL connection.



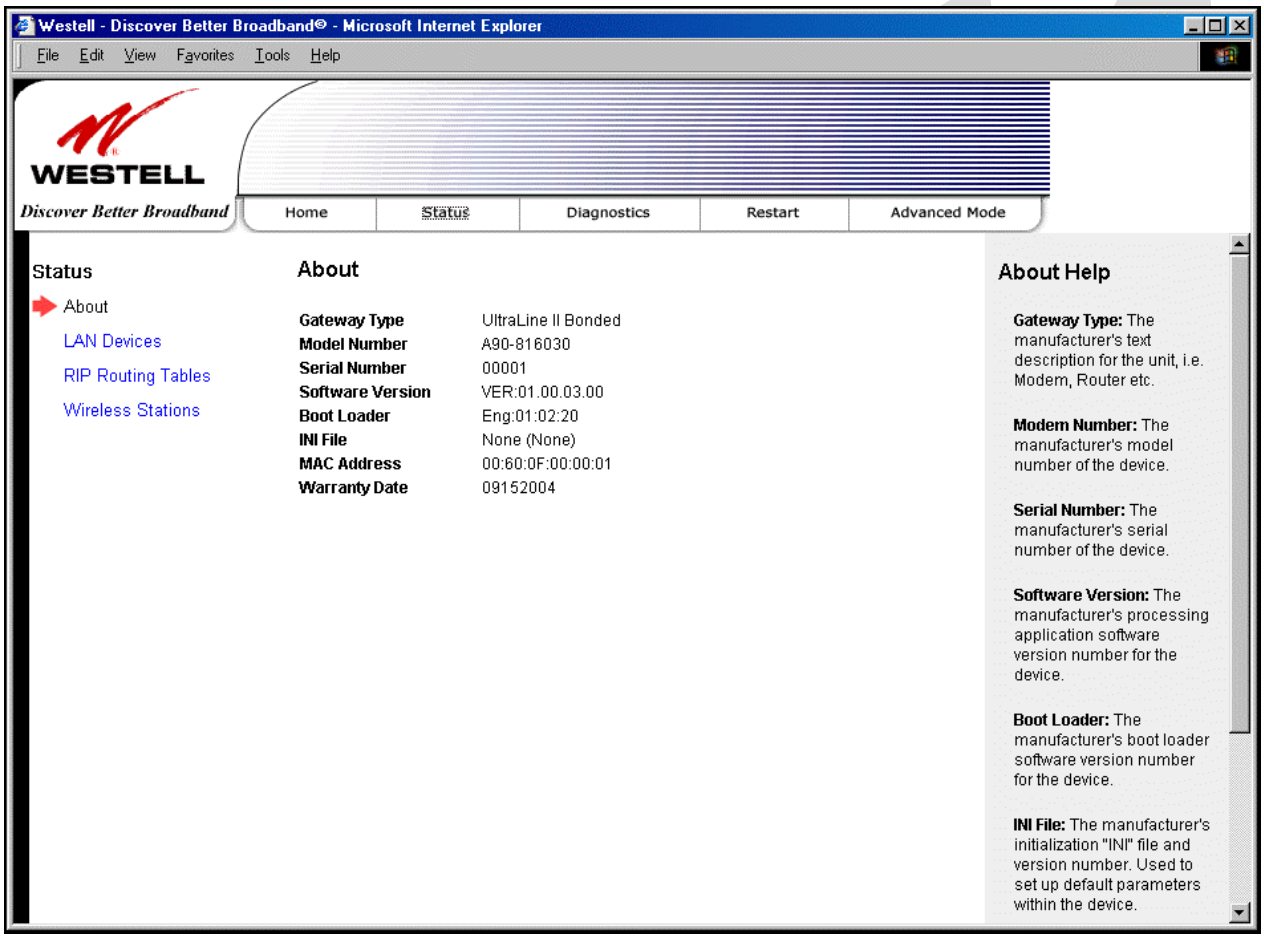
Connection Summary	
ATM Bonded	Indicates whether the ATM Bonded feature is enabled or disabled.
ADSL Line 1 Status	Displays the connectivity status of ADSL Line 1.
Line 1 DSL Connect Rate (Down/Up)	The transmission speed of ADSL Line 1.
ADSL Line 2 Status	Displays the connectivity status of ADSL Line 2.
Line 2 DSL Connect Rate (Down/UP)	The transmission speed of ADSL Line 2.
Aggregate DSL Rate	The combined transmission speed of the two lines (DSL1 and DSL2).
Internet IP Address	The WAN side or Gateway's IP address to the Internet. Provided by your ISP.
Internet IP Gateway	The IP address of your ISP's server to the Internet. Provided by your ISP.
Primary DNS	The IP address of your ISP's primary DNS server. Provided by your ISP.
Secondary DNS	The IP address of your ISP's secondary DNS server. Provided by your Internet service provider.
User ID	The same as your Account ID. Provided by your ISP.
Connection Mode	The Gateway's mode of connection to your ISP. This can be PPPoE, PPPoA, Bridge, or IP.
Connection State	The Gateway's PPP connectivity status to the Internet. The DSL status must be up in order for the PPP connectivity to be up.
Modem's IP Address	The IP Address on the LAN side of your Gateway.
Ethernet Status	The Gateway's LAN-side Ethernet connection status. This is the Ethernet status between the Gateway and your computer.

11. STATUS

11.1 About

The following screen will be displayed if you select **Status > About** from the menu options.

Description: The **About** screen displays general manufacturer's information about your Gateway.

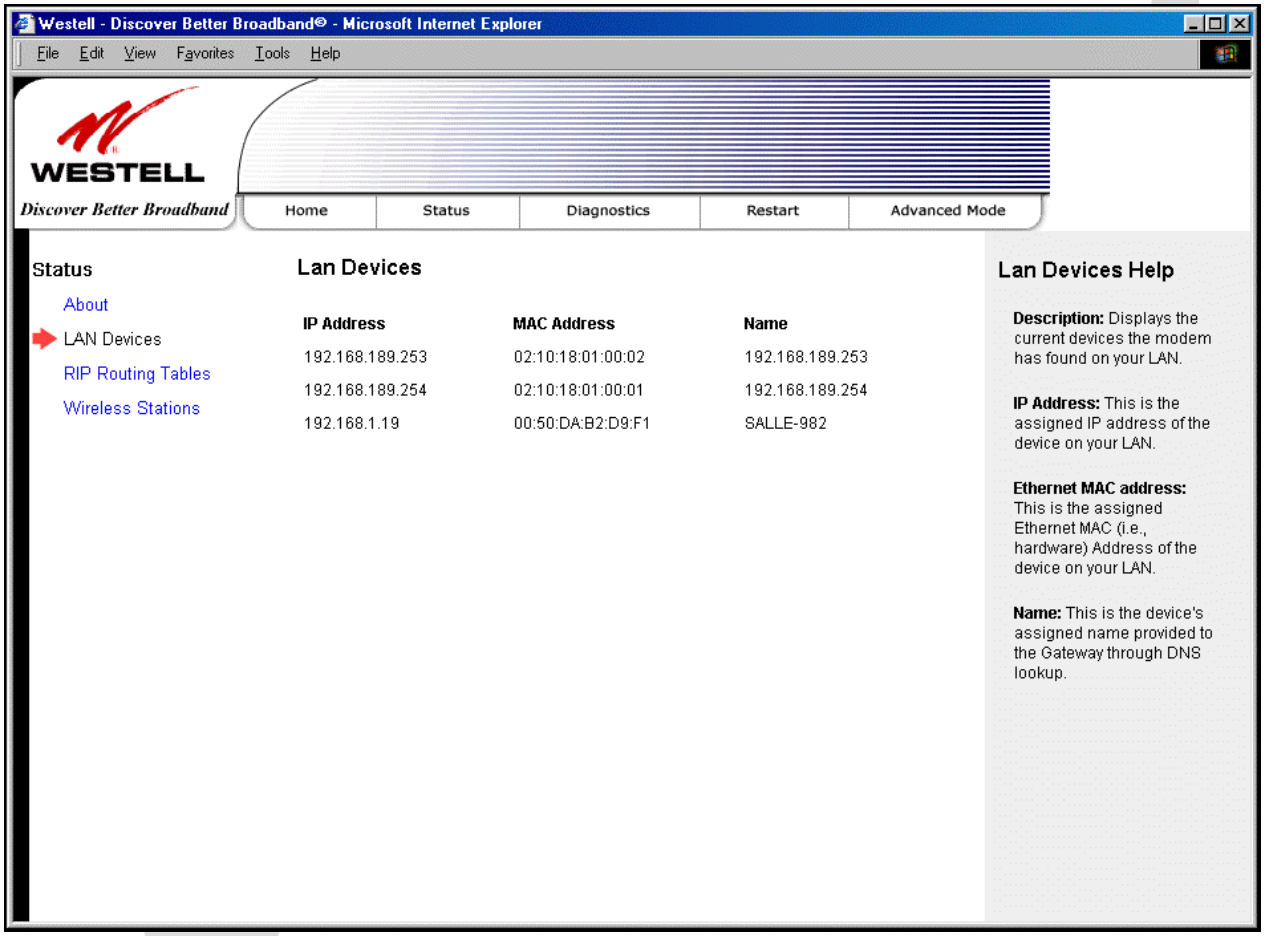


About	
Gateway Type	The manufacturer's modem name.
Model Number	The manufacturer's model number.
Serial Number	The manufacturer's serial number.
Software Version	The version of the application software and the build date.
Boot Loader	The manufacturer's boot load number.
INI File	The Gateway manufacturer's INI information.
MAC Address	Media Access Controller (MAC) i.e., hardware address of this device.
Warranty Date	The start date of the modem's warranty

11.2 LAN Devices

The following screen will be displayed if you select **Status > LAN Devices** from the menu options.

Description: The **LAN Devices** screen displays all the devices associated with your the LAN (via physical or wireless connections).



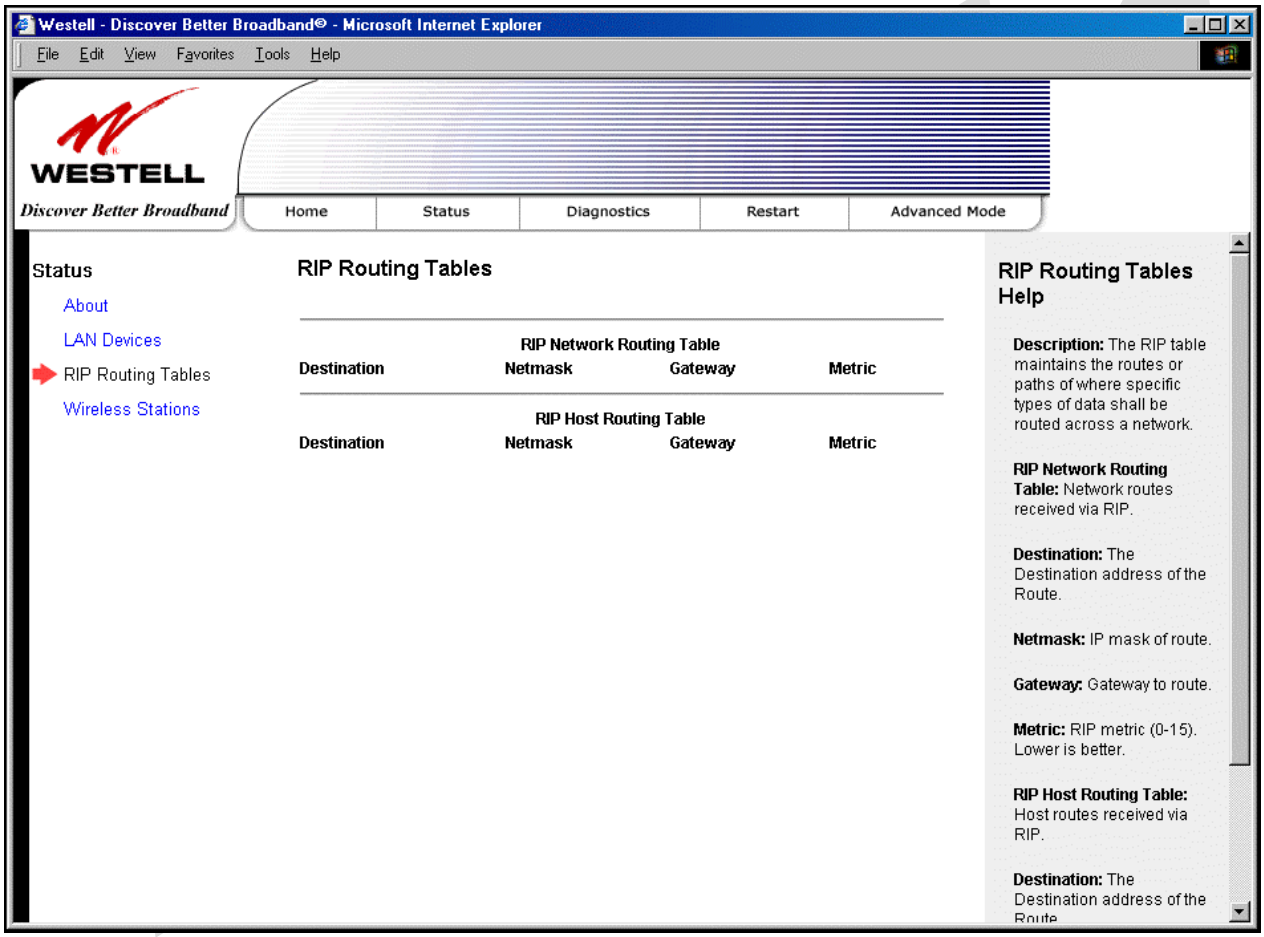
LAN Devices	
IP Address	The assigned IP address of the networking device.
MAC Address	The Ethernet media access controller (MAC) address of the networking device (i.e., the hardware address). This is a unique number entered into the device's permanent memory during production.
Name	The computer's assigned name. (The computer name or the IP address may be displayed in this field.)

11.3 RIP Routing Tables

The following screen will be displayed if you select **Status > RIP Routing Tables** from the menu options.

Description: RIP (Routing Information Protocol) is a dynamic inter-network routing protocol primarily used in interior routing environments. It is a dynamic routing protocol that automatically discovers routes and builds routing tables, as opposed to a static routing protocol.

NOTE: RIP must be enabled for this table to be populated with data.



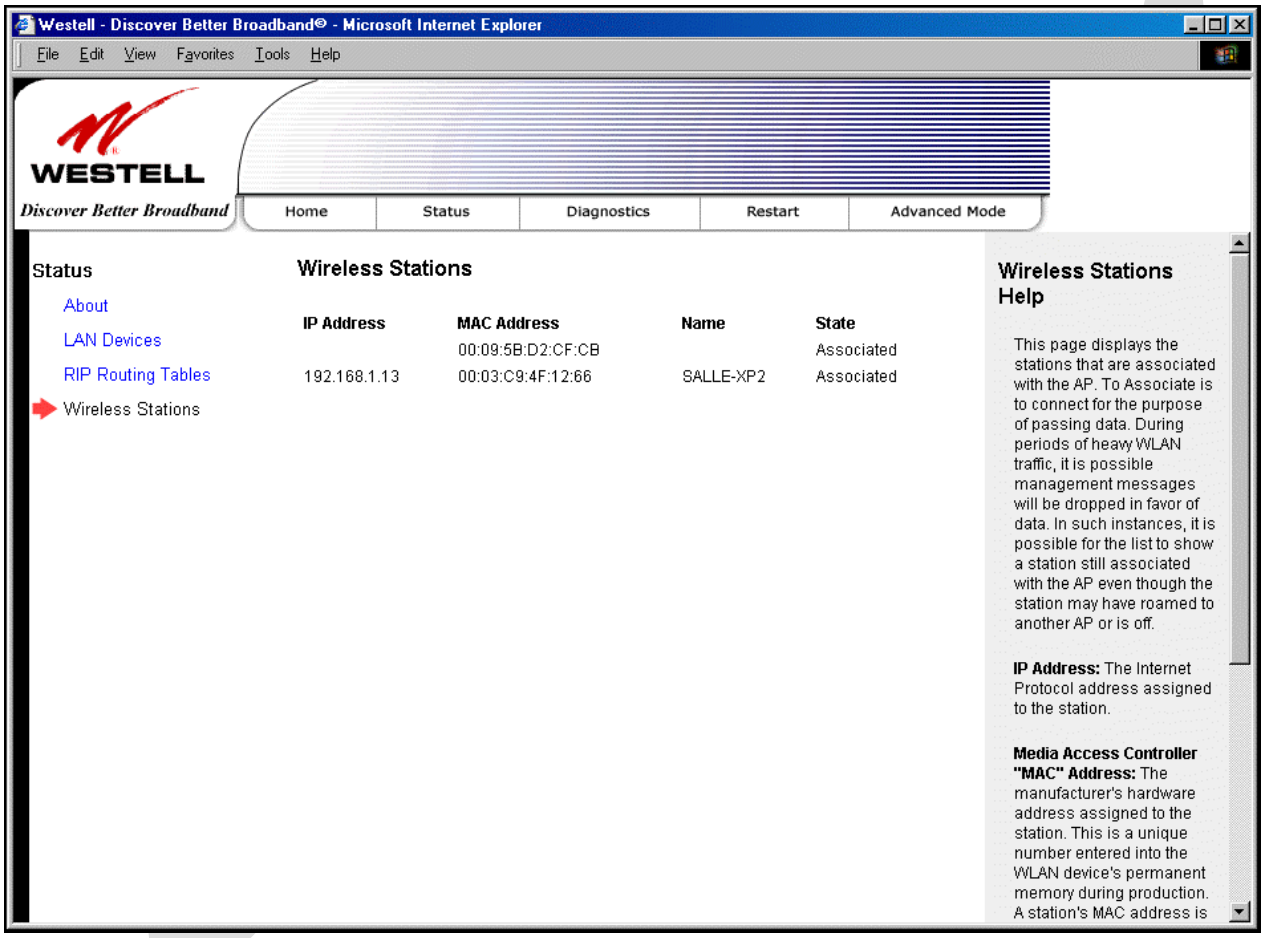
RIP Routing Tables	
RIP Network Routing Table	Indicates Network routes received via RIP.
RIP Host Routing Table	The Host routes received via RIP.
Destination	The destination IP address of the route
Netmask	The IP mask of the route
Gateway	The gateway of the route
Metric	The RIP metric (0-15). A lower value is better.

11.4 Wireless Stations

The following screen will be displayed if you select **Status > Wireless Stations** from the menu options.

Description: Displays information about the wireless stations (devices) that are associated with your Gateway.

NOTE: The fields in this screen will be blank if no stations are associated with your Gateway.



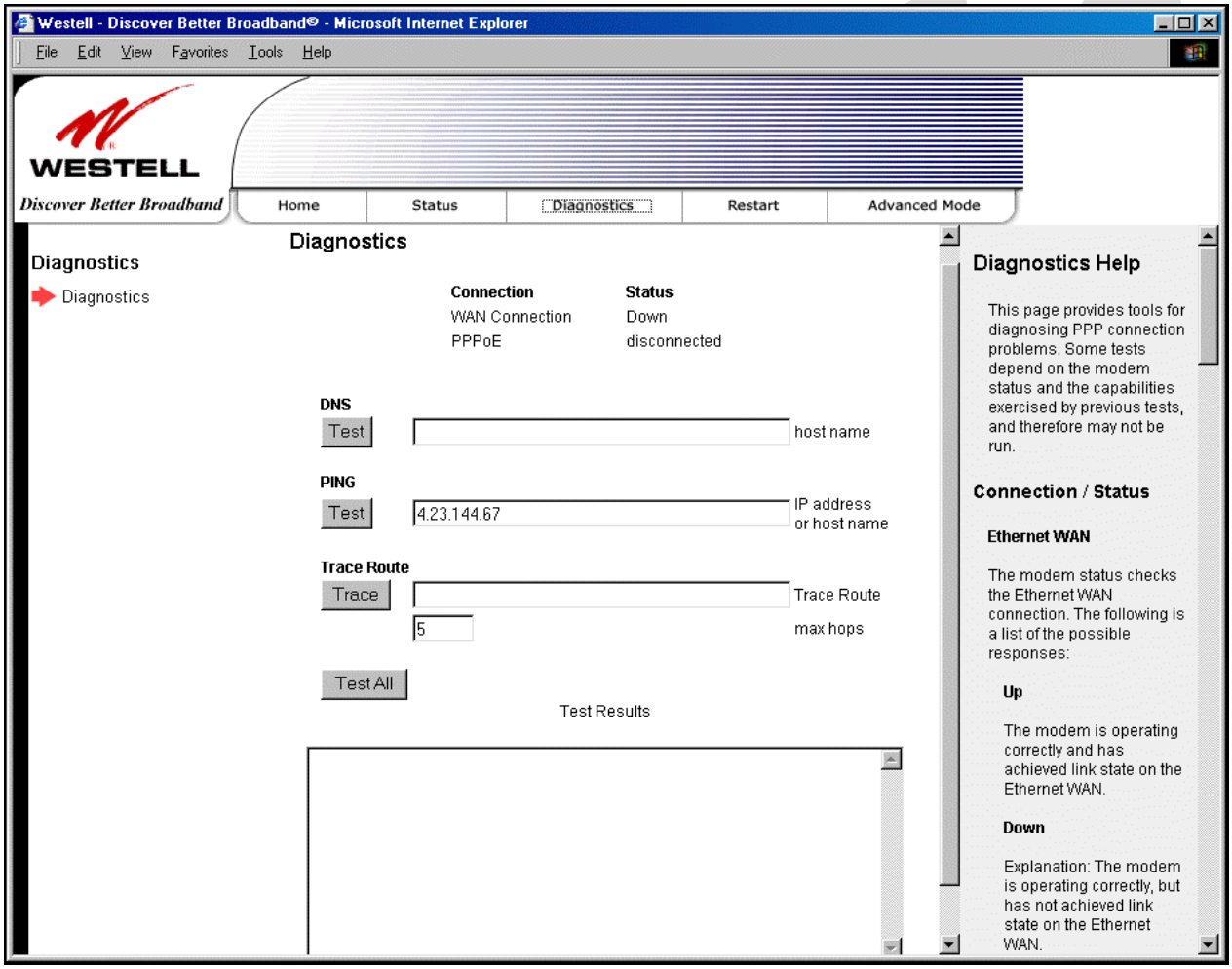
Wireless Stations	
IP Address	The IP address of the station associated with the Gateway.
MAC Address	The Media Access Controller (MAC) address (i.e., the hardware address of the associated station). This is a unique number entered into the WLAN device's permanent memory during production. A station's MAC address is typically printed on the card or can be viewed using the card's configuration utility.
Name	The name of the station associated with the Gateway.
State	Indicates the station's wireless connectivity state.

12. DIAGNOSTICS

The following screen will be displayed if you select **Diagnostics** from the menu options.

Description: Allows you to perform simple diagnostics on your Gateway and to test your connectivity to other networking devices.

NOTE: This function is not be available if your Gateway is in Bridge mode.

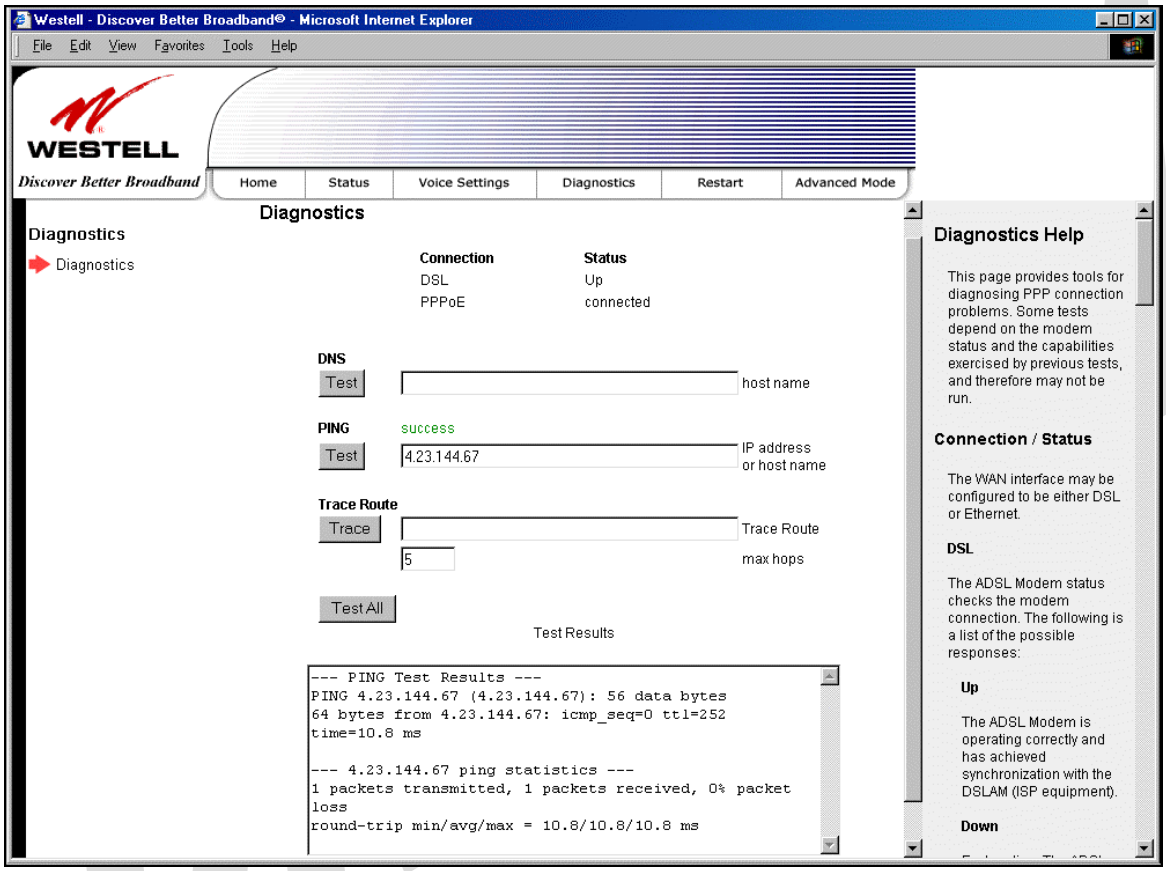


Connection/Status	
Connection	The first line displays the physical interface used. Possible Responses: DSL Ethernet WAN
	The second line displays the Protocol used to establish the session. Possible Responses: PPPoE PPPoATM RoutedBridge Bridge

Status	The first line displays the status of the physical interface connection Possible Responses: UP – The interface connection is Up. Down – The interface connection is Down.
	The second line indicates the status of the Protocol used. Possible Responses: Connected – The protocol is connected. Disconnected – The protocol is disconnected.
Test Description / Test Results	
DNS	Performs a test to try to resolve the name of a particular host. The host name is entered in the input box. Possible responses are: Success: The Gateway has successfully obtained the resolved address. The IP address is shown below the host name input box. No Response: The Gateway has failed to obtain the resolved address. Host not found: The DNS Server was unable to find an address for the given host name. No data, enter host name: No host name is specified. Could not test: The test could not be executed due to the Gateway's settings. Check your DSL sync or your PPP session. You must have both a DSL sync and a PPP connection established to execute a PING.
IP Address	IP Address of the Host Name.
PING (via IP Address or Host Name)	Performs an IP connectivity check to a remote computer either within or beyond the Service Provider's network. You can PING a remote computer via the IP address or the DNS address. If your PING fails, try a different IP or DNS address. Possible responses are: Success: The Remote Host computer was detected. No Response: There was no response to the Ping from the remote computer. No name or address to PING: No host name or IP address was specified. Could not test: The test could not be executed due to the Gateway settings. Check your DSL sync or your PPP session. You must have both a DSL sync and a PPP connection established to execute a PING.
Trace Route	Determines the route taken to destination by sending Internet Control Message Protocol (ICMP) echo packets with varying IP Time-To-Live (TTL) values to the destination. Trace Route is used to determine where the packet is stopped on the network.
Max hops	The number of hops from the Gateway to the specified destination.
Test All	Allows you to run a full diagnostic test.

- To run a DNS test, type the appropriate host name in the field provided, and then click **Test.**
- To run a PING test, type the appropriate IP address or host name in the field provided, and then click **Test.**
- To run a Trace Route, type the appropriate IP address or host name in the field provided, and then click **Trace.**

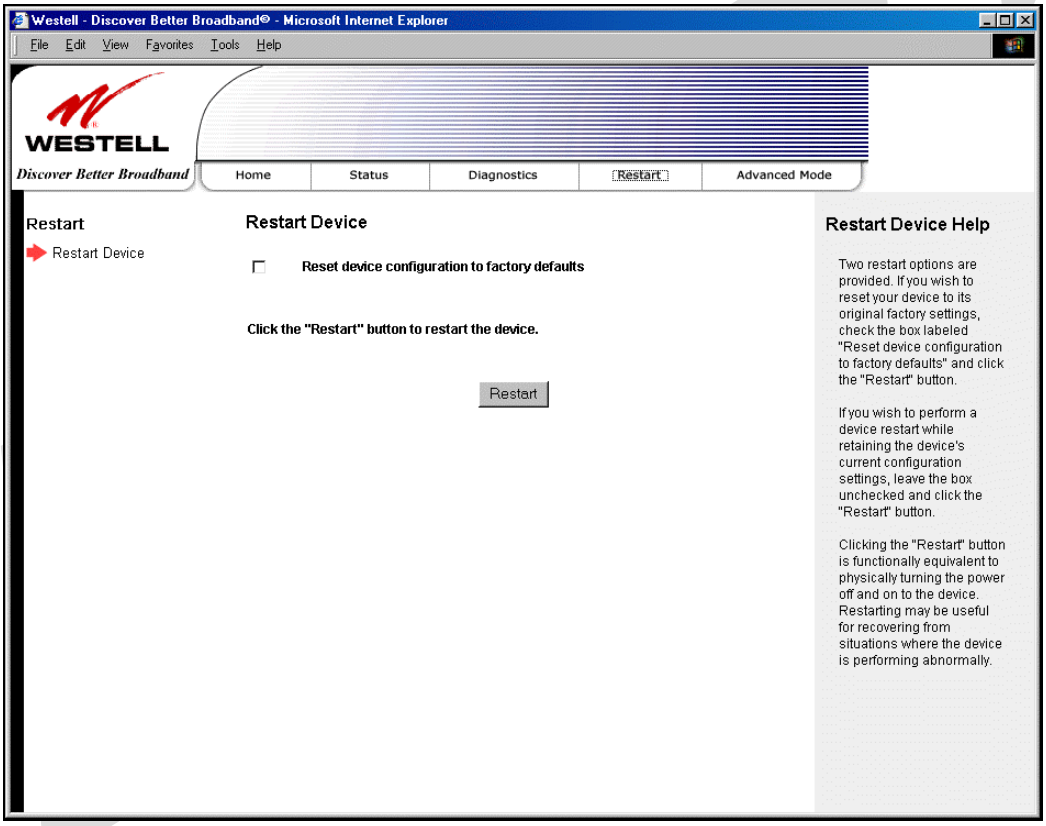
If you click **Test All,** the following screen will display the results in the window labeled **Test Results**.



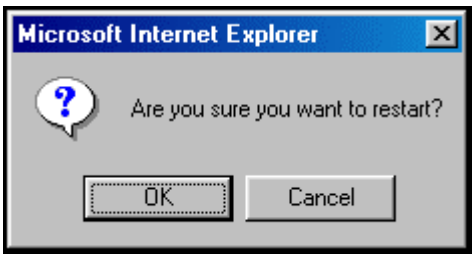
13. RESTART

The following screen will be displayed if you select **Restart** from the menu options.

