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Draft 5 contains VERSAPORT™2 and all new Advanced Config screens (w/ Port Triggering, Static NAT, Spanning Tree, etc.)

WESTELL

TRILINK™ GATEWAY (MODEL 427V)

USER GUIDE

DRAFT 5

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1. PRODUCT DESCRIPTION

Your Westell® TriLink™ Gateway combines the functionality of a Voice over (VoIP) Analog Terminal Adapter with that of a Westell® ADSL Gateway. The TriLink™ Gateway enables you to connect an analog phone to the Gateway to make or receive phone calls over the Internet, and supports a variety of networking interfaces such as wireless 802.11b/g, ADSL/2/2+, and Ethernet. The Gateway functions as a Router and enables you to connect multiple PCs on your LAN to the Internet. The Gateway's VersaPort™2 interface enables you to uplink your Gateway to other ADSL network devices, and the 802.11 wireless interface enables you to establish a secure wireless connection with mobile computing devices.

With the Westell® TriLink™ Gateway, you can to use the same phone line for simultaneous voice/fax communications and high-speed Internet access, eliminating the need for dedicated phone lines for voice and data needs. Your ADSL connection is "always-on," ending the hassles of dial-up modems and busy signals, and installation is easy ... no tools ... no headaches. Simply connect the hardware, apply power, and perform the simple software configuration for your Gateway and you are on the Internet.

Hereafter, the Westell® TriLink™ Gateway will be referred to as the "Gateway" or the "Router."

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.

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3. REGULATORY INFORMATION

3.1 FCC Compliance Note

(FCC ID: CH8-A90427XXX-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.

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

RF EXPOSURE

This device has been tested and complies with FCC RF Exposure (SAR) limits in typical laptop computer configurations and this device can be used in desktop or laptop computers with side-mounted PCMCIA slots, which can provide 1 cm separation distance from the antenna to the body of the user or a nearby person. Thin laptop computers may need special attention to maintain antenna spacing while operating. This device cannot be used with handheld PDAs (personal digital assistants). Use in other configurations may not ensure compliance with FCC RF exposure guidelines. This device and its antenna must not be co-located or operate in conjunction with another antenna or transmitter.

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 427V) 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 427V), 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.

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If your home has specially wired alarm equipment connected to the telephone line, ensure that the installation of this equipment (Model 427V) 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 427V) 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 427V) 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 22 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 427V) 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 Router via 10/100 Base-T Ethernet, Wireless , or USB installations.

CONNECTION TYPE	MINIMUM SYSTEM REQUIREMENTS
VERSAPORT™2 Ethernet (E5)	• Pentium® or equivalent class machines • Microsoft® Windows® (98 SE, ME, 2000, NT 4.0, or XP) Macintosh® OS X, or Linux installed • 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
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 • 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 802.11g	• Pentium® or equivalent class machines • Microsoft® Windows® (98 SE, ME, 2000, or XP) or Macintosh® OS X installed • 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
USB (Model 427V10 only)	• Pentium® or equivalent and above • Microsoft® Windows® 98 SE, ME, 2000, or XP installed • 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 • USB Version 1.0 or higher compliant bus

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5. HARDWARE FEATURES

5.1 LED Indicators

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

LED States and Descriptions

LED	State	Description
POWER	**Solid Green**	Router power is ON.
	OFF	Router power is OFF.
	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.
ETHERNET (Ethernet LAN) E1, E2, E3, E4	**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	Router power is OFF, no cable or no powered device is connected to the associated port.
VersaPort™2 (E5)	**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 WAN activity is present (WAN traffic in either direction).
	Off	Router power is OFF, no cable, or no powered device is connected to the associated port.
WIRELESS	**Solid Green**	Wireless is enabled and functioning.
	Flashing Green	Wireless LAN activity present (traffic in either direction).
	Off	Wireless is disabled or not functioning.
Telephone 1	**Solid Green**	SIP registration succeeded. Attached device is registered with VoIP server.
	Flashing Green	Attached device is attempting to establish a VoIP call.
	Off	Router power off, line not provisioned, line not registered with VoIP server.
Telephone 2	**Solid Green**	SIP registration succeeded. Attached device is registered with VoIP server.
	Flashing Green	Attached device is attempting to establish a VoIP call.
	Off	Router power off, line not provisioned, line not registered with VoIP server.
Message Waiting 1 (Line 1 message waiting)	**Flashing Green**	Message Waiting.
	Off	No Message.
Message Waiting 2 (Line 2 message waiting)	**Flashing Green**	Message Waiting.
	Off	No Message.
USB (Model 427V10 only)	**Solid Green**	USB link established
	Flashing Green	Transmit or Receive Activity
	OFF	No USB link established
DSL	**Solid Green**	Good DSL sync.
	Flashing Green	DSL attempting to sync.

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	Solid Amber OFF	Router is in safeboot mode.
	Off	Router power is OFF.
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 Cable Connectors and Switch Locations

- DSL connector (RJ-11)
- USB connector (Model 427V10 only)
- VERSAPORT™2 connector (RJ-45) yellow
- (4) Ethernet connector (RJ-45)
- (2) POTS connector (RJ-11)
- Power connector (barrel)
- ON/OFF Switch
- Wireless IEEE 802.11b/g SMA connector and antenna

Figure 1. Rear View of TriLink™ Gateway (Model 427V10)

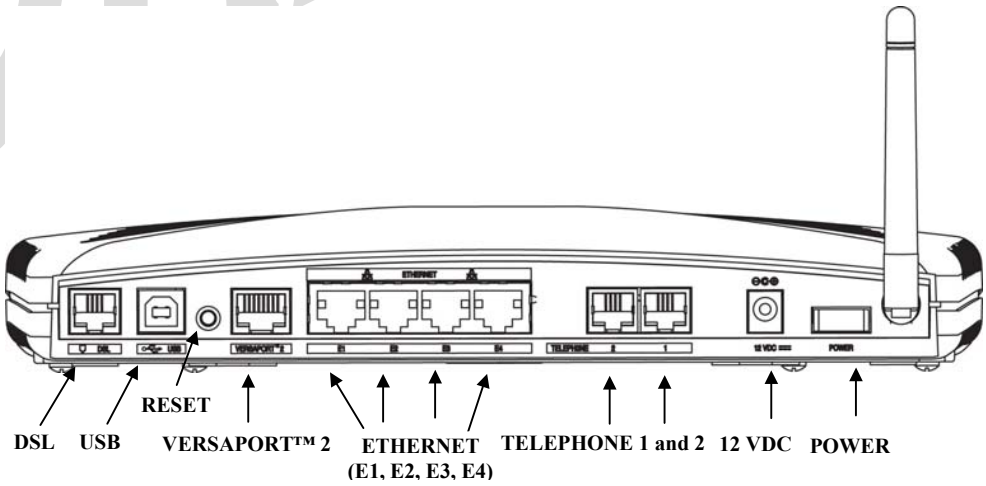

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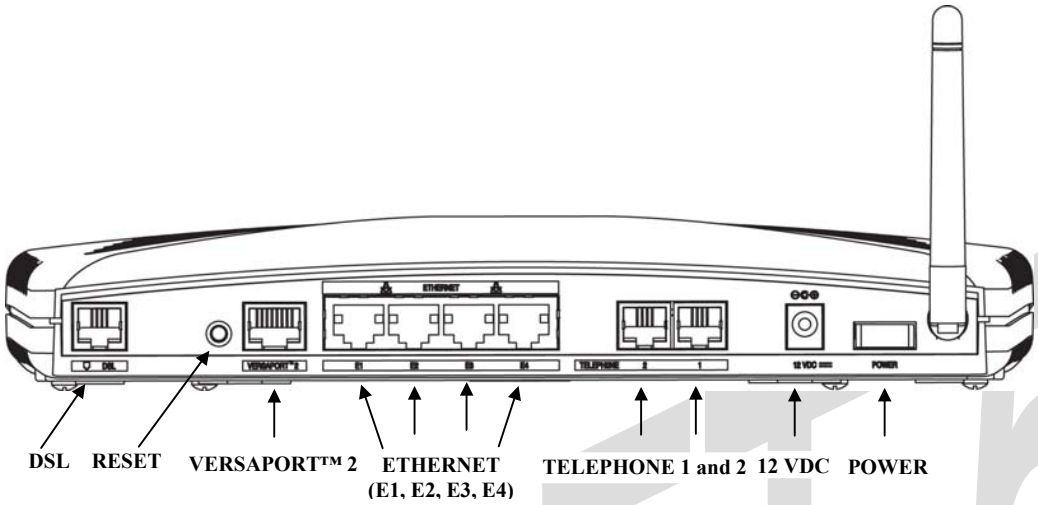
Figure 2. Rear View of TriLink™ Gateway (Model 427V11)



5.3 Connector Descriptions

The following chart displays the connector types for the TriLink™ Gateway.

SYMBOL	NAME	TYPE	FUNCTION
	DSL LINE	RJ-11	Connects to an ADSL-equipped telephone jack or DSL connection of a POTS splitter.
	USB	4-pin USB Series B connector	Connects the USB device to the PC. (Model 427V10 only)
	VERSAPORT™2	RJ-45	The VersaPort™2 can function as a 10/100 Base-T Ethernet connection to a WAN-side networking device. (e.g., xDSL, etc.), a DMZ LAN Port, or a fifth Ethernet LAN Port, depending on the configuration.
	ETHERNET	RJ-45	10/100 Base-T Ethernet Connection to PC or Hub.
12 VDC	POWER	Barrel connector	Connection to DC (12V) Power Connector .
	TELEPHONE 1 and 2	RJ-11	Telephone Port connection to phone cable.
Wireless	ANTENNA	SMA connector and antenna	Connects to wireless IEEE 802.11b/g device.

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5.4 Pin-out Descriptions

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

Port	Pin-out	Description
DSL	1,2,5,6	Not Used
	3	DSL TIP
	4	DSL Ring
USB (Model 427V10 only)	1	VBUS/Vcc
	2	Data –
	3	Data +
	4	Ground
VERSAPORT™2 (Ethernet E5)	1	Rx+
	2	Rx-
	3	Tx+
	4,5,7,8	Not Used
	6	Tx-
ETHERNET E1, E2, E3, E4	1	Rx+
	2	Rx-
	3	Tx+
	4,5,7,8	Not Used
	6	Tx-
RJ-11 TELEPHONE 1 and 2	1,2,5,6	Not Used
	3	POTS TIP
	4	POTS Ring

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6. INSTALLING THE HARDWARE

6.1 Installation Requirements

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

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

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

6.2 Before you begin

Make sure your kit contains the following items:

- Westell® TriLink™ Gateway
- Power Supply
- RJ-45 Ethernet cable (straight-through) (yellow)
- USB cable (blue) Model 42710 only
- RJ-11 Phone cable
- 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. Microfilters are not required on the telephone devices attached to the voice over IP (VoIP) ports.

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6.4 Hardware Installations

NOTE: If you are using the Router 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 Router. **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 DSL

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 Router 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 Router to the Ethernet port on your computer. **Repeat this step to connect up to three additional PCs to your Westell Router.**

   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 Router 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 Router. 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 Router 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 Router. No software installation is required when using an Ethernet only connection. You must now proceed to section 8, "Configuring the Router for Internet Connection."

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6.4.2 Installation via VERSAPORT™2 – Ethernet WAN Uplink

1. Connect the yellow Ethernet cable (provided with your kit) from the Ethernet jack marked **VERSAPORT™2** on the rear panel of the Router to the Ethernet port on the attached ADSL device, and then power up the attached ADSL device.
2. Connnect the attached ADSL device to the ADSL-equipped jack on the wall. **IMPORTANT:** If the attached ADSL device is a Router, do not use a DSL filter on this connection. You must use the phone cord that was provided with your kit. (Note: The Router's DSL transceiver will not be used when the Router is in Ethernet WAN UPLINK mode.) Refer to section 17.7.3 for the VERSAPORT™2 configuration parameters.
3. Connect an Ethernet cable from any one of the four Ethernet jacks marked **ETHERNET** on the rear panel of the Router to the Ethernet port on your computer. Repeat this step to connect up to three additional PCs to the Router.

   NOTE: You may connect to any of the four Ethernet jacks on the rear panel of the Router as they serve as an Ethernet switch.

4. Connect the power supply cord to the power connector marked **12 VDC** on the rear panel of the Router. 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).
5. Check to see if the VERSAPORT™2 LED is solid green. Solid green indicates that the VERSAPORT™2 connection is functioning properly. (The Router's LAN and WAN traffic will be uplinked to the attached ADSL device.)

   Note: You may need to set the VERSAPORT™2 to uplink mode. Refer to section 17.7 "WAN Configuration," for instructions.

6. Check to see if the Ethernet LED is solid green. Solid green indicates that the Ethernet connection is functioning properly.
7. Check to see if the Internet LED is solid green. Solid green indicates that the Internet link has been established.

Congratulations! You have completed the VERSAPORT™2 - Ethernet WAN Uplink installation for your Router. You must now proceed to section 8, "Configuring the Router for Internet Connection."

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6.4.3 Connecting PCs via Wireless

IMPORTANT: If you are connecting to the Router via a wireless network adapter, the SSID must be the same for both the Router and your PC's wireless network adapter. The default SSID for the Router 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 Router) before you begin the account setup and configuration procedures. Later, for privacy you can change the SSID by following the procedures outlined in section 17.8 (Wireless Configuration).

IMPORTANT: Client PCs can use any Wireless Fidelity (Wi-Fi) 802.11b/g/g+ certified card to communicate with the Router. The Wireless card and Router 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 Router 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 Router 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 Router kit.
5. Connect the power supply cord to the power connector marked **12 VDC** on the rear panel of the Router. 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 Router is functioning properly.
7. Check to see if the Router'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 Router. You must now proceed section 8, "Configuring the Router for Internet Connection."

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6.4.4 Connecting PCs via USB

Westell recommends using the Router via Wireless or Ethernet connections. However, if you choose to connect via USB, you must follow the instructions in this section.

NOTE: The USB installation will not function for Macintosh computers. Macintosh computers must install via Ethernet connection. See section 6.4.1 for Ethernet installation instructions.

1. Connect the DSL phone cable from the jack marked on the rear panel of the Router 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 blue USB cable from the USB connector marked on the rear panel of the Router to the USB port on the PC.
3. Connect the power supply cord to the power connector marked **12 VDC** on the rear panel of the Router. 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. Install the USB drivers according to the procedures outlined in section 7 and then return to this step to complete the instructions in this section. (Note: The USB driver software is required for your USB connection.)
5. Check to see if the USB LED is solid green. Solid green indicates that the USB connection is functioning properly.
6. Check to see if the DSL LED is solid green. If the DSL LED is solid green, the Router is functioning properly.
7. 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 USB hardware installation for your Router (including the installation of USB driver software needed for your USB connection). You must now proceed to section 8, “Configuring the Router for Internet Connection.”

6.4.5 VoIP Installation

1. Install the Router as described in one of the preceding installation instructions.
2. Connect the cable from your telephone to one of the jacks marked TELEPHONE 1 or TELEPHONE 2 on the rear panel of the Router.
3. Check to see if the Internet LED is solid green. Solid green indicates that the Internet link has been established. VoIP services will not be available if you do not have an Internet connection.
4. For VoIP services, you must enter SIP Registration Server information into the router before the LINE 1 or LINE 2 LED lights. Refer to section 13 (Voice Settings) for details on VoIP configuration. After you have registered with the SIP Server, check to see if the TELEPHONE 1 or TELEPHONE 2 LED is solid green.

Congratulations! You have completed the hardware installation for your VoIP connection. Refer to section 13, “Voice Settings,” for details on SIP Phone configuration.

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7. INSTALLING THE USB DRIVERS

If you are using only Ethernet or Wireless connections, USB driver installation is not necessary. The Microsoft® Plug and Play auto-detect feature recognizes when new hardware has been installed. After you connect the Router to the PC, the Router will be detected automatically.

