VERSALINK® WIRELESS GATEWAY (MODEL 7550)

USER GUIDE

CONTENTS

1. PRODUCT DESCRIPTION

The Westell® VersaLink® Wireless Gateway provides reliable, high-speed, Internet access to your existing small office phone line and is capable of data rates hundreds of times faster than a traditional analog modem. But unlike analog modems, the VersaLink Gateway allows you 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. In addition, VersaLink supports a variety of networking interfaces such as Wireless 802.11b/g/n, ADSL, Ethernet and USB, along with the following optional features:

- E1/UPLINK: Alternate WAN uplink port
- E4/DATA: Alternate Ethernet/USB connection
- Layer w/2 QOS with VLAN tagging
- HotSpot
- Simultaneous public/private network support

Hereafter, the Westell® VersaLink® Wireless Gateway will be referred to as "VersaLink," "Router," or "Modem."

The Westell Gateway is powered by an ENERGY STAR® qualified adapter.

2. SAFETY INSTRUCTIONS

- 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

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.

WARNING: While this device is in operation, a separation distance of at least 20 cm (8 inches) must be maintained between the radiating antenna and users exposed to the transmitter in order to meet the FCC RF exposure guidelines. Making changes to the antenna or the device is not permitted. Doing so may result in the installed system exceeding RF exposure requirements. This device must not be co-located or operated in conjunction with any other antenna or radio transmitter. Installers and end users must follow the installation instructions provided in this guide.

Modifications made to the product, unless expressly approved, could void the users' rights to operate the equipment.

PART 68 – COMPLIANCE REGISTRATION

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the base unit of this equipment is a label that contains, among other information, a product identifier in the format US: 5KPDL**01B**755. If requested, this number must be provided to the telephone company.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US: 5KPDL**01B**755. The digits represented by 01 are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

If your equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC. Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact the following address and phone number for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning. This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Company: Westell Technologies, Inc.
Address: 750 North Commons Drive, Aurora, IL 60504, USA
Tel no.: 630-898-2500

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. See installation instructions for details.

This equipment is designated to connect to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. A FCC compliant telephone cord and modular plug is provided with the equipment. See the Installation Information section of 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. See installation instruction for details.

If this terminal equipment (Model 7550) 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 7550), do not try to repair the equipment yourself. The equipment cannot be repaired in the field. Contact your service provider for instructions.

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 7550) 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.

⚠ 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 or USB installations.

Connection Type	Minimum System Requirements
ETHERNET E1/UPLINK E2 E3 E4/Data	• Pentium® or equivalent class machines or higher • Microsoft® Windows® (Vista™, XP, 2000, ME, NT 4.0, 98 SE) Macintosh® OS X, or Linux installed • 64 MB RAM (128 MB recommended) • 10 MB of free hard drive space • 10/100 Base-T Network Interface Card (NIC) • Internet Explorer 5.5 or later or Netscape Navigator 7.x or later • Computer Operating System CD-ROM on hand
WIRELESS **IEEE 802.11b/g/n**	• Pentium® or equivalent class or higher • Microsoft® Windows® (Vista™, XP, 2000, ME, NT 4.0, 98 SE) or Macintosh® OS X installed • 64 MB RAM (128 MB recommended) • 10 MB of free hard drive space • Internet Explorer 5.5 or Netscape Navigator 7.x or later • An available IEEE 802.11b/g/n PC adapter • Computer Operating System CD-ROM on hand

5. HARDWARE FEATURES

5.1 LED Indicators

This section explains the LED States and Descriptions. 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.
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). Note: When using the optional uplink port (E1), Ethernet LAN connection is limited to E2, E3, and E4.
	Flashing Green	10/100 Base-T LAN activity is present (traffic in either direction)
	OFF	Router power is OFF, no cable or no powered device is connected to the associated port.
WIRELESS	**Solid Green**	Link Established.
	Flashing Green	Wireless LAN activity is present (traffic in either direction).
	OFF	Router power is OFF or No Link.
USB	**Solid Green**	USB link established.
	Flashing Green	USB LAN activity present (traffic in either direction).
	OFF	No USB link established.
DSL	**Solid Green**	Good DSL link.
	Flashing Green	DSL attempting to sync.
	Solid Amber	Modem is in safeboot mode.
	OFF	Router power is OFF.
INTERNET	**Solid Green**	Internet link established. With DSL up, the Router has a WAN IP address from IPCP or DHCP; or a static IP is configured; or PPP negotiation has successfully completed (if used) and no traffic is detected.
	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	Router power is OFF, Router is in Bridge Mode, or the ADSL connection is not present.

5.2 Cable Connectors and Switch Locations

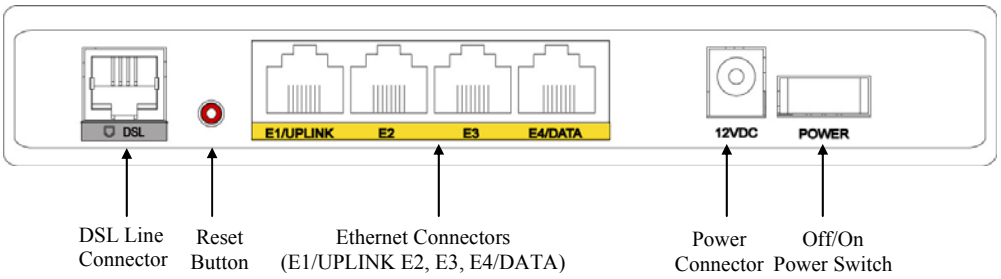
- DSL connector (RJ-11)
- Reset push button
- Four Ethernet (RJ-45) connectors with optional E1/UPLINK port and optional E4/DATA port

NOTE:

1. When using the optional E1/ UPLINK jack (when VersaLink is configured for WAN Uplink mode), Ethernet LAN connection is limited to ports E2, E3, and E4. The Uplink feature is optional. If Uplink is not enabled via the Web pages, VersaLink will use DSL as the WAN interface.
2. If you desire to install your VersaLink using a USB cable, use the optional E4/DATA port, which can be used for either USB or Ethernet installation. See section 6 for hardware installation instructions.

- Power connector (12 VDC) barrel
- OFF/ON power switch

VersaLink Gateway - Rear View



5.3 Connector Descriptions

The following chart displays the Router's connector types.

NAME	TYPE	FUNCTION
DSL LINE	Modular 6-pin (RJ-11) DSL jack	Connects the Router to a telephone jack that has active ADSL service or to the DSL port of a POTS splitter.
E1/UPLINK	Modular 8-pin (RJ-45) Ethernet jack	Connects the Router to a PC or Hub via 10/100 BaseT Ethernet.
E2/E3/E4	Modular 8-pin (RJ-45) Ethernet jack	Connects the Router to a PC or Hub via 10/100 BaseT Ethernet.
E4/DATA	Modular 8-pin (RJ-45) Ethernet jack	Connects the Y-cable provided with the kit to the 10/100 Base-T Ethernet DATA port on the rear of the Router and to the Ethernet port on a PC or Hub. The USB connector built in to the Y-cable also functions through the Router's E4/DATA port. When the Ethernet connector is plugged in to the Router's DATA port, the USB cable can then be plugged in to the USB port on a PC or Hub. Thus, the Y-cable provides Internet connectivity via Ethernet or USB; however, both connectors cannot be used sumultaneously. If both connectors are installed in a PC or Hub at the same time, only the connector that syncs up first will be used.
POWER	Barrel connector	Connects the 12 VDC power connector to an AC wall jack.

5.4 Installation Requirements

This section explains the hardware installation procedures for installing your Router.

To install the VersaLink, you will need the following:

- Active DSL line
- Network Interface Card (NIC) installed in your PC, or
- Available USB port installed in your PC, or
- 802.11 b/g wireless adapter installed in your PC

IMPORTANT: Please wait until you have received notification from your Internet service provider (ISP) that your DSL line has been activated before installing your VersaLink.

5.5 Before you begin

Make sure that your kit contains the following items:

- Westell VersaLink Gateway
- Power Supply
- Y-cable contains:
  - Built-in 10/100 BaseT Ethernet cable—labeled PC/Ethernet, yellow
  - Built-in USB cable—labeled PC/USB, blue
- RJ-11 Phone cable
- CD-ROM containing User Guide in PDF format

5.6 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. HARDWARE INSTALLATIONS

The following instructions explain how to install your VersaLink Gateway using 10/100 Base-T Ethernet, Wireless, Ethernet Uplink, or USB connections. Before you begin, please read the following notes:

NOTE:

1. If your Ethernet card does not auto-negotiate, set it to half duplex. Refer to the Ethernet card manufacturer's instructions for installing and configuring your Ethernet card.
2. If you are using VersaLink in conjunction with an Ethernet Hub or Switch, refer to the manufacturer's instructions for proper installation and configuration.
3. When using a Microfilter, confirm that the DSL RJ-11 phone cable is connected to the DSL port of the DSL/HPN non-filtered jack.
4. It is recommended that you use a surge suppressor to protect equipment attached to the power supply. **Use only the power supply provided with your kit.**
5. Depending on the installation method you are using, additional Ethernet cables may be required. Ethernet cables and DSL filters can be purchased at your local computer hardware retailer.
6. VersaLink supports simultaneous 10/100 Base-T Ethernet and Wireless configurations. To use this installation method, follow the instructions provided in sections 6.3.1 and 6.3.2. VersaLink does not support connection via 10/100 Base-T Ethernet and USB simultaneously.

VersaLink supports two modes for WAN access, which are configurable through VersaLink's Web pages: (1) LAN Ethernet port mode and (2) WAN Uplink port mode.

- **LAN Ethernet port** mode allows you to use VersaLink's DSL port for WAN access (VersaLink's DSL functionality is Enabled). In this mode you should install VersaLink according to the instructions in section 6.1, Connecting VersaLink to Your DSL Network.

- **WAN Uplink port** mode allows you to use VersaLink as an Ethernet Gateway (for example, to connect to a cable modem or to another ADSL device that provides WAN access). In **WAN Uplink port** mode, VersaLink's DSL functionality is Disabled. In this mode you should install VersaLink according to the instructions in section 6.2, Connecting VersaLink to Your Network via E1/UPLINK.

6.1 Connecting VersaLink to Your DSL Network

To connect VersaLink to a network provisioned with active DSL service, please follow these steps:

1. Connect the DSL phone from the connector marked **DSL** on the rear panel of the Router to the telephone wall jack provisioned with DSL service. Please use the DSL phone cable that was provided with your kit.

   IMPORTANT: Plug the RJ-11 DSL phone cable from the Router into the DSL port of the microfilter plugged into the telephone jack at the wall.

2. Plug the small end of the power supply cord into the connector marked **12 VDC** on the rear panel of the Router. Plug the other end of the power supply into an AC wall socket.
3. Turn on the Westell Router (if it is not already on) by pressing the power switch on the back of the Router.
4. Check to see if the **POWER** LED is solid green. Solid green indicates that the Router is functioning properly.
5. Check to see if the **DSL** LED is solid green. If it is solid green, DSL is functioning properly.
6. After you have logged on to your account and established an Internet connection, as explained later in section 9, "Configuring Your Broadband Connection," check to see if the Router's **INTERNET** LED is solid green. Solid green indicates that the Internet link has been established. (Flashing green indicates the presence of IP traffic.)

Congratulations! You have completed the installation. Now go to section 6.3 for instructions on connecting other networking devices to your Router.

6.2 Connecting VersaLink to Your Network via E1/UPLINK

The Uplink feature is optional. To install VersaLink so that it uplinks to another ADSL device, such as an existing DSL or cable modem installed on your network, follow the steps outlined below:

1. Ensure that your existing DSL or cable modem is properly installed on your network and has active broadband (Internet) connection.
2. Obtain a 10/100 BaseT Ethernet cable, and plug one end of the cable into the port marked **E1/UPLINK** on the rear panel of VersaLink. Then, plug the other end of the Ethernet cable into the Ethernet port on the attached DSL or cable modem.

   If desired, you can use the Y-cable provided with your kit. Simply plug the "Y" end of the cable (Ethernet jack labeled PC/Ethernet, yellow) into the Ethernet port on your existing DSL or cable modem. Then plug the other end of the Y-cable (Ethernet jack labeled PC/Ethernet, yellow) into the **E1/UPLINK** port on the rear panel of your VersaLink.)

   Later, in VersaLink's Web pages, be sure to select WAN Uplink port mode to allow your VersaLink to uplink to the existing broadband device. When VersaLink is configured for WAN Uplink port, VersaLink's DSL transceiver will not be used. The broadband device to which VersaLink is connected will be your WAN interface to the Internet. LAN Ethernet port is VersaLink's factory default setting, refer to section 14.2.3 for details.

3. Plug the small end of the power supply cord into the connector marked **12 VDC** on the rear panel of your Router. Plug the other end of the power supply into an AC wall socket.
4. Make sure the existing modem on your network is powered on.
5. Turn on the Westell Router (if it is not already on) by pressing the **Power** switch on the back of the Router.
6. Check the front of the Westell Router to see if the **POWER** LED is solid green. Solid green indicates that the Router is powered on.
7. Check to see if the **ETHERNET** LED is solid green. Solid green indicates that Ethernet is working properly.

8. After you have logged on to your account and established an Internet connection, as explained later in section 9 "Configuring Your Broadband Connection," check to see if the **INTERNET** LED on the front of the Router is solid green. Solid green confirms that an Internet connection has been established. (Flashing green indicates the presence of IP traffic.)

Congratulations! You have completed the installation. Now go to section 6.3 for instructions on connecting other networking devices to your Router.

6.3 Connecting Other Networking Devices to Your VersaLink

Now that you have connected your VersaLink to your broadband network, you can connect Ethernet, USB, and Wireless networking devices to your VersaLink, allowing for Internet connection throughout your home without disrupting your cable or satellite television services. Refer to the following sections for connection and networking instructions:

- Section 6.3.1 explains how to connect Ethernet devices to your VersaLink
- Section 6.3.2 explains how to network Wireless devices to your VersLink
- Section 6.3.3 explains how to connect USB devices to your VersaLink

6.3.1 Connecting Ethernet Devices to Your VersaLink

To network computers in your home or office to VersaLink using an Ethernet installation, follow the steps below:

1. Ensure that you have connected your Router to your broadband service using one of the installation methods explained earlier in section 6.1 or 6.2.
2. Obtain an Ethernet cable. Connect the Ethernet cable from any one of the four Ethernet jacks marked **E1, E2, E3, E4** 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. (If you're not already using the Y-cable provided with your kit, you can use the Y-cable—the jacks labeled PC/Ethernet, yellow—for this Ethernet installation.

   NOTE:
   1. If you are networking computers to VersaLink using Ethernet, you can plug in to any of the four LAN Ethernet jacks on the Router's rear panel; each jack serves as an Ethernet switch.
   2. If you are using the E1/UPLINK jack for your broadband connection, you can network PCs to your VersaLink via Ethernet using jacks E2, E3, or E4.
   3. If you are networking a PC to VersaLink using USB, use only the E4/DATA jack on the rear of VersaLink.
3. Check to see if the Router's **ETHERNET** LED is solid green. Solid green indicates that the Ethernet connection is functioning properly. Check the **ETHERNET** LED for each Ethernet jack to which you are connected.

You have completed the connection. Now proceed to section 8 to access VersaLink's Web pages.

6.3.2 Networking Wireless Devices to Your VersaLink

IMPORTANT: In order to communicate with the Router, each PC's wireless network adapter must be configured with the same SSID as that of the Router. The default SSID for the Router is the serial number of the unit (located on the bottom of the Router and also on the shipping carton). The SSID is also provided in the Router's Web pages, in the Wireless menu. Use this SSID in each connecting PC. Later, for privacy, you can change the Router's SSID by following the procedures outlined in section 13.3, "Basic Security Settings." Be sure to change the SSID in the connecting PCs as well—so that they always match the Router's SSID.

IMPORTANT:

1. Client PCs can use any Wireless 802.11b/g/n certified card to communicate with your Router.

2. Configuring the Router so that it hides its SSID offers some security benefits—by reducing the Router's visibility. If the Router's SSID is hidden, each wireless station will need to be manually configured to match the Router's SSID, in order to connect to the network. When the Router's SSID is not hidden, then the SSID will show up when the PC displays the list of available networks. (By factory default, the Router's SSID is displayed—in the **Wireless Basic Setup** screen, "Hide SSID" is disabled).

3. The wireless network connection utility on most PCs can automatically determine the availability of the Router and its security type. The utility typically shows a list of available networks that are in range. By selecting the network and clicking connect, you should get a screen prompting you for the security key.

4. If you are configuring the wireless station manually, the Wireless card and Router must use the same security code type. **If you use WPA or WEP wireless security, you must configure your computer's wireless adapter for the security type and security key that you use. Consult the wireless adapter's manual for instructions on configuring the security parameters.**

To network computers in your home or office to VersaLink using a wireless installation, follow the steps below:

1. Ensure that you have connected your Router to your broadband service using one of the installation methods explained earlier in section 6.1 or 6.2.
2. Ensure that wireless operation in the Router is Enabled. Refer to section 13 of this User Guide for details.
3. Make sure each PC on your wireless network has an 802.11b/g/n wireless network adapter installed.
4. Ensure that the appropriate drivers for the wireless adapter have been installed on each PC.
5. Locate and run the utility software provided with your PC's wireless network adapter. If needed, refer to the wireless adapter manufacturer's instructions.
6. Check to ensure that the wireless adapter is using the identical SSID as the one used in your Router.
7. If you are using wireless security in Router, ensure that the wireless adapter is using the identical security keys as the ones used in your Router.
8. Check to see if the Router's **WIRELESS** LED is solid Green. This means that the Router's Wireless interface is functioning properly.
9. Check to see if the connecting PC has established a wireless connection; your wireless utility should indicate that you have a wireless signal. (You might need to wait a brief moment for the PC to connection to the Router.)

You have completed the connection. Now proceed to section 8 to access VersaLink's Web pages.

6.3.3 Connecting USB Devices to Your VersaLink

It is recommended that you connect your VersaLink via Ethernet connections. However, if you choose to connect your computer via USB, please follow the instructions in this section.

IMPORTANT: The USB installation will not function for Macintosh computers. Macintosh users will need to install the Router via Ethernet connection. See section 6.3.1 for Ethernet installation instructions.

To network a computer in your home or office to VersaLink using a USB connection, please follow these steps in the order presented:

1. Ensure that you have connected your Router to your broadband service using one of the installation methods explained earlier in section 6.1 or 6.2.
2. Insert the CD-ROM provided with your kit into the CD-ROM drive of the PC that will connect via USB.
3. Use the Y-cable provided with your kit. At the "Y" end of the cable, plug the USB jack (labeled PC/USB, blue) into the USB port on your computer. Then, at the other end of the Y-cable, plug the Ethernet jack (labeled PC/Ethernet, yellow) into the Ethernet connector marked **E4/DATA** on the rear panel of the Router.

   NOTE:
   1. If you are networking a PC to VersaLink using USB, use only the E4/DATA jack on the rear of VersaLink.
   2. If you are using the E1/UPLINK jack for your broadband connection, you can network PCs to your VersaLink via Ethernet using jacks E2, E3, or E4.
   3. If you are networking computers to VersaLink using Ethernet, you can use any of the four LAN Ethernet jacks on the Router's rear panel; each jack serves as an Ethernet switch.

4. Plug the small end of the power supply cord into the connector marked **12 VDC** on the rear panel of the Router. Plug the other end of the power supply into an AC wall socket, and then turn on the Router (if it is not already on).
5. Complete the instructions outlined in section 7, "Installing the USB Drivers." Then, return to this section to complete the remaining step.
6. After the USB drivers have been installed, check to see if the **USB** LED is solid green. Solid green indicates that the USB connection is functioning properly.

Congratulations! You have completed the USB hardware installation. Now proceed to section 8 to access VersaLink's Web pages.

7. INSTALLING THE USB DRIVERS

This section explains how to install the USB drivers for your Router. If you are using only an Ethernet connection, 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.

IMPORTANT: Make sure that the CD-ROM provided with your kit is inserted into the PC's CD-ROM drive before connecting the USB jack, as explained in section 6.3.3 "Connecting USB Devices to Your VersaLink."

Determine which operating system is installed on your PC, and then follow the USB driver instructions that match your operating system. The following table provides a reference to the USB driver installation instructions. After you have completed the USB driver installation, return to section 6.3.3 to complete the USB hardware installation instructions.

Your Operating System	Refer to this section for USB driver instructions
Windows 98 SE	7.1 Installing the USB Driver for Windows 98 SE
Windows ME	7.2 Installing the USB Driver for Windows ME
Windows 2000	7.3 Installing the USB Driver for Windows 2000
Windows XP	7.4 Installing the USB Driver for Windows XP
Windows Vista™	7.5 Installing the USB Driver for Windows Vista™

7.1 Installing the USB Driver for Windows 98 SE

IMPORTANT: Confirm that the CD-ROM provided with the Router kit is inserted into the PC's CD-ROM drive before beginning this installation.

1. **Windows 98 SE:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 1). After a brief delay, the **Add New Hardware Wizard** window will appear (Figure 2) Click **Next**.

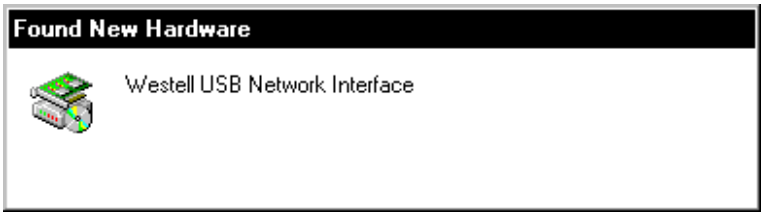


Figure 1. Windows 98 SE

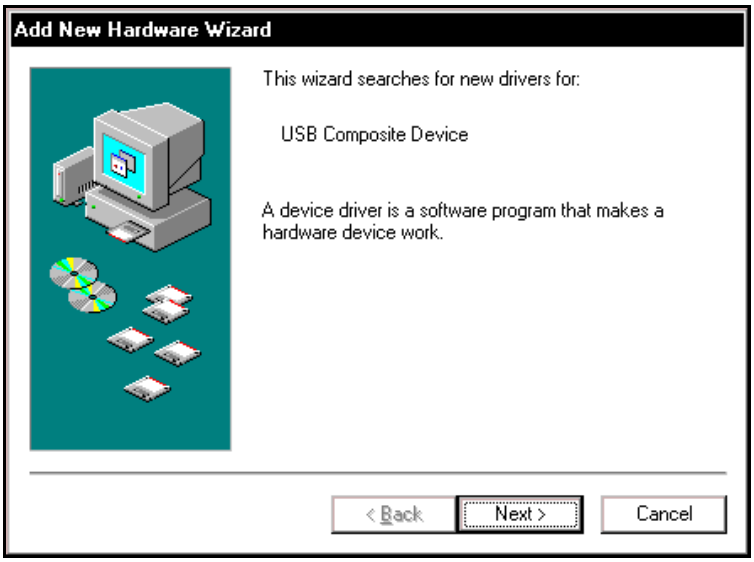


Figure 2. Windows 98 SE

2. **Windows 98 SE:** Select **Search for the best driver for your device. (Recommended)**. See Figure 3. Click **Next**.

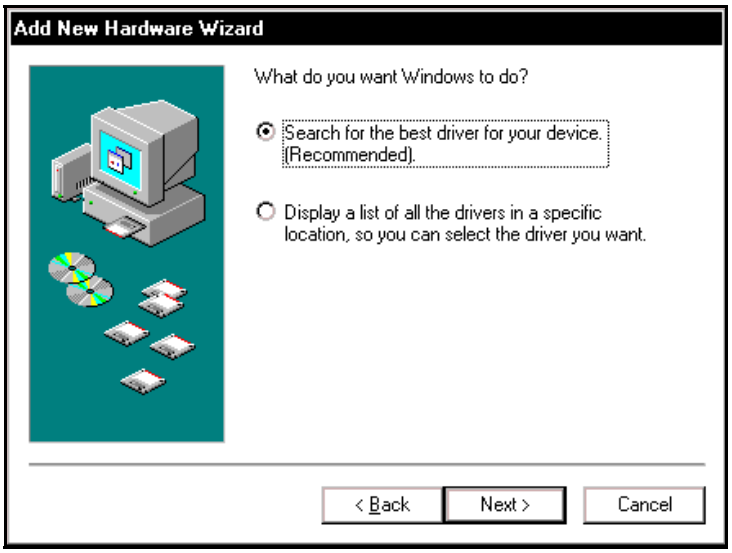


Figure 3. Windows 98 SE

3. **Windows 98 SE:** Select **CD-ROM drive** (Figure 4). Click **Next**. Windows will search for the driver.

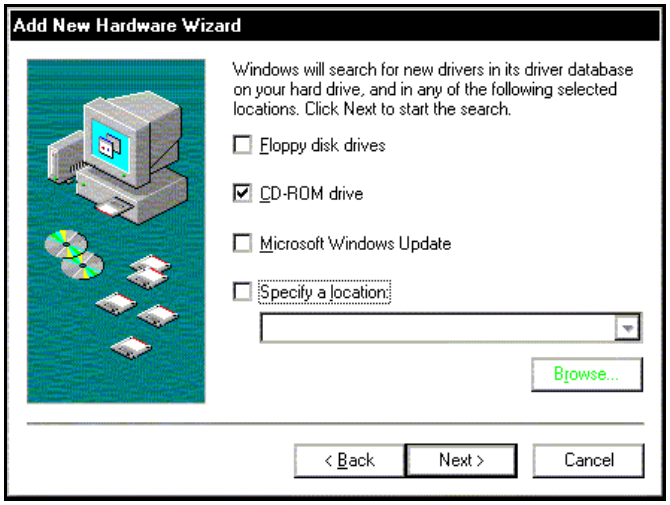


Figure 4. Windows 98 SE

Note: If Figure 4 does not appear at this step, and Figure 5 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 CD-ROM.

4. **Windows 98 SE:** Select **The updated driver (Recommended) Westell USB Network Interface** (Figure 5). Click **Next**.

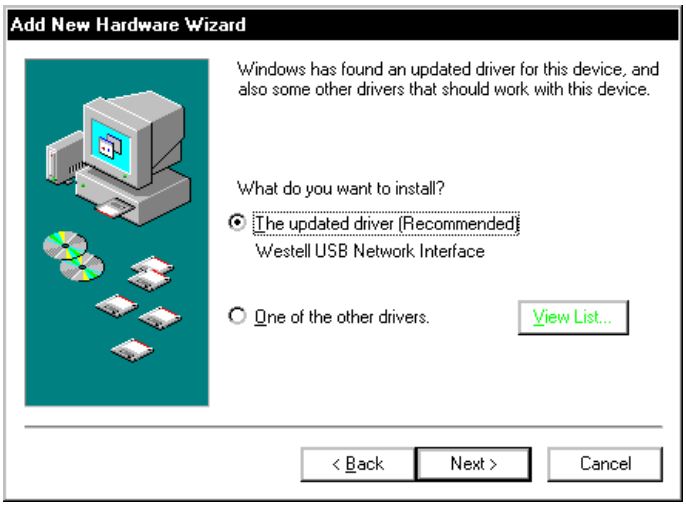


Figure 5. Windows 98 SE

5. **Windows 98 SE:** Windows will display the location of the driver (Figure 6). The drive "letter" may vary. Click **Next**.

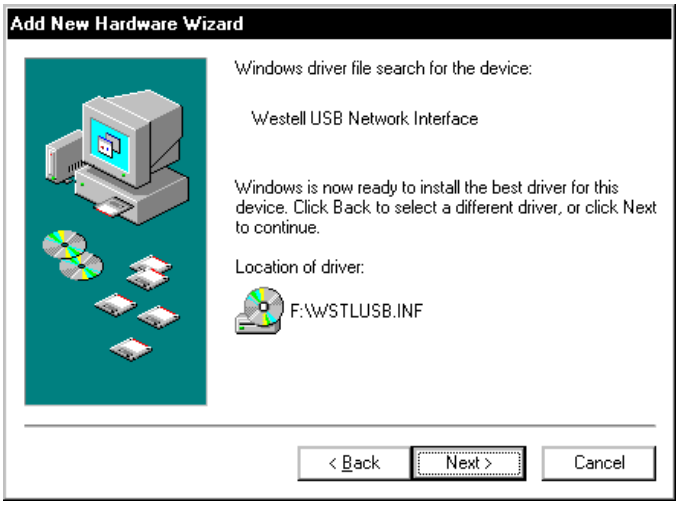


Figure 6. Windows 98 SE

6. **Windows 98 SE:** Remove the CD from the CD-ROM Drive. Next, insert the Windows operating system CD into the CD-ROM Drive (Figure 7). Click **OK.**

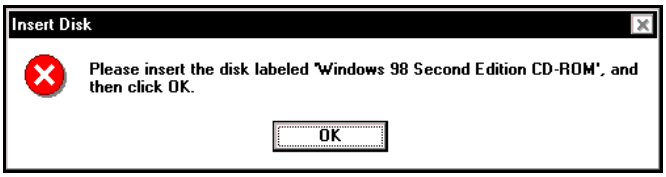


Figure 7. Windows 98 SE

7. **Windows 98 SE**: The system will begin copying files (Figure 8).

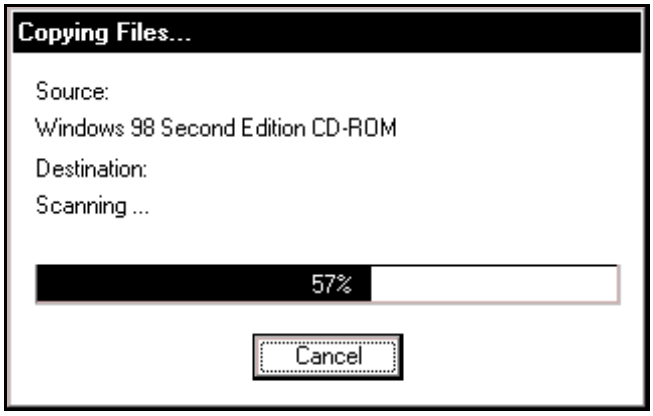


Figure 8. Windows 98 SE

8. **Windows 98 SE**: Figure 9 may pop up, depending on how Windows 98 SE was installed on the computer. The installation of the Router requires files that are supplied by Microsoft for Windows 98 SE. If Figure 10 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.

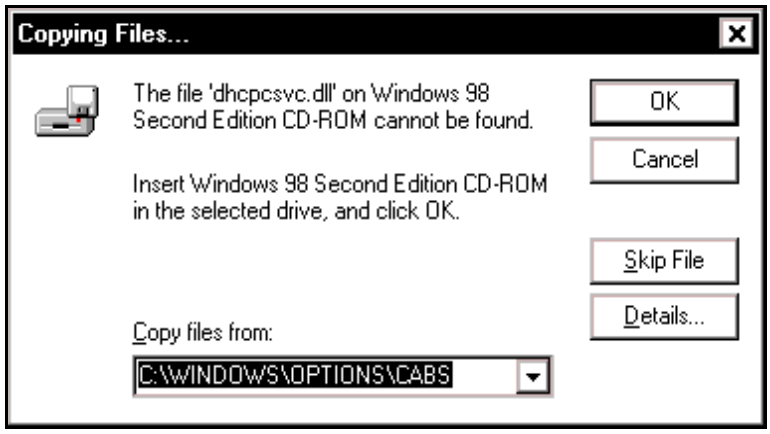


Figure 9. Windows 98 SE

If the Operating System CD is not available, or if Figure 9 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 10). When you have specified the correct path, click on **OK**. The system will begin copying the files.