Description: Allows you to restart your Gateway and either keep or erase the Gateway's current configuration settings. To erase the current configuration and reset the Gateway to the factory default settings, click the check box labeled **Reset device to configuration to factory defaults** prior to clicking the **Restart** button; all custom configuration information will be erased. If you want to retain your current configurations while restarting the Gateway, leave the box unchecked and simply click **Restart**.

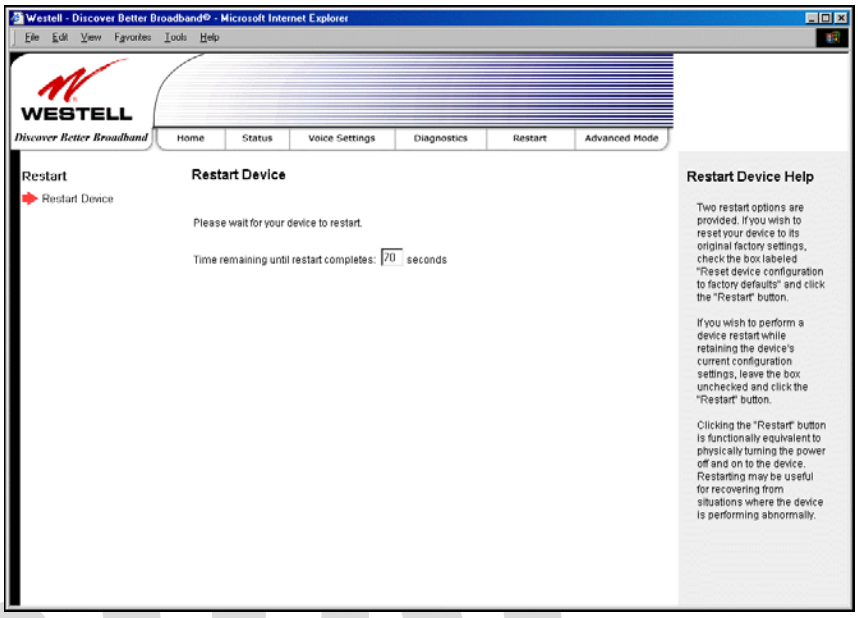


After you click **Restart**, the following pop-up screen will be displayed. Click **OK** to continue. Click **Cancel** if you do not want to restart the Gateway.



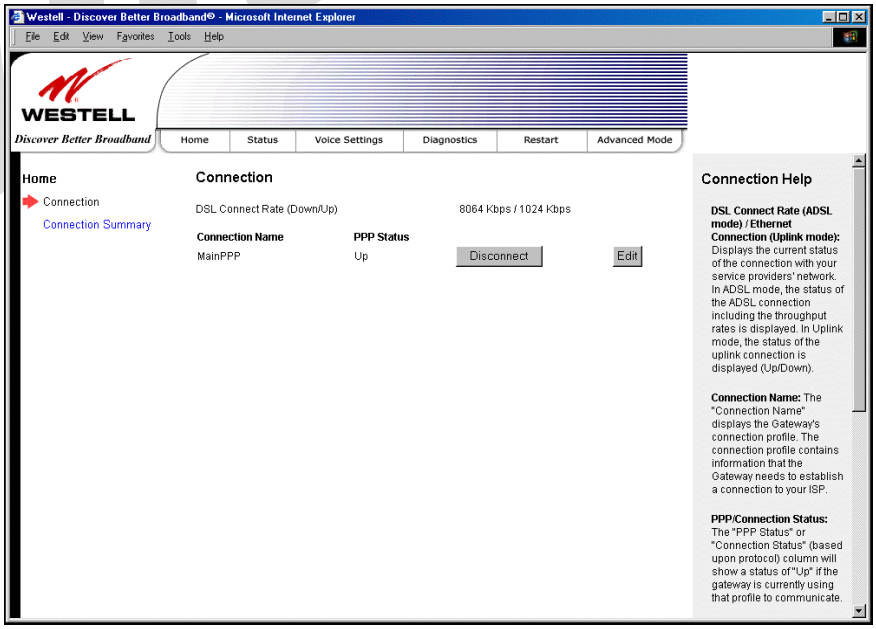
If you clicked **OK** in the preceding pop-up screen, the following screen will be displayed. Please wait for your Gateway to restart. After your Gateway has restarted, the **Edit Connection** screen will be displayed.

NOTE: You may hear a click in the modem during restart. Please do not be alarmed as this will occur whenever the Gateway restarts.



At the **Edit Connection** screen, confirm that the **PPP Status** field displays "Up" before proceeding with your Gateway's configuration.

NOTE: If you have chosen to reset the modem to the factory default configuration, you must set up your account profile and establish your connection as previously explained in section 7, "Configuring the Gateway for Internet Connection."

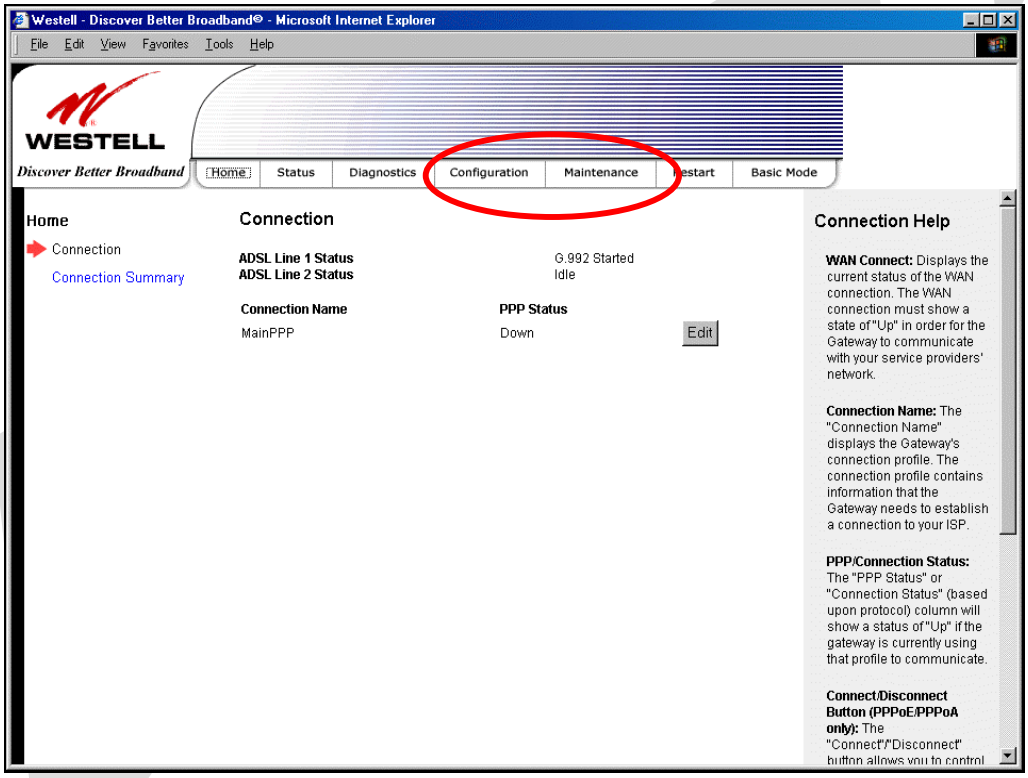


14. ADVANCED MODE

The following screen will be displayed if you select **Advanced** from the menu options (if you are currently in Basic Mode).

NOTE: The basic operations of your Gateway were discussed earlier in this User Guide and provided details on the **Home, Status, Diagnostics,** and **Restart** features. For instructions on configuring any of these features, refer to the Basic Mode sections (beginning with section 9) of this User Guide.

The advanced features of your Gateway will be discussed in sections 15, 16, and 17.

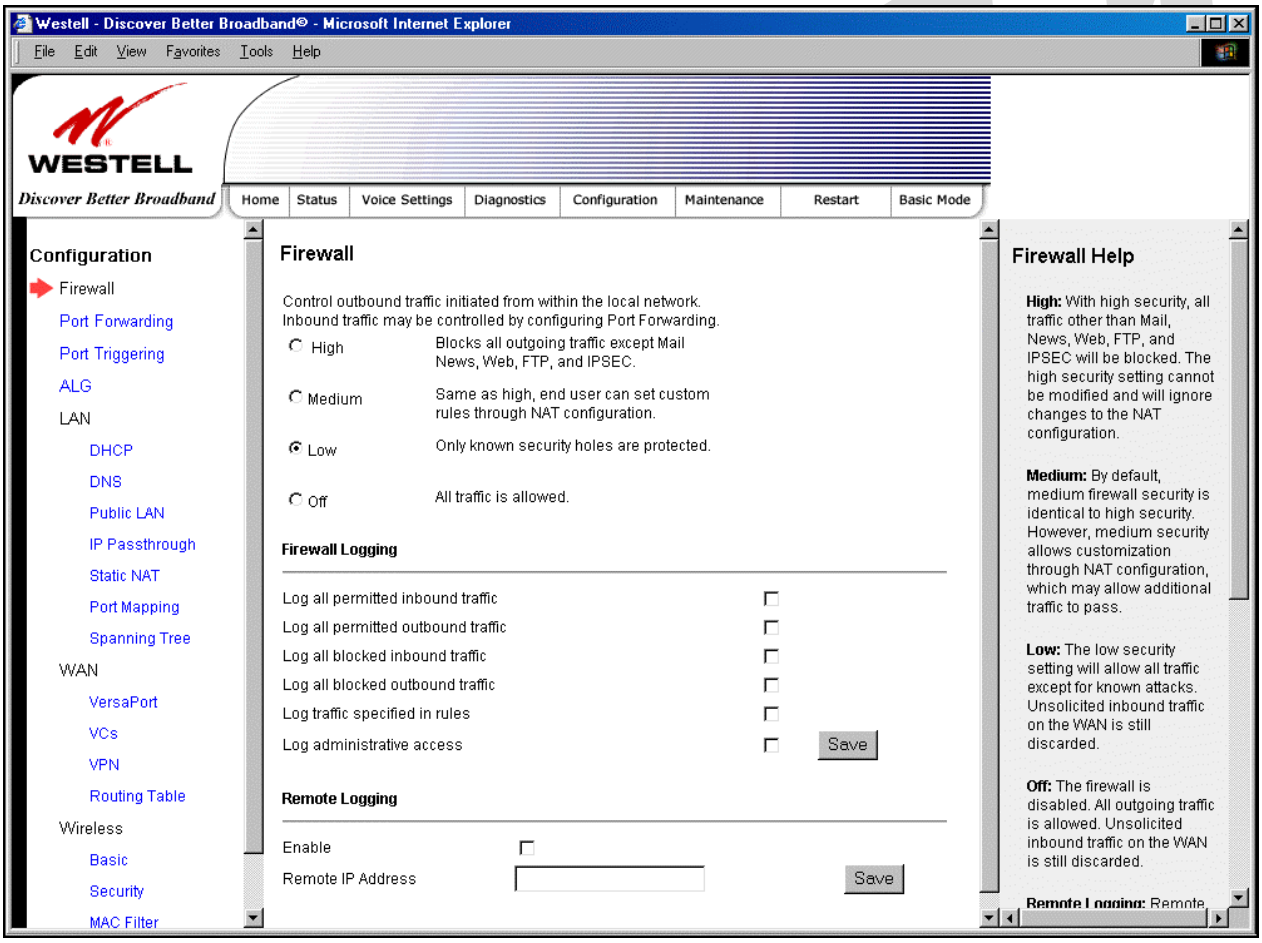


15. CONFIGURATION

15.1 Firewall Configuration

The following screen will be displayed if you select **Configuration > Firewall** from the menu options. If you change any settings in this screen, you must click **Save** to save the settings.

Description:

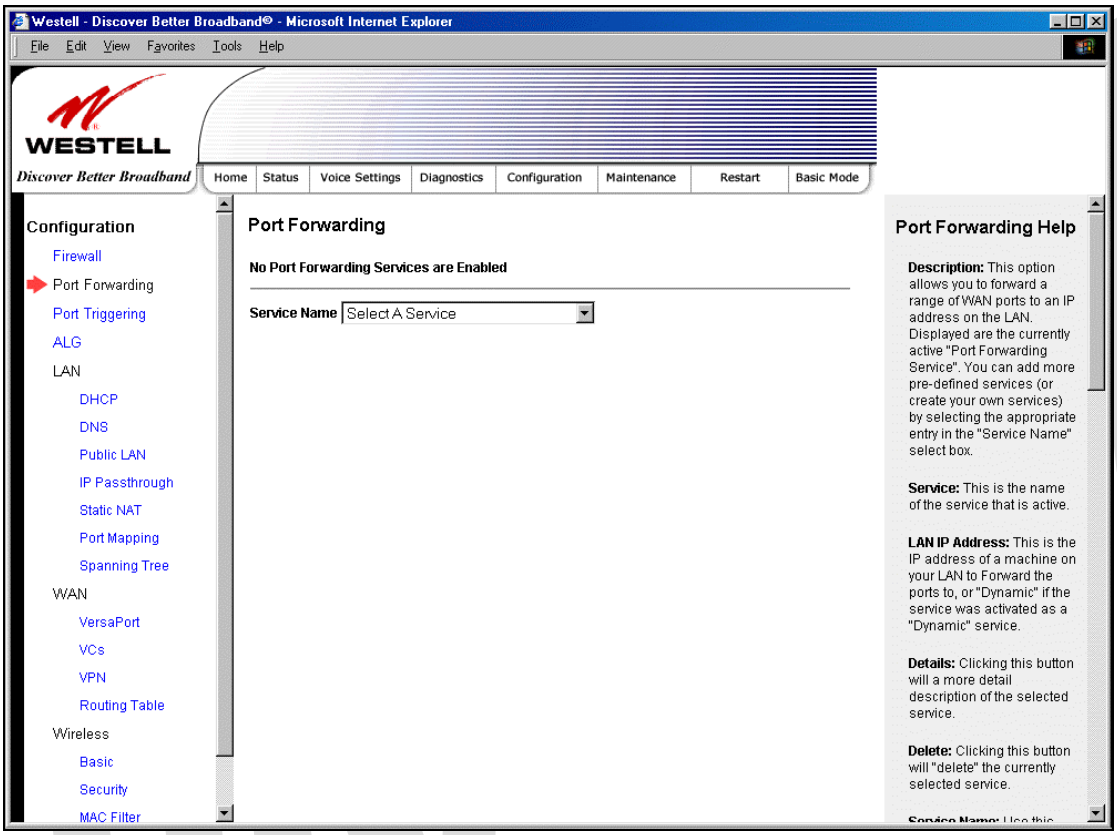


Security Level	
High	High security level only allows basic Internet functionality. Only Mail, News, Web, FTP, and IPSEC are allowed. All other traffic is prohibited.
Medium	Like High security, Medium security only allows basic Internet functionality by default. However, Medium security allows customization through NAT configuration so that you can enable the traffic that you want to pass.
Low	Factory Default = Low The Low security setting will allow all traffic except for known attacks. If security is set to Low, the Gateway will be visible to other computers

	on the Internet.
Off	Firewall is disabled. (All traffic is passed)
Firewall Logging	
Log all permitted inbound traffic	Factory Default = Disabled If Enabled (box is checked), this function will be activated.
Log all permitted outbound traffic	Factory Default = Disabled If Enabled (box is checked), this function will be activated.
Log all blocked inbound traffic	Factory Default = Disabled If Enabled (box is checked), this function will be activated.
Log all blocked outbound traffic	Factory Default = Disabled If Enabled (box is unchecked), this function will be activated.
Log traffic specified in rules	Factory Default = Disabled If Enabled (box is checked), this function will be activated.
Log administrative access	Factory Default = Disabled If Enabled (box is checked), this function will be activated.
Remote Logging	
Enable	Factory Default = Disable If Enabled (box is checked), the Gateway will send firewall logs to a syslog server.
Remote IP Address	The IP address of the syslog server machine to which the diagnostics logs to be sent.

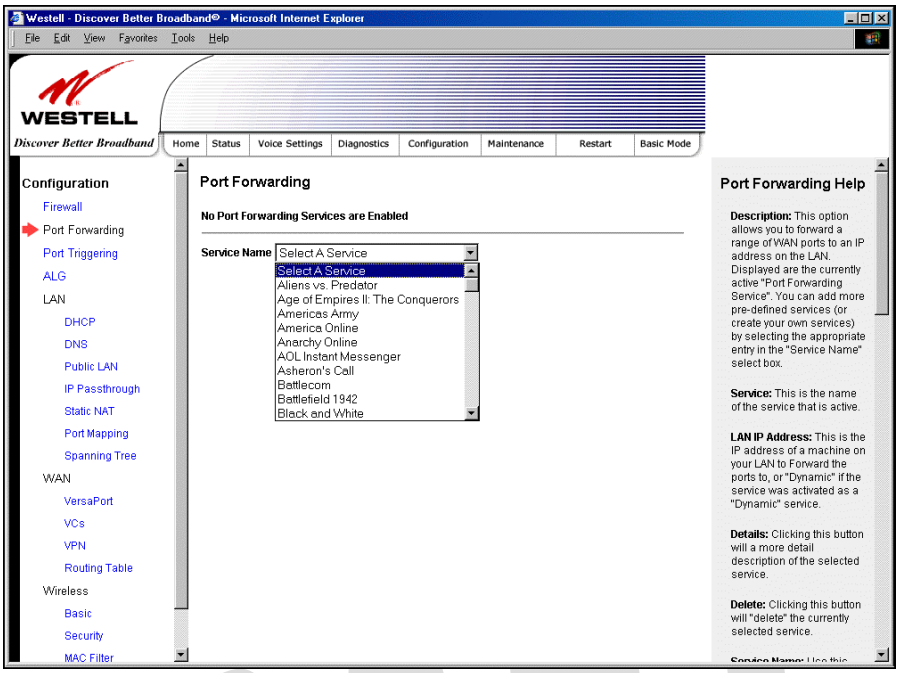
15.2 Port Forwarding Configuration

The following screen will be displayed if you select **Port Forwarding** from the **Configuration** menu. Port Forwarding enables you to set up the Gateway's port forwarding attributes for the services you add to your profile.

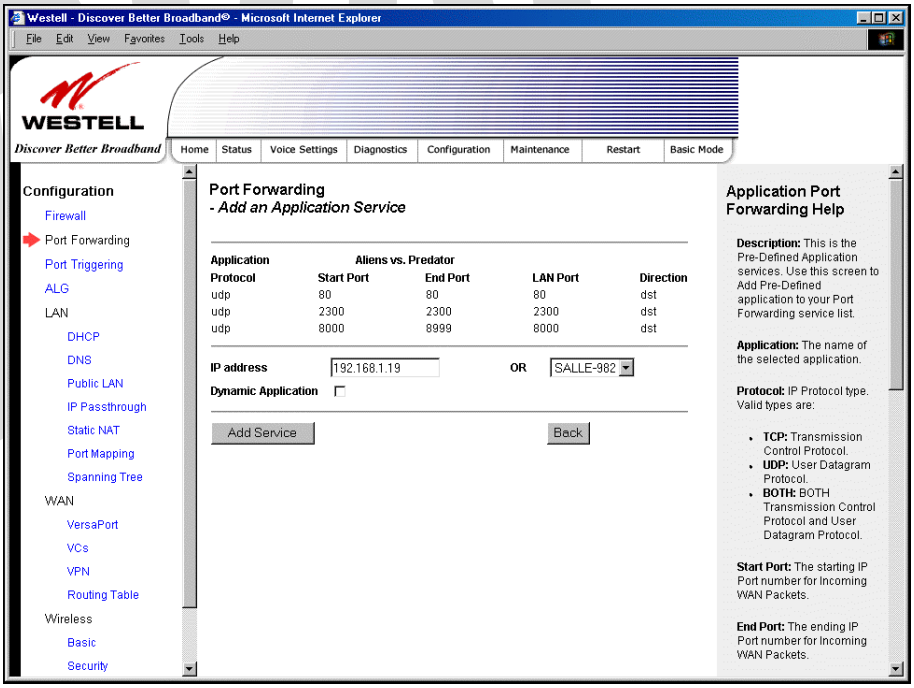


To set up port forwarding, select a service from the **Service Name** drop-down menu.

NOTE: You may add an unlimited numbers of services to your profile.



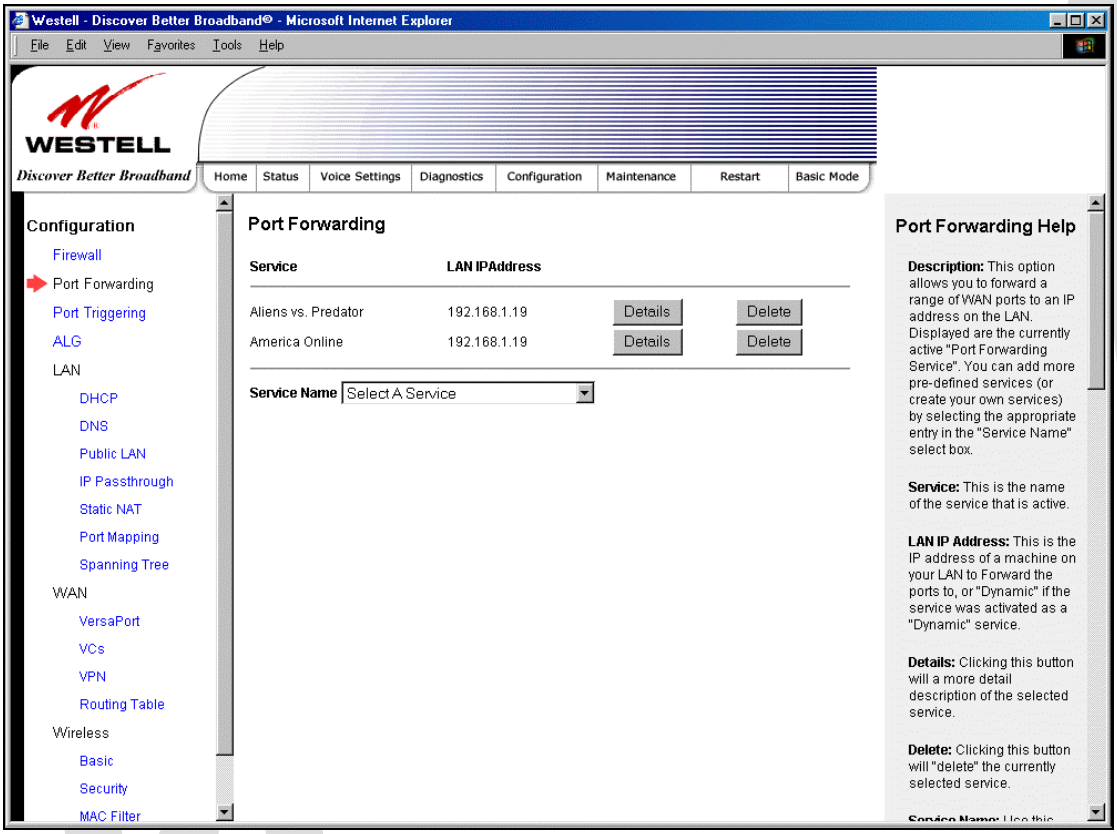
After you have selected a service name from the **Service Name** drop-down menu, the following **Port Forwarding – *Add an Application Service*** screen will be displayed. Enter the appropriate IP address or machine name in the fields provided and then click **Add Service.** Repeat these steps to add additional services to your profile.



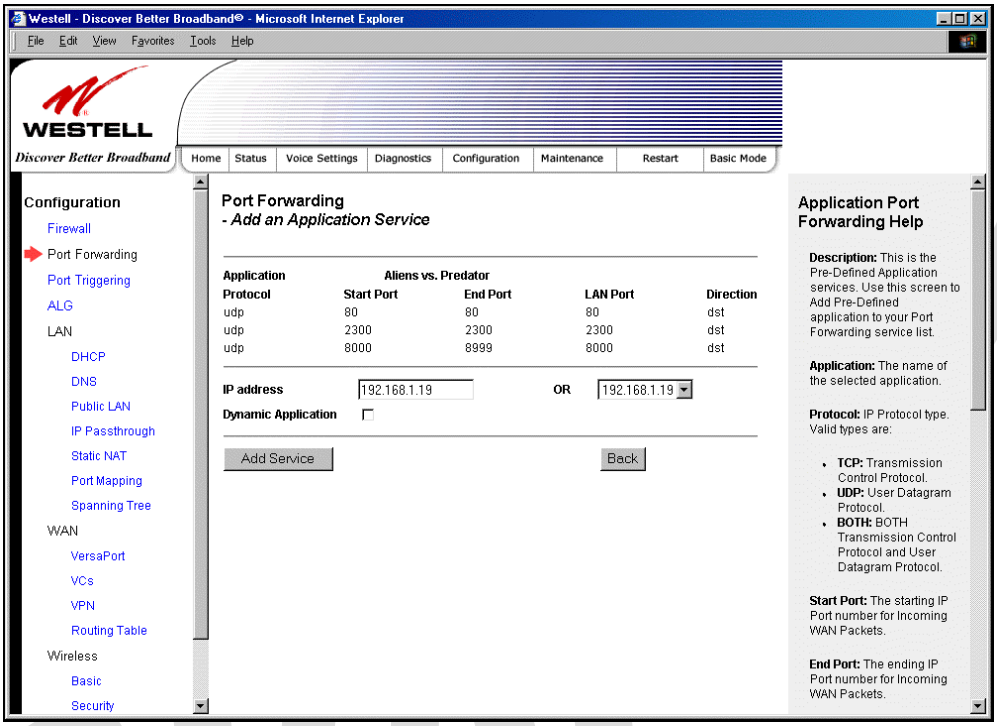
Application Protocol	The IP Protocol type that is assigned to this service.
Start Port	The start port that is assigned to the service
End Port	The end port that is assigned to the service
LAN Port	The LAN port that is assigned to the service.
Direction	The traffic direction assigned to the service.

IP Address	The LAN IP address or the machine name assigned to your service
Dynamic Application	Factory Default = Disabled If Enabled (box is checked), this will only allow outgoing connections from any local PC. If Disabled, packets will be forwarded to the designated local PC.

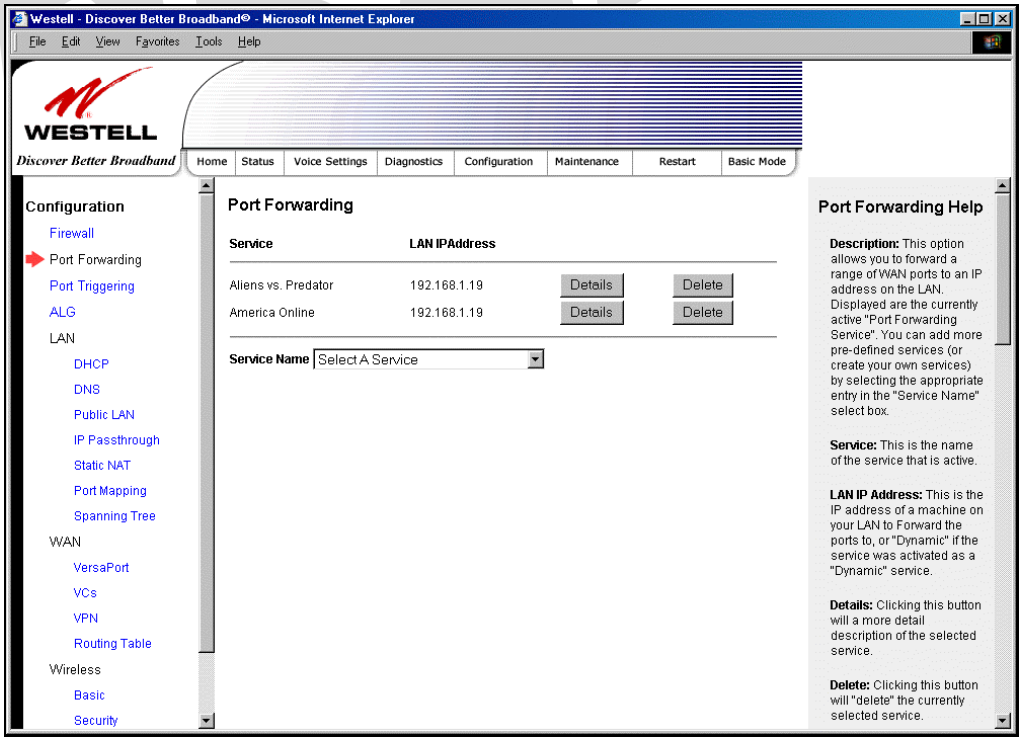
If you clicked **Add Service,** the following screen will be displayed. To view the details of a service you have added, click the **Details** button adjacent to the service you want to view.



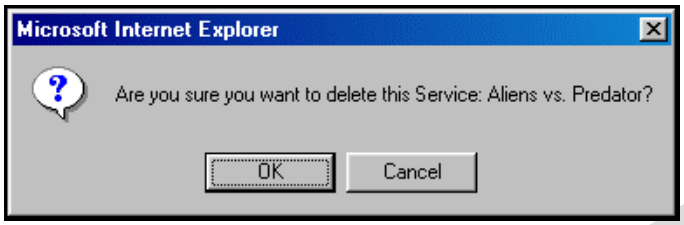
If you clicked the **Details** button, the following screen will be displayed. After viewing the details of your service, click **Back** to return to the preceding **Port Forwarding** screen.



To delete a service that you have added, click the **Delete** button adjacent to the service you want to remove.

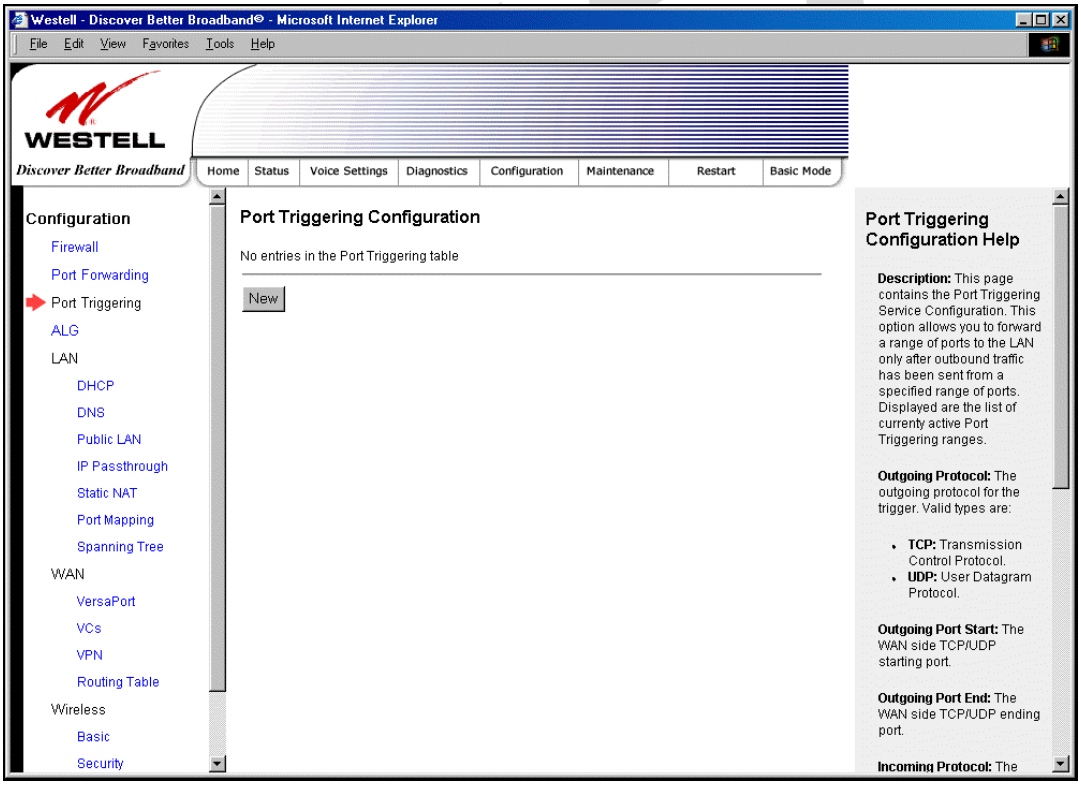


If you clicked **Delete** in the preceding screen, the following pop-up screen will be displayed. Click **OK** in the pop-up screen; the service will then be removed from the list of selected services. Click **Cancel** if you do not want to delete the selected service.

