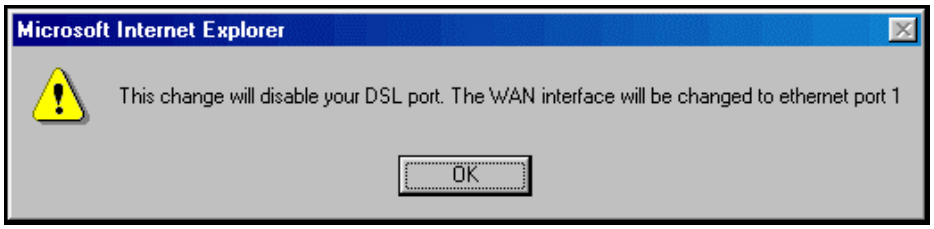
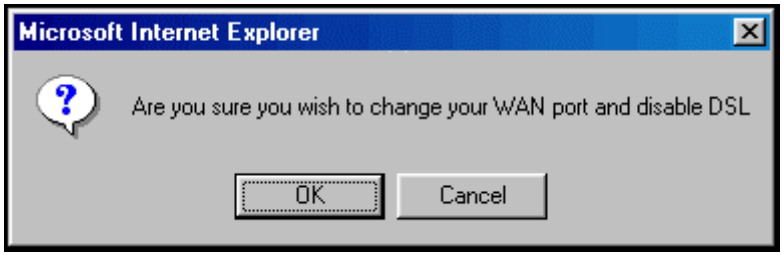
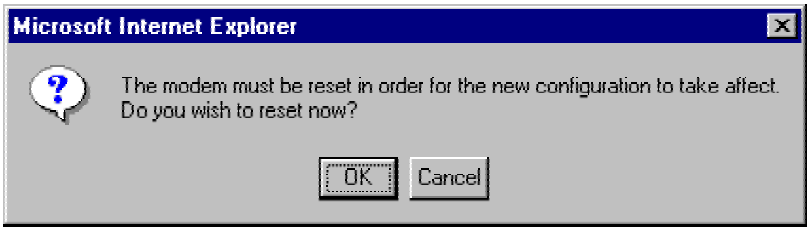
If you select **ETHERNET PORT 1** from the **WAN Port** drop-down arrow, the following screen will be displayed. Click **OK.**



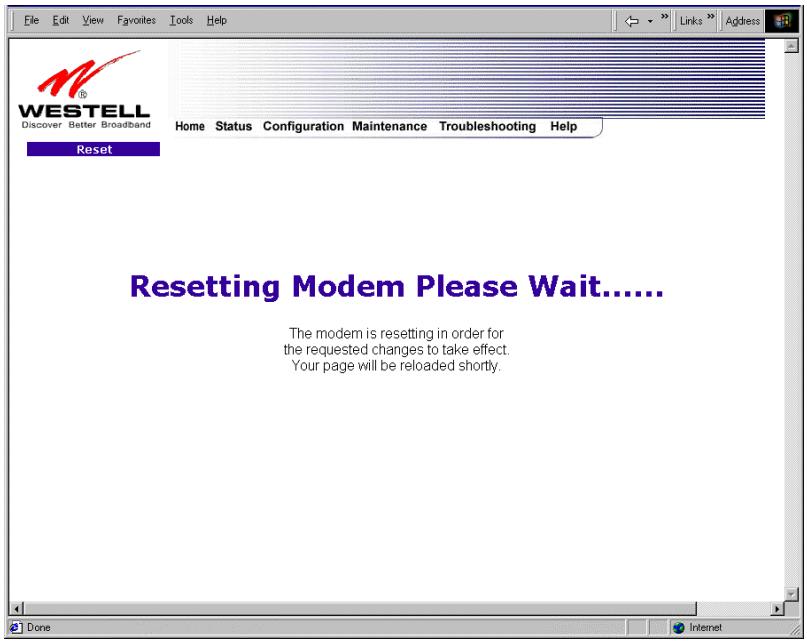

If you click on **OK** in the preceding pop-up screen, the following screen will be displayed. Click on **OK.** If you click on **Cancel,** the change will not take effect.




If you clicked on **OK** in the preceding pop-up screen, the following pop-up screen will appear. The Router must be reset to allow the new configuration to take effect. Click on **OK.**




If you clicked on **OK** in the preceding screen**,** the following screen will be displayed. The Router will be reset and the new configuration will take effect.



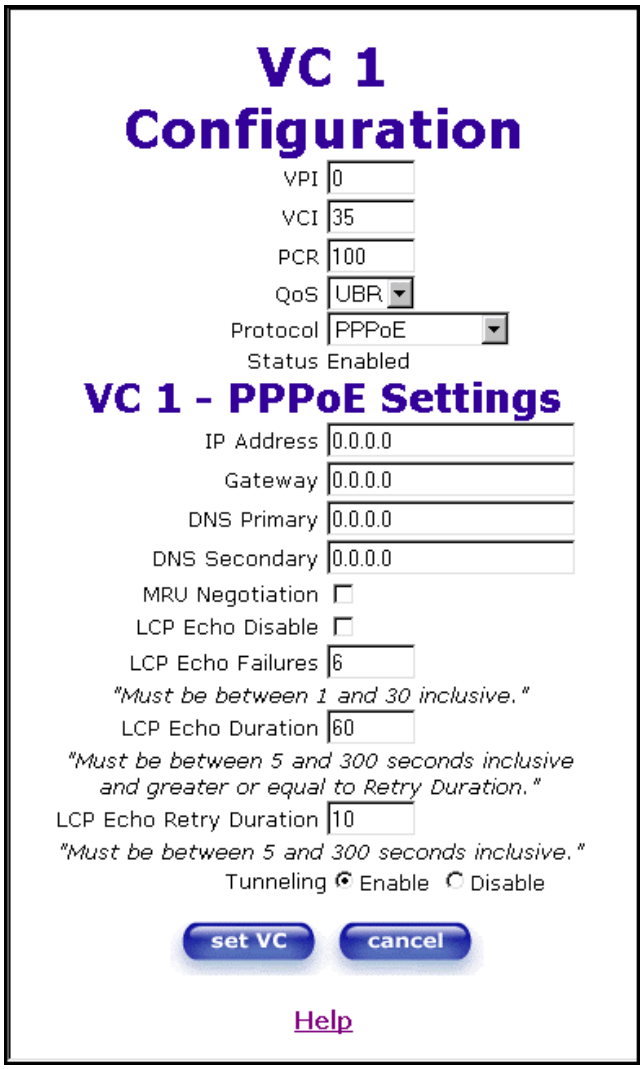

After the Router has been reset, the DSL LED will be OFF. This is because the DSL transceiver has now been disabled. However, the **Power, Ethernet**, and **Wireless** LEDs will remain lit.

## 13.6.4 Editing the Router's VC Configuration

The following **VC 1 Configuration** screen will be displayed if you click on the **edit** button adjacent to any of the 'Enabled' protocols displayed in the **WAN Configuration** screen. (Note: The Protocol must be enabled before you can edit its VC configuration.) The **VC 1 Configuration** screen allows you to edit your virtual connection (VC). A virtual connection identifies a connection through the service provider's ATM network to your ISP. Unlike physical hardware connections, virtual connections are defined by data.

If you change any of the VC settings in the following screen, click the **Set VC** button to save the settings.

NOTE: If you experience any problems, please reset the Router via the external hardware reset button or via the procedure defined under the **Maintenance** menu in section 15.1. The actual information displayed in this screen may vary, depending on network connection established.

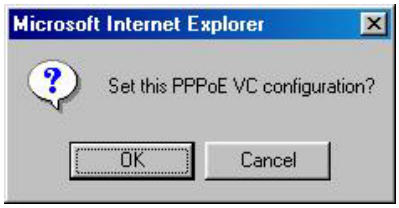



| VC 1 Configuration | |
|---|---|
| VPI | This setting allows you to change your VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider. |
| VCI | This setting allows you to change your VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your Service Provider. |
| PCR | Factory Default = 100%<br>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.<br><br>This value is a percentage of the current data rate.<br>100 allows this VC to use 100% of the available bandwidth.<br>80 allows this VC to use 80% of the available bandwidth. |
| QoS | Quality of Service, which is determined by your Service Provider.<br>Possible Responses:<br>CBR = Constant Bit Rate<br>UBR = Unspecified Bit Rate<br>VBR = Variable Bit Rate |

| | |
|---|---|
| Protocol | The Protocol for each VC, which is specified by your Service Provider.<br>Possible Responses:<br>PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode)<br>PPPoE = Point to Point Protocol over Ethernet<br>Bridge = Bridge Protocol<br>Classical IPoA = Internet Protocol over ATM (Asynchronous Transfer Mode). This is an ATM encapsulation of the IP protocol. |
| Status | The protocol status. |
| **VC x PPPoE Settings** | |
| IP Address | Displays the IP network address that your modem is on. |
| Gateway | Displays the Router's IP address |
| DNS Primary | Provided by your Service Provider |
| DNS Secondary | Provided by your Service Provider |
| MRU Negotiation | Factory Default = DISABLED<br>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 = Enable<br>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 Retry 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<br>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.<br>NOTE: Tunneling is available in PPPoE mode only. |

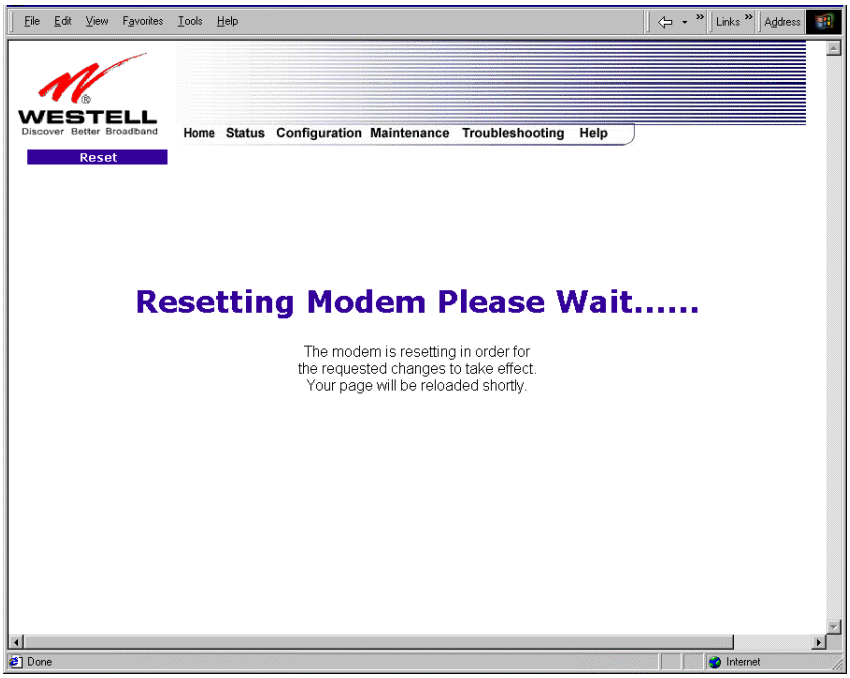
NOTE: The values for the IP Address, Gateway, DNS Primary, and DNS Secondary are all "Override of the value obtained from the PPP connection," They default to "0.0.0.0," in which case the override is ignored. Westell recommends that you do not change the values unless your Internet service provider instructs you to change them.

If you have made any changes to your VC settings, you need to save them. To save the new VC settings, click on **OK** when asked **Set this PPPoE VC configuration?** If you click on **cancel**, the new VC settings will not be saved.




If you clicked on **OK** in the preceding pop-up screen, the following pop-up screen will appear. The Router must be reset to allow the new configuration to take effect. Click **OK.**

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



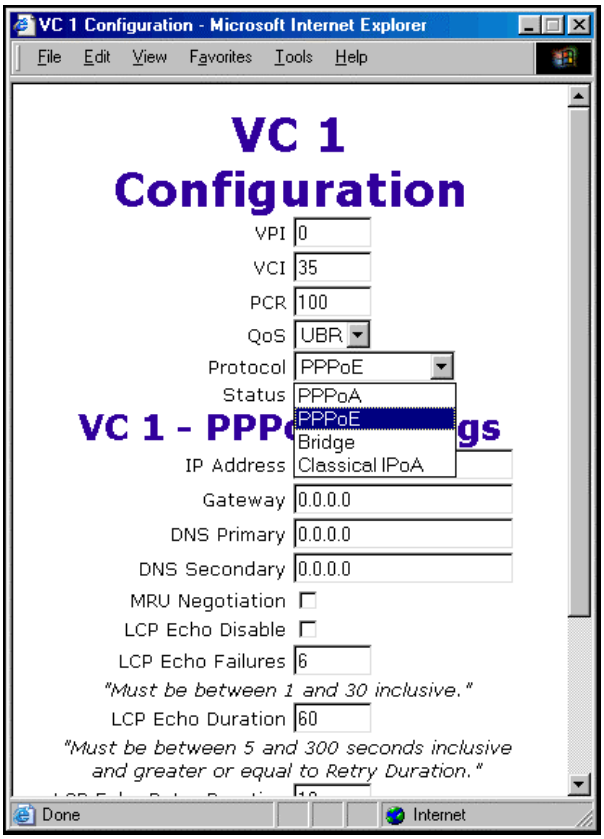

After a brief delay, the home page will be displayed. Confirm that you have a DSL sync and that your PPP session displays **UP.** (Click on the **connect** button to establish a PPP session).

## 13.6.5 Configuring the Router's Protocol Settings for PPPoE Mode

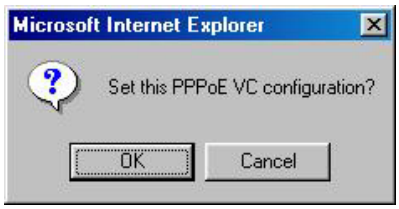
If you are using Models 7400, 7401 select **Advanced WAN > VC** from the **Configuration** menu to configure the Router's protocol settings for **PPPoE** mode. If you are using Models 328W10, 328W11, select **Advanced WAN > WAN** from the **Configuration** menu to configure the Router's protocol settings for **PPPoE** mode.

The **VC Configuration** screen will be displayed. Next, click on the **edit** button adjacent to any of the existing 'Enabled' VC (Virtual Connection) protocols. (Note: The protocol status must display "Enable" to allow edits to its VC configuration.).

If you clicked **edit** in the **VC Configuration** screen, the following **VC 1 Configuration** screen will be displayed. Select **PPPoE** from the options listed in **Protocol** drop-down arrow. After you have made changes to **VC 1 Configuration** screen, click the **set VC** button.




If you click the **set VC** button, the following pop-up screen will be displayed. Click on **OK** in the pop-up screen. If you click on **Cancel**, the new settings will not be saved. After you click on **OK,** follow the instructions to reset the Router, as previously discussed in section 13.6.4.

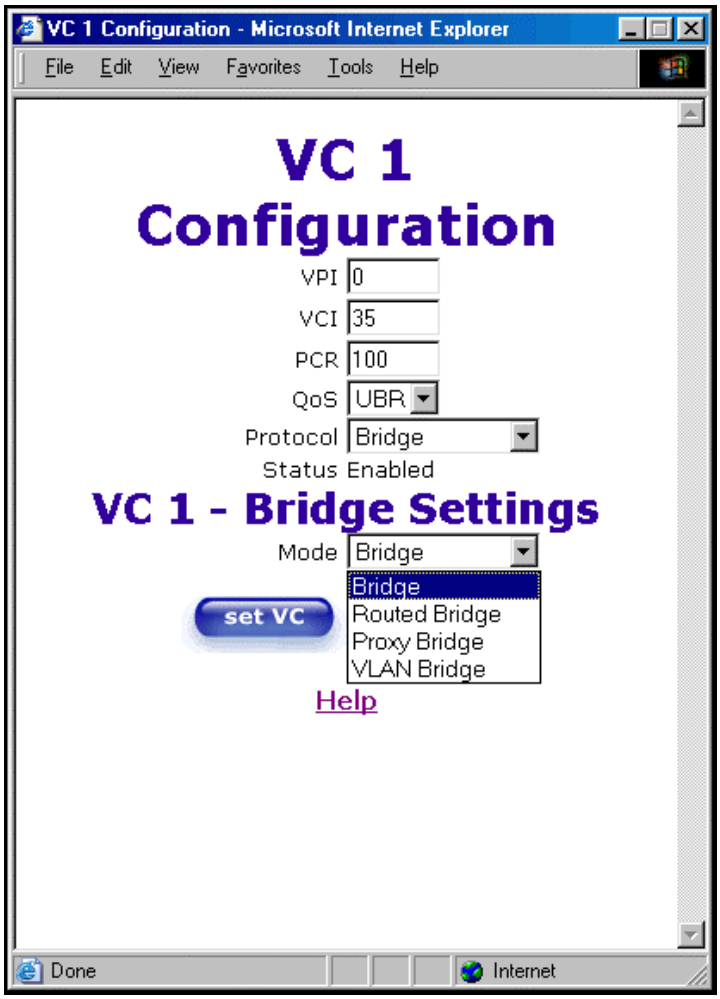


## 13.6.6 Configuring the Router's Protocol Settings for Bridge Mode

If you are using Models 7400, 7401 select **Advanced WAN > VC** from the **Configuration** menu to configure the Router's protocol settings for **Bridge** mode. If you are using Models 328W10, 328W11, select **Advanced WAN > WAN** from the **Configuration** menu to configure the Router's protocol settings for **Bridge** mode.

The **VC Configuration** screen will be displayed. Next, click on the **edit** button adjacent to any of the existing 'Enabled' VC (Virtual Connection) protocols. (Note: The protocol status must display "Enable" to allow edits to its VC configuration.)

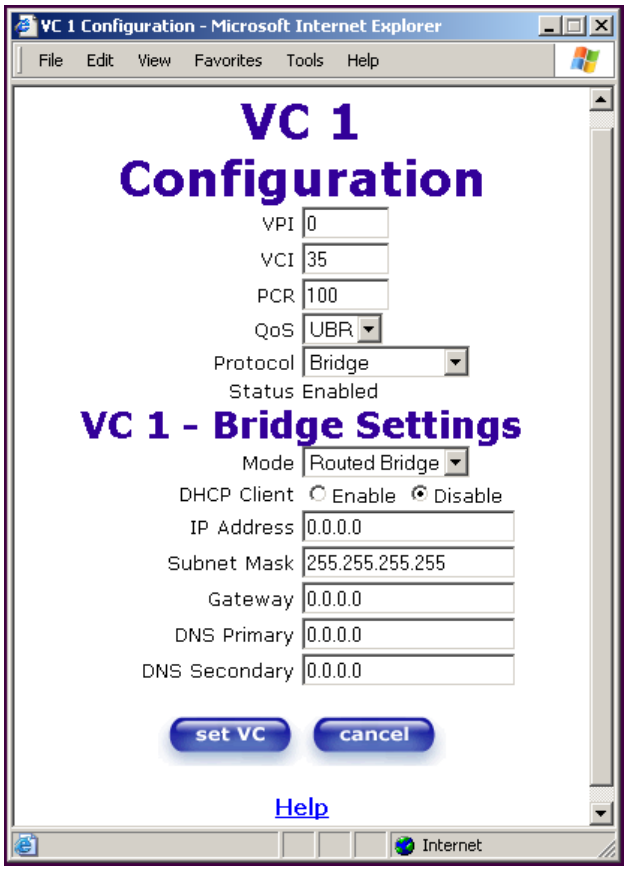
If you clicked **edit** in the **VC Configuration** screen, the following **VC 1 Configuration** screen will be displayed. Select **Bridge** from the options listed in **Protocol** drop-down arrow. Next, select a mode from the options listed in the **Mode** drop-down arrow, under **VC1 – Bridge Settings**. After you have made changes to **VC 1 Configuration** screen, click the **set VC** button.



| VC 1 Configuration | |
|---|---|
| VPI | This setting allows you to change your VPI (Virtual Path Indicator) value for a particular VC, which is defined by your Service Provider. |
| VCI | This setting allows you to change your VCI (Virtual Channel Indicator) value for a particular VC, which is defined by your Service Provider. |
| PCR | Factory Default = 100%<br>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.<br><br>This value is a percentage of the current data rate.<br>100 allows this VC to use 100% of the available bandwidth.<br>80 allows this VC to use 80% of the available bandwidth. |
| QoS | Quality of Service, which is determined by your Service Provider.<br>Possible Response:<br>CBR = Constant Bit Rate<br>UBR = Unspecified Bit Rate<br>VBR = Variable Bit Rate |
| Protocol | The Protocol for each VC, which is specified by your Service Provider.<br>Possible Response:<br>PPPoA = Point to Point Protocol over ATM (Asynchronous Transfer Mode)<br>PPPoE = Point to Point Protocol over Ethernet<br>Bridge = Bridge Protocol<br>Classical IPoA = Internet Protocol over ATM (Asynchronous Transfer Mode). This is an ATM encapsulation of the IP protocol. |
| Status | The protocol status. |