IMPORTANT: 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 Router will not function correctly.

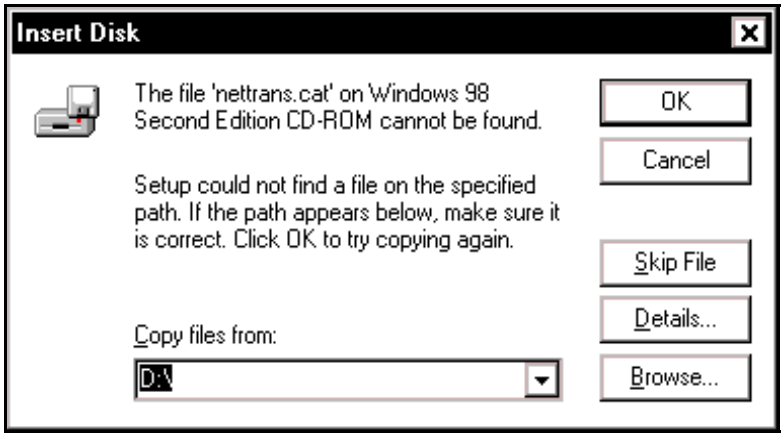


Figure 10. Windows 98 SE

9. **Windows 98 SE**: The window below confirms that the PC has finished loading the drivers (Figure 11). Click **Finish**.

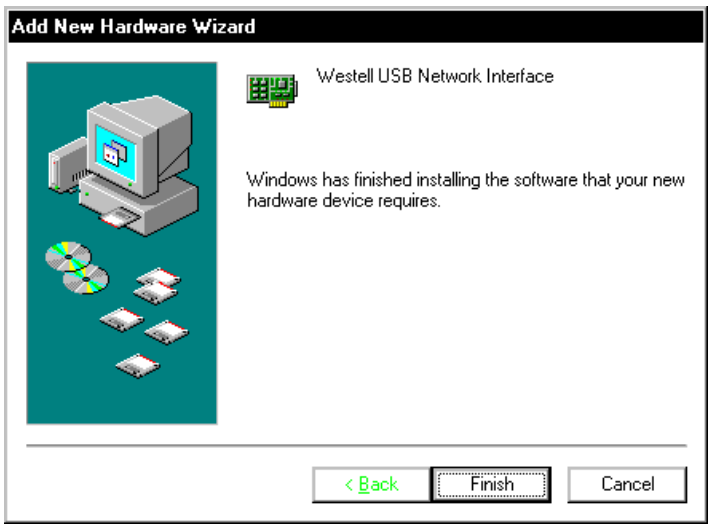


Figure 11. Windows 98 SE

10. **Windows 98 SE**: Click **Yes** to restart your computer (Figure 12).

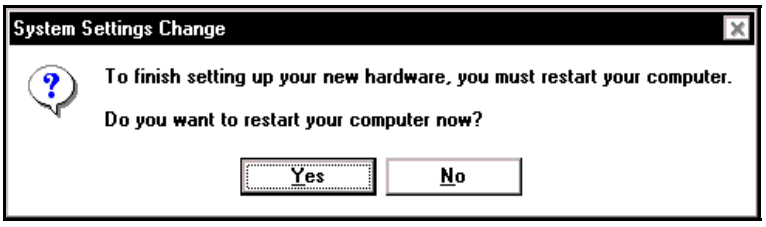


Figure 12. Windows 98 SE

Congratulations! You have completed the software installation for the USB drivers. Now return to section 6.3.3, "Connecting USB Devices to Your VersaLink," to complete the hardware installation instructions.

7.2 Installing the USB Driver for Windows ME

IMPORTANT: Confirm that the CD-ROM provided with the Router kit is inserted into the PC's CD-ROM drive before beginning this installation.

1. **Windows ME:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 13). After a brief delay, the **Add New Hardware Wizard** will appear (Figure 14). Select **Automatic search for a better driver (Recommended).** Click **Next.**

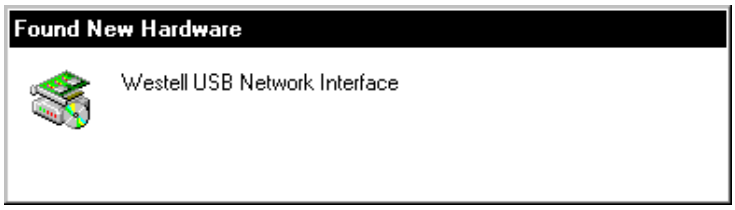


Figure 13. Windows ME

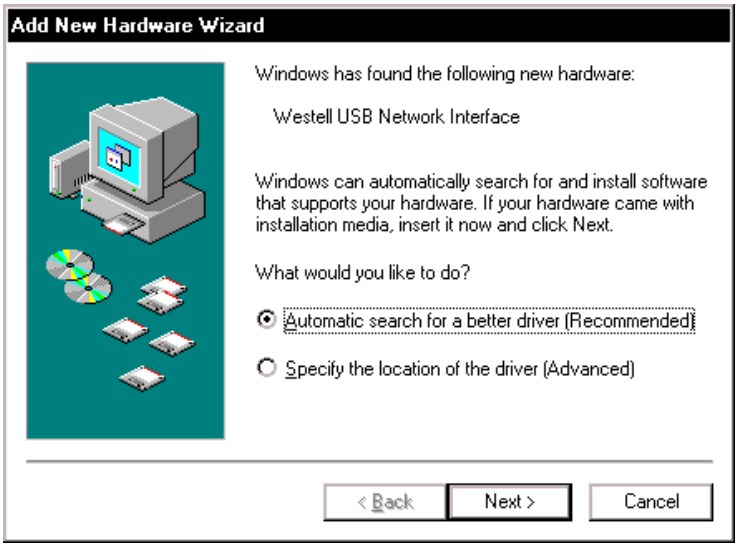


Figure 14. Windows ME

2. **Windows ME**: Windows will display the location of the driver (Figure 15). Click **Next.**

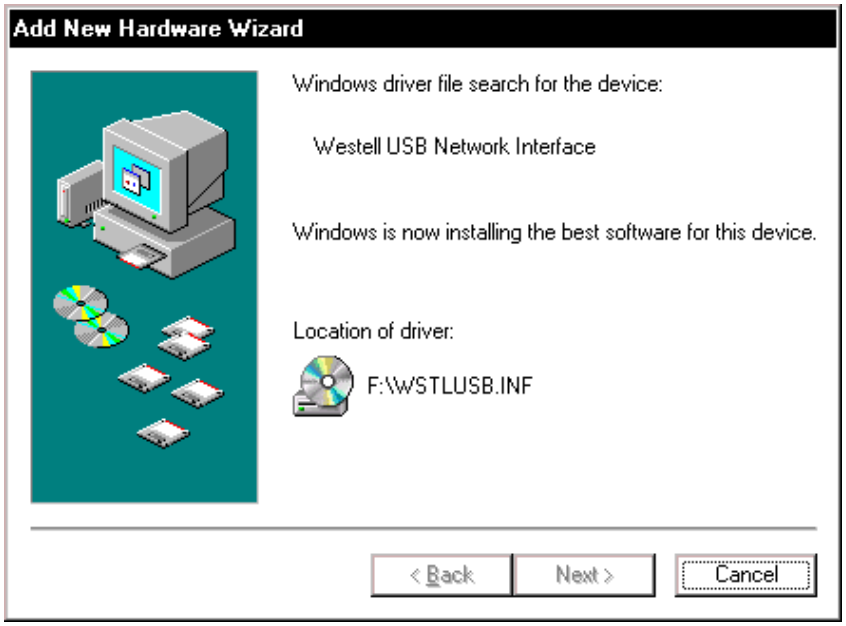


Figure 15. Windows ME

3. **Windows ME**: The window below confirms that the PC has finished loading the drivers (Figure 16). Click **Finish.**

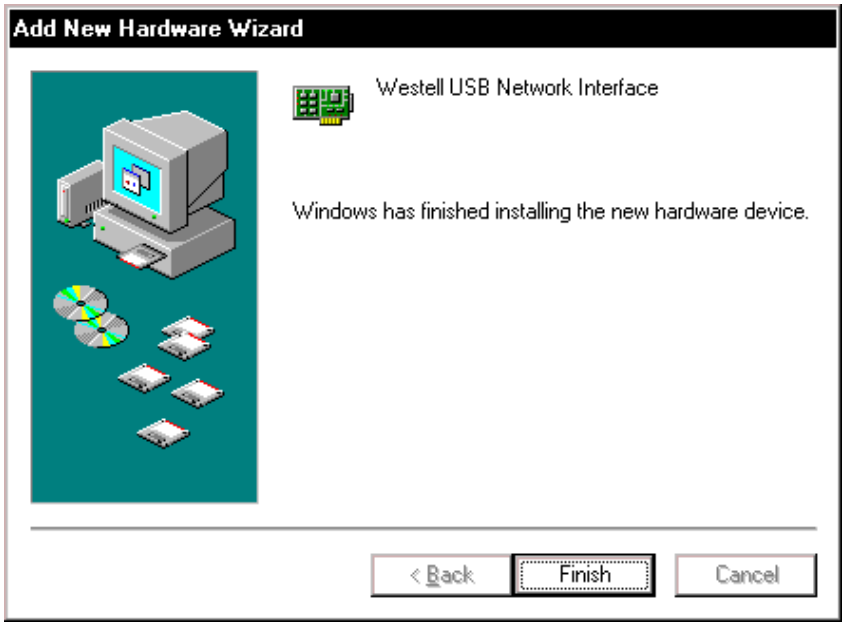


Figure 16. Windows ME

4. **Windows ME**: When the **System Settings Change** screen appears, the USB drivers are installed properly (Figure 17). Click **Yes.**

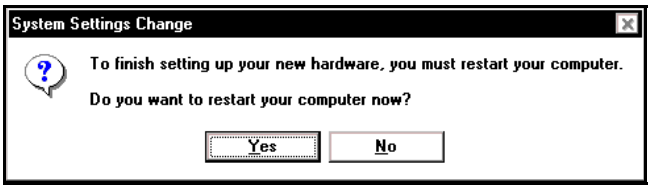


Figure 17. Windows ME

Congratulations! You have completed the software installation for the USB drivers. Now return to section 6.3.3, "Connecting USB Devices to Your VersaLink," to complete the hardware installation instructions.

7.3 Installing the USB Driver for Windows 2000

IMPORTANT: Confirm that the CD-ROM provided with the Router kit is inserted into the PC's CD-ROM drive before beginning this installation.

1. **Windows 2000:** After you connect the Router to your PC, the **Found New Hardware** window will appear (Figure 18). After a brief delay, the **Found New Hardware Wizard** will appear (Figure 19). Click **Next**.

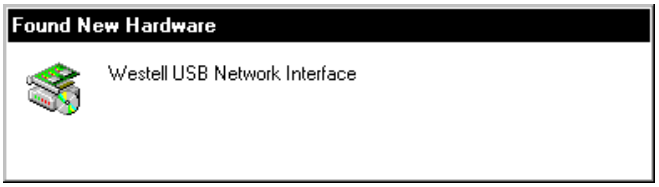


Figure 18. Windows 2000

Figure 19. Windows 2000

2. **Windows 2000:** The **Install Hardware Device Drivers** window appears (Figure 20). Select **Search for a suitable driver for my device (recommended).** Click **Next**.

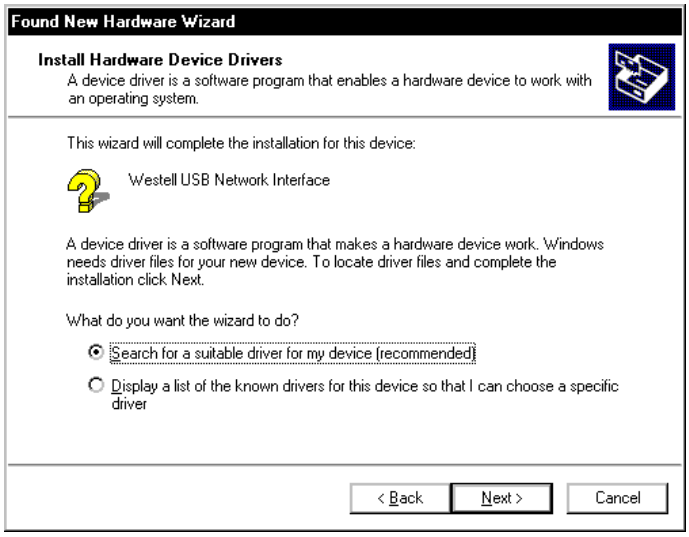


Figure 20. Windows 2000

3. **Windows 2000:** The **Locate Driver Files** window appears. Select **CD-ROM drives** (Figure 21). Click **Next**.

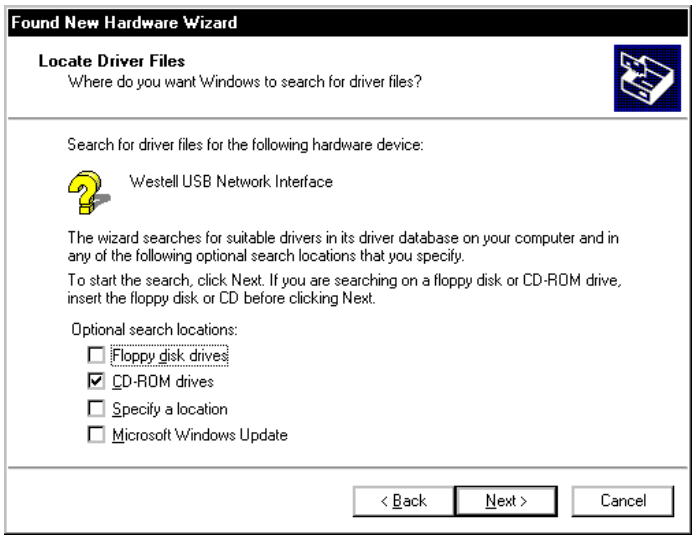


Figure 21. Windows 2000

4. **Windows 2000:** The **Driver Files Search Results** window appears (Figure 22). **Note**: The drive "letter" may vary. Click **Next**.

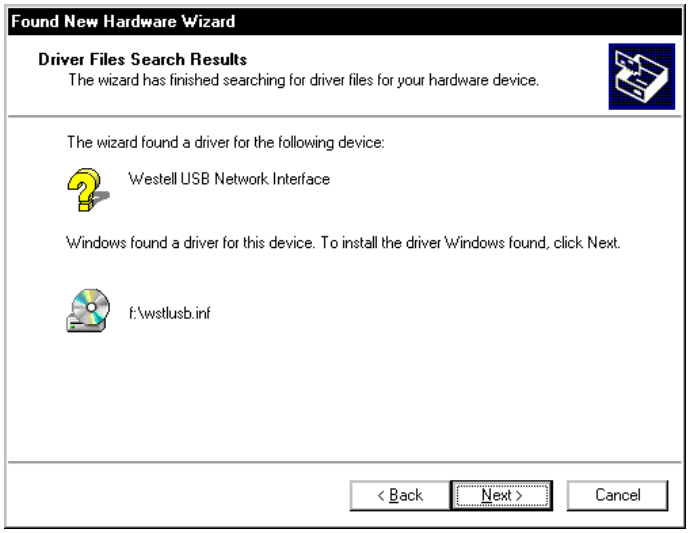


Figure 22. Windows 2000

5. **Windows 2000:** The window below confirms that the PC has finished loading the drivers (Figure 23). Click **Finish**.

Figure 23. Windows 2000

6. **Windows 2000**: When the **System Settings Change** screen appears, the USB drivers are installed properly (Figure 24). Click **Yes.**

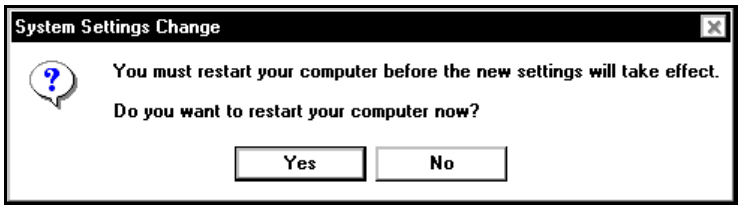


Figure 24. Windows 2000

Congratulations! You have completed the software installation for the USB drivers. Now return to section 6.3.3, "Connecting USB Devices to Your VersaLink," to complete the hardware installation instructions.

7.4 Installing the USB Driver for Windows XP

IMPORTANT: Confirm that the CD-ROM provided with the Router kit is inserted into the PC's CD-ROM drive before beginning this installation.

1. **Windows XP:** After you connect the Router to your PC, the following screen will appear. (Figure 25). Select **Install the software automatically (Recommended).** Click **Next**.

Figure 25. Windows XP

2. **Windows XP**: The window below confirms that the PC has finished loading the drivers (Figure 26). Click **Finish**.

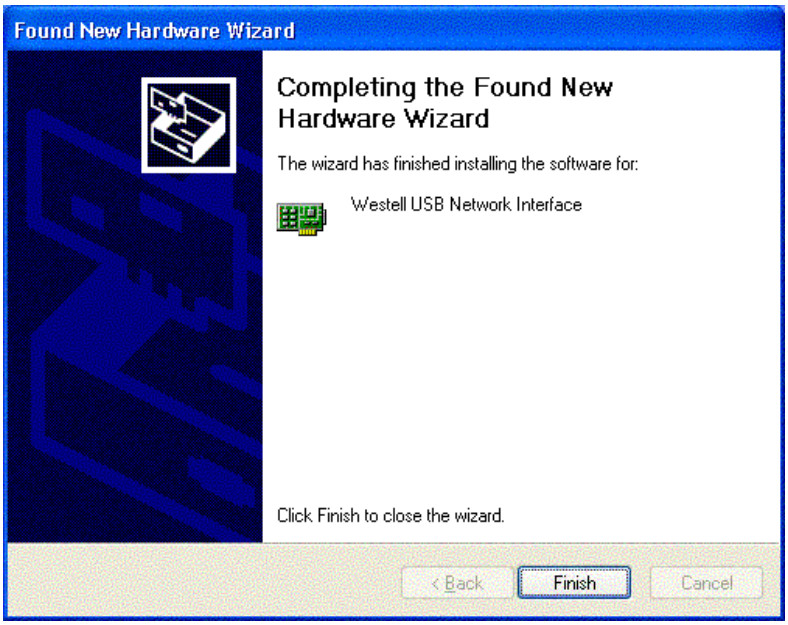


Figure 26. Windows XP

Congratulations! You have completed the software installation for the USB drivers. Now return to section 6.3.3, "Connecting USB Devices to Your VersaLink," to complete the hardware installation instructions.

7.5 Installing the USB Driver for Windows Vista™

IMPORTANT: Confirm that the CD-ROM provided with the Router kit is inserted into the PC's CD-ROM drive before beginning this installation.

1. **Windows Vista™:** After you connect the Router to your PC, the following **Found New Hardware** screen will appear (Figure 27). Click **Next**.

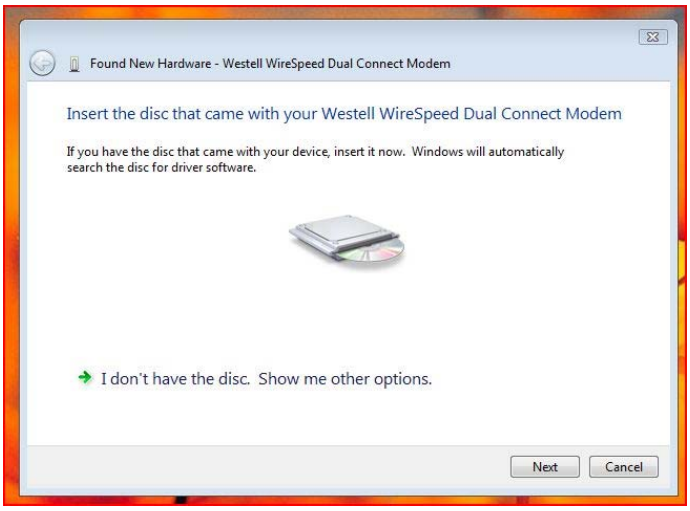


Figure 27. Windows Vista

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

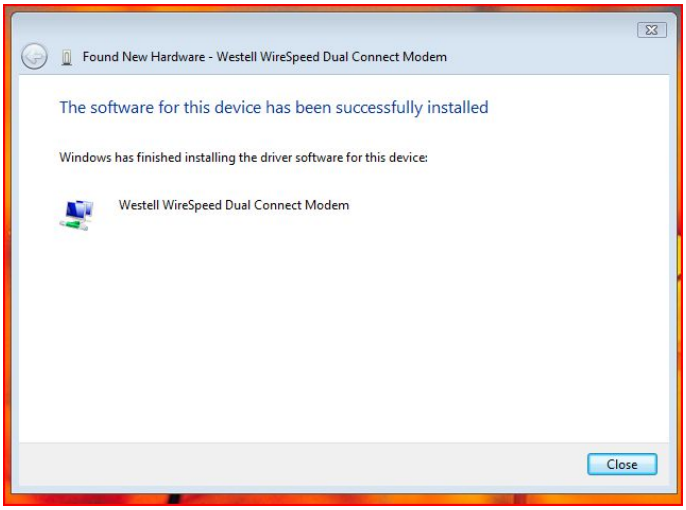


Figure 28. Windows Vista

Congratulations! You have completed the software installation for the USB drivers. Now return to section 6.3.3 "Connecting USB Devices to Your VersaLink," to complete the hardware installation instructions.

8. ACCESSING VERSALINK

8.1 Logging on to VersaLink

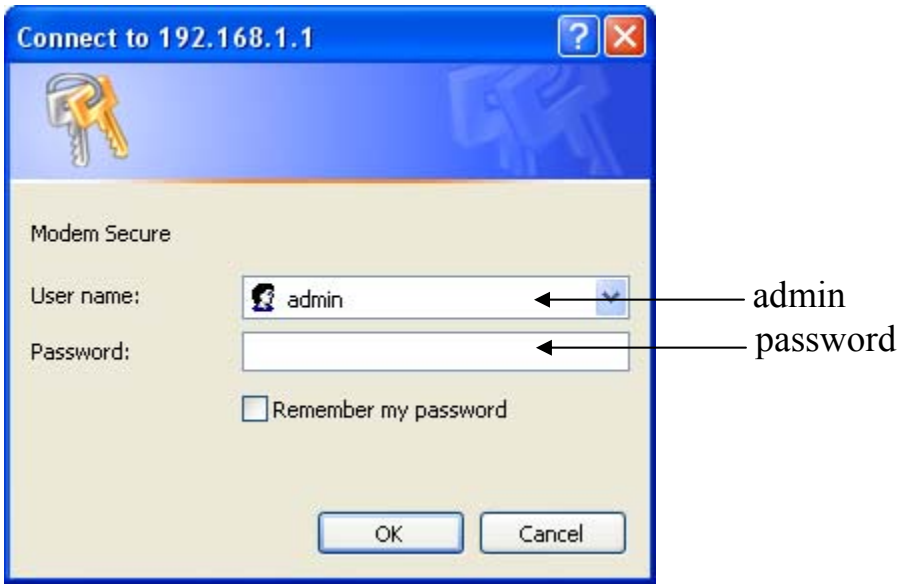
This section explains the logon procedures for your VersaLink. This procedure should be used any time you want to access or make changes to VersaLink's configurations or firewall settings.

IMPORTANT: VersaLink is capable of automatically sensing protocol type (DHCP or PPPoE). This process is designed to start after you have connected VersaLink to your network. To access VersaLink's Web pages, your PC must be configured for DHCP. Refer to your Windows help screen for information on configuring your computer for DHCP. At your PC, click **Start**, then **Help** to access the Windows help screen.

To log on to VersaLink, start your Web browser and type the following IP address in the browser's address bar:

http://192.168.1.1

After you type the IP address, press **Enter** on your keyboard. The following **Modem Secure** screen will appear. Type the default user name (which is **admin**) and the default password (which is **password**) in the fields provided. Click **OK.**



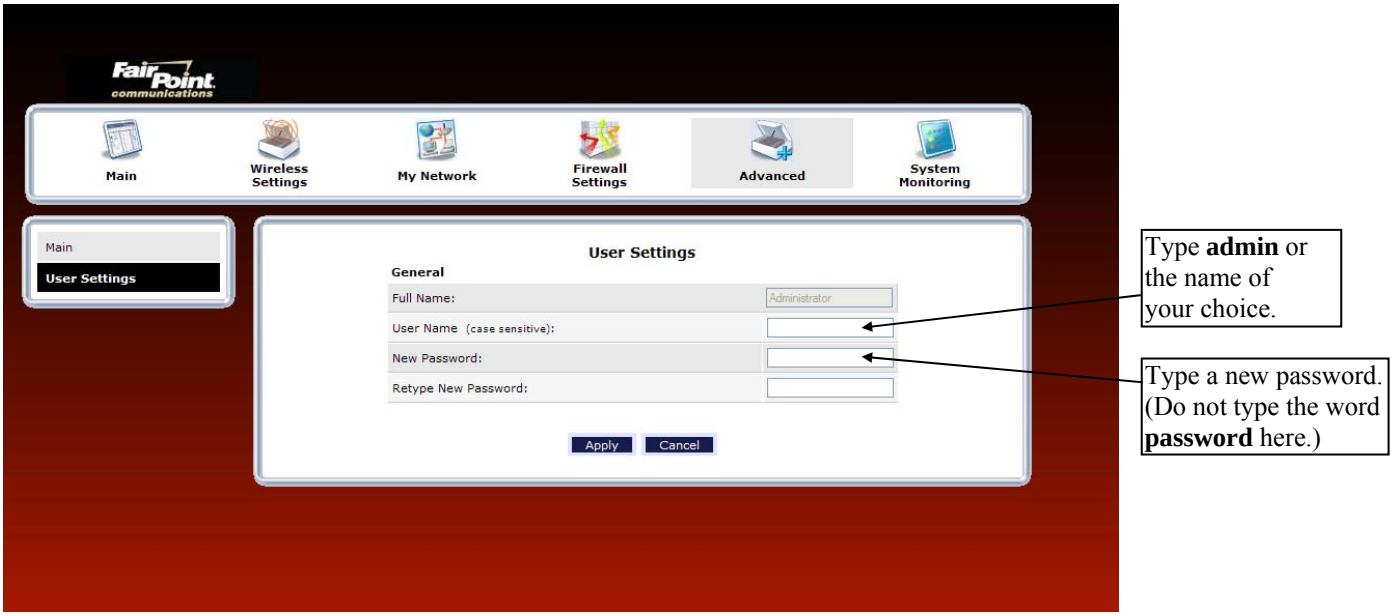
8.2 Changing the Password

After you have clicked **OK** in the **Modem Secure** screen, the following **User Settings** screen will appear. This screen allows you to change the default administrator name and password to the values of your choice. The password change is required to continue your network logon. If the Router is password protected and if you are not an authorized user, you will not be able to change the values in this screen. The Router cannot be configured unless an authorized user is logged in. If necessary, contact your network administrator for further instructions.

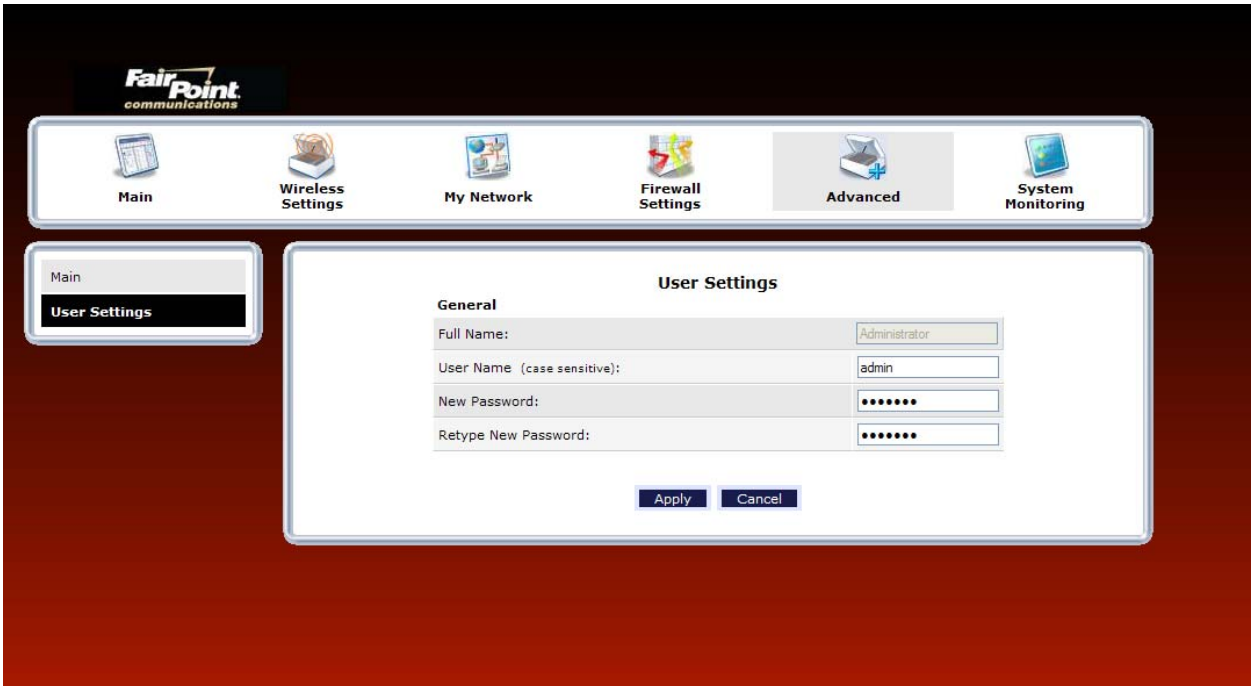
IMPORTANT:

1. The **User Settings** screen allows you to use **admin** as your **administrator name** (your administrator name can match your user name). However, this screen does not allow you to use **"password"** as your **administrator password**. If you enter **password** in the fields, this screen will not continue the logon. You must enter a different password in order for this screen to take effect. The values in these fields are case sensitive. Once you decide on an administrator name and password, please record them for future reference.
2. This feature changes the Administrator's password, not the PPP password.

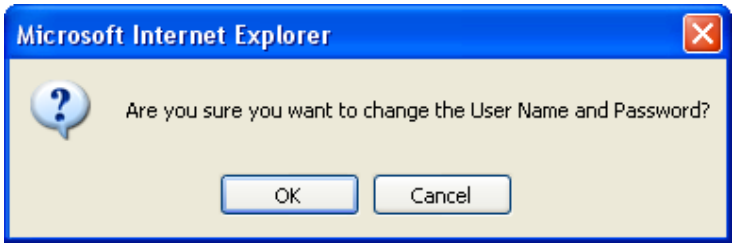
Type your administrator **User Name** and **Password** in the fields provided. The password fields will be masked for security purposes.