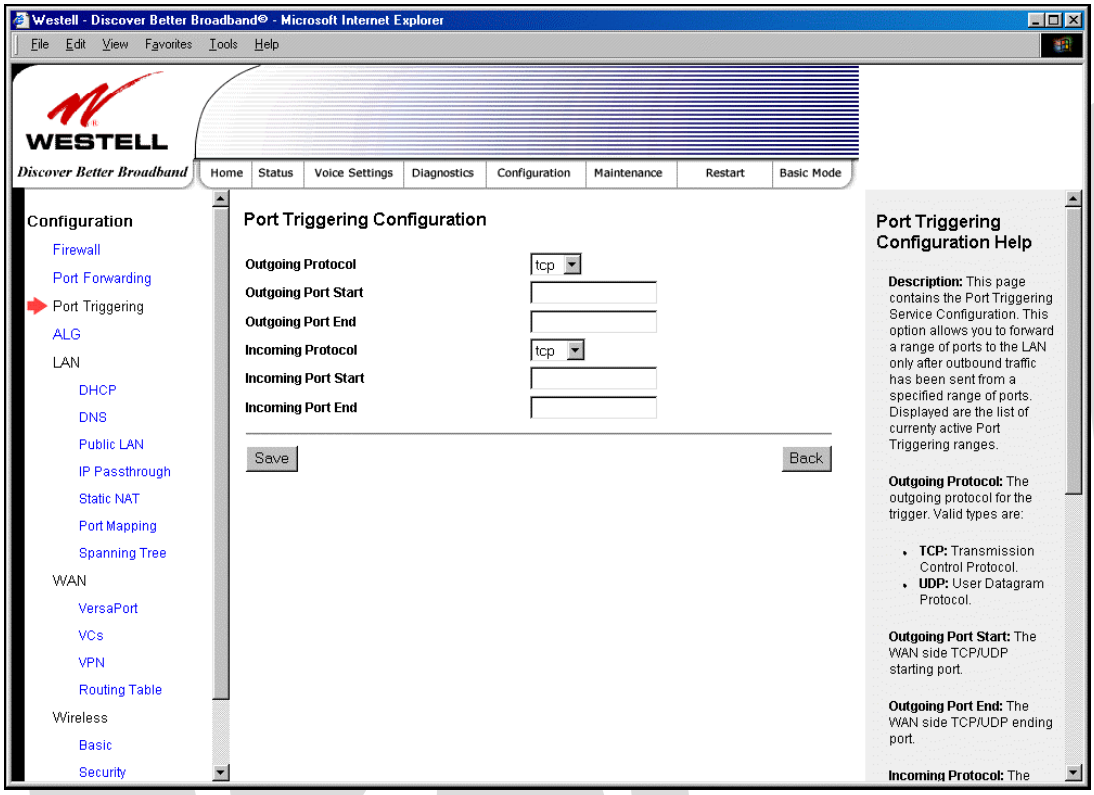


15.3 Port Triggering

The following screen will be displayed if you select Port Triggering from the Configuration menu. To create a trigger port, click **New.**



If you clicked **New**, the following screen will be displayed. Select the desired options from the drop-down menus, and then enter the appropriate values in the fields provide. Click **Save** to save your settings.

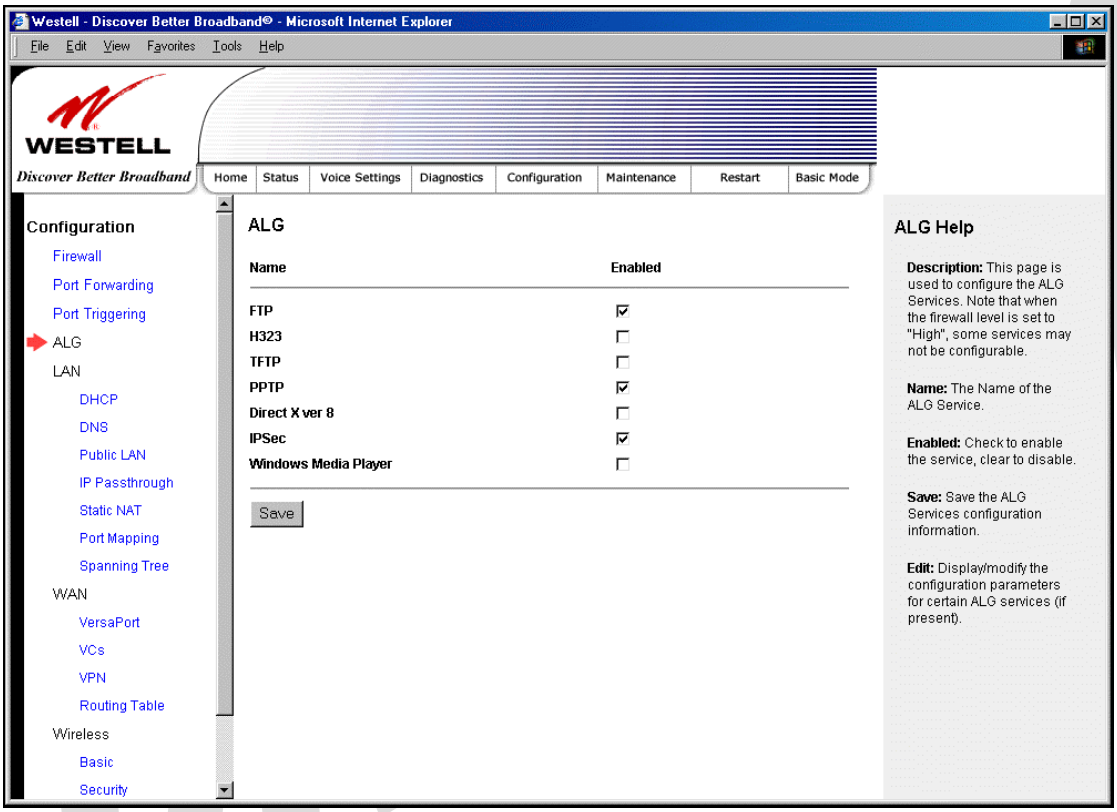


Port Triggering Configuration	
Outgoing Protocol	Factory Default = TCP The outgoing protocol for the triggered ports. Possible Response: TCP – Transmission Control Protocol UDP – User Datagram Protocol
Outgoing Port Start	The WAN-side TCP/UDP starting port
Outgoing Port End	The WAN-side TCP/UDP ending port
Incoming Protocol	Factory Default = TCP The incoming protocol for the triggered ports. Possible Response: TCP- Transmission Control Protocol UDP- User Datagram Protocol Both – TCP and UDP
Incoming Port Start	The local LAN-side starting port.
Incoming Port End	The local LAN-side ending port.

15.4 ALG Configuration

The following screen will be displayed if you select ALG from the Configuration menu. This page enables you to configure ALG services for your Gateway. Click on the box of each service that you want to enable (a check mark will appear in the box), and then click **Save** to save the settings.

NOTE: When the firewall level is set to "High," some services may not be configurable.



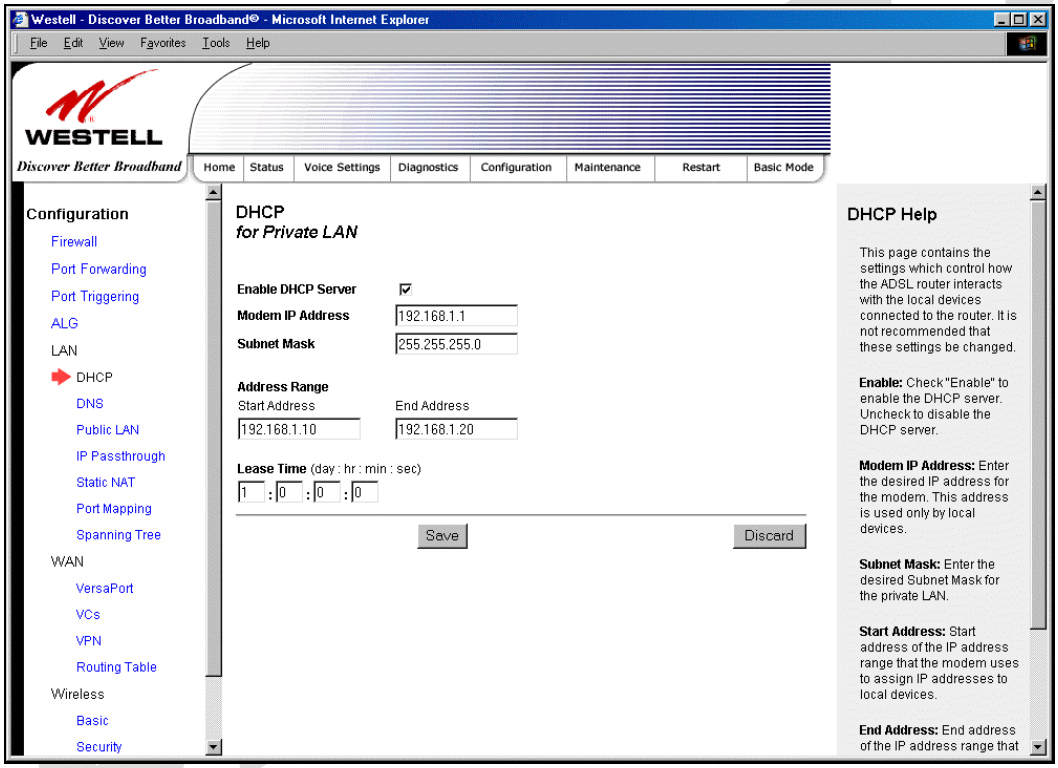
ALG	
Name	The name of the ALG service.
Enabled	To enable the service, click on the adjacent box (a check mark will appear in the box). To disable the service, click to uncheck the box.

15.5 LAN Configuration

15.5.1 DHCP

The following screen will be displayed if you select **LAN > DHCP** from the **Configuration** menu. This page enables you to control how the Gateway interacts with local devices to which it is connected. Enter the appropriate values, and then click **Save** to save your settings.

NOTE: Westell recommends that you do not change these settings unless instructed by your Internet service provider.

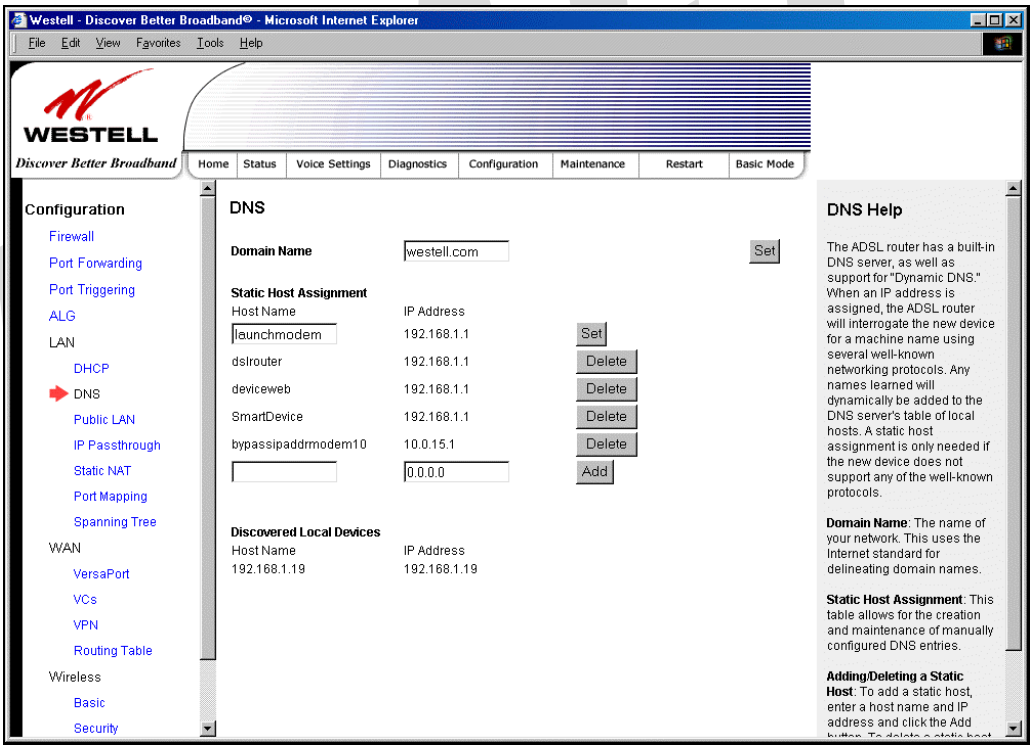


DHCP Configuration for Private LAN	
Enable DHCP Server	Factory Default = Enable This setting allows the Gateway to automatically assign IP addresses to local devices connected on the LAN. Westell advises setting this to enabled for the private LAN. Private LAN = DHCP addresses will be saved into the Private LAN configuration. Public LAN = DHCP addresses will be saved into the Public LAN configuration. (This option is only available if the Public LAN DHCP server is enabled.) Possible Response: If this box is checked, the DHCP server will be turned On. If this box is unchecked, the DHCP server will be turned Off. Note: These addresses will be overwritten if the Internet Service Provider supports dynamic setting of these values.
Modem IP Address	The IP Address of the Gateway
Subnet Mask	The Subnet Mask of the Gateway
Address Range	
DHCP Start Address	Factory Default = 192.168.1.10

	This field displays the first IP address that the DHCP server will provide. The DHCP Start Address must be within the router's subnet IP and lower than the DHCP End Address. You may use any number from 0 to 254 in this address.
DHCP End Address	Factory Default = 192.168.1.20 This field displays the last IP address that the DHCP server will provide. The DHCP End Address must be within the router's subnet IP and higher than the DHCP Start Address. You may use any number from 0 to 254 in this address.
DHCP Lease Time	Factory Default = 01:00:00:00 Displays the amount of time the provided addresses will be valid, after which the DHCP client will usually re-submit a request. Note: DHCP Lease Time is displayed in the format (day:hour:min:sec)*. This value must be greater than 10 seconds. Seconds must be between 0 and 59, minutes must be between 0 and 59, and hours must be between 0 and 23.

15.5.2 DNS

The following screen will be displayed if you select **LAN > DNS** from the **Configuration** menu.



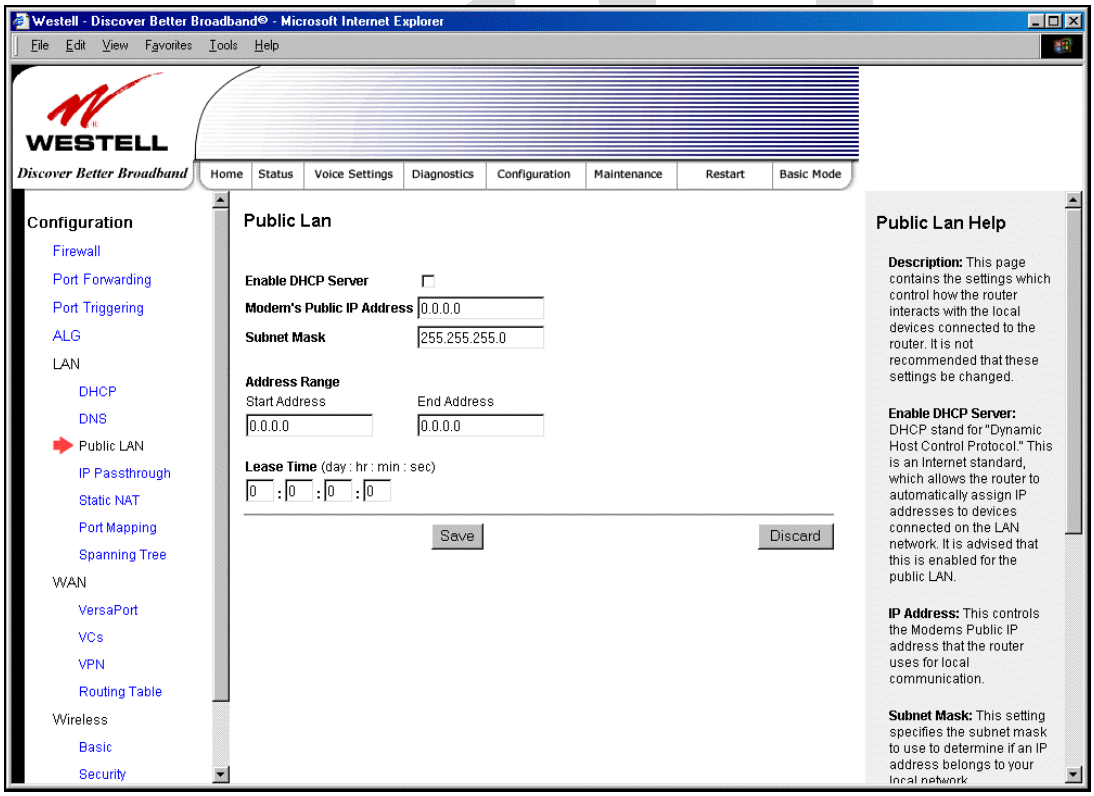
DNS	
Domain Name NOTE: Some ISP's may require the name for identification purposes.	This field allows you to enter a Domain Name for the Gateway. To add a Domain Name, in the field under User Assigned DNS, type in your new domain name and click **Set.**
Static Host Assignment	
Host Name	This field allows you to enter a host name for the Gateway. To add a new host name, in the field under Static Host Assignment, type in the Host Name and the associated IP address and then click **Add.** To delete a Host name, click the **Delete** button adjacent to the Host Name

	and IP Address you want to delete.
IP Address	Displays the IP address that is assigned to the Host Name.
Discovered Local Devices	
This field displays a list of the computers on the LAN that have been assigned a DHCP Address. The DNS name and IP address entry of each discovered device is displayed. (Note: The values in this field will be displayed barring any propagation delays. If 'No Discovered Devices' is displayed, manually refresh the screen.)	

15.5.3 Public LAN – Multiple IP Address Passthrough

The following screen will be displayed if you select **LAN > Public LAN** from the **Configuration** menu.

NOTE: Selecting Public LAN will enable the VERSAPORT™2 port to function as an Ethernet LAN port allowing your Gateway to use LAN IP addresses that accessible from the WAN. This allows your computer to have global address ability. To use the Public LAN feature on the Gateway, your ISP must support Public LAN and Static IP. Contact your ISP for details. When VERSAPORT™2 is configured for Public LAN, the Gateway's DSL transceiver will be enabled.



Public LAN Settings	
Enable DHCP Server	Factory Default = Disable Possible Response: If Enabled (box is checked), this will enable the Public LAN DHCP server and allow IP address to be server from the DHCP Public LAN pool. If Disabled (the box is unchecked), this will disable the Public LAN DHCP server.
Modem's Public IP Address	The Gateway's public IP address
Subnet Mask	The Subnet Mask, which determines what portion of an IP address is controlled

	by the network and which portion is controlled by the host.
Address Range	
DHCP Start Address	Displays the first IP address that the Public LAN DHCP Server will provide. The DHCP Start Address must be within the IP address and lower than the DHCP End Address.
DHCP End Address	Displays the last IP address that the Public LAN DHCP Server will provide. The DHCP End Address must be within the IP address and higher than the DHCP Start Address.
DHCP Lease Time	Factory Default = 01:00:00:00 Displays the amount of time the provided addresses will be valid, after which time the Public LAN DHCP client will usually re-submit a request. Note: DHCP Lease Time is displayed in the format (day:hour:min:sec)*. This value must be greater than 10 seconds. Seconds must be between 0 and 59, minutes must be between 0 and 59, and hours must be between 0 and 23.

If the settings you have entered in the **Public LAN Settings** fields are incorrect, the following warnings messages may be displayed via pop-up screens. If this occurs, check the **Public LAN** settings.

Warning Message	Check Public LAN DHCP Settings
Start Address is not part of the Subnet	Check the value in the DHCP Start Address field
End Address is not part of the Subnet	Check the value in the DHCP End Address field
End Address is below the Start Address	Check the value in the DHCP End Address field
Lease time must be greater than 10 seconds	Check the values in the DHCP Lease Time fields
Seconds must be between 0 and 59	Check the **Seconds** field at DHCP Lease Time
Minutes must be between 0 and 59	Check the **Minutes** field at DHCP Lease Time
Hours must be between 0 and 23	Check the **Hours** field at DHCP Lease Time

15.5.4 IP Passthrough – Single IP Address Passthrough

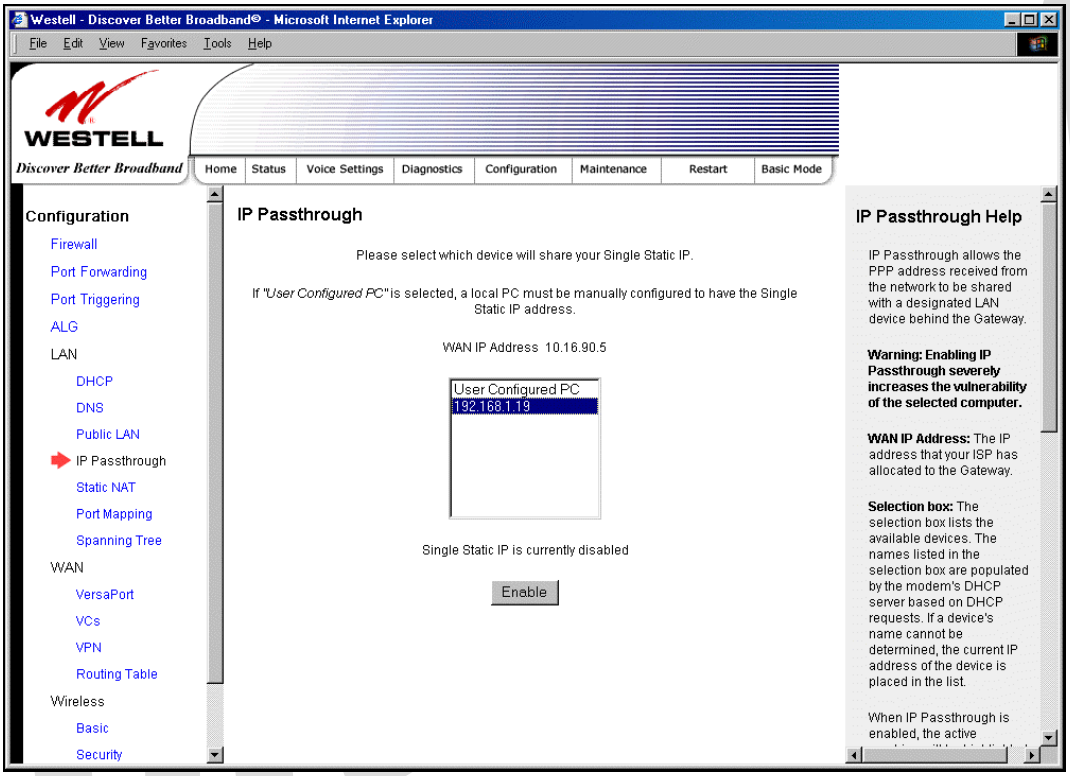
The following screen will be displayed if you select **LAN** > **IP Passthrough** from the **Configuration** menu. IP Passthrough enables you to select the device on your LAN that will share your Single Static IP address. Before you begin this section, configure your PC settings to obtain an IP address from your Gateway automatically. (Refer to your computer's Windows® Help screen for instructions.)

NOTE: IP Passthrough enables you to share the WAN-assigned IP address with one device on your LAN. Network Address Translation (NAT) and Firewall rules do not apply to the device configured for IP Passthrough. Thus, the device with the single static IP address becomes visible on the Internet. If you are using Routed IP protocol, IP Passthrough configuration will not be available.

15.5.4.1 Enabling IP Passthrough – Single IP Address PassThrough (Applicable for PPPoE or PPPoA Connections Only)

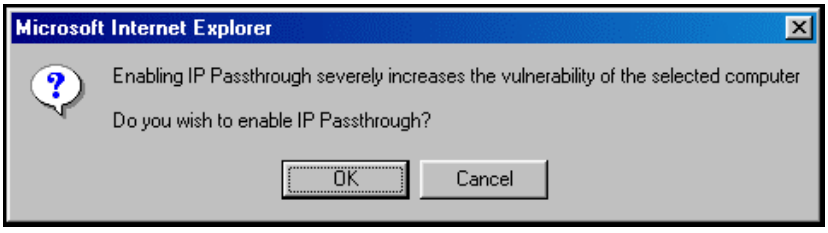
To enable IP Passthrough, select a device that will share your Single Static IP from the options listed in the window. Click **Enable.**

NOTE: The actual device names may differ from the names displayed in this screen.

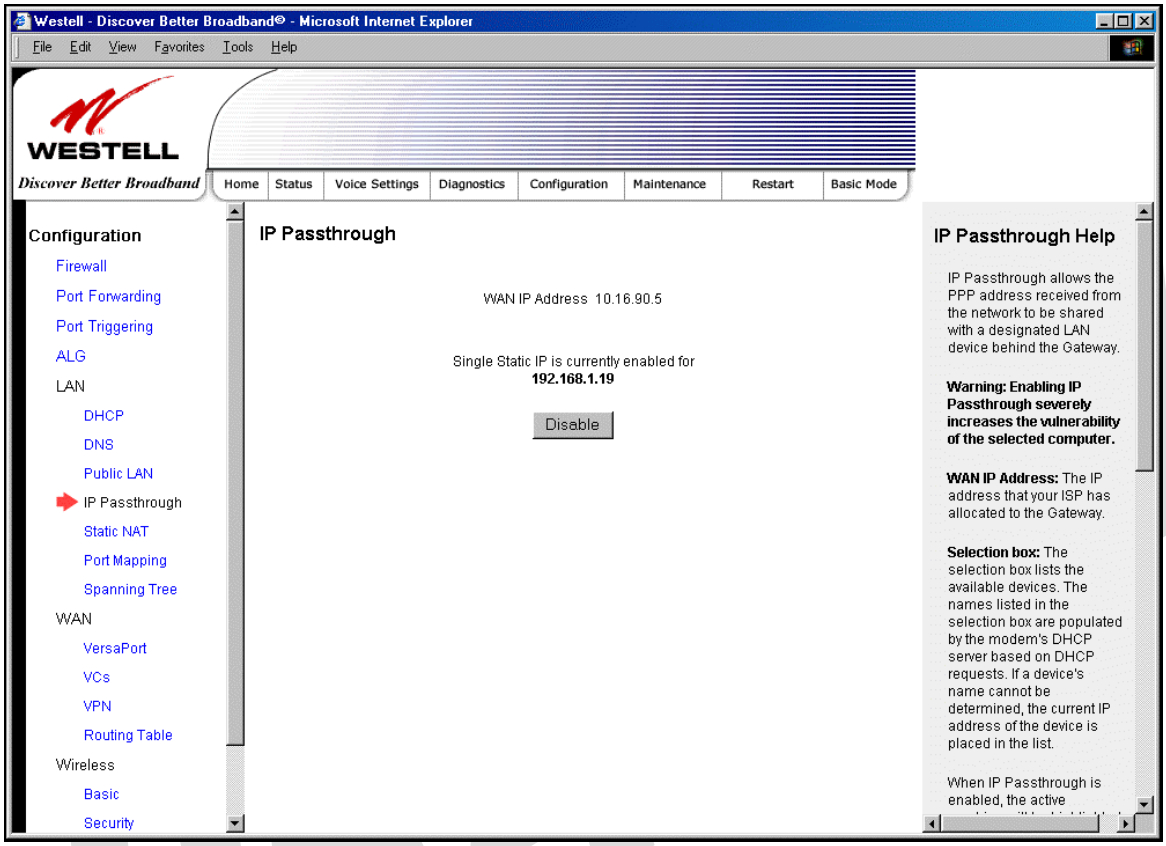


If you clicked **Enable,** the following pop-up screen will be displayed. Click **OK** to continue.

Caution: Enabling IP Passthrough severely increases the vulnerability of the selected computer.



If you clicked **OK** in the preceding pop-up screen**,** the Gateway will be reset and the new configuration will take effect, as shown in the following screen.

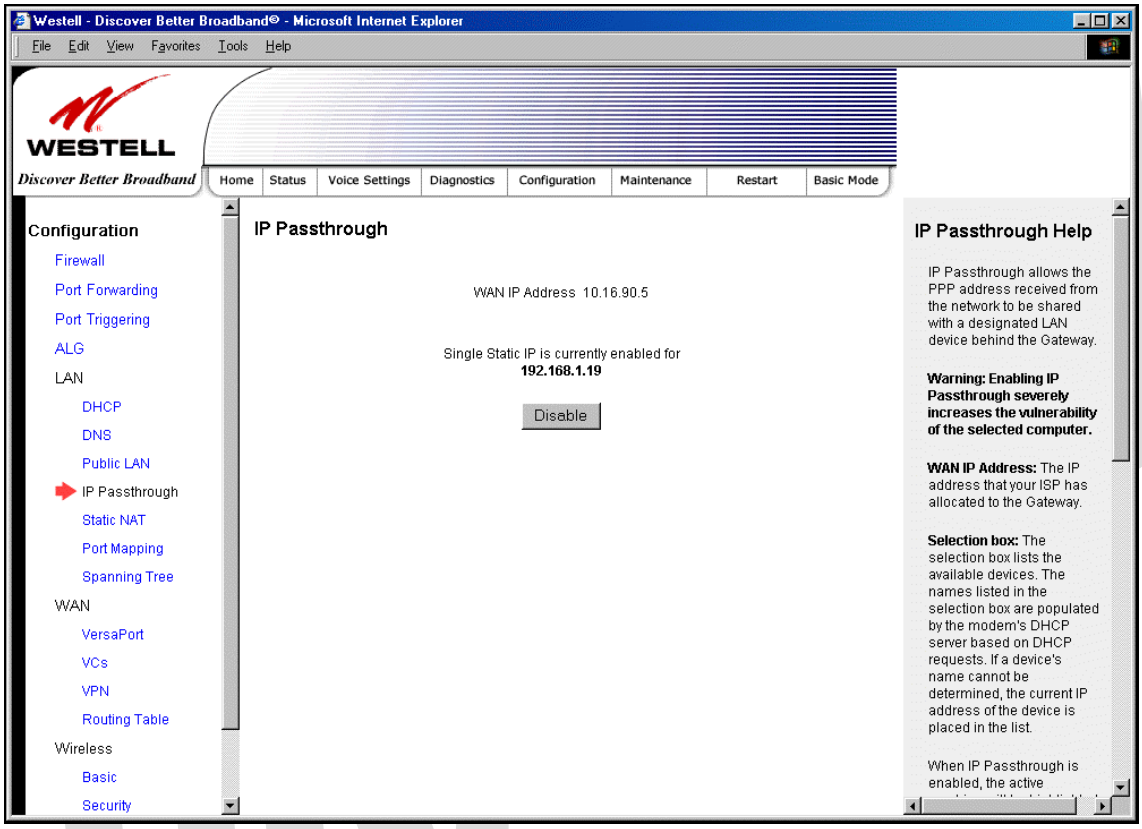


STOP! After you enable IP Passthrough, you must reboot your computer.