Before you begin the USB software installation, determine which operating system is installed on your PC, and then follow the installation instructions that match your operating system. When you have completed the procedures in this section, return to section 6.4.4 to complete the instructions on connecting PCs via USB. The following table provides a reference to the USB driver installation instructions.

Your Operating System	Refer to this section for USB driver instructions
Windows 98 SE	Installing the USB Driver for Windows 98 SE
Windows ME	Installing the USB Driver for Windows ME
Windows 2000	Installing the USB Driver for Windows 2000
Windows XP	Installing the USB Driver for Windows XP

7.1.1 CD-ROM Installation:

1. Place the CD-ROM that you received in your kit into the CD-ROM drive of the PC that is connected to the USB port.
2. Verify the connection to the computer by observing the state of the USB LED. Once the USB drivers have been installed, the USB LED should be solid green. Solid green indicates a USB connection has been established.
3. Go to the USB driver installation section that matches your operating system (refer to the preceding table) and follow the procedures outlined in that section.

NOTE: The actual information displayed in the USB screens may vary according to product.

7.1.2 Installing the USB Drivers for Windows 98 SE

IMPORTANT: Confirm that the CD-ROM provided with your kit is inserted in the appropriate drive before continuing this installation.

1. **Windows 98 SE:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 3). After a brief delay, the Add **New Hardware Wizard** window will appear (Figure 4) Click **Next**.

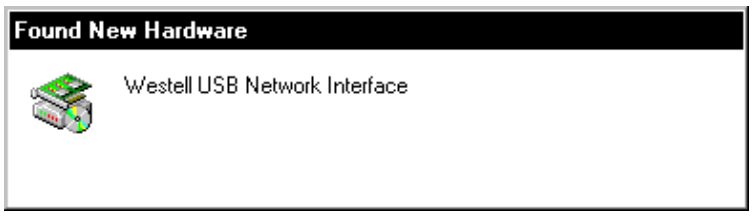

Figure 3. Windows 98 SE

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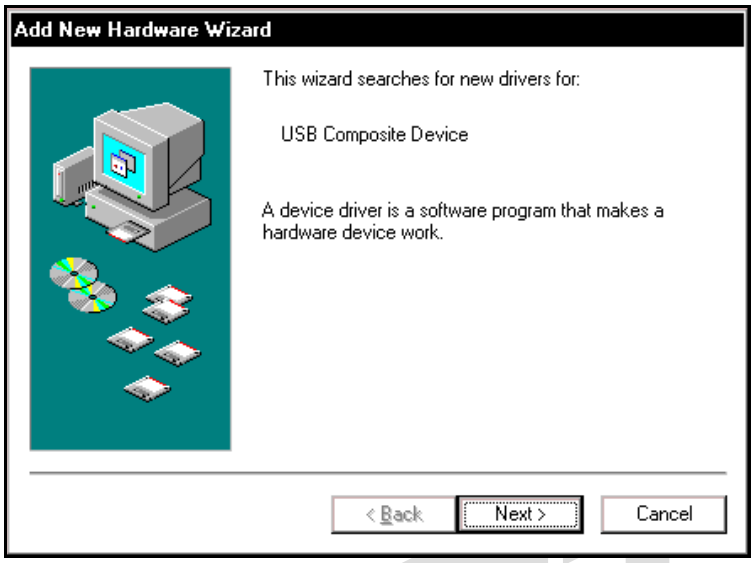

Figure 4. Windows 98 SE

2. **Windows 98 SE:** Select **Search for the best driver for your device. (Recommended)**. See Figure 5. Click **Next**.

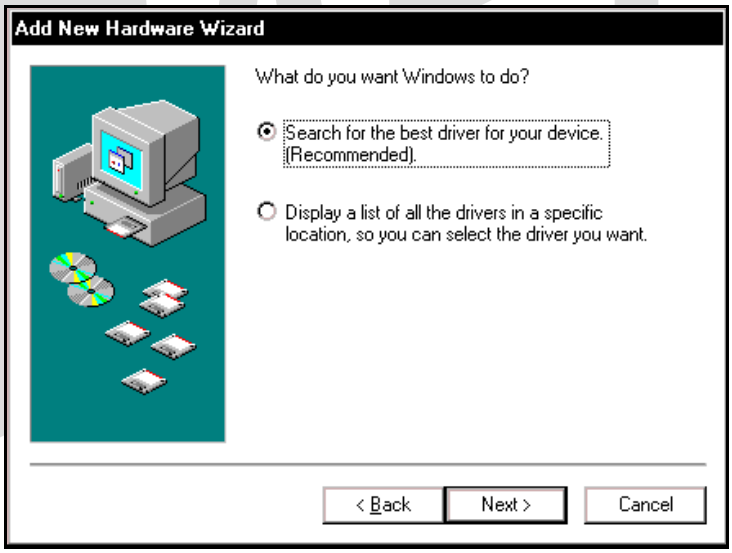

Figure 5. Windows 98 SE

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3. **Windows 98 SE:** Select **CD-ROM drive** (Figure 6). Click **Next**. Windows will search for the driver.

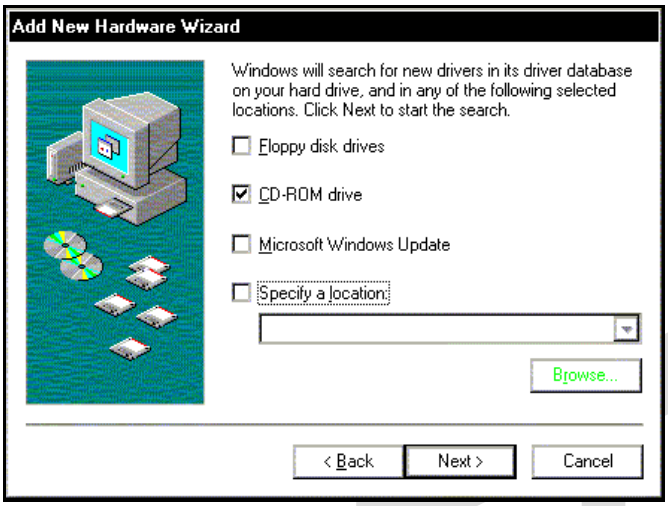

Figure 6. Windows 98 SE

Note: If Figure 6 does not appear at this step, and Figure 7 appears with the text 'USB Composite device', 'C:\Windows\Inf\USB.Inf', do not continue. Click **Back** to Step 3 and specify the location of the Westell CD-ROM.

4. **Windows 98 SE:** Select **The updated driver (Recommended) Westell USB Network Interface** (Figure 7). Click **Next**.

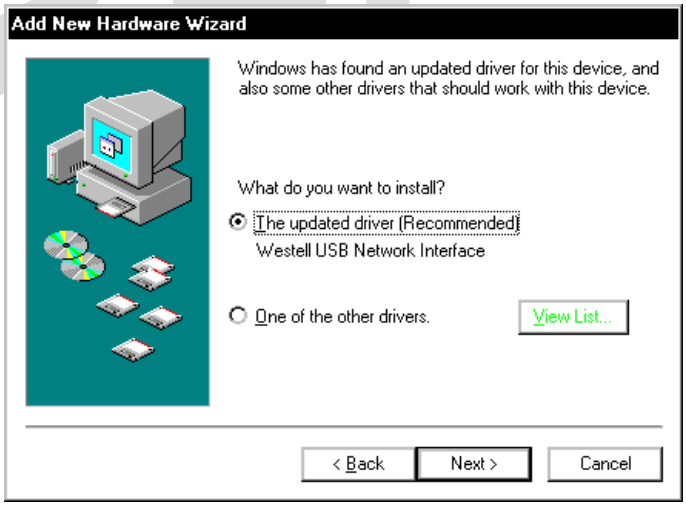

Figure 7. Windows 98 SE

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5. **Windows 98 SE:** Windows will display the location of the driver (Figure 8). The drive "letter" may vary. Click **Next**.

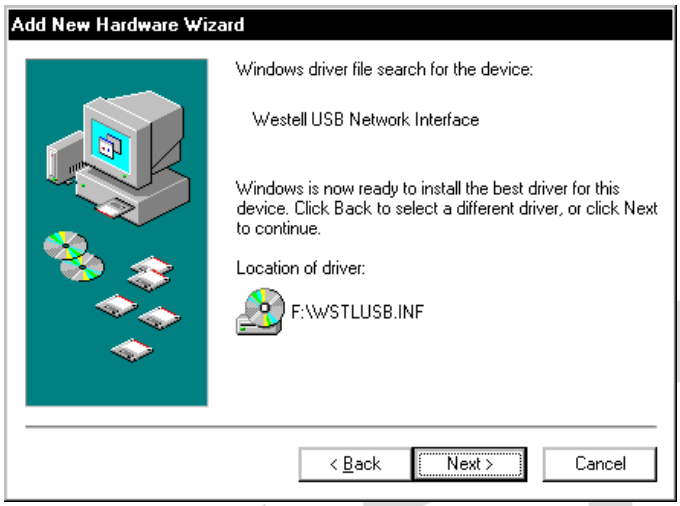

Figure 8. Windows 98 SE

6. **Windows 98 SE:** Remove the Westell CD from the CD-ROM Drive. Next, insert the Windows operating system CD into the CD-ROM Drive (Figure 9). Click **OK.**

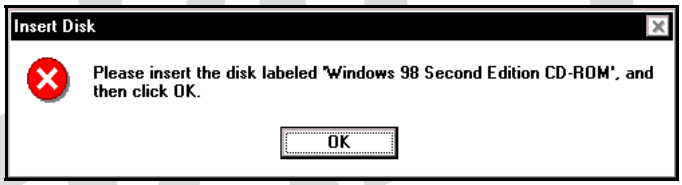

Figure 9. Windows 98 SE

7. **Windows 98 SE**: The system will begin copying files (Figure 10).

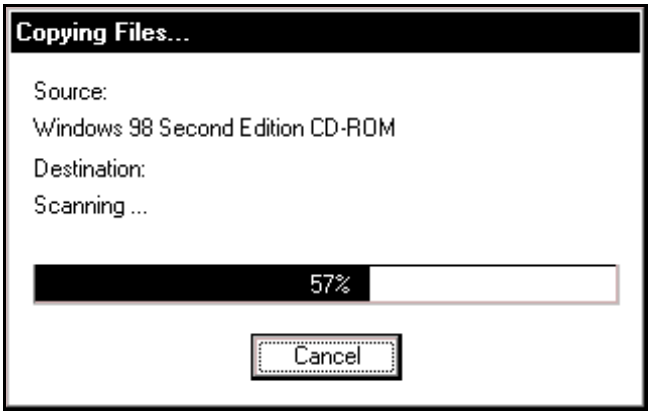

Figure 10. Windows 98 SE

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8. **Windows 98 SE**: Figure 11 may pop up, depending on how Windows 98 SE was installed on the computer. The installation of the Westell Gateway requires files that are supplied by Microsoft for Windows 98 SE. If Figure 12 pops up, insert the Windows 98 SE Operating System CD into the computers CD-ROM drive, wait a moment for the CD to be recognized by the system, and then click on **OK**. The system should find the required files on the Windows 98 SE CD-ROM and automatically complete the installation.

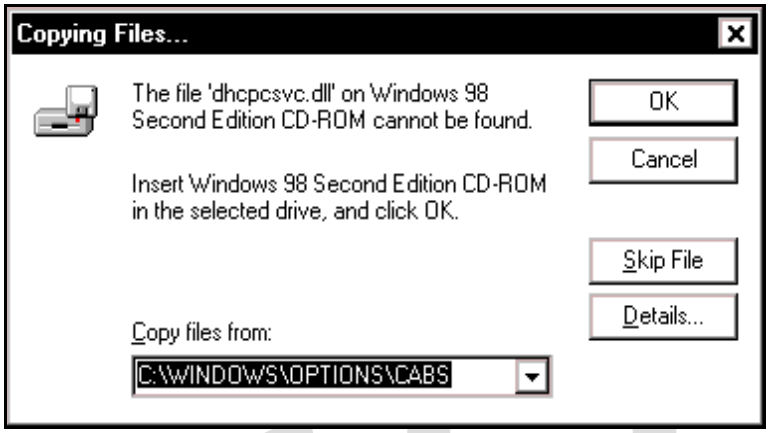

Figure 11. Windows 98 SE

If the Operating System CD is not available, or if Figure 11 pops up again, you will have to manually specify the location of the files. The required files may be stored on your hard drive. A common location for these files is "C:\Windows\Options\Cabs." Try specifying this path or the path to your CD-ROM drive (usually "D:\") by clicking the **Browse…** button in the **Insert Disk** screen (Figure 12). When you have specified the correct path, click on **OK**. The system will begin copying the files.

NOTE: It is very important that the Windows 98 SE files be installed. Do not click on **Cancel** or **Skip File** in the dialogs, doing so will result in an improper installation and the Gateway will not function correctly.

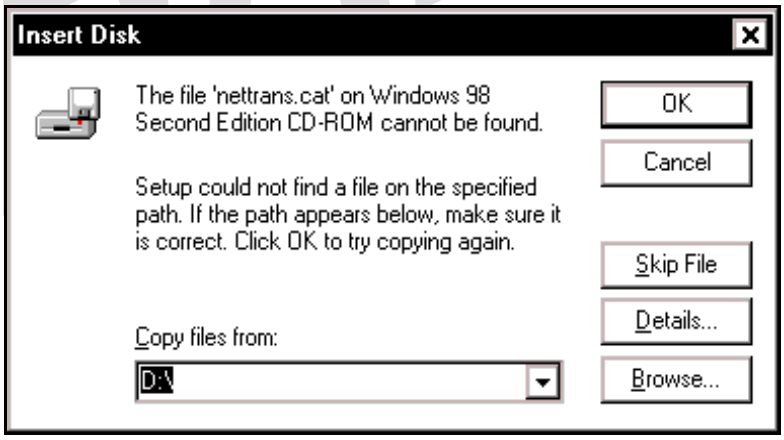

Figure 12. Windows 98 SE

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9. **Windows 98 SE**: The window below confirms that the PC has finished loading the drivers (Figure 13). Click **Finish**.

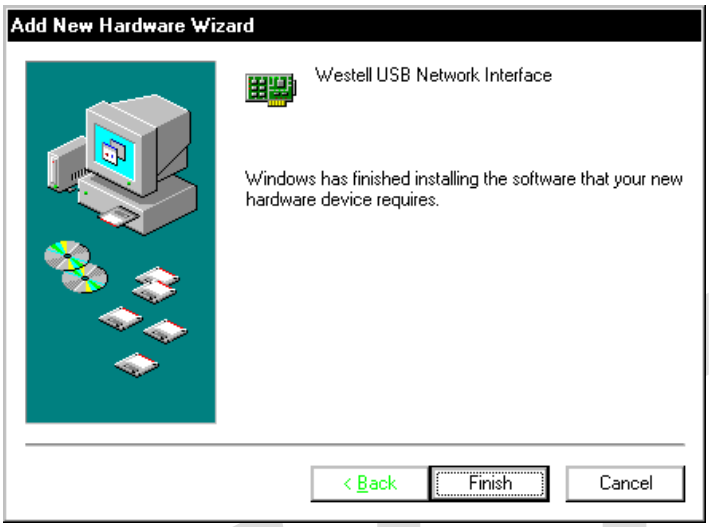

Figure 13. Windows 98 SE

10. **Windows 98 SE**: Click **Yes** to restart your computer (Figure 14).

Figure 14. Windows 98 SE

Congratulations! You have completed the software installation for the USB drivers. After the computer has restarted, your Router is ready for use. You must now return to section 6.4.4, "Connecting PCs via USB," to complete the hardware installation instructions.

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7.2 Installing the USB Drivers for Windows ME

IMPORTANT: Confirm that the CD-ROM provided with the kit is inserted in the appropriate drive before continuing this installation.