After you have entered the desired values, click **Apply.**



If you clicked **Apply,** the following pop-up screen will appear. Click **OK** to allow the changes to take effect.



If you clicked **OK** in the pop-up screen, the following screen will appear. This is the main page of your Router's Web pages, also referred to in this document as the home page. You can access this page by clicking **Main** in the navigational menu located across the top of the Router's Web pages. Details on this page will be explained in the following sections.

9. CONFIGURING YOUR BROADBAND CONNECTION

To browse the Internet using your Router, you must confirm your DSL connection, set up your PPP connection profile, and establish a PPP or DHCP session with your Internet service provider (ISP). The procedures for configuring your Router's connection settings are explained in this section.

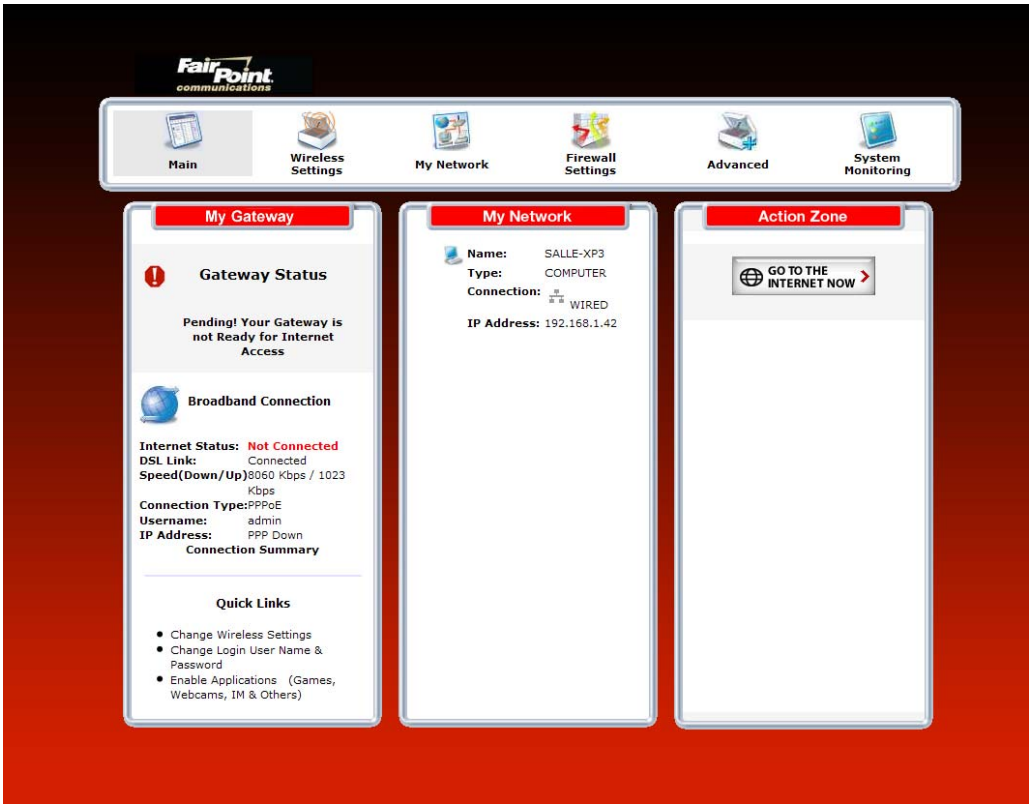
9.1 Confirming Your DSL Connection

After you have logged on to the Router and changed your administrator password, as explained in section 8, the following home page will appear. Use this page to determine the status of your DSL and Internet connections.

IMPORTANT: You must have active DSL service before the Router can synchronize with your ISP's equipment.

To determine if the Router has established a DSL link, do any of the following:

- In the **My Gateway** panel of the **Main** page, view the **DSL link** field. If the status reads **Not Connected,** you do not have a DSL link. However, if **DSL Link** field displays **Connected** and the **Speed (Down/Up)** field displays numeric values, a DSL link has been established. The values displayed represent the transmission rates of your DSL signal, downstream and upstream. (You may need to wait a brief moment for the Router to report these values.)
- At the front of the Router, check to see if the Router's DSL LED is solid green. Solid green indicates that the Router's DSL connection has been established. (The DSL LED may flash while the connection is being established.) Please wait a brief moment for the Router to connect.



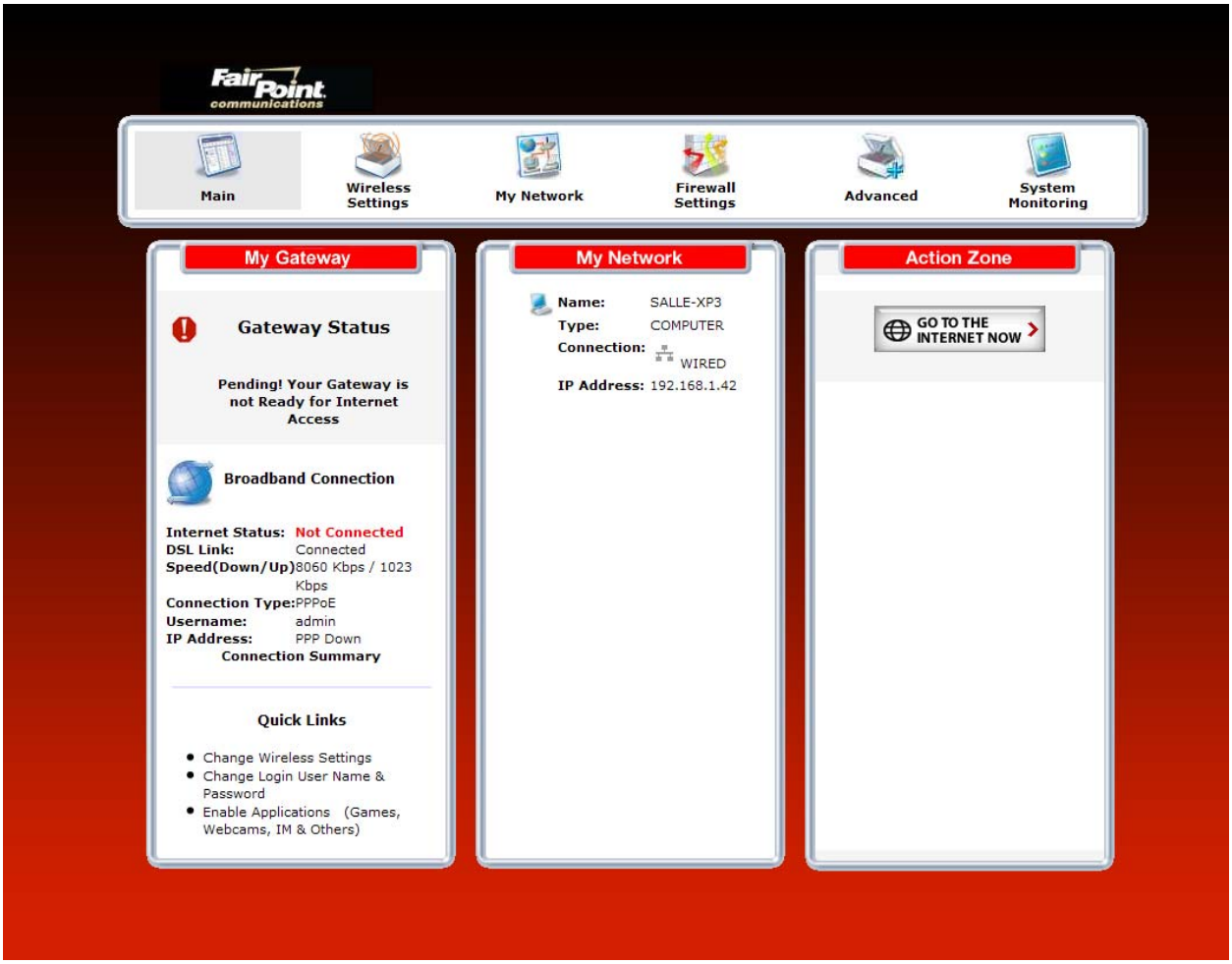
After confirming your DSL link, DHCP customers can now browse the Internet. However, PPP customers will need to complete further instructions, as explained in the following note.

NOTE: If the Router has established a DSL link and if you are connecting to the Internet via DHCP, you can now browse the Internet by following the instructions provided by your Internet service provider. However, if you are connecting to the Internet via PPP, please proceed to section 9.2 to configure your Router's broadband connection settings. After you have configured the broadband settings and connected to the Internet, view the **My Gateway** panel; the **Internet Status** field will display **Connected.**

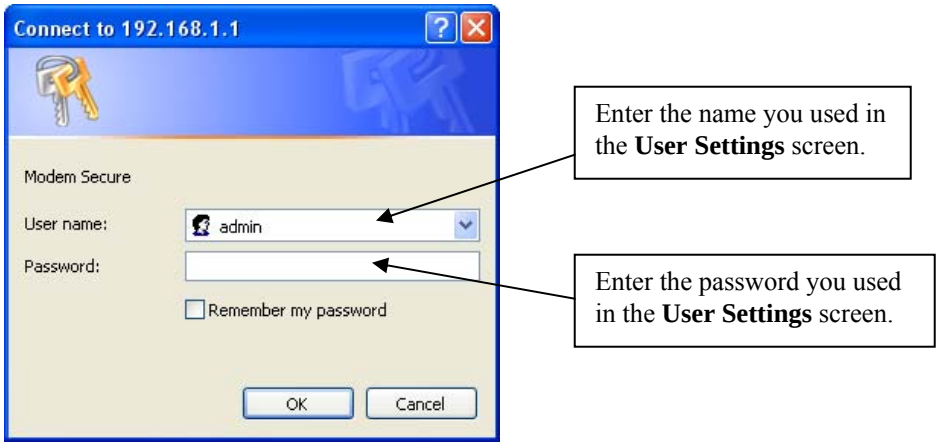
9.2 Setting Up an PPP Connection Profile

Your account profile is used to identify you to your service provider. To begin your account setup, go to the **My Gateway** panel in the home page. Next, click the **Not Connected** link.

NOTE: Before you set up your PPP connection profile, obtain your **Account ID** and **Account Password** from your Internet service provider. You will use this information when you set up your account parameters.



If you clicked **Not Connected** in the preceding screen, the following pop-up screen will prompt you for a user name and password. Enter the **User name** and **Password** you used in the **User Settings** screen, in section 8.2, and then click **OK** to continue.

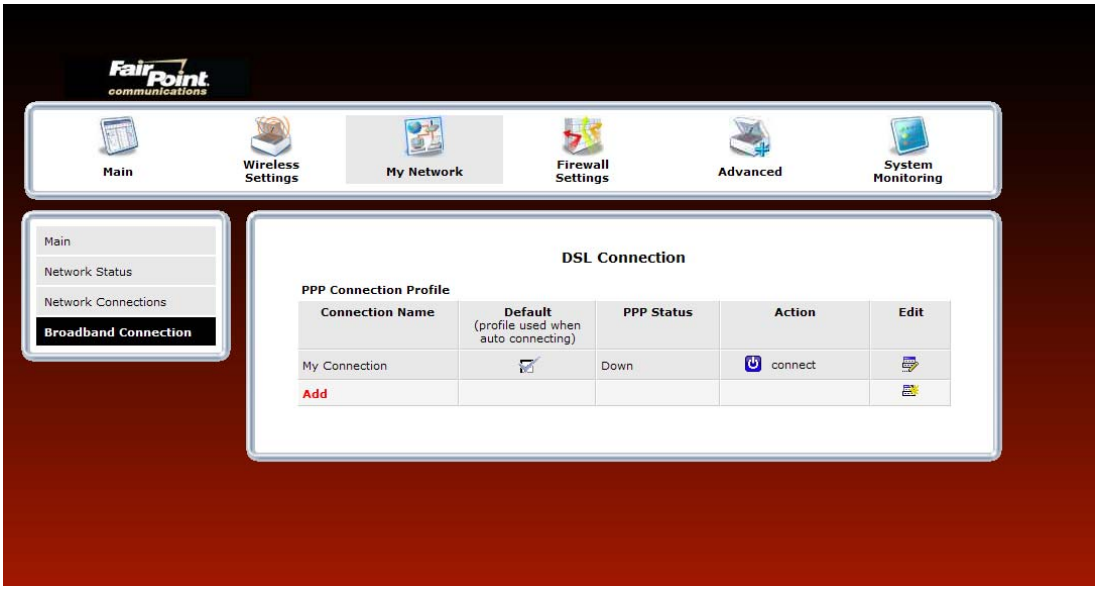


If you clicked **OK,** the following **DSL Connection** screen will appear. This screen displays information about your Internet connection and allows you to access the Router's connection settings. If you have not set up your account profile, the **PPP Status** field will display **Down,** indicating that you have not established an Internet connection with your Internet service provider.

Throughout this User Guide, the following icons are used to indicate clicking actions that you can take with your mouse to configure the Router's settings.

Icon	Description
	Details/Edit Clicking this icon allows you to either view the details of or edit your Router's settings.
	Add/New Clicking this icon allows you to add new entries your Router.
	Delete Clicking this icon allows you to delete an entry from your Router.
	Expand Clicking this icon allows you to expand the page to view additional entries.
	Collapse Clicking this icon allows you to collapse the page.
	Connect Clicking this icon allows you to connect to
	Disconnect Clicking this icon allows you to disconnect from .

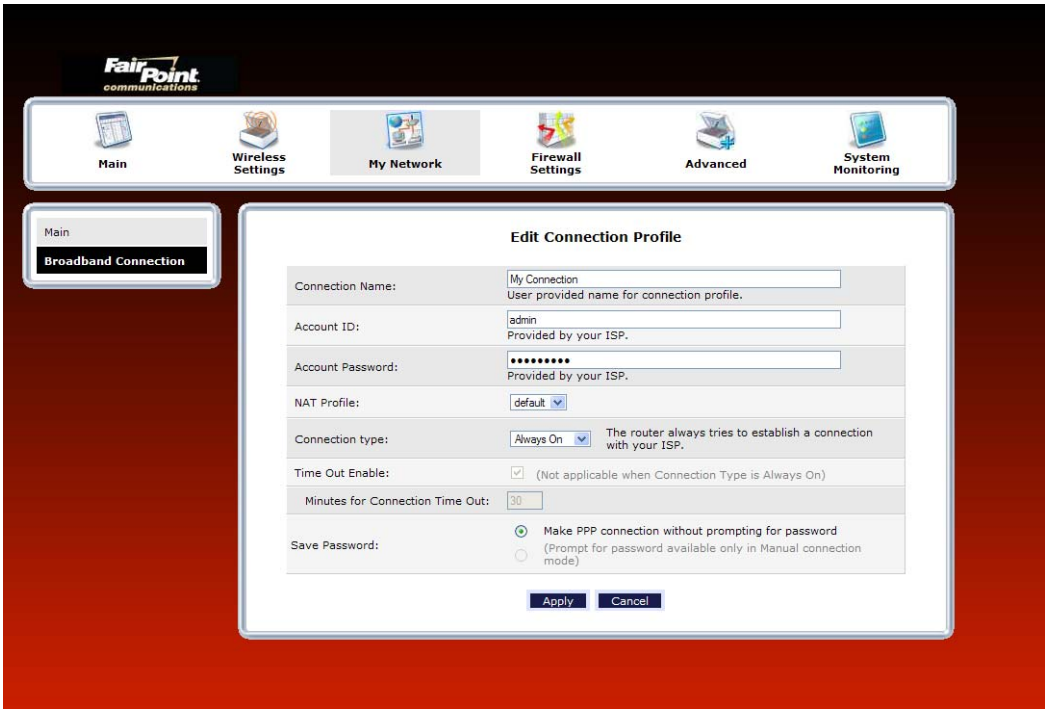
To set up your account profile. Click the **Edit** icon.



- **Connection Name:** The name of the connection profile your are using for your Internet connection.
- **Default:** The name of the default profile that is used when the Router auto connects to the ISP.
- **PPP Status:** The status of the PPP connection. Down = no PPP connection, Up = PPP connection is established.
- **Action:** Click the icon in the **Action** column to connect to or disconnect from (end your PPP session). If you end your PPP session, this does not end your DSL connection.
- **Add:** Click the **Add** link to add additional profiles to your Router.
- **Edit:** Click the **Edit** icon for **My Connection** to set up your connection profile. **My Connection** is the name of the default connection profile that you will use to connect to your service provider. Then if you want, you can click **Add** to add additional connection profiles, and assign one as your default connection profile.

If you clicked **Edit** in the preceding screen, the following **Edit Connection Profile** screen will appear. Type your account parameters in the fields provided. The following account parameters are required for your Internet connection:

- **Connection Name:** The Connection Name is a word or phrase that you use to identify your account.
- **Account ID:** The Account ID is provided by your Internet service provider.
- **Account Password:** The Account Password is provided by your Internet service provider.



Next, select the connection type (Manual, On Demand, Always On) that you want to use for your default connection profile.

- **Manual:** Select this option if you want to manually establish your PPP session.
- **On Demand:** Select this option if you want the Router to automatically reestablish your PPP session on demand anytime your PC requests Internet activity (for example, browsing the Internet, email, etc.). Please note that when you have Internet traffic, this setting may cause a delay.
- **Always On:** Select this option if you want the Router to automatically establish a PPP session when you log on or if the PPP session goes down. The Router's factory default setting is Always On.

If you enable the Router's timeout feature, the Router will end the PPP session upon reaching the number of minutes you specify for connection timeout. To configure connection timeout, do the following:

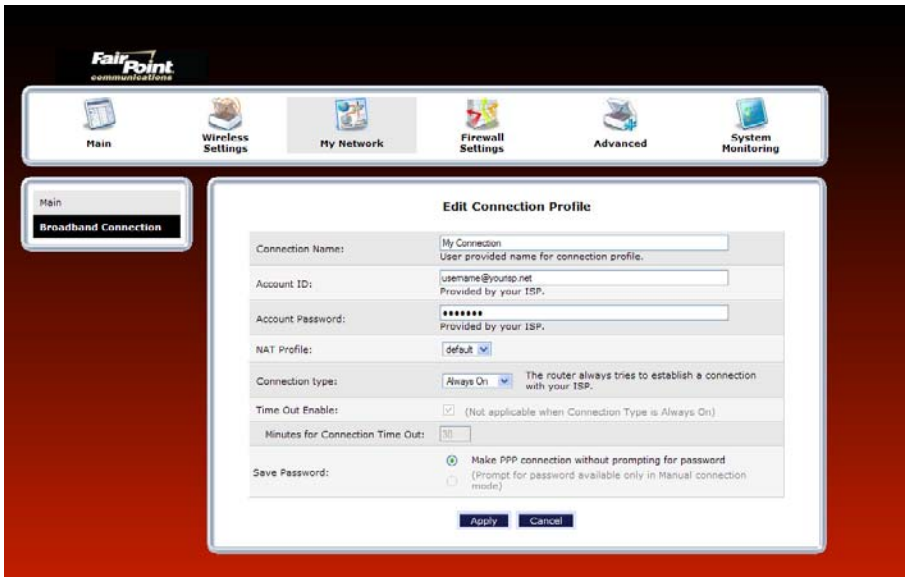
1. In the **Connection Type** field, select either **Manual** or **On Demand** as the connection setting.

   NOTE: The **Time Out Enable** feature does not apply to **Always On,** only to **On Demand** and **Manual,** and the timeout option will be dimmed if you select **Always On**. The Router's default connection type is **Always On.**

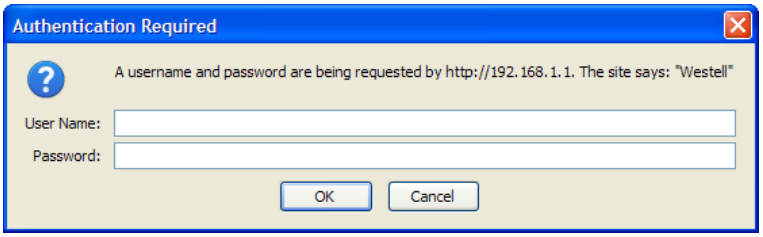
2. Next, click the **Time Out Enable** check box (a check mark will appear in the box).
3. Type the number of minutes in the **Minutes for Connection Time Out** box.

To save your account password, in the **Save Password** field, click the top option. Clicking this option allows the Router to make a PPP connection without first prompting you for a password. (By default this option is already selected; the Router will automatically save the account password.) If you want the Router to prompt you for the account password, select **Manual** as the connection type, and then click the bottom option in the **Save Password** field. (The Router will prompt you for a password only if you have selected **Manual** as the connection type.)

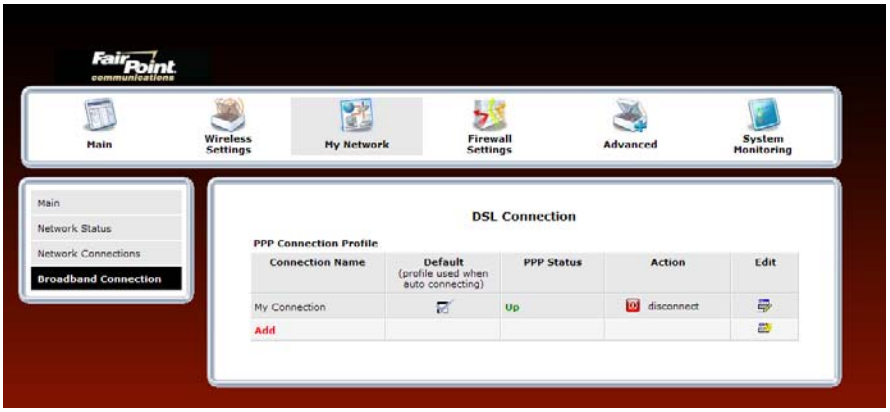
After you have entered the appropriate settings in the **Edit Connection Profile** screen, click **Apply** to allow the settings to take effect.



The following pop-up screen will appear. Enter your administrative user name and password in these fields, and then click **OK** to continue.



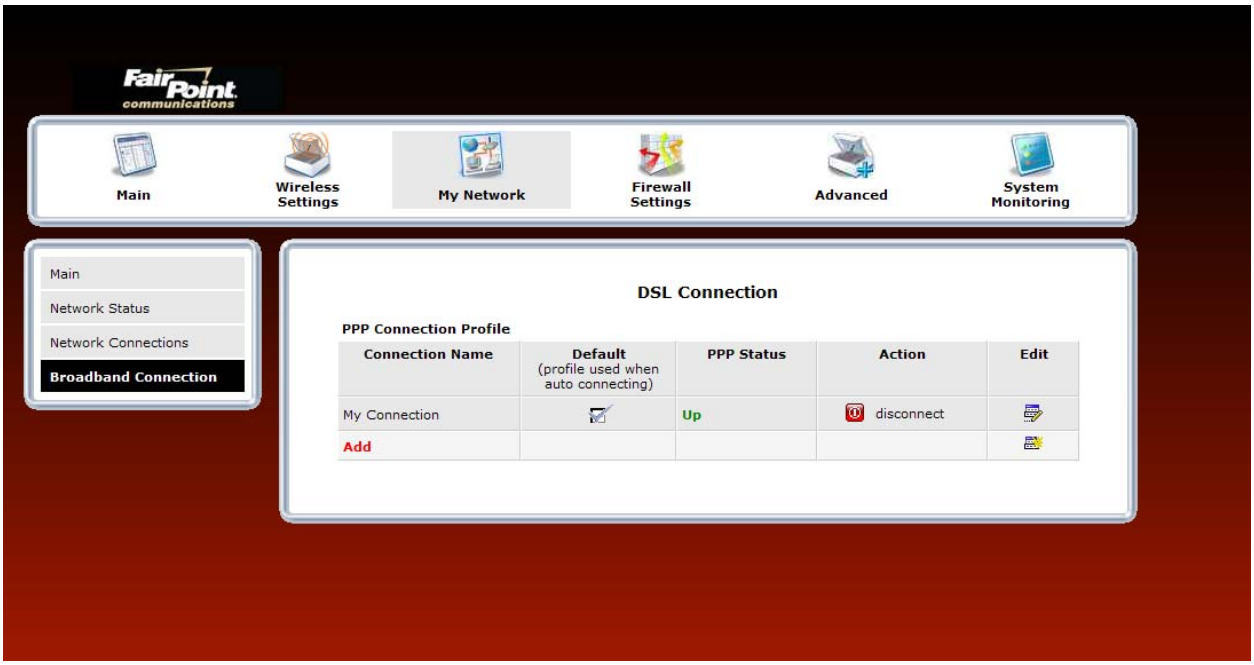
If you clicked **OK**, the following screen appears.



9.3 Connecting to the Internet

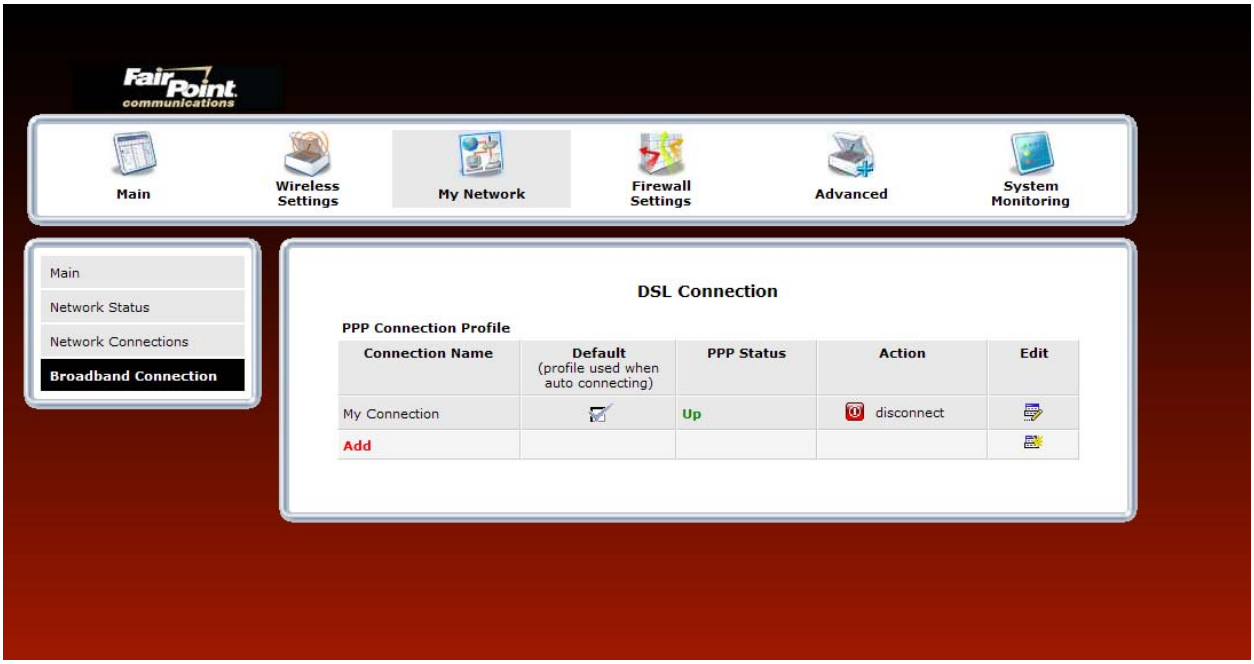
After you have set up your account profile using the steps explained in section 9.2, you are ready to establish a PPP session (Internet connection) with your Internet service provider. View the **DSL Connection** screen. If the **PPP Status** field displays **Down,** you do not have an Internet connection established. To establish an Internet connection, click **connect**. The **PPP Status** field will briefly display **connecting;** this means that the Router is establishing a PPP session. After Router's establishes a PPP session, the **PPP Status** field will display **Up.** Congratulations! You can now browse the Internet.

NOTE: Whenever the PPP Status displays **Down,** you do not have a PPP session established. If your Router's connection setting is set to **Always On** or **On Demand,** after a brief delay the PPP session will be established automatically, and PPP Status will display **Up.** However, if the connection setting is set to **Manual**, you must click the **connect** button to establish a PPP session. Once the PPP session has been established (PPP Status displays **Up**), you can browse the Internet.



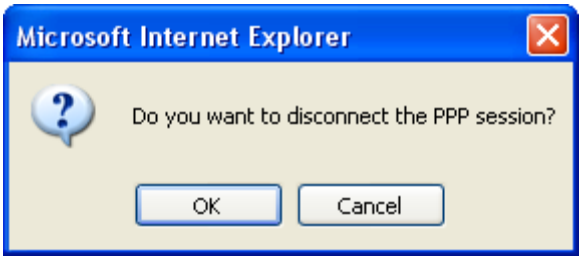
9.4 Disconnecting from the Internet

If you have finished browsing the Internet and want to disconnect from your Internet service provider, from the **My Gateway** panel in the home page, click the **connected** link (next to Internet Status). The following **DSL Connection** screen will appear. Click **disconnect** to end your PPP session.



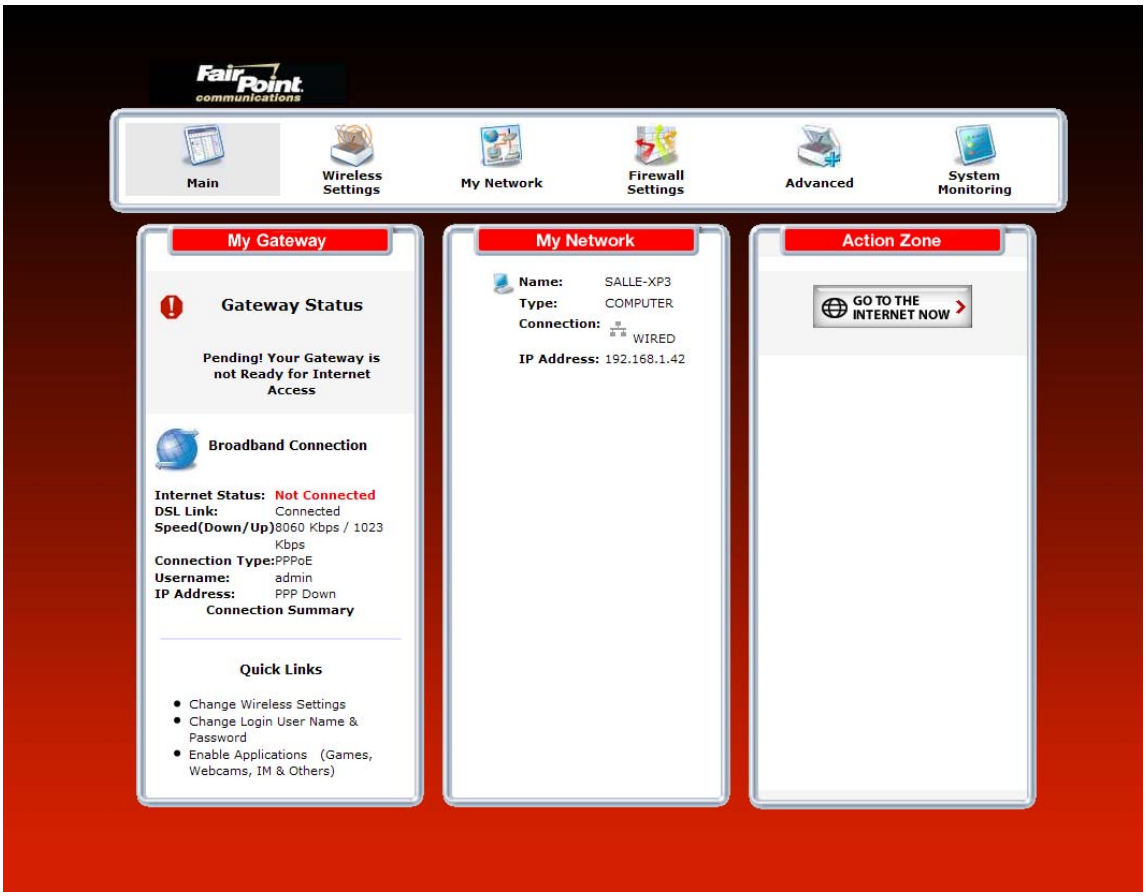
If you clicked **disconnect,** the following pop-up screen will appear. Click **OK** to continue.