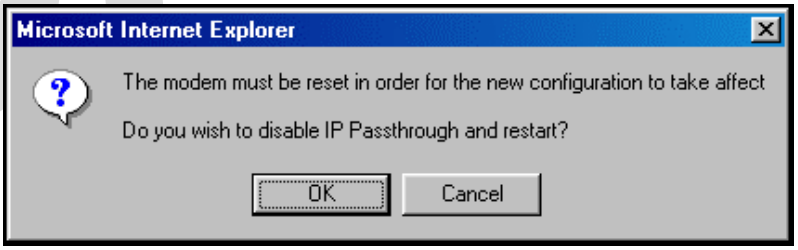
IMPORTANT: If you chose to enable **User Configured PC,** wait for the Gateway to reset and then manually enter the WAN IP, Gateway, and Subnet mask addresses you obtained from your Internet service provider into a PC.

15.5.4.2 Disabling IP Passthrough – Single IP Address PassThrough

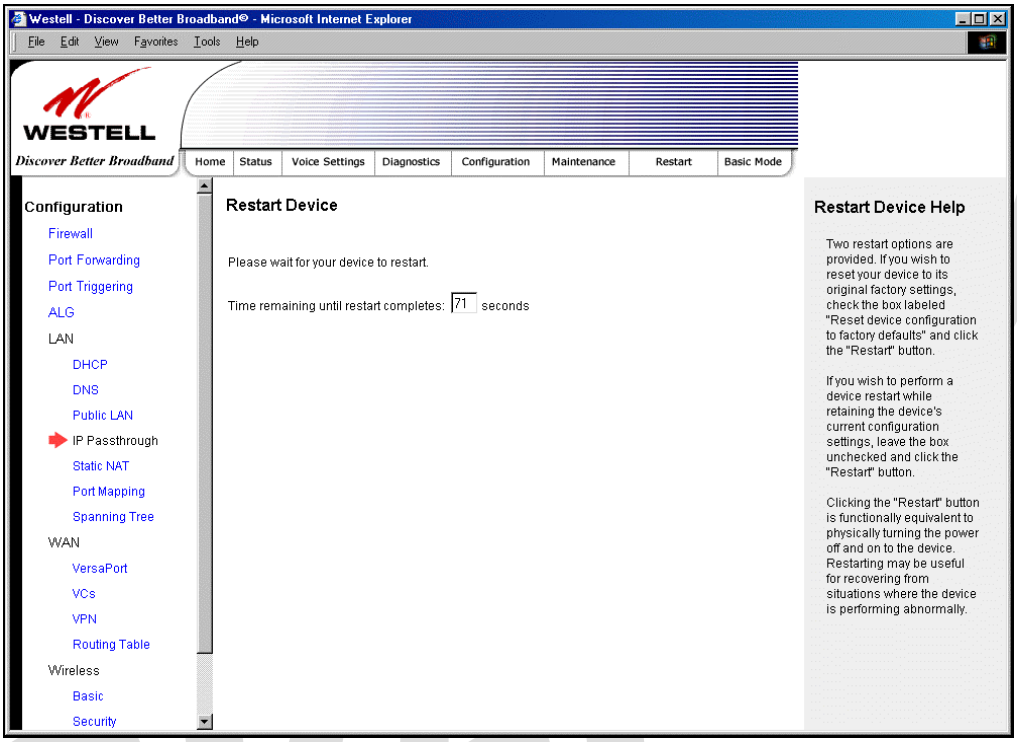
To disable IP Passthrough (if it has been previously enabled), select **IP Passthrough** from the **Configuration>LAN** menu. Click on **Disable.**



If you clicked **Disable** following pop-up screen will be displayed. Click **OK** to continue.



If you clicked **OK** in the preceding pop-up screen, the following screen will be displayed. The Gateway will be reset and the new configuration will take effect.



STOP! After you disable IP Passthrough, you must reboot your computer.

IMPORTANT: If you chose to enable **User Configured PC,** wait for the Gateway to reset and then manually enter the WAN IP, Gateway, and Subnet mask addresses you obtained from your Internet service provider into a PC.

15.5.5 Static NAT

The following screen will be displayed if you select **LAN > Static NAT** from the **Configuration** menu. This screen enables you to configure your Gateway to work with the special NAT services.

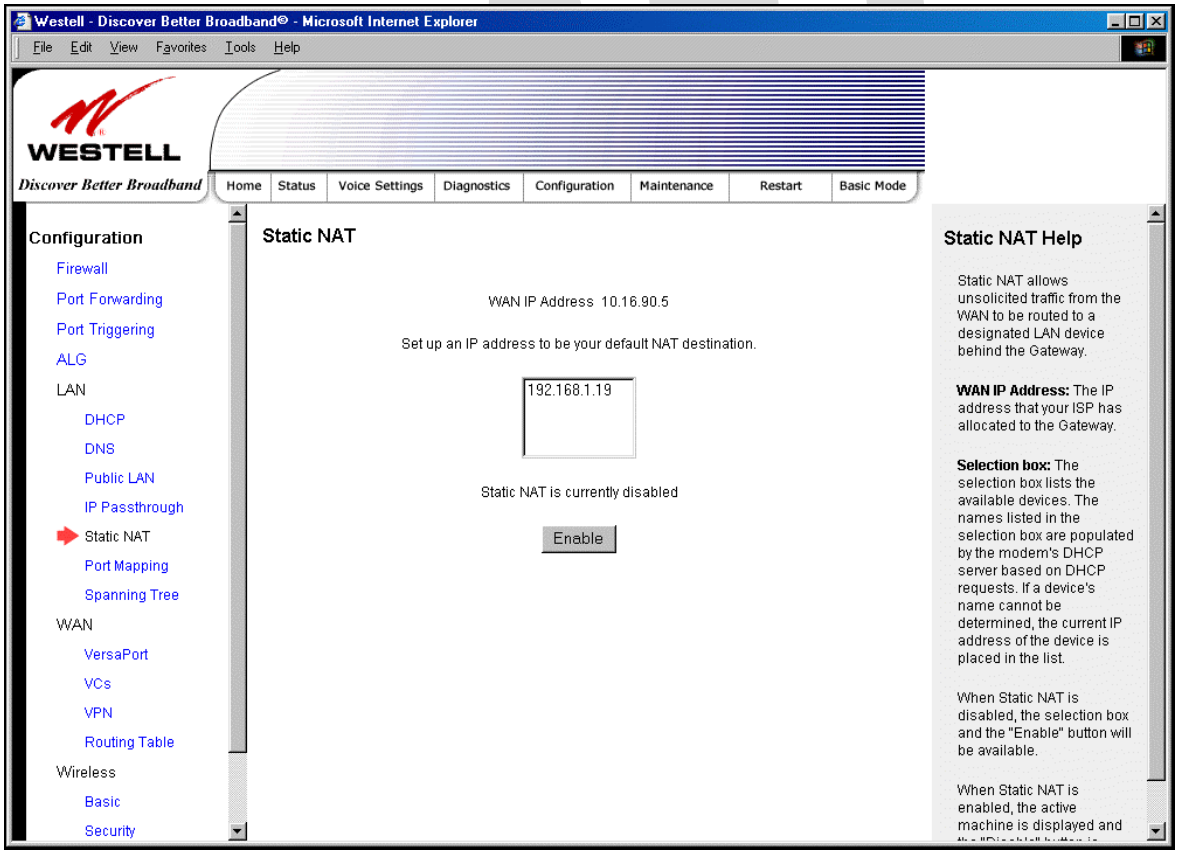
NOTE: When the Gateway is configured for Static NAT, any unsolicited packets arriving at the WAN would be forwarded to this device. This feature is used in cases where the user wants to host a server for a specific application.

IMPORTANT: IP Passthough must be disabled (if it has been previously enabled) before you enable **static NAT**. Refer to section 15.5.4.2 for instructions on disabling IP Passthrough.

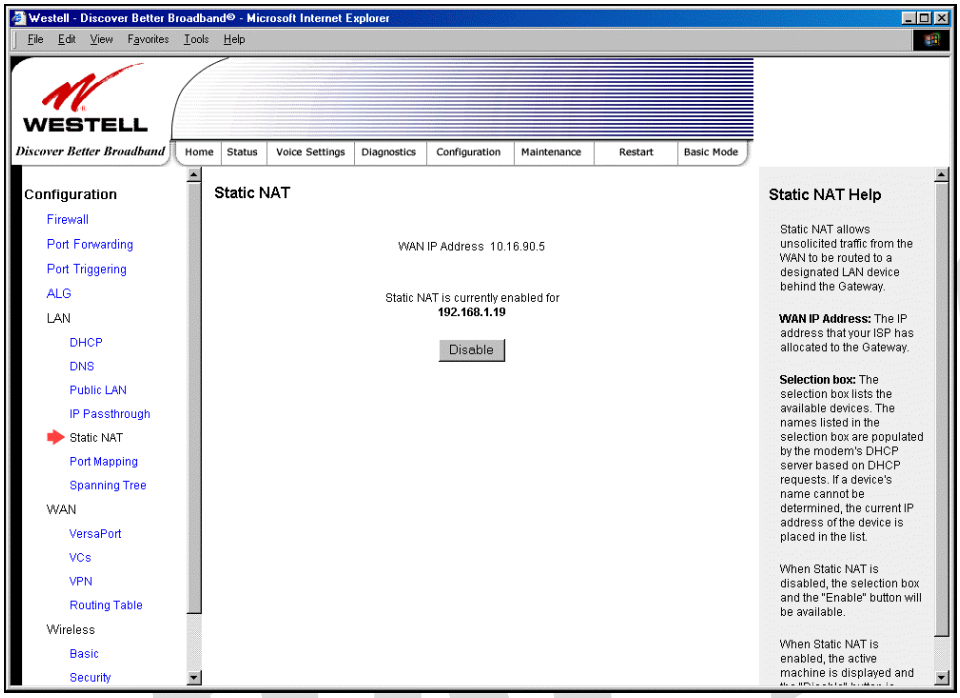
15.5.5.1 Enabling Static NAT

To enable Static NAT, select an IP address or device name from the options listed in the **Static NAT** screen and then click **Enable.**

NOTE: The actual IP addresses or device names may differ from the those displayed in the following screen.

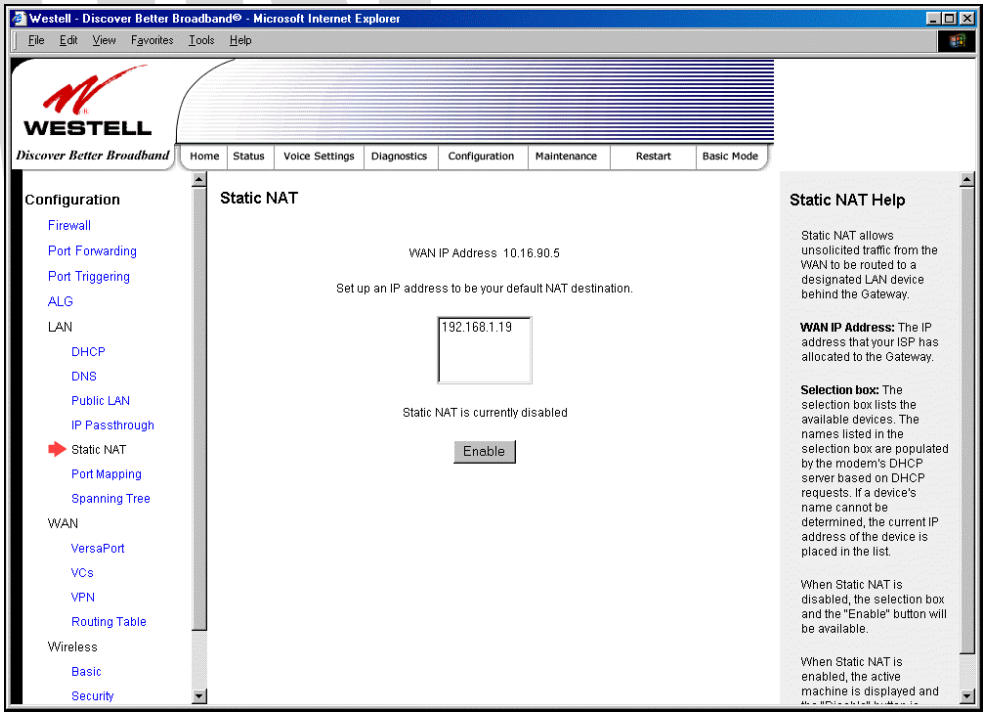


If you clicked **Enable,** the following screen will be displayed, with Static NAT enabled for the IP address or device name you selected.



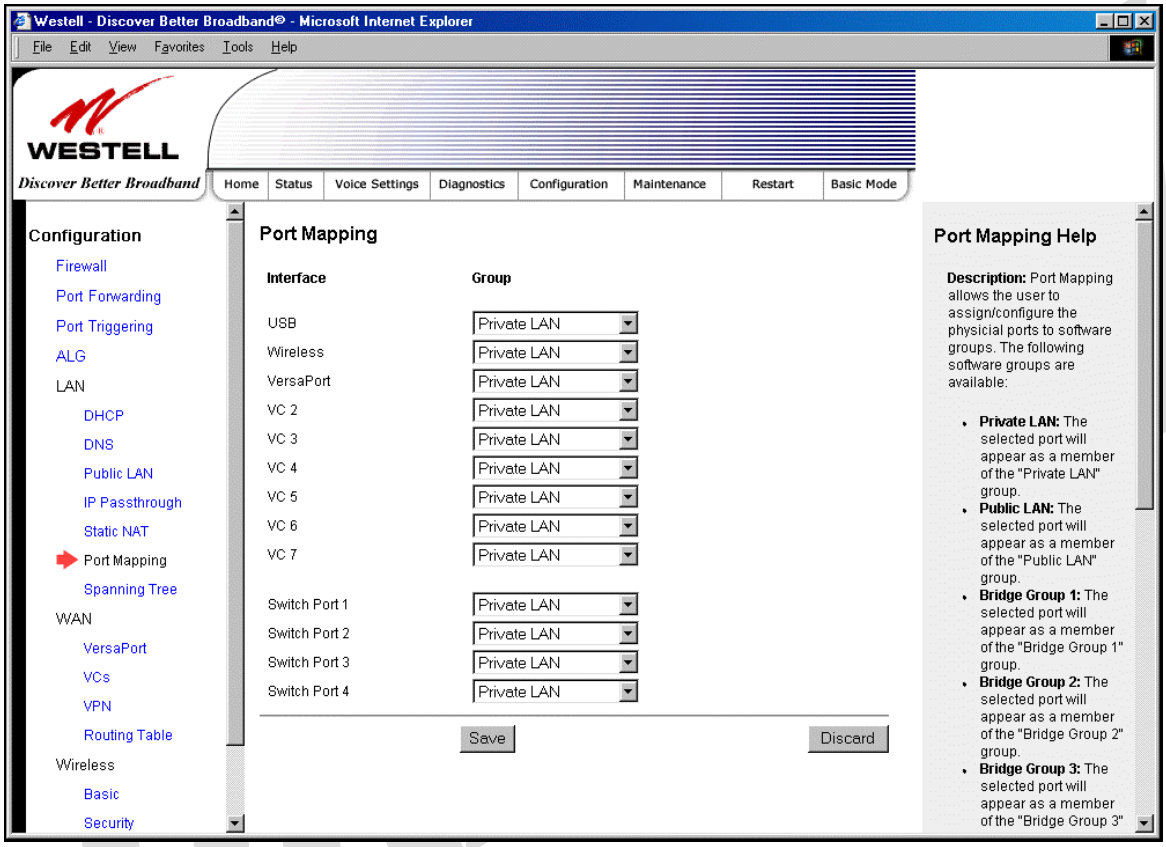
15.5.5.2 Disabling Static NAT

To disable Static NAT, click **Disable** in the **Static NAT** screen. The following screen will be displayed.



15.5.6 Port Mapping

The following screen will be displayed if you select **LAN > Port Mapping** from the **Configuration** menu. This screen enables you to assign the physical ports to software groups. Select the appropriate options from the drop-down menus, and then click **Save** to save your settings.



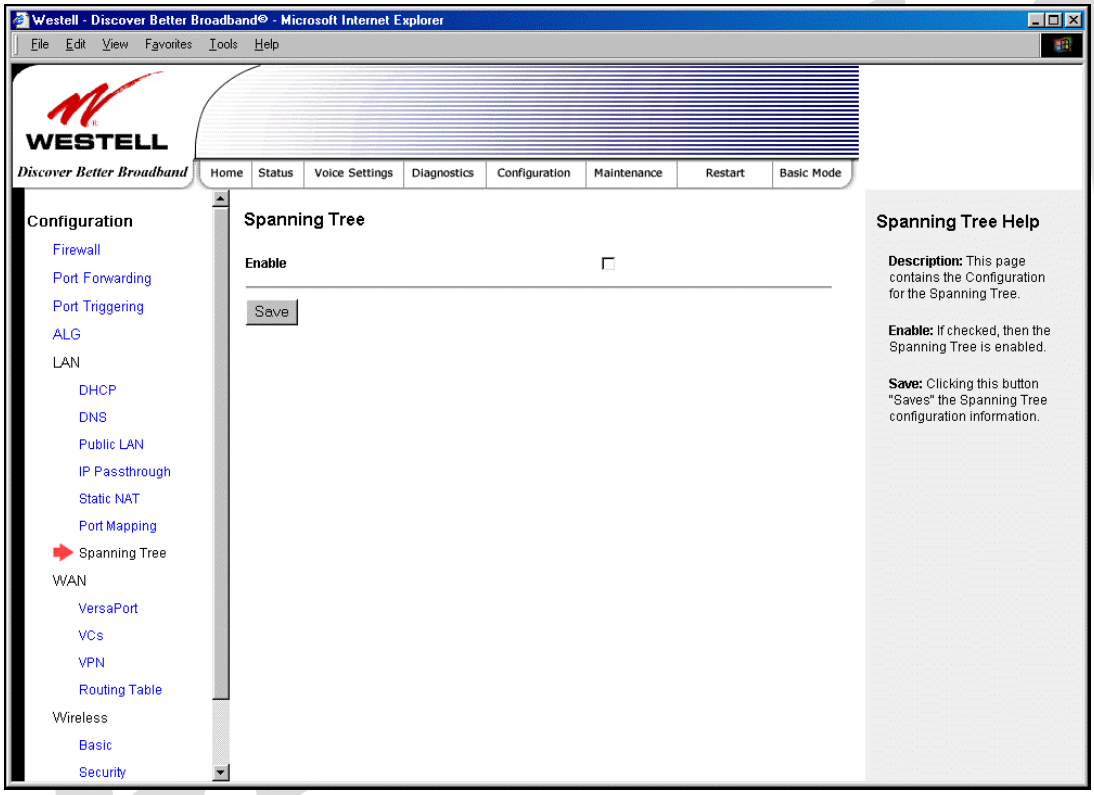
Port Mapping	
Interface	The physical ports available for mapping.
Group	Factory Default: Private LAN The software defined virtual LAN group to which the port should be assigned: Possible Responses: Private LAN Public LAN Bridge Group One Bridge Group Two Bridge Group Three Bridge Group Four

15.6 Spanning Tree

The following screen will be displayed if you select **LAN > Spanning Tree** from the **Configuration** menu. This screen enables you to configure Spanning Tree functionality on your modem. To activated Spanning Tree, click the box adjacent to **Enable** (a check mark will appear in the box). Next, click **Save** to save your settings.

Description: Spanning Tree provides path redundancy while preventing undesirable loops in the network.

NOTE: By factory default, Spanning Tree is disabled.

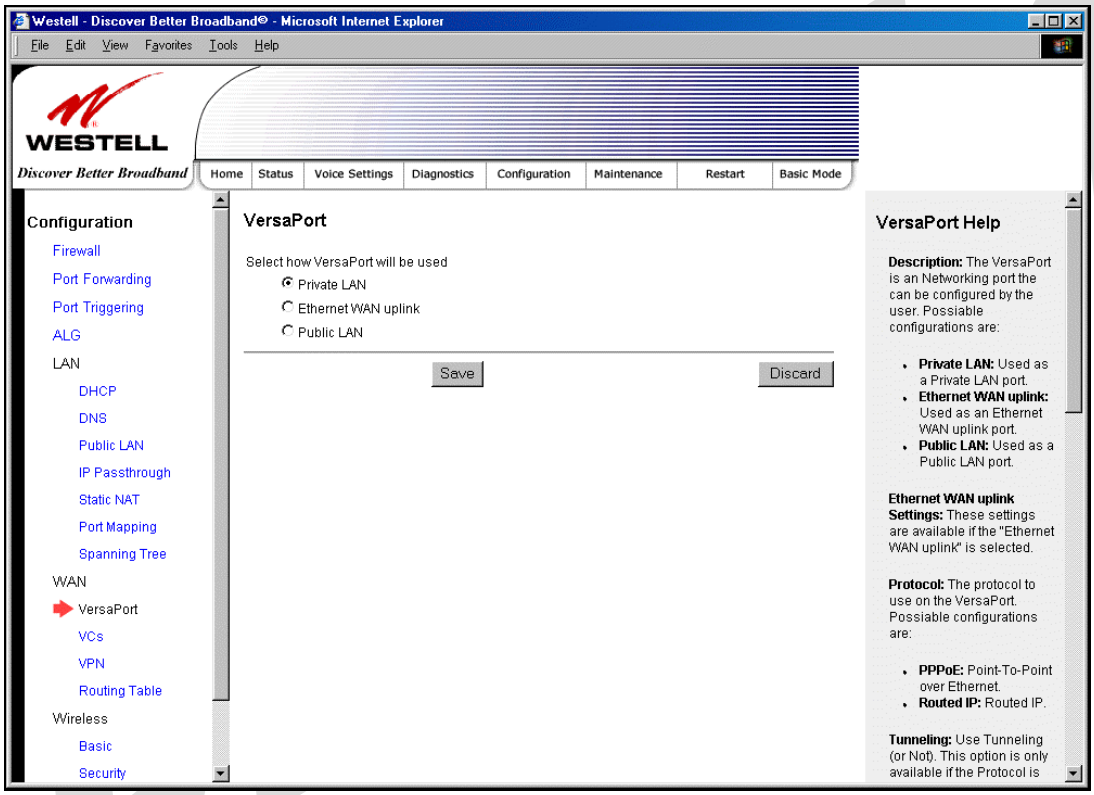


Spanning Tree	
Enable	When this box is checked Spanning Tree is activated. If the box is unchecked, Spanning Tree is deactivated.

15.7 WAN Configuration

15.7.1 VersaPort

The following screen will be displayed if you select **WAN** > **VersaPort** from the **Configuration** menu. This function will enable you to configure the VersaPort settings for your modem. Click on one of the options (Private LAN, Ethernet WAN Uplink, or Public LAN) to select how VersaPort will be used. Next, click **Save** to save your settings.

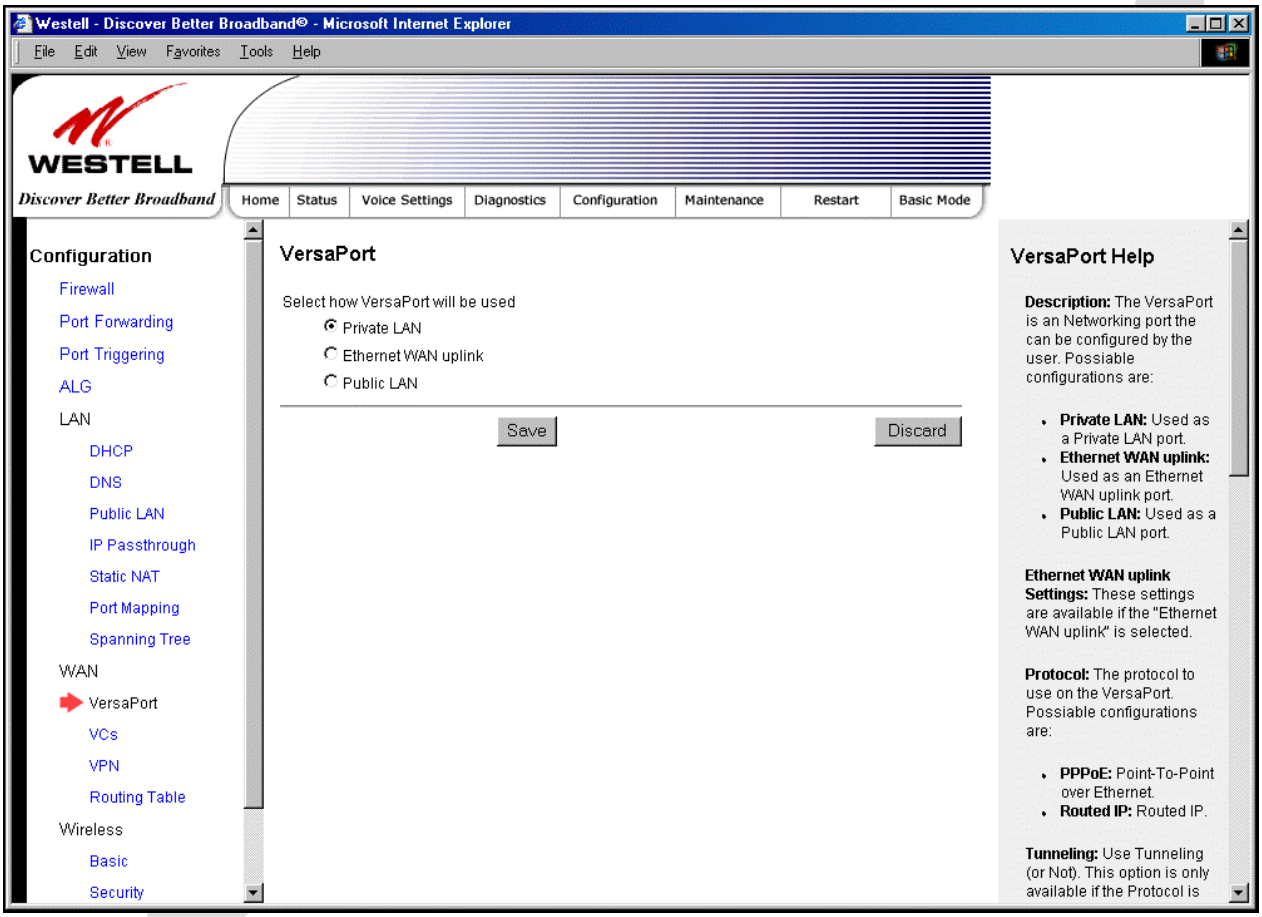


Private LAN	Factory Default = Private LAN If selected, the VERSAPORT™2 port will function as a fifth Ethernet LAN port. When using Private LAN, the router's DSL transceiver will be **Enabled.**
Ethernet WAN Uplink	If selected, the VERSAPORT™2 port will function as an Ethernet WAN Uplink port, and the router's DSL transceiver will be **Disabled.**
Public LAN	If selected, the VERSAPORT™2 port will function as a second segment. When using Public LAN, the router's DSL transceiver will be **Enabled.** Use the Public LAN Configuration menus to configure the LAN settings.

15.7.2 Private LAN – Configuring NAT

If you select **Private LAN** in the **VersaPort** screen, the following screen will be displayed. Private LAN enables you to set up a network behind the Gateway. After you have entered the appropriate values, click **Save** to save your settings.

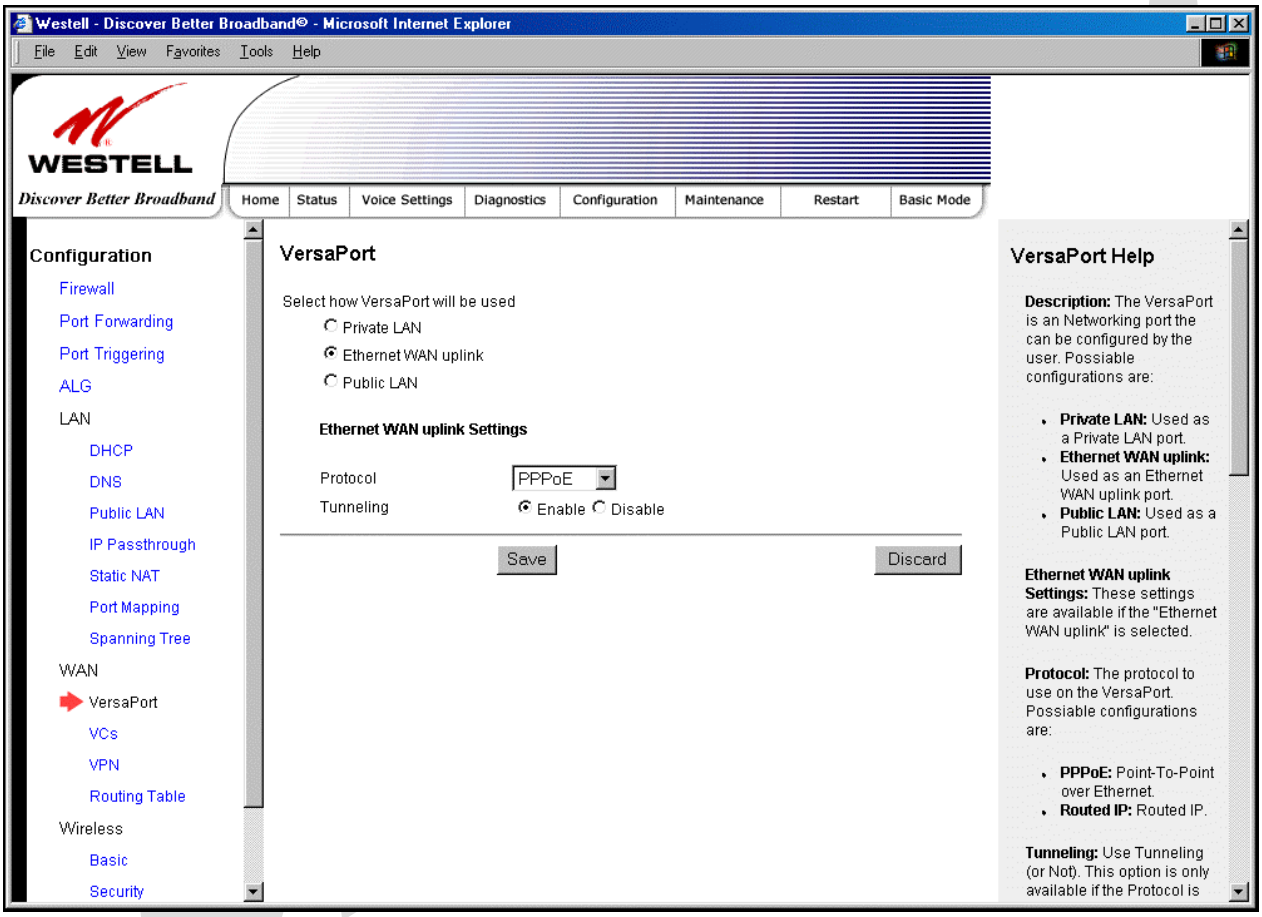
NOTE: When your Gateway is configured for Private LAN, the VERSAPORT™2 port functions as fifth Ethernet LAN port. Private LAN is the factory default configuration for the VersaPort screen.



