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Leading Provider
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TriplePlay

User Manual
Version 1.0

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General Information

The TriplePlay is a 3-in-1 router having the functions of a standard ADSL router, plus voice capabilities and wireless accessibility all in one box. Including three features adds convenience and provides increased functions for one router.

Package Contents

Included in the package is one of each of the following–

- TriplePlay router
- AC power adapter
- USB cable
- RJ-11 telephone cable
- RJ-45 Ethernet cable
- Splitter
- User Manual

Safety Instructions–Please read.

- Place your router on a flat surface close to the cables in a location with sufficient ventilation.
- To prevent overheating, do not obstruct the ventilation openings of this equipment.
- Plug this equipment into a surge protector to reduce the risk of damage from power surges and lightning strikes.
- Operate this equipment only from an electrical outlet with the correct power source as indicated on the adapter.
- Unplug equipment first before cleaning. A damp cloth can be used to clean the equipment. Do not use liquid / aerosol cleaners or magnetic / static cleaning devices.
- Do not open the cover of this equipment. Opening the cover will void any warranties on the equipment.

Front Panel View

LED	Mode	Indication
1. Power	Solid	The router is on.
	No light	The router is not on. Check if the AC power adapter is connected to the router and plugged in.
2. ADSL / LINK	Solid	ADSL is connected.
	No light	ADSL is not connected. ALARM LED will be red.
	Blinking	Router is connected to ADSL.
3. ADSL / ACT	Solid	ADSL is connected; no traffic.
	No light	ADSL is not connected.
	Blinking	Presence of ADSL traffic.
4-7. LAN 1-4	Solid	Router is connected to LAN.
	No light	No connection to LAN. Check if LAN cable is connected to router.
	Blinking	Presence of LAN traffic.
8. USB Device	Solid	Connection established using USB.
	Flashing	The router is sending or receiving data using USB.
9. Wi-Fi	Solid	Wireless is enabled.
	No light	Wireless is disabled.
	Blinking	Presence of wireless traffic.

10. Phone2	Solid	Line2 is off-hook.
	No light	Line2 is on-hook.
11. Phone1	Solid	Line1 is off-hook.
	No light	Line1 is on-hook.
12. LINE	Solid	Line is off-hook.
	No light	Line is on-hook.

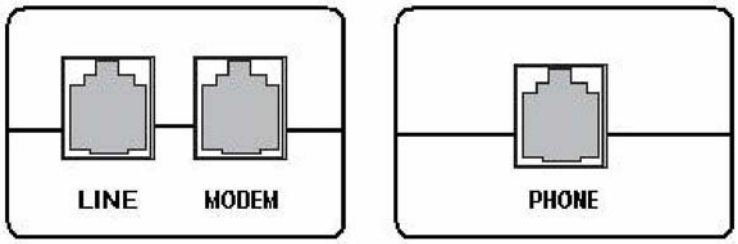
Back Panel View

Port	Description
1. On / Off	Press to turn the router on and off.
2. DC 18V 1A	Connects to the AC adapter.
3. LINE	Connects to the wall outlet using an RJ-11 cable.
4. Phone1	Connects to a telephone using an RJ-11 cable.
5. Phone2	Connects to a second telephone using another RJ-11 cable.
6. Console	For professional use by service personnel only.
7. USB Device	Optional: Use only if not using any of the LAN lines.
8. Reset	Short reset ("system reboot")–push & hold the reset button for 4 seconds. Long reset ("default settings")–push the reset button for more than 4 seconds and then release.
9-12. LAN 1-4	Connect to PC(s) using RJ-45 cable(s).
13. ADSL	Connect to the splitter provided using an RJ-11 cable. Refer to the next page for complete instructions for splitter connections.

Installing the Router

Connect the ADSL Line and Telephone

- Connect an RJ-11 cable between the wall phone jack and the line-end of the splitter (see diagram below).
- Attach another RJ-11 phone wire to the modem-end of the splitter and the ADSL port on the rear panel of the router.
- The phone-end of the splitter will be connected to the telephone using a third RJ-11 phone wire.



NOTE: See connections on the installation diagram.

Connect the PC to the Router

By Ethernet–

- To use the Ethernet connection, connect the Ethernet cable from the computer directly to the router.
- Connect one end of the Ethernet cable to the port(s) labeled LAN 1-4 on the back of the router and attach the other end to the Ethernet port of your computer.

By USB–

- Or, you can use the supplied USB cable to connect your computer directly to the router.
- Connect one end of the USB cable to the USB port (labeled USB Device) on the back of the router and connect the other end to a free USB port on your PC.
- The Found New Hardware Wizard will open on your PC. See USB Driver Installation below.

- If your LAN has more than one computer, you can attach one end of an Ethernet cable to a hub or a switch and the other to the Ethernet port (labeled LAN) on the router. Note that either a crossover or straight-through Ethernet cable can be used. The router automatically recognizes the type of connection that is required.

Connect a Printer or Server to the Router

If you have a printer or server that you wish to connect to the router, attach the printer or server to the port labeled USB Host using the USB cable that comes with the device.

Connect the Telephone to the Router

There are two ports on the back of your router labeled Phone 1 and Phone 2 for you to connect up to two telephones to. Use RJ-11 cables to connect the telephone(s) to the router.

Connect the Router to a Phone Jack

- Before connecting the power adapter, connect the router directly to a phone jack using an RJ-11 cable.