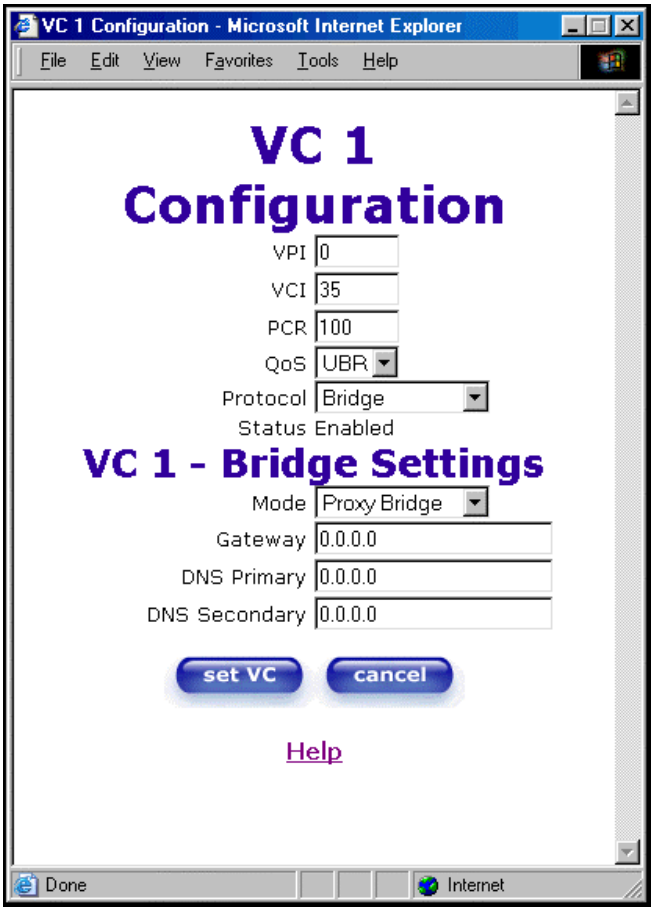
| VC 1 Bridge Settings | |
|---|---|
| Mode | Bridge = A bridge is a layer 2 device that connects two segments of the same LAN that use the same protocol such as Ethernet. The modem does not have a WAN IP address in this mode. The client PC will typically get an IP address from a DHCP server in the network 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. |
| | Proxy Bridge = Proxy Bridge is the process in which the modem acts as a proxy ARP agent for a local public subnet. The modem will be assigned an IP address from within that public subnet. The modem will direct all traffic to a Router, which is configured statically. The Router's address must not reside within Router's assigned public subnet. All traffic will be sent via the Router's MAC address. The LAN may also have a private NAT'ed network. NAT will use the global address assigned to the modem. |
| | VLAN Bridge = Assigns VLAN tags to individual data ports on the modem. |

If you selected the **Routed Bridge** mode under **VC 1- Bridge Settings,** the following screen will be displayed. Enter the appropriate values in the fields and click on **set VC.**



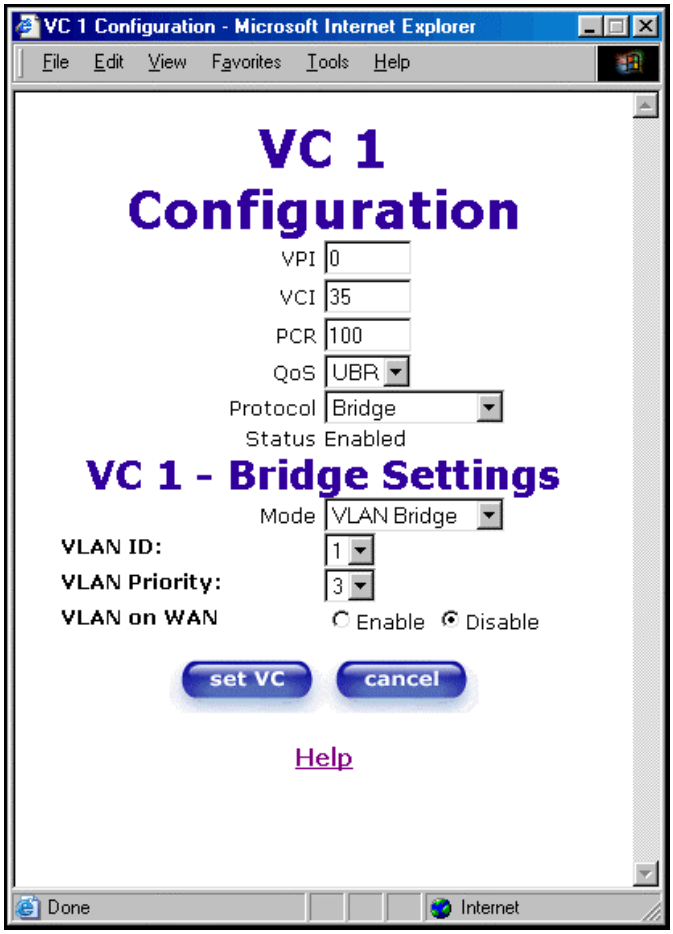

| VC 1 – Bridge Settings (Routed Bridge) | |
|---|---|
| Mode | The Mode you have selected to use with Bridge protocol. |
| DHCP Client | Selecting a radio button allows you to either Enable or Disable the DHCP Client. |
| IP Address | Displays the IP network address that your modem is on. |
| Subnet Mask | Displays the subnet mask, which determines if an IP address belongs to your local network. |
| Gateway | Displays the Router's IP gateway address. |
| DNS Primary | Provided by your Service Provider. |
| DNS Secondary | Provided by your Service Provider. |

If you selected **Proxy Bridge** mode under **VC 1- Bridge Settings,** the following screen will be displayed. Enter the appropriate values in the fields and click on **set VC.**



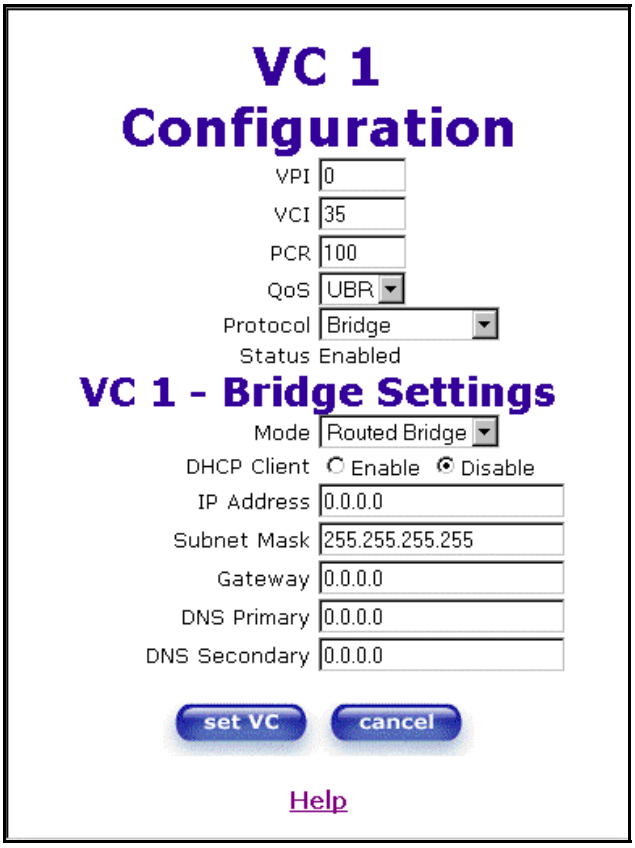

| VC 1 - Bridge Settings (Proxy Bridge) | |
|---|---|
| Mode | The Mode you have selected to use with Bridge protocol. |
| Gateway | Displays the Router's IP address. |
| DNS Primary | Provided by your Service Provider. |
| DNS Secondary | Provided by your Service Provider. |

If you selected **VLAN Bridge** under **VC 1- Bridge Settings,** the following screen will be displayed. Enter the appropriate values in the fields and click on **set VC.**

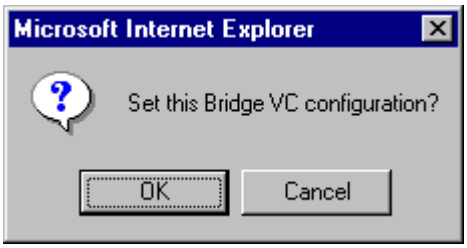



| VC 1 - Bridge Settings (VLAN Bridge) | |
|---|---|
| Mode | The Mode you have selected to use with Bridge protocol.<br>VLAN is used to assign VLAN tags to individual data ports on the modem. |
| VLAN ID | Assigns a VLAN ID to the port. |
| VLAN Priority | This will set the VLAN priority for the port. |
| VLAN on WAN | Factory Default = DISABLE<br>Selecting Enable allows VLAN tagging to occur according to the data port's configuration. |

After you have configured the **VC 1 Configuration** screen, you must click the **set VC** button to save your VC settings.



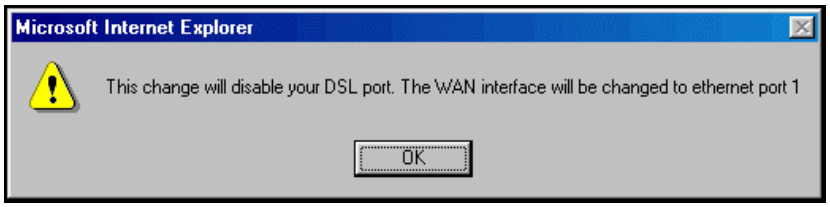

If you click the **set VC** button, the following pop-up screen will be displayed. Click on **OK** in the pop-up screen. If you click on **Cancel**, the new settings will not be saved. After you click on **OK,** follow the instructions to reset the Router, as previously discussed in section 13.6.4.



## 13.6.7 Configuring VC Protocol Settings for ETHERNET PORT 1 (Models 328W10 and 328W11 only)

To configure the Router's VC settings via the Ethernet UPLINK/E1 port, select **ETHERNET PORT 1** at the **WAN Port** drop-down arrow. By selecting **ETHERNET PORT 1,** you will disable the Router's DSL transceiver. This will enable the WAN Ethernet port and allow the WAN interface to use the UPLINK/E1 Port.

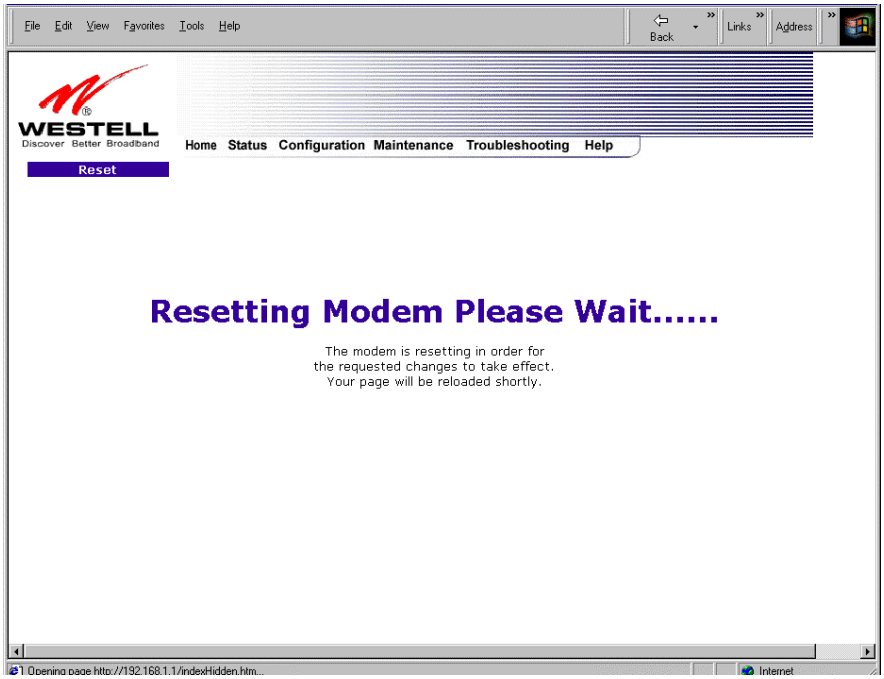
If you select **ETHERNET PORT 1**, the following pop-up will be displayed. Click on **OK.**



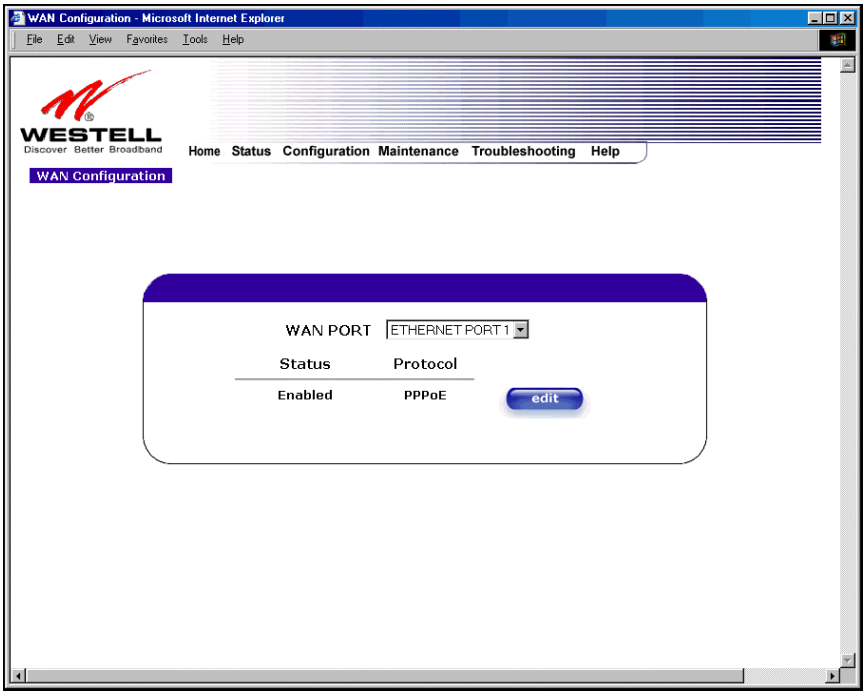
If you click on **OK**, the following pop-up screen will be displayed. Click on **OK.**

If you clicked on **OK** in the preceding pop-up screen, the following pop-up screen will be displayed. Click on **OK.**

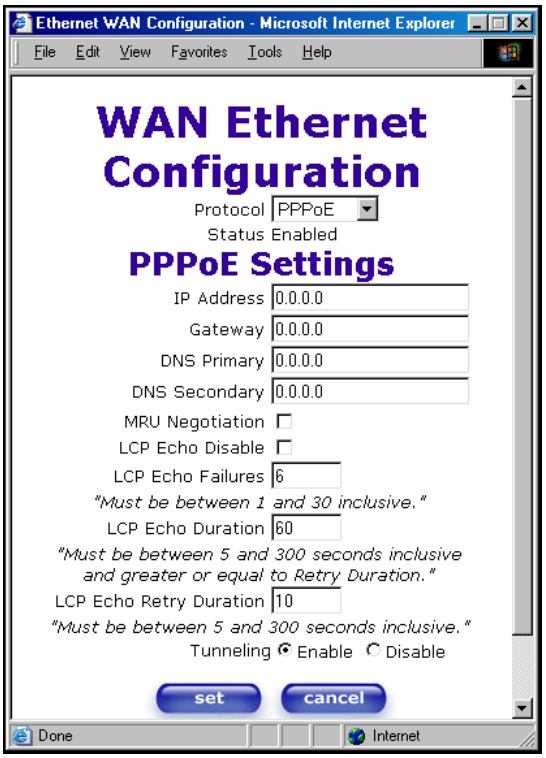
If you clicked on **OK,** the following screen will be displayed. The Router will be reset and the new configuration will take effect.



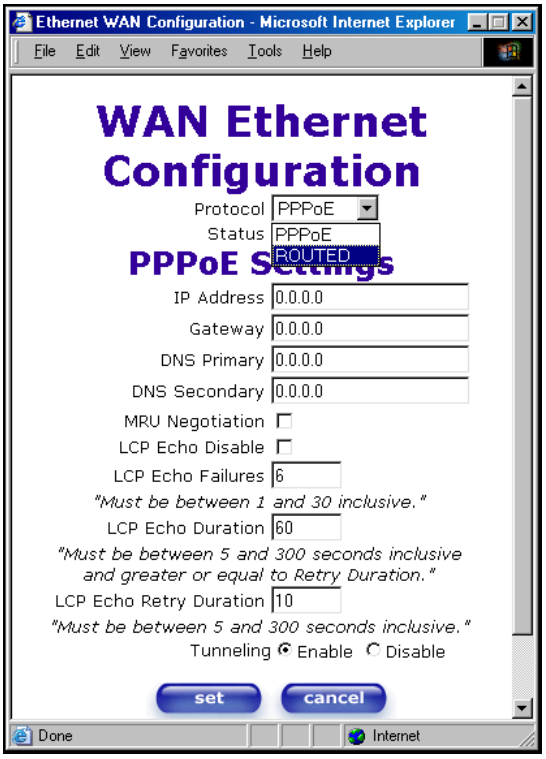
After the Router has been reset, select **Advanced WAN** > **WAN** from the **Configuration** menu. The following screen will be displayed.



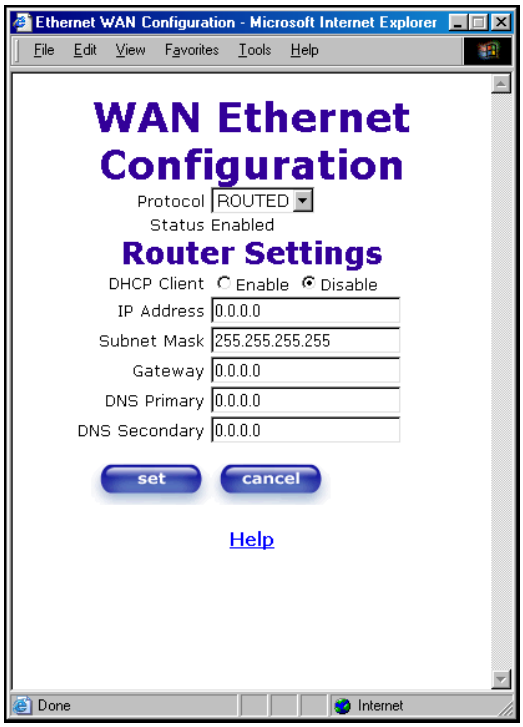

If you click **edit,** the following screen will be displayed. By using this screen, you can configure the WAN Ethernet port settings of your Router.



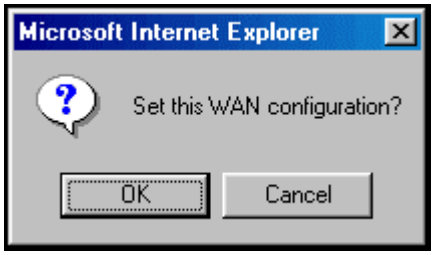
To configure the WAN Ethernet port for Routed Bridge protocol, select **ROUTED** from the **Protocol** drop-down arrow.




If you select **ROUTED,** the following screen will be displayed. Enter the appropriate values in the fields and click on **set.**

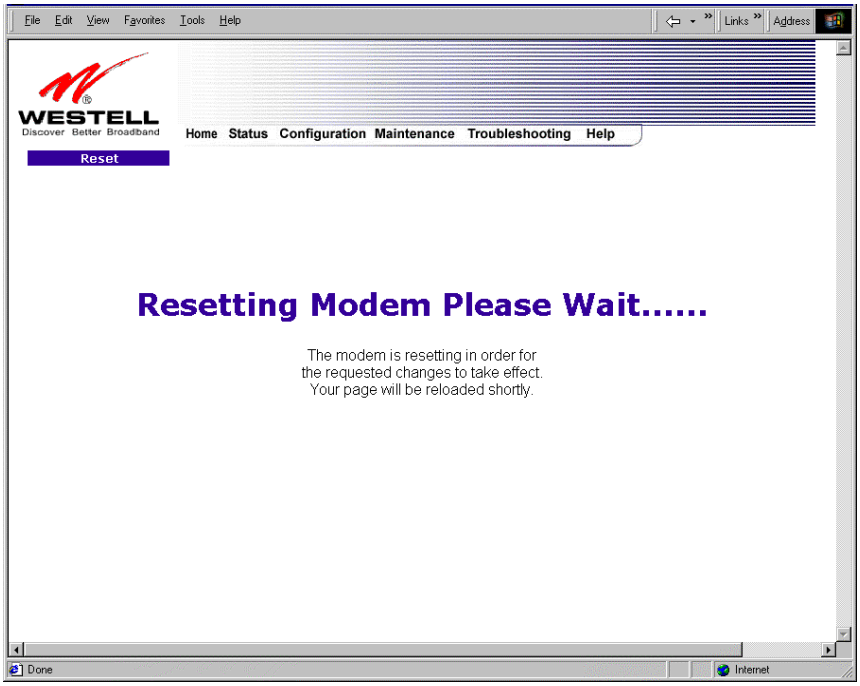


If you clicked on **set,** the following pop-up screen will be displayed. Click on **OK.**

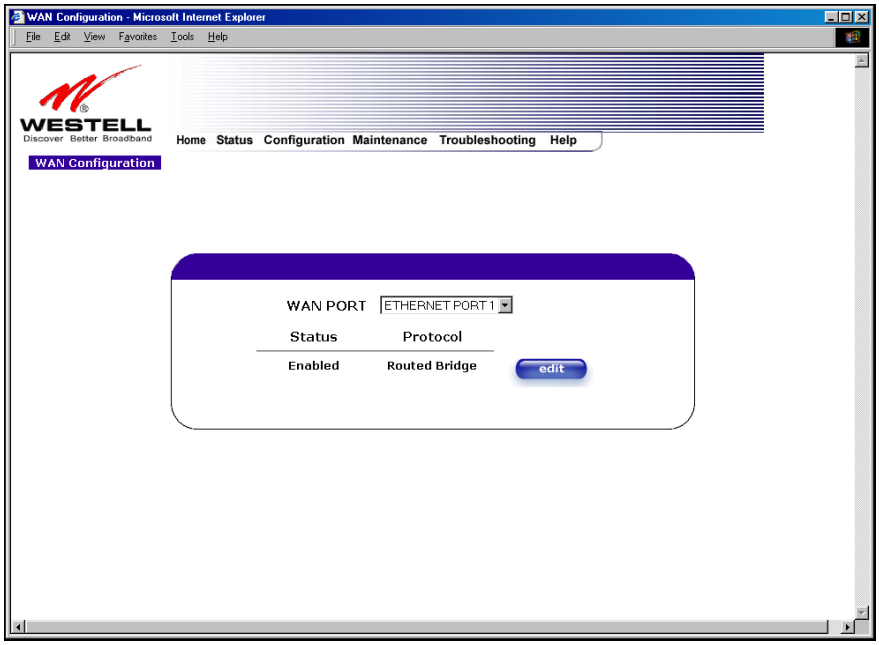



If you clicked on **OK** in the preceding pop-up screen, the following pop-up screen will appear. The Router must be reset to allow the new configuration to take effect. Click on **OK.**

If you clicked on **OK** in the preceding screen**,** the following screen will be displayed. The Router will be reset and the new configuration will take effect.