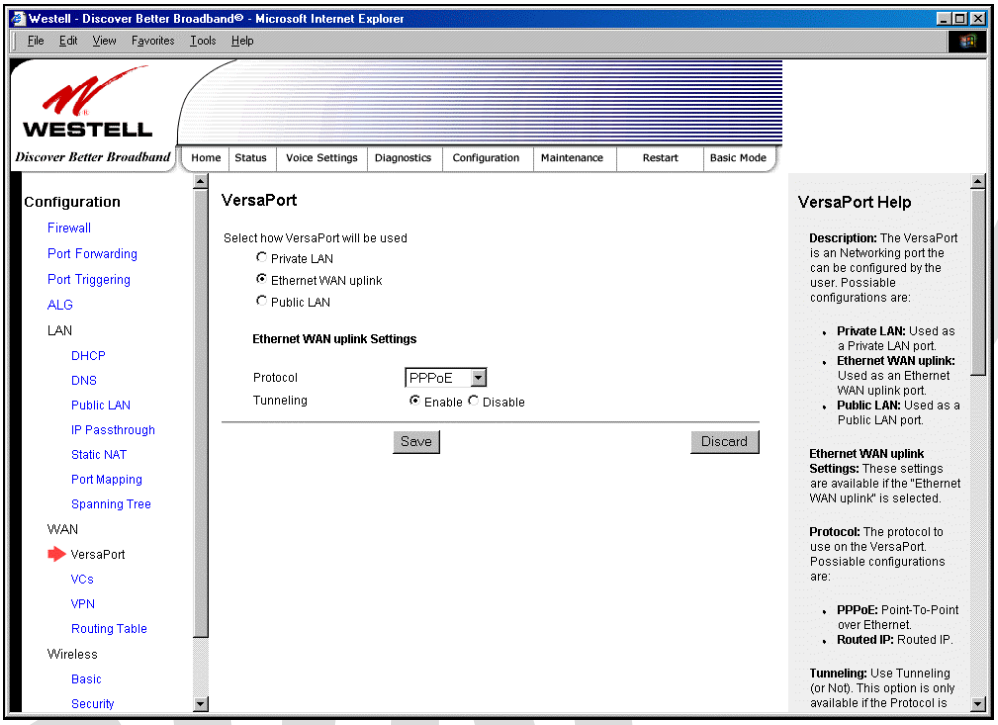
15.7.3 Ethernet WAN Uplink

If you select **Ethernet WAN Uplink** in the **VersaPort Configuration** screen, the following screen will be displayed.

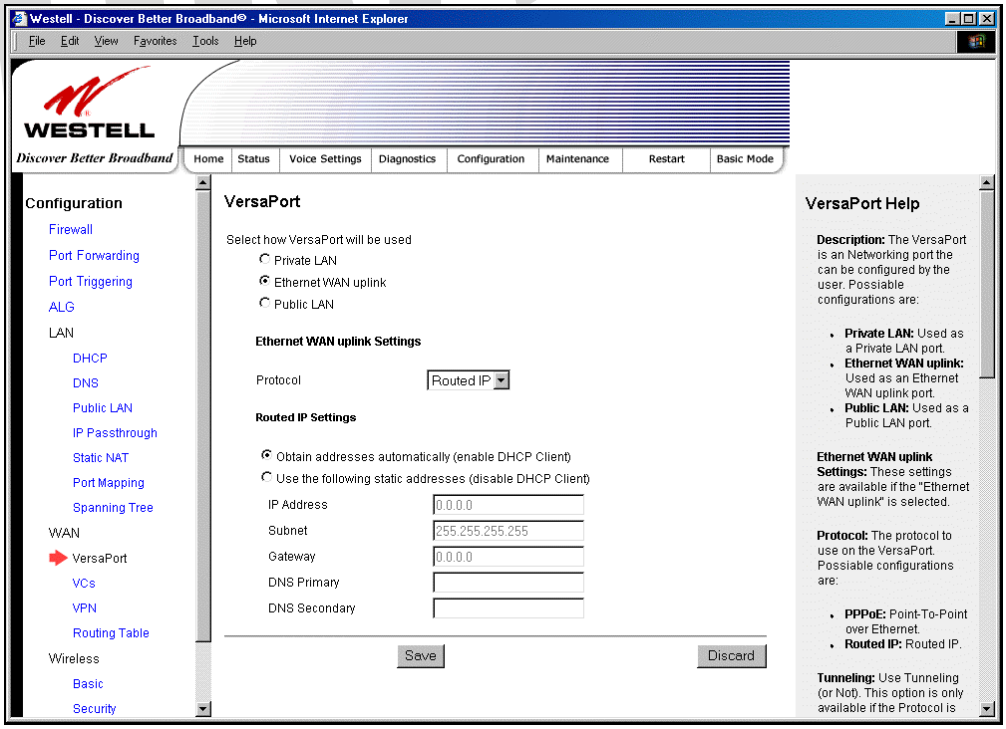
NOTE: Selecting **Ethernet WAN Uplink** will allow the Gateway's WAN interface to use the VERSAPORT™2 port. This will disable the Gateway's DSL transceiver.



If you select **PPPoE** as the protocol for your Ethernet WAN Uplink setting, the following screen will be displayed. Click **Save** to save your settings.



If you select **Routed IP** as the protocol for your Ethernet WAN Uplink setting, the following screen will be displayed. Enter the appropriate values in the fields provided, and then click **Save** to save your settings.

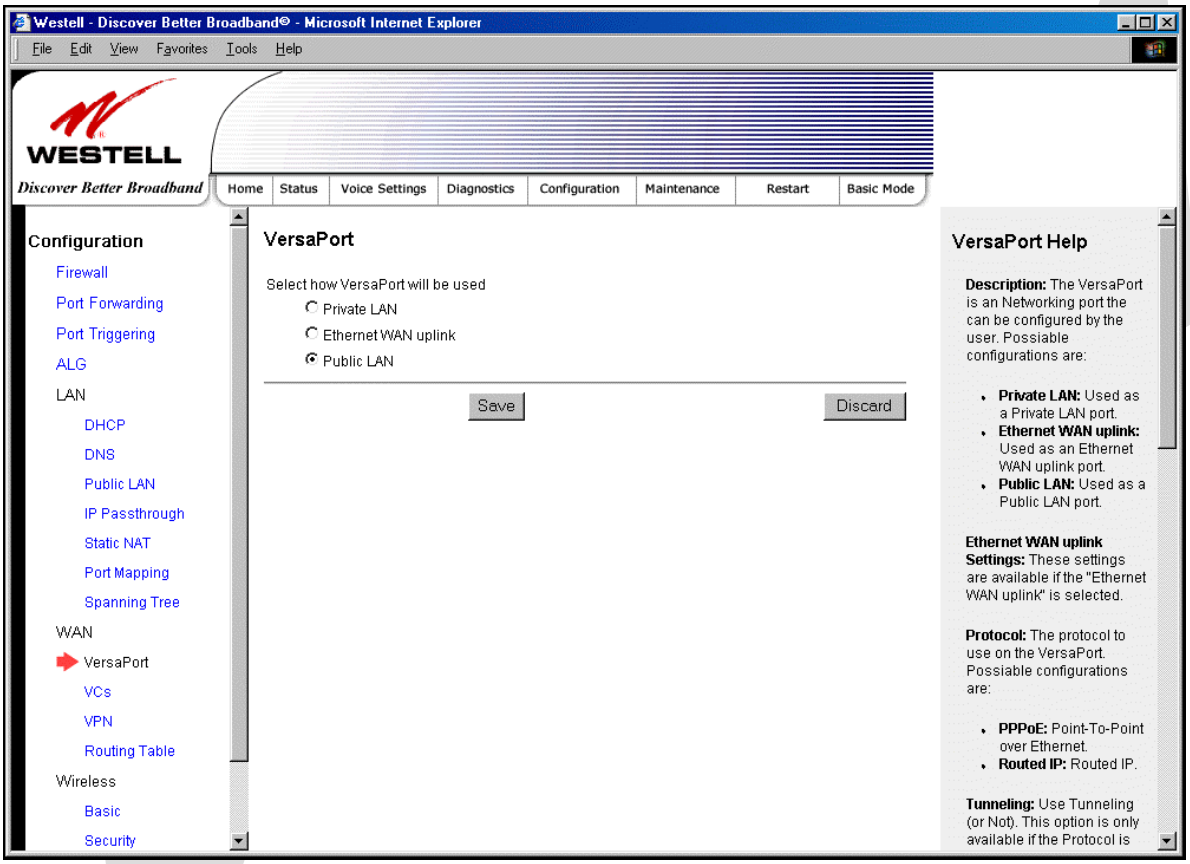


15.7.4 Public LAN – Multiple IP Address Passthrough

If you select **Public LAN** in the **VersaPort Configuration** screen, the following screen will be displayed.

NOTE: Selecting Public LAN will enable the VersaPort will function as a second Ethernet LAN port. When VersaPort is configured for Public LAN, the Gateway's DSL transceiver will be enabled.

Use the Public LAN configuration menu to configure the LAN settings.



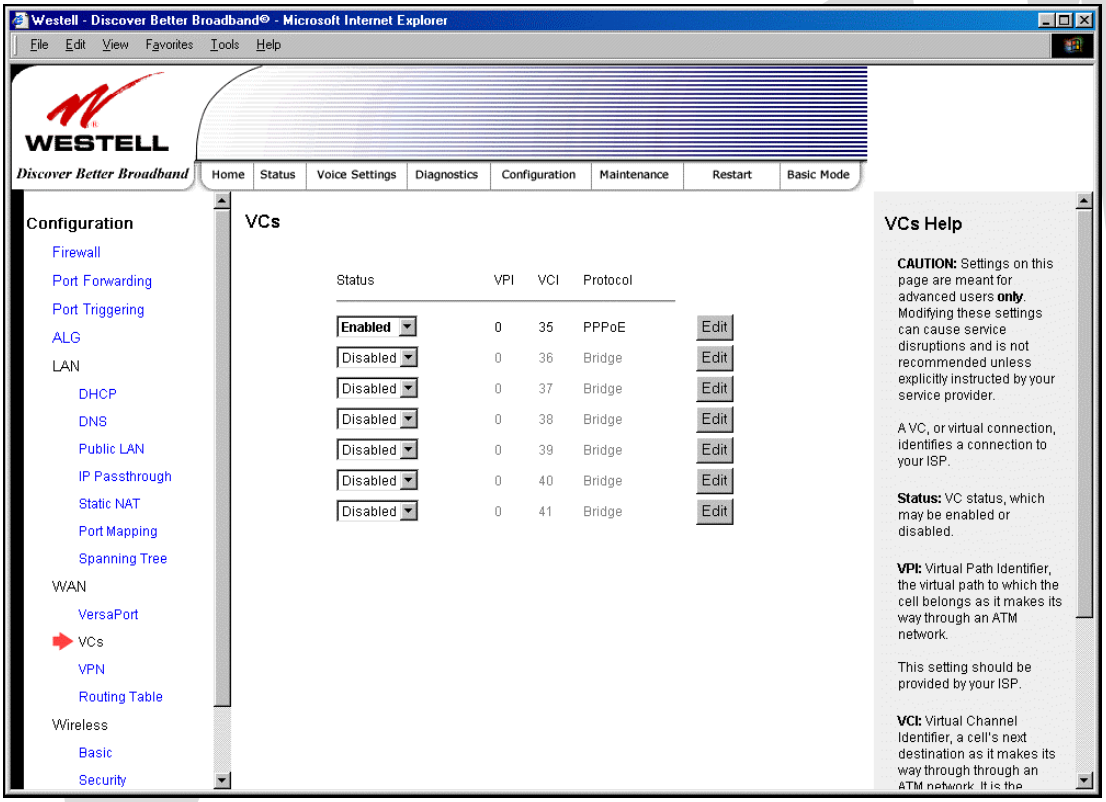
15.7.5 VCs

The following screen will be displayed if you select **WAN > VCs** from the **Configuration** screen.

NOTE: The VCs cannot be modified if the VersaPort™2 port is configured as the WAN port.

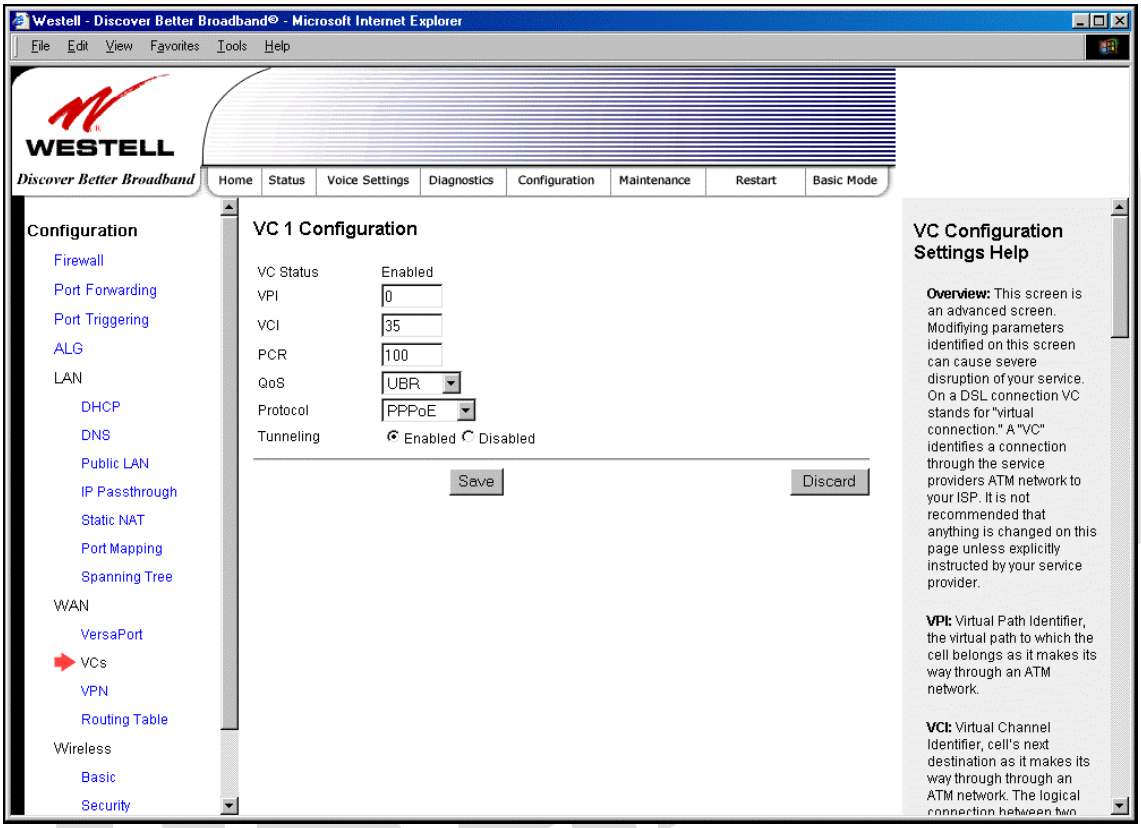
The **Edit** button enables you to change the VC configuration settings of the Gateway. Details on the **edit** button are explained later in this section.

NOTE: The actual information displayed in this screen may vary, depending on the network connection established.



Status	Allows you to enable or disable your VC (Virtual Connection)
VPI	Displays the VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider.
VCI	Displays the VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your Service Provider.
Protocol NOTE: The configuration specified by your Service Provider will determine which Protocols are available to you.	Displays the Protocol for each VC, which is specified by your Service Provider. Possible Response: PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode) PPPoE = Point to Point Protocol over Ethernet Bridge = Bridge Protocol Routed IP = IP over ATM

If you click **edit** in the **VCs Configuration** screen, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save your settings.

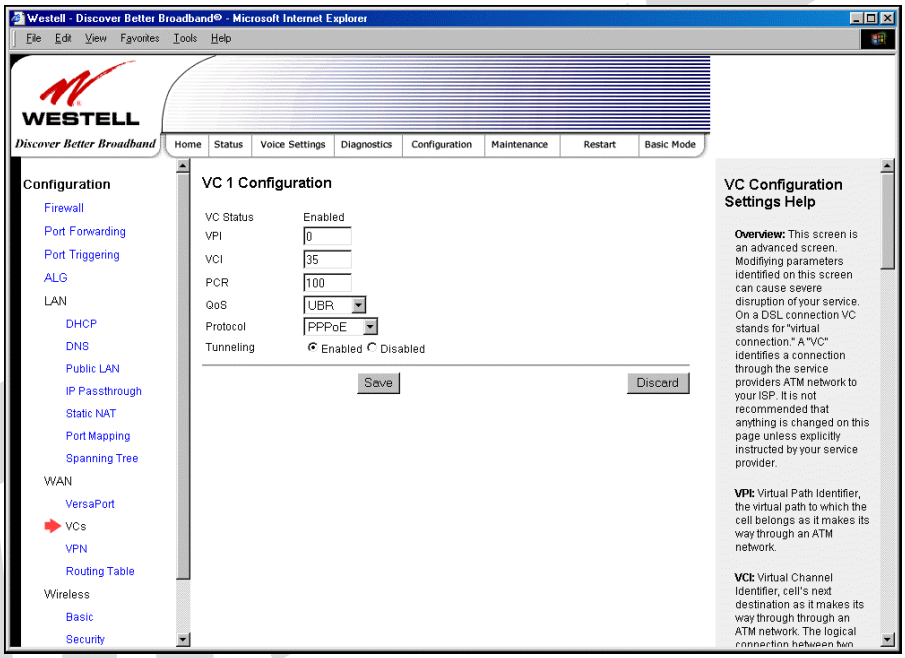


VC 1 Configuration	
VPI	This setting allows you to change your VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider.
VCI	This setting allows you to change your VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your Service Provider.
PCR	Factory Default = 100% Peak Cell Rate (PCR)-The maximum rate at which cells can be transmitted across a virtual circuit, specified in cells per second and defined by the interval between the transmission of the last bit of one cell and the first bit of the next. This value is a percentage of the current data rate. 100 allows this VC to use 100% of the available bandwidth. 80 allows this VC to use 80% of the available bandwidth.
QoS	Select the Quality of Service, which is determined by your Service Provider. Possible Responses: UBR = Unspecified Bit Rate CBR = Constant Bit Rate rt-VBR = real-time Variable Bit Rate nrt-VBR = non-real-time Variable Bit Rate
Protocol	The Protocol for each VC, which is specified by your Service Provider. Possible Responses: PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode) PPPoE = Point to Point Protocol over Ethernet Bridge = Bridge Protocol

	Routed IP = IP over ATM
Tunneling	Factory Default = Enable If Enabled, this option enables PPP traffic from the LAN to be bridged to the WAN. This feature enables you to use a PPPoE shim on the host computer to connect to the Internet service provider, by bypassing the Gateway's capability to do this. Note: Tunneling is available in PPPoE mode only.

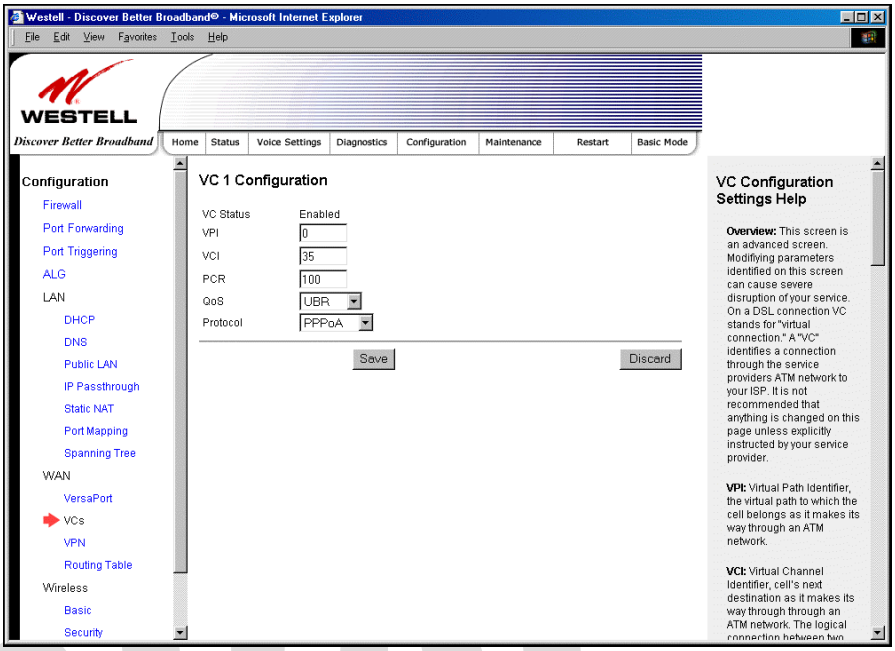
15.7.5.1 Configuring WAN VC Protocol for PPPoE mode

To configure the WAN VC Protocol for PPPoE mode, select **PPPoE** from the **Protocol** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save your settings.



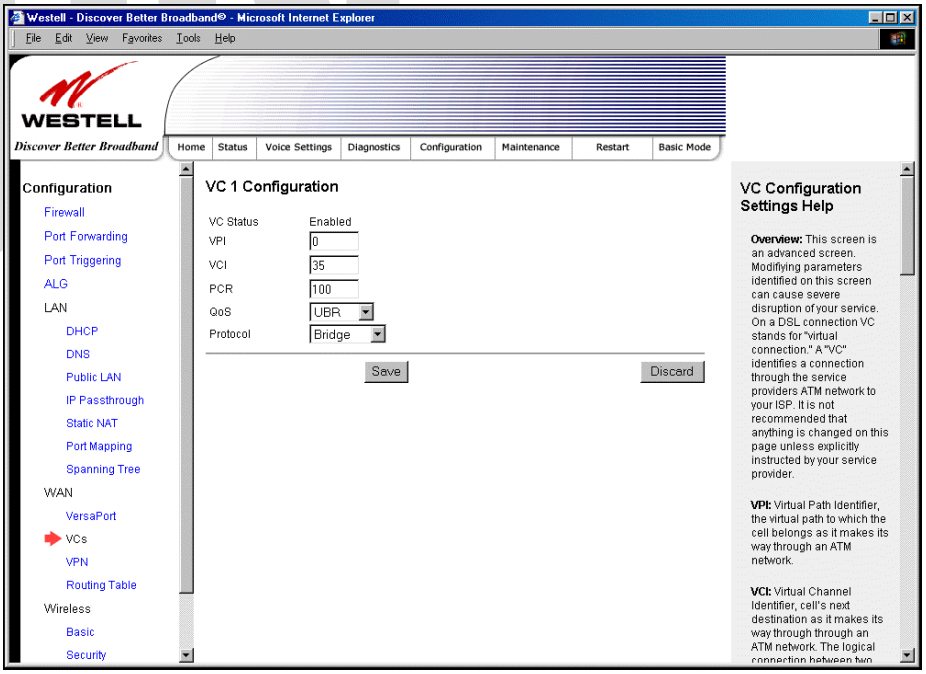
15.7.5.2 Configuring WAN VC Protocol for PPPoA mode

To configure the WAN VC Protocol for PPPoA mode, select **PPPoA** from the **Protocol** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save your settings.



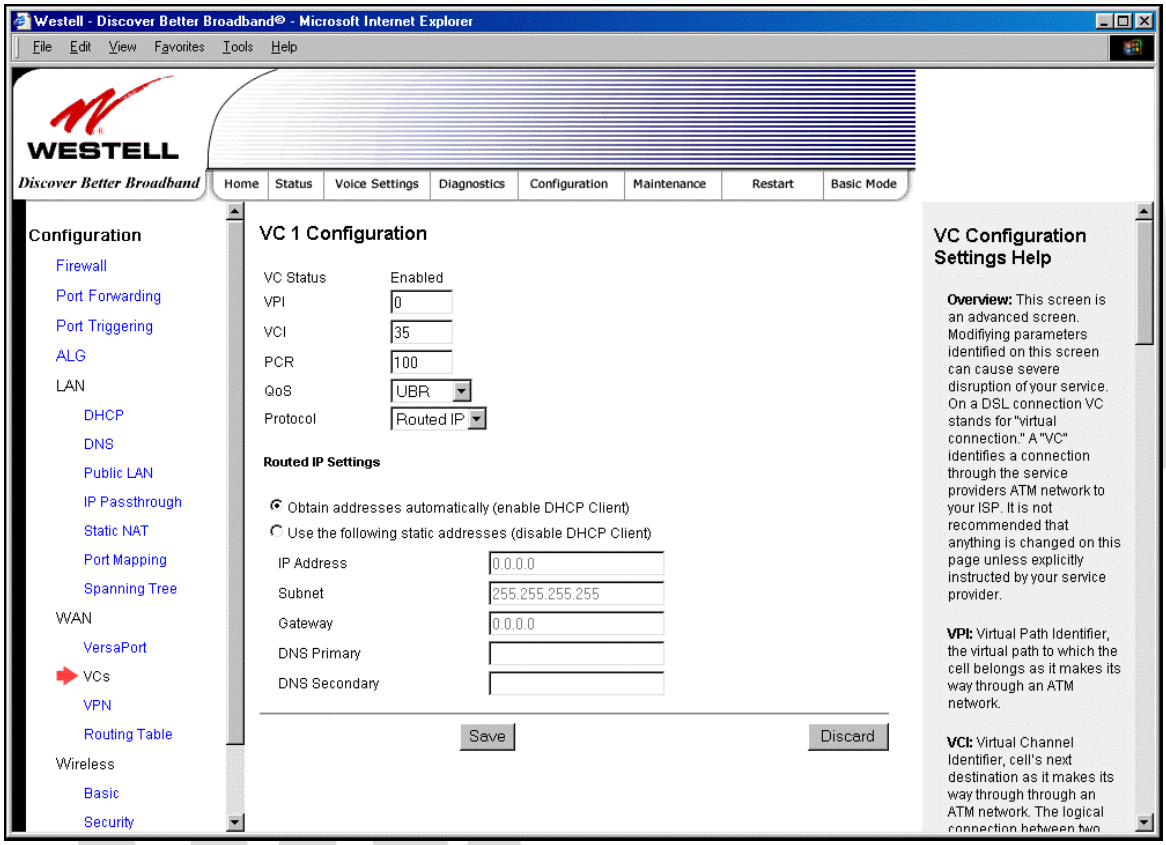
15.7.5.3 Configuring WAN VC Protocol for Bridge mode - (MAC Bridge)

To configure the WAN VC Protocol for Bridge mode, select **Bridge** from the **Protocol** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save your settings.



15.7.5.4 Configuring WAN VC Protocol for Routed IP mode

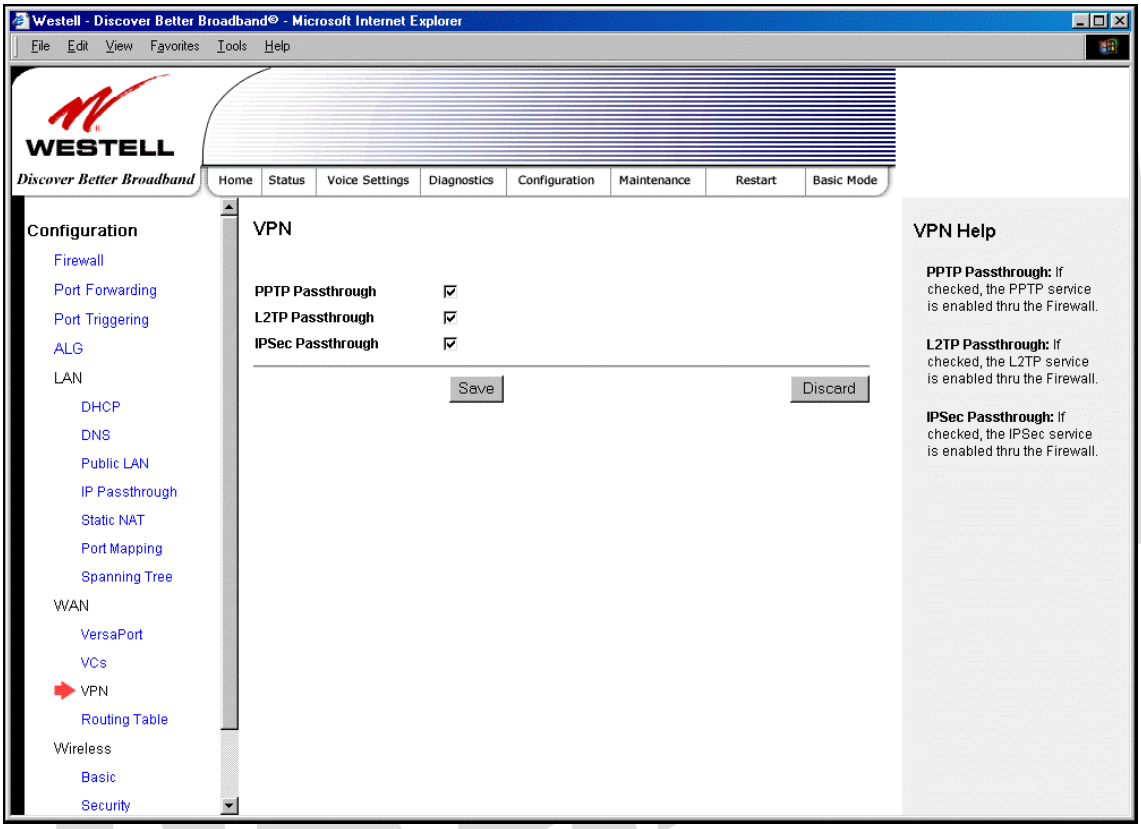
If you select **Routed IP** from the **Protocol** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save your settings.



VC 1 Routed IP Settings	
DHCP Client	Factory Default = Enable If enabled the router will obtain its IP address, gateway address and DNS server address automatically from the network. If disabled you must manually enter the information. Possible Response: Select Enable to activate the DHCP client. Select Disable to deactivate the DHCP client.
IP Address	Displays the Gateway's IP network address.
Subnet	Displays the Gateway's subnet mask settings.
Gateway	Displays the Gateway's IP gateway address
DNS Primary	Displays the IP address of primary Domain Name Service (DNS) server your router is using.
DNS Secondary	Displays the IP address of secondary DNS server your router is using.

15.7.6 VPN

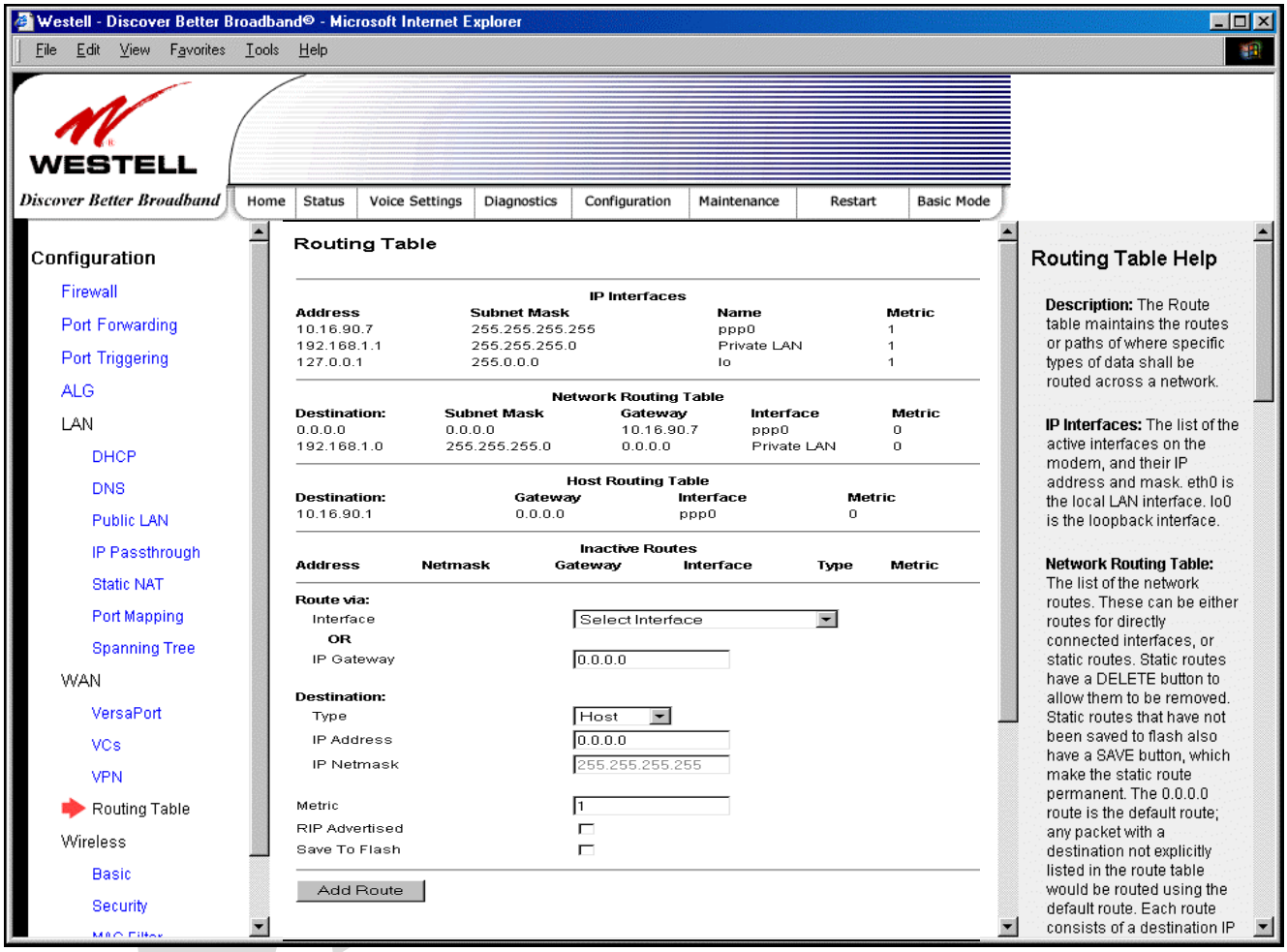
The following settings will be displayed if you select WAN > VPN from the Configuration menu. Enter the appropriate values, and then click Save to save your settings.