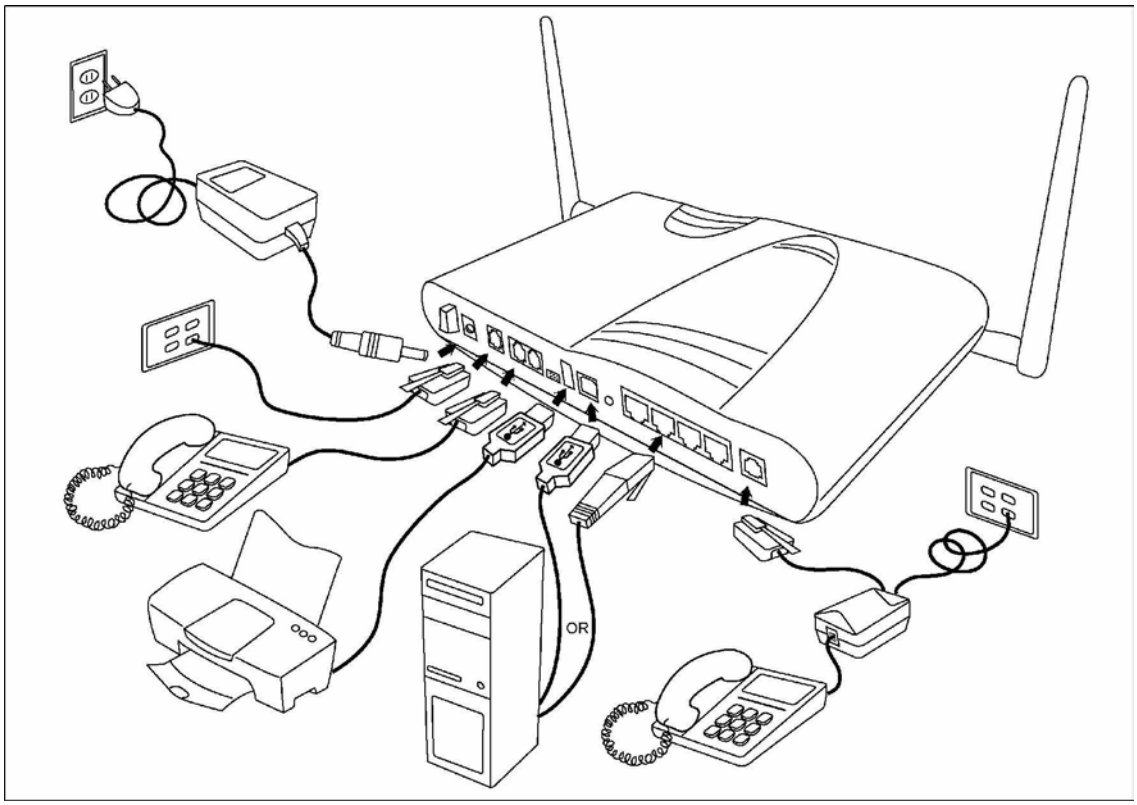
- Connect one end of an RJ-11 cable to the port labeled Line on the back of the router and the other end to a wall phone jack.

Connect the Power Adapter

- Complete the process by connecting the AC power adapter to the POWER connector on the back of the device and plug the adapter into a wall outlet or power strip.

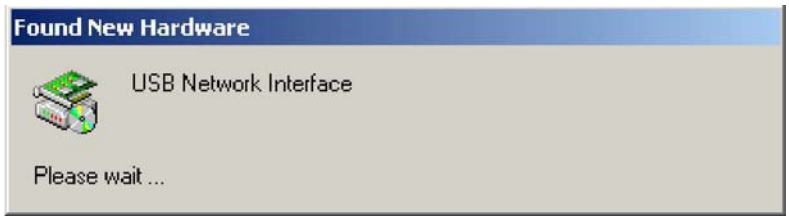
- Then turn on and boot up your PC and any LAN devices, such as hubs or switches, and any computers connected to them.

Installation Diagram



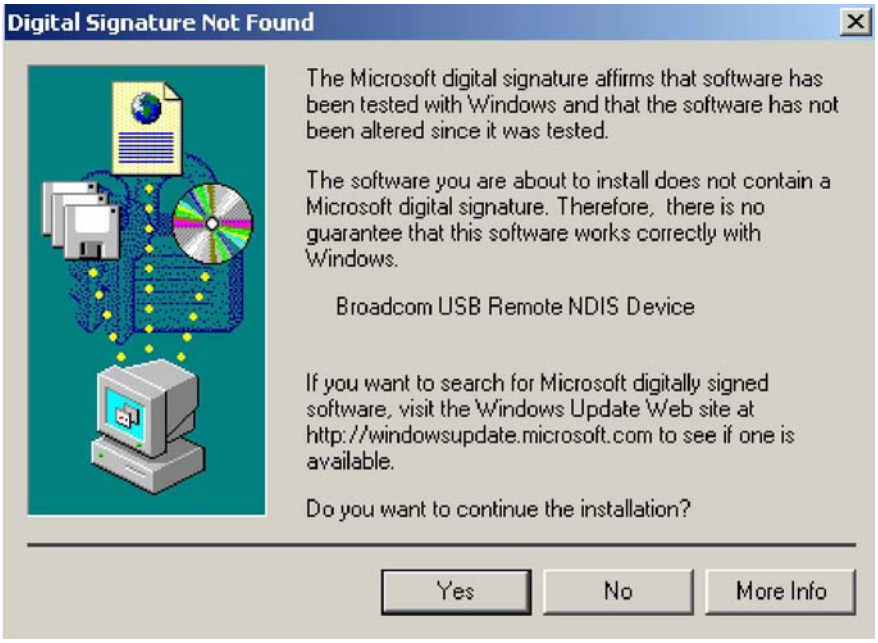
USB Driver Installation

The following instructions will guide you through the installation of the USB driver.

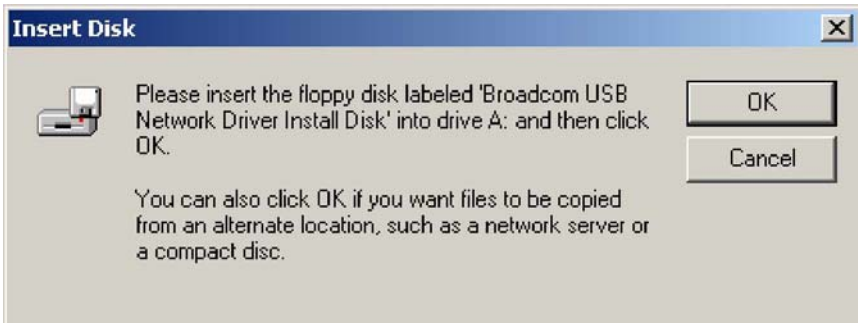


1. When you attach the USB cable to the router for the first time and turn on the device, Windows will detect new hardware and the Found New Hardware Wizard will appear.