1. **Windows ME:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 15). After a brief delay, the **Add New Hardware Wizard** will appear (Figure 16). Select **Automatic search for a better driver (Recommended).** Click **Next.**

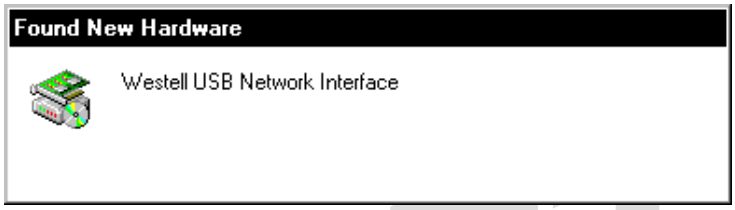

Figure 15. Windows ME

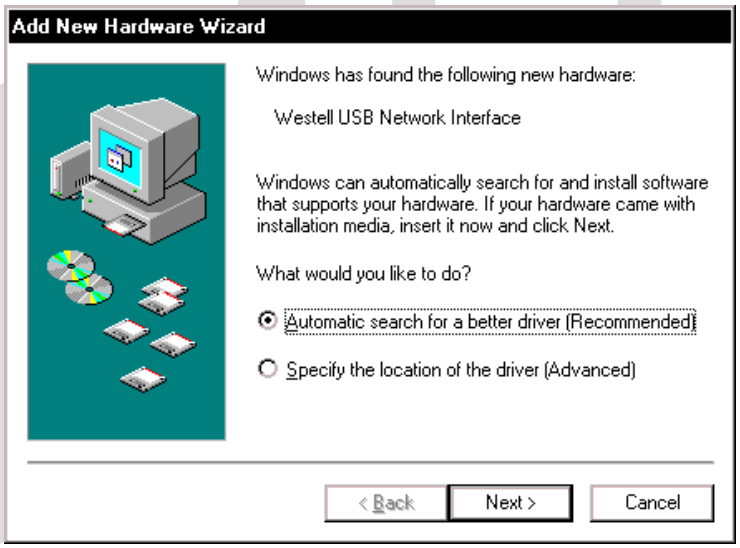

Figure 16. Windows ME

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2. **Windows ME**: Windows will display the location of the driver (Figure 17). Click **Next.**

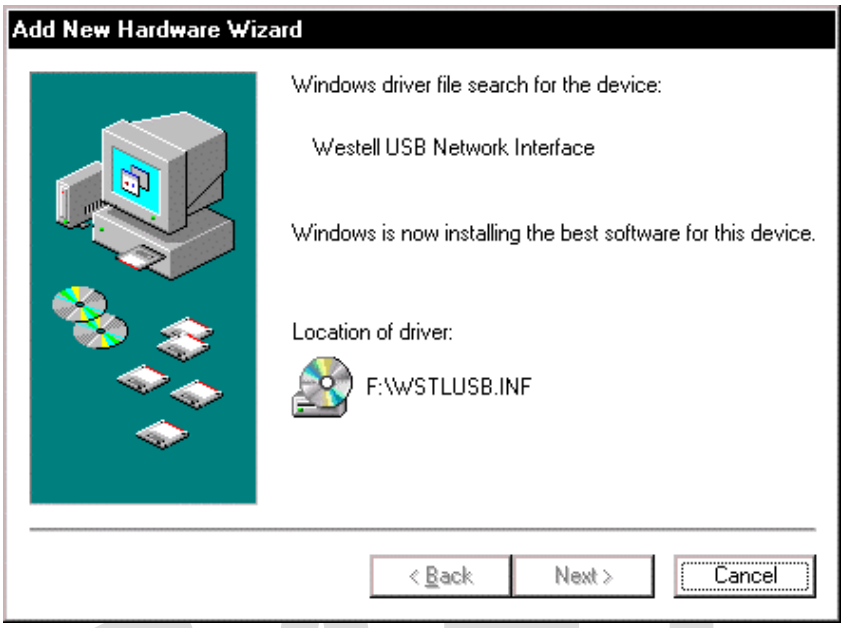

Figure 17. Windows ME

3. **Windows ME**: The window below confirms that the PC has finished loading the drivers (Figure 18). Click **Finish.**

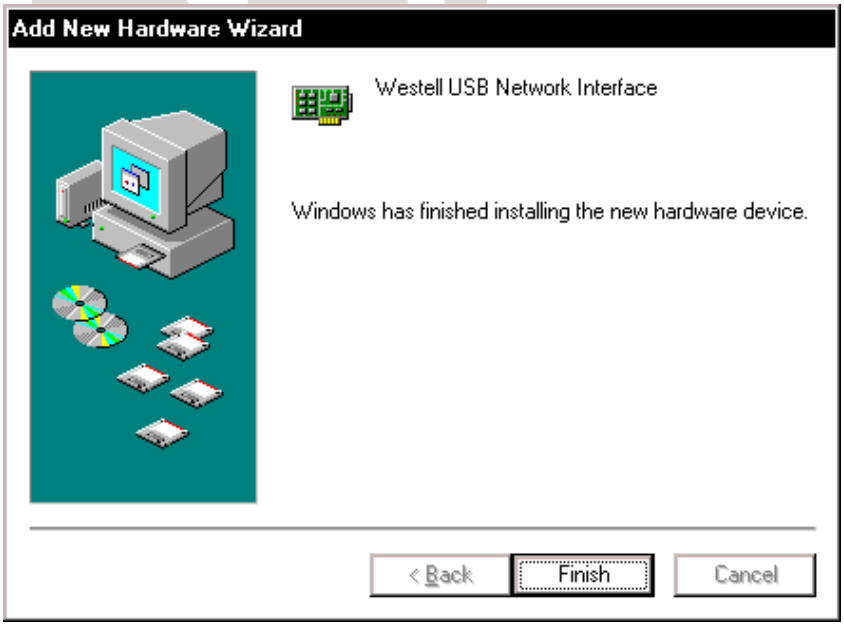

Figure 18. Windows ME

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4. **Windows ME**: When the **System Settings Change** screen appears, the USB drivers are installed properly (Figure 19). Click **Yes.**

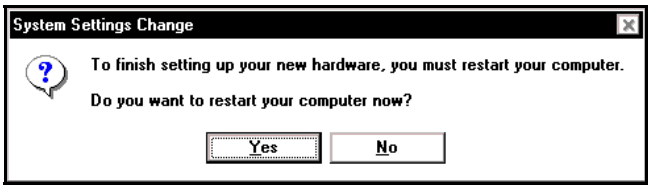

Figure 19. Windows ME

Congratulations! You have completed the software installation for the USB drivers. After the computer has restarted, the Router is ready for use. You must now return to section 6.4.4, "Connecting PCs via USB," to complete the hardware installation instructions.

7.3 Installing the USB Driver for Windows 2000

IMPORTANT: Confirm that the CD-ROM provided with the kit is inserted in the appropriate drive before continuing this installation.

1. **Windows 2000:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 20). After a brief delay, the **Found New Hardware Wizard** will appear (Figure 21). Click **Next**.

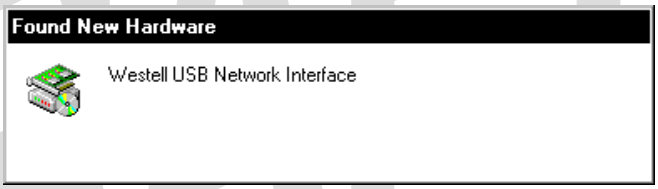

Figure 20. Windows 2000

Figure 21. Windows 2000

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2. **Windows 2000:** The **Install Hardware Device Drivers** window appears. Select **Search for a suitable driver for my device (recommended).** See Figure 22. Click **Next**.

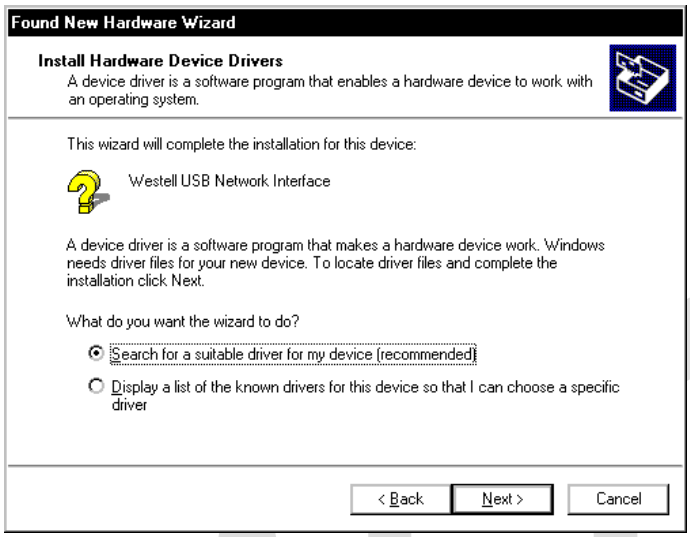

Figure 22. Windows 2000

3. **Windows 2000:** The **Locate Driver Files** window appears. Select **CD-ROM drives** (Figure 23). Click **Next**.

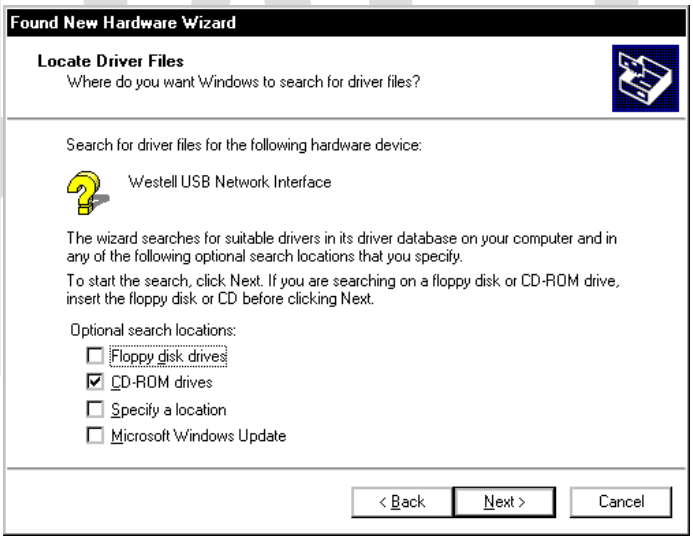

Figure 23. Windows 2000

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4. **Windows 2000:** The **Driver Files Search Results** window appears (Figure 24). **Note**: The drive "letter" may vary. Click **Next**.

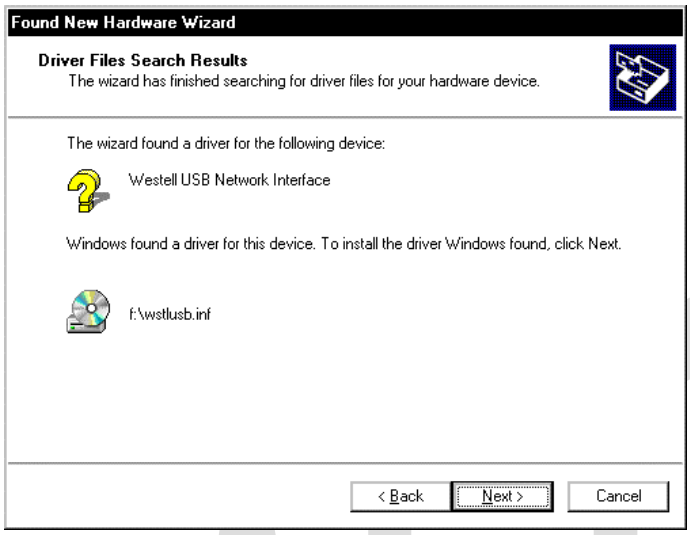

Figure 24. Windows 2000

5. **Windows 2000:** The window below confirms that the PC has finished loading the drivers (Figure 25). Click **Finish**.

Figure 25. Windows 2000

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6. **Windows 2000**: When the **System Settings Change** screen appears, the USB drivers are installed properly (Figure 26). Click **Yes.**

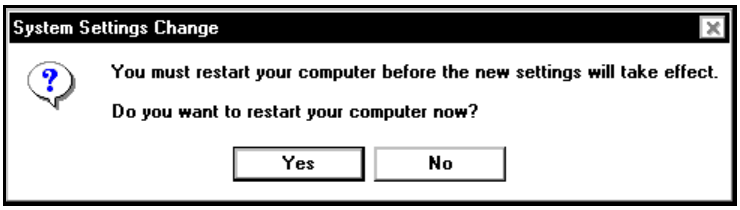

Figure 26. Windows 2000

Congratulations! You have completed the software installation for the USB drivers. After the computer has restarted, VersaLink is ready for use. You must now return to section 6.4.4, "Connecting PCs via USB," to complete the hardware installation instructions.

7.4 Installing the USB Driver for Windows XP

IMPORTANT: Confirm that the CD-ROM provided with the kit is inserted in the appropriate drive before continuing this installation.

1. **Windows XP:** After you connect the Router to your PC, the following screen will appear. (Figure 27). Select **Install the software automatically (Recommended).** Click **Next**.

Figure 27. Windows XP

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2. **Windows XP**: The window below confirms that the PC has finished loading the drivers (Figure 28). Click **Finish**.

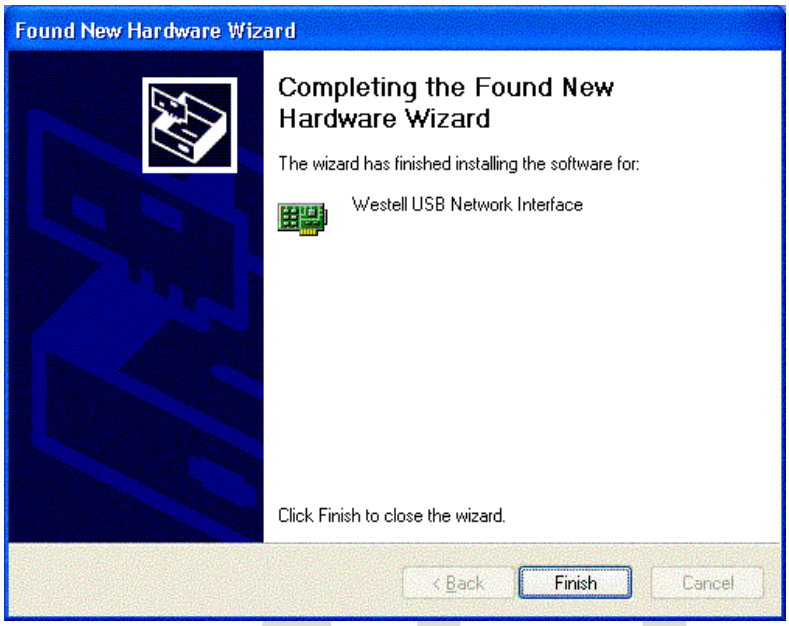

Figure 28. Windows XP

Congratulations! You have completed the software installation for the USB drivers. After the computer has restarted, your Router is ready for use. You must now return to section 6.4.4, "Connecting PCs via USB," to complete the hardware installation instructions.