IMPORTANT: If you disconnect the PPP session, this will disconnect the Router from the Internet, and Internet access for any device connected to your LAN will be unavailable until the PPP session is reestablished.



If you clicked **OK** to disconnect your PPP session, after a brief moment, the PPP Status in the **DSL Connection** screen should display **Down**.

Also, at the home page in the **My Gateway** panel, the **Internet Status** field will display **Not Connected**. Although your Internet connection is down, your DSL session will not be affected. When you are ready to end your DSL session, simply turn off the Router via the power switch on the Router's rear panel.



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

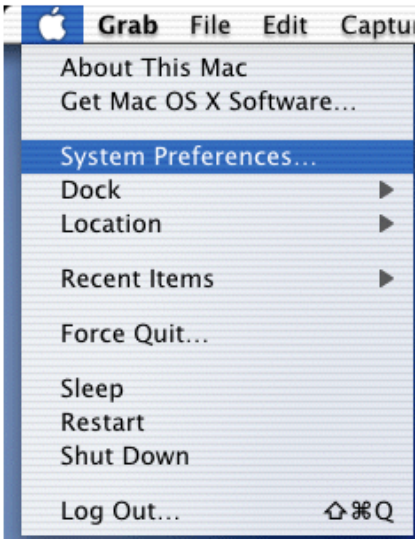
10. SETTING UP MACINTOSH OS X

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 Router's Ethernet installation. Refer to section 6 "Hardware Installations," for details.

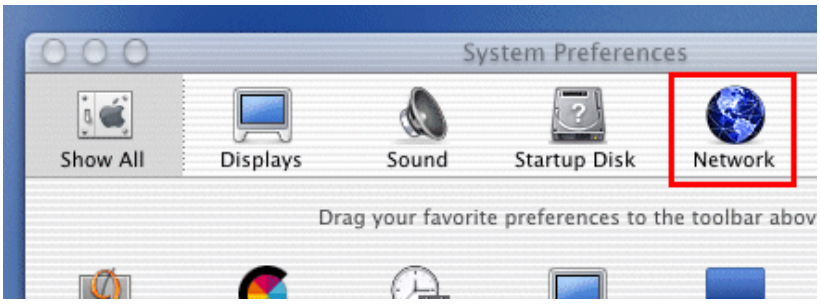
10.1 Opening the System Preference Screen

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



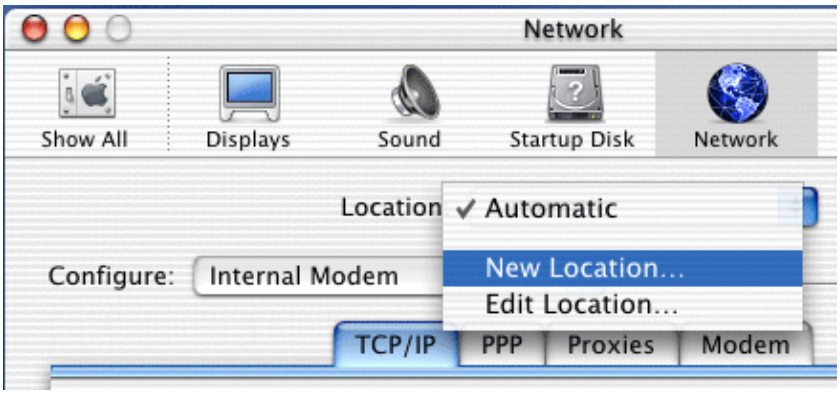
10.2 Choosing the Network Preferences

After selecting **System Preferences** from the previous screen, the **following** screen will appear. Click the **Network** icon.



10.3 Creating a New Location

After clicking the **Network** icon, the **Network** screen will appear. Select **New Location** from the **Location** field.



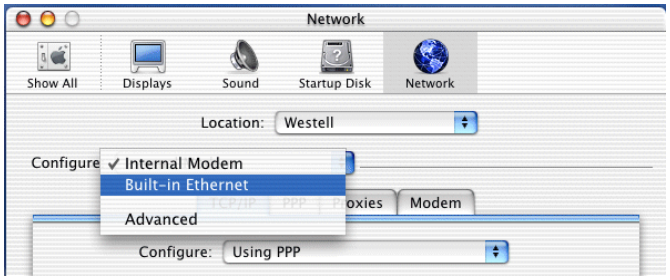
10.4 Naming the New Location

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

10.5 Selecting the Ethernet Configuration

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

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

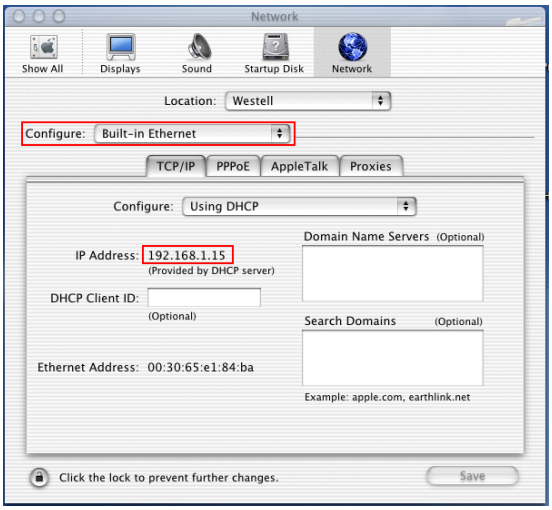


10.6 Checking the IP Connection

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

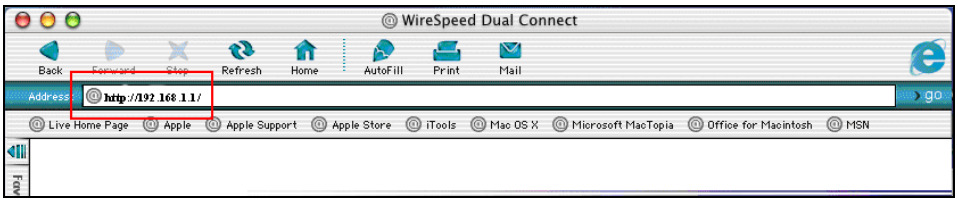
1. Go to the "**Apple**" icon in the upper-left corner of the screen and select **System Preferences**.
2. In the **System Preferences screen**, click the **Network** icon. The **Network** screen will appear.
3. In the **Configure** field in the **Network** screen, select **Built-in Ethernet**.
4. View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

NOTE: The Router's 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 6, "Hardware Installations," for instructions.



10.7 Accessing Your Router

In your Internet Explorer Web browser address bar, type **http://192.168.1.1/**. Next, press **Enter** on your keyboard.



The **Modem Secure** screen will appear. Please proceed to the **Modem Secure** screen in section 8.1 of this User Guide for logon instructions.

11. BASIC CONFIGURATION

IMPORTANT: The following sections assume that you have active DSL and Internet service.

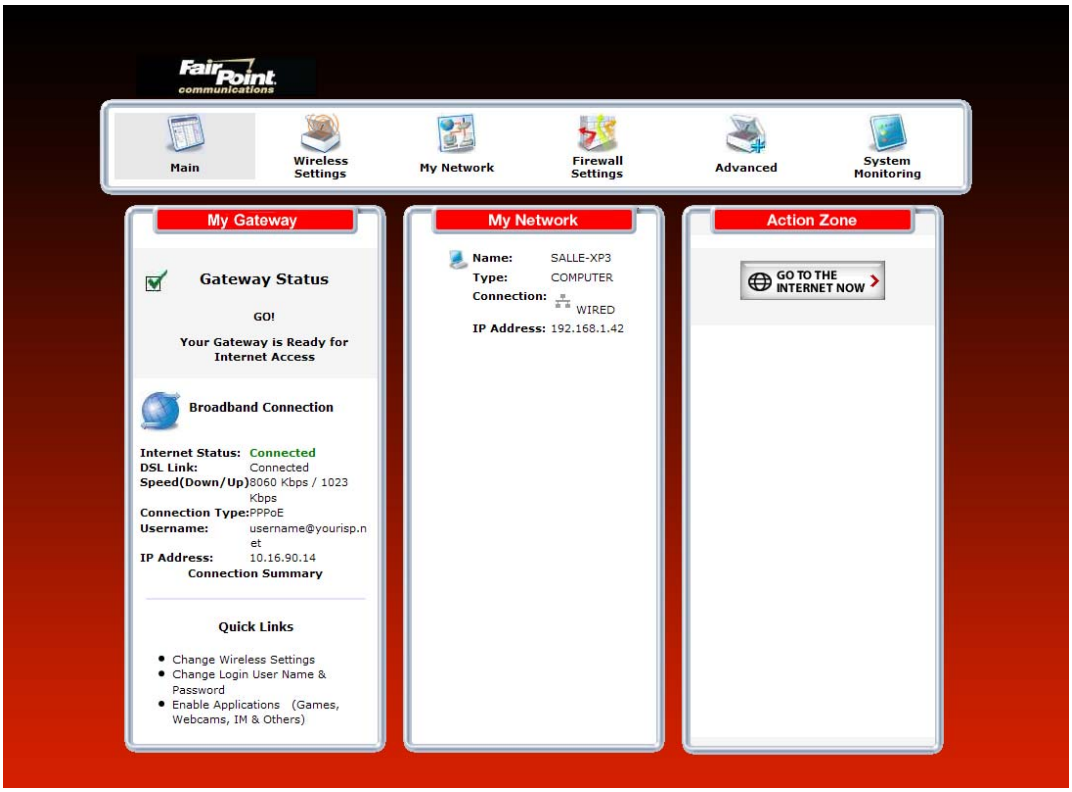
VersaLink allows you to make changes to the configurable features of your Router such as account profiles, routing configurations, and firewall settings. The following sections explain each feature and show you how to make changes to the Router's settings. The navigational menu displayed at the top of each page allows you to navigate to the various configuration screens of your Router. Whenever you change the configurable settings of your Router, you must click **Apply** (or **Save** where applicable) to allow the changes to take effect in the Router.

To configure the basic settings in your Router, follow the instructions provided in sections 12 through 15.

NOTE: The menu options displayed will vary according to the configuration you have chosen to use: **LAN Ethernet port** or **WAN Uplink port.** If you are using WAN Uplink port, some menu options will not be available. However, all menu options will be available when the Router is configured for LAN Ethernet port. Instructions on enabling and disabling LAN Ethernet port and WAN Uplink port are explained in the section 14.2.3, "Configuring VersaPort." This document was created with the Router configured for LAN Ethernet port mode.

12. MAIN (HOME PAGE)

After you have logged on to your Router and established a PPP session with your Internet service provider (ISP), click **Main** in the top navigational menu. The following home page will appear. The home page allows you to view connection information reported by your Router and to quickly access Internet services provided by your Internet service provider. The following sections discuss each panel in the Main page. The Main page will be referred to as the home page throughout this User Guide.



12.1 My Gateway

In the home page, the **My Gateway** panel allows you to view details about your Router's connections and to access the connection settings in your Router. A green check mark displayed in the **Modem Status** check box signals you to Go! You can now browse the Internet. The **Quick Links** section allows you to view information related to your Router and information on your Router's configurable settings. The following details are displayed in the **My Gateway** panel.

My Gateway	
Internet Status	This field displays status of your Internet connection. Click this link to set up new account profiles, edit existing account profiles, and connect to or disconnect from your Internet service provider. Additional details about your Router's broadband connection can be found in section 9.2, "Setting Up an PPP Connection Profile," of this User Guide.
DSL Link	This field allows you to view the status of your DSL connection.
Speed (Down/Up)	This field displays the transmission rates (in Kbits/sec) of your DSL signal. **Down** is the rate at which data is transmitted downstream (from the Internet to your computer). **Up** is the rate at which data is transmitted upstream (from your computer to the Internet).
Connection Type	This field displays the protocol used for your Internet connection, provided by your Internet service provider.
Username	This field displays the username that you used to connect to your Internet servic. The username and password are provided by your Internet service provider.
Internet IP Address	This is a WAN IP address that has been assigned to your Router by Internet service provider. You will receive the WAN IP address only after your Router has established an Internet connection with. (The LAN IP address of your Router is "192.168.1.1" which is assigned to your Router by factory default.)
Change Wireless Settings	Click this link to change the Router's wireless settings.
Change Login User Name & Password	Click this link to change the administrator user name and password.
Enable Applications (games, webcams, IM, etc.)	Click this link to set up a service profile and attach VPN, Gaming, or other NAT services to the profile.

12.2 My Network

In the home page, the **My Network** panel allows you to view information about devices that are connected to your network. The following details are displayed in the My Network panel.

My Network	
Computer Name	The ASCII (text) name of the device connected network
Type	The type of device connected to your network.
Connection	The physical connection used to interface with your Router.
IP Address	The IP address assigned to your computer by your Router's DHCP server.

12.3 Action Zone

In the home page, the **Action Zone** panel allows quick access to Internet services provided by your Internet service provider. The following details are displayed in the Action Zone panel.

NOTE: The links displayed in the **Action Zone** panel are specific to the services offered by your Internet service proivder and will be available only after you have established a PPP session (Internet connection) with your service provider.

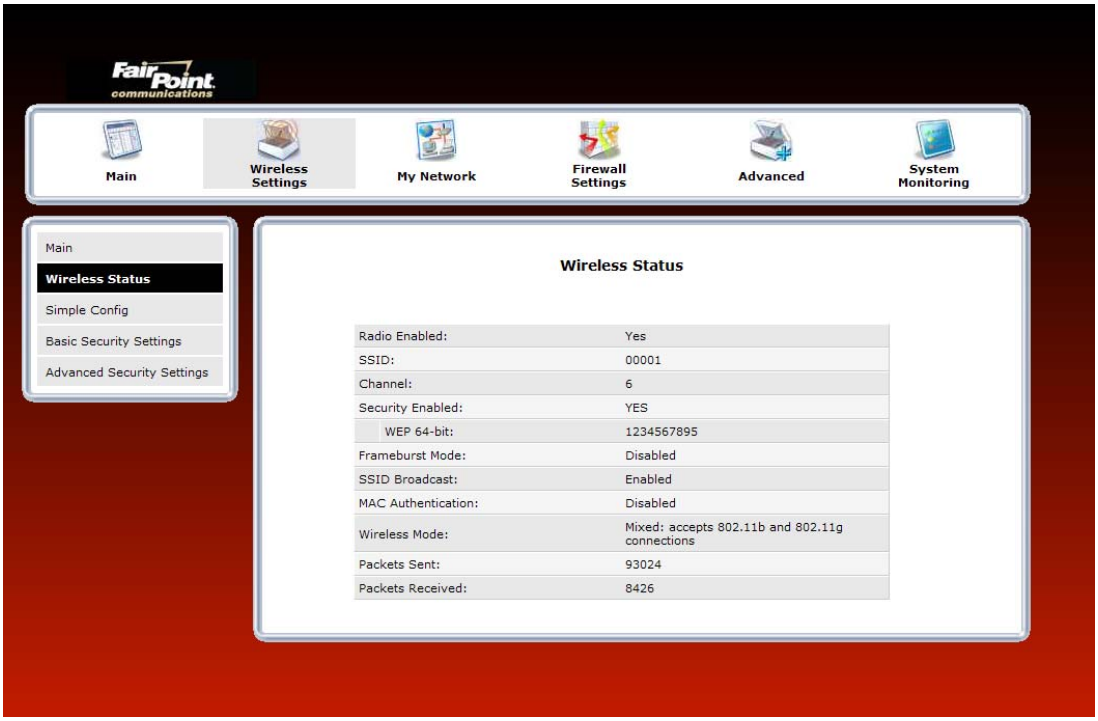
Action Zone	
Go to the Internet Now	Click this button to go to the default page of your Web browser. (Clicking this button will take you to the browser's default page. However, if your PPP session is down, you do not have Internet access. To browse the Internet, you must first establish a PPP session with your Internet service provider.) When you are ready to return to the Router's Web interface, type **http://192.168.1.1/** in your Internet browser's address bar, and press **Enter** on your keyboard.

13. WIRELESS SETTINGS

This section explains the wireless features of your Router and guides you through the configurable settings.

13.1 Wireless Status

If you select **Wireless Settings** from the top navigational menu and then select **Wireless Status** in the submenu options at the left of the screen, the following screen will appear. At this screen, you can view your Router's wireless connection settings.



13.2 Simple Config

If you select **Wireless Settings** from the top navigational menu and then select **Simple Config** in the submenu options at the left of the screen, the following screen will appear. Devices that support Wi-Fi protected setup can quickly connect to your Router using the Router's simple config button, without first requesting long keywords or passphrases. By default, this feature is disabled in the Router.

During the developmental period for an easy push-button method for securely connecting wireless devices, manufacturers were eager to deliver their own push-button methods, and the common name used was "Simple Config." When the procedure finally became standardized, it was renamed to Wi-Fi Protected Setup or WPS, by the standards organization.

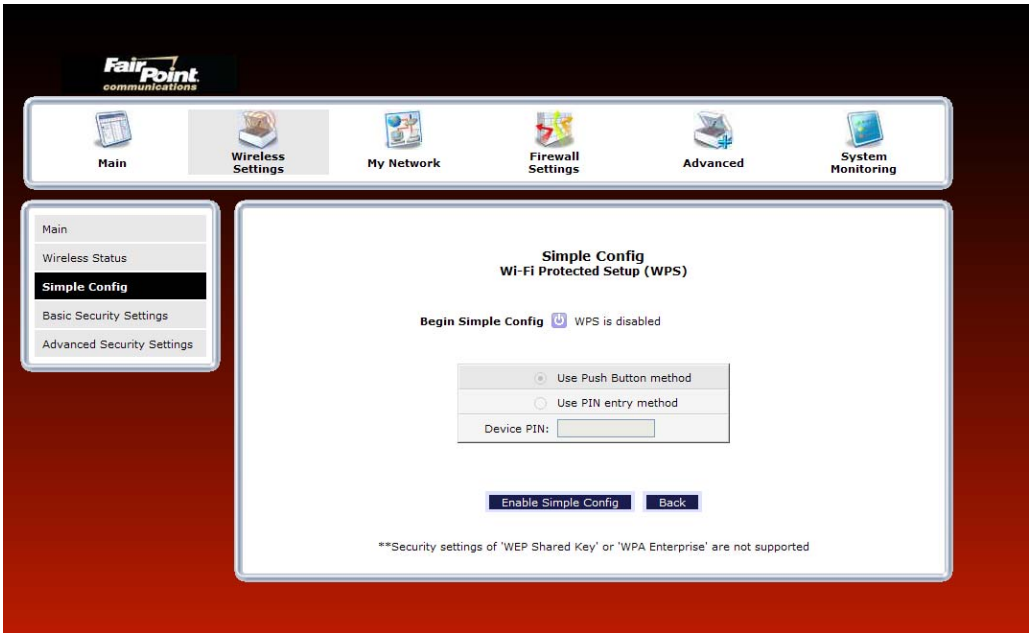
WPS simplifies establishing wireless connections between stations and your Router (wireless access point). Although some stations (clients) do not support WPS, for those that do, you can use WPS to quickly connect to your Router without first having to input long security keywords. The stations using WPS will automatically acquire the security settings of the Router once connected. For the wireless stations that do not support WPS, you can connect the stations to your Router using the instructions explained earlier in section 6.3 of this User Guide.

If wireless security is disabled in your Router, WPS will still function; however, it is recommended that you select some level of security in the Router. By factory default, the Router's wireless security is enabled for WEP on the primary SSID and disabled on the secondary SSID.

The type of security that is used (see section 13.4.1 for details on Wireless Security) must be the same for all stations connecting to the wireless network. For example, if you have a device in your network that can only support WEP, then you must use WEP security in the Router and in all wireless stations connected to your network.

NOTE:

1. Your wireless station must support Wi-Fi Protected Setup in order to use WPS in the Router. If the station has WPS capability, it will have WPA security capability as well. If needed, refer to your station's user guide for details about your station.
2. To use WPS, your Router must be configured for WPA-PSK, WEP Open, or WPA2-PSK settings.
3. The security settings "WEP Shared Key" and "WPA Enterprise" are not supported by Simple Config.



Simple Config offers two methods for quick wireless connection to your Router.

- Push Button method: Clicking this option allows you to press a button on the Router and on the client (usually a software button) to automatically setup secure wireless access to the Router.
- PIN entry method: Clicking this option allows you to enter a PIN code, generated by the client (PC, Wireless Printer, Dual Mode Phone, etc.), into the Router to automatically setup secure wireless access to the Router.

NOTE:
1. To use either method, your Router must be configured for WPA-PSK, WEP Open, or WPA2-PSK settings
2. Security settings "WEP Shared Key" and "WPA Enterprise" are not supported by Simple Config.
3. Your wireless client must support wi-fi protected setup. If needed, refer to your device manufacturer's user guide for details about your device.

Push Button Method

To configure wireless connection to the Router using the push button method, do the following:

1. At the Router's **Simple Config** screen, click the black **Enable Simple Config** button, and then select **Use Push Button Method**.
2. Either click the simple config button in the screen, or press the simple config button on your Router.
3. Within 2 minutes of pressing the simple config button, return to your client and click the client's software button to run the wi-fi protected setup application. The client will search for the device and make the wireless connection to the Router.

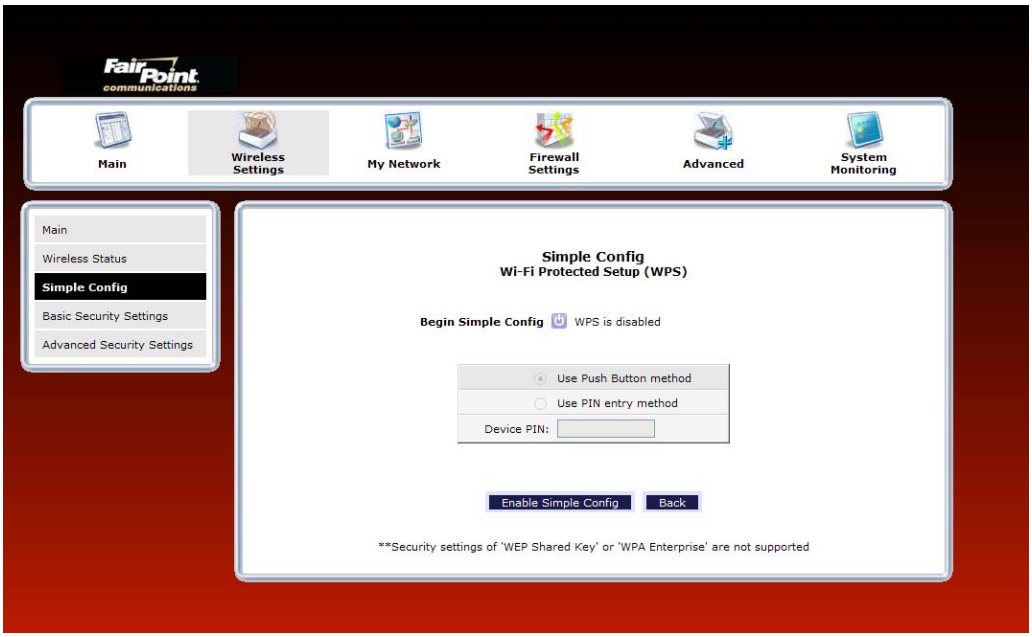
Pin Entry Method

To configure wireless connection to the Router using the pin entry method, do the following:

1. Run your client's wi-fi protected setup application to generate a pin value.
2. At the Router's **Simple Config** screen, click the black **Enable Simple Config** button, and then select **Use Pin Entry Method**.
3. Enter the pin value in the field provided.
4. Either click the simple config button in the screen, or press the simple config button on your Router. Within 2 minutes of pressing the simple config button, return to your client and click the client's software button to run the wi-fi protected setup application. The client will search for the device and make the wireless connection to the Router.

The following example illustrates Simple Config using the Push Button Method:

1. At the **Simple Config** screen, click the black **Enable Simple Conf** button, and then select **Use Push Button method.**



2. Next, either click the simple config button in the screen, or press the simple config button on your Router.

IMPORTANT: You must return to the client and run the wi-fi protected setup Wizard within 2 minutes of either pressing the Simple Config button on your Router or clicking the Simple Config button in the screen.

3. Run the client's wi-fi protected setup Wizard—for the "push button" method.

NOTE: Your device's wi-fi protected setup Wizard may differ from the Wizard screens shown in this example.

4. Complete the instructions in the setup Wizard, and then confirm your wireless network connection to the Router. Repeat these steps for each wireless client that you want to connect to your Router. (Confirm that the client supports wi-fi protected setup.)

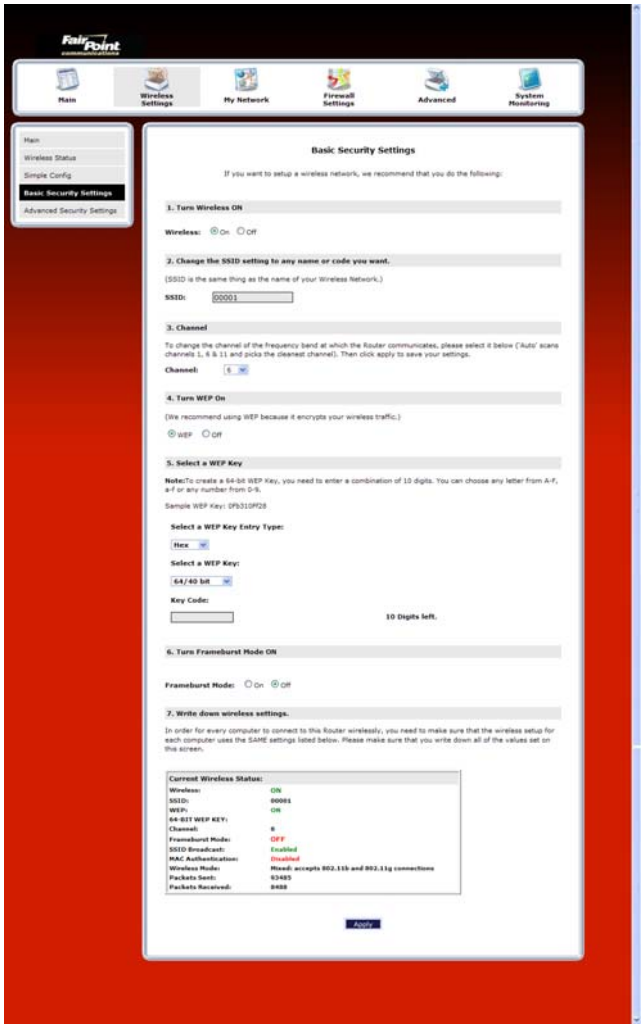
13.3 Basic Security Settings

If you select **Wireless Settings** from the top navigational menu and then select **Basic Security Settings** in the submenu options at the left of the screen, the following screen will appear. This screen allows you to configure basic security settings for your Router such as SSID and WEP security values. Enter the appropriate settings in the fields provided, and then click **Apply** to allow the settings to take effect. The following table explains the details of this feature.

IMPORTANT:

1. If you are connecting to VersaLink via a wireless network adapter, the computer's wireless network adapter must be configured with VersaLink's Service Set ID (SSID) in order to communicate with VersaLink; that is, the SSID used in the wireless network adapter must be identical to VersaLink's SSID. The default SSID for VersaLink is the serial number of the unit (located below the bar code on the bottom of the unit and also on the shipping carton). Locate and run the utility software provided with the wireless network adapter, and then enter the identical SSID and security settings displayed in the VersaLink. For privacy, you can change the SSID and security settings to your desired values.

2. In order for every computer on your network to connect to the VersaLink wirelessly, confirm that each computer is using the same security settings you have configured in VersaLink's Basic Security Settings screen. After you have configured all the settings in this screen, please record the settings for future reference.