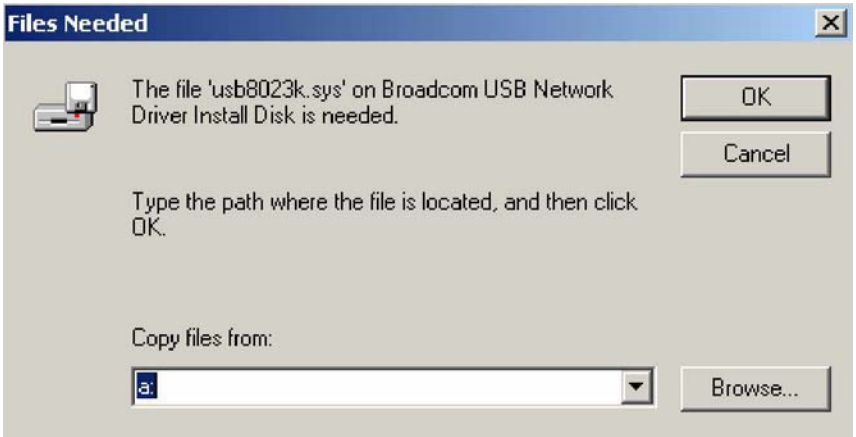
2. The Found New Hardware Wizard will appear shortly after, identifying that a USB driver is needed. Click on Next to continue with the installation.



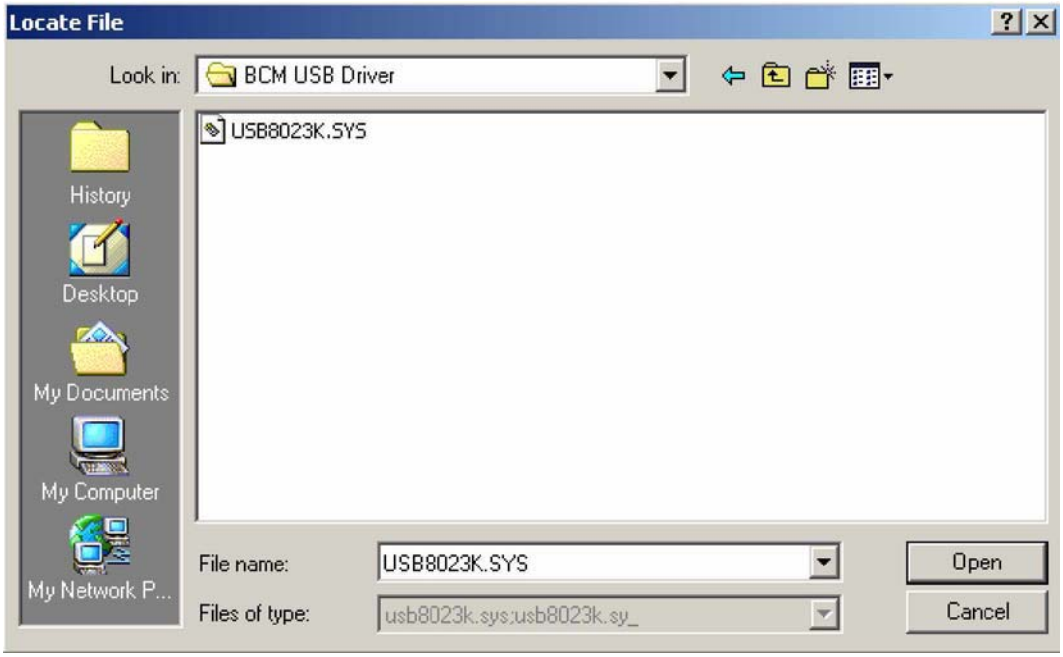
3. The Digital Signature Not Found window appears. Click Yes to continue with the installation.



4. Then the Insert Disk window prompts you to insert the disk (or CD) containing the USB driver. Click OK after inserting the disk (or CD).



5. After clicking OK at the previous window, you will be asked to browse for the location of the disk (or CD) that the USB driver is on. Then click OK to continue to the next step.



6. When you select the location of the disk (or CD), the required file USB8023K.SYS will automatically be updated in the filename window of this screen. Click on Open to continue with the installation process.

7. The last window lets you know that the driver installation is complete. Click Finish to close the wizard.

Configuring Your Computer

Prior to accessing the router through the LAN or the USB port, note the following necessary configurations–

- Your PC's TCP/IP address: 192.168.1.__(the last number is any number between 3 and 254)
- The router's default IP address: 192.168.1.1
- Subnet mask: 255.255.255.0

Below are the procedures for configuring your computer. Follow the instructions for the operating system that you are using.

Windows 2000

1. In the Windows taskbar, click on the Start button and point to Settings, Control Panel, and Network and Dial-up Connections (in that order).
2. Click on Local Area Connection. When you have the Local Area Connection Status window open, click on Properties.
3. Listed in the window are the installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled, and you can skip to Step 10.
4. If Internet Protocol (TCP/IP) does not appear as an installed component, then click on Install.
5. In the Select Network Component Type window, click on protocol and then the Add button.
6. Select Internet Protocol (TCP/IP) from the list and then click on OK.
7. If prompted to restart your computer with the new settings, click OK.

8. After your computer restarts, click on the Network and Dial-up Connections icon again, and right click on the Local Area Connection icon and then select Properties.

9. In the Local Area Connection Properties dialog box, select Internet Protocol (TCP/IP) and then click on Properties.

10. In the Internet Protocol (TCP/IP) Properties dialog box, click in the radio button labeled Use the following IP address and type 192.168.1.x (where x is any number between 2 and 254) and 255.255.255.0 in the IP address field and Subnet Mask field.