After the modem has been reset, the **WAN Configuration** screen will display **Routed Bridge** as the protocol for **ETHERNET PORT 1.**

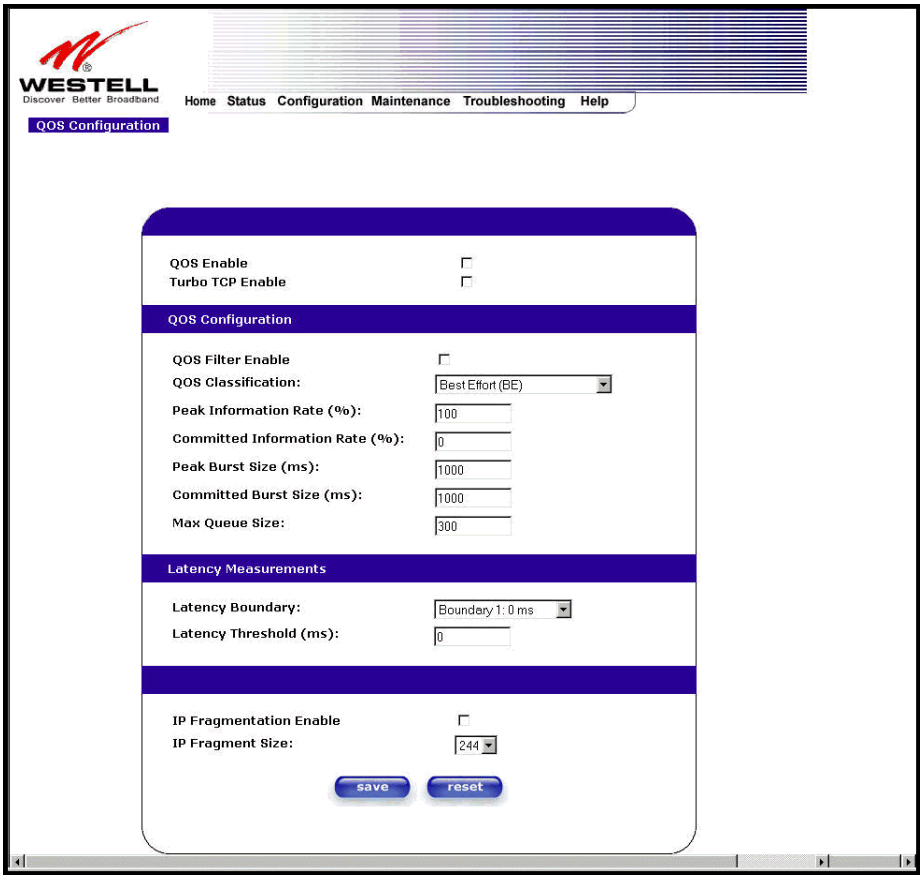


## 13.6.8 QOS

The following settings will be displayed if you select **Advanced WAN > QOS** from the **Configuration** menu. If you change any settings in this screen, click on **save.** If you click on **reset,** this screen will refresh and display your previously saved QOS configuration.

IMPORTANT: If you are using Model 328W10 or 328W11 and the Router is configured for **ETHERNET PORT 1**, the **QOS** option will not be displayed in the **Advanced WAN** drop-down menu. You must configure the Router for **DSLATM PORT** to access **QOS**. Refer to section 13.6.3.1 for details on enabling and disabling DSLATM PORT and ETHERNET PORT 1.

NOTE: The QOS feature helps ensure data integrity in high-speed transmissions. QOS provides the capability to partition network traffic into multiple priority levels or classes of service. After packet classification, other QOS features can be utilized to assign the appropriate traffic handling policies including congestion management, bandwidth allocation, and delay bounds for each traffic class.



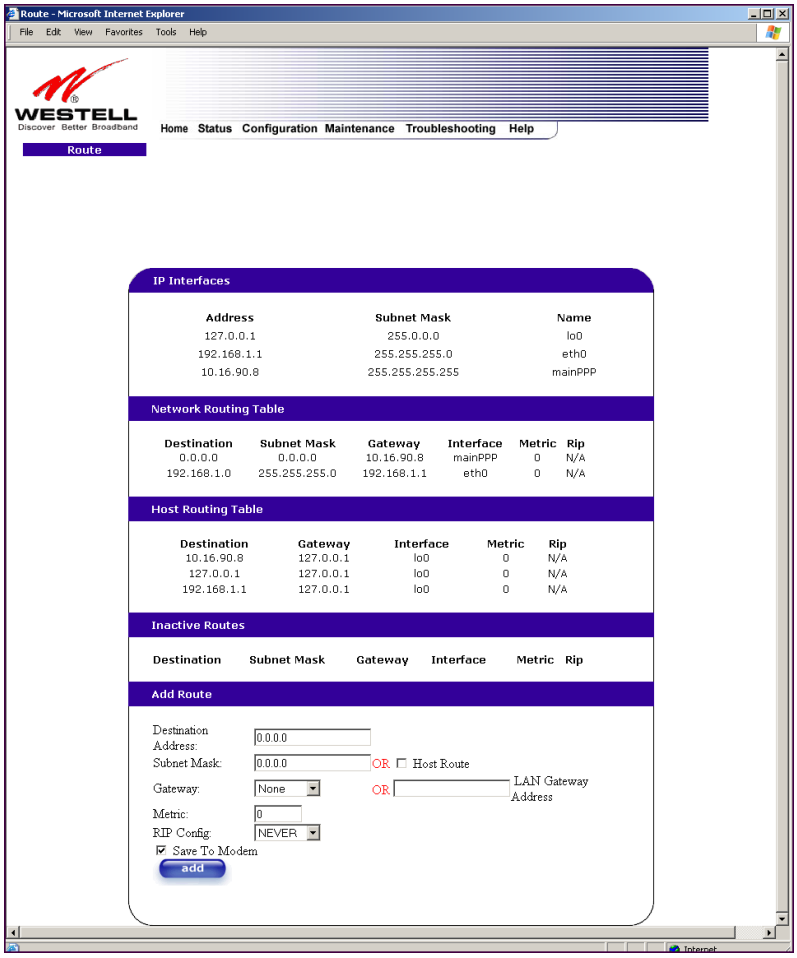

| | |
|---|---|
| QOS Enable | Factory Default = DISABLED<br>If this box is checked, Quality of Service (QOS) will be Enabled. |
| Turbo TCP Enable | Factory Default = DISABLED<br>If this box is checked, Turbo TCP will be Enabled. |
| QOS Configuration | |
| QOS Filter Enable | Factory Default = DISABLED<br>If this box is checked, this will Enable the QOS filter. |

| | |
|---|---|
| QOS Classification | This feature provides the capability to partition network traffic into multiple priority levels or classes of service. After packet classification, other QOS features can be utilized to assign the appropriate traffic handling policies including congestion management, bandwidth allocation, and delay bounds for each traffic class.<br>Possible responses are:<br>Best Effort (BE)<br>Assured Forwarding (AF1)<br>Assured Forwarding (AF2)<br>Assured Forwarding (AF3)<br>Assured Forwarding (AF4)<br>Expedited Forwarding (EF)<br>Network Control (NC) |
| Peak Information Rte (%) | The maximum allowed rate for this priority, expressed as a percentage of the DSL rate. |
| Committed Information Rate (%) | The committed rate for this priority, expressed as a percentage of the DSL rate. |
| Peak Burst Size | The interval in milliseconds for averaging the peak offered rate. |
| Committed Burst Size | The interval in milliseconds for averaging the committed offered rate. |
| Max Queue Size | The number of packets that can be queued for this priority. |
| Latency Measurements | |
| Latency Boundary | This configures the maximum latency boundary in milliseconds that a specific packet may be delayed by. |
| Latency Threshold (ms) | This setting configures the maximum latency boundary in milliseconds that a specific packet may be delayed by.<br>Possible responses are:<br>Boundary 1:0 ms<br>Boundary 2:10 ms<br>Boundary 3:30 ms<br>Boundary 4:40 ms<br>Boundary 5:100 ms<br>Boundary 6:1000 ms<br>Boundary 7:3000 ms |
| | |
| IP Fragmentation Enable | Factory Default = DISABLED<br>If this box is checked, IP Fragmentation will be Enabled. If Enabled and packets larger than 1500 bytes total are received, they will be fragmented. |
| IP Fragment Size | This is the IP Packet Size.<br>Possible responses are:<br>100, 148, 244, 292, 340, 388, or 436 |

If you made changes to the **QOS Configuration** and clicked on **save,** the following screen will be displayed. Click on **OK.** This will save your new QOS settings.

## 13.6.9 Route

The following settings will be displayed if you select **Advanced WAN > Route** from the **Configuration** menu. The Route table maintains the routes or paths of where specific types of data shall be routed across a network.



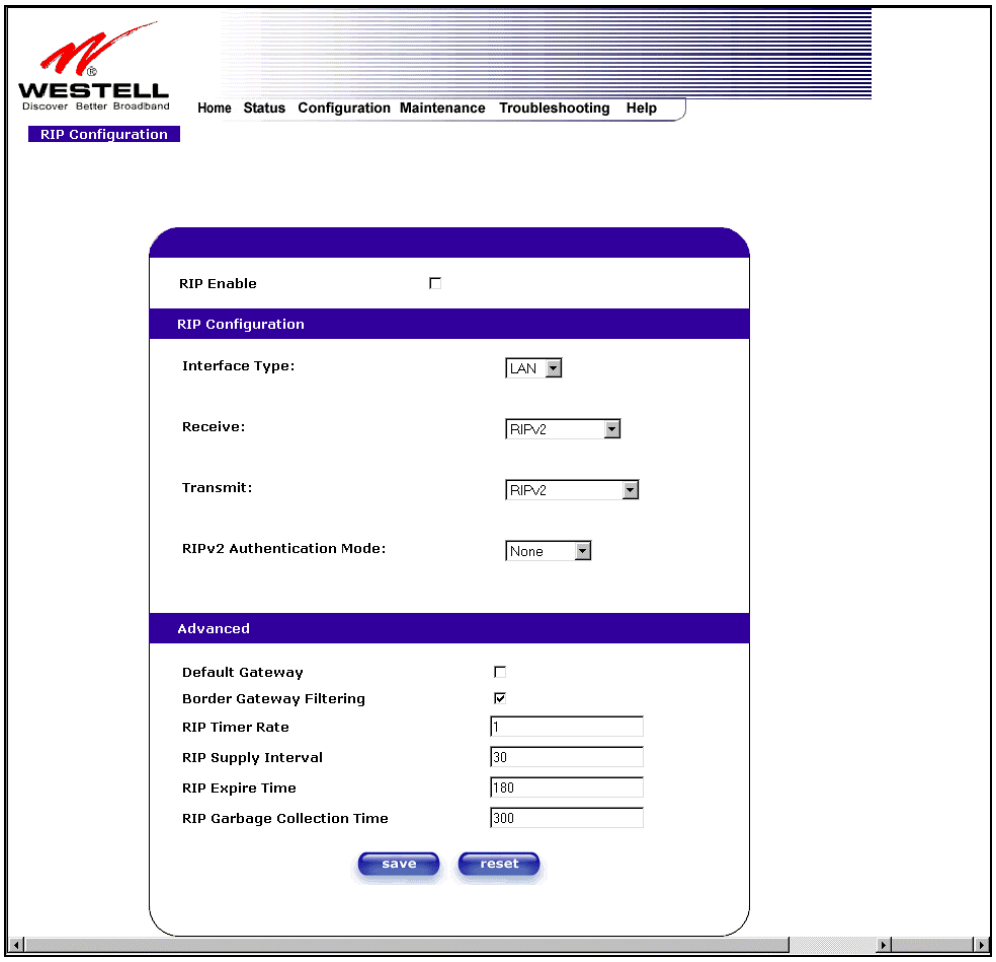

To add a Route, enter a **Subnet Mask** address, or check the **Host Route** box. Click on the **add** button to establish a static route.

| IP Interfaces | |
|---|---|
| IP Interfaces | The list of active interfaces on the modem and their IP and Subnet mask address.<br>Eth0 is the local LAN interface.<br>Lo0 is the loopback interface.<br>MainPPP is the WAN interface |
| Address | The IP interface address. |
| Subnet Mask | The IP interface subnet address. |
| Name | The IP interface device name. |
| Network Routing Table | |
| Network Routing Table | The list of network routes. These can be either routes for directly connected interfaces or static routes. |
| Destination Address | The IP address or subnet of the Route. |
| Subnet Mask | If the Route is a network route, Subnet Mask is used to specify the subnet address.<br>If the Route is a Host route, then the Host Route check box is used. |
| Gateway | Indicates were to send the packet if it matches this route. |
| Interface | Indicates were to send the packet if it matches this route. |
| Metric | The RIP metric to be assigned to this route if and when it is advertised using RIP. |
| RIP | Indicates whether a static route should be advertised via RIP. |
| Host Routing Table | |
| Host Routing Table | The list of host routes. A host route is an IP route with a 32-bit mask, indicating a single destination (as opposed to a subnet, which could match several destinations.) |
| Destination Address | The IP address or subnet of the Route. |
| Subnet Mask | If the Route is a network route, Subnet Mask is used to specify the subnet address.<br>If the Route is a Host route, then the Host Route check box is used. |
| Gateway | Indicates were to send the packet if it matches this route. |
| Interface | Indicates were to send the packet if it matches this route. |
| Metric | The RIP metric to be assigned to this route if and when it is advertised using RIP. |
| RIP | Indicates whether a static route should be advertised via RIP. |
| Inactive Routes | |
| Inactive Routes | Static routes whose interface is currently not in service. |
| Destination Address | The IP address or subnet of the Route. |
| Subnet Mask | If the Route is a network route, Subnet Mask is used to specify the subnet address.<br>If the Route is a Host route, then the Host Route check box is used. |
| Gateway | Indicates were to send the packet if it matches this route. |
| Interface | Indicates were to send the packet if it matches this route. |
| Metric | The RIP metric to be assigned to this route if and when it is advertised using RIP. |
| RIP | Indicates whether a static route should be advertised via RIP. |
| Add Route | |
| Add Route | This is used to add a new static route in the modem. |
| Destination Address | The IP address or subnet of the Route. |
| Subnet Mask/ Host Route | If the Route is a network route, Subnet Mask is used to specify the subnet address.<br>If the Route is a Host route, then the Host Route check box is used. |
| Gateway/LAN Gateway IP Address | The interface to use for sending the packet, if it matches this route. (Only active Routers can be used to create a static route.) |
| Metric | The RIP metric to be assigned to this route if and when it is advertised using RIP. |
| RIP Conf | Determines whether or not to advertise the static route, using RIP. (RIP must also be enabled before the route will be advertised.) |
| Save to Modem | If checked, then the route will be made permanent by saving it to flash memory. If not checked, the route will disappear the next time the modem restarts. |

## 13.6.10 RIP

The following details will be displayed if you select **Advanced WAN > RIP** from the **Configuration** menu. If you change any settings in this screen, click on **save.** If you click on **reset,** this screen will refresh and display your last saved RIP configuration.

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



| | |
|---|---|
| RIP Enable | Factory Default = DISABLED<br>If this box is checked, RIP will be Enabled (turned ON). |
| RIP Configuration | |
| Interface Type | LAN: Select this if you are configuring RIP for the LAN side.<br>WAN: Select this if you are configuring RIP for the WAN side. (WAN side is receive only.) |
| Receive | The version of RIP to be accepted.<br>Possible responses are:<br>None<br>RIPv1<br>RIPv2<br>RIPv1 or RIPv2 |
| Transmit | The version of RIP to be transmitted. (WAN side RIP never transmits)<br>Possible responses are:<br>None<br>RIPv1<br>RIPv1 Compatible<br>RIPv2 |
| RIPv2 Authentication Mode | If using RIP V2, you must select the type of authentication to use.<br>Possible responses are:<br>None<br>Clear Text<br>MD5 (If MD5 authentication, the password) |
| Advanced | |
| Default Gateway | Factory Default = DISABLED<br>If this box is check (Enabled), this feature will determine whether the modem advertises itself as the default Gateway (i.e., the default route) |
| Border Gateway Filtering | Factory Default = ENABLED<br>If this box is unchecked (Disabled), the modem will not summarize subnets into a single route before advertising. |
| RIP Timer Rate | Indicates how often to update the local routing table. |
| RIP Supply Interval | Indicates how often to advertise routes to neighbors. |
| RIP Expire Time | Indicates how long routes received from neighbors become invalid, if no refresh of the route is received. |
| RIP Garbage Collection Time | Indicates how long to advertise invalid routes after they have expired. |

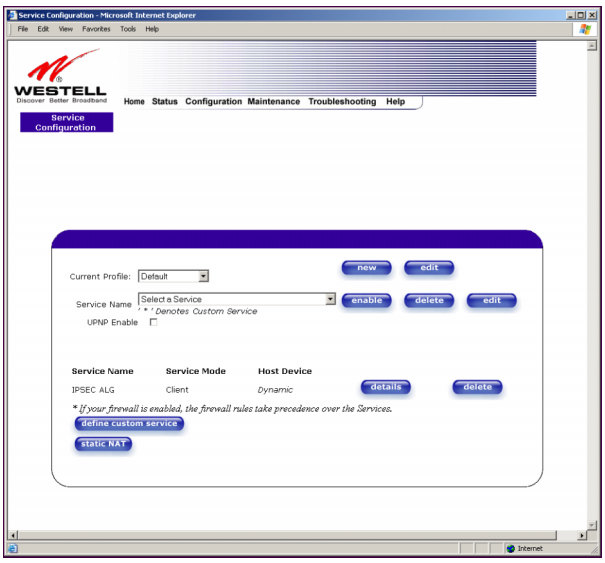
If you change any settings in the **RIP Configuration** screen and clicke on **save,** the following screen will be displayed. Click on **OK** to save your new RIP settings.

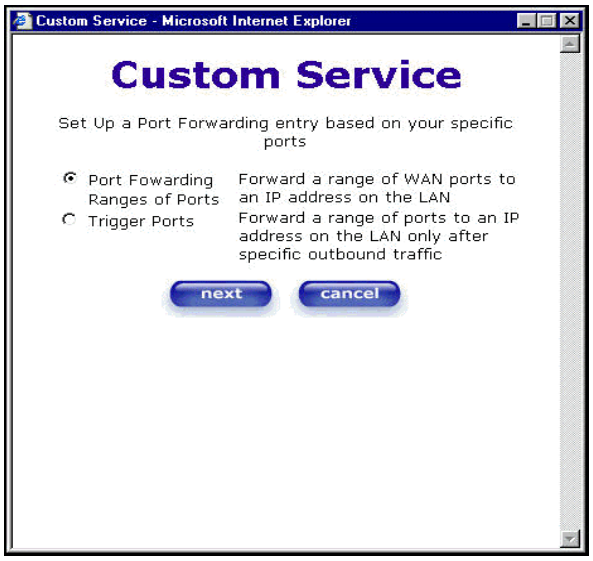
# 14. SETTING UP ADVANCED SERVICE CONFIGURATION

You can set up additional Service Configuration options for the Router that allow you to enter the port forwarding and trigger ports ranges of your choice. Go to **Configuration** at the homepage menu and select **Services.**

When you click on **define custom service** in the **Service Configuration** screen, the **Custom Service** screen will guide you through the steps of creating an advanced NAT service entry via the **define custom service** button.

NOTE: Westell strongly recommends that you do not change any values in this section. If you experience any problems, please reset the Router via the external hardware reset button or the procedure defined under the **Maintenance** menu.