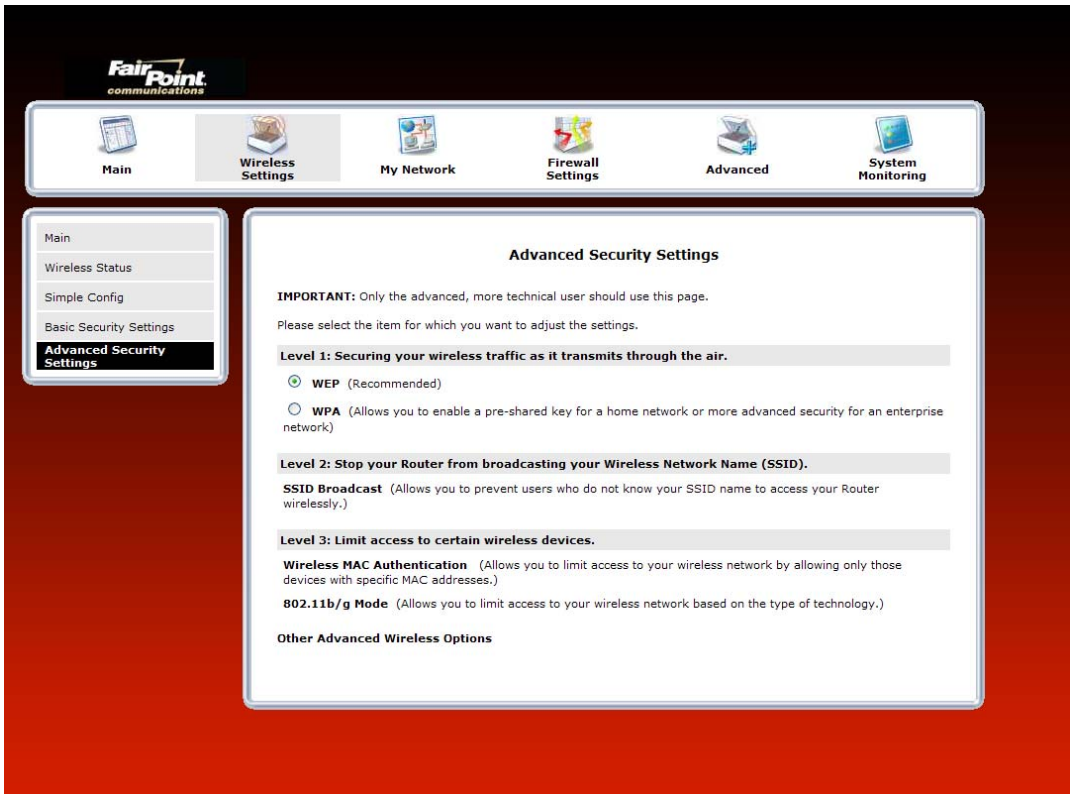


Basic Security Settings	
Wireless Operation	Factory Default = On Choose the desired setting. When On is selected, wireless stations (wireless computers or other wireless devices) can connect to the Router, as long as the appropriate settings are configured in the wireless station's network adapter. When Off is selected, computers will not be able to connect to the Router wirelessly.
Network Name (SSID)	Factory Default = 07B407578407 This string, (30 characters or less) is the name of your wireless network. To connect to the Router, the SSID on a computer's wireless card must match the SSID on the Router. You can change the SSID to any name or code you want.
Channel	Factory Default = 6 This is the channel of the frequency band at which the Router communicates. The Router transmits and receives data on this channel. The number of channels to choose from is pre-programmed into the Router. A computer's wireless card does not have to be set to the same channel as the Router; the wireless cards scan all channels, and look for a Router to connect to. Note: In the United States, use channels 1 through 11.
WEP configured	Factory Default = On Click the desired option. If WEP is selected, the Router will allow you to enter WEP key values for wireless security, and any wireless computer can connect to the Router (as long as its SSID and security settings matches the Router's). If Off is selected, you will not be allowed to enter WEP key values, and wireless traffic will not be encrypted. This maximizes the risk of unauthorized access to your computer.
WEP Key Entry Type	Factory Default = Hex Choose the desired WEP Key Entry Type from the drop-down menu. A WEP key is treated as either a string of text (ASCII) characters or a set of hexadecimal (Hex) characters. Possible Responses: Hex (hexadecimal) – Selecting Hex allows you to enter characters from (A-F) or (0-9) as the key code. ASCII (text) – Selecting ASCII allows you to enter characters from (A-Z) or (0-9) as the key code.
WEP Key	Choose the desired WEP Key encryption from the drop-down menu. The WEP key value is used to encrypt your wireless traffic. The Router supports 64/40-bit, 128/104-bit, or 256/232-bit WEP encryption.
Key Code	Enter the key code values in this field. ASCII: If you are using an ASCII key code, the number of characters entered into this field must be either 5 (for 40/64 bit encryption), 13 (for 128 bit encryption) or 29 (for 256 bit encryption). HEX: If you are using a Hex key code, the number of characters that you can enter into this field must be either 10 (for 40/64 bit encryption), 26 (for 128 bit encryption) or 58 (for 256 bit encryption). The only allowable hexadecimal characters are: A-F and 0-9. Note: Do not use symbols or blank spaces in the key code field.
4x Support	Factory Default = Off Select On to turn on the 4X feature. Select Off to turn off the 4X feature. When On is selected, this feature provides additional algorithms for increased wireless throughput. Note: This feature will only operate with wireless clients that support this feature. Verify with the manufacturer of your wireless client that 4X is supported.
Current Wireless Status	Displays the settings and packet information for your Wireless connection. Settings displayed in this window can be configured through the **Basic Security Settings** screen or through the **Advanced Security Settings** screen.

13.4 Advanced Security Settings

If you select **Wireless Settings** from the top navigational menu and then select **Advanced Security Settings** in the submenu options at the left of the screen, the following screen will appear. The following table explains the details of the Advanced Security Settings screen.

IMPORTANT: Only the advanced user should change the settings in this screen. If you need to reset the Router to factory default settings, press the reset button at the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to factory default settings.



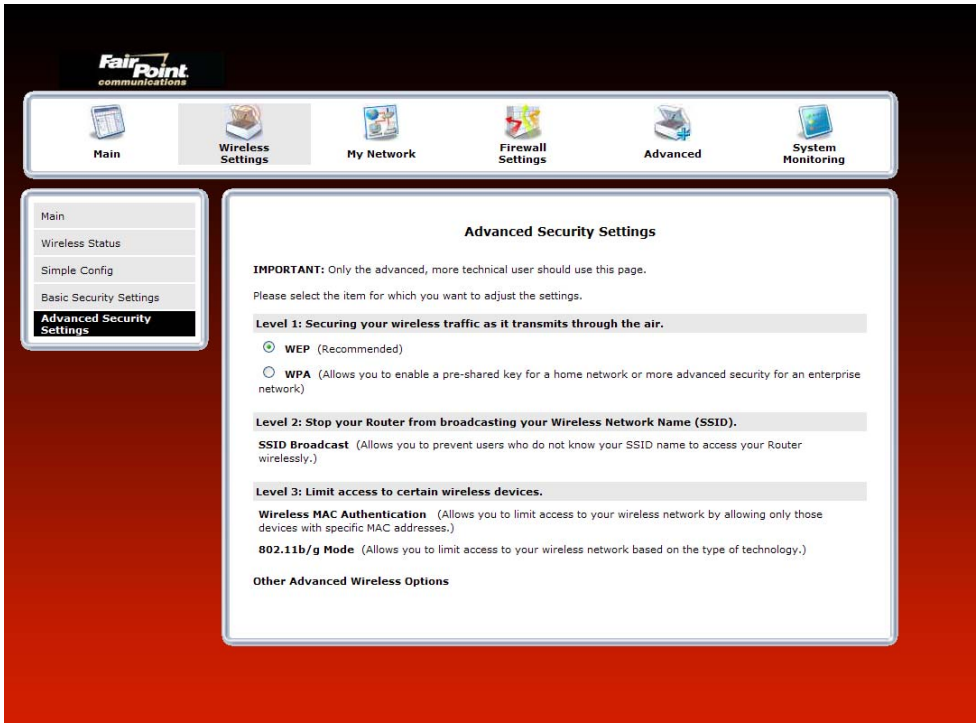
Advanced Security Settings	
Wireless Security	Factory Default = WEP (recommended) WEP – Selecting WEP allows you to enable a WEP key for wireless security. The Router's card supports 64-bit, 128-bit, or 256-bit WEP encryption. If WEP is selected, any station can connect to the Router (as long as its SSID matches the Router's SSID). WPA – Selecting WPA allows you to enable a pre-shared key for home network or more advanced security for an enterprise network.
SSID Broadcast	Allows you to prevent unauthorized wireless access to your Router by blocking the Router's SSID on the network. When SSID Broadcast is enabled, any computer or wireless device using the SSID of "ANY" can see the Router. To prevent this from happening, disable SSID broadcast so that only the wireless devices that know your SSID can access your Router.
Wireless MAC Authentication	Allows you to limit access to your wireless network by allowing only devices with specific MAC address to connect to your Router.
802.11b/g/n Mode	Allows you to limit access to your Router based on technology type. 11b only: Communication with VersaLink is limited to 802.11b 11g only: Communication with VersaLink is limited to 802.11g 802.11b/g mixed: Computers using any of the 802.11b or 802.11g rates can communicate with VersaLink.

	802.11b/g/n mixed: Computers using any of the 802.11b, 802.11g or 802.11n rates can communicate with VersaLink.

13.4.1 Securing the Wireless Traffic

In the **Advanced Security Settings** screen, select one of the following options to secure your wireless traffic.

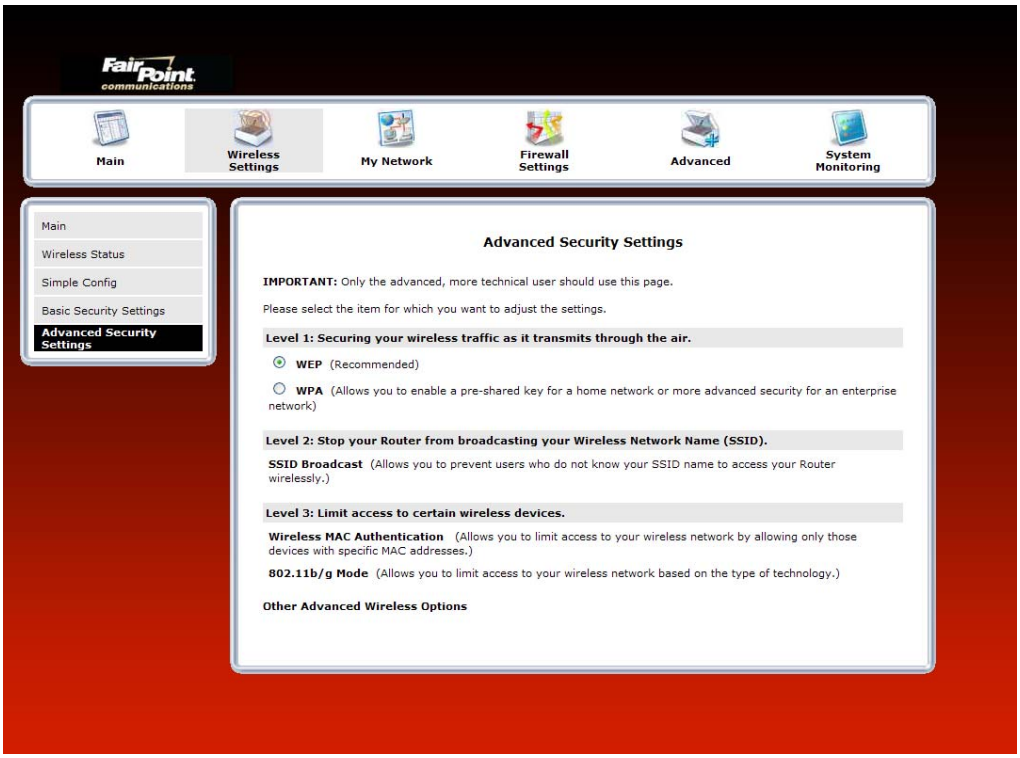
- WEP: Clicking this option allows you to enable a WEP key for wireless security. (WEP is the recommended setting.)
- WPA: Clicking this option allows you to enable a pre-shared key for a home network or for more advanced security for an enterprise network.



13.4.1.1 WEP Security

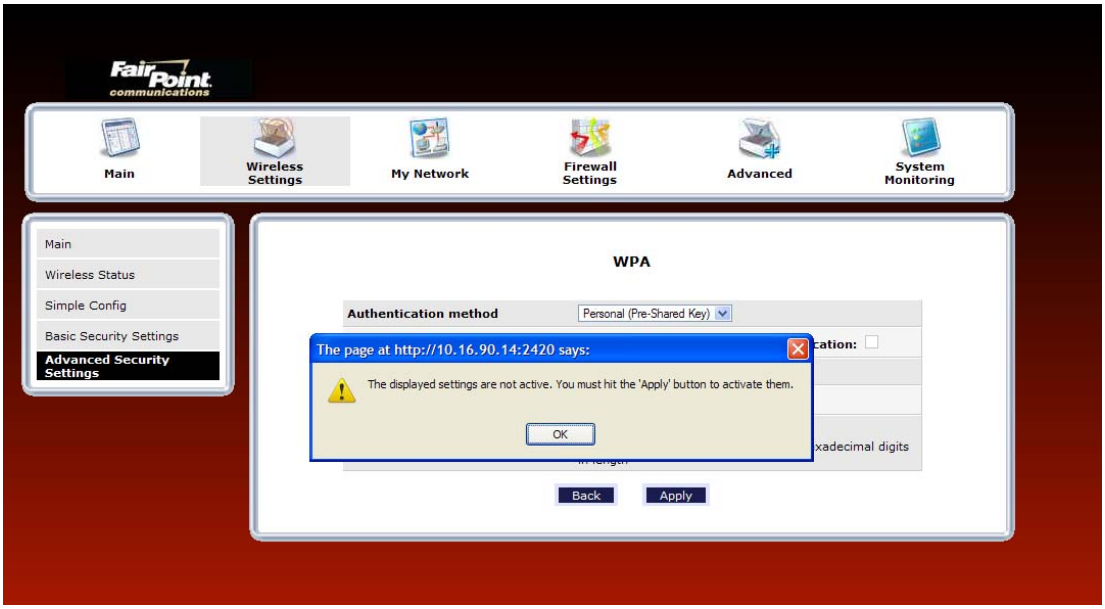
If you select **WEP** in the **Advanced Security Settings** screen, the following screen will be displayed.

NOTE: A WEP key is treated as either a string of text (ASCII) characters or a set of hexadecimal (Hex) characters. The number of text characters must be either 5 (for 64/40 bit encryption), 13 (for 128 bit encryption). The number of Hex characters must be either 10 (for 64/40 bit encryption), 26 (for 128 bit encryption). The only allowable hexadecimal characters are: A-F, a-f, and 0-9.



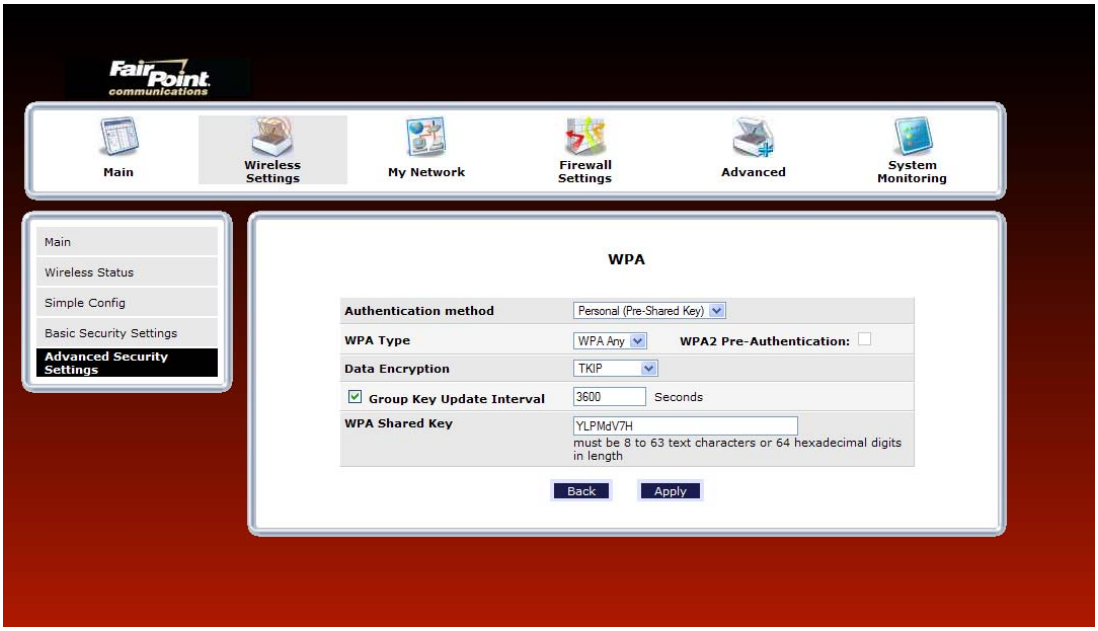
13.4.1.2 WPA Security

If you select **WPA** in the **Advanced Security Settings** screen, the following screen appears. Click **OK** in the pop-up screen to continue.



The following screen appears. Enter the appropriate values in the fields, and then click **Apply** to allow the settings to take effect.

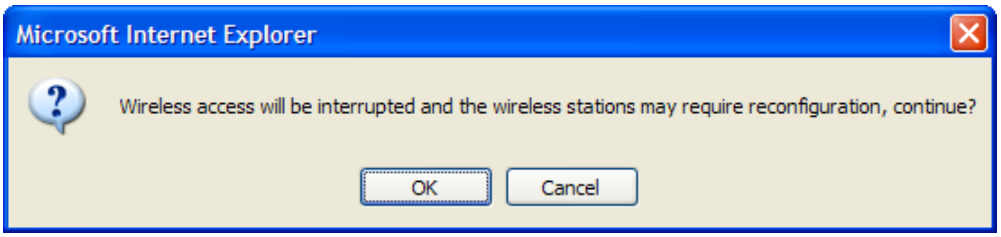
NOTE: A WPA key is treated as either a string of text (ASCII) characters or a set of hexadecimal (Hex) characters. The WPA key can be either 8 to 63 text (ASCII) characters or 64 hexadecimal (Hex) characters. The only allowable hexadecimal characters are: 0-9 and A-F, a-f.



WPA	
Authentication Method	Factory Default = Personal (Pre-Shared Key) Personal (Pre-Shared Key) – WPA stations share a pre-shared key (string format) with the Router and do not authenticate with the RADIUS server. Enterprise 802.1x – WPA stations authenticate with the RADIUS server using EAP-TLS over 802.1x, a standard for passing extensible authentication protocol (EAP) for authentication purposes. EAP is used to communicate authentication information between the supplicant and the authentication server. With 802.1x EAP messages are packaged in Ethernet frames, rather than using and PPP.
WPA Type	Factory Default = WPA Any WPA Any – Allows stations that support WPA, WPA2, or WPA Any to connect to the Router. WPA – Allows stations that support WPA v.1 to connect to the Router. WPA2 – Allows stations that support WPA v.2 to connect to the Router.
WPA2 Pre-Authentication	Factory Default = Disabled To Enable this feature, click the box (a check mark will appear in the box).
Group Key Update Interval (in seconds)	The number of seconds between rekeying the wPA group key. A value of zero means that rekeying is disabled.
WPA Shared Key	The WPA key can be either 8 to 63 text (ASCII) characters or 64 hexadecimal (Hex) characters. The only allowable hexadecimal characters are: A-F and 0-9.

After you have entered your values and clicked **Apply** in the **WPA** screen, the following pop-up screen appears. The pop-up screen indicates that wireless access may be interrupted. Click **OK** to continue.

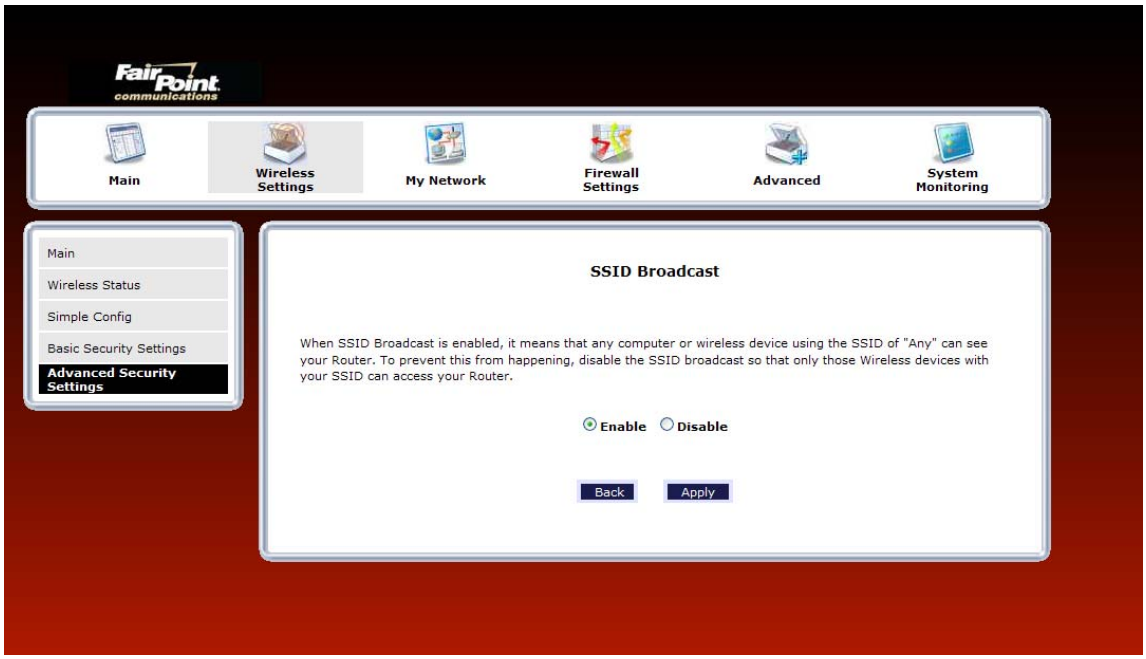
NOTE: Wireless access to the Router may be interrupted and wireless stations may require reconfiguration.



13.4.2 SSID Broadcast

If you click the **SSID Broadcast** link in the **Advanced Security Settings** screen, the following screen will be displayed. When SSID Broadcast is enabled, any computer or wireless device using the SSID of "ANY" can see the Router. To prevent this from happening, click the **Disable** option. This will disable SSID Broadcast so that only the wireless devices that are configured with your SSID can access your Router.

Click the desired option, and then click **Apply** to allow the settings to take effect. Click **Back** to return to the **Advanced Security Settings** screen.



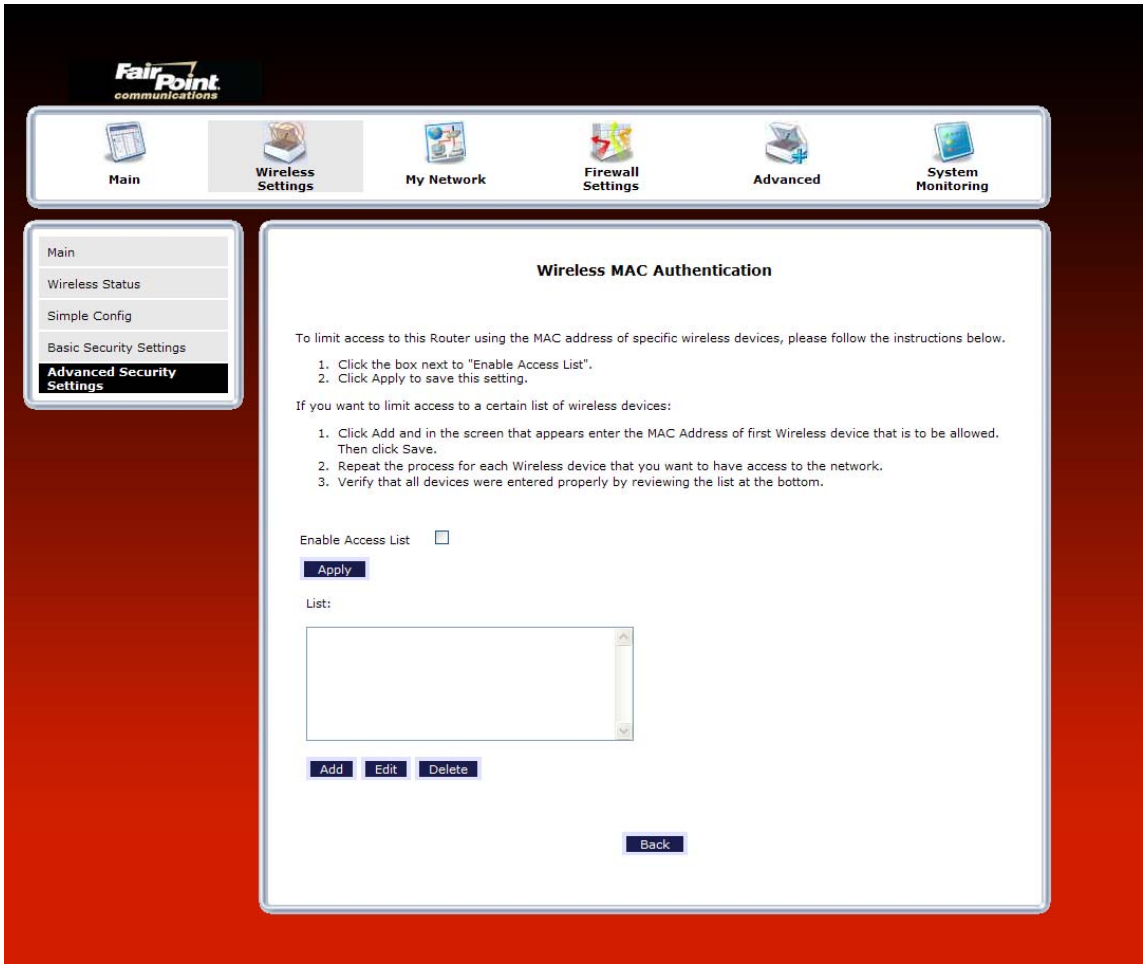
13.4.3 Wireless MAC Authentication

If you select the **Wireless MAC authentication** link in the **Advanced Security Settings** screen, the following screen will appear. This screen allows you configure wireless MAC address authentication in the Router. By enabling the **Access List,** you can permit or restrict wireless access to the Router based on specific MAC addresses.

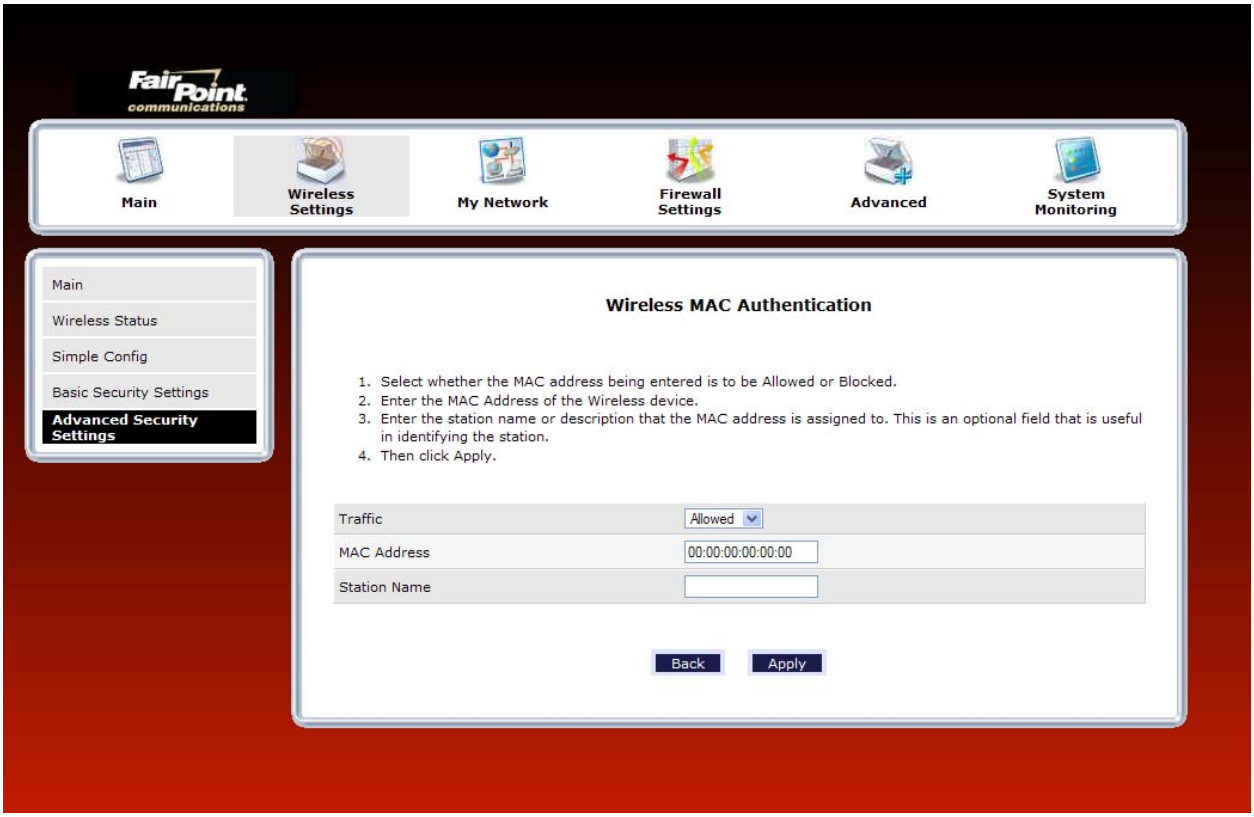
To limit access to the Router using the MAC address of specific wireless devices, follow the steps below:

1. Click the **Enable Access List** check box (a check mark will appear in the box).
2. Click **Apply** to save the setting, and then click **OK** in the pop-up screen.

To add, edit, or delete the MAC addresses of wireless devices, click the desired button below the **List** window. For example, to Add a MAC address, click **Add.**

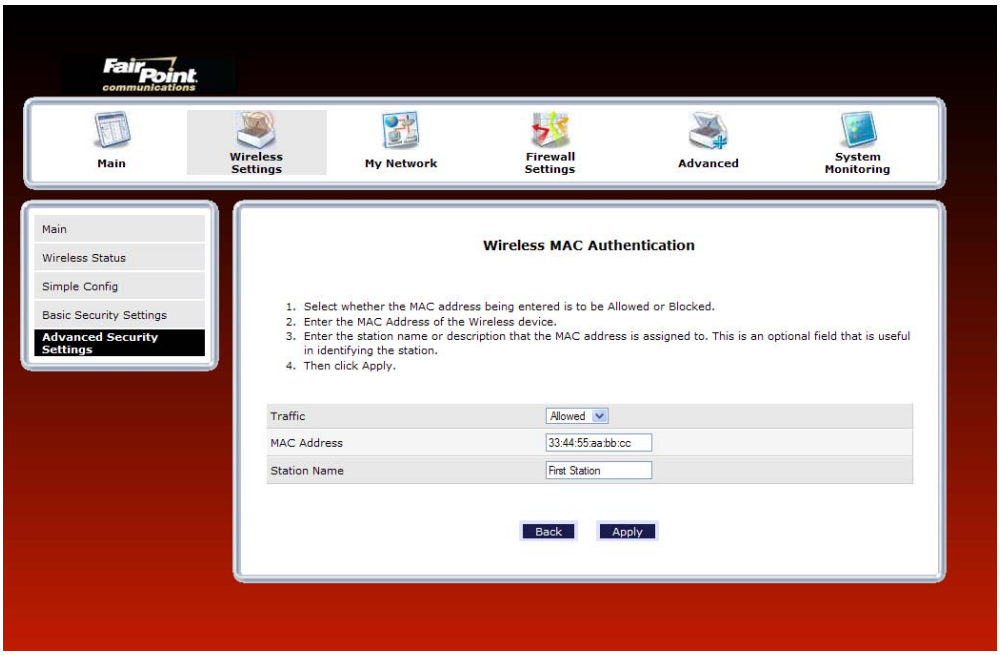


If you clicked **Add**, the following screen will appear. Enter the desired settings, and then click **Apply**.



Traffic	Allowed: When the MAC Filter is enabled, only stations in the MAC Filter Table (which are set to "Allowed") will have access to the Router. Blocked: This allows a computer to remain in the table, but it is not allowed access to the Router.
MAC Address	The MAC address assigned to the computer that you want to allow access to. (A hardware address is assigned to a computer or device by the manufacturer.)
Station Name	The computer name or description that you want to associate with the MAC address. This is an optional field that is useful in identifying the station.