11. Click on OK twice to save your changes and then close the Control Panel.

Windows XP

1. In the Windows taskbar, click on the Start button and point to Settings and then click Network Connections.

2. In the Network Connections window, right click on the Local Area Connection icon and click on properties.

3. Listed in the Local Area Connection window are the installed network components. Make sure the box for Internet Protocol (TCP/IP) is checked and then click on Properties.

4. In the Internet Protocol (TCP/IP) Properties dialog box, click in the radio button labeled Use the following IP address and type 192.168.1.x (where x is any number between 2 and 254) and 255.255.255.0 in the IP address field and Subnet Mask field.

5. Click on OK twice to save your changes and then close the Control Panel.

Log in to the Router

This section will explain how to log in to your router using the following steps–

1. Launch your web browser.
2. Enter the URL http://192.168.1.1 in the address bar and press Enter.

A login screen like the one below will be displayed after you connect to the user interface.

3. Enter your user name and password, and then click on OK to display the user interface.

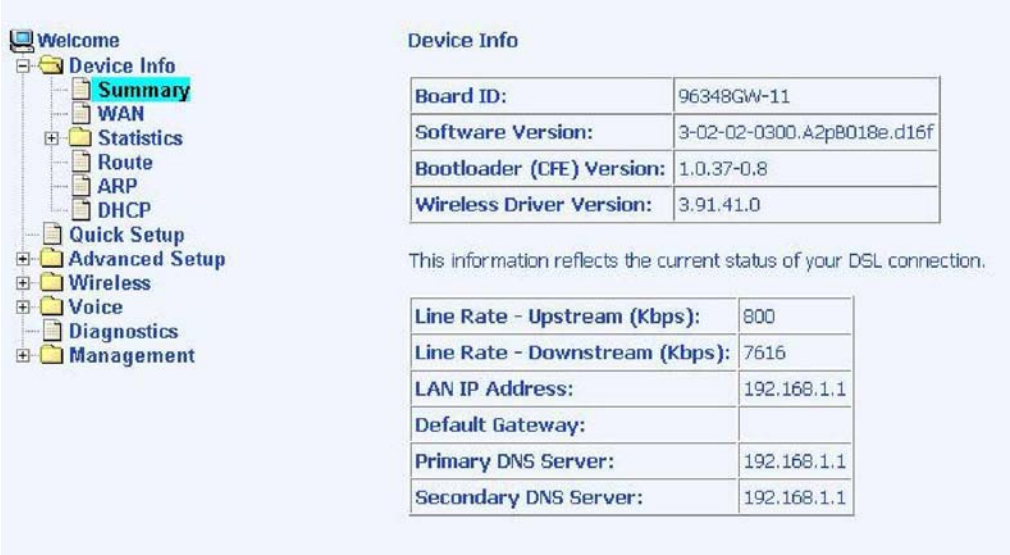
NOTE: There are two default user name and password combinations. The user / user name and password combination can display device status, but cannot change or save configurations. The admin / admin combination can perform all functions. Passwords can be changed at any time. Please note that this user manual is based on the admin / admin login which includes all functions.

Device Info

This section describes the system information that can be accessed using the menu items under Device Info.

Summary

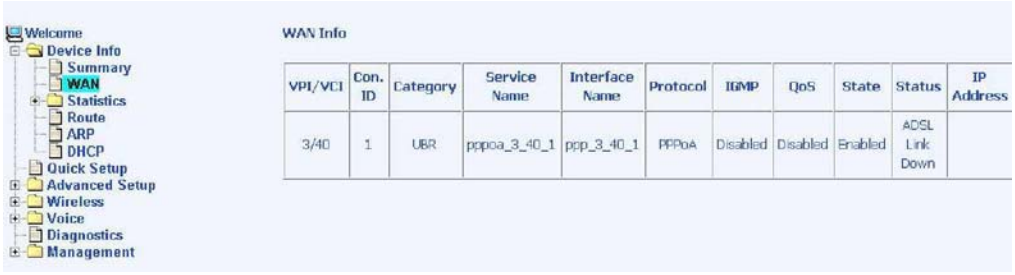
Access the general information of the router by clicking on "Summary" under "Device Info". It shows details of the router such as software version, wireless driver version, LAN IP address, etc. It also displays the current status of your DSL connection as shown below–



WAN

Access the WAN status report from the router by clicking on "WAN" under "Device Info". Since a WAN connection has not been set up yet, there is no information to view. After completing the configurations for a WAN connection, you can return to this screen to view the information on your WAN status.

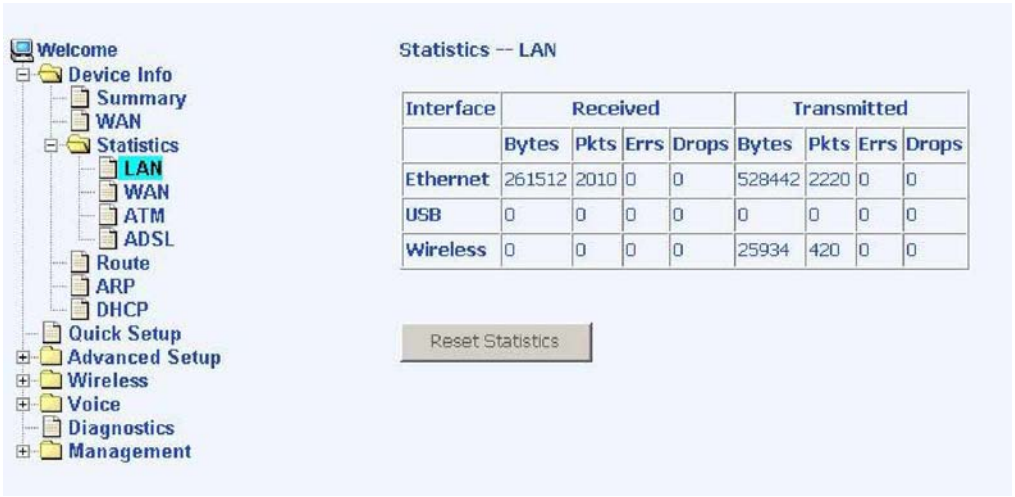
Below is how the screen will look once a WAN connection is set up.