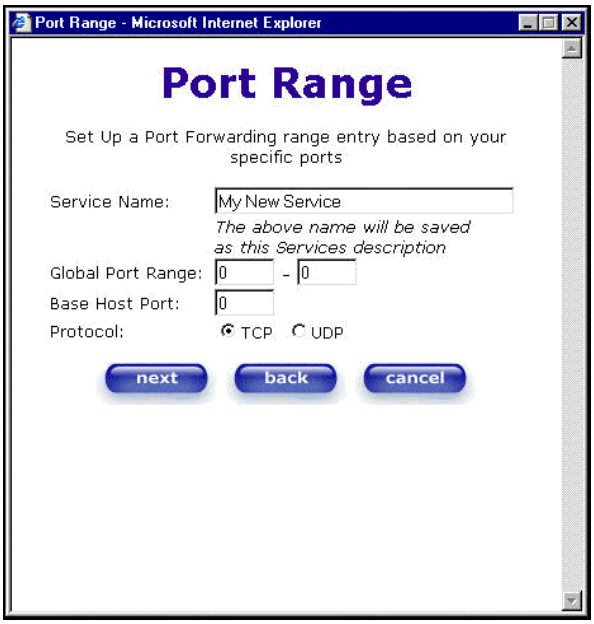



| | |
|---|---|
| Port Forwarding Ranges of Ports | This option allows you to forward a range of WAN ports to an IP address on the LAN. |
| Trigger Ports | This option allows you to forward a range of ports to an IP address on the LAN only after specific outbound traffic. |

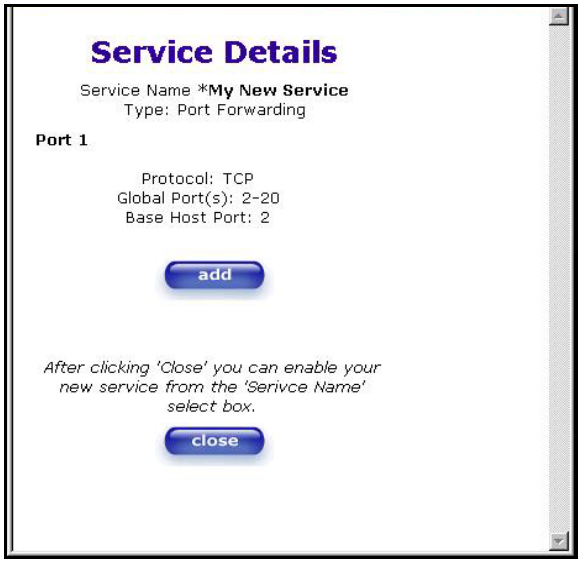
## 14.1 Port Forwarding Ranges of Ports

To select **Port Forwarding Ranges of Ports**, click on **define custom service** from the **Service Configuration** screen, and then select **Port Forwarding Ranges of Ports** from the **Custom Service** screen. Click on **Next**. The **Port Range** screen will be displayed. Enter your values in the **Global Port Range** fields and click **next** to continue.




## 14.2 Adding Port Forwarding Ports

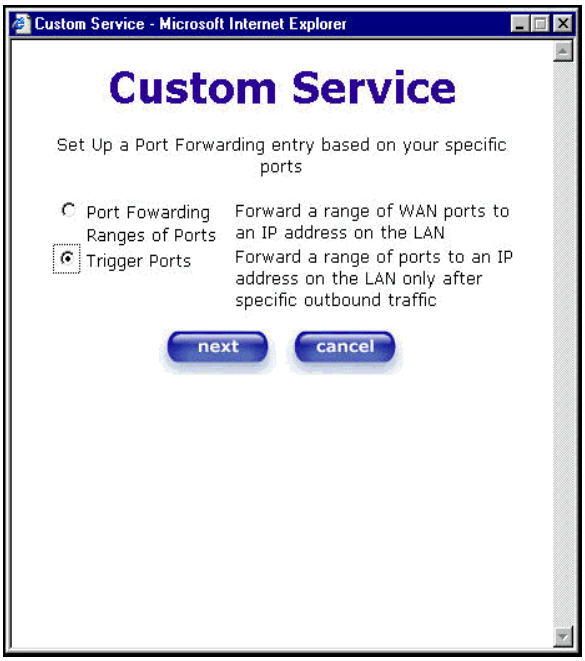
If you made changes in the **Port Range** screen and clicked on **next**, the following screen will be displayed. Click on **close** to accept the changes, or click on **add** to go back to **Port Range** screen and enter additional port range values. You can repeat this step for each range of ports that you want to add (up to 62 port forwarding ranges). When you are finished adding ports to the Global Port Range, you must click on **close** to accept the information you have entered and return to the **Service Configuration** screen.

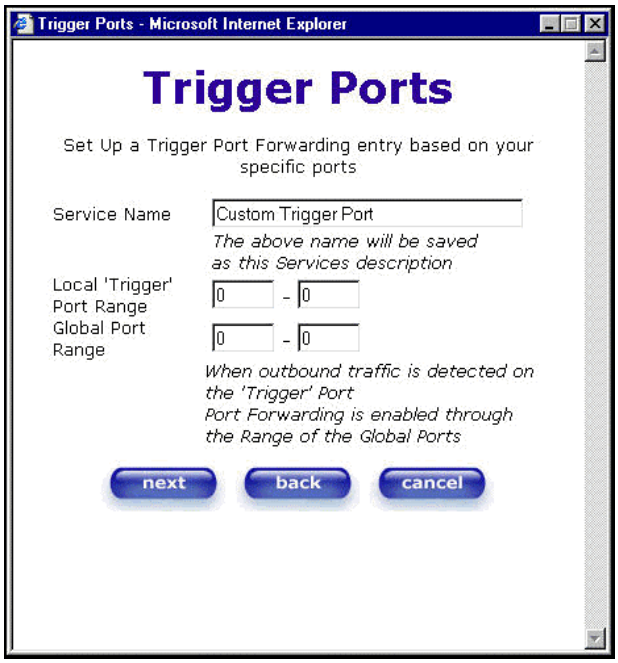


| | |
|---|---|
| Service Name | The NAT service for which you are configuring Port Forwarding. |
| Type | The type of NAT service configuration you selected. |
| Protocol | The type of Protocol that is used to run this NAT service.<br>TCP- Transmission Control Protocol.<br>UDP-User Datagram Protocol (UDP). |
| Local IP Address | If a static IP address has been assigned, it will be displayed here. |
| Base Host Port | The port on the WAN that will host the NAT service selected. Base Host Port is the first port that will be used for a specific service when configured for a range of ports. |

## 14.3 Port Forwarding Trigger Ports

To select **Port Forwarding Trigger Ports**, click on **define custom service** from the **Service Configuration** screen, and then select **Trigger Ports** from the **Custom Service** screen. Click on **next**. The follow settings will be displayed in the **Trigger Ports** screen. Enter your values in the **Local 'Trigger' Port Range** fields and click on **next** to continue.




| | |
|---|---|
| Service Name | The NAT service you selected. |
| Local Trigger Port Range | The local LAN side TCP/UDP port. |
| Global Port Range | The WAN side TCP/UDP port range. |

## 14.4 Adding Local Trigger Ports

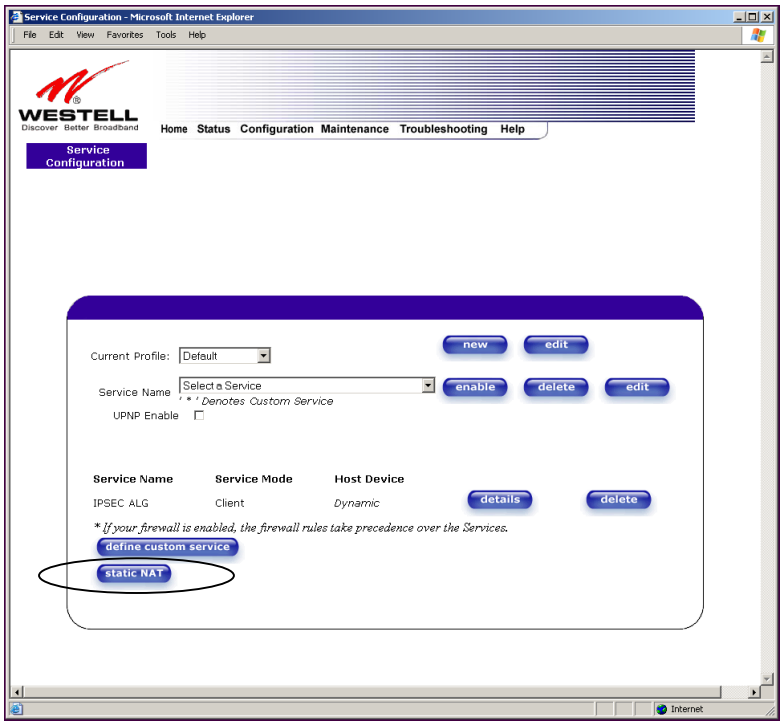
If you made changes in the **Local 'Trigger' Port Range** screen and clicked **next**, the following screen will be displayed. Click on **close** to accept the changes, or click on **add** to go back to the **Trigger Ports** screen and enter additional port range values. You can repeat this step for each port range that you want to add (up to 10 trigger ports). When you are finished adding ports to the Local 'Trigger" Port Range, you must click on **close** to accept the information you have entered and to return to the **Service Configuration** screen.

## 14.5 Static NAT

If you select **Services** from the **Configuration** menu, the following screen will be displayed, showing the **static NAT** button. Static NAT allows you to configure the Router to work with the special NAT services.

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

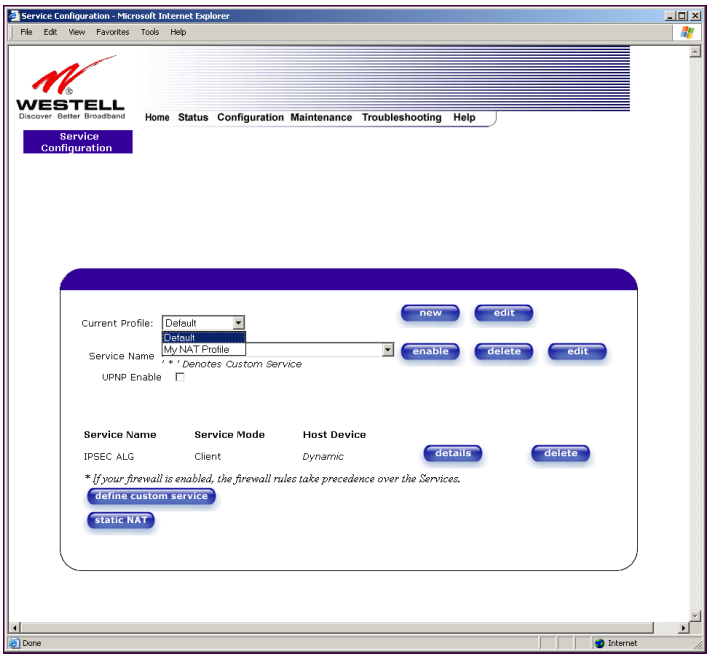
**STOP:** Single Static IP must be disabled (if it has been enabled previously) before you enable **static NAT**. To disable Single Static IP, select **Single Static IP** from the **Configuration** menu. Next, click on the **disable** button, and then click on **OK** in the pop-up screens to allow the Router to be reset. As explained in section 13.1 (Single Static IP), you must reboot your computer after you enable or disable Single Static IP. After you have rebooted your computer, return to static NAT configuration screen by selecting **Services** from the **Configuration** menu and clicking on the **static NAT** button.



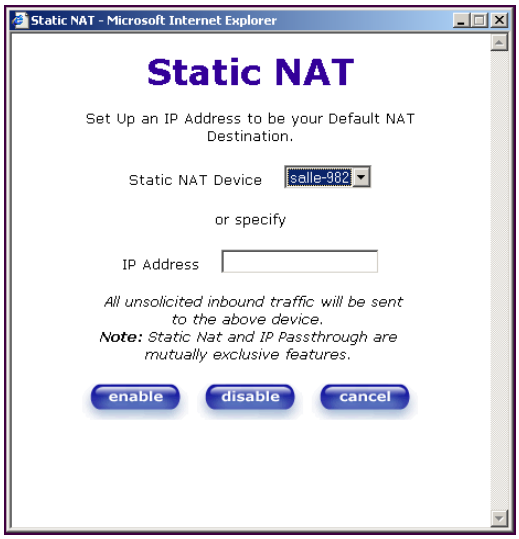
## 14.6 Enabling Static NAT

Before you enable static NAT, you must select **Default** from the **Current Profile** drop-down box. Static NAT must be configured for the Router's default account profile. After you select the default profile, click the **static NAT** button.

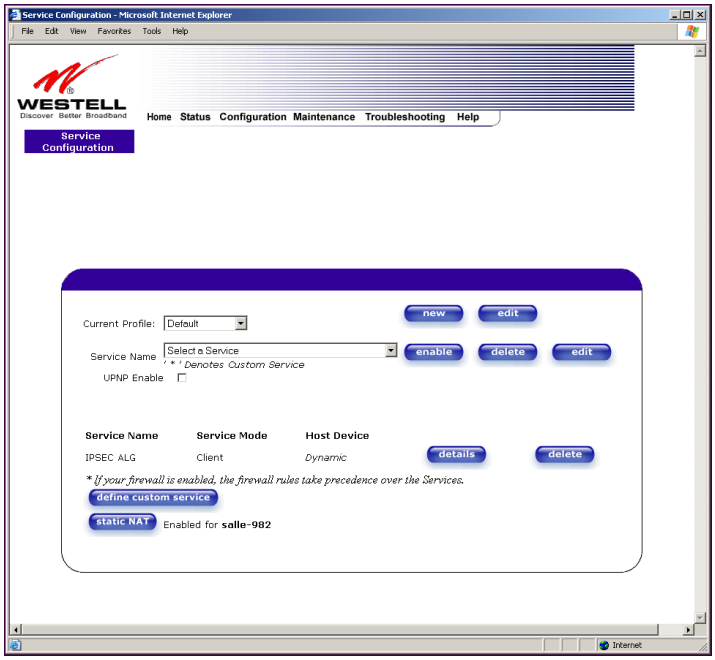
NOTE: In the following screen, the default account profile is labeled **Default**. However, if you have renamed the default account profile, you must select the profile name you created as the default profile.




If you click on the **static NAT** button in the **Service Configuration** screen, the following screen will be displayed. Select your device from the **Static NAT Device** drop-down arrow, or type the IP address of the device in the field labeled **IP Address**. Click on **enable**. This will automatically enable the Static NAT feature for that device.

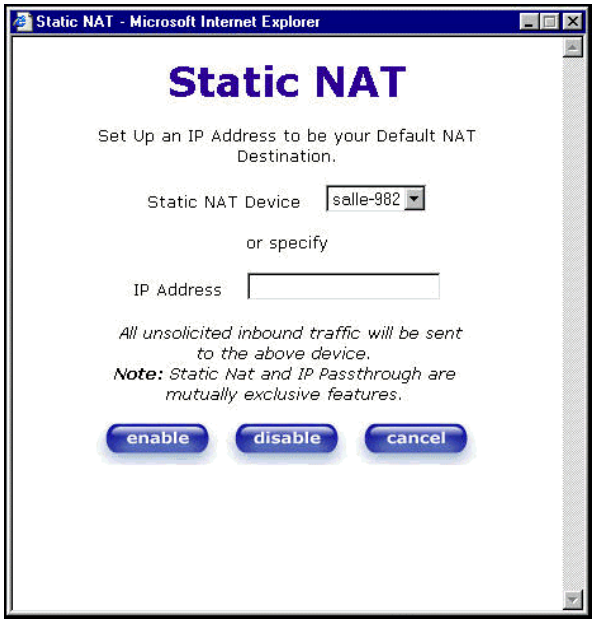


If you click **enable,** the following Service Configuration screen will display. Static NAT is now enabled for the device you selected.

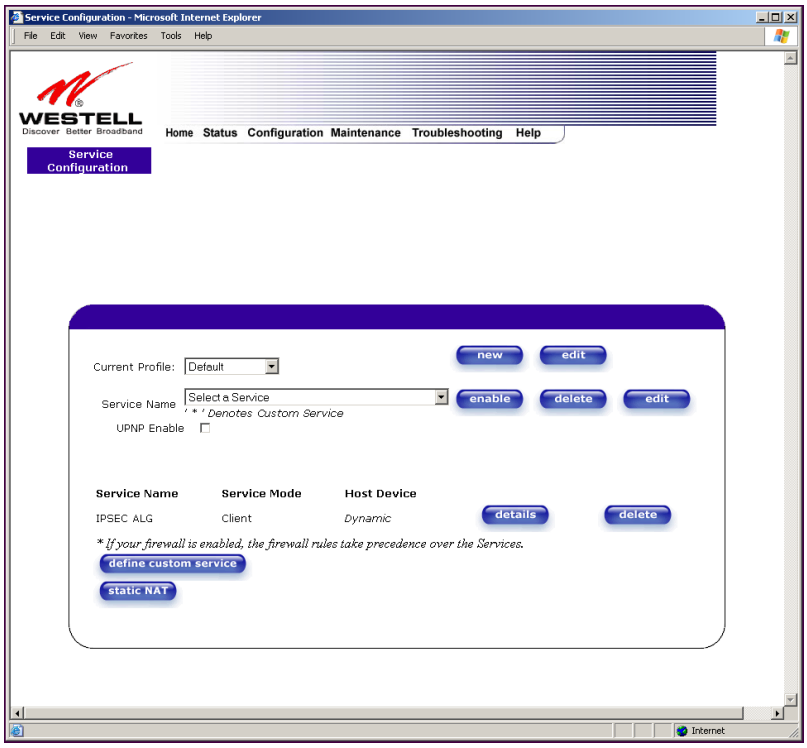



## 14.7 Disabling Static NAT

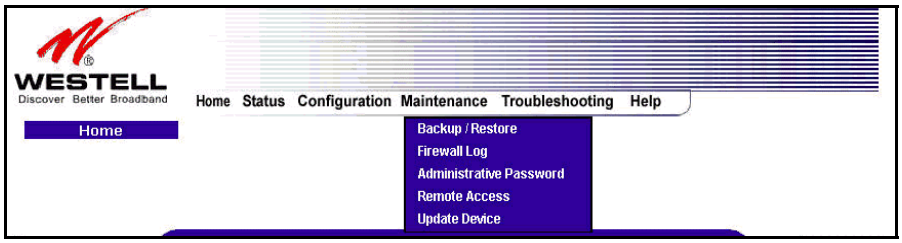
If you click on **static NAT** in the **Service Configuration** screen, the following screen will be displayed, select a device name from the **Static NAT Device** drop-down arrow, or type the IP address of the device in the field labeled **IP Address.** Click on **disable.** This will automatically disable the Static NAT feature for that device.



If you click **disable,** the following **Service Configuration** screen will be displayed. Static NAT is now disabled for the device you selected. (No device is displayed in the field adjacent to the **static Nat** button.)



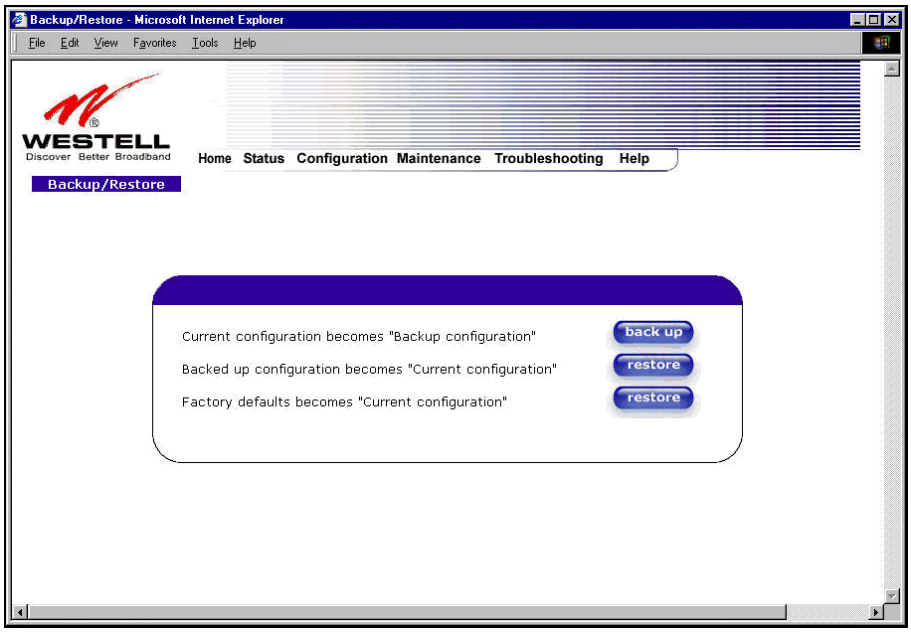
# 15. MAINTENANCE




## 15.1 Backup/Restore

The following settings will be displayed if you select **Backup/Restore** from the **Maintenance** menu.

NOTE: Backup settings are stored in a separate area of flash, not to an external backup source.