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8. CONFIGURING THE ROUTER FOR INTERNET CONNECTION

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

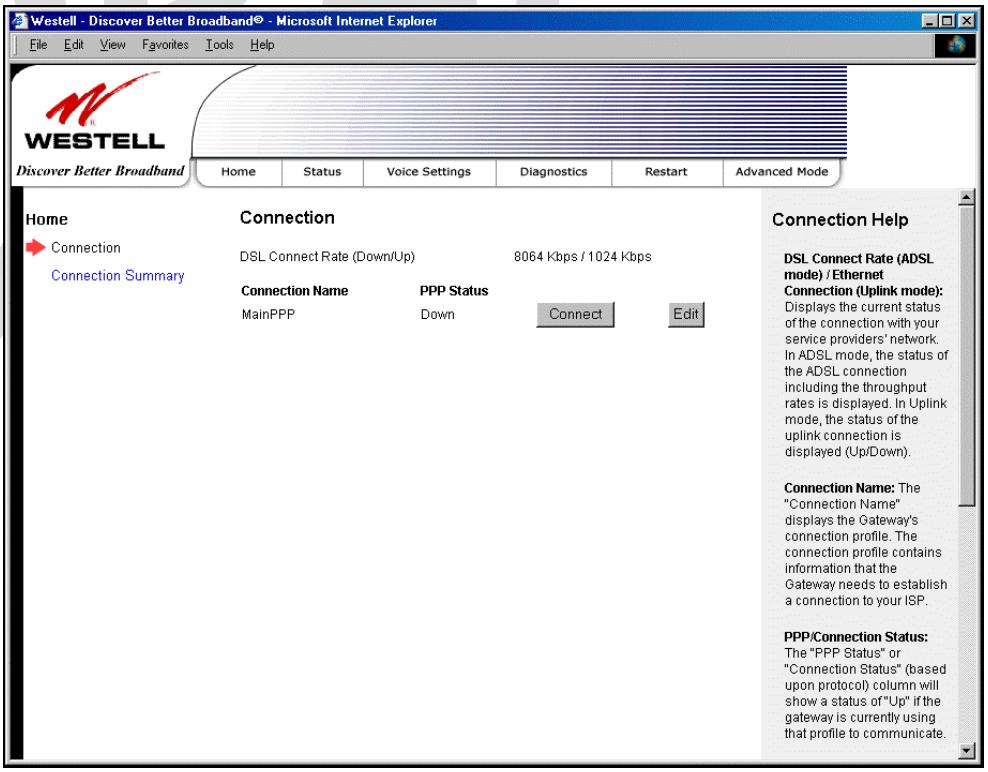
NOTE: Internet service provider subscriber software and connection requirements may vary. Refer to the Internet service provider's installation manual to install the software required for your Internet connection.

8.1 Confirming a DSL Sync

After connecting the hardware for your TriLink™ Gateway, bring up your Web browser. Type **http://192.168.1.1/** in the browser's address window and press 'Enter' on your keyboard. The following **Connection Overview** screen will be displayed.

You must have active DSL service before the Gateway can synchronize with your ISP's equipment. To determine if the Router 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.



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Connection Overview	Displays your DSL 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.

8.2 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 will be displayed. This 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 Router for specific users. The **Connection Name** field enables 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 Router, which you can use once you establish a PPP session with your 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.)

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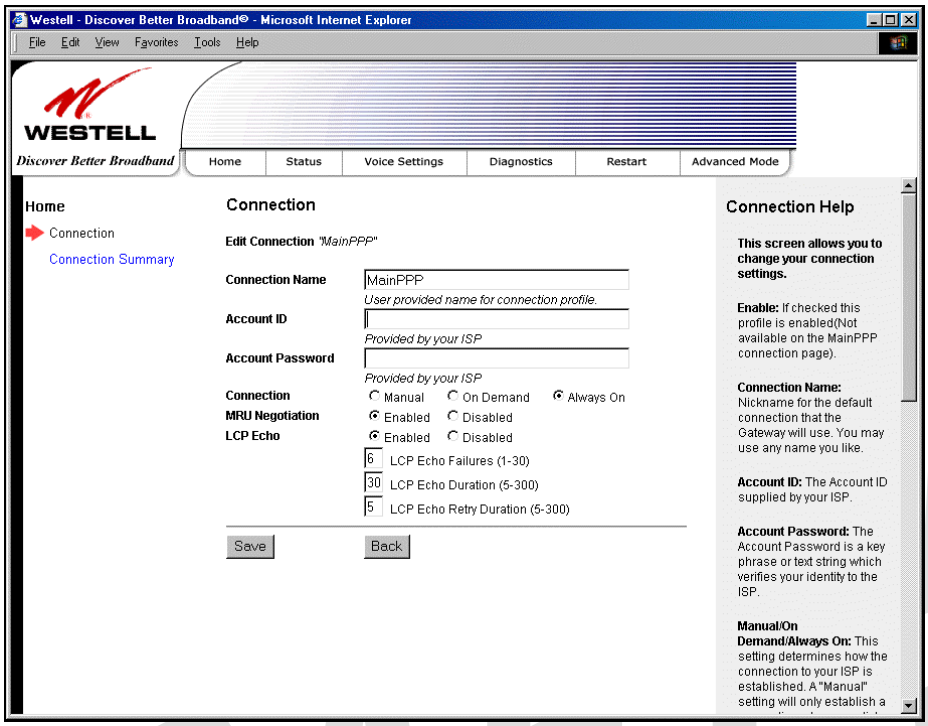

Connection	
Edit Connection	Factory Default = MainPPP The name of the default connection profile. Westell recommends that you use the Default parameter.
Connection Name	This field allows you to enter a new connection name of your choice (up to 64 characters).
Account ID	The account ID (provided by your Internet service provider). If you have multiple Service Providers, you can enter this information at this time.
Account Password	The account password that you are using to connect to your Internet service provider (provided by your Internet service provider). If you have multiple Service Providers, you can enter this information at this time.
Connection	Factory default = Always On Manual: Selecting this feature allows you to manually establish your PPP session. On Demand: Selecting this feature allows the Router 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 Router to automatically establish a PPP session when you log on or if the PPP session goes down.
MRU Negotiation	Factory Default = Enabled When Enabled, the Maximum Received Unit (MRU) will enforce MRU negotiations. (NOTE: Enable this option only at your Internet Service Provider's request.) 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.

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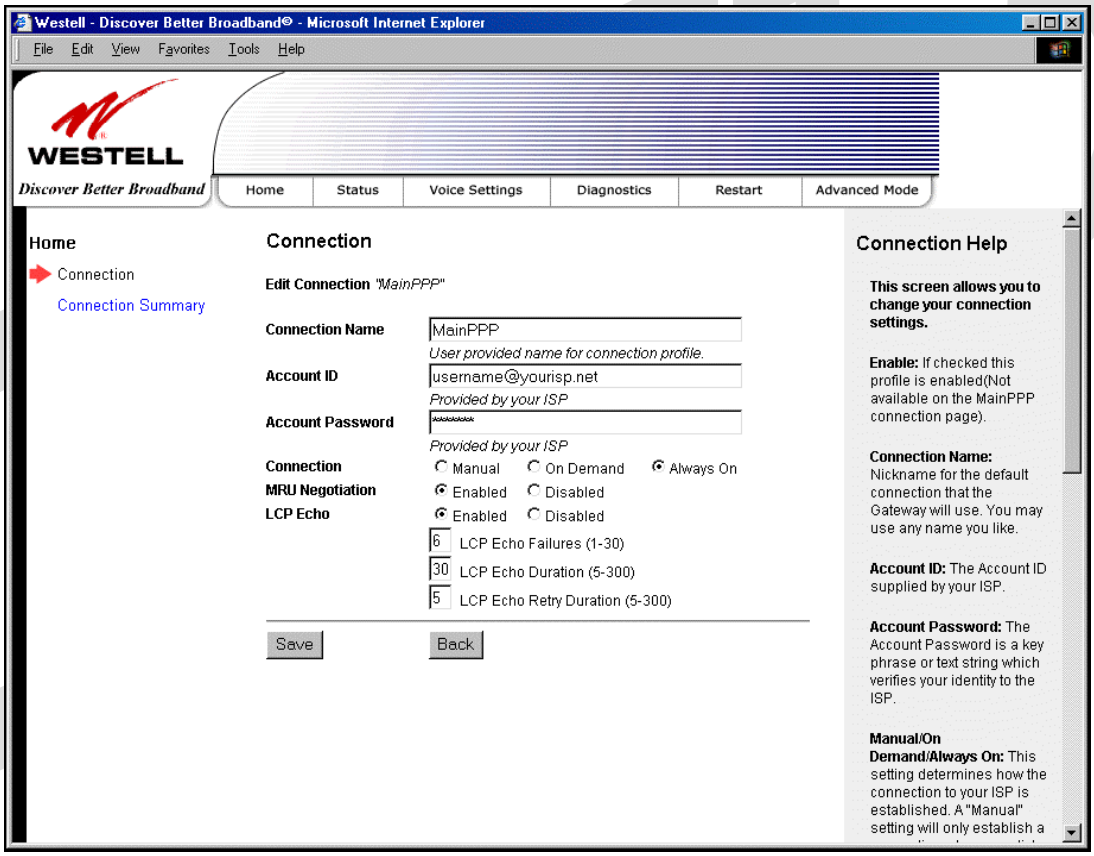
LCP Echo Duration	Factory Default = 30 The interval between LCP Echo transmissions with responses. This value must be between 5 and 300 seconds inclusive and greater than or equal to the Retry Duration.
LCP Echo Retry Duration	Factory Default = 5 The interval between LCP. Echo after no response. This value must be between 5 and 300 seconds inclusive.

At the **Edit Connection** screen, type your Connection Name, Account ID and Account Password (the Account Password will be masked for security), and then select the default Service Profile setting that you will use for this connection profile. The factory default connection setting for the "Default" Service Profile is set to **Always on**. Click **Back** if you do not want to add or edit a connection profile. Click **Save** to save the connection profile.

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.



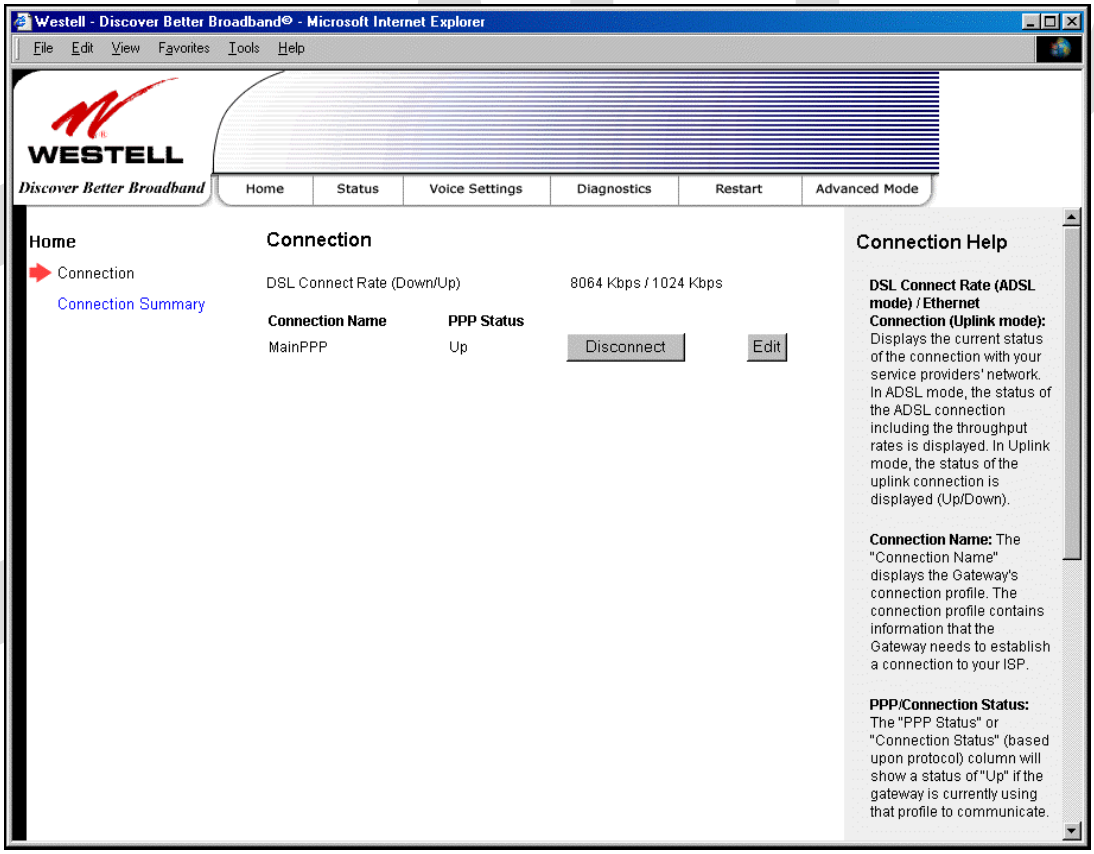
8.3 Establishing a PPP Session

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 Router's Service Profile 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 Router's configuration. Refer to the preceding **Edit Connection** screen to change your Service Profile setting.) The factory default Service Profile setting is "Always on."

The following screen displays **Up** in the **PPP Status** field. This indicates that **Connection1** is the active account profile and that you have established a PPP session with your Internet service provider (ISP). If you have set up multiple account profiles (for example, Connection2, Connection3, etc.) they will also be displayed in the **Connection Name** field, and then you must select the option button adjacent to the connection name you want to use. Refer to section 8.2 for details on setting up a connection profile.

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



After a PPP session has been established, you may browse the Internet. For example, to visit Westell's home page, type **http://www.westell.com** in your browser's address window and then press 'Enter' on your keyboard.

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

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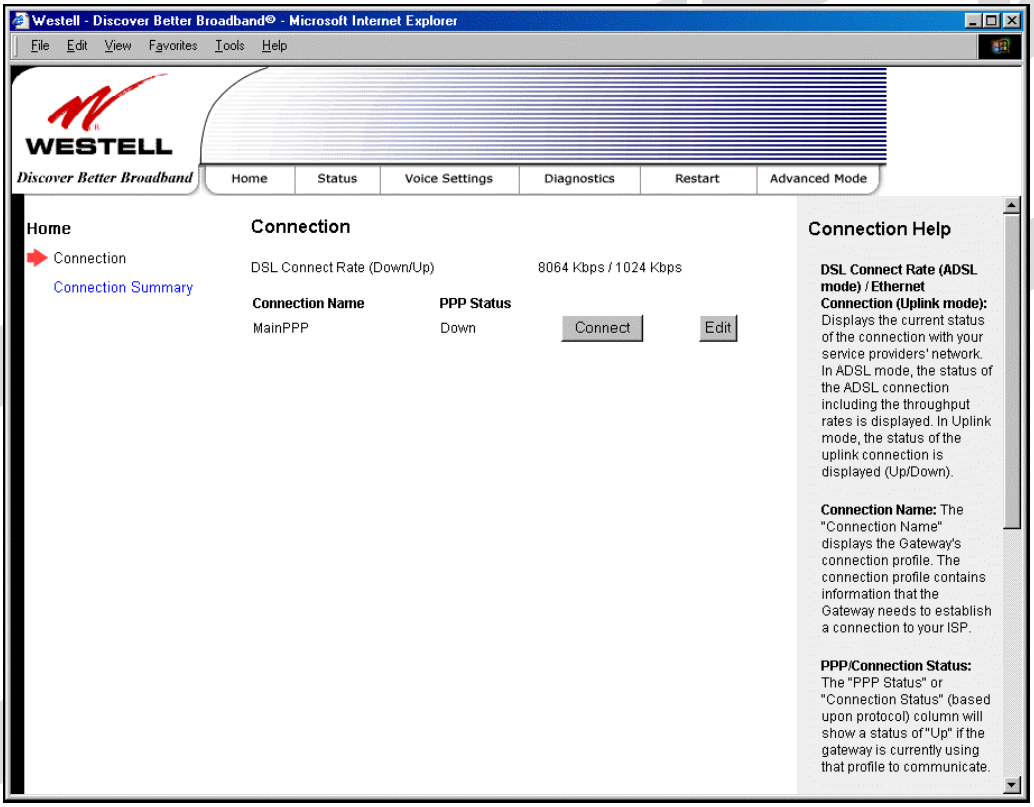
8.4 Disconnecting a PPP Session

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. The following pop-up screen will appear. Click **OK** to disconnect the PPP session.

Warning: If you disconnect the PPP session, this will disconnect the Router 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 Router via the power switch on the Router's rear panel.



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

NOTE: When you are ready to exit the Router'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 on the **disconnect** button to disconnect your PPP session. When you are ready to restore this interface, you must launch your Internet browser and type **http://dslrouter/** or type **http://192.168.1.1/** in the browser's address window and press 'Enter' on your keyboard.