Statistics

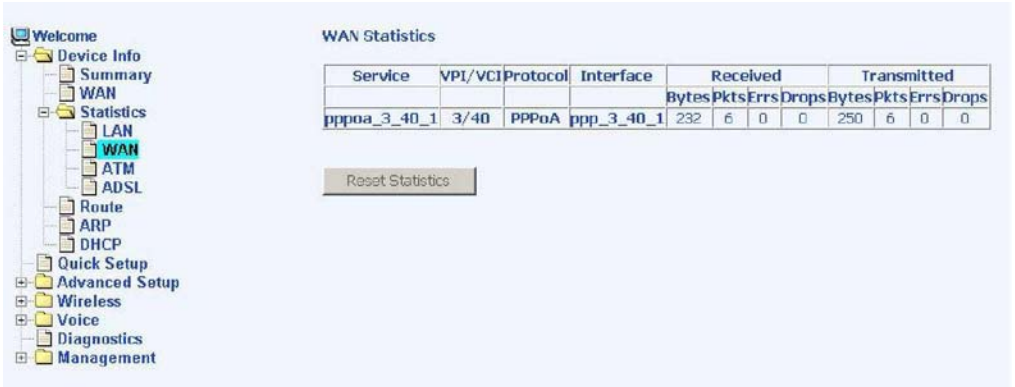
LAN Statistics

Access the LAN statistics from the router by clicking on the “LAN” item under “Statistics”



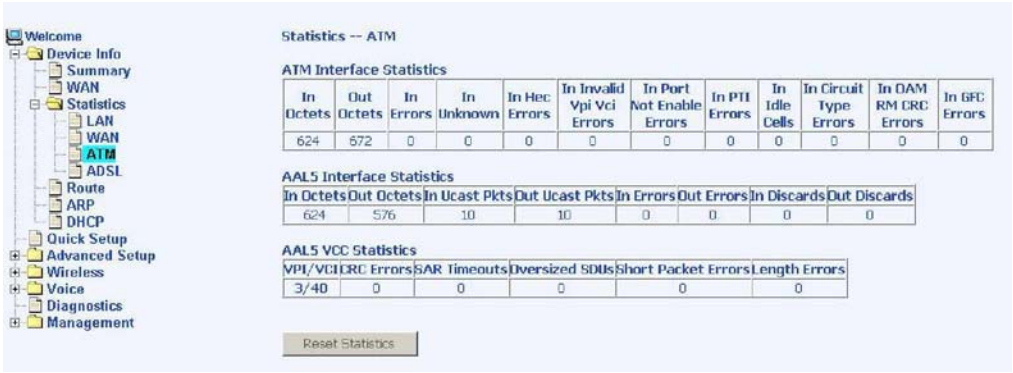
WAN Statistics

Access the WAN statistics from the router by clicking on the “WAN” item under “Statistics”.



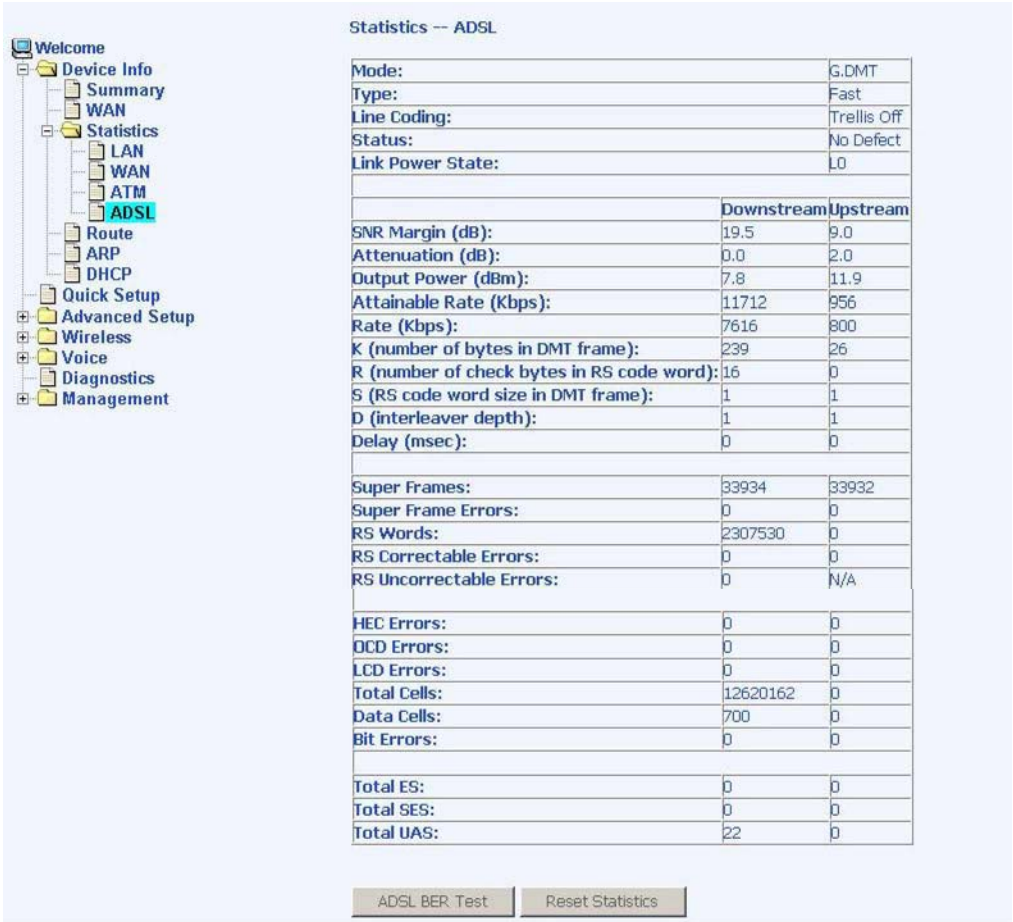
ATM Statistics

Access ATM statistics from the router by clicking on the “ATM” item under “Statistics”.