PPTP Passthrough	Factory Default = Enabled If enabled (a check mark will appear in the box), PPTP will work through the Gateway's NAT function.
L2TP Passthrough	Factory Default = Enabled If enabled, IPSec using ESP and L2TP can be supported via an ALG.
IPSec Passthrough	Factory Default = Enabled If enabled, IPSec using ESP can be supported via an ALG. IPSec using AH cannot be supported through NAT.

15.7.7 Routing Table

The following settings will be displayed if you select **WAN > Routing Table** from the **Configuration** menu. To add a route to the Network Routing Table, enter the appropriate values, and then click **Add Route.**



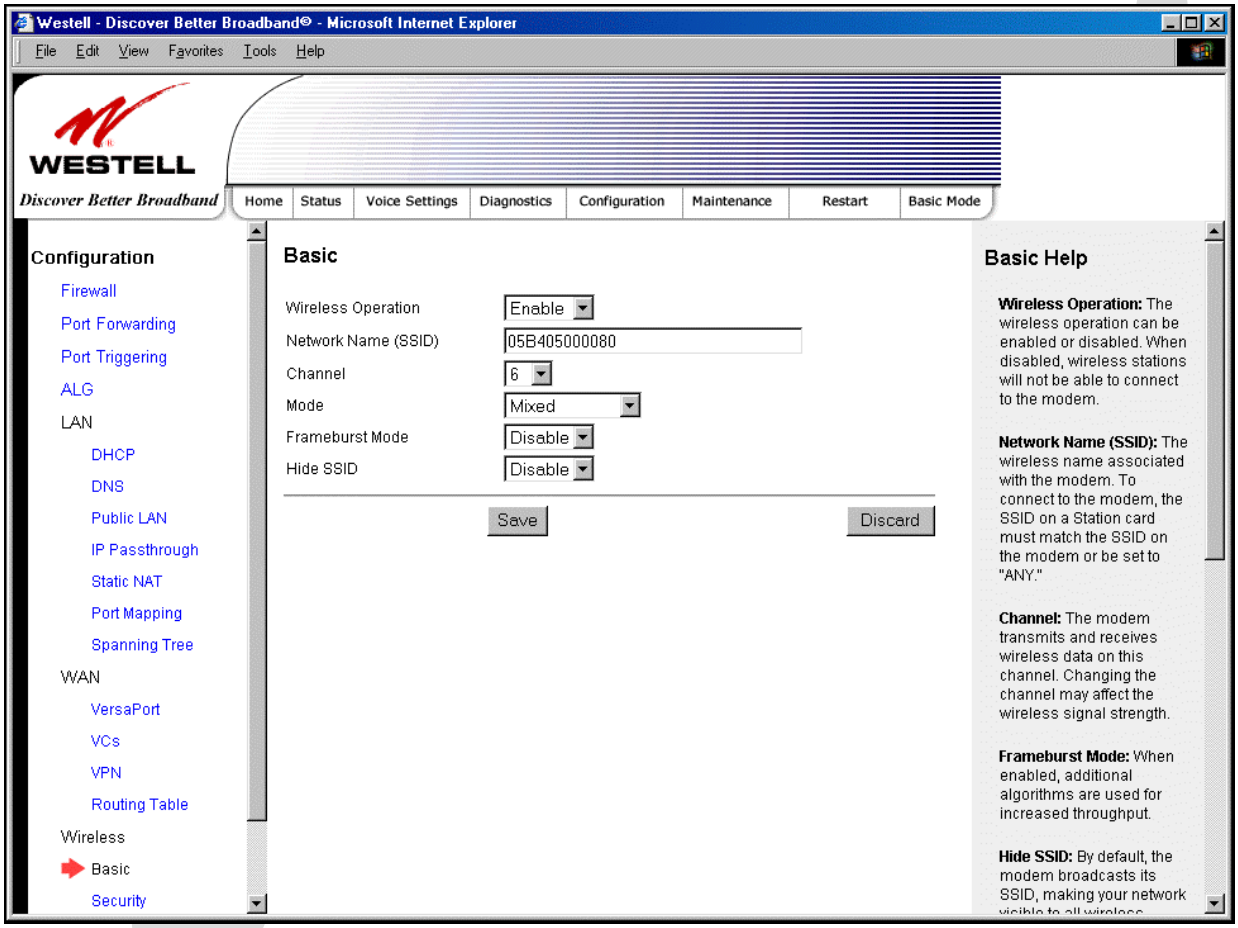
IP Interfaces	
The list of active interfaces on the modem, their IP addresses and subnet masks.	
Address	The IP interface address of the interface.
Subnet Mask	The subnet mask of the interface.
Name	The name assigned to the interface. Possible names are: ppp0 – The WAN interface when the router is in PPPoE or PPPoA mode. DSLVC1 – The WAN interface when the router is in DSL Routed IP mode. VersaPort – The WAN interface when the router is in uplink Routed IP mode. Private LAN – The main Ethernet interface. Public LAN – The second Ethernet interface. l0 – The local loopback interface.
Metric	The numeric value assigned to this interface used to calculate the best route to a destination address.
Networking Routing Table	
The list of the network routes. These can be either routes for directly connected networks, or static routes that have been entered.	

Destination	The IP subnet of the destination network.
Subnet Mask	The subnet mask of the destination network.
Gateway	The IP address of the default gateway for this route.
Interface	Indicates the name of the router's interface to use for this route.
Metric	The numeric value assigned to this route, used to calculate the best route to a destination network.
Host Routing Table	
The list of host routes. A host route is an IP route with a 32-bit mask.	
Destination	The IP address of the destination host.
Gateway	The IP address of the default gateway for this route.
Interface	Indicates the name of the router's interface to use for this route.
Metric	The numeric value assigned to this route, used to calculate the best route to a destination network.
Inactive Routes	
The list of routes whose interface is currently not in service.	
Address	The IP address of the destination network.
Netmask	The subnet mask of the destination network.
Gateway	The IP address of the default gateway for this route.
Interface	The name of the router's interface associated with this route.
Type	Indicates if this route is a network route, a host route, or a default route.
Metric	The numeric value assigned to this route used to calculate the best route to a destination network.
The following sections allow you to add static routes to the gateway's routing table.	
Route Via	
Allows you to specify either the interface or the default gateway that the router should use for this static route. If an interface is not specified, the correct interface will be automatically chosen, based on the gateway addresses.	
Interface	Select the interface that will be used for this static route. If you enter an interface, you cannot specify a default gateway.
IP Gateway	Enter the IP address of the default gateway used for this static route. The specified gateway must be reachable; this means that the modem must have a route to the gateway. You must specify either an interface or a gateway for each static route.
Destination	
Allows you to specify the destination network or host.	
Type	Factory Default = Host Possible Response: Host – The static route maps to a single IP host. Network – The static route maps to a network. Default – The static route maps to a default route.
IP Address	The IP subnet of the destination network or host.
IP Netmask	The subnet mask of the destination network. If the route type was a host, a 32-bit subnet mask will be automatically populated.
Metric	The numeric value assigned to this route, used to calculate the best route to a destination network.
RIP Advertised	This determines whether or not to advertise the static route using RIP. (RIP must also be enabled before the route will be advertised.) If Enabled (box is checked), RIP Advertised will be activated. If Disabled, RIP Advertised will not be activated.
Save to Flash	If Enabled (box is checked), the route will be made permanent by saving it to flash memory. If Disabled, the route will disappear the next time the modem restarts.
Add Route	This button enables you to add a new static route in the modem. Note: When adding a route, you may need to reload the page for the route to appear in the "active" Routes.

15.8 Wireless Configuration

15.8.1 Basic

The following settings will be displayed if you select **Wireless > Basic** from the **Configuration** menu. Enter the appropriate values, and then click **Save** to save your settings.



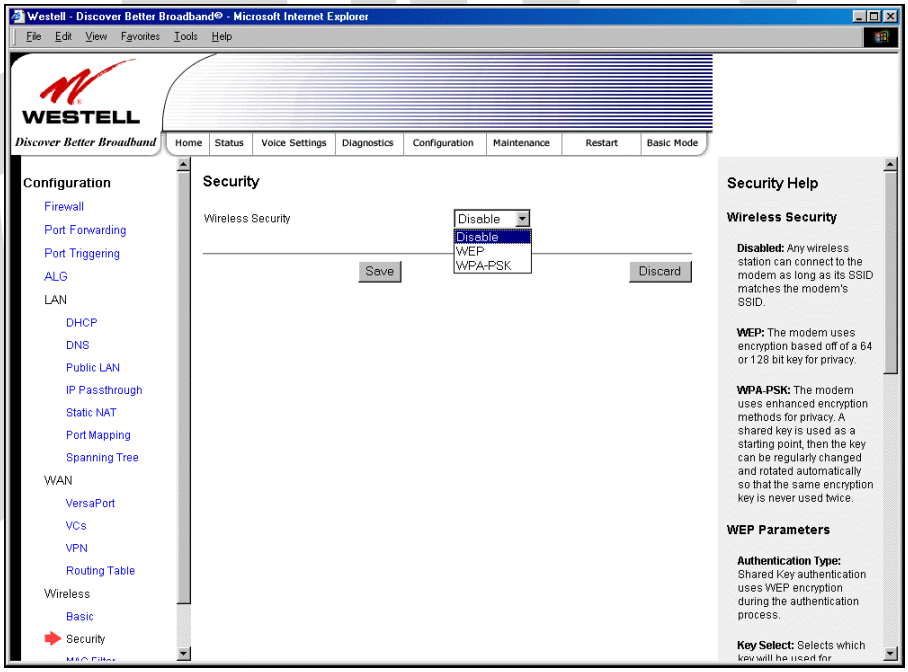
Wireless Basic Configuration	
Wireless Operation	Factory Default = Enabled When disabled, no wireless stations will be able to connect to the Gateway.
Network Name (SSID)	This string (32 characters or less) is the name associated with the AP. To connect to the AP, the SSID on a Station card must match the SSID on the AP card or be set to “ANY.”
Channel	Factory Default = 6 The AP transmits and receives data on this channel. The number of channels to choose from is pre-programmed into the AP card. Station cards do not have to be set to the same channel as the AP; the Stations scan all channels and look for an AP to connect to. Possible Response: 1 through 11
Mode	Factory Default = Mixed This setting allows station to communicate with the Gateway. Possible Response: Mixed: Station using any of the 802.11b, 802.11b+, and 802.11g rates can communicate with the Gateway.

	Legacy Mixed: Same as Mixed, but also allows older 802.11b cards to communicate with the Gateway. 11b only: Communication with the Gateway is limited to 802.11b 11g only: Communication with the Gateway is limited to 802.11g
Frameburst Mode	Factory Default = Disable If enabled, additional algorithms are used for increased throughput.
Hide SSID	Factory Default = Disable If enabled, the Gateway will not broadcast the SSID. To connect to the Gateway, each Station must configure its SSIDs so that it matches the Gateway's Network Name (SSID).

15.8.2 Wireless Security

The following screen will be displayed if you select **Wireless > Security** from the **Configuration** menu. Select the desired security option from the **Wireless Security** drop-down menu. After you configured your wireless security settings, click **Save** to save the settings.

IMPORTANT: Client PCs can use any Wireless Fidelity (Wi-Fi) 802.11b/g/g+ certified card to communicate with the Gateway. The Wireless card and Gateway must use the same security code type. **If you use WPA-PSK or WEP wireless security, you must configure your computer's wireless adapter for the security code that you use. You can access the settings in the advanced properties of the wireless network adapter.**

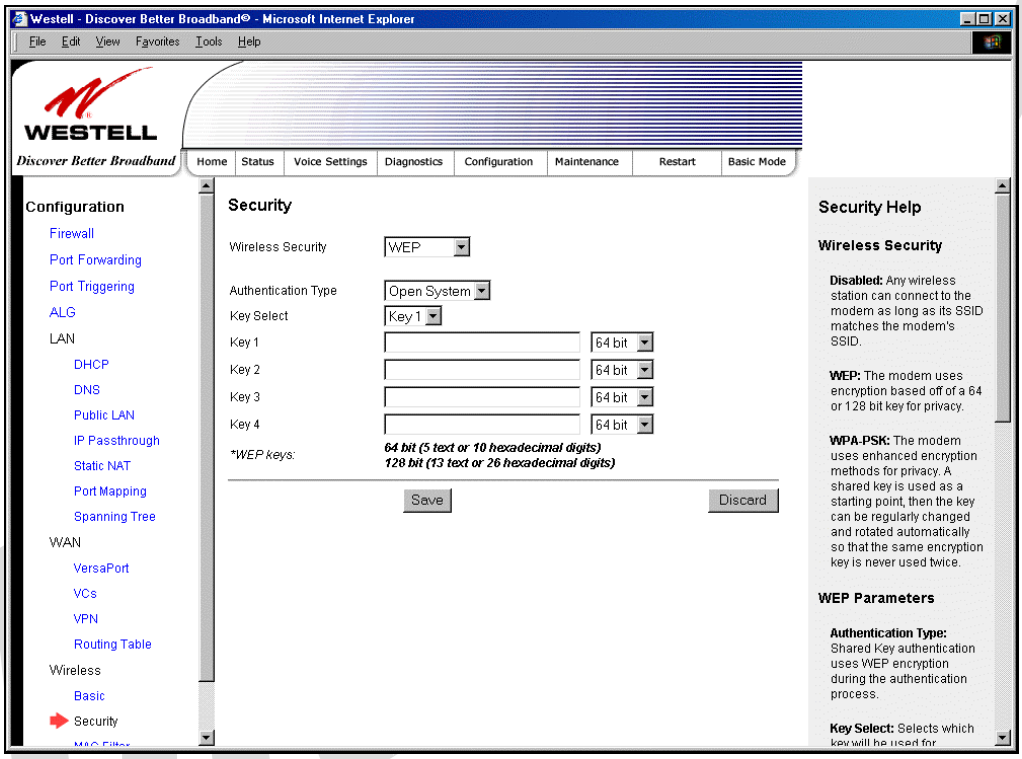


Wireless Security	
Disable	Factory Default = Disable If Disable is selected, wireless security will not be activated on your Gateway.
WEP	Selecting WEP enables you set up Wired Equivalent Privacy (WEP) on your Gateway. WEP uses encryption based on a 64- or 128-bit key for privacy.
WPA-PSK	Selecting WPA-PSK enables you set up Wi-Fi Protected Access-Pre-Shared Key on your Gateway. WPA-PSK uses enhanced encryption methods for privacy. A shared key is used as a starting point, and then the key can be regularly changed and rotated automatically so that the same encryption key is never used twice.

15.8.2.1 Enabling WEP Security

If you select **WEP** from the **Wireless Security** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save the settings.

NOTE: The WEP key must be 64 bit (5 text characters or 10 hexadecimal digits in length) or 128 bit (13 text characters or 26 hexadecimal digits in length).

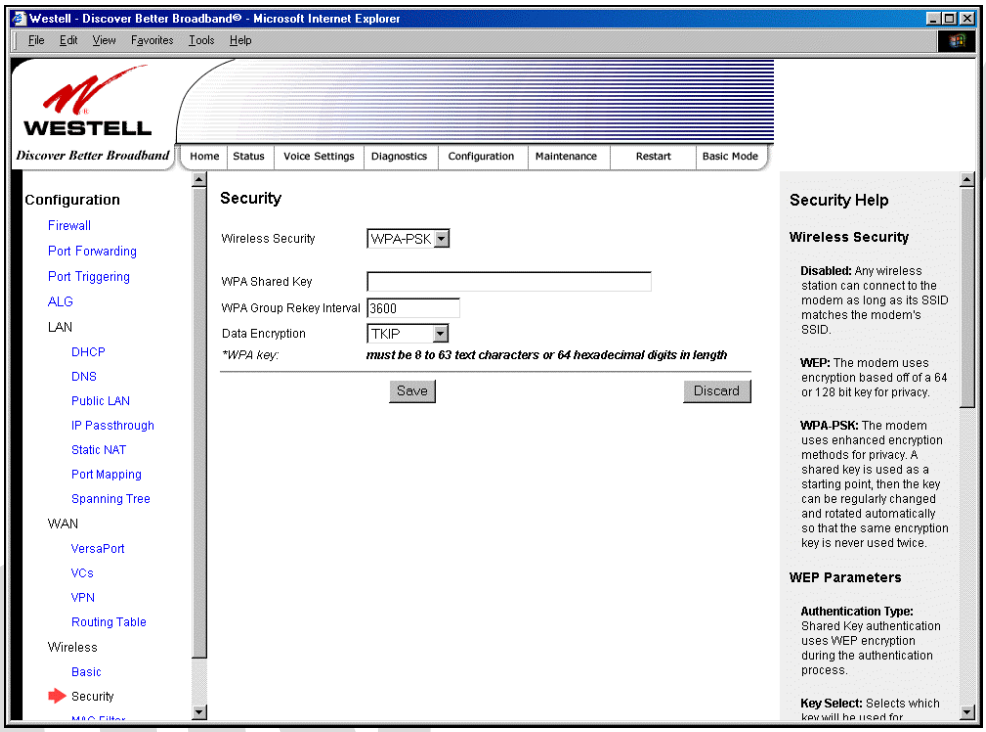


Wireless Security (WEP)	
Wireless Security	WEP has been selected.
Authentication Type	Factory Default = Open System Possible Response: Open System: Open System authentication allows any station to associate with the wireless network but only stations with the valid WEP key can send or receive data from the router. Open System authentication is considered to be more secure than Shared Key authentication. Shared Key: Shared Key authentication requires the station to authenticate with the router using the WEP key before it can associate with the wireless network.
Key Select	Factory Default = Key 1 Selects which WEP key the router should use. Note: The WEP key must be the same value and type for both the Gateway and the wireless network adapter.
Key 1 To Key 4	Select the length of the WEP key from the pull down menu and enter key WEP Key in the box. A 64-bit key must be either 5 text characters or 10 hexadecimal characters. A 128-bit key must be 13 text characters or 26 hexadecimal characters. The only allowable hexadecimal characters are 0-9 and A-F. Note: The WEP key must be the same value and type for both the Gateway and the wireless network adapter.

15.8.2.2 Enabling WPA-PSK Security

If you select **WPA-PSK** from the **Wireless Security** drop-down menu, the following screen will be displayed. Enter the appropriate values, and then click **Save** to save the settings.

NOTE: The WPA key must be 8 to 63 characters or 64 hexadecimal digits in length.



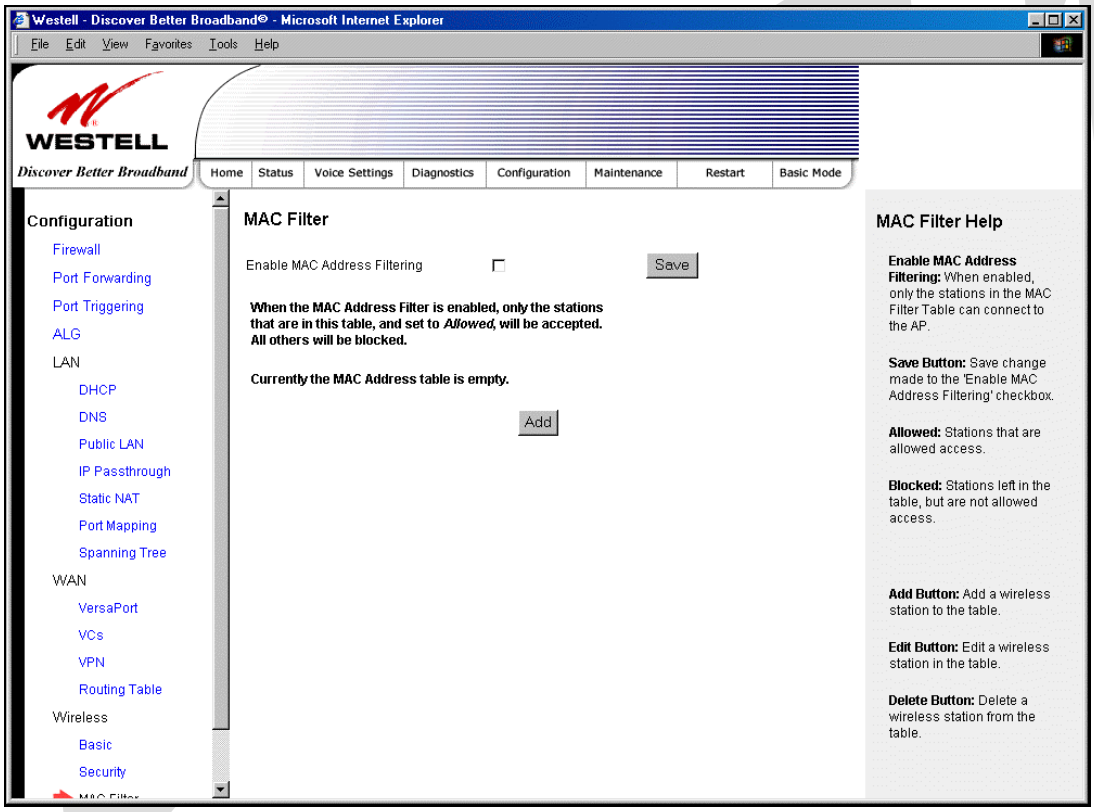
Wireless Security (WPA-PSK)	
Wireless Security	WPA-PSK has been selected.
WPA Shared Key	This is a passphrase (also called a shared secret) that must be entered in both the wireless router and the wireless client. This shared secret can be between 8 to 63 text characters and can include special characters and spaces. The more random your WPA Shared Key, the more secure it is.
WPA Group Rekey Interval	Factory Default = 3600 The number of seconds between rekeying the WPA group key. Zero “0” means that rekeying is disabled.
Data Encryption	Factory Default = TKIP Possible Response: TKIP- Selecting this option enables the Temporal Key Integrity Protocol for data encryption. AES- Selecting this option enables the Advanced Encryption Standard for data encryption. TKIP/AES- Selecting this option enables the Gateway to accept either TKIP or AES encryption

15.8.3 MAC Filter

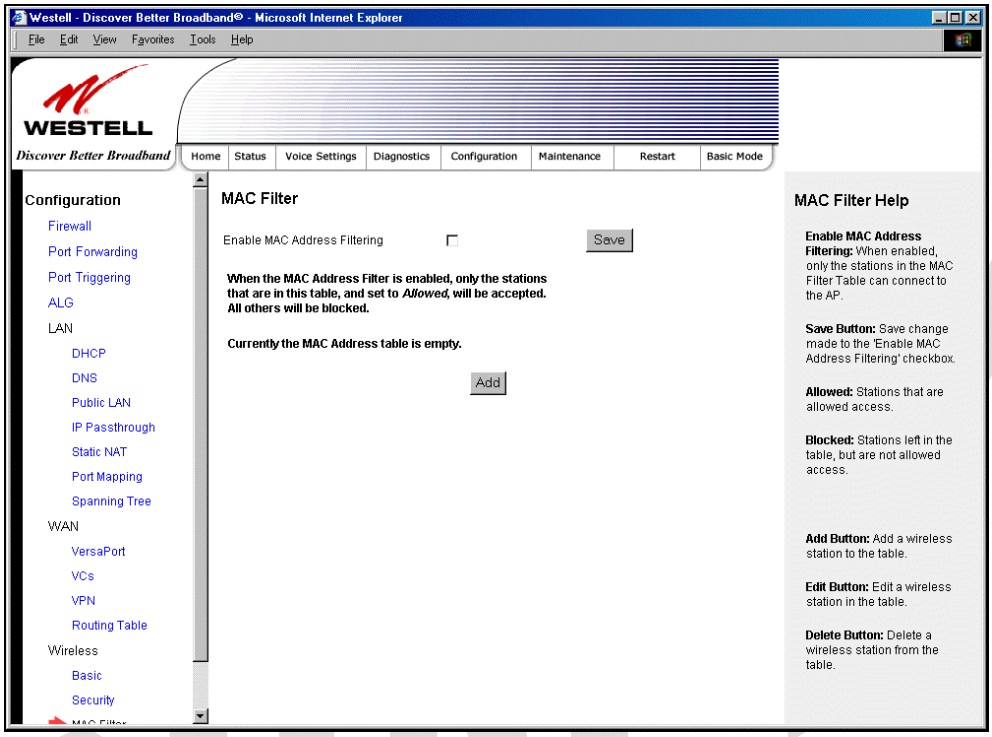
The following settings will be displayed if you select **Wireless > MAC Filter** from the **Configuration** menu. This screen enables you to configure the MAC filter settings for your Gateway.

After you have finished adding, editing or deleting MAC addresses from the MAC Filter table (as explained in the following paragraphs), click the box adjacent to **Enable MAC Address Filtering** (a check mark will appear in the box), and then click **Save** to save your settings.

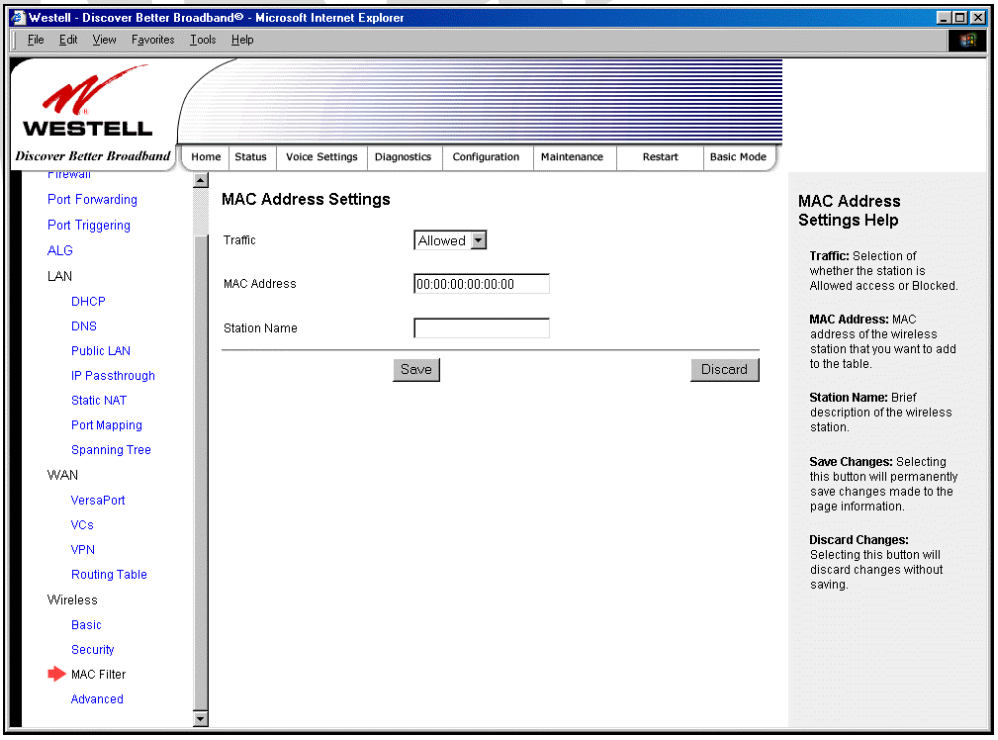
NOTE: When the MAC address Filter is enabled (box is checked), only the stations that are in the MAC Filter table and that are set to ***Allowed*** will be accepted by the Gateway. All other stations will be blocked.



To add stations to the MAC Address table, click the **add** button.



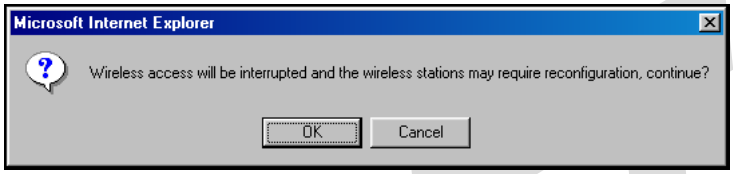
If you clicked **add,** the following screen will be displayed. Enter the appropriate values in the fields provided, and then click **Save** to save your settings.



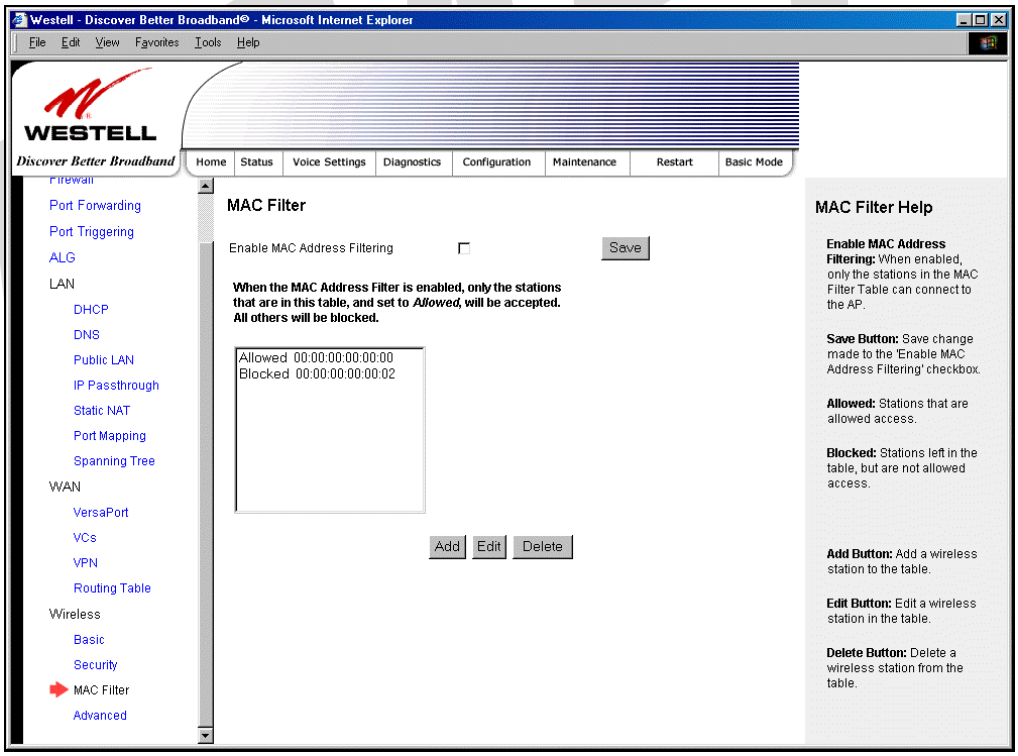
MAC Address Settings	
Traffic	Factory Default = Allowed If Blocked is selected, the station will be blocked (it cannot access the Gateway).
MAC Address	Factory Default = 00:00:00:00:00:00 The MAC address of the wireless station you want to add.
Station Name	The name of the wireless station you want to add.