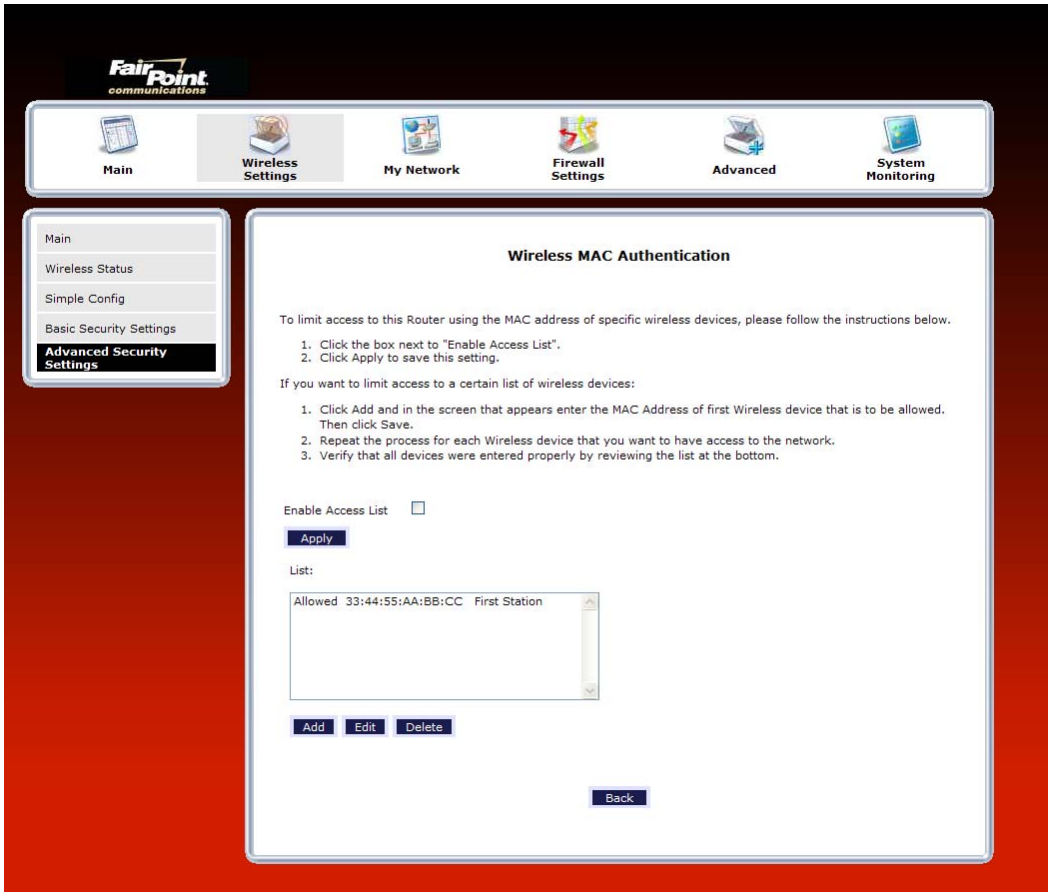
The following screen provides an example of values entered into the fields.



After you have entered your values and clicked **Apply** in the preceding screen, the following pop-up screen will appear. The pop-up screen indicates that wireless access may be interrupted. Click **OK** to continue.

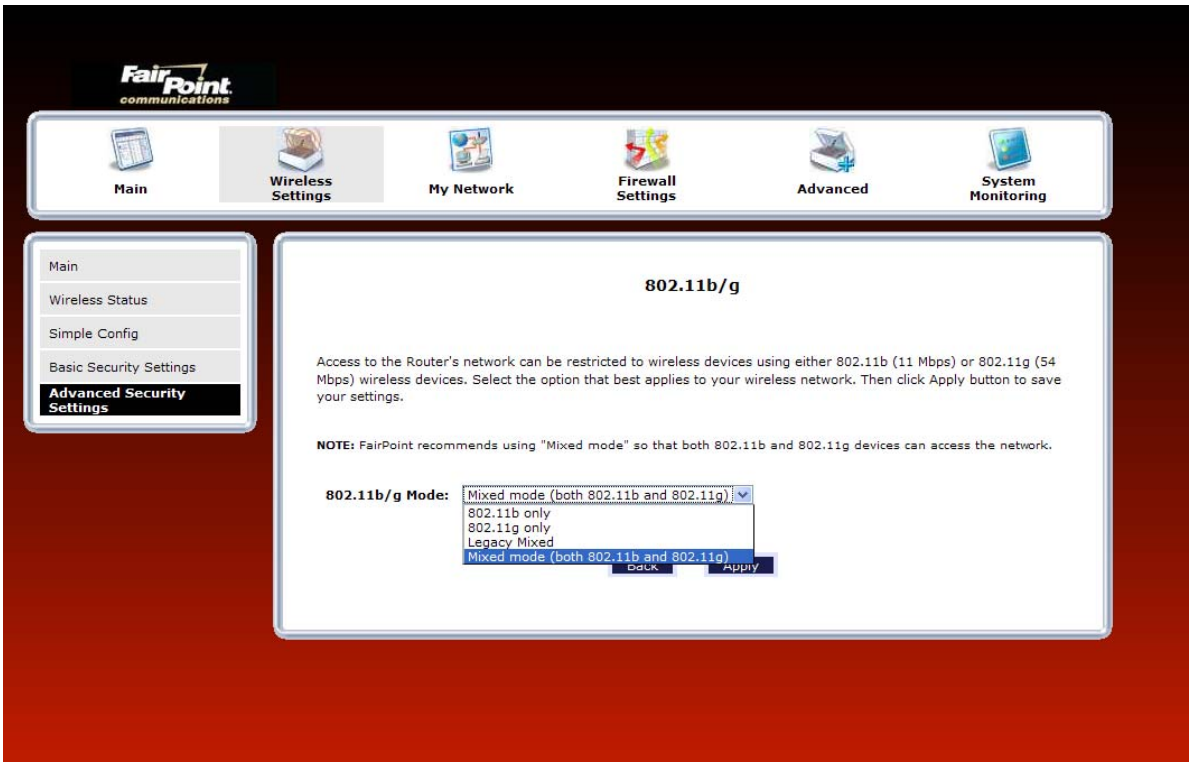
NOTE: Wireless access to the Router may be interrupted and wireless stations may require reconfiguration.

If you clicked **OK** in the pop-up screen, the following screen will appear. The MAC address has been added to the list of MAC addresses. Confirm that a ckeck mark is displayed **Enable Access List** check box, and then click **Apply**. Repeat this process for each wireless device that you want to add to the list.



13.4.4 802.11b/g/n Mode

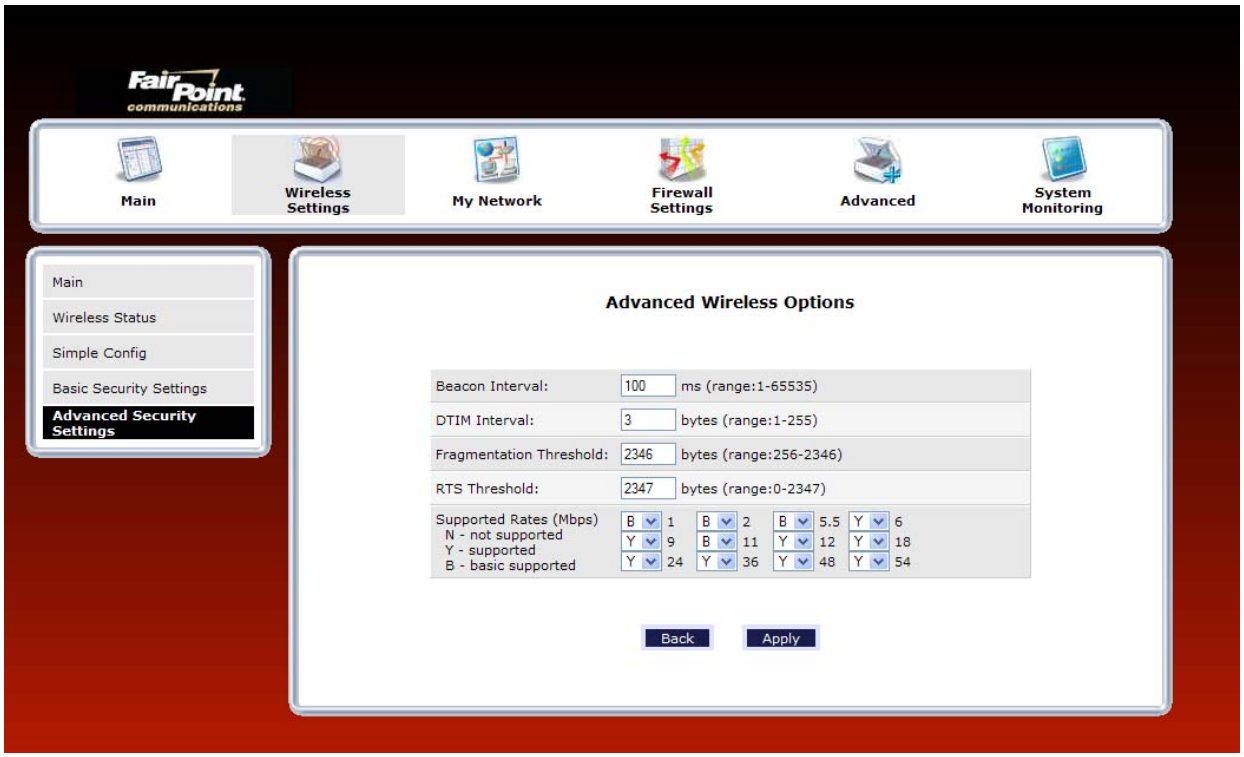
If you select the **802.11b/g/n Mode** link in the **Advanced Security Settings** screen, the following screen will be displayed. This screen allows you to limit access to your Router based on technology type. From the drop-down menu, select the desired setting. Then, click **Apply** to allow the settings to take effect.



802.11b/g/n Mode	11b only: Communication with VersaLink is limited to 802.11b
	11g only: Communication with VersaLink is limited to 802.11g
	802.11b/g mixed: Computers using any of the 802.11b or 802.11g rates can communicate with VersaLink.
	802.11b/g/n mixed: Computers using any of the 802.11b, 802.11g or 802.11n rates can communicate with VersaLink.

13.4.5 Other Advanced Wireless Options

If you select the **Other Advanced Wireless Options** link in the **Advanced Security Settings** screen, the following screen will appear. From the drop-down menus, select the desired settings. Then, click **Apply** to allow the settings to take effect.



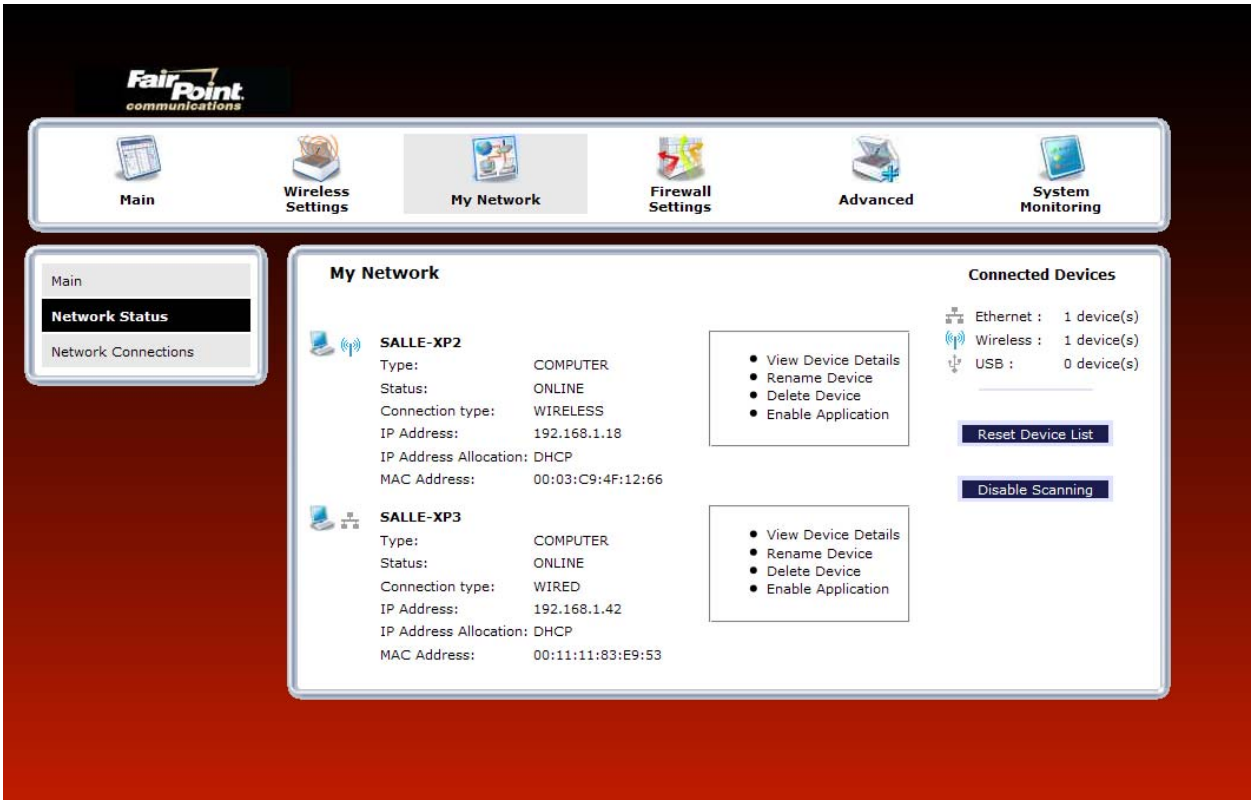
Wireless Advanced Configuration	
Beacon Interval	The time interval between beacon frame transmissions. Beacons contain rate and capability information. Beacons received by stations can be used to identify the access points in the area.
DTIM Interval	The number of Beacon intervals between DTIM transmissions. Multicast and broadcast frames are delivered after every DTIM
Fragmentation Threshold	Any MSDU or MPDU larger than this value will be fragmented into an MPDU of the specified size.
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.

14. MY NETWORK

This section discusses details about your Router's network.

14.1 Network Status

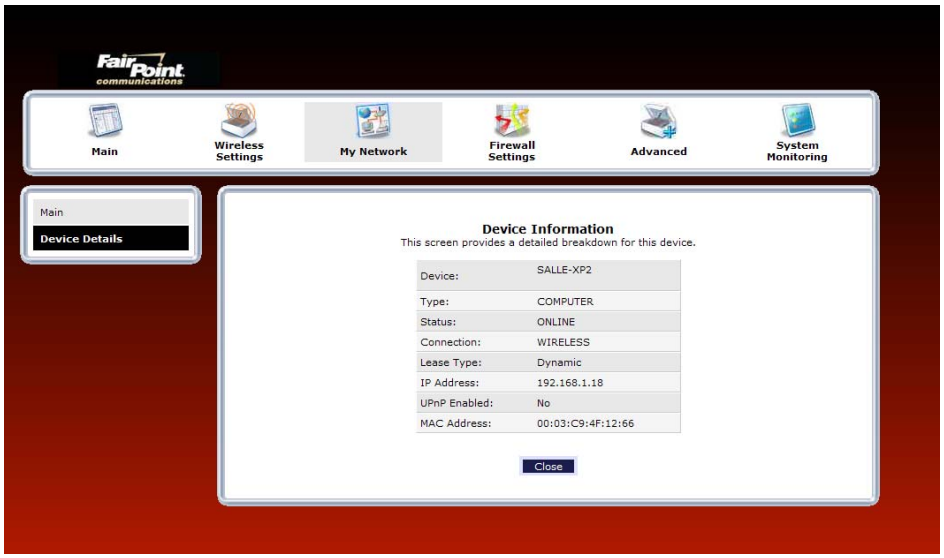
To view your Router's network settings, from the top navigational menu, select **My Network**. Next, click **Network Status** in the submenu at the left of the screen. The following screen will appear. This screen displays information about the devices connected to your local area network (LAN).



My Network	
Type	The type of device connected to your network.
Status	The connection status for the device.
Connection Type	The physical connection used to interface with your Router.
IP Address	The IP address assigned to your computer.
IP Address Source	The method by which your computer receives its IP address.
MAC Address	The Media Access Controller; the hardware address assigned to the deviced by the manufacturer.
Connected Devices	The interfaces used to connect to your Router to the computer. Ethernet: Displays the number of devices that are connected to the Router via Ethernet 10/100 BaseT connection. Wireless: Displays the number of devices that are connected to the Router wirelessly. USB: Displays the number of devices that are connected to the Router via USB connection. Note: If you have computers on your network that are not being displayed, check the firewall setting on the PCs to ensure that the firewall is disabled.

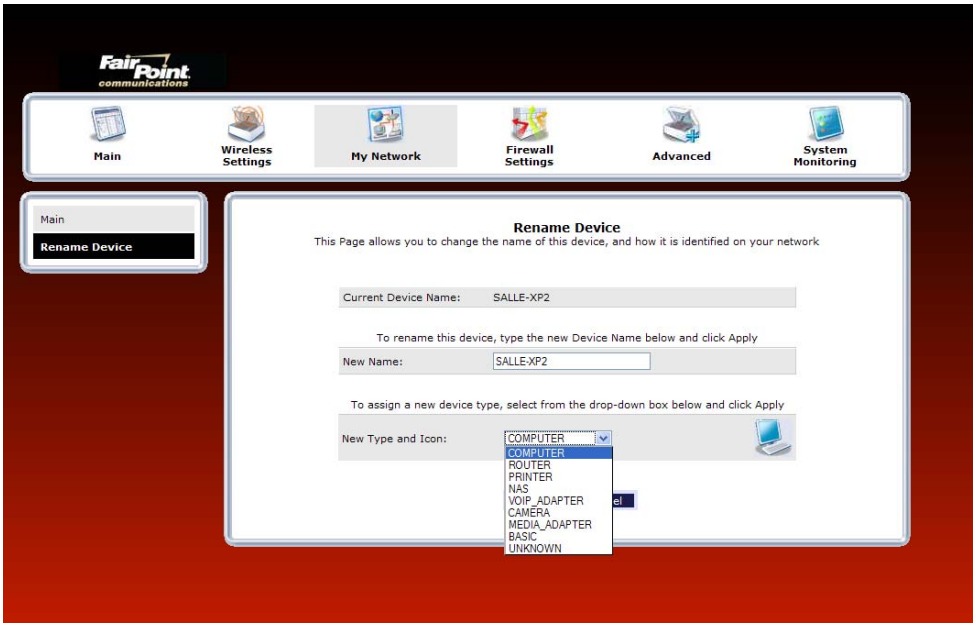
14.1.1 View Device Details

In the **My Network** panel, click the **View Device Details** link to view details about your device. After you have finished viewing this screen, click **Close** to return to the My Network page.



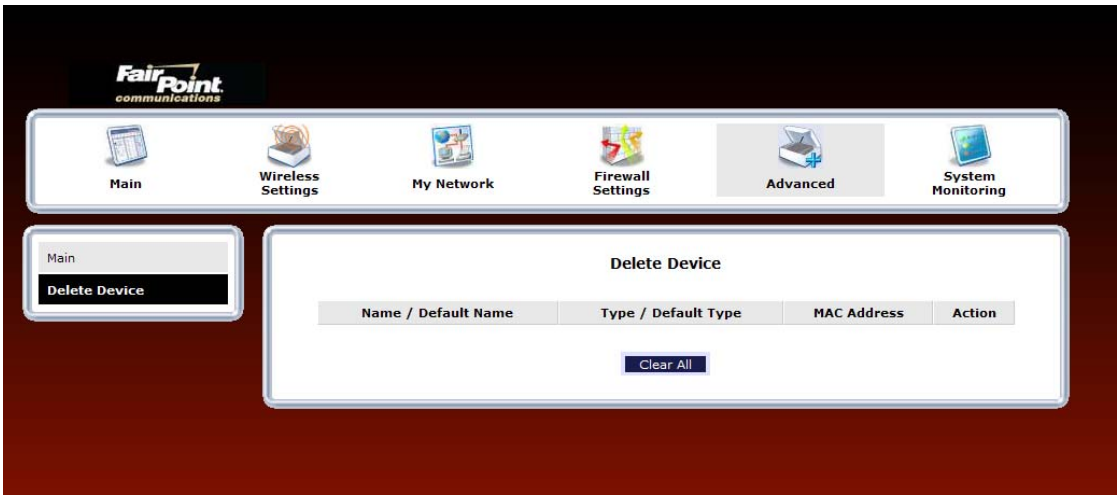
14.1.2 Rename Device

In the **My Network** panel, click the **Rename Device** link to rename a device on your network. In the following screen, type the desired name in the **New Name** box, and then (if desired) select an icon from the **New Type and Icon** drop-down menu to assign a different icon to this device. Next, click the **Rename Device** button to allow the changes to take effect. Click **Back** to return to the **My Network** panel.



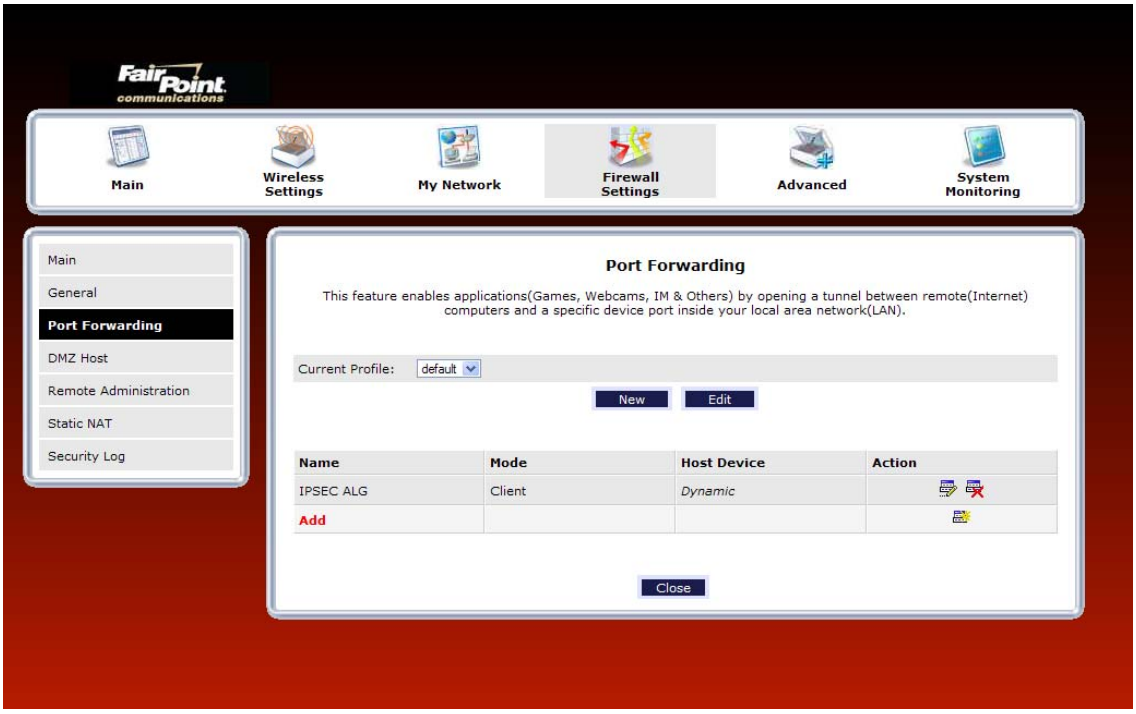
14.1.3 Delete Device

In the **My Network** panel, click the **Delete Device** link to remove a device from your network. Click the **Clear** button next to the device that you want to remove from your network, or click **Clear All** to remove all devices from your network.



14.1.4 Enable Application

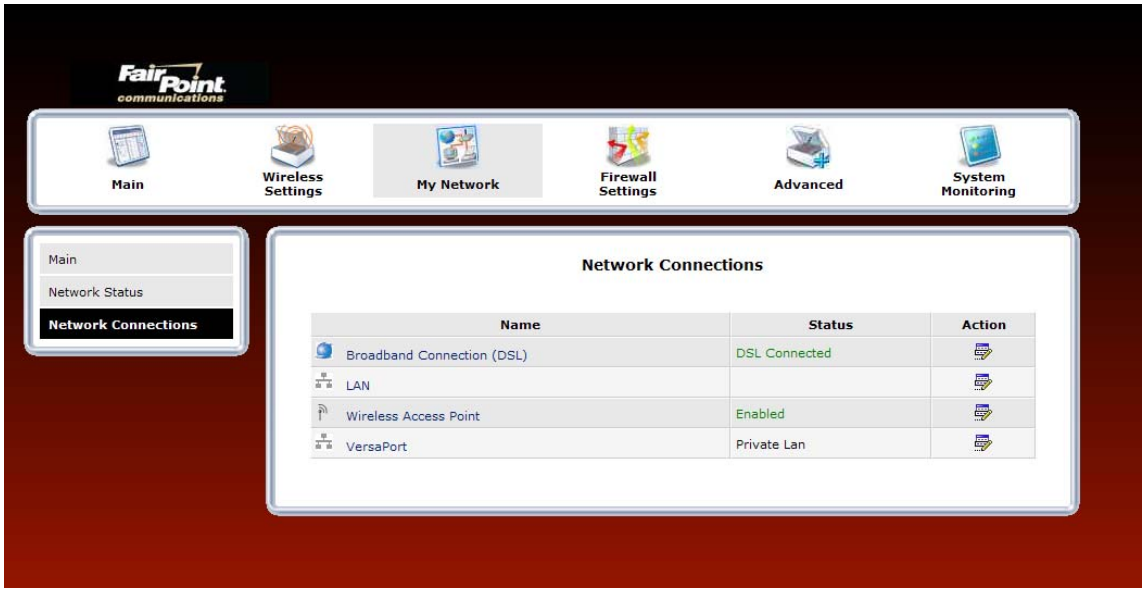
In the **My Network** panel, click the **Enable Application** link to set up applications for your service profile. This feature enables applications (Games, Webcams, IM & Others) by opening a tunnel between remote (Internet) computers and a specific device port inside your local area network (LAN). Details on this screen will be discussed later in section 15.3, "Port Forwarding."



14.2 Network Connections

To edit your connection settings, from the top navigational menu select **My Network**. Next, select **Network Connections** in the submenu options at the left of the screen; the following screen will be displayed. This screen allows you to access your Router's connection settings and your local area network (LAN) settings. The following sections discuss the details of this screen.

- To access the Router's Broadband connection settings, in the **Network Connections** screen click the **Broadband Connection (DSL)** link. The **Basic DSL Configuration** screen will appear. Refer to section 14.2.1 for details about this feature.
- To access the Router's LAN settings, in the **Network Connections** screen click the **LAN** link. The **Private LAN** screen will appear. Refer to section 16.17 for details about this feature.
- To access the Router's Wireless settings, in the **Network Connections** screen, click the **Wireless Access Point** link. Refer to section 13.3 for details about this feature.
- To access the Router's Uplink settings, in the **Network Connections** screen, click the **VersaPort** link. Refer to section 14.2.3 for details about this feature.

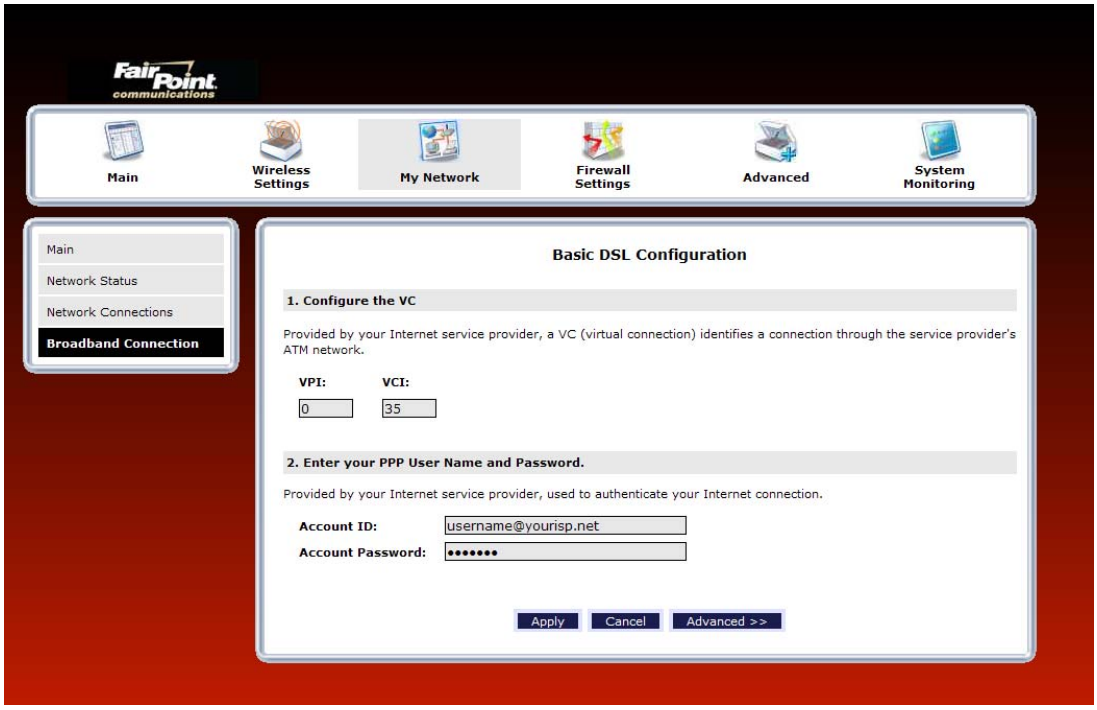


14.2.1 Basic DSL Configuration

If you clicked the **Broadband Connection (DSL)** link in the **Network Connections** screen, the following screen will appear. This screen displays the virtual connection (VC) settings and the account information needed to authenticate your Internet connection. A virtual connection identifies a connection through the service provider's ATM network to your Internet your ISP. Unlike physical hardware connections, virtual connections are defined by data. The VPI/VCI and account parameters are provided by your Internet service provider.

IMPORTANT: You should not change the VPI/VCI settings unless instructed by your Internet service provider.

If you change any settings in this screen, click **Apply** to allow the settings to take effect. To access the Advanced DSL Configuration screen, click the **Advanced** button.



Basic DSL Configuration	
VPI	Displays the VPI (Virtual Path Indicator) value for a particular VC, which is defined by .
VCI	Displays the VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your ISP.
Account ID	The account ID is provided by your Internet service provider.
Account Password	The account password is provided by your Internet service provider.

14.2.2 Advanced DSL Configuration

If you clicked **Advanced** in the preceding screen, the following **Advanced DSL Configuration** screen will appear. Depending on the connection settings you want to edit, you can:

- Click the **Edit** icon adjacent to My Connection to edit your connection profile settings.
- Click the **New** icon (or click **Add**) to add a new connection profile.
- Click the **Edit** icon in the VCs section to edit your virtual connection (VC) settings.