ADSL Statistics

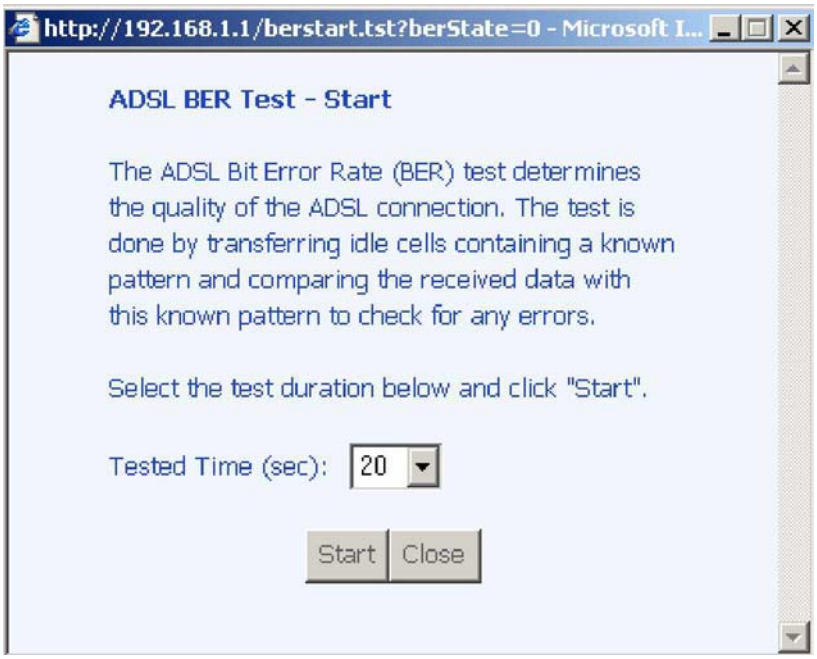
You can view ADSL statistics by clicking on the “ADSL” item under “Statistics”. Information contained in this screen is useful for troubleshooting and diagnostics of connection problems.



ADSL BER Test

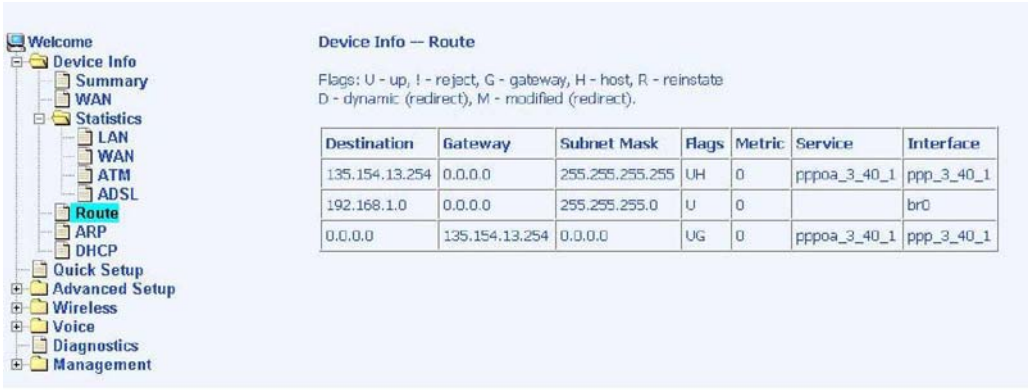
A Bit Error Rate Test (BER Test) is a test that reflects the ratio of error bits to the total number transmitted.

If you click on the ADSL BER Test button at the bottom of the ADSL Statistics screen, the following pop-up screen will appear allowing you to set the tested time and to begin the test.



Route

Access the routing status report from the router by clicking on the “Route” item under “Device Info”.

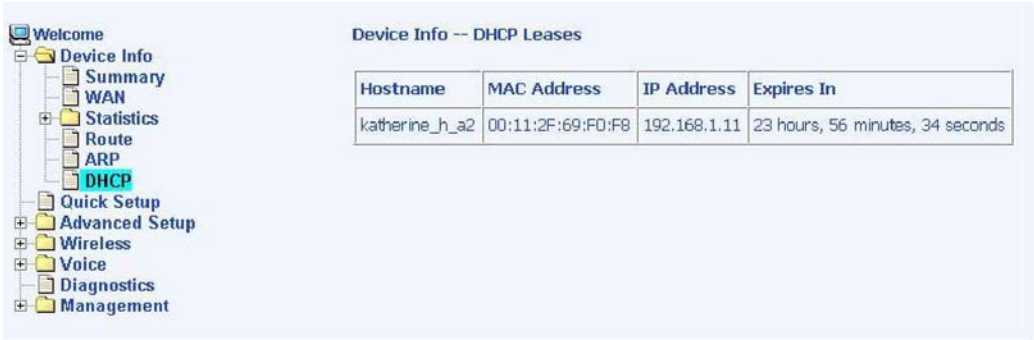


ARP

Access the ARP status report from the router by clicking on the “ARP” item under “Device Info”. ARP (Address Resolution Protocol) maps the IP address to the physical address, labeled HW Address (the MAC address) and helps to identify computers on the LAN.

DHCP

Access the DHCP Leases screen by clicking “DHCP” under “Statistics”. This shows the computers, identified by the hostname and MAC address that have acquired IP addresses by the DHCP server with the time that the lease for the IP address is up.