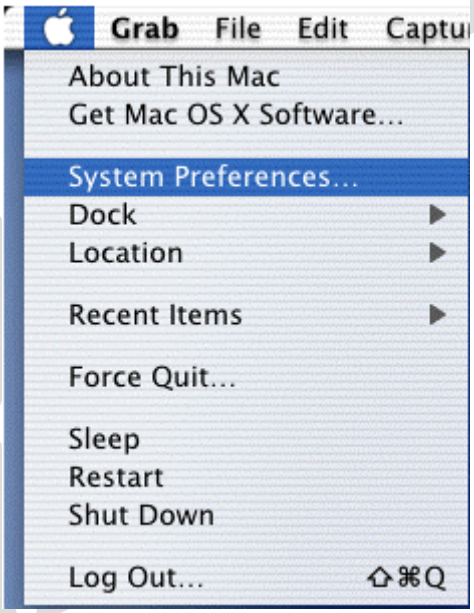
9. SETTING UP MACINTOSH OS X

This section provides instructions on how to use Macintosh Operating System 10 with the Router. 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).

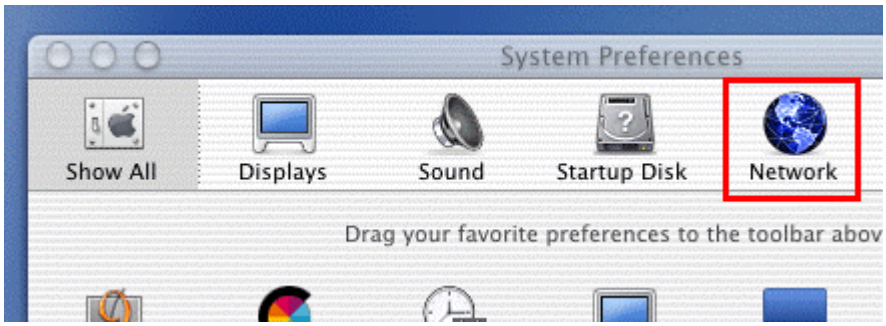
Open the System Preference Screen

After you have connected the Westell Router 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.



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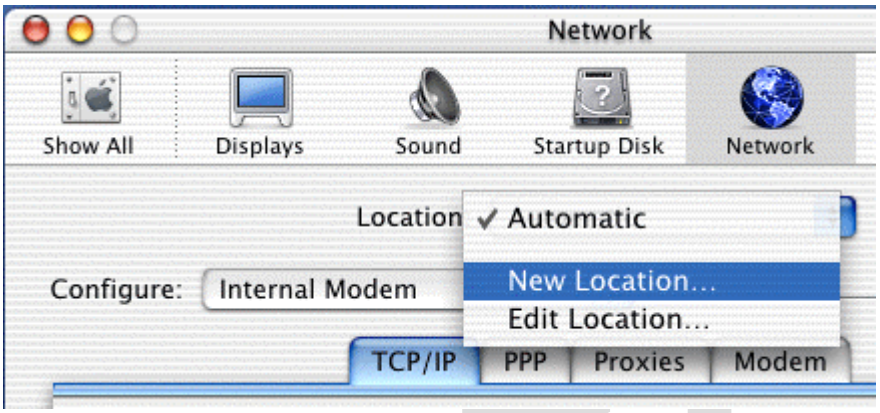
Create a New Location

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**.

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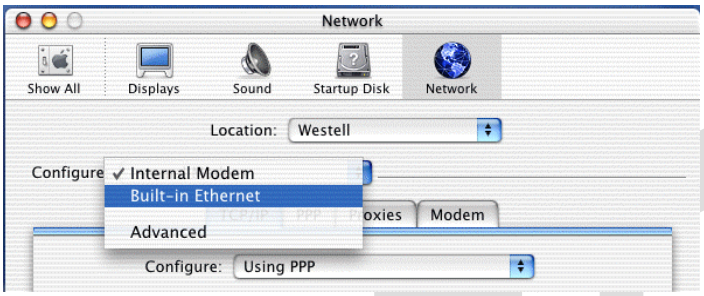
Select the Ethernet Configuration

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 Router.

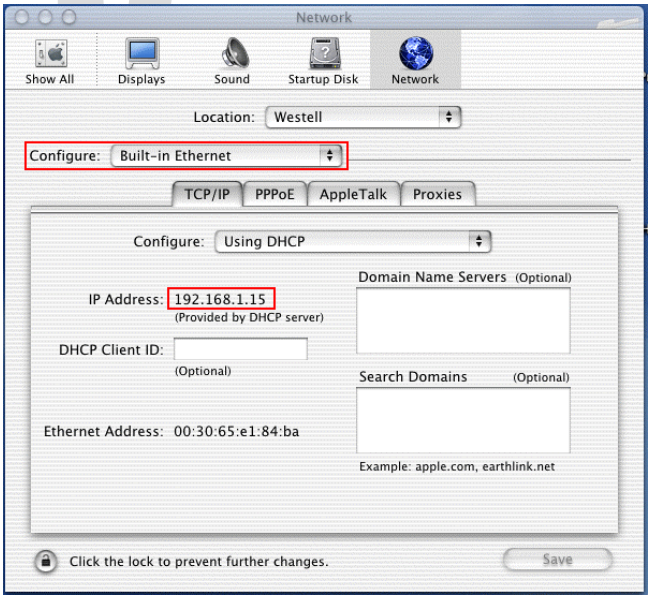


Check the IP Connection

To verify that the computer is communicating with the Router, 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 Router's wiring connection to the PC. If necessary, refer to section 5 for hardware installation instructions.



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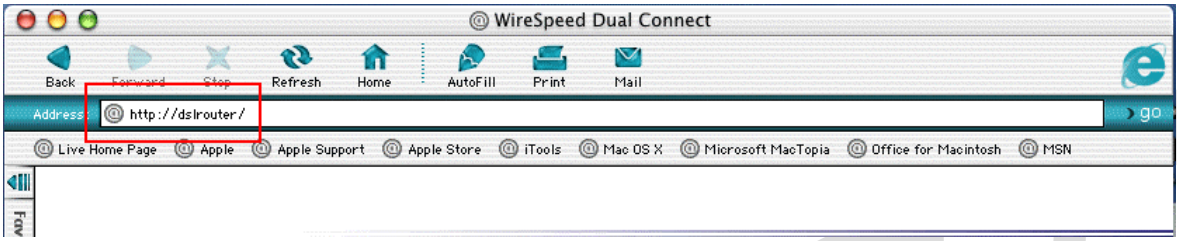
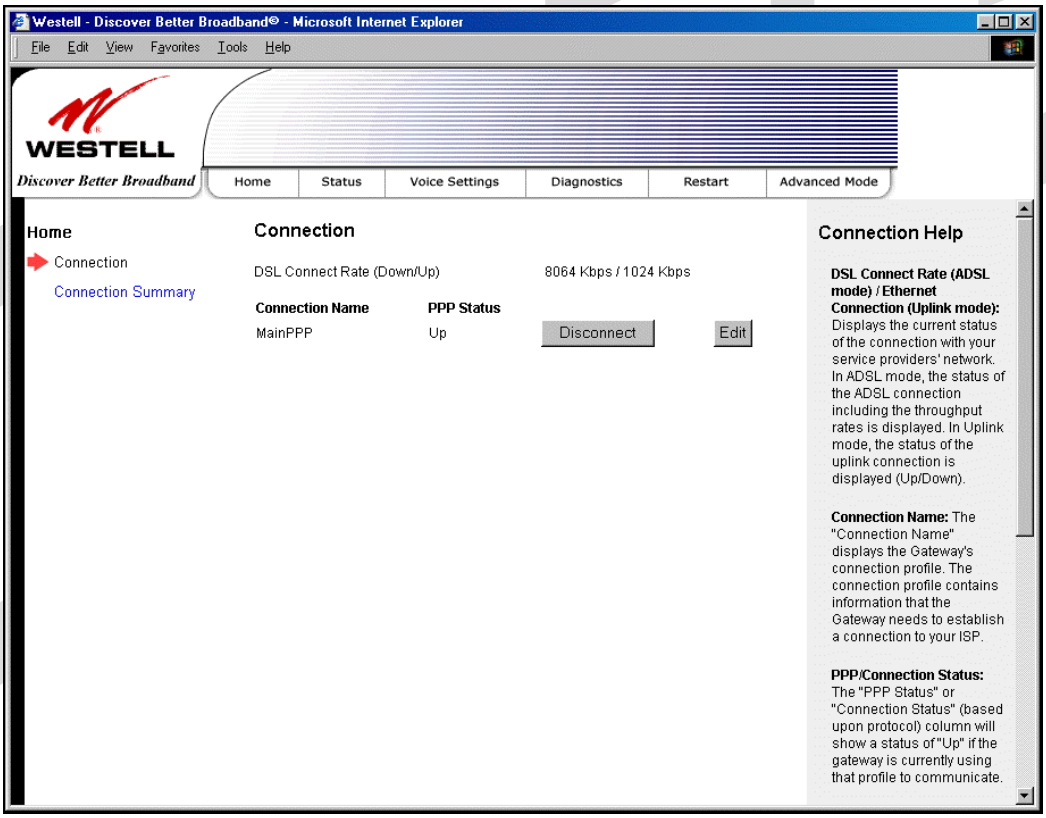
Create a User Account

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



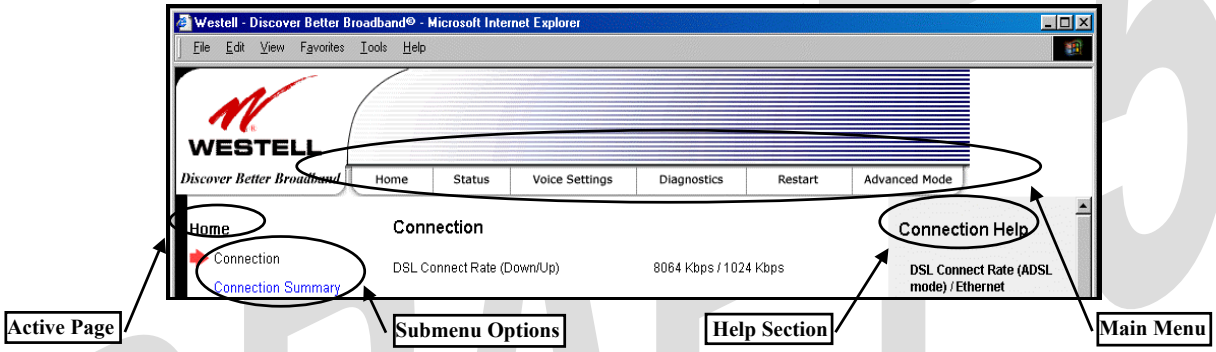
The **Connection Overview** screen will be displayed. You may now begin your Account Setup. Refer to section 8 of this User Guide to configure your Westell Router for Internet connection.



10. BASIC MODE

The following sections explain the basic configurations of your Router. The Router's web pages contain a main navigation menu, displayed at the top of the screens. As you navigate through the various pages of the Router, 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 Router. 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 require that you save your settings. To save your settings, click the **Save** button. To discard changes that you have made to the screen, click the **Discard** button. If you click the **Discard** button, the previously saved settings will be displayed in the screen.



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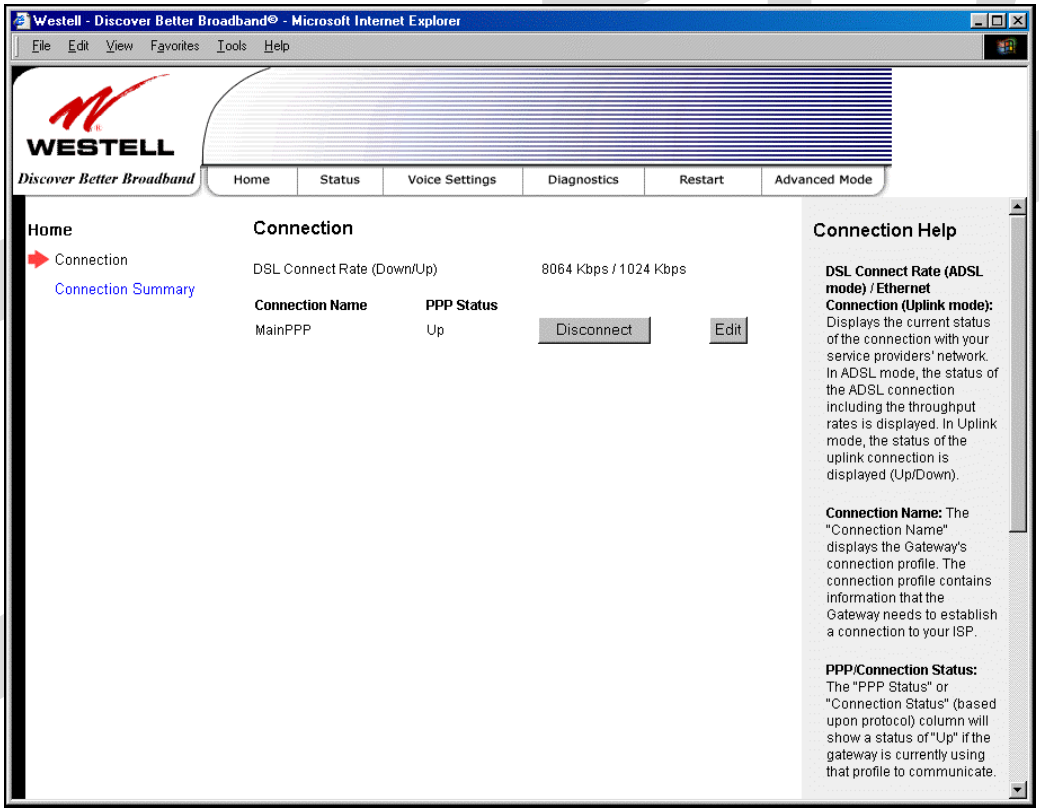
11. HOME

11.1 Connection

After you have set up your account profile and established your PPP session, as discussed earlier in section 8, you are ready to select a menu option from the main navigation menu. If you select **Home** at the main menu, the following **Connection Overview** screen will be displayed. As explained earlier in section 8, the **Connection Overview** screen enables you to view your DSL connection status, set up account profiles (via the Edit button), and establish your PPP session. Refer to section 8 for details on the **Connection Overview** screen.