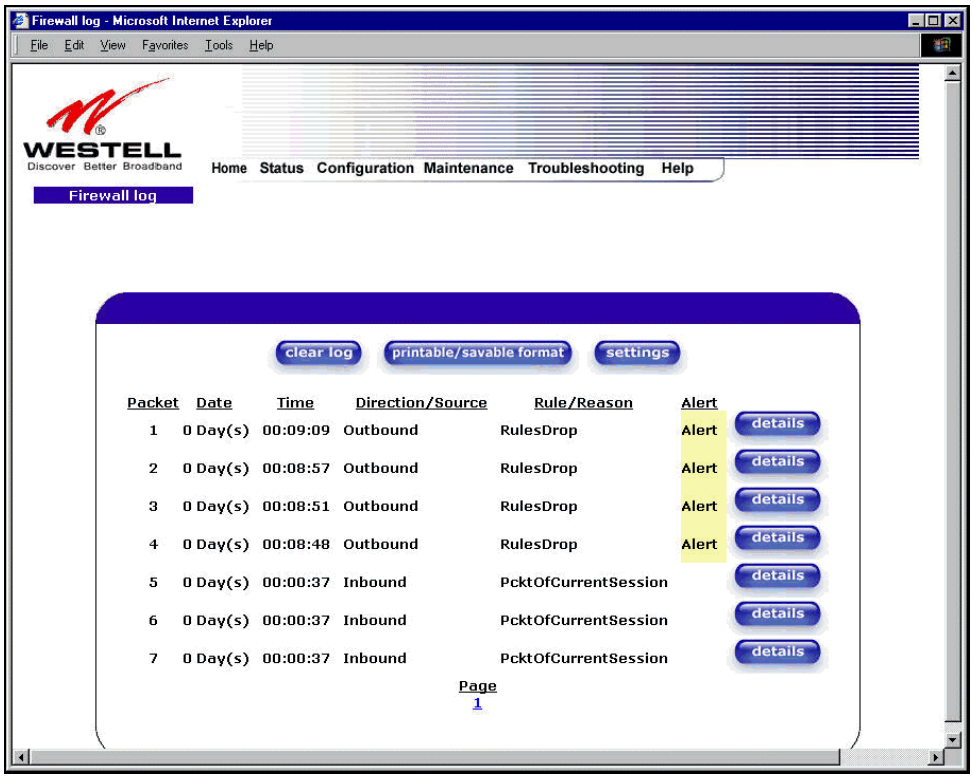



| | |
|---|---|
| Current configuration becomes Backup Configuration | Select this button if you want to store all of the current configuration data such that it can be recalled later. |
| Backed up configuration becomes Current configuration | Select this button if you want to retrieve the last back up copy of all configuration parameters and make these values current. |
| Factory default becomes Current configuration | Select this button if you want set all user configurable parameters back to the factory default. |

## 15.2 Firewall Log

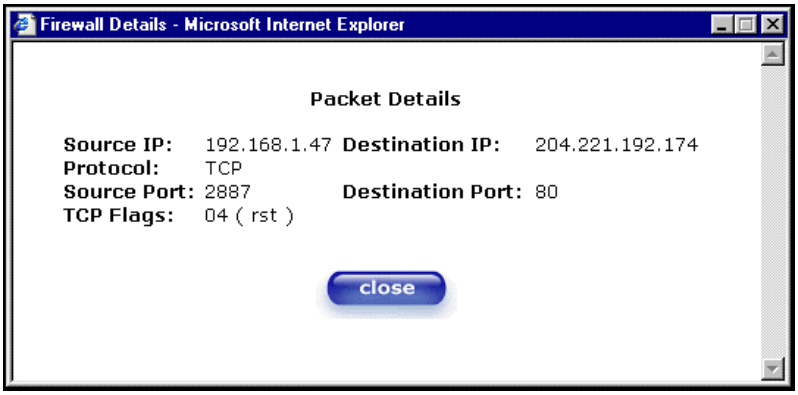
The following settings will be displayed if you select **Firewall Log** from the **Maintenance** menu.

This screen is an advanced diagnostics screen. It alerts you of noteworthy information sent to the Router from the Internet. The screen can contain 1000 entries, but a maximum of 50 entries are displayed at a time. Once 1000 entries have been logged, the oldest entry is removed to make space for the new entries as they occur. The following settings are displayed.




| | |
|---|---|
| Clear log | Selecting this button removes all entries from the log. |
| Printable/savable format | Selecting this button opens a new window that contains a list of all the logged packets that can be saved or printed. |
| Settings | Selecting this button opens a new window that contains configuration settings for selecting the information that you want logged. |
| Packet | The packet number. |
| Date | The number of days passed since that the packet was sent. |
| Time | The time that the packet was sent. |
| Direction/Source | The direction of transmission. |
| Rule/Reason | The internal rule that caused the logged event. The internal rule is set up under Firewall rules. |
| Alert | Displays a description of the logged event. |

If you clicked on **details** in the **Firewall Log** screen, the **Packet Details** screen will be displayed. Click on **close.**



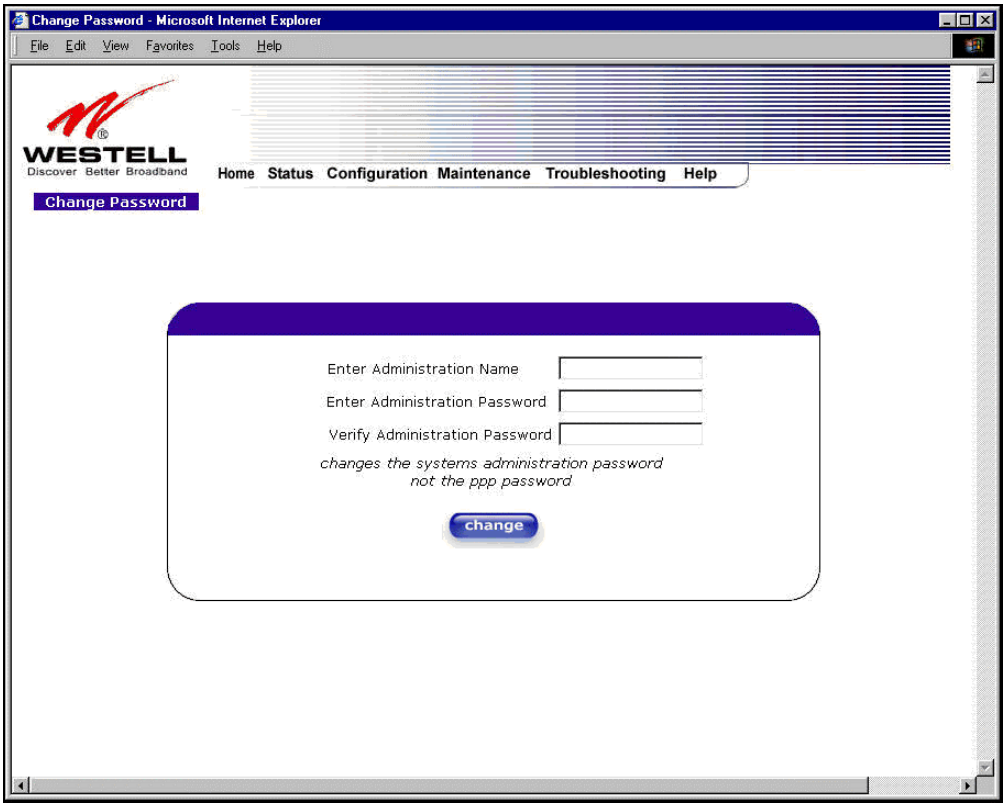

To clear the Firewall log, click **clear log** in the **Firewall Log** screen. The following pop-up screen will be displayed. Click **OK** when asked "**Do you wish to clear the Firewall log file?"** If you click **Cancel**, the firewall log will not be cleared.

To obtain a printable format of the Firewall Log, at the **Firewall Log** screen, click **Printable/Savable Format**. This will allow you to send a copy of the Firewall log to your designated printer.

## 15.3 Administrative Password

The following settings will be displayed if you select **Administrative Password** from the **Maintenance** menu. After you enter your data into the appropriate settings, click on **change**.

| |
|---|
| NOTE: If the Router is password protected and you are not an authorized user, you will not be able to change the values. (The Router cannot be configured unless the user is logged in.) Contact your network administrator for further instructions. |

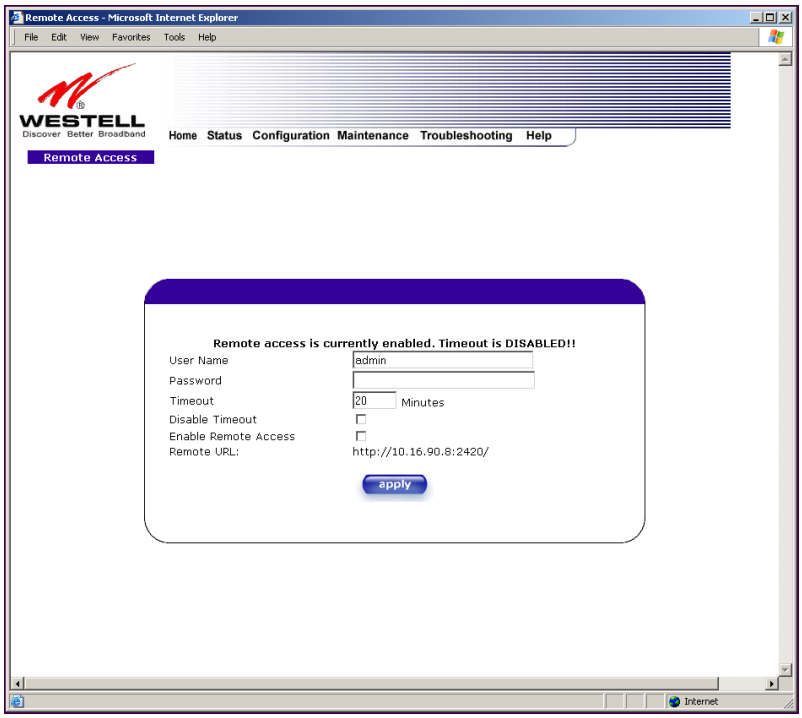



| | |
|---|---|
| Enter Administrative Name<br>NOTE: This changes the Systems Administrator password not the PPP password. | Type the name of your network administrative. |
| Enter Administrative Password | Type your network administrator's password. |
| Verify Administrative Password | Re-type your network administrator's password. |

## 15.4 Remote Access

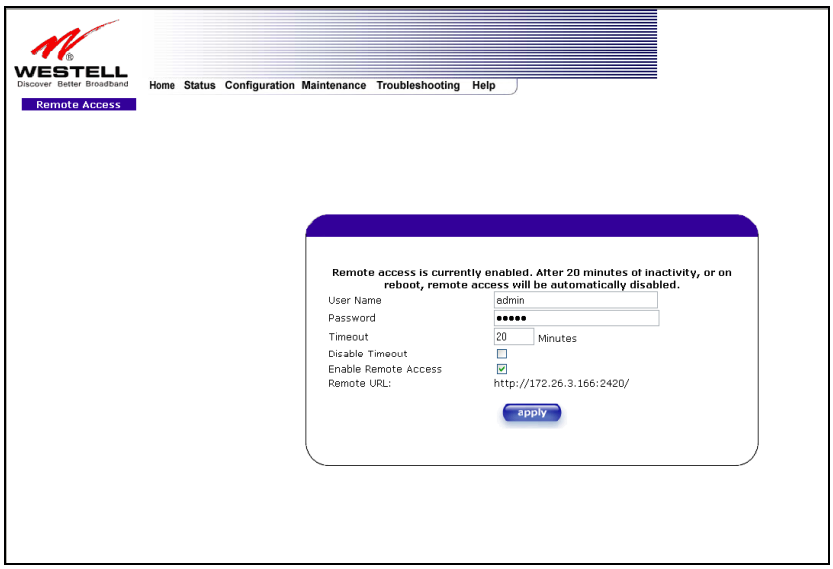
The following screen will appear if you select **Remote Access** from the **Maintenance** menu. To enable Remote Access, type in a password and click the **enable remote access** button.

NOTE: The password should be at least 4 characters long and should not exceed 32 characters. Do not type a blank space or asterisks in the Password field. The password is also case sensitive.




| | |
|---|---|
| User Name | Displays your current User Name (Static field) |
| Password | Field for entering your password |
| Timeout | This is time the remote access session can be inactive before it will be disabled. The Timeout is ignored if Disable Timeout is enabled. |
| Disable Timeout | When this checkbox is checked, the remote access timeout will be disabled. |
| Enable Remote Access | When this checkbox is checked, and you are connected to the internet, remote access will be enabled. When this checkbox is NOT checked, remote access will be disabled. |
| Remote URL | Displays the IP address of the remote management Router. |

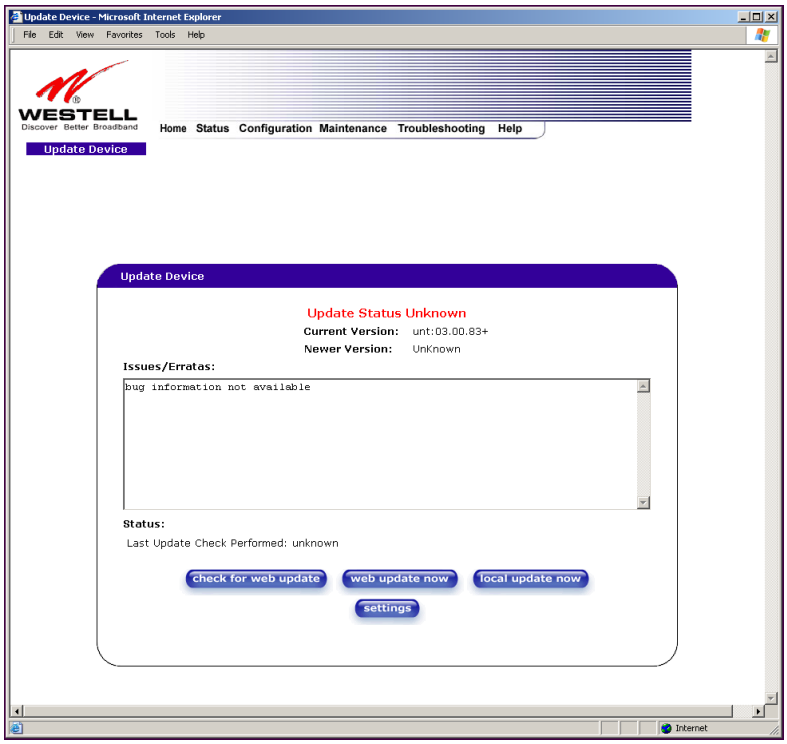
The following screen shows a check mark in the **Enable Remote Access** box, and displays a message that the remote access is currently enabled. After 20 minutes of inactivity, or on reboot, remote access will be automatically disabled. To disable remote access, click the **Enable Remote Access** box to uncheck the box. Click **apply** to save the settings.




## 15.5 Update Device

The following screen will be displayed if you click on **Update Device** from the **Maintenance** menu. This screen is used to update the firmware that controls the operation of the Router. The updated firmware may be loaded from either a file that is located on your PCs hard drive or from update files stored on an Internet server.

NOTE: The configurable settings of your Router may be erased during the update process.

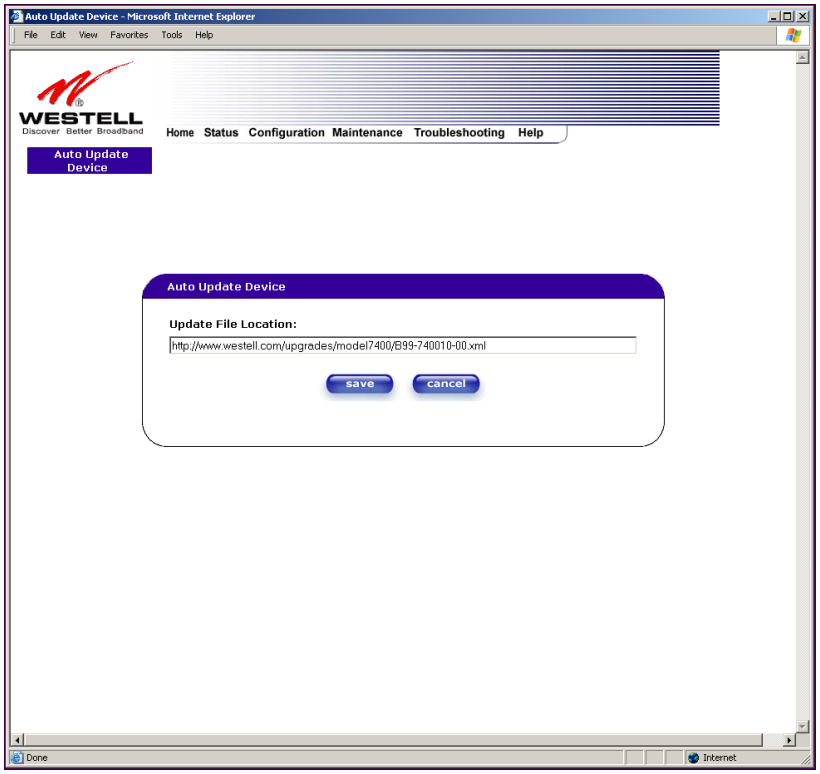



Click on the **check for web update** button in the **Update Device** screen to check the web for possible software updates. This screen will retrieve the software update file and display any available update information. You must be connected to the Internet to use this option.

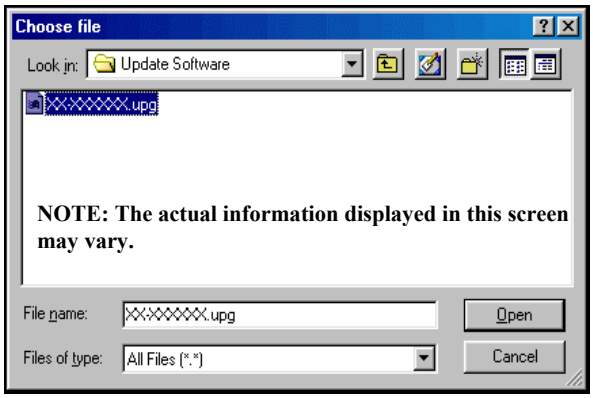
NOTE: If you click on check for web update and the page returns a “page not found” message, this indicates that the software update file is not available. Go back to the previous screen to continue.

Click on the **web update now** button in the **Update Device** screen to download the software update file and automatically update the modem firmware if an update is available and applicable. You must be connected to the Internet to use this option.

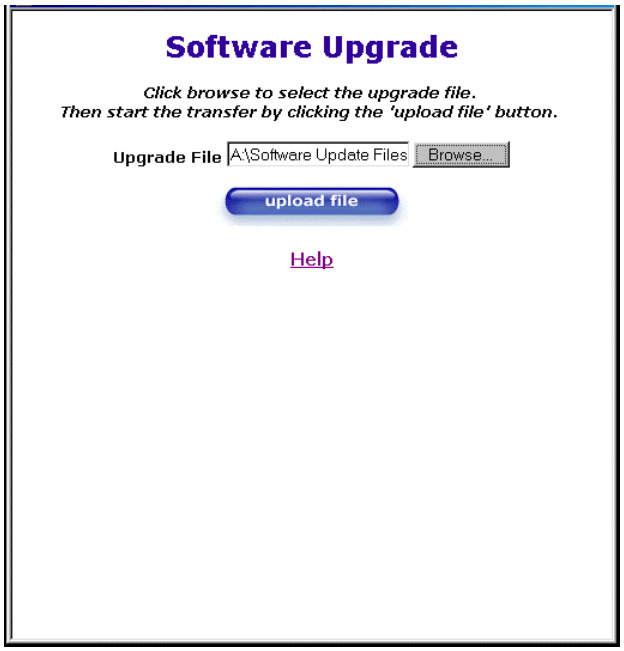
If you click on the **settings** button in the **Update Device** screen, the following screen will appear. This screen displays the location of the software update file.



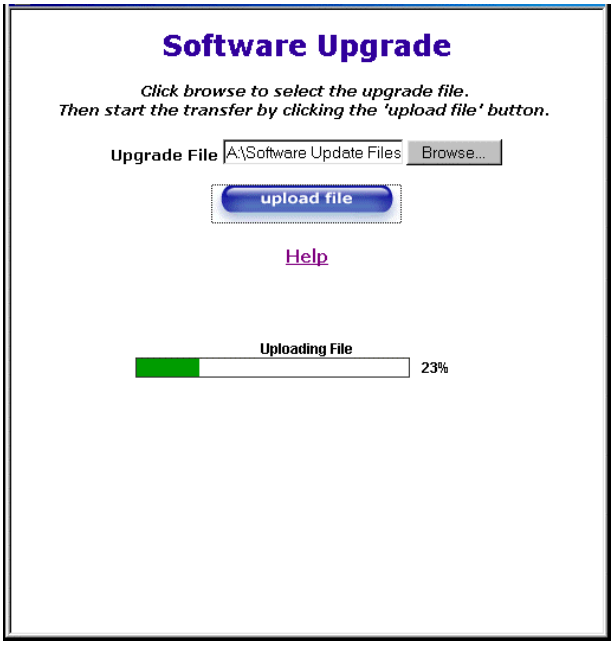

Click on the **local update now** button in the **Update Device** screen to select the upgrade file from your PC's hard drive. This screen allows you to upgrade the software on the Router. Click **Browse…** and go to the location where the upgrade file is stored.



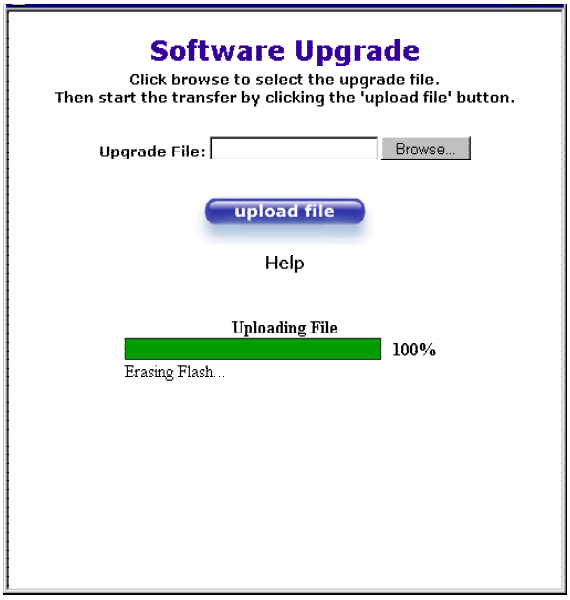
Select the appropriate upgrade file from your browser. The file name will appear in the field labeled **Upgrade File**. Click on **upload file.**

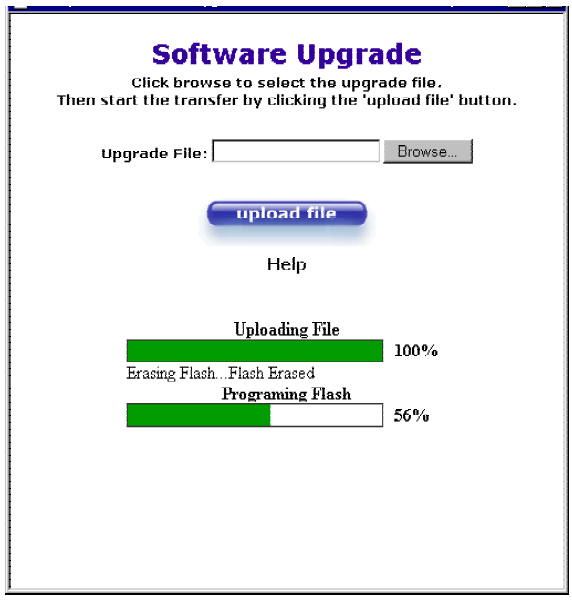



This screen shows that the file is being uploaded to the Router.