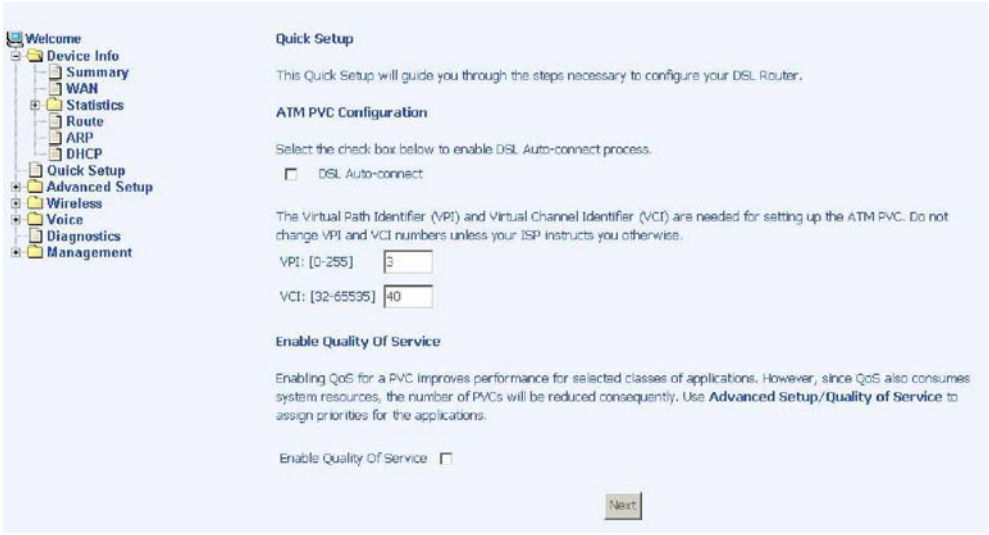


Quick Setup

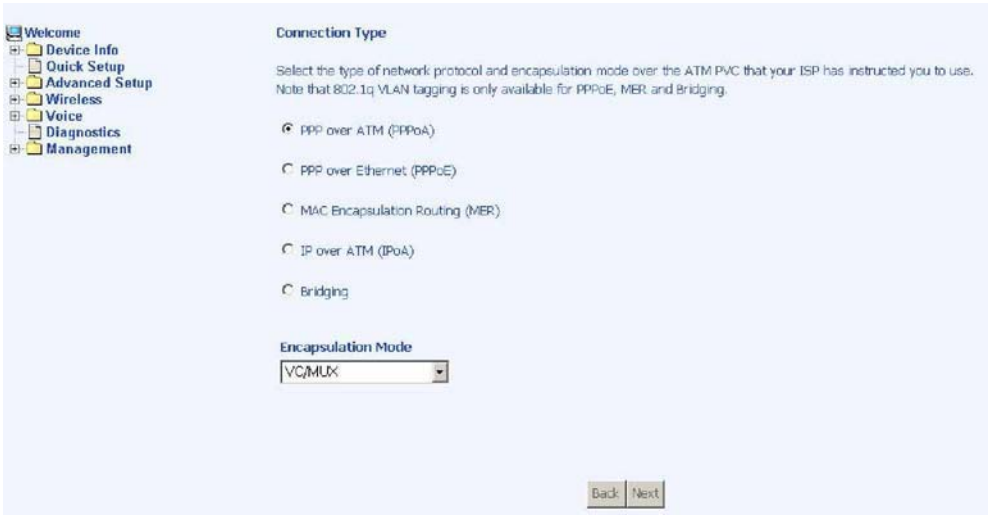
This section will explain how to quickly configure the router for the single purpose of connecting to the Internet.

To enable the auto-connect process, click on the box labeled DSL Auto-connect, a process that will automatically detect the first usable PVC and automatically detect PPPoE, PPPoA, and Bridge Protocol (with DHCP Server available). To continue, click on the Next button.

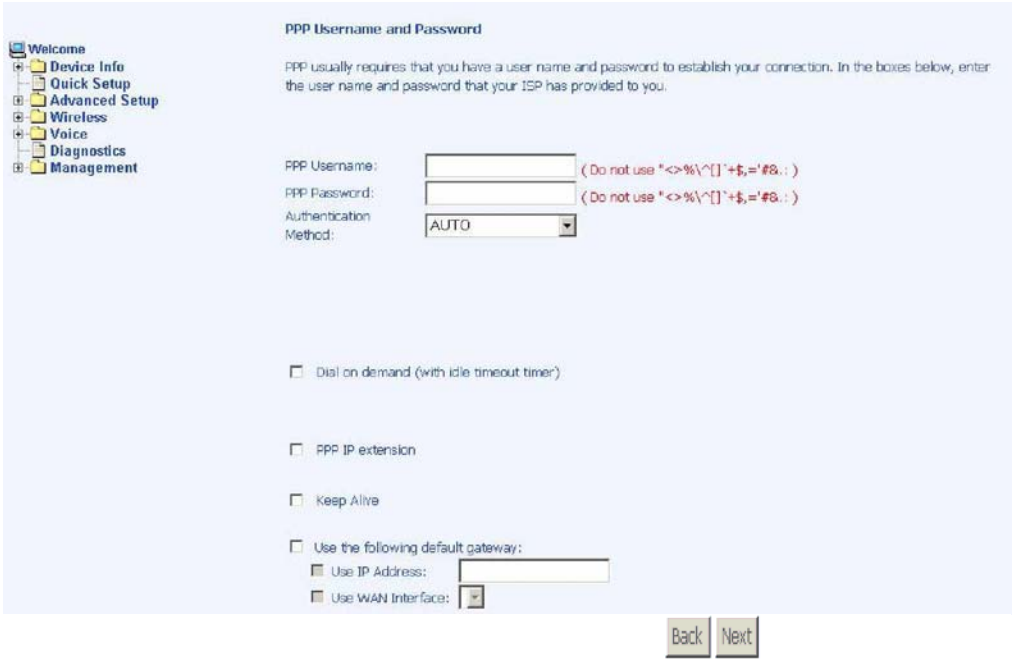
If you uncheck the DSL Auto-connect box, the resulting screen is seen below. Enter the VPI / VCI as indicated by your ISP and enable Quality of Service to enable the function. To continue, click on Next.