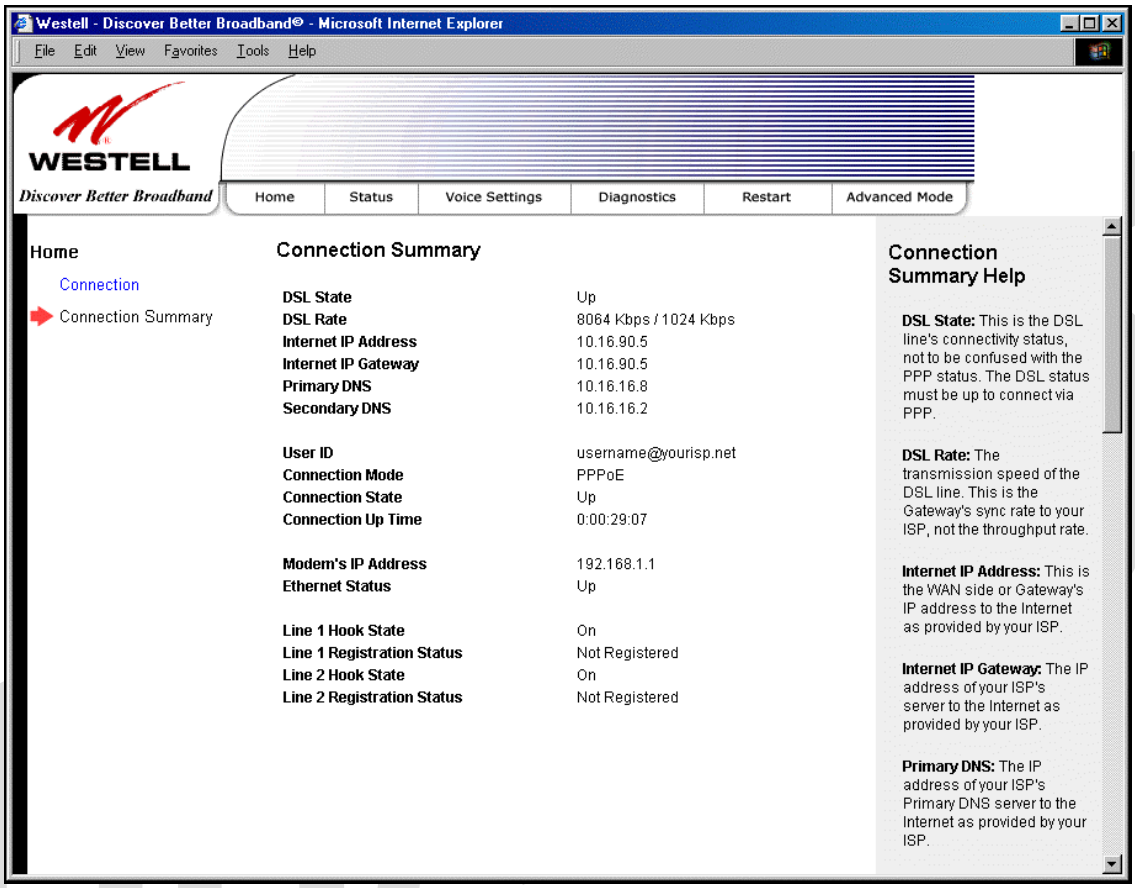
NOTE: The following screen displays **Connection1** as the active connection profile. However, if you have created multiple connection profiles (for example, Connection2, Connection3, etc.) they will also be displayed in the **Connection Name** field, and then you must click the option button adjacent to the connection name you want to use. Refer to section 8.2 for details on setting up a connection profile. You may store up to eight unique connection profiles in your Router.



Connection Overview	Displays your DSL connection rate.
Connection Name	The Connection Name is from the connection profile that you set up in section 8.
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 or add a connection profile. Refer to section 7 for details on connections profiles.

11.2 Connection Summary

If you select **Connection Summary** at the **Home** menu the following screen will be displayed. Refer to this screen for information about your Router's connections.



DSL State	The DSL's connectivity status.
DSL Rate	The transmission speed of your DSL line.
Internet IP Address	The WAN side or Gateway's IP address to the Internet. Provided by your Internet service provider.
Internet IP Gateway	The IP address of your ISP's server to the Internet. Provided by your Internet service provider.
Primary DNS	The IP address of your ISP's primary DNS server. Provided by your Internet service provider.
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 Internet service provider.
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.
Connection Up Time	The duration of your PPP time status. This time field tell how long the Gateway has had a PPP connection established, displayed in the format of (hours:minutes:seconds).
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.
Line 1 Hook State	This indicates the state of the line. "Onhook" means the line is not in use. "Offhook" means the telephone receiver is either in use or the receiver is offhook for some other reason.
Line 1 Registration Status	Indicates whether the line has registered with the SIP proxy server.
Line 2 Hook State	This indicates the state of the line. "Onhook" means the line is not in use. "Offhook" means the telephone receiver is either in use or the receiver is offhook for some other reason.
Line 2 Registration Status	Indicates whether the line has registered with the SIP proxy server.

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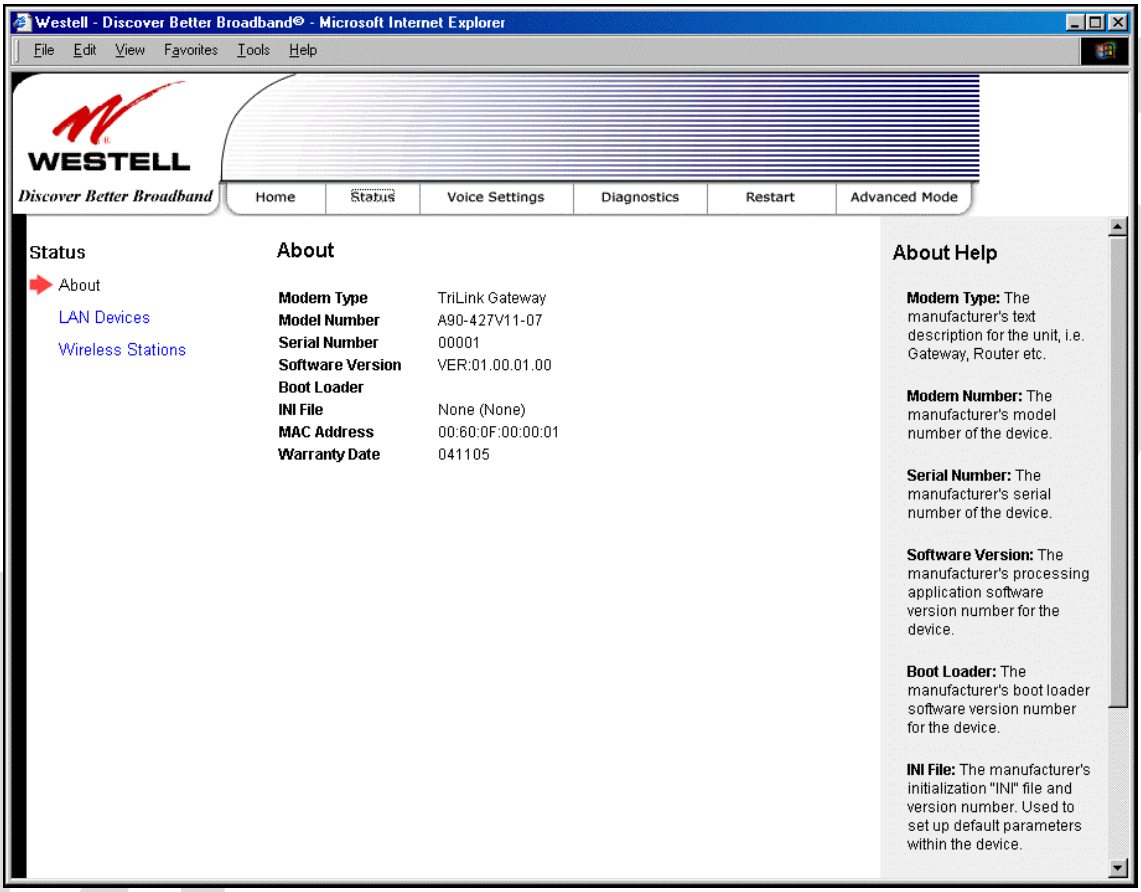
12. STATUS

12.1 About

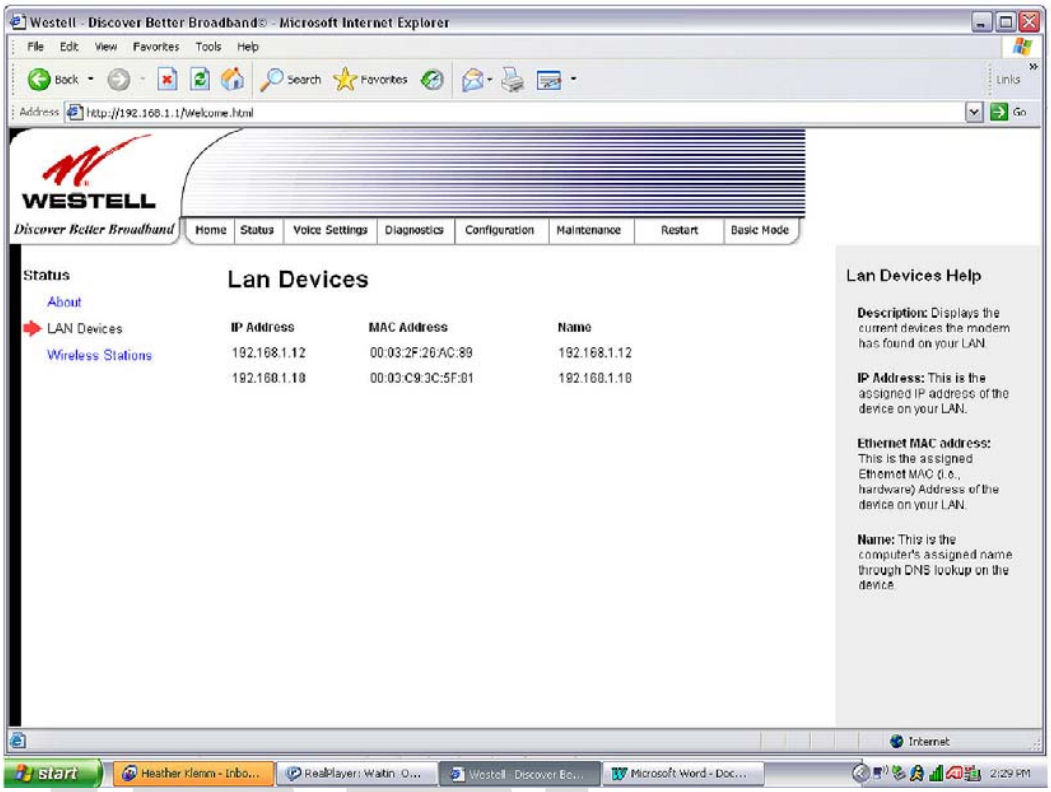
The following screen will be displayed if you select **About** from the **Status** menu.



Modem Type	The Router manufacturer's modem name.
Model Number	The Router manufacturer's model number.
Serial Number	The Router 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 Router manufacturer's INI information.
MAC Address	Media Access Controller (MAC) i.e., hardware address of this device.
Warranty Date	The start date of the Router's warranty

12.2 LAN Devices

The following screen will be displayed if you select **LAN Devices** from the **Status** menu. This screen displays all the devices on the LAN.

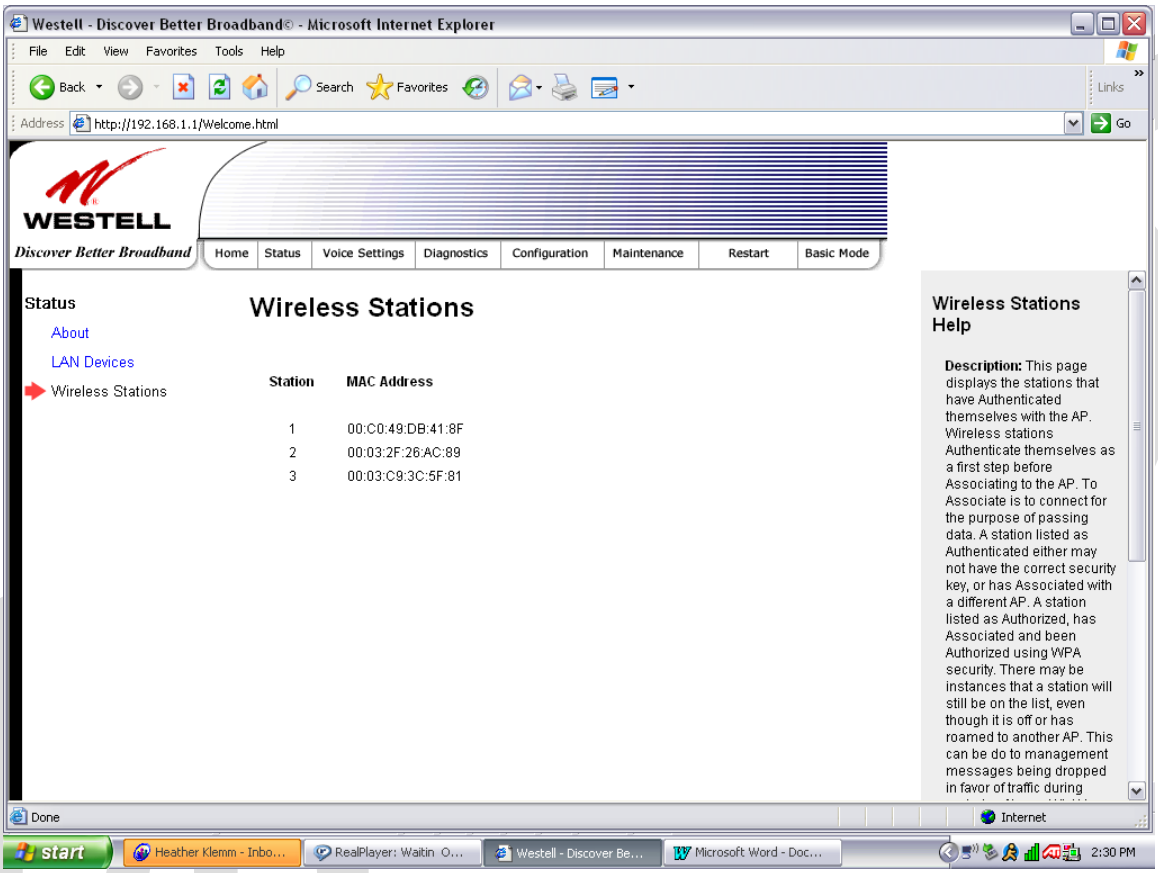


IP Address	The assigned IP address of the networking device.
MAC Address	The assigned Ethernet MAC (i.e., hardware) address of the networking device.
Name	The computer's assigned name. Note: The computer name or the IP address may be displayed in this field.

12.3 Wireless Stations

The following screen will be displayed if you select **Wireless Stations** from the **Status** menu. This page displays the information about the wireless stations that are associated with the Router.

Note: The **Station** and **MAC Address** fields in this screen will be blank if no stations are associated with the AP.



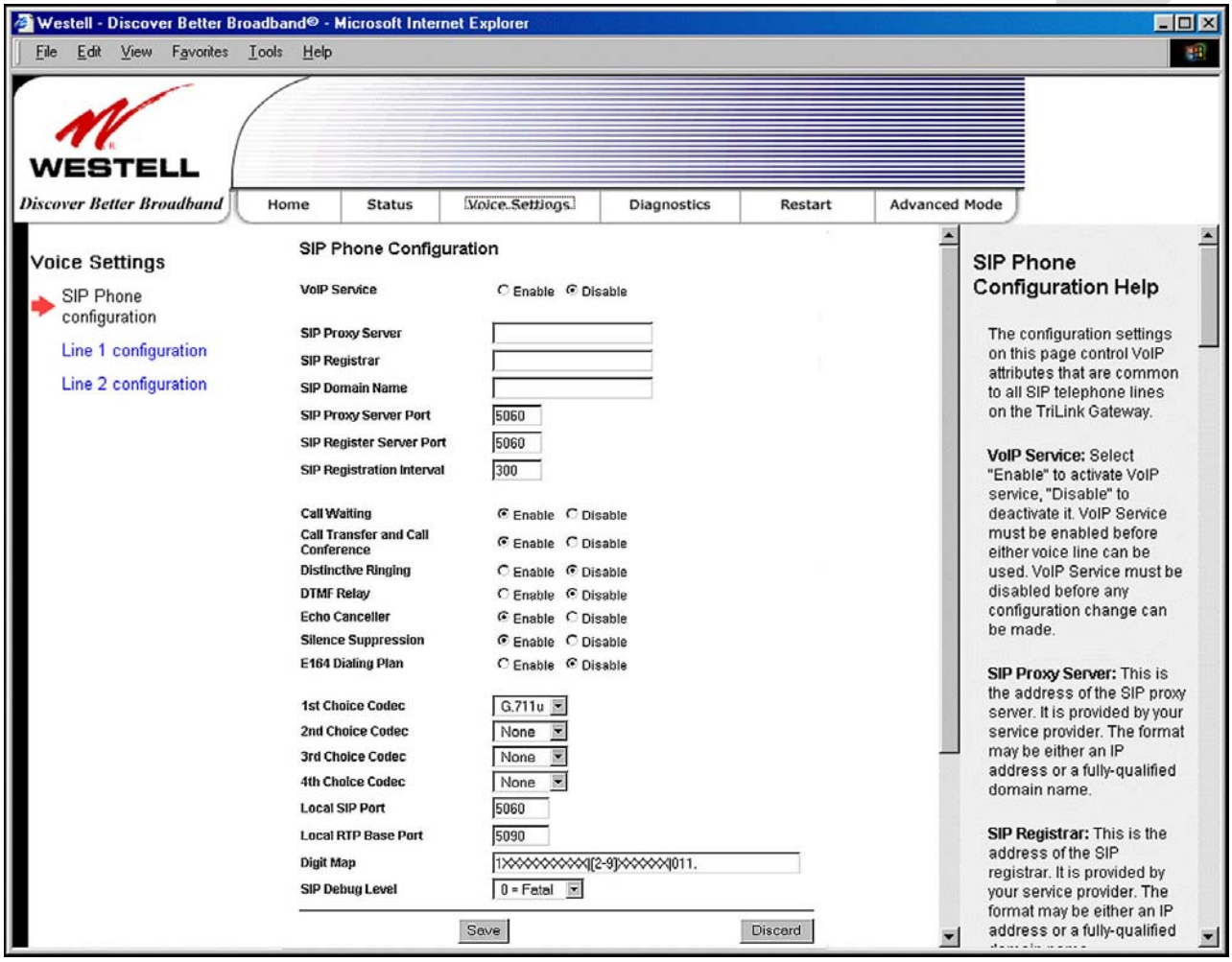
Station	A number indicating the order in which the stations first access the AP. This list can contain a maximum of 10 stations.
MAC Address	The Media Access Controller (MAC) address (i.e., the hardware address of the associated station). This is a unique number entered into the WLAN device's permanent memory during production. A station's MAC address is typically printed on the card or can be viewed using the card's configuration utility.