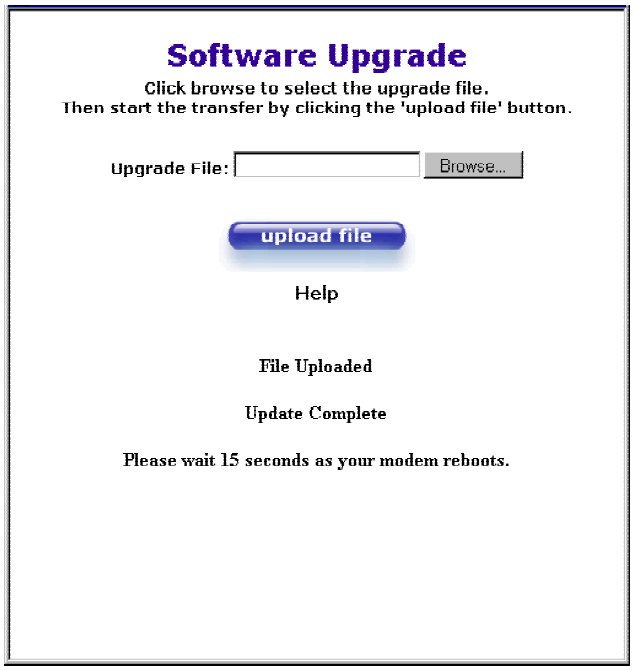



The screens below show that the file upload has completed and that the Programming Flash is being erased to prepare the Flash storage area for upload of the new file. (Programming Flash is a temporary storage area for uploaded files.)

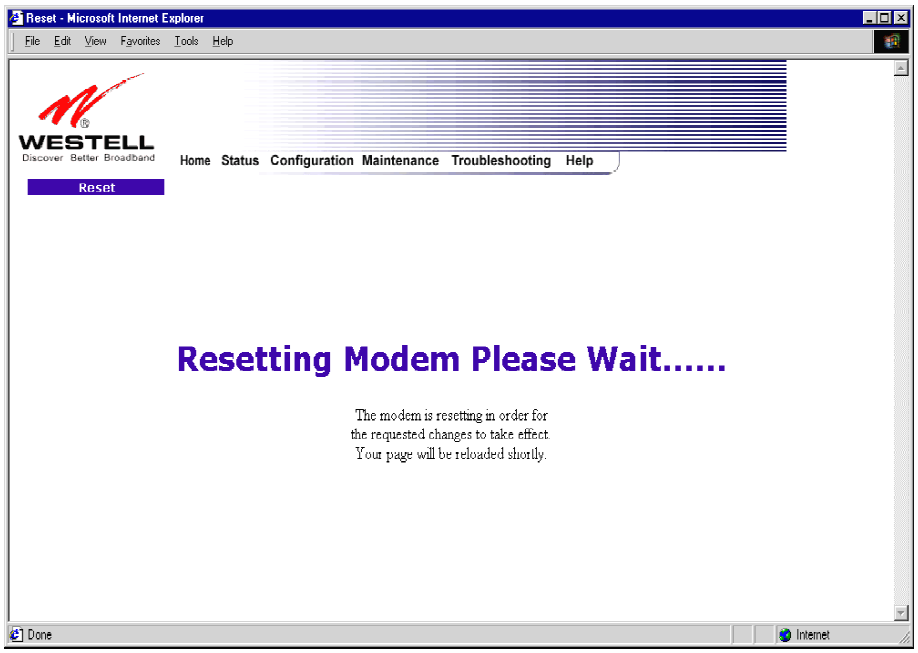



The screen below shows that the upload was successful. The Router will not reboot.



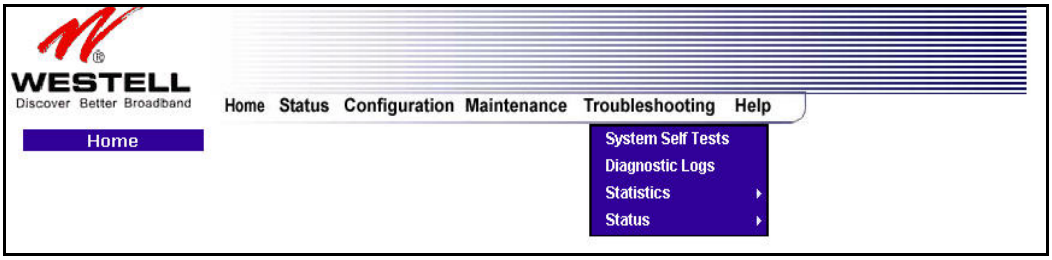

The following screen will be displayed as the Router is being reset.




After a brief delay, the home page will be displayed. Confirm that you have a DSL sync and that the PPP Status displays **UP.** (Click on the **reset** button to re-establish your PPP session.)

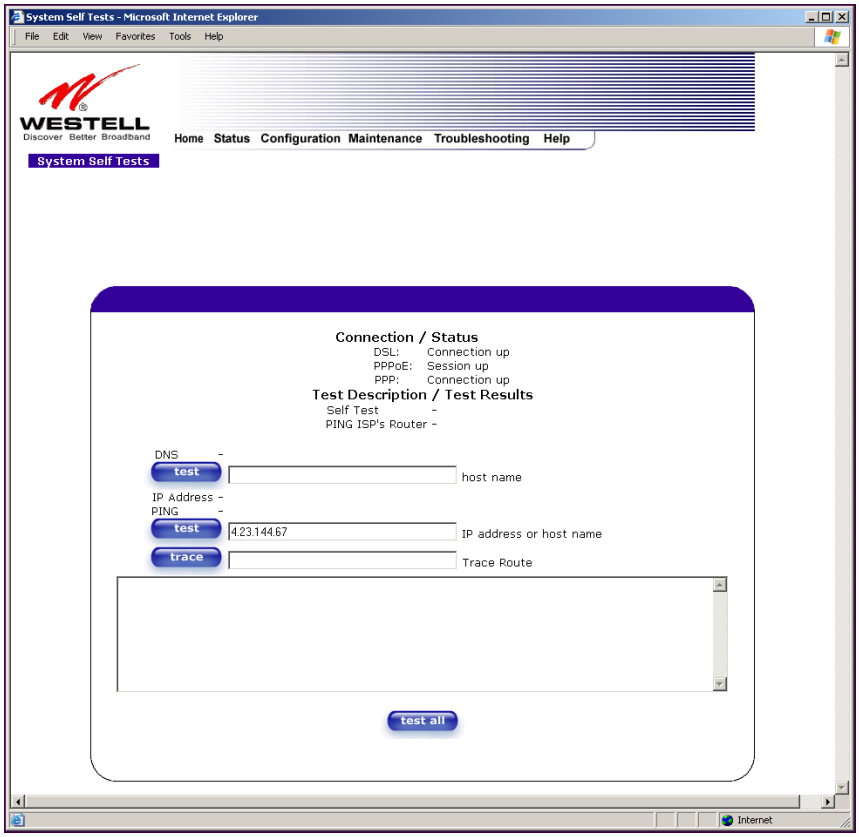
# 16. TROUBLESHOOTING

NOTE: If you are using Models 328W10 or 328W11, options in the **Troubleshooting** menu may or may not be displayed depending on the Router's WAN Configuration (DSLATM PORT or ETHERNET PORT 1). However, all menu options are displayed if the Router is configured for DSLATM PORT 1. The following sections provide further details on the Troubleshooting menu.




## 16.1 System Self Tests

The following settings will be displayed if you select **System Self Tests** from the **Troubleshooting** menu. Click on **test all** to run a diagnostic test on the Router's connection.



If you want to PING using the System Self Test screen (diagnostics page) shown above, enter your **DNS** or **IP** address in the fields provided and click on the **test** button. The System Self Test will run a diagnostic test that executes independent of firewall security settings. See the following table for test descriptions and possible responses.

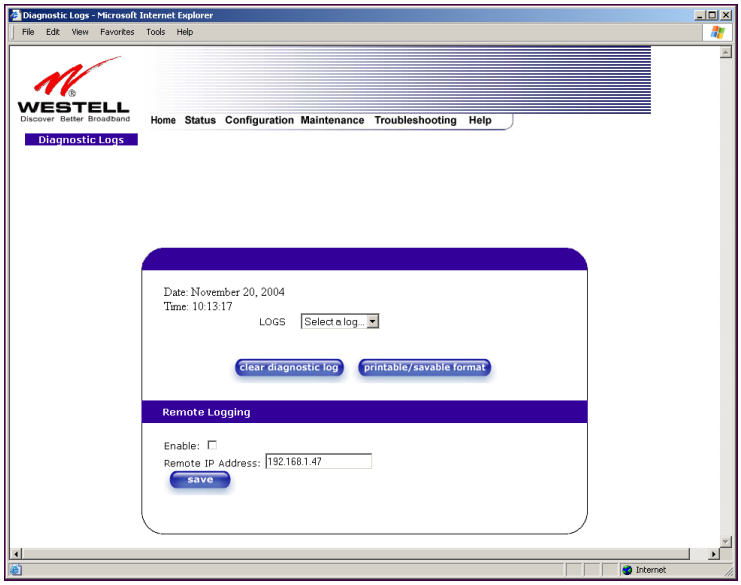
If you want to PING using the MS-DOS (shell) window, first you will need to check your firewall security setting. (If you PING via DOS shell you are susceptible to firewall rules, as this PING is dependent upon the Router's firewall settings.) If your firewall is set to **Medium** or **High**, you will not be able to PING. You must set your firewall security setting to **Low** or **None**.

| **Connection/Status** | |
|---|---|
| DSL | The Router checks the status of the DSL connection.<br><br>Possible responses are:<br>UP: The Router is operating correctly and has obtained synchronization with the opposing network device.<br>DOWN: The Router is operating correctly, but has not synchronized with the opposing device. |
| PPPoE | Indicates that a PPPoE session is or is not established.<br><br>Possible responses are:<br>Session UP: A valid PPPoE session has been detected.<br>No Session: Currently there is no active PPPoE session established.<br>Initiating Session: A PPP session must be connected from the homepage screen. |
| PPP | Indicates that a PPPoE or PPPoA session must already be established.<br><br>Possible responses are:<br>Connection UP: The Router has established a connection<br>No Connection: There is no PPP connection<br>Initiating Connection: The PPP connection process has been initiated<br>Connection Halted: A successful PPP connection was halted<br>Cannot Connect: A PPP connection could not be made because of a PPPoE session failure.<br>Authorization Failure: The user name or password is incorrect.<br>Link Control Protocol Failed: Re-establish the session (from the home page). |
| **Test Description / Test Results** | |
| Self Test | Performs an integrity check of certain internal components of the Router. |
| PING ISP's Router | Performs an IP network check (i.e., an IP Ping) of the service provider's Router. This test verifies that the Router can exchange IP traffic with an entity on the other side of the DSL line.<br><br>Possible responses are:<br>Success: The Router has detected an IP Remote Router connection.<br>No Response: The IP Remote Router does not answer the IP Ping.<br>Could not test: The test could not be executed due to the Router's settings. Check your DSL sync or your PPP session. You must have both a DSL sync and a PPP connection established to execute a PING. |
| DNS | Performs a test to try to resolve the name of a particular host. The host name is entered in the input box.<br><br>Possible responses are:<br>Success: The Router has successfully obtained the resolved address. The IP address is shown below the host name input box. |

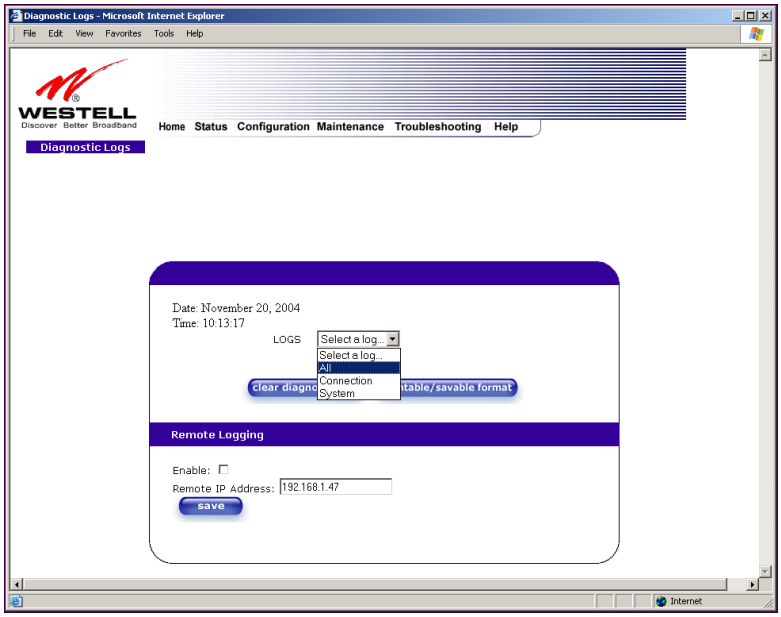
| | |
|---|---|
| | No Response: The Router has failed to obtain the resolved address.<br>Host not found: The DNS Server was unable to find an address for the given host name.<br>No data, enter host name: No host name is specified.<br>Could not test: The test could not be executed due to the Router's settings. Check your DSL sync or your PPP session. You must have both a DSL sync and a PPP connection established to execute a PING. |
| IP Address | IP Address of the Host Name. |
| PING<br>(via IP Address or Host Name) | Performs an IP connectivity check to a remote computer either within or beyond the Service Provider's network. You can PING a remote computer via the IP address or the DNS address. If your PING fails, try a different IP or DNS address.<br>Possible responses are:<br>Success: The Remote Host computer was detected.<br>No Response: There was no response to the Ping from the remote computer.<br>No name or address to PING: No host name or IP address was specified.<br>Could not test: The test could not be executed due to the Router settings. Check your DSL sync or your PPP session. You must have both a DSL sync and a PPP connection established to execute a PING. |
| Trace | Determines the route taken to destination by sending Internet Control Message Protocol (ICMP) echo packets with varying IP Time-To-Live (TTL) values to the destination. Trace Route is used to determine where the packet is stopped on the network. |

## 16.2 Diagnostic Logs

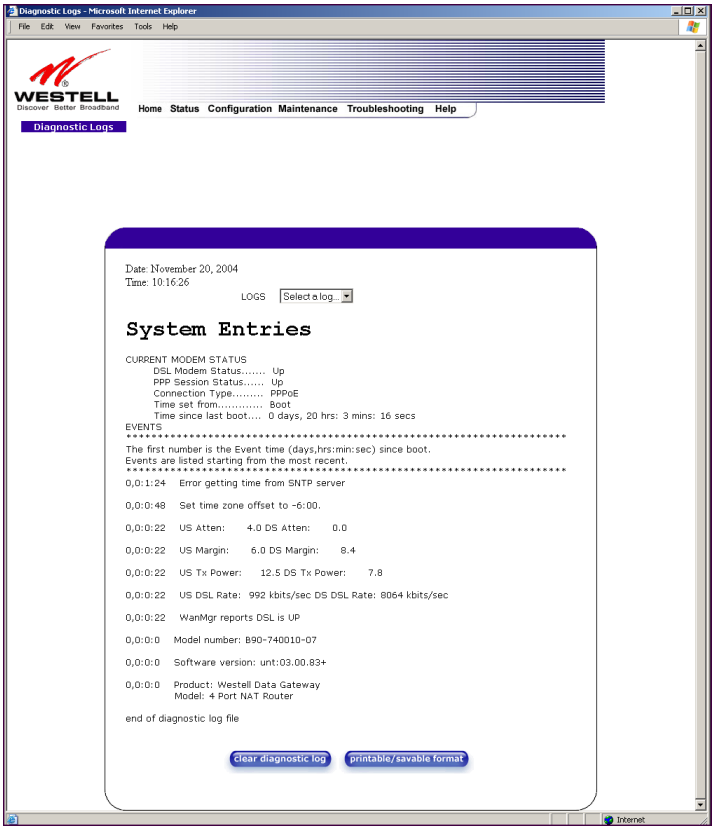
If you select **Diagnostic Log**, from the **System Self Test** menu, the following screen will be displayed.



To see a list of the log options, click on the arrow at the **LOGS** drop-down menu. Select an option from the list provided at the **Diagnostics Logs** screen.

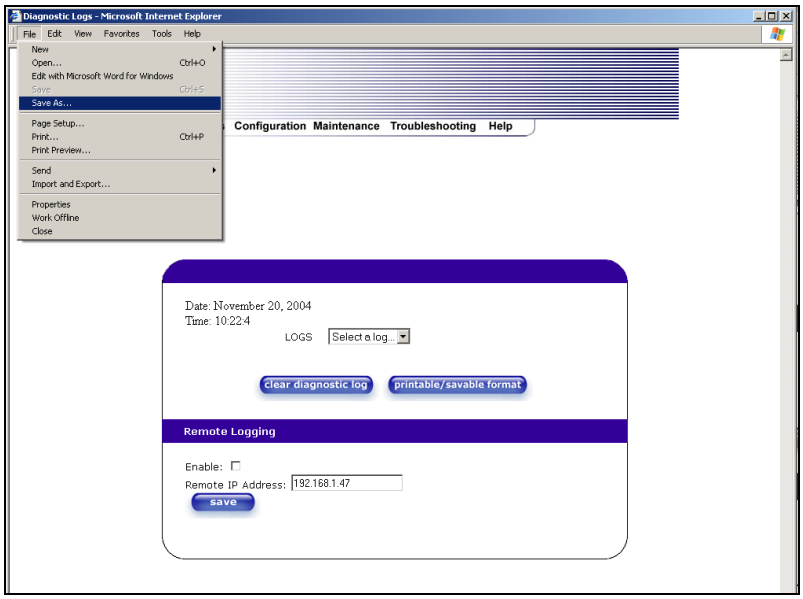



If you clicked on **All,** the following screen will be displayed. This screen provides a detailed list of the Router's connection status and system information. Click on **clear diagnostic log** to clear the diagnostic log information.

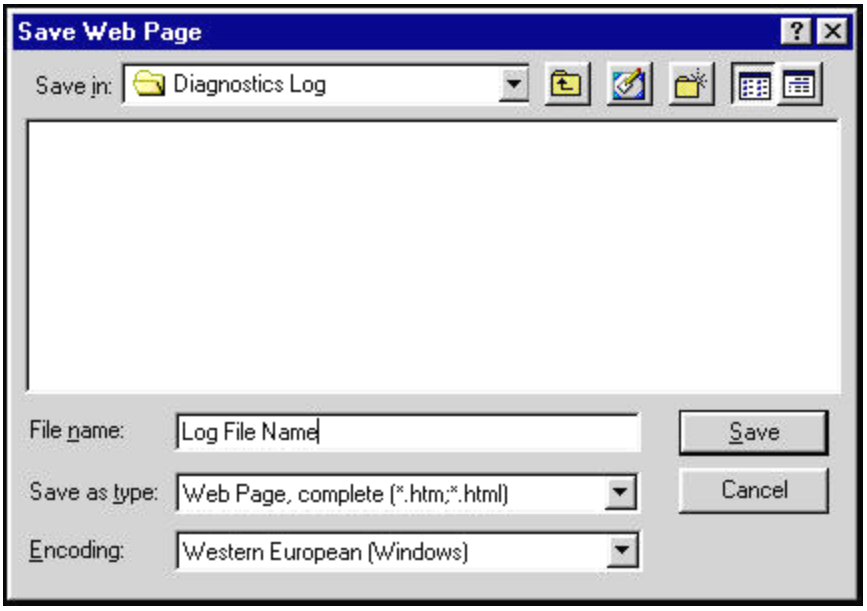


## 16.2.1 Saving the Diagnostic Log File

If you want to save the diagnostic log file, go to your Browser's menu bar, and then select **File > Save As** from the drop-down menu.

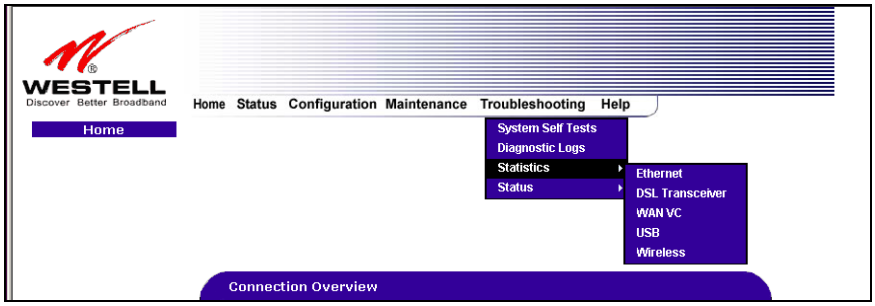



At the **Save Web Page** dialog box, select a destination for your log file from the **Save in** drop-down arrow. Next, enter a name for your log file in the field labeled **File name** and click on **Save**.