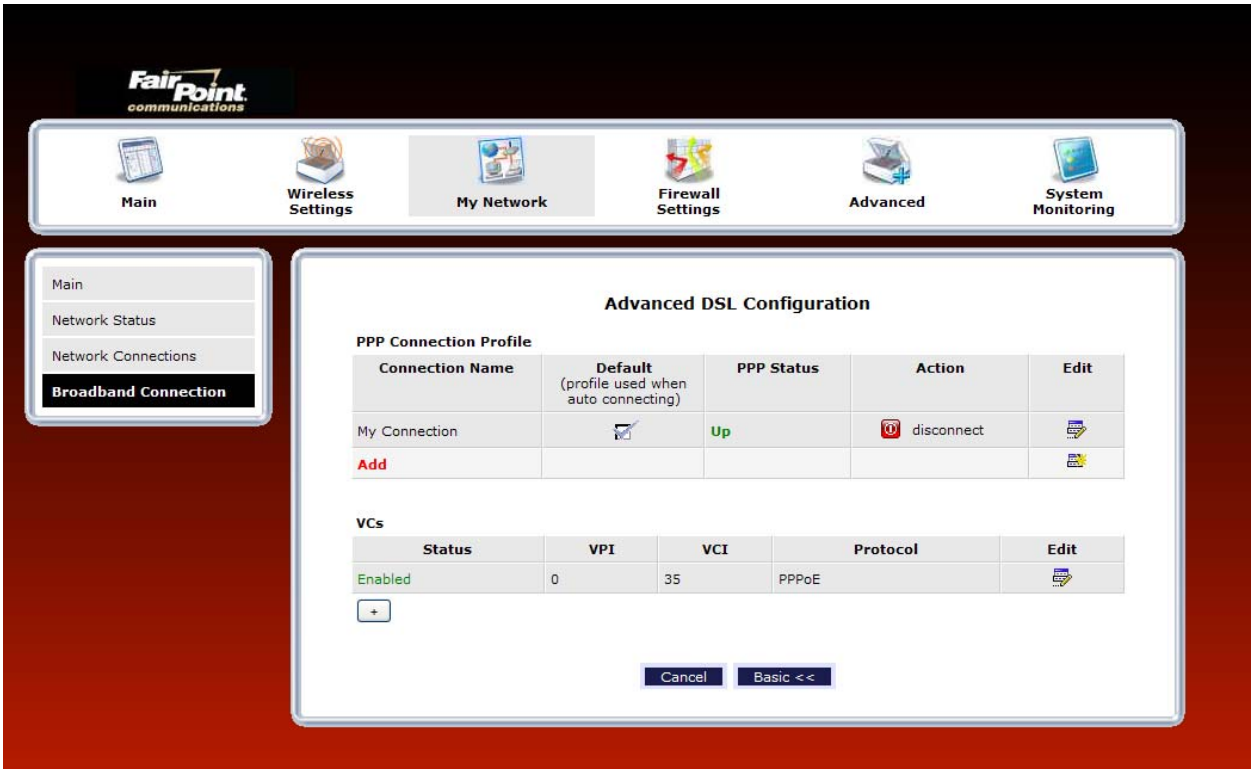
14.2.2.1 Editing VC Protocol Settings

The following sections discuss your virtual connection (VC) settings. A virtual connection (VC) identifies a connection through the service provider's ATM network to your ISP.

IMPORTANT:

1. The screens displayed in the following sections reflect the Router when it is configured for LAN Ethernet port mode, which is the Router's factory default setting. For details on configuring the Router's VC settings while in WAN Uplink port mode, refer to section 14.2.3, "Configuring VersaPort."
2. You should not change the VC settings unless instructed by .

If you change any settings in this screen, you must click **Apply** to allow the settings to take effect. To expand the VCs list, click the expand icon located below **Status.**



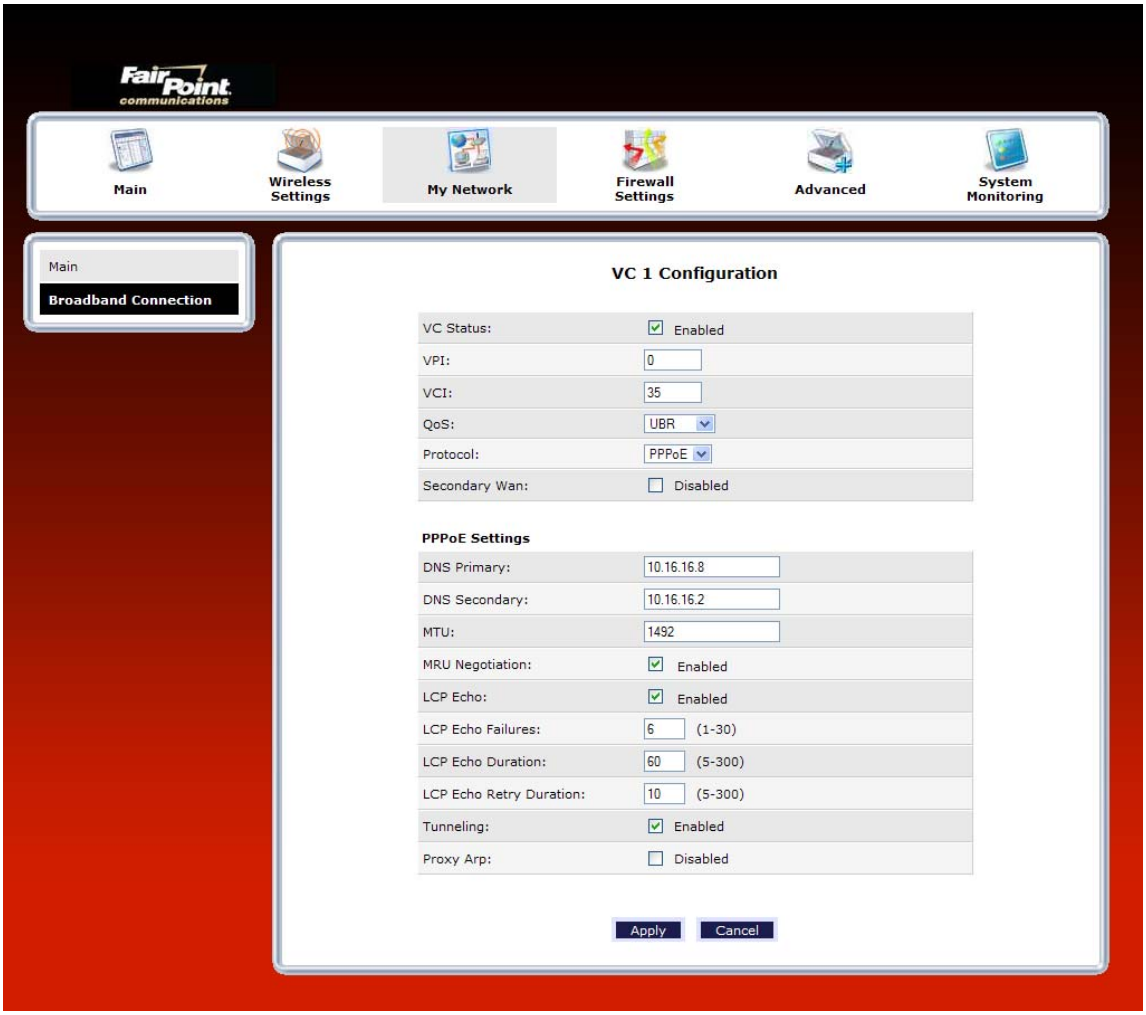
VCs Settings	
Status	Allows you to enable or disable your VC (Virtual Connection). This field must display "Enable" in order to allow edits to the VC settings.
VPI	Displays the VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider.
VCI	Displays the VCI (Virtual 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 Responses: PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode) PPPoE = Point to Point Protocol over Ethernet Bridge = Bridge Protocol Classical IPoA = Internet Protocol over ATM (Asynchronous Transfer Mode). This is an ATM encapsulation of the IP protocol.
Bridge Broadcast	Factory Default = Enabled (box contains a check mark) When this setting is enabled, the Router will allow Broadcast IP packets to/from the WAN. When this setting is disabled (box is cleared), the Router will block Broadcast IP packets to/from the WAN. Bridge Broadcast is only valid if one of the Virtual Channels is configured for Bridge mode.
Bridge Multicast	Factory Default = Enabled When this setting is disabled, the Router will block Multicast IP packets to/from the WAN. When this setting is enabled, the Router will allow Multicast IP packets to/from the WAN. Bridge Multicast is only valid if one of the Virtual Channels is configured for Bridge mode.
Spanning Tree Protocol	Factory Default = Disabled Spanning Tree Protocol is a link management protocol that provides path redundancy while preventing undesirable loops in the network. For Ethernet network to function properly, only one active path can exist between two stations. When enabled, two bridges are used to interconnect the same two computer network segments. Spanning Tree Protocol will allow the bridges to exchange information so that only one of them will handle a given message that is being sent between two computers within the network.

If you clicked the expand icon in the preceding screen, the following screen will appear. When you are ready to collapse the VCs list, click the collapse icon .

NOTE:

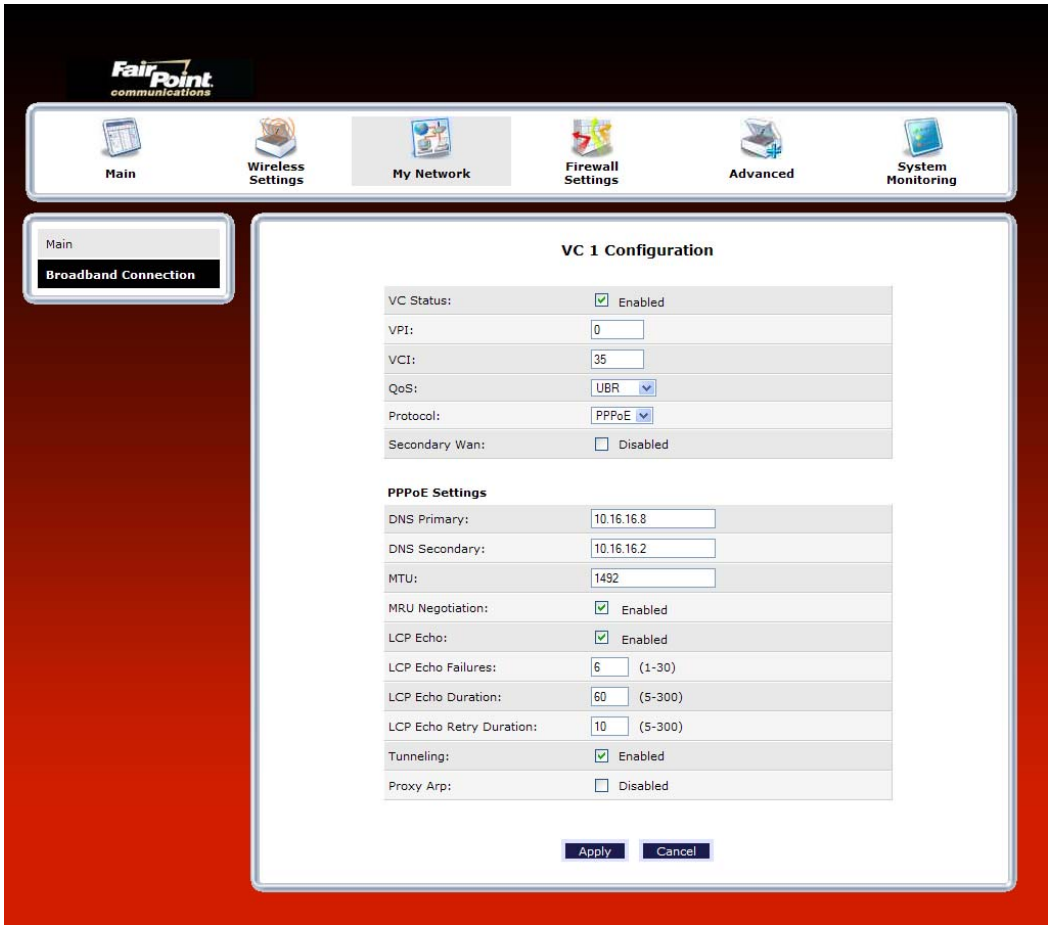
1. A VC's **Status** field must display **Enabled** before you can edit its VC settings.
2. The actual values displayed in the following screen may vary, depending on the network connection established. If you have questions about the settings in this screen, please contact .

To edit a VC setting, click the edit icon adjacent to the "Enabled" VC protocol that you want to edit.



The following table explains the settings in the **VC 1 Configuration** screen. If you change any VC settings in this screen, click **Apply** to save the settings.

NOTE: If you experience problems, reset the Router via the hardware reset button at the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to factory default settings. After the Router has been reset, the values in the screens will display the factory default settings, and any settings that you have previously configured will be discarded.

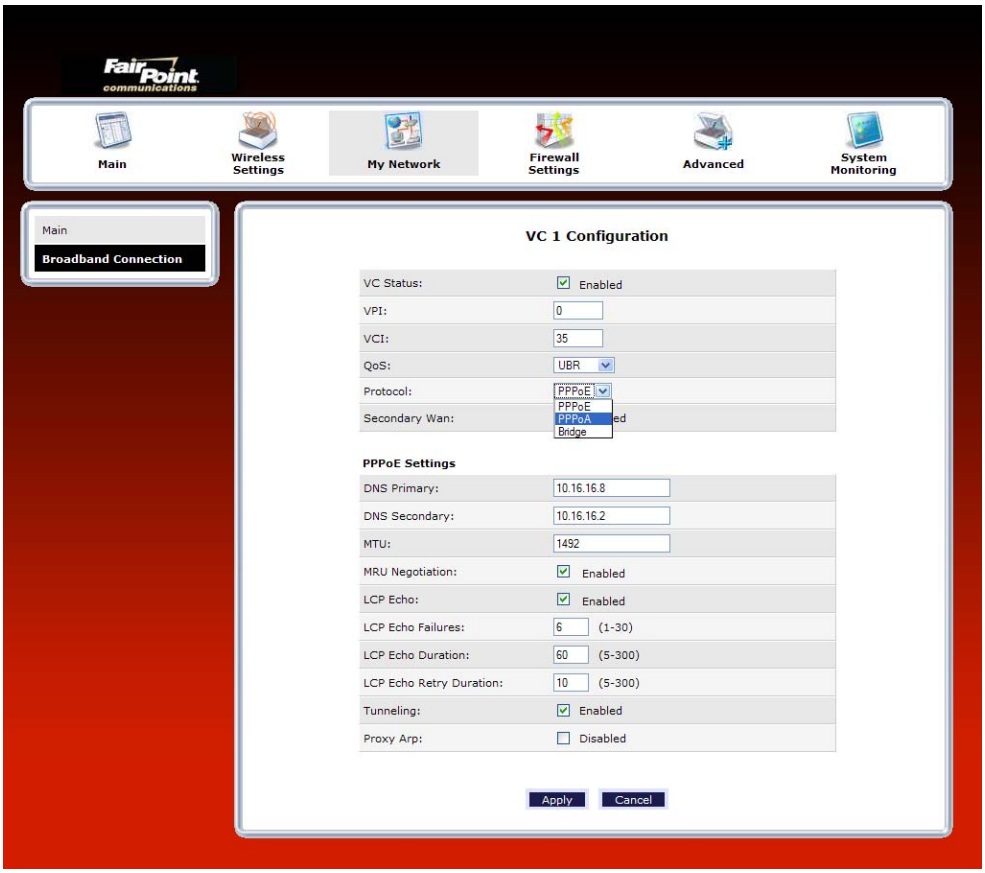


VC 1 Configuration	
VPI	This field allows you to change your VPI (Virtual Path Indicator) value for a particular VC, which is defined by yours provider.
VCI	This field allows you to change your VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your service provider.
PCR	Factory 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	Quality of Service, which is determined by your service provider. Possible Responses: CBR = Constant Bit Rate UBR = Unspecified Bit Rate VBR = Variable Bit Rate

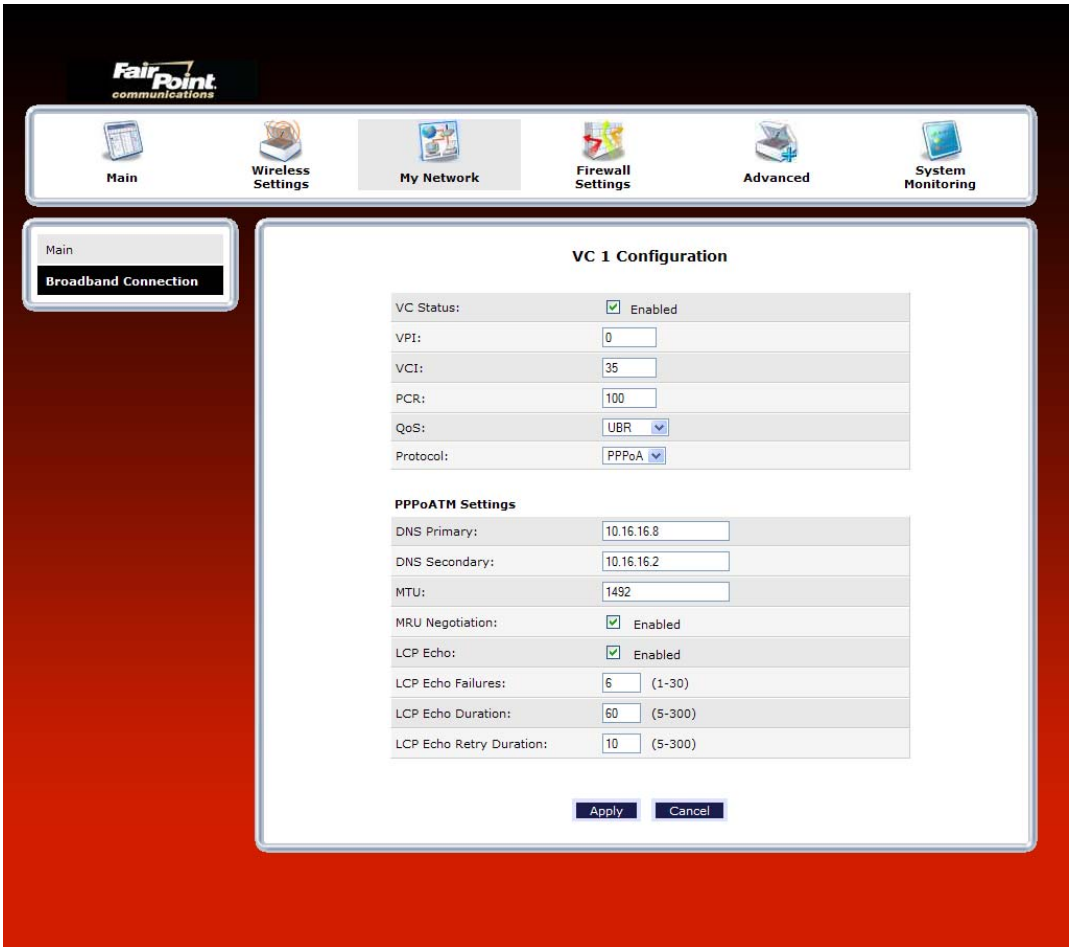
Protocol	The Protocol for each VC, which is specified by your Service Provider. Possible Responses: PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode) PPPoE = Point to Point Protocol over Ethernet Bridge = Bridge Protocol Classical IPoA = Internet Protocol over ATM (Asynchronous Transfer Mode). This is an ATM encapsulation of the IP protocol.
Status The	protocol status.
PPPoE / PPPoA Settings	
IP Address	Displays the IP network address that your Router is on.
Gateway	Displays the Router's IP address
DNS Primary	Provided by your Internet service provider.
DNS Secondary	Provided by your Internet service provider.
MRU Negotiation	Factory Default = Disabled If Enabled, the Maximum Received Unit (MRU) would enforce MRU negotiations. Note: Enable this option only at your Internet service provider's request.
LCP Echo Disable	Factory Default = Disabled If checked, this option will disable the modem LCP Echo transmissions.
LCP Echo Failures	Indicates number of continuous LCP echo non-responses received before the PPP session is terminated.
LCP Echo Duration	The interval between LCP Echo transmissions with responses.
LCP Echo Retry Duration	The interval between LCP Echo after no response.
Tunneling	Factory Default = Enable If Enabled, this option allows PPP traffic to be bridged to the WAN. This feature allows you to use a PPPoE shim on the host computer to connect to the Internet Service Provider, by bypassing the Router's capability to do this. Note: Tunneling is available in PPPoE mode only.
Note: The values for the IP Address, Gateway, DNS Primary, and DNS Secondary are all "Override of the value obtained from the PPP connection," They default to "0.0.0.0," in which case the override is ignored. It is recommended that you do not change the values unless your Internet service provider instructs you to do so.	

14.2.2.2 Configuring the Router's Protocol Settings for PPPoE or PPPoA

To configure the Router's protocol settings for PPPoE or PPPoA, access to the **VC 1 Configuration** screen, as explained earlier in section 14.2.2.1 "Editing VC Protocol Settings." At the **VC 1 Configuration** screen, select PPPoE or PPPoA from the **Protocol** drop-down menu.



For example, the following **VC 1 Configuration** screen displays **PPPoA** as the selected Protocol. The PPPoA and PPPoE screens have identical configuration options with the exception of the Tunneling feature. Tunneling is available only for PPPoE protocol and is not displayed when the Router is configured for PPPoA protocol. After you have made the appropriate changes to **VC 1 Configuration** screen, click **Apply** to continue.



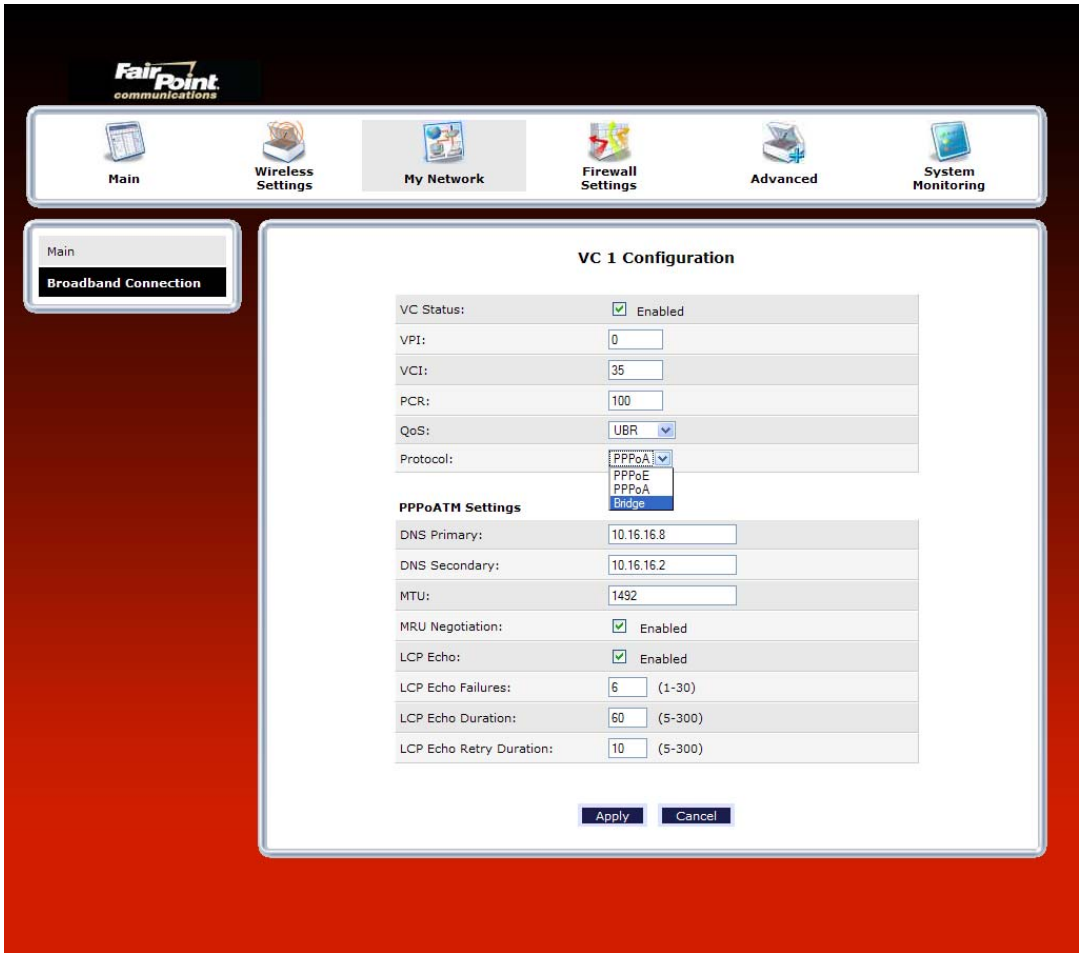
14.2.2.3 Configuring the Router's Protocol Settings for Bridge

To configure the Router's protocol settings for Bridge, access the **VC 1 Configuration** screen, as explained earlier in section 14.2.2.1, "Editing VC Protocol Settings."

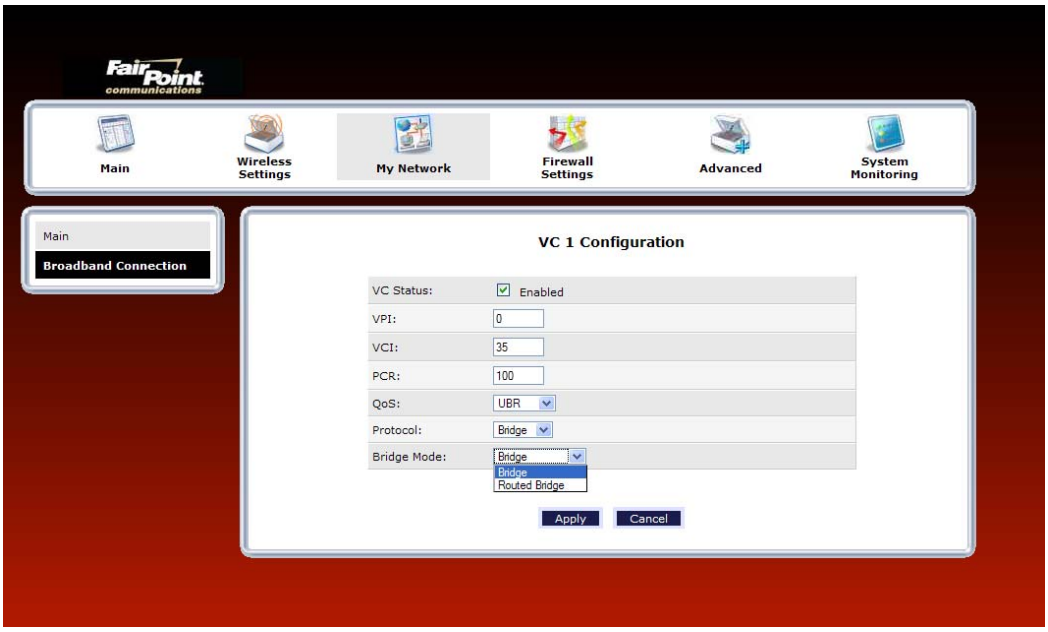
To configure the Router's Bridge settings, follow these steps at the **VC 1 Configuration** screen:

1. Select **Bridge** in the **Protocol** drop-down menu.
2. Select the desired Bridge mode from **Bridge Mode** drop-down menu.
3. Enter the desired values in the fields provided (if requested).
4. Click **Apply** to save your settings.
5. Click **OK** in the pop-up screen to reset the Router.

For example, at the **VC 1 Configuration** screen, select **Bridge** from the **Protocol** drop-down menu.

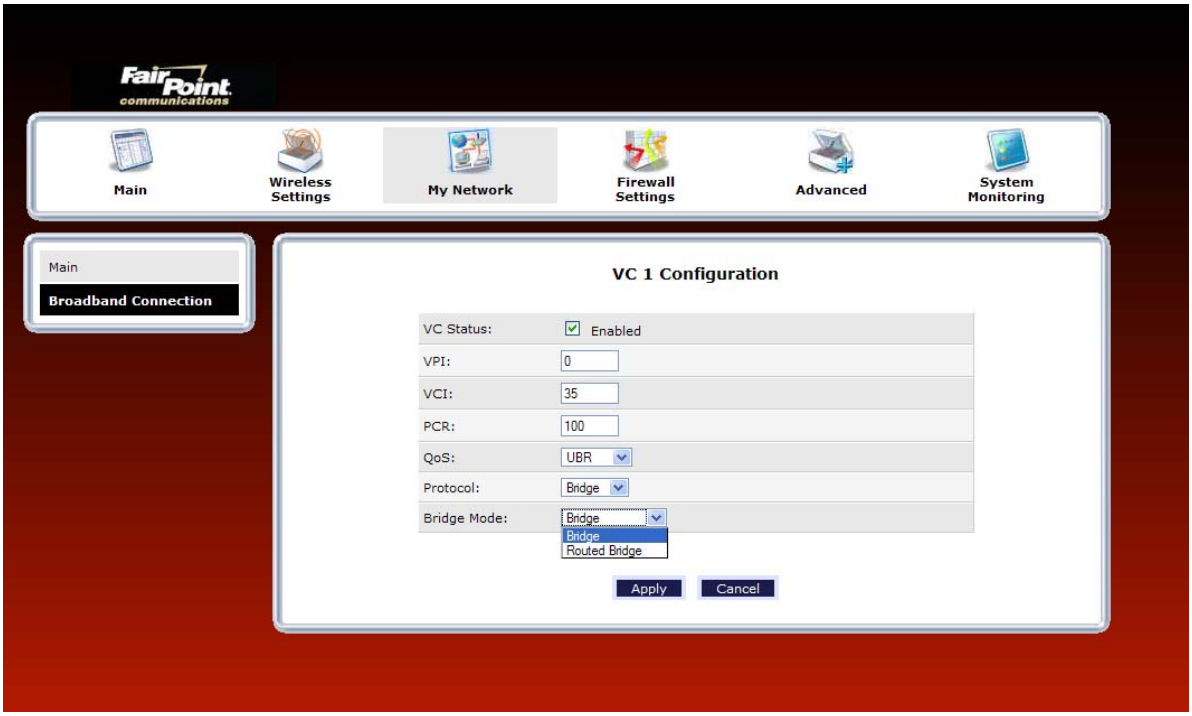


The following screen will appear. Bridge settings are described in the following table.



Protocol	Mode	Description
Bridge	Bridge	A bridge is a layer 2 device that connects two segments of the same LAN that use the same protocol such as Ethernet. The modem does not have a WAN IP address in this mode. The client PC will typically get an IP address from a DHCP server in the network or the IP address can be assigned to the client PC statically.
	Routed Bridge	Routed Bridged Encapsulation (RBE) is the process by which a bridged segment is terminated on a routed interface. Specifically, the Router is routing on an IEEE 802.3 or Ethernet header carried over RFC 1483 bridged ATM. RBE was developed to address the known RFC1483 bridging issues, including broadcast storms and security. The modem will get a WAN IP address through DHCP or can be assigned statically. NAT will use the global address assigned to the modem.

Next, select the desired Bridge mode from **Bridge Mode** drop-down menu.