13. VOICE SETTINGS

13.1 SIP Phone Configuration

The following screen will be displayed if you select **SIP Phone Configuration** from the **Voice Settings** menu. If you make changes to this screen, click **Save** to save your settings.

IMPORTANT: VoIP Service must be disabled in all screens before any configurations can be made to the screens.



SIP Phone Configuration	
SIP Phone Configuration	The configuration settings on this page control the VoIP attributes that are common to all SIP telephone lines on the TriLink Gateway.
VoIP Service	Factory Default = Disable VoIP Service must be enabled before either voice line can be used. VoIP Service must be disabled before any configuration changes can be made. Possible Response: Select Enable to activate VoIP service. Select Disable to deactivate VoIP service.
SIP Proxy Server	The address of the SIP proxy server. This address is provided by your service provider. The format may be either an IP address or a fully qualified domain name.
SIP Registrar	The address of the SIP registration server. This is provided by your service provider. The format may be either an IP address or a fully qualified domain name.
SIP Domain Name	The name used in the "To" and "From" addresses of the SIP messages sent from the Router. This is provided by your Internet service provider.
SIP Proxy Server Port	Factory Default =5060 The UDP port number that the gateway will use to talk to the SIP proxy server. This is provided by your service provider.
SIP Register Server Port	Factory Default =5060 The UDP port number that the gateway will use to talk to the SIP registration server. This is provided by your service provider.
SIP Registration Interval	Factory Default =300 The period of time, in seconds, that the SIP registration is valid. The Router will attempt to reregister before this time expires.
Call Waiting	Factory Default = Enable If set to Disable, call waiting service will not be available. If set to Enable, call waiting service will be available if your service provider supports these features.
Call Transfer and Call Conference	Factory Default = Enable If set to Disable, the call transfer and the call conference service will not be available. If set to Enable, the call transfer and the call conference service will be available if your service provider supports these features.
Distinctive Ringing	Factory Default = Disable If set to Disable, Distinctive Ringing will not be activated. If set to Enable this will allow the phone to ring with one of several different ringing patterns. The ringing pattern is user-configurable via the service provider's web portal.
DTMF Relay	Factory Default = Disable If set to Disable, DTMF signalling will be sent as audio tones. If set to Enable, DTMF signalling tones will be sent out-of-band per RFC 2833.
Echo Canceller	Factory Default = Enable If set to Disable, echo cancellation will not be turned on and may be able to hear voice echo on your phone line. If set to Enable, echo cancellation will be turned on.
Silence Suppression	Factory Default = Enable If set to Disable, the router's silence suppression and comfort noise generation (CNG) functions will not be available. If set to Enable, the ATA will enable silence suppression and CNG functions.
E164 Dialing Plan	Factory Default = Disable

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	If set to Disable, the message headers in outbound INVITE messages will specify user addresses exactly as they are entered in the GUI. If set to Enable, the message headers in outbound INVITE messages will specify user addresses (i.e., phone numbers) in the E.164 format. (Note: It is recommended that you do not enable this option unless directed by your service provider.)
1st Choice Codec	Factory Default = G.711µ The 1st choice CODEC (Coder/Decoder) specifies the preferred CODEC. The Router supports the following CODECs: G.711µ G.711A G.729A G.723.1
2nd Choice Codec	Factory Default = None The 2nd choice CODEC (Coder/Decoder) specifies the second priority CODEC. If no second priority CODEC is desired select "None." Possible Response: None G.711µ G.711A G.729A G.723.1
3rd Choice Codec	Factory Default = None The 3rd choice CODEC (Coder/Decoder) specifies the third priority CODEC. If no third priority CODEC is desired select "None." Possible Response: None G.711µ G.711A G.729A G.723.1
4th Choice Codec	Factory Default = None The 4th choice CODEC (Coder/Decoder) specifies the lowest priority CODEC. If no fourth priority CODEC is desired select "None." Possible Response: None G.711µ G.711A G.729A G.723.1
Local SIP Port	Factory Default = 5060 The port number from which the TriLink sends SIP messages.
Local RTP Base Port	Factory Default =5090 The first UDP port number that the gateway will use to send the RTP voice packets.
Digit Map	You can configure the digit map string according to your dialing plan. The default digit map string is: 1XXXXXXXXXX|[2-9]XXXXXX|011. The individual digit maps are separated by the "|" character. The syntax is as follows X – Matches any single digit.

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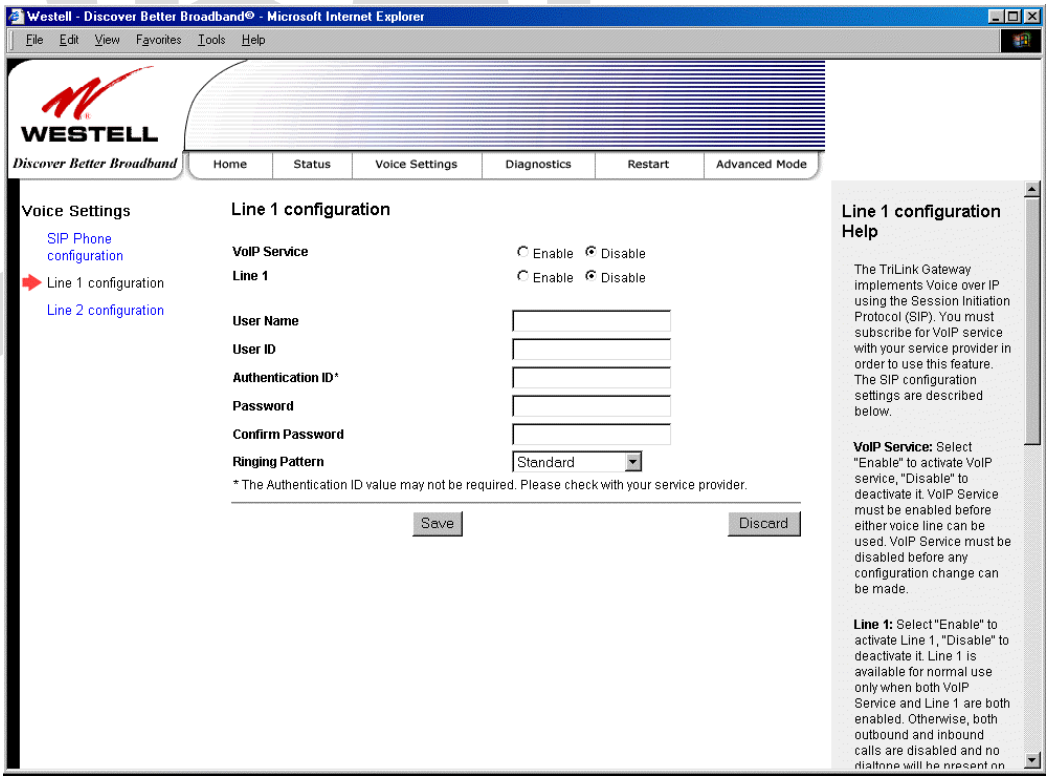
	* – Represents the * character on you telephone keypad. In the example, the digit map *XX. supports feature code dialing. . – A period represents any arbitrary number of digits, including none. [2-9] – Any single digit in the specified range. [3,4,5] – Any single digit in the comma-separated list.
SIP Debug Level	Factory Default = 0 Possible Response: 0 = Fatal 1 = Error 2 = Warn 3 = Notice 4 = Info 5 = Dbg 6 = Dbgv

13.2 Line 1 Configuration

The following screen will be displayed if you select **Line 1 Configuration** from the **Voice Settings** menu.

NOTE: By factory default, VoIP Service and Line 1 are disabled. Disabling VoIP Service will cancel any calls in progress. VoIP service must be disabled in all screens before any configurations can be made to the screens.

When **VoIP Service** and **Line 1** are disabled, you may enter the appropriate values in the fields provided. When you are ready to enable VoIP Service, first click the **Enable** button for **Line 1**, and then click the **Enable** button for **VoIP Service** (the fields in the screen will be dimmed and unavailable for further configuration). Next, click **Save** to save your settings.



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Line 1 Configuration	
VoIP Service	Factory Default = Disable VoIP Service must be enabled before either voice line can be used. VoIP Service must be disabled before any configuration changes can be made to the **Line 1 Configuration** screen. Possible Response: Select Enable to activate your VoIP service. Select Disable to deactivate your VoIP service.
Line 1	Factory Default = Disable Line 1 is available for normal use only when both VoIP Service and Line 1 are enabled. Otherwise, outbound and inbound calls are disabled and no dial tone will be present on the line. Possible Response: Select Enable to activate Line 1. Select Disable to deactivate Line 1.
User Name	The subscriber's name associated with Line 1.
User ID	The user identifier associated with this line (provided by your service provider).
Authentication ID*	The authentication ID associated with Line 1.
Password	The user password associated with this line (provided by your service provider).
Confirm Password	The confirm password value must be identical to your password.
Ringing Pattern	Factory Default = Standard The ringing pattern controls how the phone connected to Line 1 will ring when there is an incoming call. The name in the drop down menu describes the ringing cadence. Possible Response: Standard Long-Long Short-Short-Long Short-Long-Short
**Note: The Authentication ID value may not be required. Check with your service provider.*	

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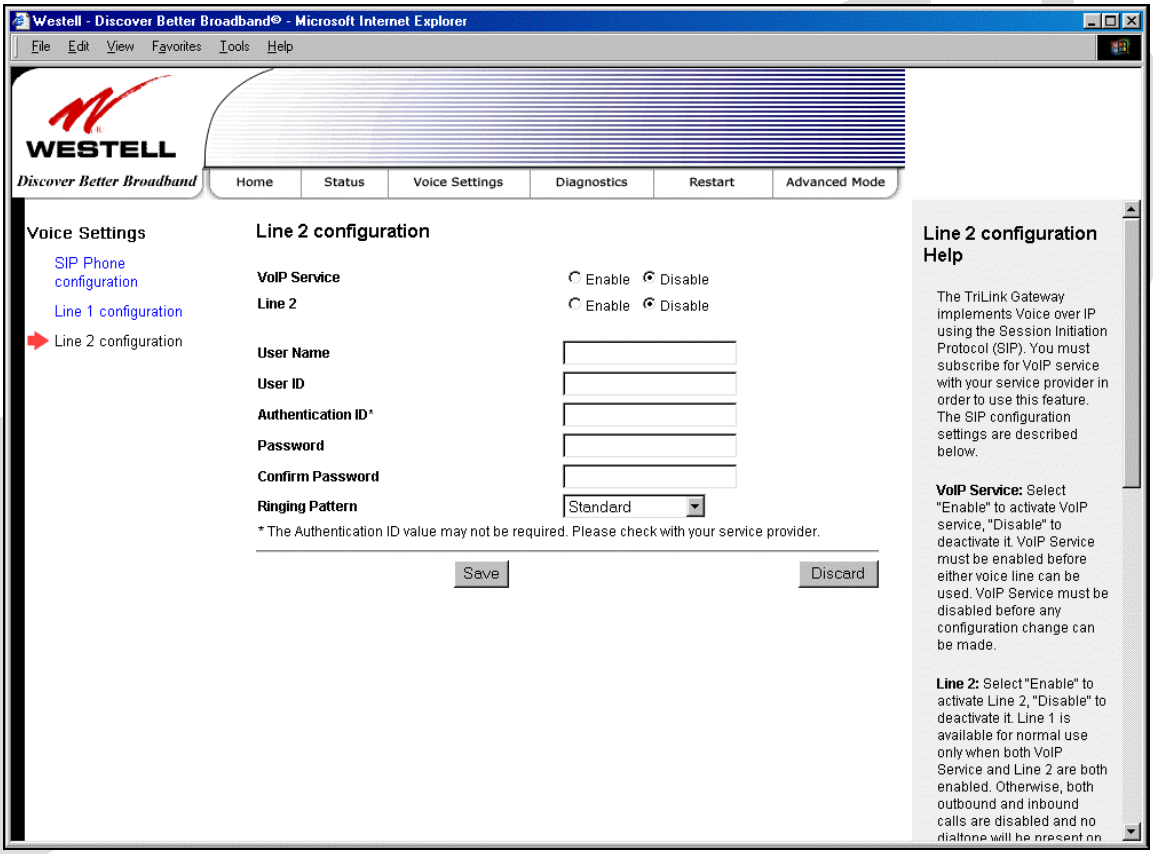
13.3 Line 2 Configuration

The following screen will be displayed if you select **Line 2 Configuration** from the **Voice Settings** menu.

NOTE: By factory default, VoIP Service and Line 2 are disabled. Disabling VoIP Service will cancel any calls in progress. VoIP service must be disabled in all screens before any configurations can be made to the screens.

When **VoIP Service** and **Line 2** are disabled, you may enter the appropriate values in the fields provided. When you are ready to enable VoIP Service, first click the **Enable** button for **Line 2**, and then click the **Enable** button for **VoIP Service** (the fields in the screen will be dimmed and unavailable for further configuration). Next, click **Save** to save your settings.



Line 2 Configuration	
VoIP Service	Factory Default = Disble VoIP Service must be enabled before either voice line can be used. VoIP Service must be disabled before any configuration changes can be made to the **Line 2 Configuration** screen. Possible Response: Select Enable to activate your VoIP service. Select Disable to deactivate your VoIP service.
Line 2	Factory Default = Disble Line 2 is available for normal use only when both VoIP Service and Line 2 are enabled.