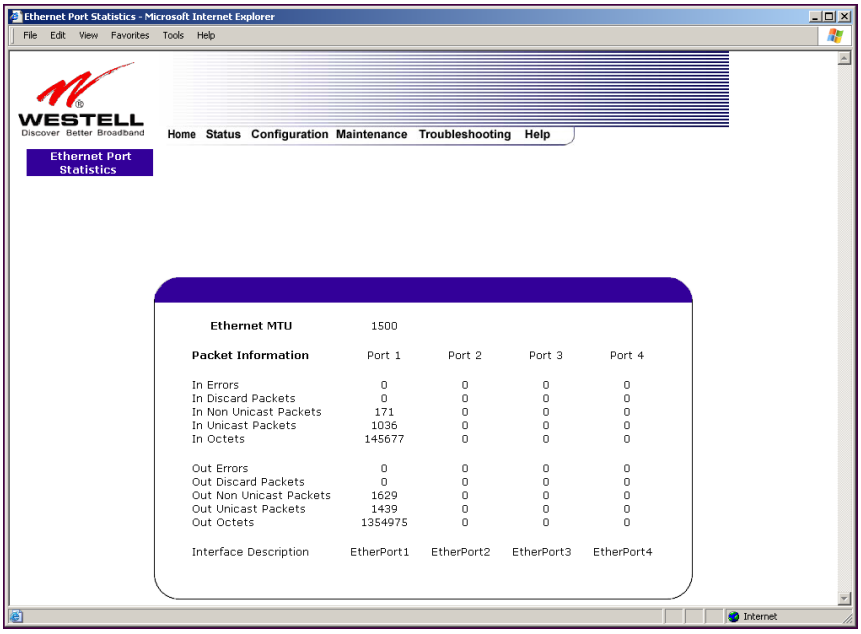
## 16.3 Statistics

NOTE: If you are using Router Model 328W10 or 328W11 and the Router is configured for **ETHERNET PORT 1**, only **Ethernet, USB** and **Wireless** statistics will be displayed in the **Statistics** menu. The **DSL Transceiver** and the **WAN VC** statistics will not be displayed in the Statistics drop-down menu. To access the **DSL Transceiver** and **WAN VC** statistics, you must configure the Router for **DSLATM PORT.** Refer to section 13.6.3.1 for additional details.




### 16.3.1 Ethernet Port Statistics

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



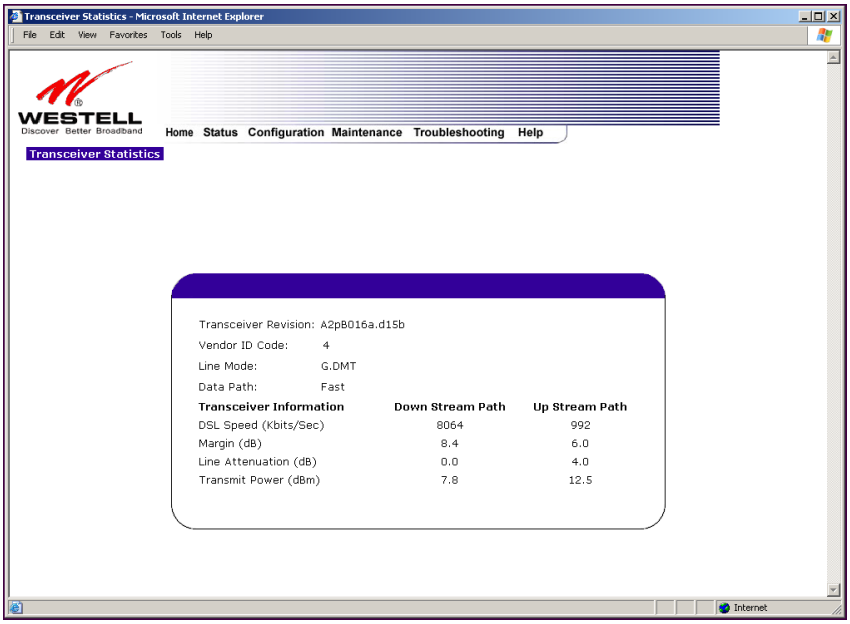

| | |
|---|---|
| In Errors | The number of error packets received on the Ethernet interface. |
| In Discard Packets | The number of discarded packets received. |
| In Non Unicast Packets | The number of non-Unicast packets received on the Ethernet interface. |
| In Unicast Packets | The number of Unicast packets received on the Ethernet interface. |
| In Octets | The number of bytes received on the Ethernet interface. |

| | |
|---|---|
| Out Errors | The number of outbound packets that could not be transmitted due to errors. |
| Out Discard Packets | The number of outbound packets discarded. |
| Out Non Unicast Packets | The number of non-Unicast packets transmitted on the Ethernet interface. |
| Out Unicast Packets | The number of Unicast packets transmitted on the Ethernet interface. |
| Out Octets | The number of bytes transmitted on the Ethernet interface. |
| Interface Description | A description field that refers to the interface type. |

## 16.3.2 DSL Transceiver Statistics

The following settings will be displayed if you select **Statistics > DSL Transceiver** from the **Troubleshooting** menu.

NOTE: If the Router is configured using **ETHERNET PORT 1**, the following screen will not be available.

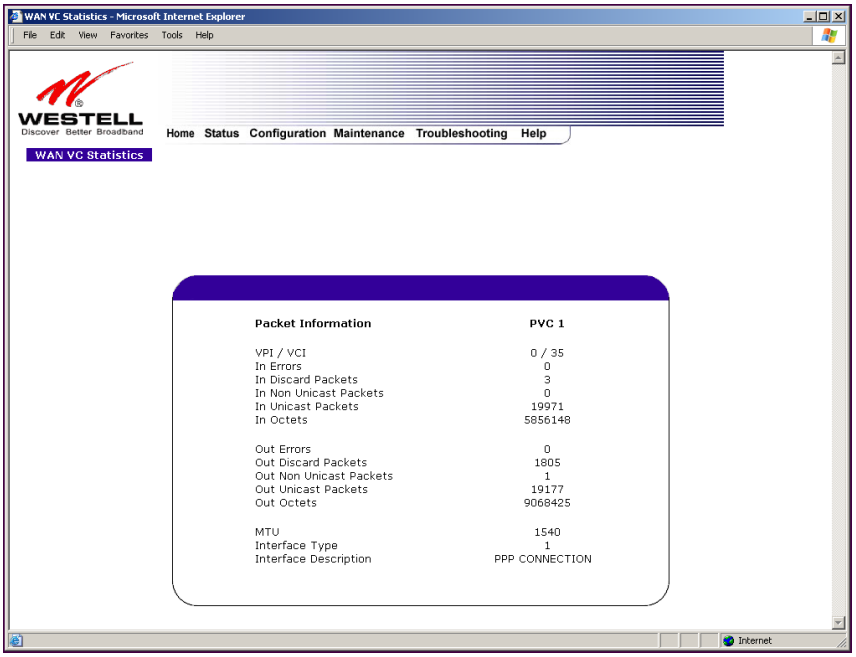



| | |
|---|---|
| Transceiver Revision | The transceiver software version number. |
| Vendor ID Code | The CPE Vendor's ID code for their chipset. |
| Line Mode | The operational mode. Modes supported are No Mode, Multi Mode, T.1413 Mode, G.DMT Mode, and G.LITE Mode. |
| Data Path | The data path used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

## 16.3.3 WAN VC Statistics

The following settings will be displayed if you select **Statistics > WAN VC** from the **Troubleshooting** menu.

NOTE: If the Router is configured using **ETHERNET PORT 1**, the following screen will not be available.

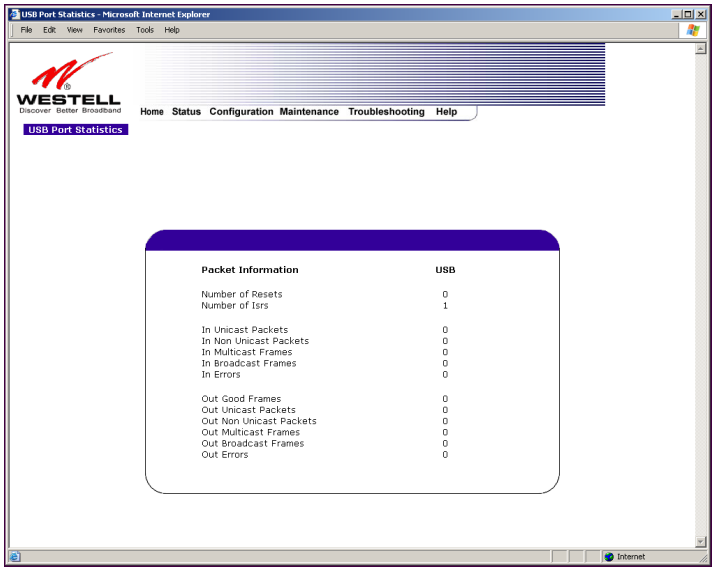



| | |
|---|---|
| VPI/VCI | Displays the VPI/VCI values obtained from your Internet Service Provider. |
| In Errors | The number of error packets received on the ATM port. |
| In Discard Packets | The number of discarded packets received. |
| In Non Unicast Packets | The number of non-Unicast packets received on the ATM port. |
| In Unicast Packets | The number of Unicast packets received on the ATM port. |
| In Octets | The number of bytes received on the ATM port. |
| Out Errors | The number of outbound packets that could not be transmitted due to errors. |
| Out Discard Packets | The number of outbound packets discarded. |
| Out Non Unicast Packets | The number of non-Unicast packets transmitted on the ATM port. |
| Out Unicast Packets | The number of Unicast packets transmitted on the ATM port. |
| Out Octets | The number of bytes transmitted on the ATM port. |
| MTU | Maximum Transmission Unit -The number of data bytes contained in the ATM frame. |
| Interface Type | A unique identifier that represents the interface type. |
| Interface Description | A description field that refers to the interface type. |

## 16.3.4 USB Statistics (Models 7400, 328W10 only)

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

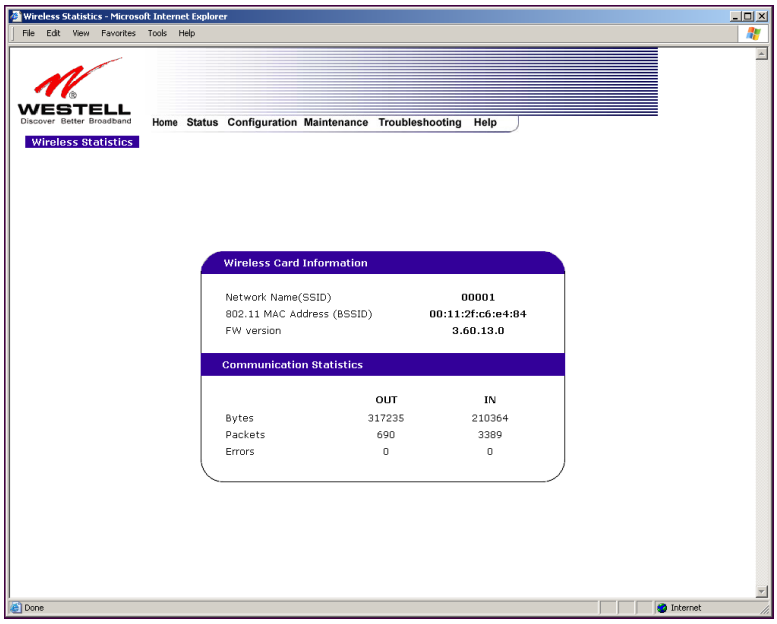
NOTE: If you are using Model 328W10 and the Router is configured using **ETHERNET PORT 1**, the following screen will not be available.




| USB Port Statistics | |
|---|---|
| **Number of Resets** | The number of times the Host PC reset the USB Interface. |
| **Number of Isrs** | The number of times the Host PC requested communication with the modem. |
| NOTE: Data preceded by **OUT** pertain to transmissions from the Router to a station; the Router is the source. Data preceded by **IN** pertain to data received by the Router; the Router is the destination. | |
| **IN-Unicast Packets** | The number of packets received that did not have a Multicast or Broadcast class destination IP address. |
| **IN-Non Unicast Packets** | The number of packets received that had a Multicast or Broadcast class destination IP address. |
| **IN Multicast Frames** | The number of frames received that had a Multicast class destination IP address. |
| **IN Broadcast Frames** | The number of frames received that had a Broadcast class destination IP address. |
| **IN Errors** | The number of packets received with an invalid format. |
| **Out-Good Frames** | The number of frames sent to the Host PC. |
| **Out-Unicast Packets** | The number of packets sent that did not have a Multicast or Broadcast class destination IP address. |
| **Out-Non Unicast Packets** | The number of packets sent that had a Multicast or Broadcast class destination IP address. |
| **Out-Multicast Frames** | The number of frames sent that had a Multicast class destination IP address. |
| **Out-Braodcast Frames** | The number of frames sent that had a Broadcast class destination IP address. |
| **Out Errors** | The number of packets received by the modem but not sent to PC due to an Error condition. |

## 16.3.5 Wireless Statistics (Models 328W10, 328W11 only)

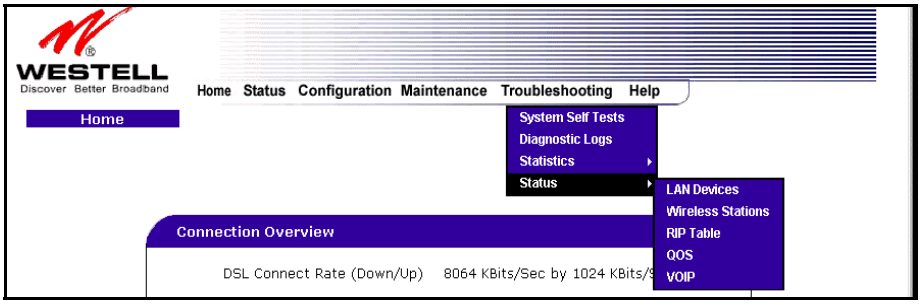
The following settings will be displayed if you select **Statistics > Wireless Statistics** from the **Troubleshooting** menu.




| Wireless Card Information | |
|---|---|
| **Network Name (SSID)** | This string, (32 characters or less) is the name associated with the Access Point (AP). To connect to the AP, the Service Set ID (SSID) on a Station card must match the SSID on the AP. |
| **802.11 MAC Address (BSSID)** | This is the Media Access Controller address of the AP. It is used as the Basic Service Set Identifier (BSSID). |
| **FW Version** | This is the Network Interface Card Identifier. It uniquely identifies the hardware platform of the AP. This is used with other information to determine if the inserted card can be used as an AP, and if so, the version of AP firmware to be used. Not all makes of wireless station cards can be used as an AP. |
| **Communication Statistics** | |
| NOTE: Data listed in the **OUT** column pertains to transmissions from the AP to a station; the AP is the source. Data listed in the **IN** column pertains to data received by the AP; the AP is the destination. | |
| **Out-Bytes** | The number of successfully transmitted bytes. |
| **Out-Packets** | The number of successfully transmitted packets. |
| **Out-Errors** | The number of packets that did not transmit due to an error. |
| **In-Bytes** | The number of successfully received bytes. |
| **In-Packets** | The number of successfully received packets. |
| **In-Errors** | The number of received packets with an error. |

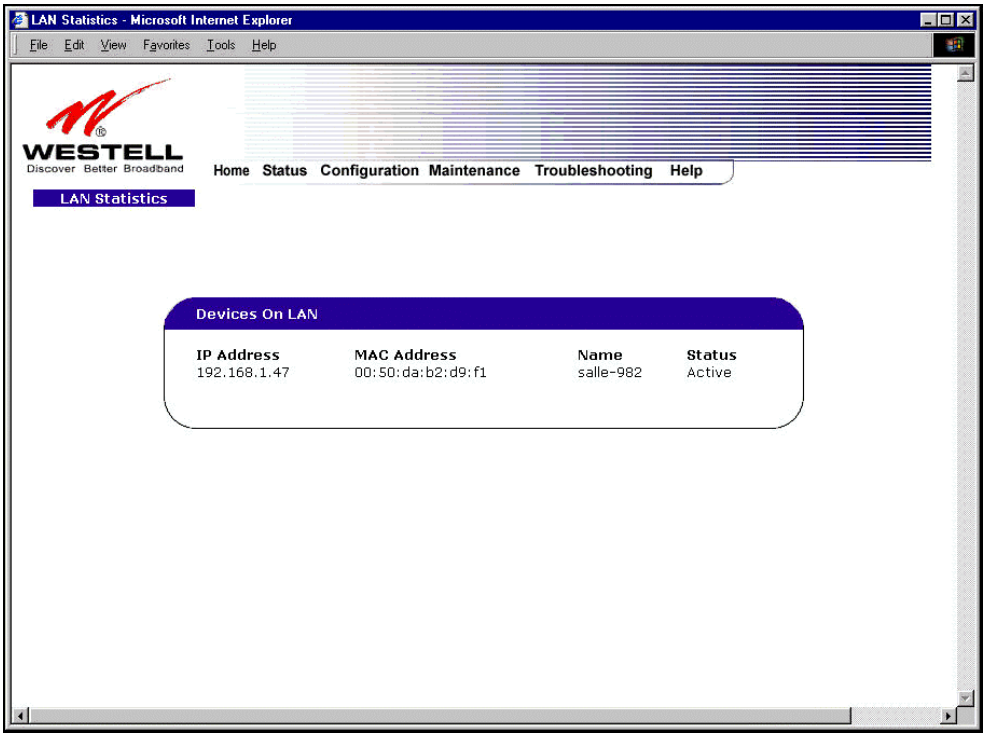
## 16.4 Status

NOTE: If you are using Router Model 328W10 or 328W11 and the Router is configured for **ETHERNET PORT 1**, the **QOS** option will not be displayed in the drop-down menu. You must configure the Router for **DSLATM PORT** to access **QOS** in the **Advanced WAN** drop-down menu. Refer to section 13.6.3.1 for details on enabling and disabling DSLATM PORT and ETHERNET PORT 1.




### 16.4.1 LAN Devices

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

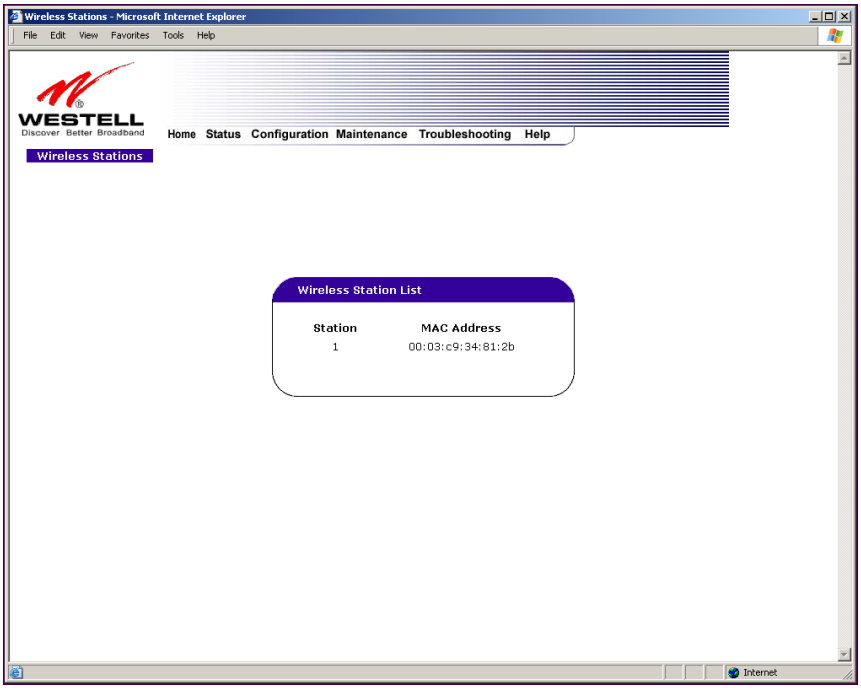



| Devices on LAN | |
|---|---|
| IP Address | Displays the IP network address that the Router is on. |
| MAC Address | Media Access Controller (MAC) address of this device. |
| Name | Displays the ASCII (text) name of the devices connected to the LAN. |
| Status | Displays the status of the devices connected to the LAN. |

## 16.4.2 Wireless Stations (Models 328W10, 328W11)

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

NOTE: A Wireless device must be connected to the Router for the fields in this screen to be populated.