If you clicked **Save**, the following pop-up screen will be displayed. Click **OK** to continue.

NOTE: Wireless access will be interrupted and the wireless stations may require reconfiguration.



If you clicked **OK,** in the preceding pop-up screen, the following screen will be displayed. The screen displays the list of MAC addresses added to the **MAC Address Filter Table.** You may now **add, edit,** or **delete** MAC addresses from the table by clicking on the desired MAC address (displayed in the window) and then by clicking either **Add, Edit,** or **Delete**. Next, click **OK** in the pop-up screen.

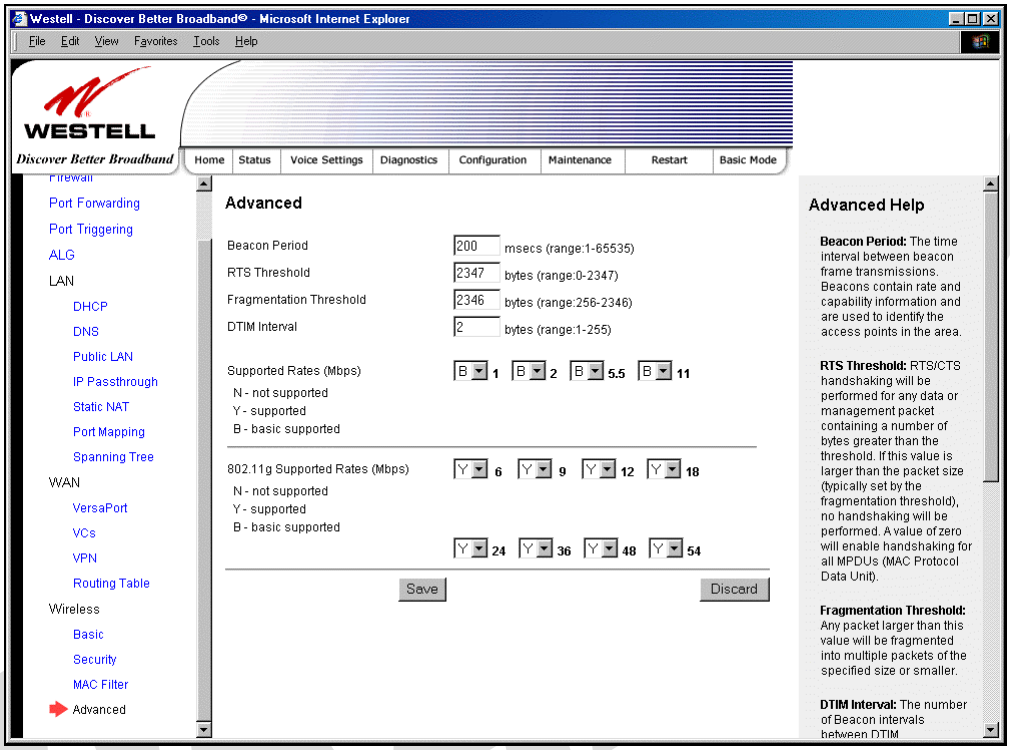


After you have finished adding, editing or deleting MAC addresses in the MAC Filter table, click the box adjacent to **Enable MAC Address Filtering** (a check mark will appear in the box). Click **Save** to save your settings.

NOTE: When the MAC address Filter is enabled (box is checked), only the stations that are in MAC Filter table and that are set to ***Allowed*** will be accepted by the Gateway. All other stations will be blocked.

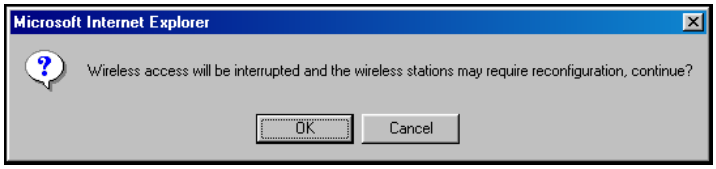
15.8.4 Advanced Wireless Settings

The following settings will be displayed if you select **Wireless > Advanced** from the **Configuration** menu. Enter the appropriate values, and then click **Save** to save the settings.



Wireless Advanced Configuration	
Beacon Period	The time interval between beacon frame transmissions. Beacons contain rate and capability information. Beacons received by stations can be used to identify the access points in the area.
RTS Threshold	RTS/CTS handshaking will be performed for any data or management MPDU containing a number of bytes greater than the threshold. If this value is larger than the MSDU size (typically set by the fragmentation threshold), no handshaking will be performed. A value of zero will enable handshaking for all MPDUs.
Fragmented Threshold	Any MSDU or MPDU larger than this value will be fragmented into an MPDU of the specified size.
DTIM Interval	The number of Beacon intervals between DTIM transmissions. Multicast and broadcast frames are delivered after every DTIM.
Supported Rates 802.11b Rates (Mbps) 802.11g Rates (Mbps)	These are the allowable communication rates that the Gateway will attempt to use. The rates are also broadcast within the connection protocol as the rates supported by the Gateway.

If you clicked **Save**, the following pop-up screen will be displayed. Click **OK** to continue.

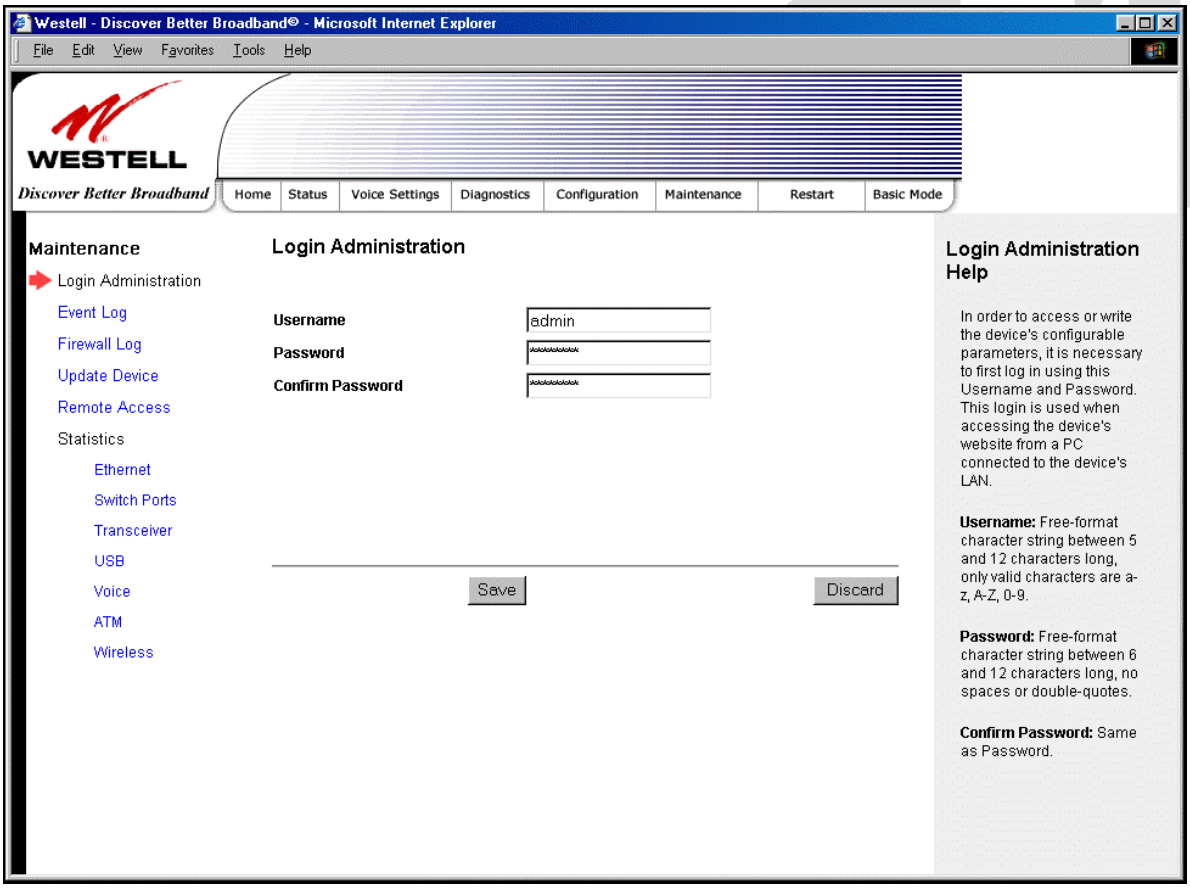


16. MAINTENANCE

16.1 Login Administration

The following screen will be displayed if you select **Login Administration** from the **Maintenance** menu. Enter the appropriate values, and then click **Save** to save the settings.

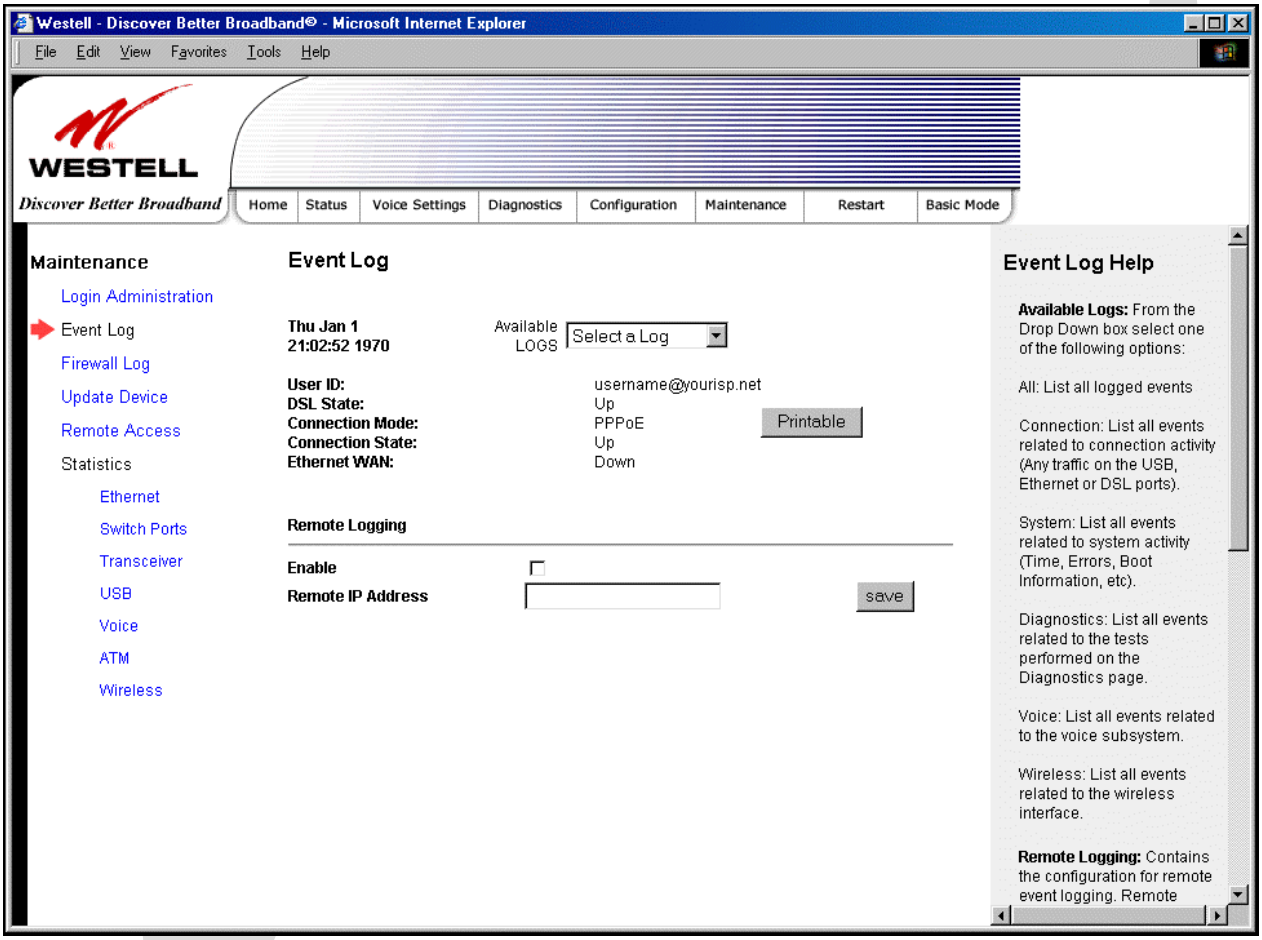
NOTE: Password must be at least 6 characters and must not exceed 12 characters long. Alphanumeric values are permitted. The **Password** and **Confirm Password** fields are masked with "*" for security measures.



Login Administration	
Username	The administrator's username. This is a free-format character string between 5 and 12 characters long, no spaces.
Password	The administrator's password. This is a free-format character string between 6 and 12 characters long, no spaces.
Confirm Password	The identical value that was entered in the password field.

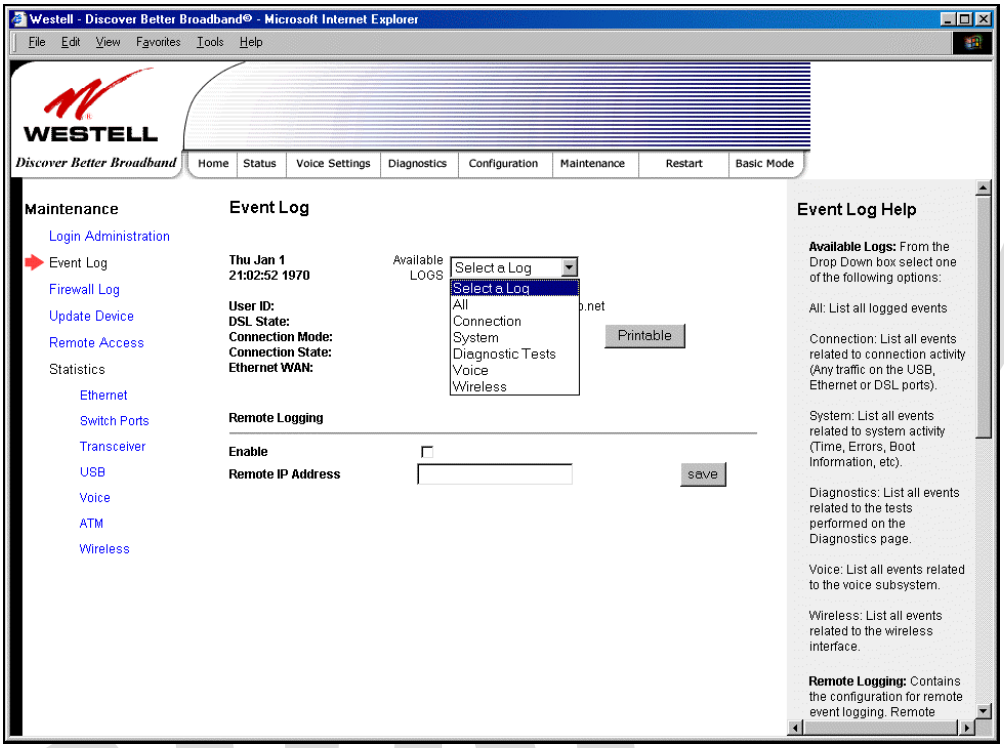
16.2 Event Log

The following screen will be displayed if you select **Event Log** from the **Maintenance** menu. The Remote Logging function enables event logs to be sent to a machine running a syslog server. To enable Remote Logging, click the box adjacent to **Enable** (a check mark will appear in the box) and then enter an IP address in the **Remote IP Address** field. Click **Save** to save your settings.

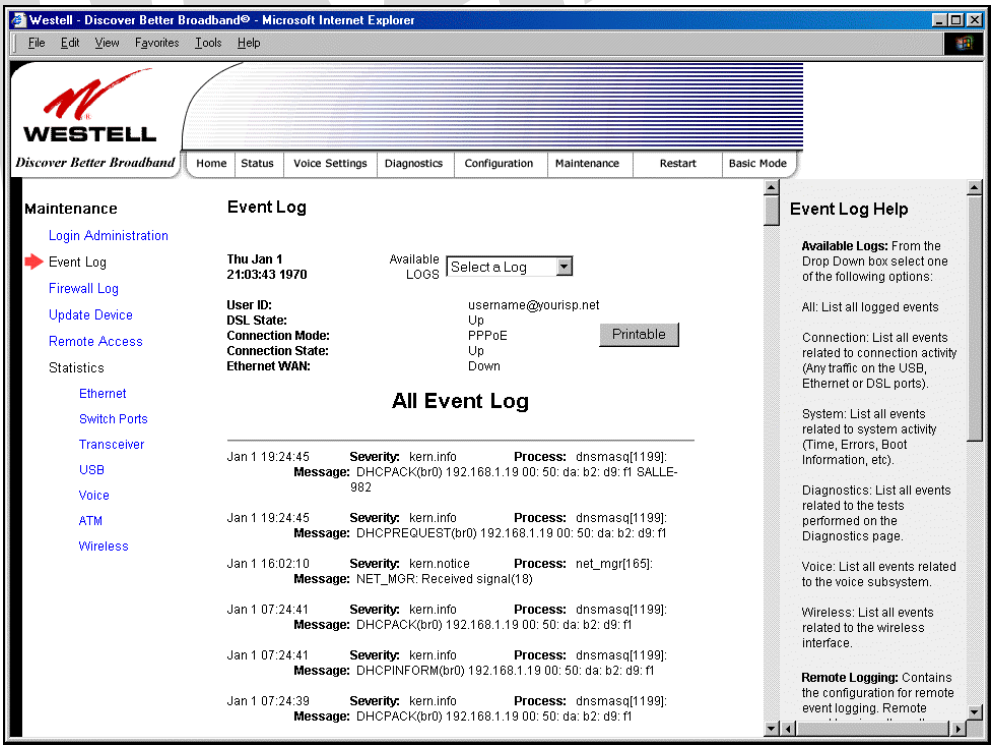


Event Log	
User ID	The name of your connection.
DSL State	The state of the DSL connection.
Connection Mode	The mode of connection used to connect to your ISP.
Connection State	The state of the PPP connection.
Ethernet WAN	The state of the Ethernet WAN connection.
Remote Logging	
Enable	Enables remote logging of Event Logs
Remote IP Address	The IP address of the syslog server machine on the local area network to which the Event Logs are sent.

To view logged events, select an option from the **Available LOGS** drop-down menu.

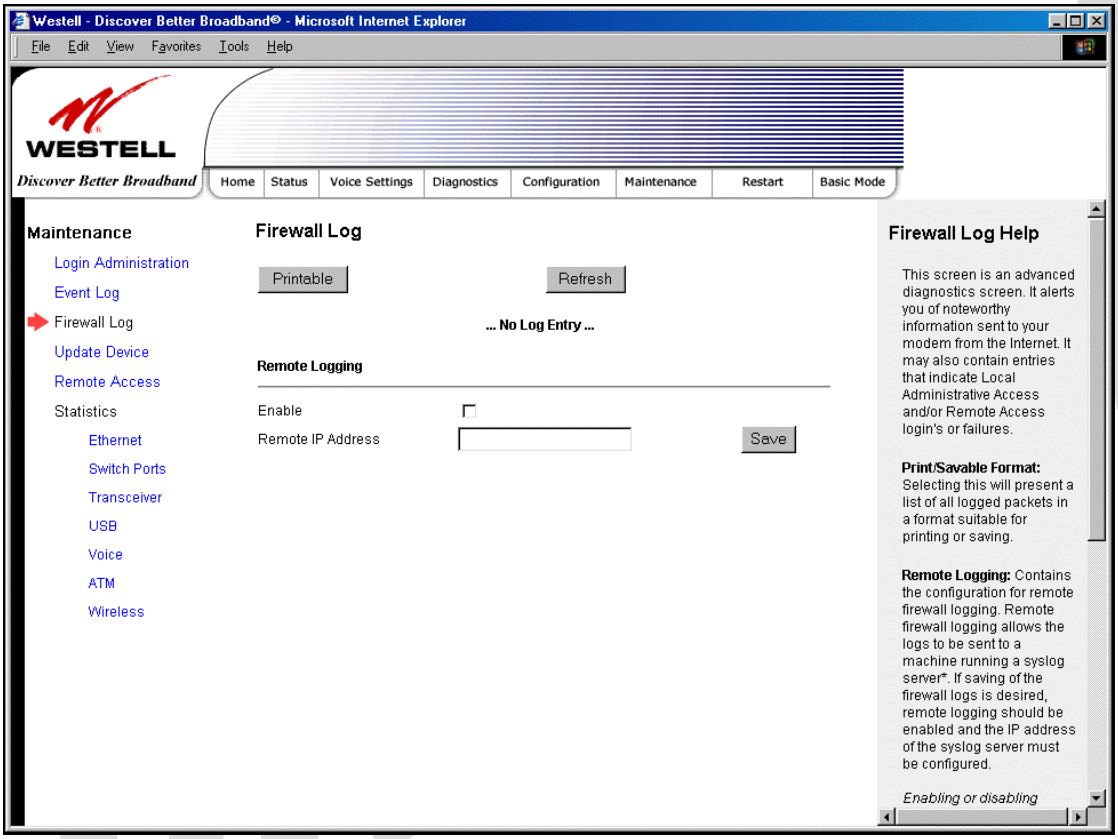


If you select **All,** the following screen will be displayed. To obtain a printable version of the Event logs, click on **Printable.**



16.3 Firewall Log

The following screen will be displayed if you select **Firewall Log** from the **Maintenance** menu. To obtain a printable version of the firewall logs, click on **Printable.** Click on **Refresh** to refresh the screen. To enable Remote Logging, click the box adjacent to **Enable** (a check mark will appear in the box) and then enter an IP address in the **Remote IP Address** field. Click **Save** to save your settings.



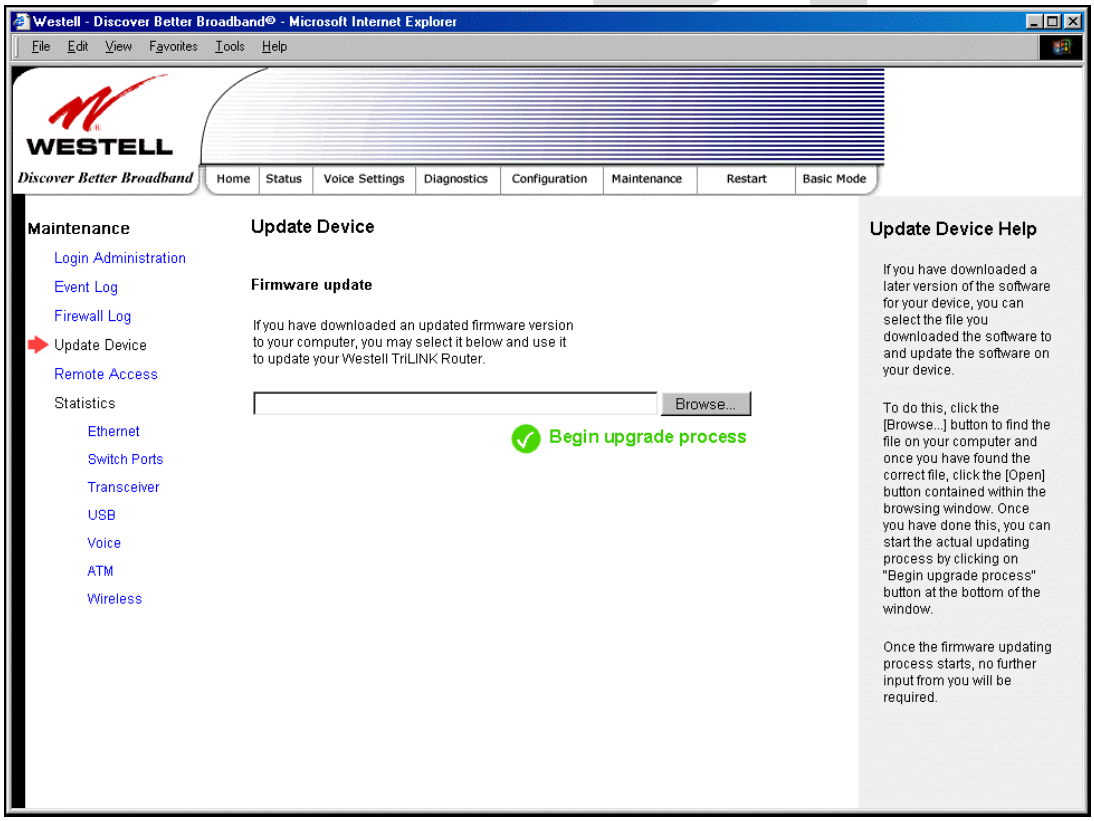
Remote Logging	
Enable	Factory Default = Disable If enabled (a check mark will appear in the box), the Gateway will send firewall logs to a syslog server.
Remote IP Address	The IP address of the syslog server machine to which the diagnostics logs to be sent.

16.4 Update Device

The following screen will be displayed if you select **Update Device** from the **Maintenance** menu. This screen enables you to identify the version of software in your device. You can also update the software in your device to the latest version supported.

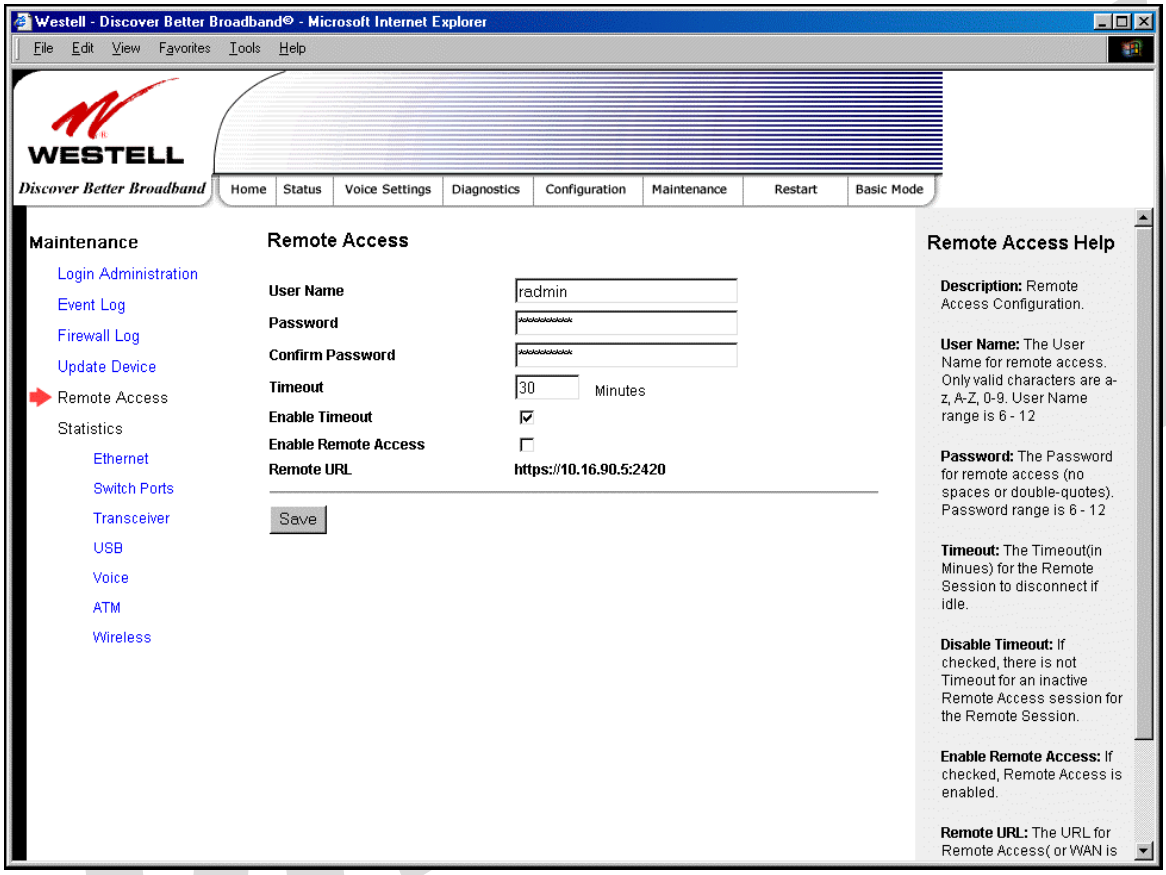
To update your modem to the latest software version supported, perform the following steps:

1. Download the update file and store it to a location on your PC.
2. Click the **Browse** button in the **Update Modem** screen to navigate to the update file on your PC.
3. Click on the update file and then click **Open.** The path to the update file will appear in the **Browse** bar.
4. Click **Begin upgrade process** to begin the software update for your modem.
5. After your modem has been updated, wait a brief moment for the modem to reset and establish a DSL sync.
6. Confirm that the DSL LED on your modem is solid green before continuing your modem's configuration.



16.5 Remote Access

The following screen will be displayed if you select **Remote Access** from the **Maintenance** menu. This screen enables you to configure Remote Access for your Gateway. Enter the appropriates values in the fields provided and then click **Save** to save the settings.

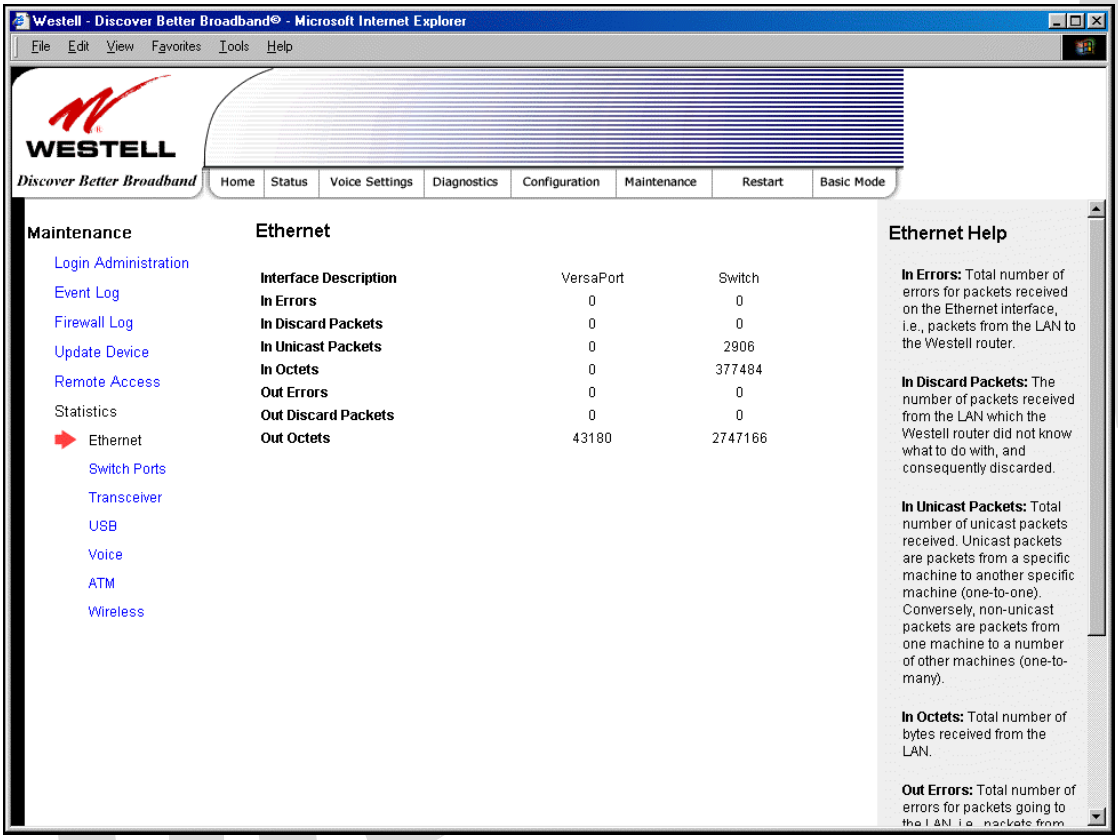


Remote Access	
User Name	The name used for Remote Access session. The only valid characters are (a-z, A-Z, 0-9). The User Name must be at least 6 characters and must not exceed 12 characters long.
Password	The password used for Remote Access session. Do not use spaces or double-quotes in the password. The password must be at least 6 characters and must not exceed 12 characters long.
Confirm Password	Enter the same values as the password.
Timeout	The interval (in minutes) after which the Remote Access session will disconnect, if it is idle.
Enable Timeout	Factory Default = Enable If Enabled (box is checked) this will activate the Remote Access timeout function. If Disabled, the Remote Access timeout function will be deactivated.
Enable Remote Access	Factory Default = Disable If Enabled (box is checked), Remote Access will be activated. If Disabled, Remote Access will be deactivated.
Remote URL	Displays the URL for the Remote Access session.