	Otherwise, outbound and inbound calls are disabled and no dial tone will be present on the line. Possible Response: Select Enable to activate Line 2. Select Disable to deactivate Line 2.
User Name	The subscriber's name associated with line.
User ID	The user identifier associated with this line (provided by your service provider).
Authentication ID*	The authentication ID associated with Line 2.
Password	The user password associated with this line (provided by your service provider).
Confirm Password	The confirm password value must be identical to your password.
Ringing Pattern	Factory Default = Standard Possible Response: Standard Long-Long Short-Short-Long Short-Long-Short

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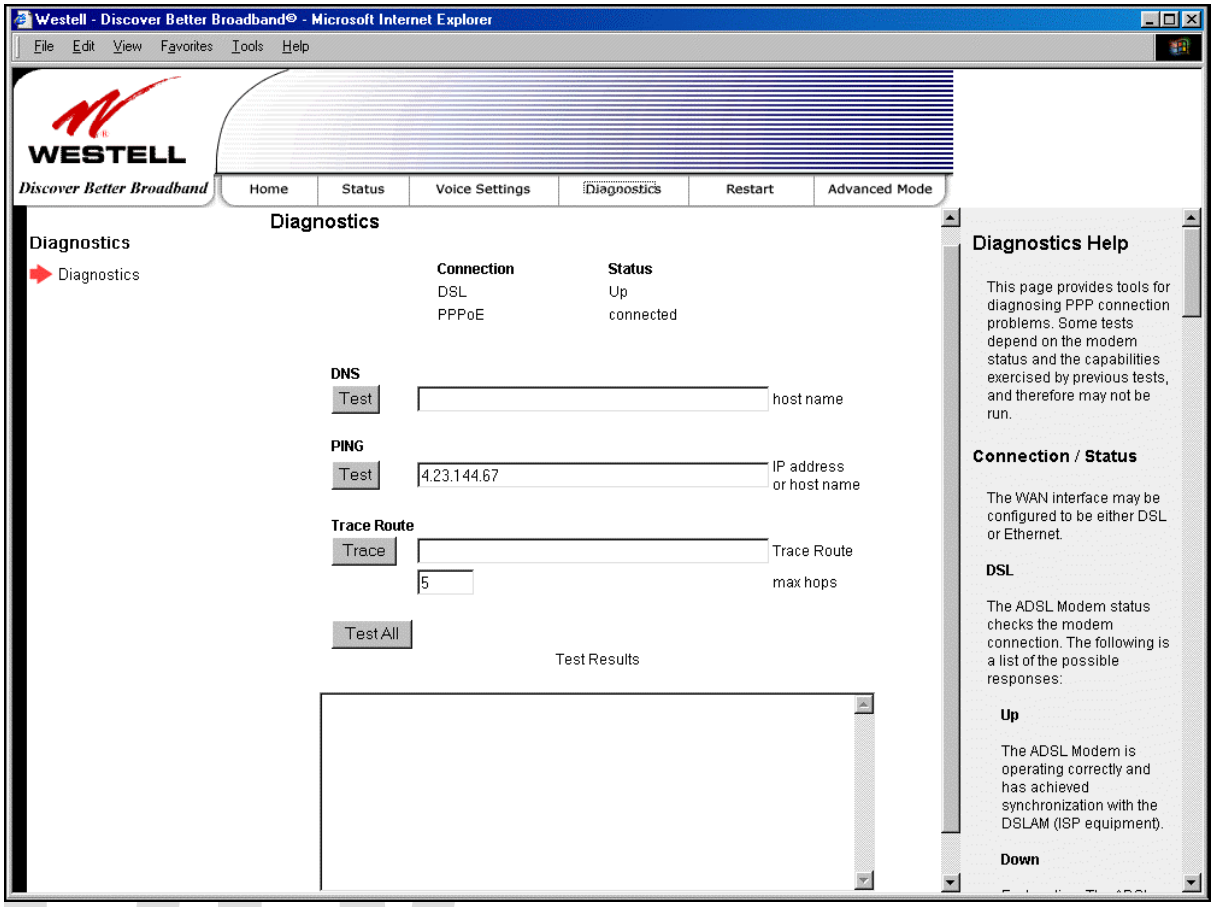
14. DIAGNOSTICS

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



Connection/Status	
DSL	The Router checks the status of the DSL connection. Possible responses are: UP: The Router is operating correctly and has obtained DSL synchronization. DOWN: The Router is operating correctly, but has not DSL synchronization.
PPPoE	Indicates that a PPPoE session is or is not established. Possible responses are: Session Up: A valid PPPoE session has been detected. No Session: Currently there is no active PPPoE session established. Initiating Session: A PPP session must be connected from the homepage screen.
PPP	Indicates that a PPPoE or session must already be established. Possible responses are: Connection UP: The Router has established a connection. No Connection: There is no PPP connection. Initiating Connection: The PPP connection process has been initiated. Connection Halted: A successful PPP connection was halted. Cannot Connect: A PPP connection could not be made because of a PPPoE session failure. Authorization Failure: The user name or password is incorrect.

	Link Control Protocol Failed: The connection has been interrupted due to an LCP error, and the Router is now trying to establish the session (from the home page).
Test Description / Test Results	
Self Test	Performs an integrity check of certain internal components of the Router.
PING ISP's Router	Performs an IP network check (i.e., an IP Ping) of the service provider's Router. This test verifies that the Router can exchange IP traffic with an entity on the other side of the DSL line. Possible responses are: Success: The Router has detected an IP Remote Router connection. No Response: The IP Remote Router does not answer the IP Ping. Could not test: The test could not be executed due to the Router'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.
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 Router has successfully obtained the resolved address. The IP address is shown below the host name input box. No Response: The Router 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 Router'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 Router 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 Router to the specified destination.
Test All	Allows you to run a full diagnostic test.

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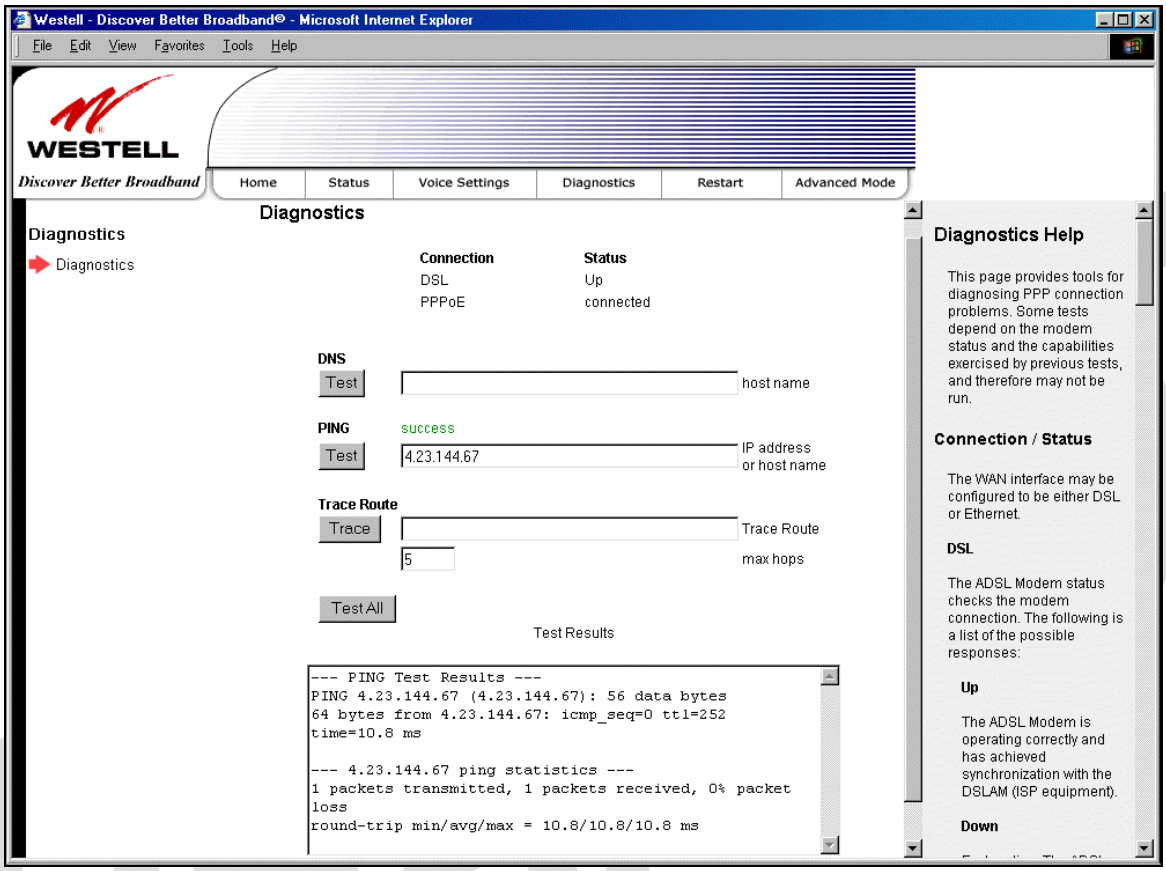
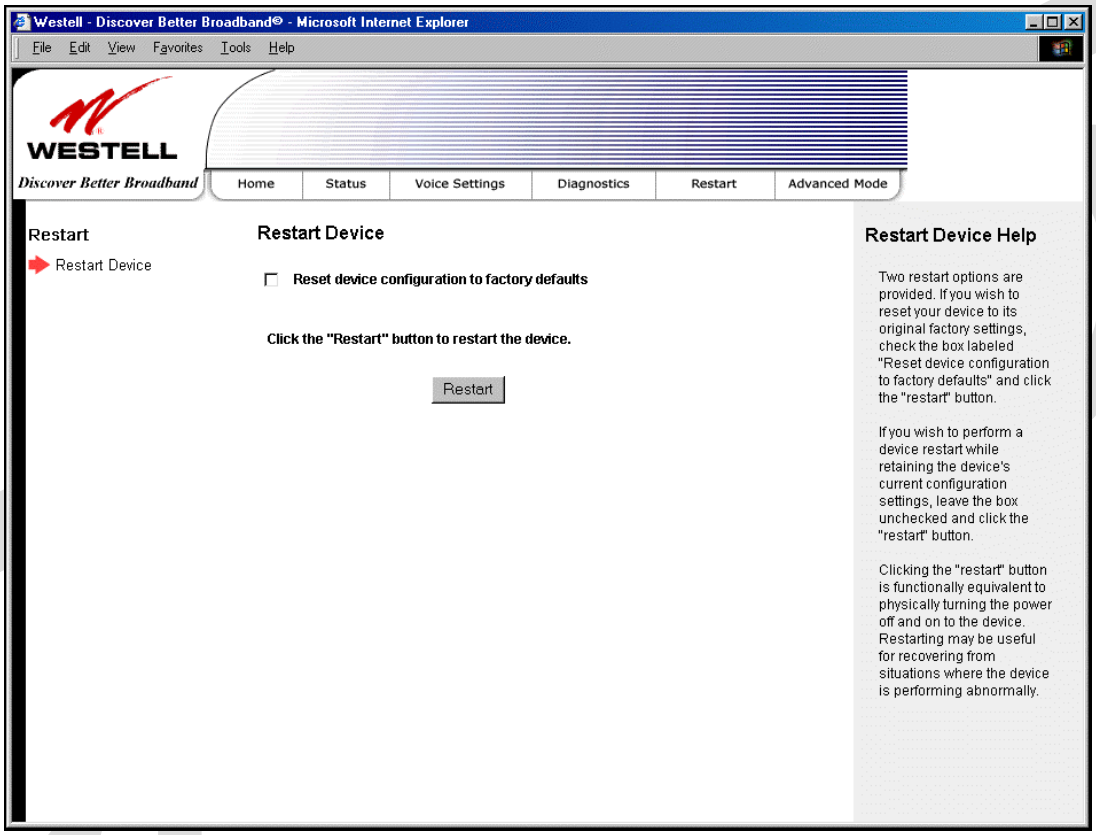
To perform a diagnostic test, type the appropriate value in any of the fields provided, and then click the **Test** button. If you click **Test All,** the following screen will be displayed. The **Test Results** field will display information about your modem's diagnostic test.



15. RESTART

The following screen will be displayed if you select **Restart** at the main menu. If you want to erase the stored configuration, click on the check box labeled **Restart device to configuration to factory defaults** (a check mark will appear in the box). Next, click the **restart** button to restart the Router.

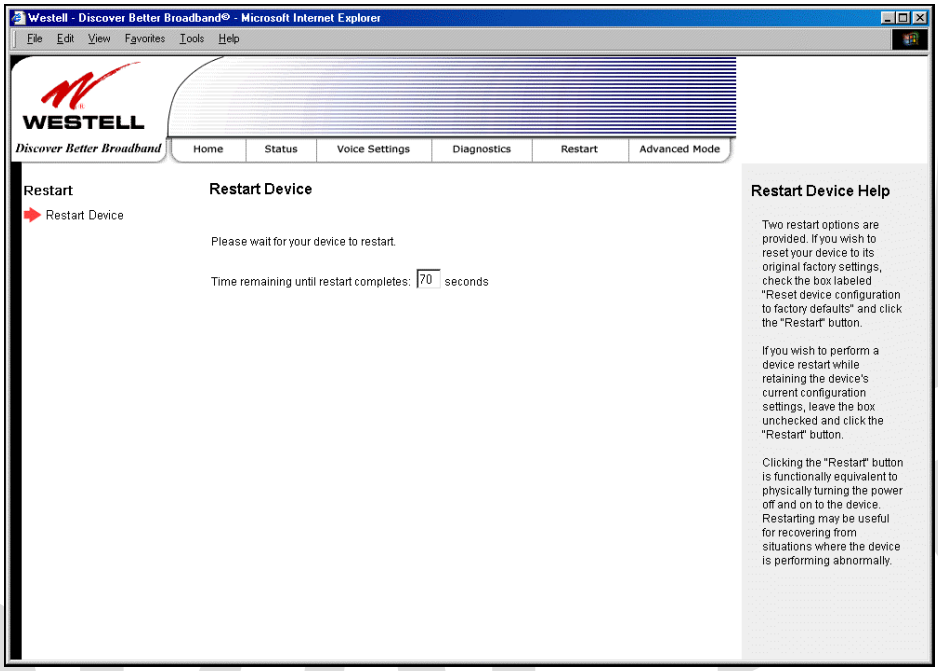
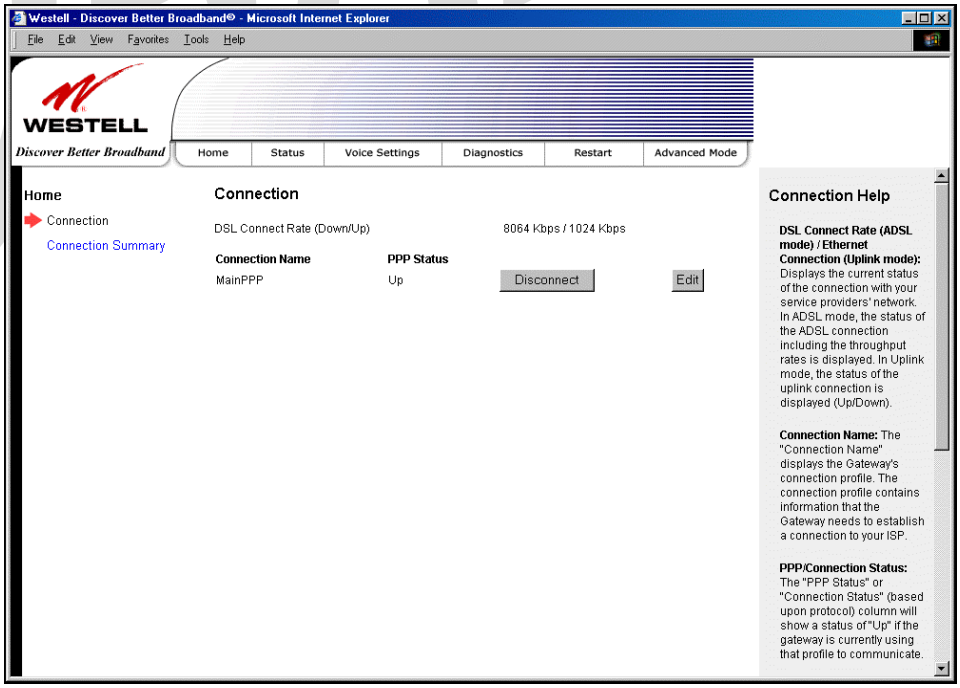
Important: To reset the Router to factory default configuration, you must click the check box prior to clicking the restart button. All custom configuration information will be erased.



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

If you clicked **OK** in the preceding pop-up screen, the following screen will be displayed. Please wait for your Router to restart. After your Router 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 modem restarts.



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