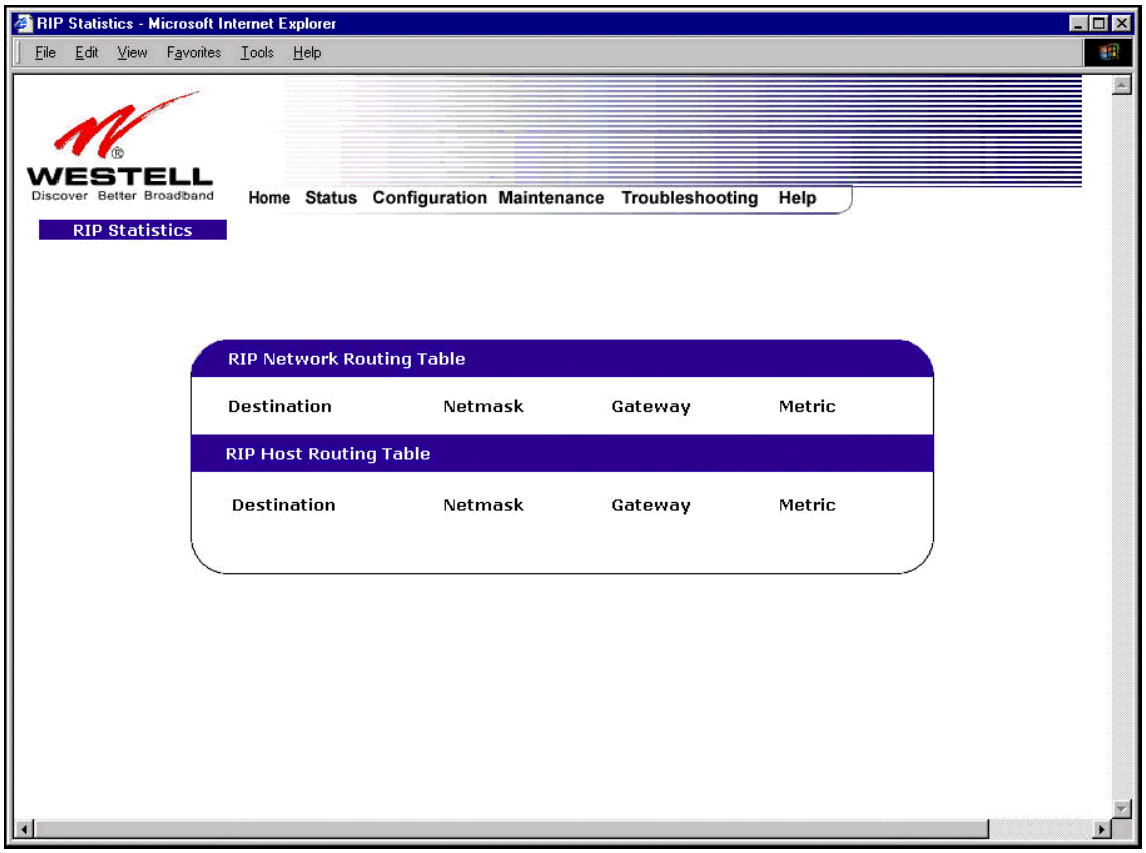



| Wireless Stations List | |
|---|---|
| Station | This number indicates the order in which the stations are first accessed by the Router. |
| MAC Address | The Media Access Controller Address assigned to the station. |

## 16.4.3 RIP Table

The following settings will be displayed if you select **Status > RIP Table** from the **Troubleshooting** menu.

| |
|---|
| NOTE: RIP must be enabled for this table to be populated. |



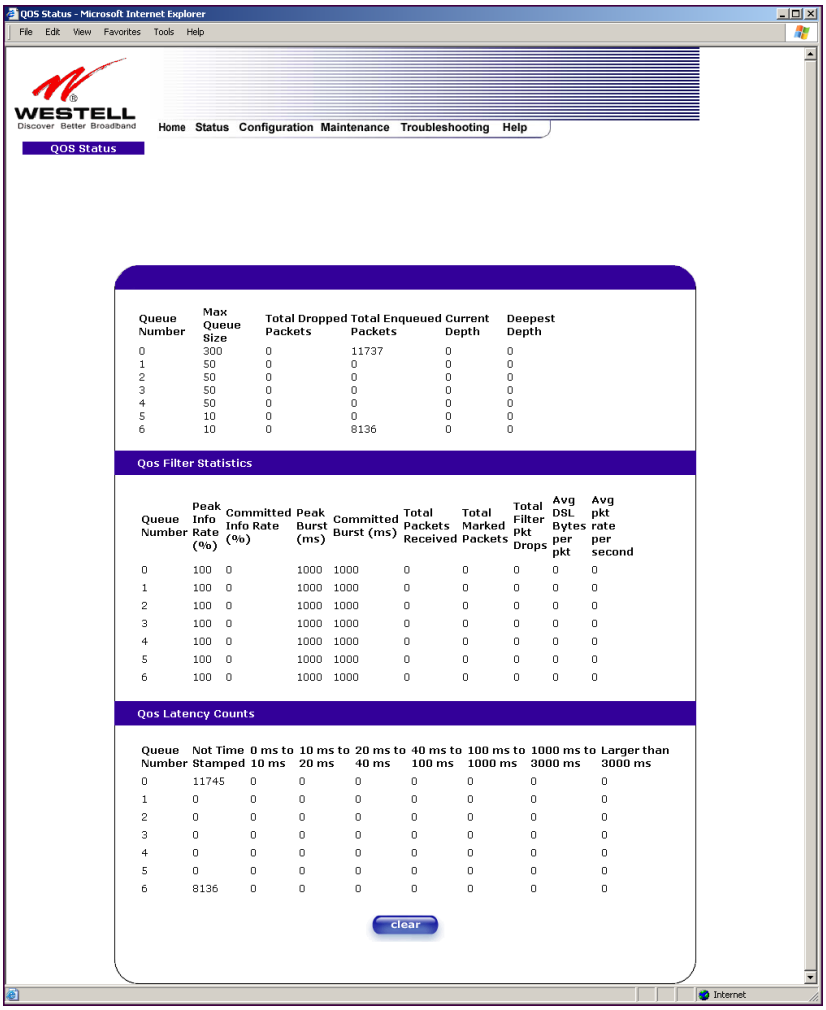

| | |
|---|---|
| RIP Network Routing Table | Indicates Network routes received via RIP. |
| RIP Host Routing Table | The Host routes received via RIP. |
| Destination | The destination IP address of the route |
| Netmask | The IP mask of the route |
| Gateway | The gateway of the route |
| Metric |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

## 16.4.4 QOS Status

The following settings will be displayed if you select **Status > QOS** from the **Troubleshooting** menu. Click on the **clear** button to clear all counts and statistics (not just latency counts). This does not affect the configuration values.

IMPORTANT: If you are using Model 328W10 or 328W11 and the Router is configured for **ETHERNET PORT 1**, the following screen will not be available.

NOTE: QOS must be enabled on the Router for this table to be populated.




| Queue Number | Max Queue Size | Total Dropped Packets | Total Enqueued Packets | Current Depth | Deepest Depth |
|---|---|---|---|---|---|
| 0 | 300 | 0 | 11737 | 0 | 0 |
| 1 | 50 | 0 | 0 | 0 | 0 |
| 2 | 50 | 0 | 0 | 0 | 0 |
| 3 | 50 | 0 | 0 | 0 | 0 |
| 4 | 50 | 0 | 0 | 0 | 0 |
| 5 | 10 | 0 | 0 | 0 | 0 |
| 6 | 10 | 0 | 8136 | 0 | 0 |

| Queue Number | Peak Info Rate (%) | Committed Info Rate (%) | Peak Burst (ms) | Committed Burst (ms) | Total Packets Received | Total Marked Packets | Total Filter Pkt Drops | Avg DSL Bytes per pkt | Avg pkt rate per second |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 1 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 2 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 3 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 4 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 5 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |
| 6 | 100 | 0 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 |

| Queue Number | Not Time Stamped | 0 ms to 10 ms | 10 ms to 20 ms | 20 ms to 40 ms | 40 ms to 100 ms | 100 ms to 1000 ms | 1000 ms to 3000 ms | Larger than 3000 ms |
|---|---|---|---|---|---|---|---|---|
| 0 | 11745 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 8136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

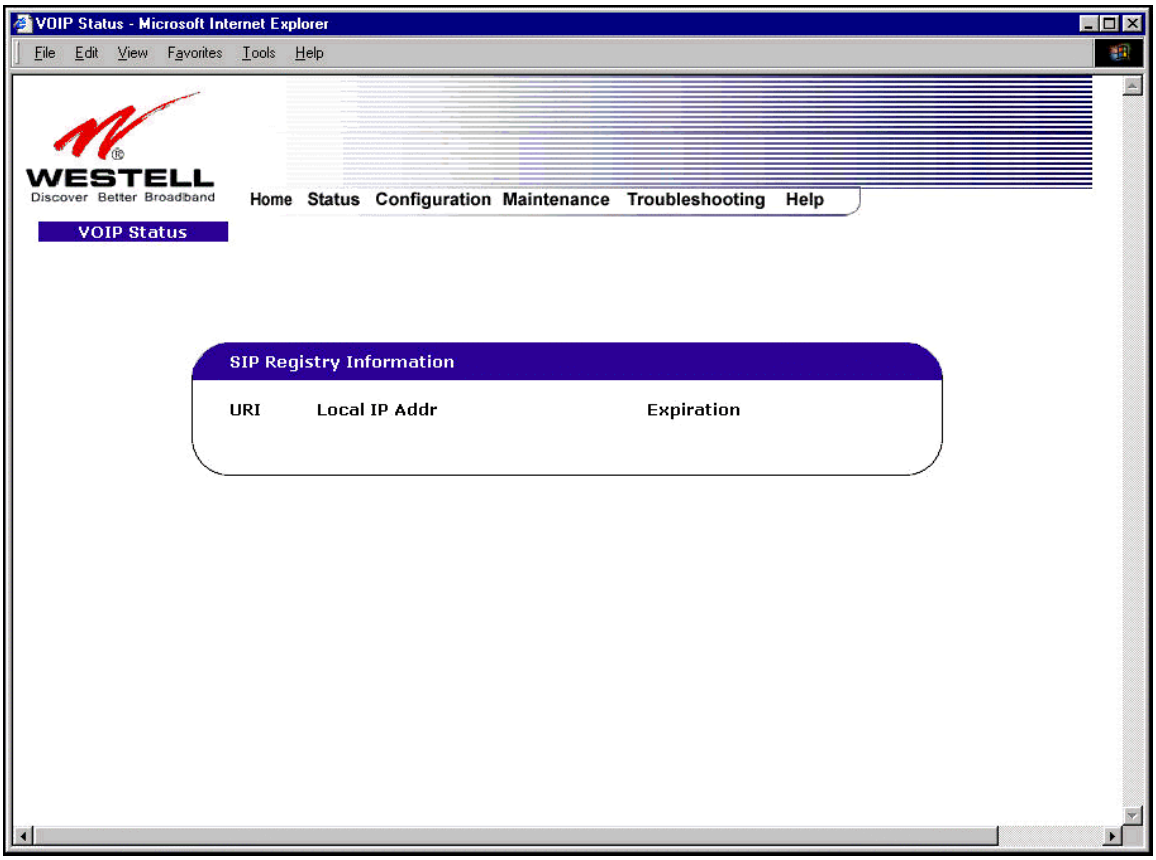
| | |
|---|---|
| Queue Number | Indicates the DiffServ Queue.<br>Possible responses are:<br>0 = Best Effort (BE)<br>1 = Assured Forwarding 1 (AF1)<br>2 = Assured Forwarding 2 (AF2)<br>3 = Assured Forwarding 2 (AF3)<br>4 = Assured Forwarding 2 (AF4)<br>5 = Expedited Forwarding (EF) |

| | |
|---|---|
| | 6 = Routing Protocols (DiffServ priorities 6 and 7) |
| Max Queue Size | The maximum number of packets that can be queued for this priority. |
| Total Dropped Packets | Indicates how many packets of this priority have been dropped by QOS due to lack of buffer space or filtering rules. |
| Total Enqueued Packets | Displays the number of packets, destined for the WAN, that have been received. |
| Current Depth | Displays the current number of packets of this priority that are queued. |
| Deepest Depth | Displays the most number of packets that have been queued at once for this priority. |
| QOS Filter Statistics | |
| Queue Number | The DiffServ Queue. (See Queue Number description above.) |
| Peak Info. Rate (%) | The maximum allowed rate for this priority, expressed as a percentage of the DSL rate. |
| Committed Info Rate (%) | The committed rate for this priority, expressed as a percentage of the DSL rate |
| Peak Burst (ms) | Displays the interval in milliseconds for averaging the peak offered rate. |
| Committed Burst (ms) | Displays the interval in milliseconds for averaging the committed offered rate. |
| Total Packets Received | Displays the total number of packets of this priority that are destined for the LAN. |
| Total Marked Packets | Displays the number of packets of this priority that exceeded the committed rate, but not the peak rate, and were marked with a higher drop priority |
| Total Filter Packet Drops | Displays the number of packets of this priority that exceeded the peak rate and that were, therefore, dropped. |
| Avg. DSL Bytes Per Packet | Displays the average size of packets for this priority, including all overhead. |
| Avg. Packet Rate Per second | Displays the average rate (in packets per seconds) for this priority. |
| QOS Latency Counts | |
| Queue Number | The DiffServ Queue. (See Queue Number description above.) |
| Not Time Stamped | The packets with no incoming time stamp. (Often these are generated internal to the modem.) |
| A ms to B ms | The number of packets of this priority whose time in the modem fell between A and B milliseconds. (Time is measured from the point the packet arrives at the modem's processor until is passed to the ATM hardware for transmission.)<br><br>Possible ranges are (A ms to B ms):<br>0 ms to 10 ms<br>10 ms to 20 ms<br>20 ms to 40 ms<br>40 ms to 100 ms<br>100 ms to 1000 ms<br>1000 ms to 3000 ms<br>Larger than 3000 ms |

## 16.4.5 VOIP Status

The following settings will be displayed if you select **Status > VOIP** from the **Troubleshooting** menu.

| |
|---|
| NOTE: A VOIP device must be connected to the Router for this table to be populated. |




| SIP Registry Information | |
|---|---|
| URI | The SIP URI that is trying to register. (This field only indicates that a SIP device tried to register, not that it succeeded.) |
| Local IP Address | The local, LAN IP address of the SIP device. |
| Expiration | Indicates the expiration (in seconds) of the registered SIP URI. |

# 17. NAT SERVICES

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

NOTE: To configure the Router for a service or application, follow the steps in section 14 (Setting Up Advanced Service Configuration) of this User Guide.

**Applications/Games/VPN Support**

| Application/Game | Port/Protocol |
|---|---|
| Aliens vs. Predator | 80 UDP, 2300 UDP, 8000-8999 UDP |
| America Online | 5190 TCP/UDP |
| AoE II: Conquors | 47624 TCP/UDP, 6073 TCP/UDP, 2300-2400 TCP/UDP |
| AOL Instant Messenger | 4099 TCP, 5190 TCP |
| Asheron's Call | 9000-9013 UDP, 28800-29000 TCP |
| Battlecom | 2300-2400 TCP/UDP, 47624 TCP/UDP |
| Black and White | 2611-2612 TCP, 6667 TCP, 6500 UDP, 27900 UDP |
| Blizzard Battle.net (Diablo II) | 4000 TCP, 6112 TCP/UDP |
| Buddy Phone | 700, 701 UDP |
| Bungie.net, Myth, Myth II Server | 3453 TCP |
| Calista IP Phone | 3000 UDP, 5190 TCP |
| Citrix Metaframe | 1494 TCP |
| Client POP/IMAP | 110 TCP |
| Client SMTP | 25 TCP |
| Counter Strike | 27015 TCP/UDP, 27016 TCP/UDP |
| Dark Reign 2 | 26214 TCP/UDP |
| Delta Force ( Client and Server ) | 3568 UDP, 3100-3999 TCP/UDP |
| Delta Force 2 | 3568-3569 UDP |
| DeltaForce: Land Warrior | UDP 53<br>TCP 21<br>TCP 7430<br>TCP 80<br>UDP 1029<br>UDP 1144<br>UDP 65436<br>UDP 17478 |
| DNS | 53 UDP |
| Elite Force | 2600 UDP, 27500 UDP, 27910 UDP, 27960 UDP |
| Everquest | 1024-7000 TCP/UDP |
| F-16, Mig 29 | 3863 UDP |
| F-22 Lightning 3 | 4660-4670 TCP/UDP, 3875 UDP, 4533-4534 UDP, 4660-4670 UDP |
| F-22 Raptor | 3874-3875 UDP |
| Fighter Ace II | 50000-50100 TCP/UDP |
| Fighter Ace II for DX play | 50000-50100 TCP/UDP, 47624 TCP, 2300-2400 TCP/UDP |

| Application/Game | Port/Protocol |
|---|---|
| FTP | 20 TCP, 21 TCP |
| GameSpy Online | UDP 3783<br>UDP 6515<br>TCP 6667<br>UDP 12203<br>TCP/UDP 13139<br>UDP 27900<br>UDP 28900<br>UDP 29900<br>UDP 29901 |
| Ghost Recon | TCP 80<br>UDP 1038<br>UDP 1032<br>UDP 53<br>UDP 2347<br>UDP 2346 |
| GNUtella | 6346 TCP/UDP, 1214 TCP |
| Half Life Server | 27005 UDP(client only)<br>27015 UDP |
| Heretic II Server | 28910 TCP |
| Hexen II | 26900 (+1) each player needs their own port. Increment by one for each person |
| Hotline Server | 5500, 5503 TCP 5499 UDP |
| HTTPS | 443 TCP/UDP |
| ICMP Echo | 4 ICMP |
| ICQ OLD | 4000 UDP, 20000-20019 TCP |
| ICQ 2001b | 4099 TCP, 5190 TCP |
| ICUII Client | 2000-2038 TCP, 2050-2051 TCP, 2069 TCP, 2085 TCP, 3010-3030 TCP |
| ICUII Client Version 4.xx | 1024-5000 TCP, 2050-2051 TCP, 2069 TCP, 2085 TCP, 3010-3030 TCP, 2000-2038 TCP6700-6702 TCP, 6880 TCP, 1200-16090 TCP |
| IMAP | 119 TCP/UDP |
| IMAP v.3 | 220 TCP/UDP |
| Internet Phone | 22555 UDP |
| IPSEC ESP | PROTOCOL 50 |
| IPSEC IKE | 500 UDP |
| Ivisit | 9943 UDP, 56768 UDP |
| KALI, Doom & Doom II | 2213 UDP, 6666 UDP (EACH PC USING KALI MUST USE A DIFFERENT PORT NUMBER STARTING WITH 2213 + 1 |
| KaZaA | 1214 TCP/UDP |
| Limewire | 6346 TCP/UDP, 1214 TCP |
| Medal Of Honor: Allied Assault | TCP 80<br>UDP 53<br>UDP 2093<br>UDP 12201<br>TCP 12300<br>UDP 2135<br>UDP 2139<br>TCP/UDP 28900 |
| mIRC Chat | 6660-6669 TCP |

| Application/Game | Port/Protocol |
|---|---|
| Motorhead Server | 16000 TCP/UDP, 16010-16030 TCP/UDP |
| MSN Game Zone | 6667 TCP, 28800-29000 TCP |
| MSN Game Zone (DX 7 & 8 play) | 6667 TCP, 6073 TCP, 28800-29000 TCP, 47624 TCP, 2300-2400 TCP/UDP |
| MSN Messenger | 6891-6900 TCP, 1863 TCP/UDP, 5190 UDP, 6901 TCP/UDP |
| Napster | 6699 TCP |
| Need for Speed 3, Hot Pursuit | 1030 TCP |
| Need for Speed, Porsche | 9442 UDP |
| Net2Phone | 6801 UDP |
| NNTP | 119 TCP/UDP |
| Operation FlashPoint | 47624 UDP, 6073 UDP, 2300-2400 TCP/UDP, 2234 TCP |
| Outlaws | 5310 TCP/UDP |
| Pal Talk | 2090-2091 TCP/UDP, 2095 TCP, 5001 TCP, 8200-8700 TCP/UDP, 1025-2500 UDP |
| pcAnywhere host | 5631 TCP, 5632 UDP, 22 UDP |
| Phone Free | 1034-1035 TCP/UDP, 9900-9901 UDP, 2644 TCP, 8000 TCP |
| Quake 2 | 27910 UDP |
| Quake 3 | 27660 UDP<br>Each computer playing QuakeIII must use a different port number, starting at 27660 and incrementing by 1. You'll also need to do the following:<br>1. Right click on the QIII icon<br>2. Choose "Properties"<br>3. In the Target field you'll see a line like "C:\Program Files\Quake III Arena\quake3.exe"<br>4. Add the Quake III net_port command to specify a unique communication port for each system. The complete field should look like this: "C:\Program Files\Quake III Arena\quake3.exe" +set net_port 27660<br>5. Click OK.<br>6. Repeat for each system behind the NAT, adding one to the net_port selected (27660,27661,27662) |
| Quicktime 4/Real Audio | 6970-32000 UDP, 554 TCP/UDP |
| Rainbow Six & Rogue Spear | 2346 TCP |
| RealOne Player | TCP - 554, 7070 to 7071<br>UDP - 6970 to 7170 |
| Real Audio | 6970-7170 UDP |
| Roger Wilco | TCP/UDP 3782<br>UDP 3783 (BaseStation) |
| ShoutCast Server | 8000-8005 TCP |
| SSH Secure Shell | 22 TCP/UDP |
| Starcraft | 2346 TCP |
| Starfleet Command | 2300-2400 TCP/UDP, 47624 TCP/UDP |
| Telnet | 23 TCP |
| Tiberian Sun & Dune 2000 | 1140-1234, 4000 TCP/UDP |
| Ultima Online | 5001-5010 TCP, 7775-7777 TCP, 8800-8900 TCP, 9999 UDP, 7875 UDP |
| Unreal Tournament server | 7777 (default gameplay port)<br>7778 (server query port<br>7779,7779+ are allocated dynamically for each helper UdpLink objects, |

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

# 18. TECHNICAL SUPPORT INFORMATION

## Westell Technical Support

If technical assistance is required, contact your Internet service provider for support. By using one of the following options:

| North America | U.K./Europe |
|---|---|
| Phone: 1-630-375-4900 | Phone: (44) 01256 843311 |

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

# 19. WARRANTY AND REPAIRS

## Warranty

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

## Repairs

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

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

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

| North America | U.K./Europe |
|---|---|
| Westell, Inc. | Westell, Ltd. |
| ATTN: R.G.M Department | Ringway House |
| 750 N. Commons Drive | Bell Road |
| Aurora, IL 60504-7940 USA | Daneshill |
| | Basingstoke |
| | RG24 8FB |
| | United Kingdom |

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

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# 21. PUBLICATION INFORMATION

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