16.6 Statistics

16.6.1 Ethernet Port Statistics

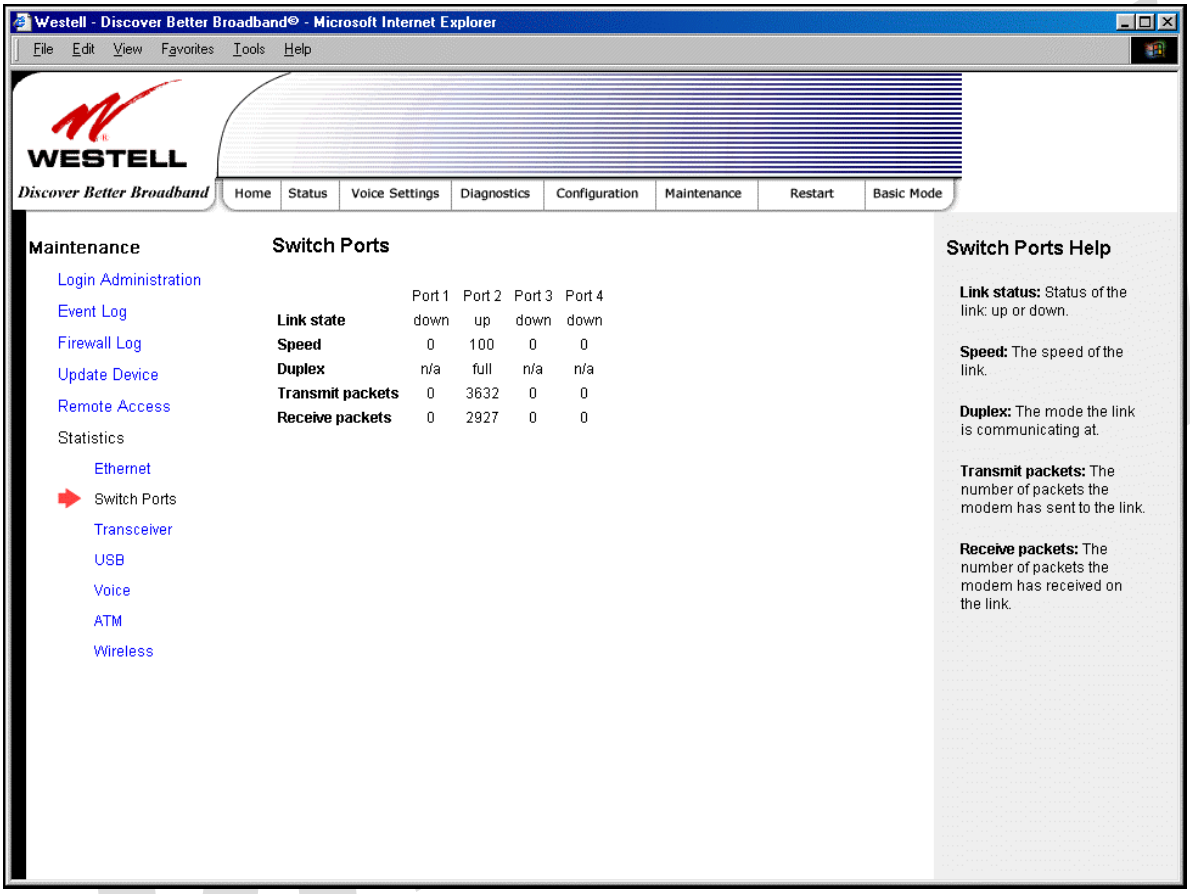
The following settings will be displayed if you select **Statistics** > **Ethernet** from the **Maintenance** menu.



Ethernet Port Statistics	
Interface Description	The description of the Ethernet interface on the Gateway.
VersaPort	The VersaPort™2 on the rear of the Gateway. Note: When VersaPort is configured for Private LAN mode via the modem's VersaPort configuration screen, section 15.7.1, VersaPort™2 functions as a fifth Ethernet switch, (E5).
Switch	The Ethernet ports (E1, E2, E3, E4). Each functions as an Ethernet switch on the Gateway.
In Errors	The number of error packets received on the Ethernet interface.
In Discard Packets	The number of discarded packets received.
In Unicast Packets	The number of Unicast packets received on the Ethernet interface.
In Octets	The number of bytes received on the Ethernet interface.
Out Errors	The number of outbound packets that could not be transmitted due to errors.
Out Discard Packets	The number of outbound packets discarded.
Out Unicast Packets	The number of Unicast packets transmitted on the Ethernet interface.
Out Octets	The number of bytes transmitted on the Ethernet interface.

16.6.2 Switch Ports Statistics

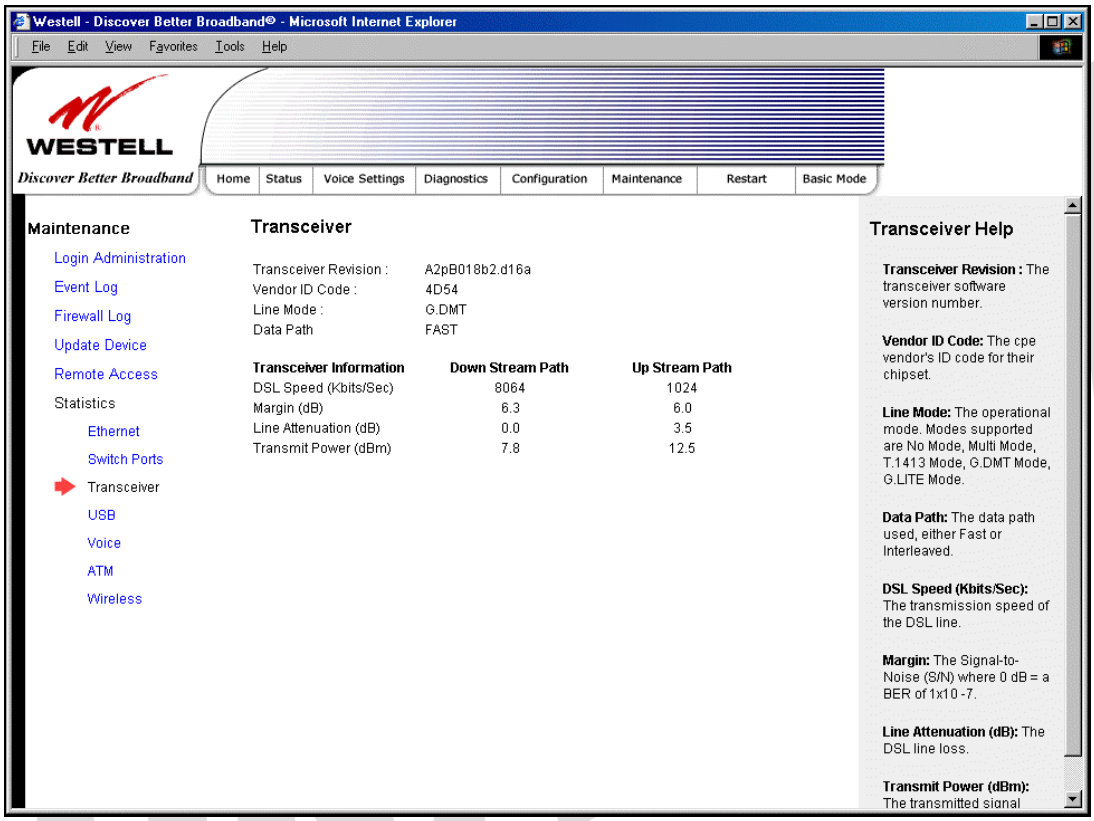
The following settings will be displayed if you select **Statistics** < **Switch Ports** from the **Maintenance** menu.



Switch Ports Statistics	
Link State	The status of the switch port.
Speed	The negotiated speed of the Ethernet link.
Duplex	The communication mode of the switch port.
Transmit Packets	The number of Ethernet packets transmitted from this port
Receive Packets	The number of Ethernet packets received on this port.

16.6.3 Transceiver Statistics

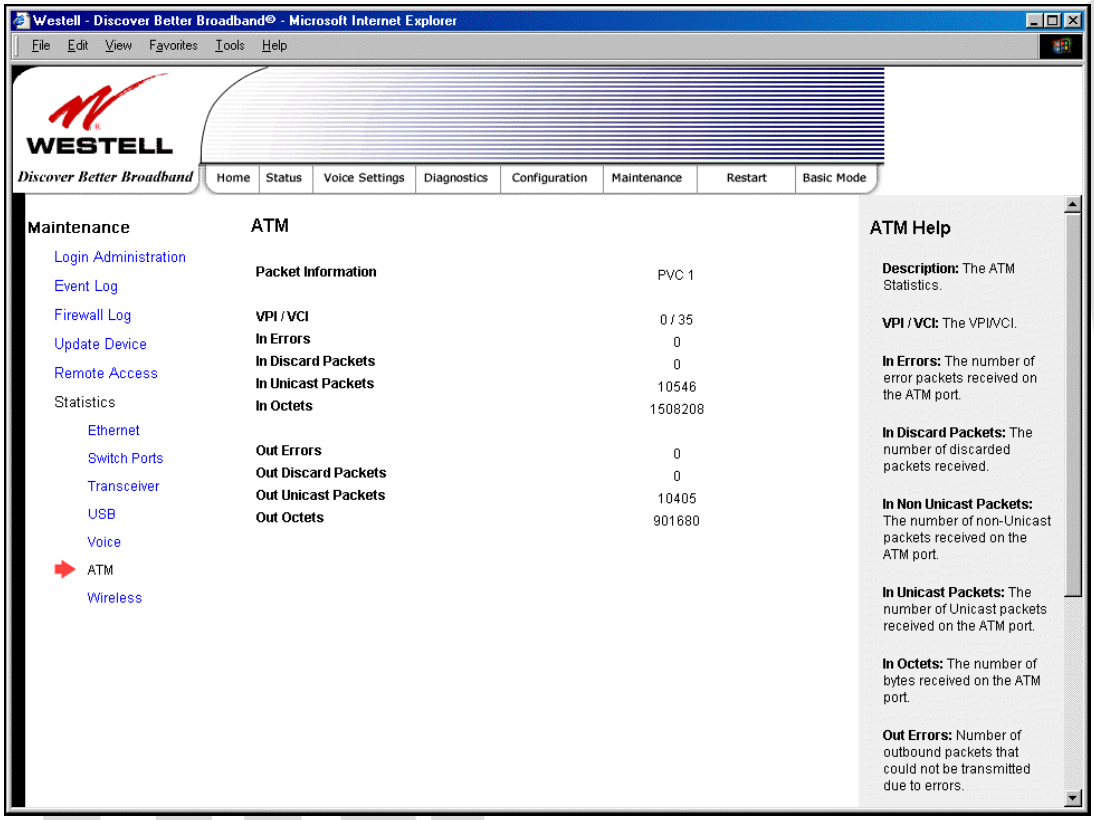
The following settings will be displayed if you select **Statistics** < **Transceiver** from the **Maintenance** menu.



Transceiver Statistics	
Transceiver Revision	The transceiver software version number.
Vendor ID Code	The CPE Vendor's ID code for their chipset.
Line Mode	The operational mode. Modes supported are No Mode, Multi Mode, T.1413 Mode, G.DMT Mode, and G.LITE Mode.
Data Path	The data path used (either Fast or Interleaved).
Transceiver Information-Down Stream/Up Stream Path	
Down Stream Path	The path from the network to your Gateway.
Up Stream Path	The path from your Gateway to the network.
DSL Speed (Kbits/Sec)	The transmission rate that is provided by your Internet service provider (ISP).
SNR Margin (db)	The Signal-to-Noise Ratio (S/N) where 0 db = a BER of $1x10^{-7}$, which inhibits your DSL speed.
Line Attenuation (dB)	The DSL line loss.
Transmit Power (db/Hz)	The transmitted signal strength.

16.6.4 ATM Statistics

The following settings will be displayed if you select **Statistics** < **ATM** from the **Maintenance** menu.

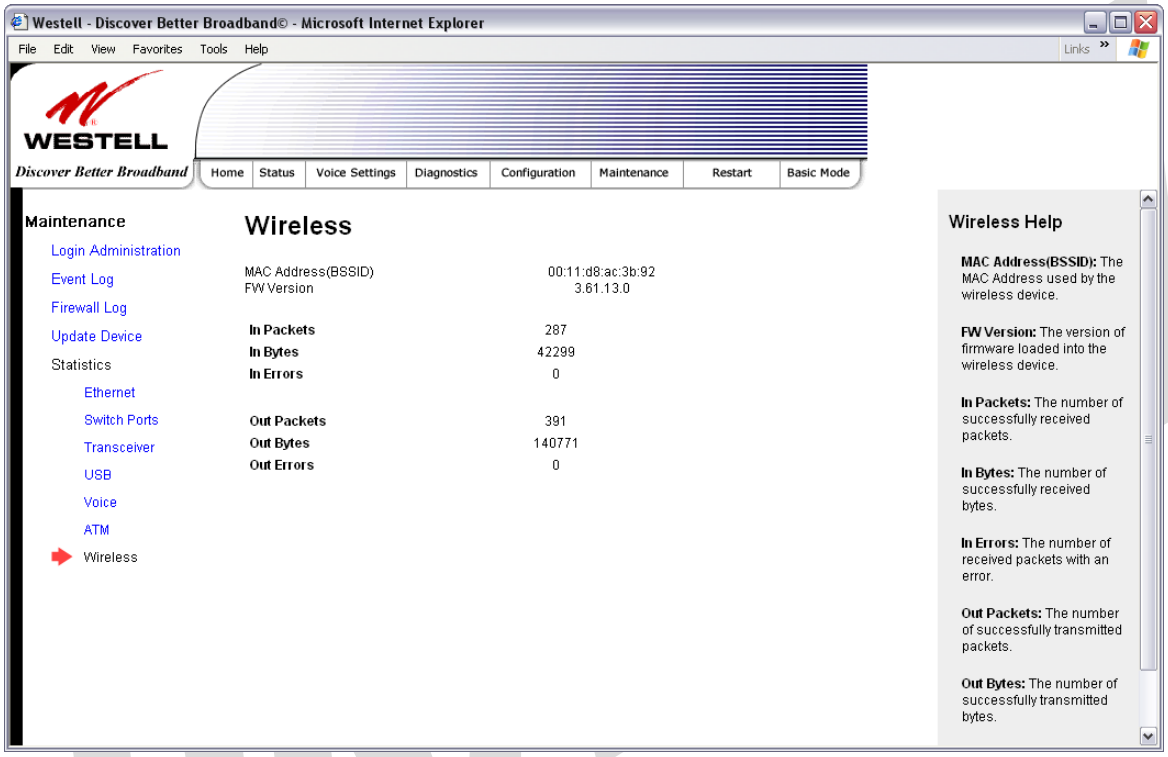


ATM Statistics	
NOTE: Data listed in the **OUT** column pertains to transmissions from the Gateway's ATM port to the Internet; the Gateway is the source. Data listed in the **IN** column pertains to data received by the Gateway's ATM port from the Internet; the Gateway is the destination.	
VPI/VCI	Displays the VPI/VCI values obtained from your Internet Service Provider.
In Errors	The number of error packets received on the ATM port.
In Discard Packets	The number of discarded packets received.
In Unicast Packets	The number of Unicast packets received on the ATM port.
In Octets	The number of bytes received on the ATM port.
Out Errors	The number of outbound packets that could not be transmitted due to errors.
Out Discard Packets	The number of outbound packets discarded.
Out Unicast Packets	The number of Unicast packets transmitted on the ATM port.
Out Octets	The number of bytes transmitted on the ATM port.

16.6.5 Wireless Statistics

The following screen will be displayed if you select **Statistics** < **Wireless** from the **Maintenance** menu.

NOTE: The fields in this screen will be blank if no stations are associated with the AP.



Wireless Statistics	
NOTE: Data listed in the **OUT** column pertains to transmissions from the AP to a station; the AP is the source. Data listed in the **IN** column pertains to data received by the AP; the AP is the destination.	
MAC Address (BSSID)	This is the Media Access Controller (the hardware address of the Gateway). It is also the Basic Service Set Identifier (BSSID) for your Gateway.
FW Version	The version of application firmware.
In-Packets	The number of successfully received packets.
In-Bytes	The number of successfully received bytes.
In-Errors	The number of received packets with an error.
Out-Packets	The number of successfully transmitted packets.
Out-Bytes	The number of successfully transmitted bytes.
Out-Errors	The number of packets that did not transmit due to an error.

17. NAT SERVICES

For your convenience, the Gateway supports protocols for Applications, Games, and VPN-specific programs. The following chart provides port and protocol information for the services supported by the Gateway.

NOTE: To configure the Gateway for a service or application, follow the steps in section 15.2 (Port Forwarding) of this User Guide.

Applications/Games/VPN Support

Application/Game	Port/Protocol
Aliens vs. Predator	80 UDP, 2300 UDP, 8000-8999 UDP
Age of Empires II: The Conquerors	6073 UDP, 47624 TCP, 2300-2400 TCP/UDP This service will open up ports for both traffic directions.
Americas Army	TCP – 20045 UDP – 1716 to 1718, 8777, 27900
America Online	5190 TCP/UDP
Anarchy Online	TCP/UDP – 7012,7013, 7500 -7505
AOL Instant Messenger	4099 TCP, 5190 TCP
Asheron's Call	9000-9013 UDP, 28800-29000 TCP
Battlecom	2300-2400 TCP/UDP, 47624 TCP/UDP
Battlefield 1942	UDP - 14567, 22000, 23000 to 23009, 27900, 28900
Black and White	2611-2612 TCP, 6667 TCP, 6500 UDP, 27900 UDP
Blizzard Battle.net (Diablo II)	4000 TCP, 6112 TCP/UDP
Buddy Phone	700, 701 UDP
Bungie.net, Myth, Myth II Server	3453 TCP
Calista IP Phone	3000 UDP, 5190 TCP
Citrix Metaframe	1494 TCP
Client POP/IMAP	110 TCP
Client SMTP	25 TCP
Counter Strike	27015 TCP/UDP, 27016 TCP/UDP
Dark Reign 2	26214 TCP/UDP
Delta Force (Client and Server)	3568 UDP, 3100-3999 TCP/UDP
Delta Force 2	3568-3569 UDP
DeltaForce: Land Warrior	UDP 53 TCP 21 TCP 7430 TCP 80 UDP 1029 UDP 1144 UDP 65436 UDP 17478
DNS	53 UDP
Elite Force	2600 UDP, 27500 UDP, 27910 UDP, 27960 UDP
Everquest	1024-7000 TCP/UDP
F-16, Mig 29	3863 UDP
F-22 Lightning 3	4660-4670 TCP/UDP, 3875 UDP, 4533-4534 UDP, 4660-4670 UDP
F-22 Raptor	3874-3875 UDP
Fighter Ace II	50000-50100 TCP/UDP
Fighter Ace II for DX play	50000-50100 TCP/UDP, 47624 TCP, 2300-2400 TCP/UDP
FTP	20 TCP, 21 TCP
GameSpy Online	UDP 3783

	UDP 6515 TCP 6667 UDP 12203 TCP/UDP 13139 UDP 27900 UDP 28900 UDP 29900 UDP 29901
Ghost Recon	TCP 80 UDP 1038 UDP 1032 UDP 53 UDP 2347 UDP 2346
GNUtella	6346 TCP/UDP, 1214 TCP
Half Life Server	27005 UDP(client only) 27015 UDP
Heretic II Server	28910 TCP
Hexen II	26900 (+1) each player needs their own port. Increment by one for each person.
Hotline Server	5500, 5503 TCP 5499 UDP
HTTPS	443 TCP/UDP
ICMP Echo	4 ICMP
ICQ OLD	4000 UDP, 20000-20019 TCP
ICQ 2001b	4099 TCP, 5190 TCP
ICUII Client	2000-2038 TCP, 2050-2051 TCP, 2069 TCP, 2085 TCP, 3010-3030 TCP
ICUII Client Version 4.xx	1024-5000 TCP, 2050-2051 TCP, 2069 TCP, 2085 TCP, 3010-3030 TCP, 2000-2038 TCP6700-6702 TCP, 6880 TCP, 1200-16090 TCP
IMAP	119 TCP/UDP
IMAP v.3	220 TCP/UDP
Internet Phone	22555 UDP
IPSEC ALG	IPSEC ALG
IPSEC ESP	PROTOCOL 50
IPSEC IKE	500 UDP
Ivisit	9943 UDP, 56768 UDP
JKII:JO (Jedi Knight II: Jedi Outcast)	UDP - 28070 (default) UDP- 27000 to 29000
KALI, Doom & Doom II	2213 UDP, 6666 UDP (EACH PC USING KALI MUST USE A DIFFERENT PORT NUMBER STARTING WITH 2213 + 1)
KaZaA	1214 TCP/UDP
Limewire	6346 TCP/UDP, 1214 TCP
Medal Of Honor: Allied Assault	TCP 80 UDP 53 UDP 2093 UDP 12201 TCP 12300 UDP 2135 UDP 2139 TCP/UDP 28900
mIRC Chat	6660-6669 TCP
Motorhead Server	16000 TCP/UDP, 16010-16030 TCP/UDP
MSN Game Zone	6667 TCP, 28800-29000 TCP
MSN Game Zone (DX 7 & 8 play)	6667 TCP, 6073 TCP, 28800-29000 TCP, 47624 TCP, 2300-2400

	TCP/UDP This service will open up ports for both traffic directions.
MSN Messenger	6891-6900 TCP, 1863 TCP/UDP, 5190 UDP, 6901 TCP/UDP
Napster	6699 TCP
Need for Speed 3, Hot Pursuit	1030 TCP
Need for Speed, Porsche	9442 UDP
Net2Phone	6801 UDP
NNTP	119 TCP/UDP
Operation FlashPoint	47624 UDP, 6073 UDP, 2300-2400 TCP/UDP, 2234 TCP
Outlaws	5310 TCP/UDP
Pal Talk	2090-2091 TCP/UDP, 2095 TCP, 5001 TCP, 8200-8700 TCP/UDP, 1025-2500 UDP
pcAnywhere host	5631 TCP, 5632 UDP, 22 UDP
Phone Free	1034-1035 TCP/UDP, 9900-9901 UDP, 2644 TCP, 8000 TCP
Quake 2	27910 UDP
Quake 3	27660 UDP Each computer playing QuakeIII must use a different port number, starting at 27660 and incrementing by 1. You'll also need to do the following: 1. Right click on the QIII icon 2. Choose "Properties" 3. In the Target field you'll see a line like "C:\Program Files\Quake III Arena\quake3.exe" 4. Add the Quake III net_port command to specify a unique communication port for each system. The complete field should look like this: "C:\Program Files\Quake III Arena\quake3.exe" +set net_port 27660 5. Click OK. 6. Repeat for each system behind the NAT, adding one to the net_port selected (27660,27661,27662)
Quicktime 4/Real Audio	6970-32000 UDP, 554 TCP/UDP
Rainbow Six & Rogue Spear	2346 TCP
RealOne Player	TCP - 554, 7070 to 7071 UDP - 6970 to 7170
Real Audio	6970-7170 UDP
Return To Castle Wolfenstein	Default -27960 TCP/UDP UDP - 27950 to 27980
Roger Wilco	TCP/UDP 3782 UDP 3783 (BaseStation)
SIP ALG	SIP ALG
ShoutCast Server	8000-8005 TCP
Spinner Radio/Netscape Music	TCP - 554
SSH Secure Shell	22 TCP/UDP
Starcraft	2346 TCP
Starfleet Command	2300-2400 TCP/UDP, 47624 TCP/UDP
SOF/SOFII (Soldier of Fortune / Soldier of Fortune II)	UDP - 28910 to 28915
Telnet	23 TCP
Tiberian Sun & Dune 2000	1140-1234, 4000 TCP/UDP
Tribes2	TCP - 15104, 15204, 15206, 6660 to 6699 UDP - 27999 to 28002
Ultima Online	5001-5010 TCP, 7775-7777 TCP, 8800-8900 TCP, 9999 UDP, 7875 UDP
Unreal Tournament server	7777 (default gameplay port) 7778 (server query port)

	7779,7779+ are allocated dynamically for each helper UdpLink objects, including UdpServerUplin objects. Try starting with 7779-7781 and add ports if needed. 27900 server query, if master server uplink is enabled. Home master servers use other ports like 27500. Port 8080 is for UT Server Admin. In the [UWeb.WebServer] section of the server.ini file, set the ListenPort to 8080 and ServerName to the IP assigned to the router from your ISP.
USENET News Service	143 TCP
VNC, Virtual Network Computing	5500 TCP, 5800 TCP, 5900 TCP
Westwood Online, C&C	4000 TCP/UDP, 1140-1234 TCP/UDP
World Wide Web (HTTP)	80 TCP 443 TCP (SSL) 8008 or 8080 TCP (PROXY)
Yahoo Messenger Chat	5000-5001 TCP
Yahoo Messenger Phone	5055 UDP
Xbox Live	88 TCP/UDP, 3074 TCP/UDP
IPSec Encryption	IPSec using AH can not be supported through NAT. IPSec using ESP and L2TP can be supported via an ALG
L2TP	IPSec using ESP and L2TP can be supported via an ALG.
PPTP	Works through NAT.

18. PRODUCT SPECIFICATIONS

Data Features

- Network Address Port Translation
- DHCP client/server
- DNS server/relay
- Static Routes
- Dynamic Routing with RIP v1 and v2
- PPTP/L2TP/IPSEC VPN NAPT passthrough
- NAT ALG support for common applications
- Stateful Inspection Firewall with logging
- Diffserv IP QOS

ADSL WAN

DSL Standards

- ANSI T1.413 issue 2
- ITU G.992.1 (G.DMT) and S=1/2
- ITU G.992.2 (G.lite)
- ITU G.992.3 (ADSL2 DMT)
- ITU G.992.3 Annex L READSL
- ITU G.992.5 (ADSL2+)
- ITU G.994.1 (G.HS)

WAN Protocol Features

- Bridge Encapsulation per RFC 1483
- Routed IP over ATM per RFC 2684
- PPP over Ethernet per RFC 2516
- PPP over ATM per RFC 2364
- Auto Protocol Detect

ATM Features

- Multi PVC support
- Auto PVC detect
- CBR, VBR-rt, VBR-nrt and UBR traffic shaping
- OAM F4/F5 Loop-back

Public LAN Features

- Dedicated DMZ port
- DHCP server
- Bridge mode mapped to a separate PVC

Ethernet LAN

- Four port 10/100 Base-T Ethernet switch
- Auto MDI/MDI-X detection
- VLAN tagging

Wireless LAN

- IEEE 802.11b/g with frame bursting
- WEP and WPA-PSK security
- MAC address filtering
- Upgradable to 802.11i, 802.11e, WME
- High gain removable external antenna

Management

- Web-based GUI
- Remote management via TR-069 or WT-087

System Requirements

Ethernet

- Pentium® or equivalent and above machines
- Microsoft Windows (98 SE, 2000, ME, NT 4.0, or XP), Macintosh OS X, or Linux installed
- Internet Explorer 4.x or Netscape Navigator 4.x or higher
- Ethernet 10/100 Base-T interface
- TCP/IP Protocol stack installed

Wireless

- Pentium® or equivalent and above class machines
- Microsoft® Windows® (98 ME, 2000, or XP) or Macintosh® OS X installed
- Operating System CD on hand
- Internet Explorer 4.x or Netscape Navigator 4.x or higher
- 64 MB RAM (128 MB recommended)
- 10 MB of free hard drive space
- IEEE 802.11b/g/g+ PC adapter

Physical Specifications

Dimensions/Weight

- Height: 1.5 in (3.81 cm)
- Width: 10.0 in (25.4 cm)
- Depth: 6.50 in (16.5 cm)
- Weight: Approx. 1.26 lbs. (0.57 kg)

Environmental

- Ambient Operating Temperature: +32° to +104° F (0° to +40° C)
- Relative Humidity: 5 to 95%, non-condensing

Network Interface

- WAN: DSL RJ-11 port (to ADSL-provisioned jack)
- LAN: 10/100 Base-T RJ-45 port (to PC or Hub)

Power

- Power Adapter:
  - Input: AC 120V/
  - Output: DC +12V
- Power Consumption: Less than 14W typical from 120 VAC

LED Indicators

- PWR
- Ethernet (E1, E2, E3, E4)
- WiFi
- DSL (DSL2, DSL1)
- BONDED
- INTERNET

Connectors

- Two DSL: 6-pin (RJ-11)
- Four Ethernet: 8-pin RJ-45
- Power: Barrel connector
- Wireless IEEE 802.11b/g SMA connector/antenna

Compliance

EMC

- FCC Part 15 Class B, subpart C

Safety

- ANSI/UL 60950-1
- CAN/CSA C22.2 No. 60950-1 First Edition dated April 1, 2003 with revisions through November 26, 2003

Regulatory Approval

- UL, CSA, FCC Part 68, ACTA 968-A-3 Industry Canada CS03, GR-1089-CORE

19. TECHNICAL SUPPORT INFORMATION

Westell Technical Support

If technical assistance is required, contact your Internet service provider first for support. Westell technical support can be reached by calling:

North America
Phone: 1-630-375-4500

U.K./Europe
Phone: (44) 01256 843311

Visit Westell at www.Westell.com to view frequently asked questions and enter on-line service requests, or send email to global_support@westell.com to obtain additional information.

20. WARRANTY AND REPAIRS

Warranty

Westell warrants this product free from defects at the time of shipment. Westell also warrants this product fully functional for the period specified by the terms of the warranty. Any attempt to repair or modify the equipment by anyone other than an authorized representative will void the warranty.

Repairs

Westell will repair any defective Westell equipment without cost during the warranty period if the unit is defective for any reason other than abuse, improper use, or improper installation, or acts of nature. Before returning the defective equipment, request a **Return Material Authorization (RMA)** number from Westell. An RMA number must be quoted on all returns. When requesting an RMA, please provide the following information:

- Product model number (on product base)
- Product serial number (on product base)
- Customer ship-to address
- Contact name
- Problem description
- Purchase date

After an RMA number is obtained, return the defective unit, freight prepaid, along with a brief description of the problem to one of the following options:

North America
Westell, Inc.
ATTN: R.G.M Department
750 N. Commons Drive
Aurora, IL 60504-7940 USA

U.K./Europe
Westell, Ltd.
Ringway House
Bell Road
Daneshill
Basingstoke
RG24 8FB
United Kingdom

Westell will continue to repair faulty equipment beyond the warranty period for a nominal charge. Contact a Westell Technical Support Representative for details.

21. PUBLICATION INFORMATION

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