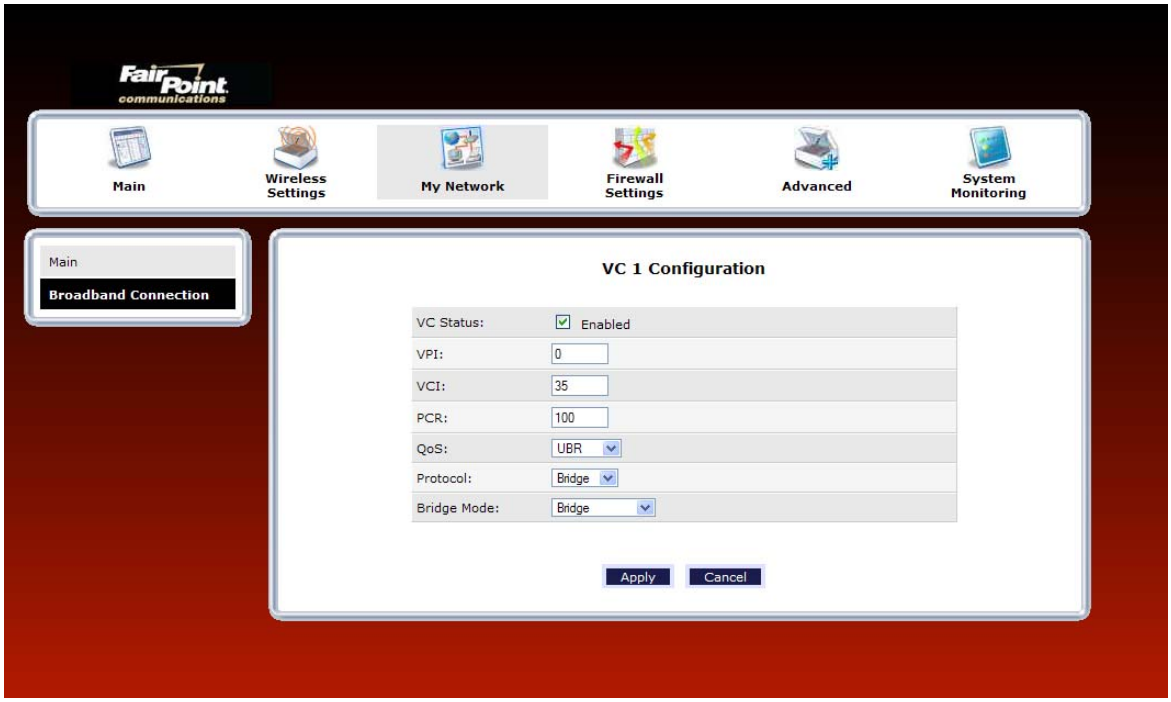


VC 1 – Bridge Protocol (Bridge Mode)	
VC Status	The protocol status is Enabled.
VPI	This setting allows you to change your VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider.
VCI	This setting allows you to change your VCI (Virtual Channel Indicator) value 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	Quality of Service, which is determined by your Service Provider. Possible Responses: CBR = Constant Bit Rate UBR = Unspecified Bit Rate VBR = 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

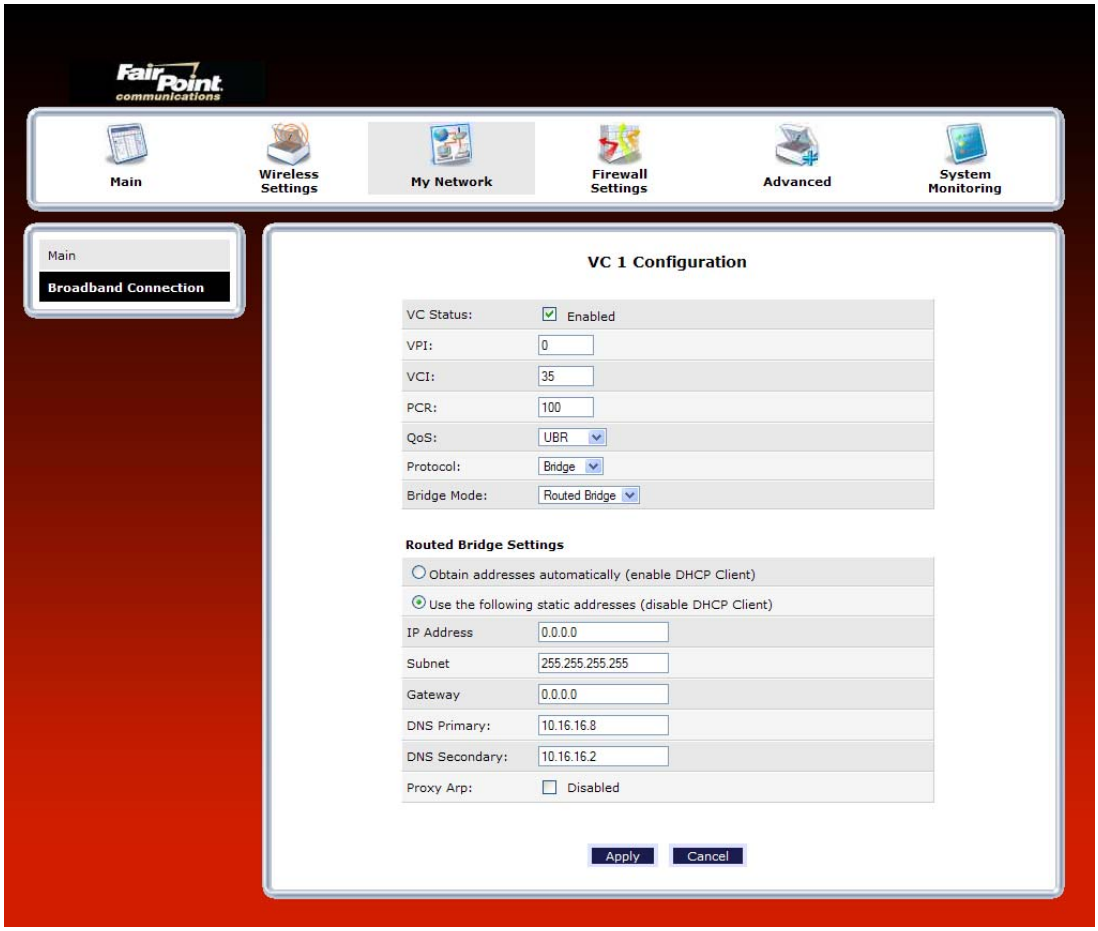
Bridge Mode	Bridge	A bridge is a layer 2 device that connects two segments of the same LAN that use the same protocols such as Ethernet. The modem does not have a WAN IP address in this mode. The client PC will typically get an IP address from a DHCP server in the network or the IP address can be assigned to the client PC statically.
	Routed Bridge	Routed Bridged Encapsulation (RBE) is the process by which a bridged segment is terminated on a routed interface. Specifically, the Router is routing on an IEEE 802.3 or Ethernet header carried over RFC 1483 bridged ATM. RBE was developed to address the known RFC1483 bridging issues, including broadcast storms and security. The modem will get a WAN IP address through DHCP or can be assigned statically. NAT will use the global address assigned to the modem.

If you select **Bridge** as the Protocol, and then select **Bridge** from the **Bridge Mode** drop-down menu, the following screen will appear. Click **Apply** to save your selection.

IMPORTANT: If you configure the Router to use Bridge protocol and Bridge Mode, you must disable the Router's DHCP server. By disabling the DHCP server and using Bridge protocol (Bridge mode), you will allow the computer to receive its IP address directly from the ISP's DHCP server, not from the Router's DHCP server. For instructions on disabling the Router's DHCP server, see section 16.16, "IP Address Distribution." **After you have disabled the Router's DHCP server, you must reboot the computer to allow the change to take effect.**



If you select **Bridge** as the Protocol, and then select **Routed Bridge** from the **Bridge Mode** drop-down menu, the following screen will appear. Enter the desired values in the fields provided, and then click **Apply**.



VC 1 – Bridge Protocol (Routed Bridge Mode)	
DHCP Client	Allows you to either Enable or Disable the DHCP Client. Select (enable DHCP Client) to obtain IP address automatically. Select (disable DHCP Client) to use the static IP address that you enter into fields provided.
IP Address	The IP network address that your Router is on.
Subnet Mask	The subnet mask, which determines if an IP address belongs to your local network.
Gateway	The Router's IP gateway address.
DNS Primary	This value is provided by your Internet service provider.
DNS Secondary	This value is provided by your Internet service provider.

14.2.3 Configuring VersaPort (Ethernet WAN Uplink)

If you clicked the **VersaPort** link in the **Network Connections** screen, the following screen will appear. This screen allows you to select how the E1/UPLINK port on the rear of the Router will be used.

Select one of the following options:

- **LAN Ethernet port:** Selecting this option allows you to use the VersaLink's DSL port for WAN access (the VersaLink's DSL functionality is enabled).
- **WAN Uplink port:** Selecting this option allows you to use VersaLink as an Ethernet Gateway (for example, connecting to a DSL or cable modem, or to another ADSL device that provides WAN access). In **WAN Uplink** mode, the Router's DSL functionality is disabled.

NOTE: The menu options displayed will vary according to the configuration you have chosen to use, LAN Ethernet port or WAN Uplink port. If you are using WAN Uplink port, some menu options will not be available. However, all menu options will be available when the Router is enabled for LAN Ethernet port. Instructions on enabling and disabling LAN Ethernet port and WAN Uplink port are explained in the following sections. This document was created with the Router configured for LAN Ethernet port.

14.2.3.1 Enabling LAN Etherne Port—Disabling WAN Uplink Port

If you select **LAN Ethernet** in the **VersaPort** screen, this will enable the Router's DSL transceiver, and the Router will use its DSL port as the WAN interface. This configuration will disable the WAN Uplink port (**E1/UPLINK** on the rear of the Router).

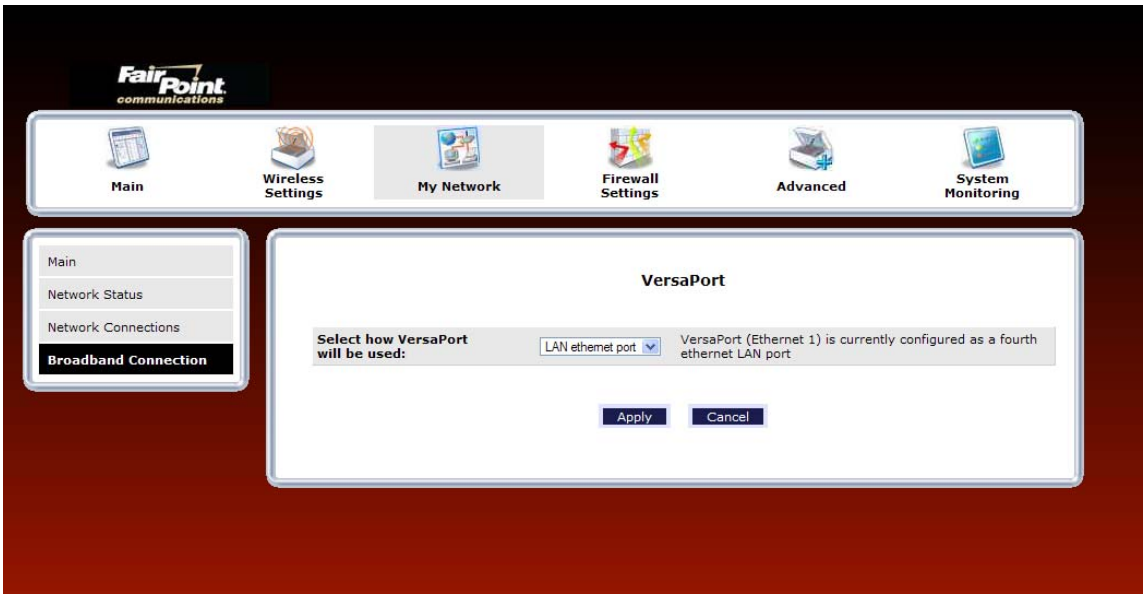
- When **LAN Ethernet port** is selected, the **DSL** port on the rear of the Router is enabled and is the WAN interface to the Internet.

- When **WAN Uplink port** is selected, the **E1/UPLINK** port on the rear of the Router is enabled and is the WAN uplink to another ADSL device through which you will make your Internet connection.

Remember, you must click **Apply** to allow the settings to take effect in the Router.

NOTE:

1. When using the optional E1/UPLINK port, Ethernet LAN connection is limited to E2, E3, and E4. The WAN Uplink feature is optional, and if it is disabled, the Router will use DSL only as the WAN interface.
2. Some menu options are unavailable when the Router is configured for **WAN Uplink port.** However, all of the Router's menu options are displayed when the Router is configured for **LAN Ethernet port**.
3. The Router's factory default setting is **LAN Ethernet port.**
4. If WAN Uplink is not enabled in the .ini file, the Router will use DSL only as the WAN interface.



14.2.3.2 Enabling WAN Uplink Port—Disabling LAN Ethernet Port

If you selected **Ethernet WAN Uplink** in the **VersaPort** screen, this will disable the Router's DSL transceiver and the DSL port. This configuration allows the port labeled **E1/UPLINK** on the rear of the Router to become the WAN interface port. Then, you can use **E1/UPLINK** to uplink to another ADSL device, through which you can connect to the Internet.

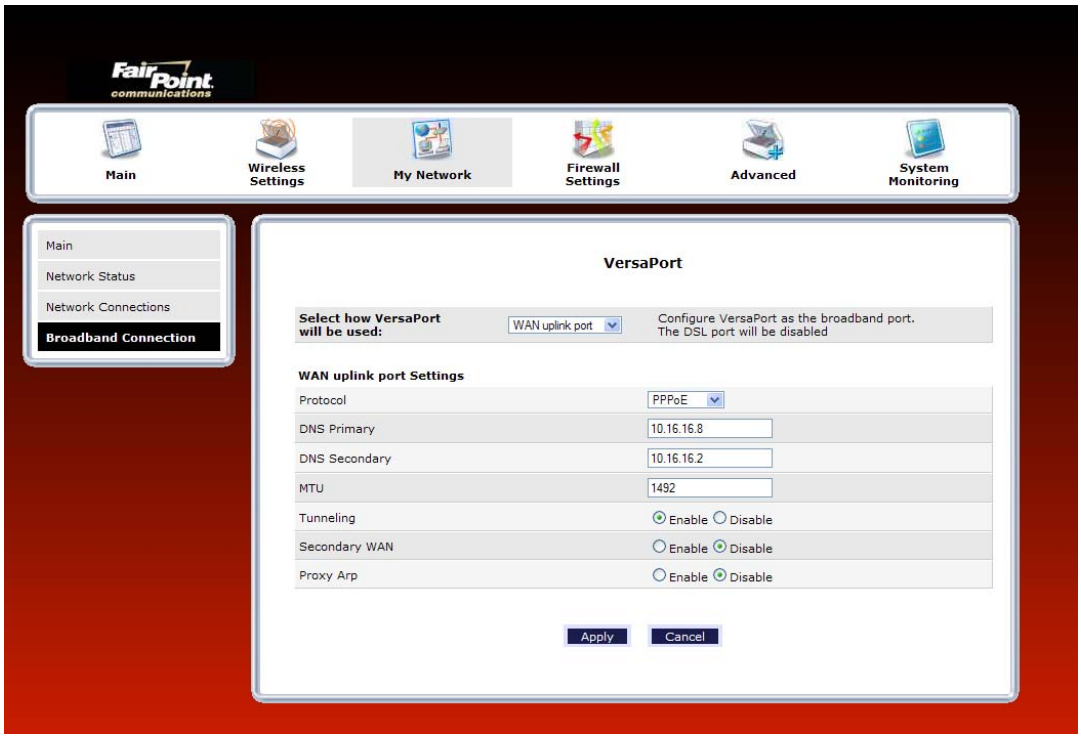
- When **LAN Ethernet port** is selected, the **DSL** port on the rear of the Router is enabled and is the WAN interface to the Internet.
- When **WAN Uplink port** is selected, the **E1/UPLINK** port on the rear of the Router is enabled and is the WAN uplink to another ADSL device through which you will make your Internet connection.

Remember, you must click **Apply** to allow the settings to take effect in the Router.

NOTE:

1. When using the optional E1/UPLINK port, Ethernet LAN connection is limited to E2, E3, and E4. The UPLINK feature is optional and, if it is disabled, the Router will use DSL only as the WAN interface.
2. All of the Router's menu options are displayed when the Router is configured for **LAN Ethernet port**. However, some menu options are unavailable when the Router is configured for **WAN Uplink port.** The sections explained throughout this document will indicate when a menu item is unavailable.
3. The Router's factory default setting is **LAN Ethernet port.**
4. If UPLINK is not enabled in the .ini file, the Router will use DSL only.

If you selected **WAN Uplink port**, the following screen will be displayed. Proceed to the next section for instructions on editing the WAN Uplink settings.



14.2.3.3 Editing the VC Protocol Settings for WAN Uplink Port

NOTE: The instructions in this section refer to the Router configured for **Ethernet WAN Uplink port** mode. Be sure that you have selected **WAN Uplink port** in the **VersaPort** screen.

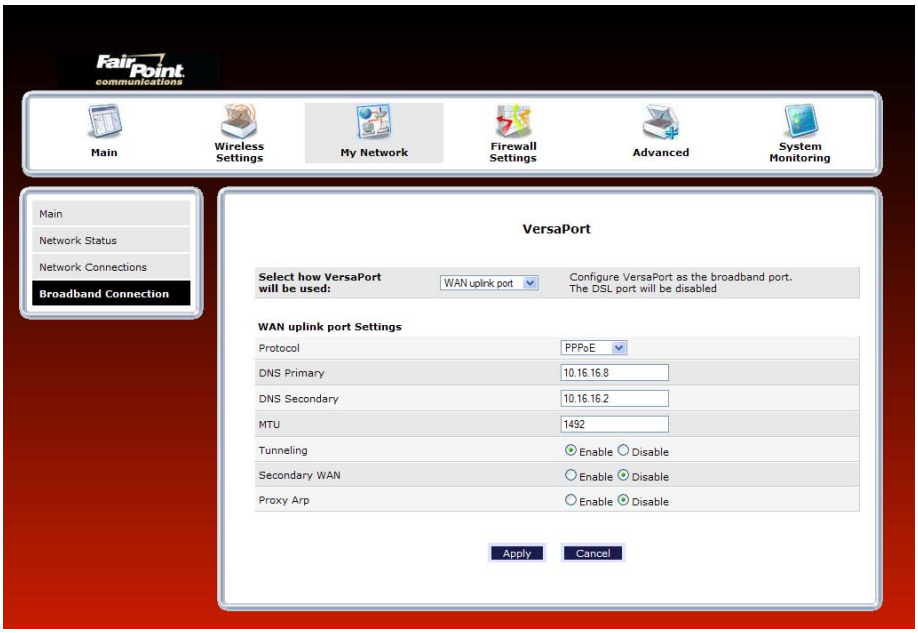
14.2.3.3.1 Configuring the WAN Uplink Protocol Settings for PPPoE

After you have selected **WAN Uplink port**, in the preceding steps, select the desired protocol from the **Protocol** drop-down menu. If you select PPPoE, the following screen will appear. Select the desired options, and then click **Apply** to save the settings.

NOTE:

1. If you experience any problems, reset the Router by pressing the reset button on the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to factory default settings. The actual information displayed in this screen may vary, depending on network connection established.

2. PPPoE is the factory default setting for WAN Uplink port.



Uplink Settings for WAN Uplink Port (PPPoE protocol)	
Tunneling	Factory Default = Enable If Enabled, this option allows PPP traffic to be bridged to the WAN. This feature allows you to use a PPPoE shim on the host computer to connect to the Internet Service Provider, by bypassing the Router's capability to do this. Factory default is "Enable."
Secondary WAN	Factory Default = Disable The secondary WAN interface is used for multicast traffic. This feature applies only when you are using PPPoE as the Primary WAN protocol.
Proxy ARP	Factory Default = Disable When this feature is activated, the VersaLink will respond to ARP requests. To activate this feature, click Enable.

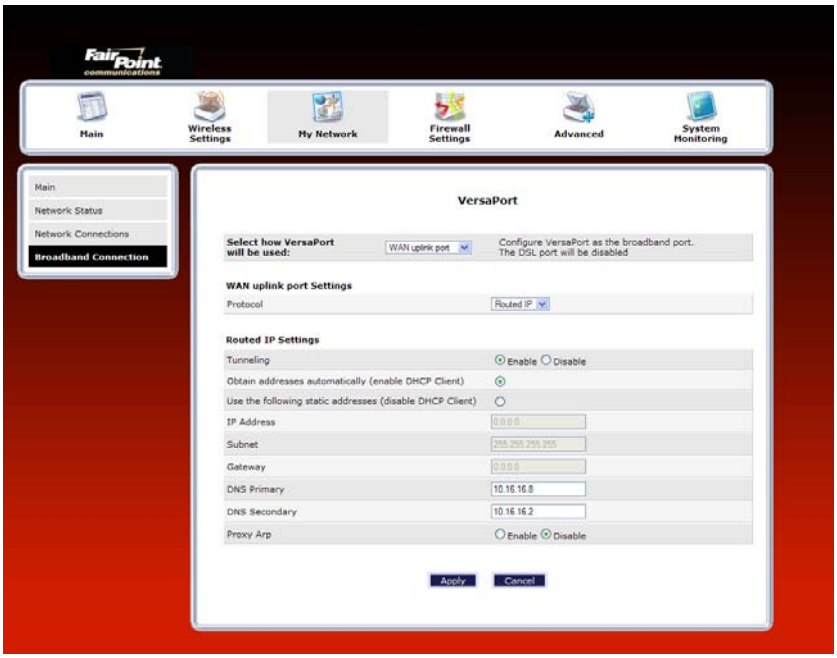
14.2.3.3.2 Configuring the WAN Uplink Protocol Settings for Routed IP

If you select **Routed IP** from the **Protocol** drop-down menu, the following screen will appear. Enter the desired options, and then click **Apply** to save the settings.

NOTE:

1. If you experience any problems, reset the Router by pressing the reset button on the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to factory default settings. The actual information displayed in this screen may vary, depending on the network connection established.

2. PPPoE is the factory default setting for Ethernet WAN Uplink.



Uplink Settings for WAN Uplink Port (Routed IP protocol)	
Tunneling	Factory Default = Enable If Enabled, this option allows PPP traffic to be bridged to the WAN. This feature allows you to use a PPPoE shim on the host computer to connect to the Internet Service Provider, by bypassing the Router's capability to do this.
DHCP Client	Selecting a option allows you to either Enable or Disable the DHCP Client. Click the top option labeled (enable DHCP Client) to allow the Router to obtain an IP address automatically from your service provider. Click the bottom option labeled (disable DHCP Client) to allow the Router to accept static IP address information. Then, manually enter the IP values into the fields. Obtain these values from your ISP.
IP Address	The IP network address that your Router is on.
Subnet	The IP subnet address that your Router is on.
Gateway	The Router's IP gateway address.
DNS Primary	Provided by your Internet service provider.
DNS Secondary	Provided by your Internet service provider.
Note: The values for the IP Address, Gateway, DNS Primary, and DNS Secondary are all "Override of the value obtained from the PPP connection," They default to "0.0.0.0," in which case the override is ignored. It is recommended that you do not change the values unless your Internet service provider instructs you to do so.	

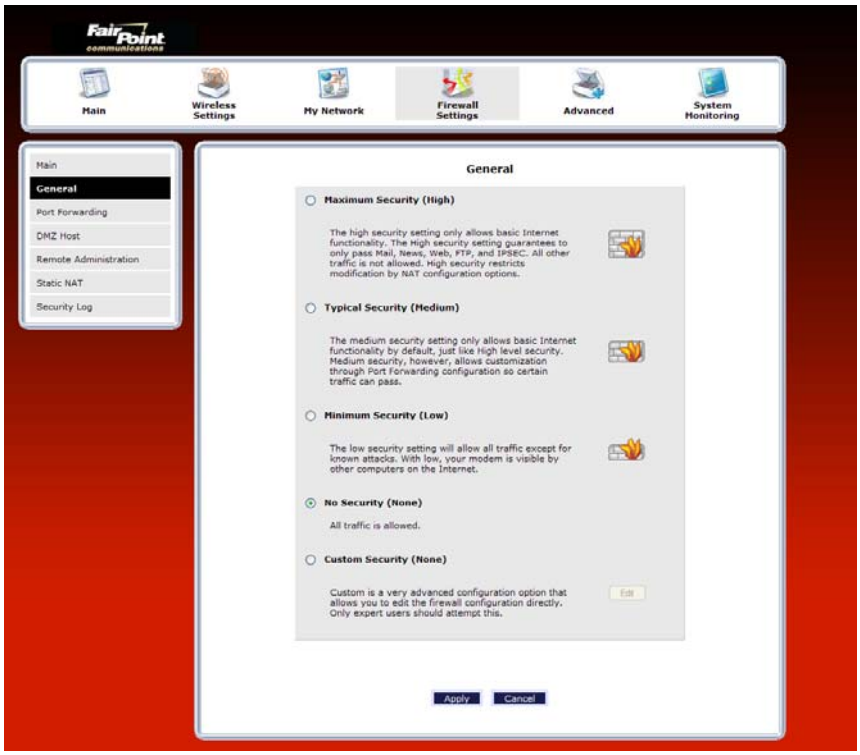
15. FIREWALL SETTINGS

15.1 General Firewall Security Settings

This section explains how to configure your Router's firewall security features. The Router's firewall security settings allow you reduce the risk of unauthorized access to your network by prohibiting certain types of inbound and outbound network traffic and by allowing you to configure specific firewall rules.

To change your firewall security level, click the option next to the desired security setting. Next, click **Apply** to allow the changes to take effect.

IMPORTANT: It is recommended that you do not change the settings in this **User Defined Firewall Rules** screen. If you need to reset your Router to factory default settings, push the reset button on the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to factory default settings.
The factory default security level for your Router is **No Security (None).**



General Firewall Settings	
Maximum Security (High)	High security level only allows basic Internet functionality. Only Mail, News, Web, FTP, and IPSEC are allowed. All other traffic is prohibited.
Typical Security (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.
Minimum Security (Low)	Low security setting will allow all traffic except for known attacks. With Low security, your Router is visible to other computers on the Internet.
No Security (None)	Factory Default = No Security (None) The Firewall is disabled. (All traffic is passed)
Custom Security (Custom)	Custom is a security option that allows you to edit the firewall configuration directly. Note: Only the most advanced users should try this.

15.2 Editing Firewall Security Rules

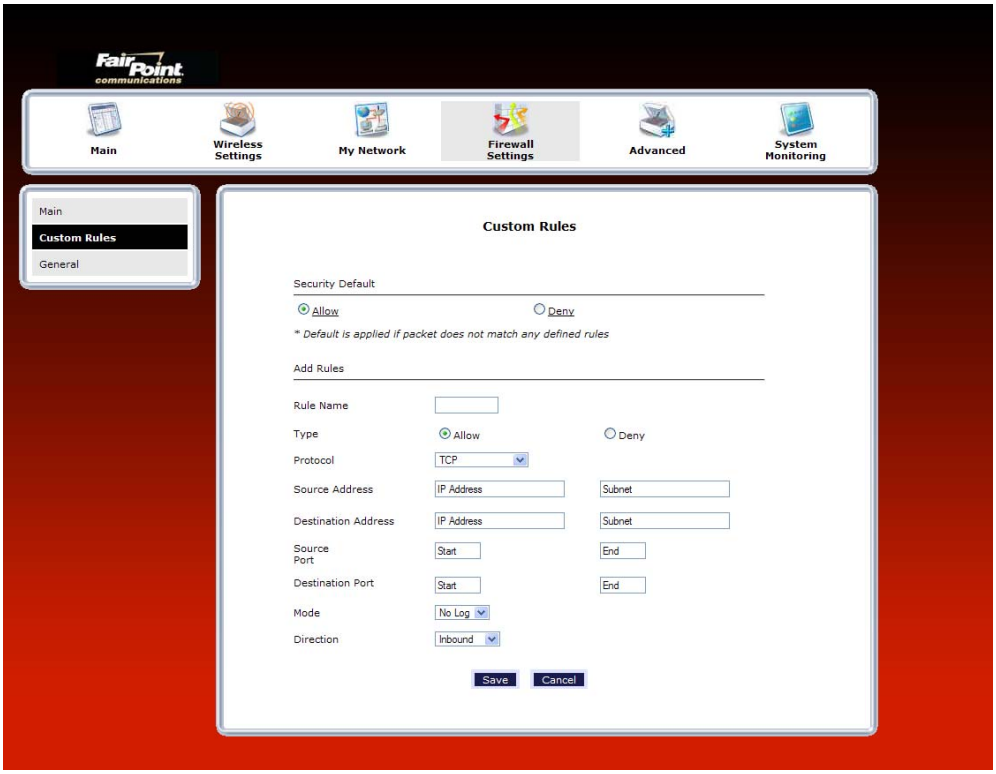
To edit the firewall security rules and customize them to your preference, at the **General** screen, select the security option that want to edit, and then click **Apply**.

To set up custom security rules, select the **Custom Security (None)** option, and then click **Apply.** Next, click the **Edit** button to go to the **Custom Rules** screen.

IMPORTANT: Custom Security is a very advanced configuration option that allows you to edit the firewall configuration directly. Only expert users should attempt this. It is recommended that you do not change the settings in this screen. If you need to reset your Router to factory default settings, push the reset button on the rear of the Router. Or follow the instructions in section 16.2, "Restore Defaults," to restore the Router to default settings.

The **Custom Rules** screen allows you to configure the security parameters on your Inbound and Outbound traffic. Inbound rules will restrict inbound traffic from the WAN to the LAN. Outbound rules will restrict outbound traffic from the LAN to WAN. Enter the desired parameters in the Custom Rules screen, and then click **Save** to allow the settings to take effect in your Router.

NOTE: The default security setting is applied if a packet does not match any defines rules. Clicking **Save** allows the firewall rules to be saved to flash (a temporary storage area in your Router).

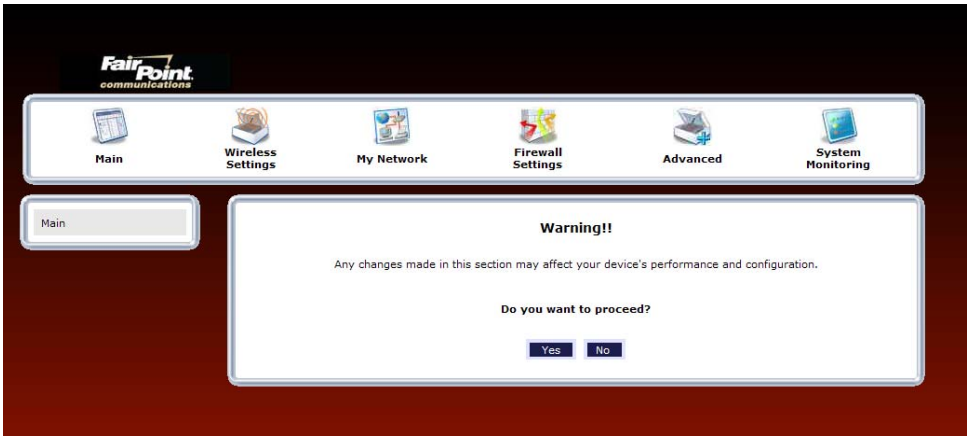


15.3 Port Forwarding

To access the Port Forwarding screen, from the top navigational menu, select **Firewall Settings.** Then select **Port Forwarding** from the menu options at the left of the screen. A warning screen will display the following message:

Any changes made in this section may affect your device's performance and configuration.
Do you want to proceed?

Click **Yes** to proceed.



If you clicked **Yes**, in the preceding warning screen, the following **Port Forwarding** screen will be displayed. This feature enables applications (Games, Webcams, IM & Others) by opening a tunnel between remote (Internet) computers and a specific device port inside your local area network (LAN).

The **Port Forwarding** screen allows you to do the following:

- Edit connection profiles, create new connection profiles
- Configure port forwarding services: predefined, customized, and port forwarding/port triggering services