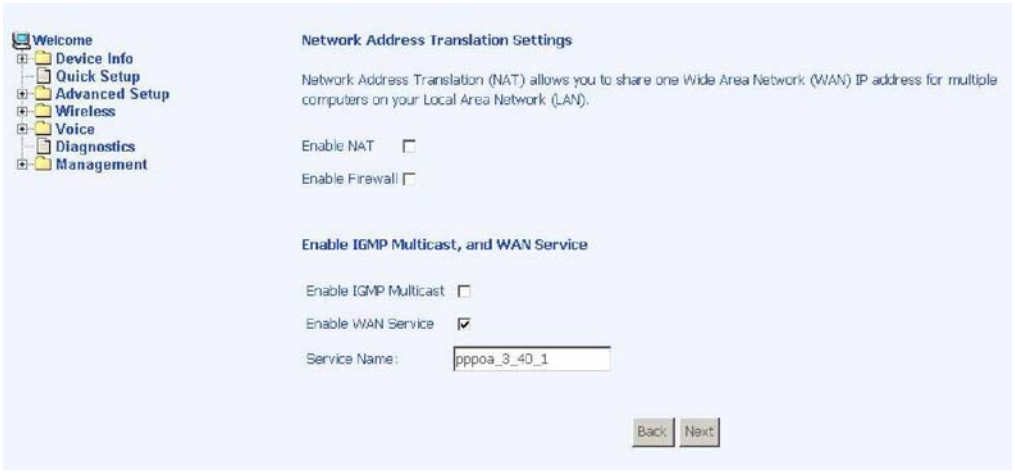
Following is the Connection Type screen where you select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use. The following is a PPPoA example. Click on Next to continue.



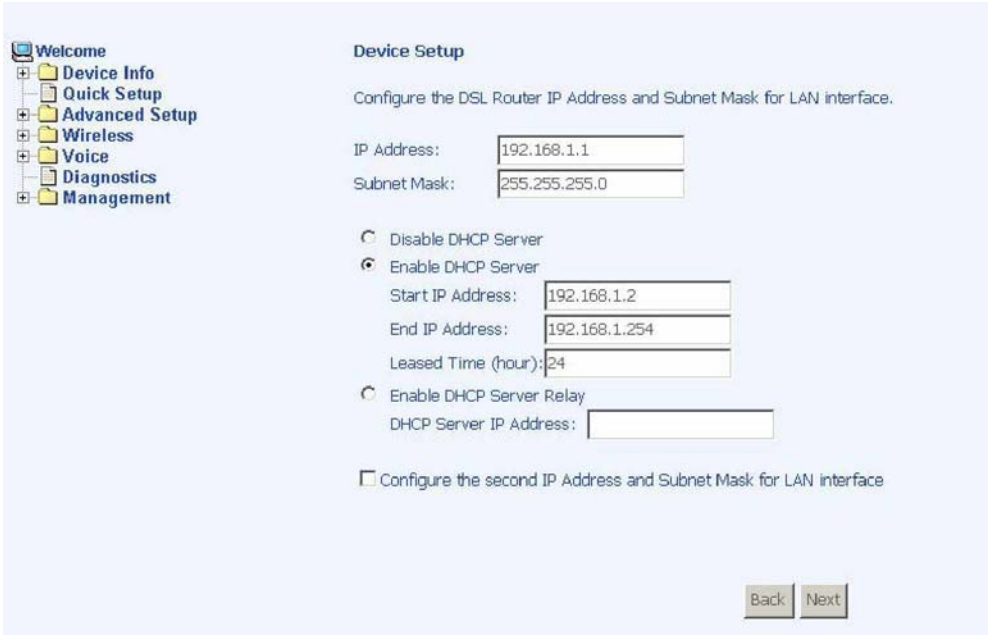
Enter the PPP username and password as given by your ISP. Then decide if you will be using any features such as dial on demand, PPP IP extension, keep alive and then click on Next.



The next step is to configure the Network Address Translation (NAT) settings. Enable the necessary services and then click on Next to continue.

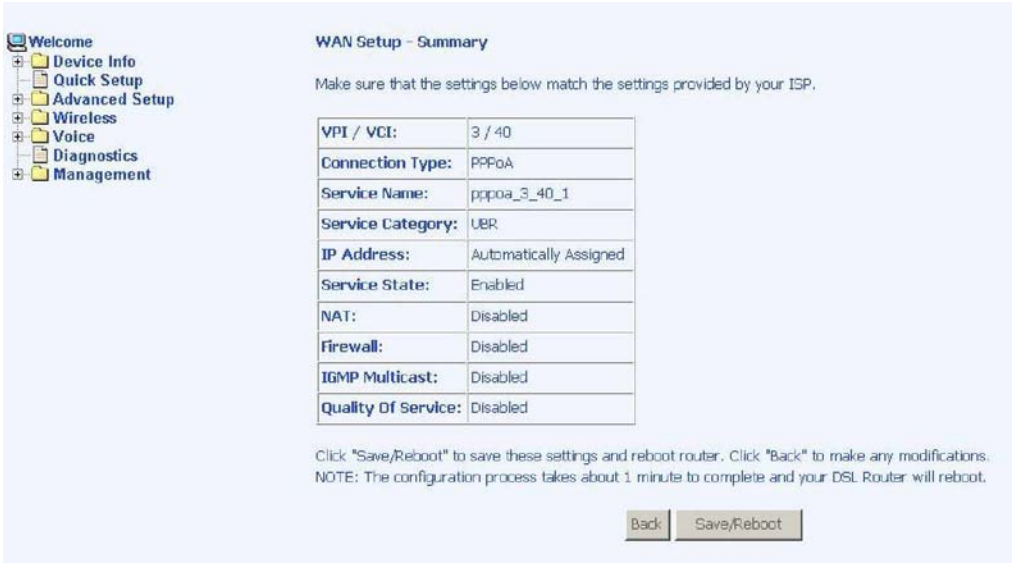


You can configure the DSL Router IP address and Subnet Mask for the LAN interface to correspond to your LAN's IP Subnet. If you want the DHCP server to automatically assign IP addresses, then enable the DHCP server and enter the range of IP addresses that the DHCP server can assign to your computers. Disable the DHCP server if you would like to manually assign IP addresses. Click on Next to continue.



The next screen allows you to enable / disable the wireless function. If you enable wireless, then enter the wireless network name (SSID). The default SSID–Broadcom–is already entered. Click on Next to continue.

After all of the WAN configurations have been made, the WAN Setup Summary screen displays all WAN settings that you have made. Check that the settings are correct before clicking on the Save / Reboot button. Clicking on Save / Reboot will save your settings and restart your router.



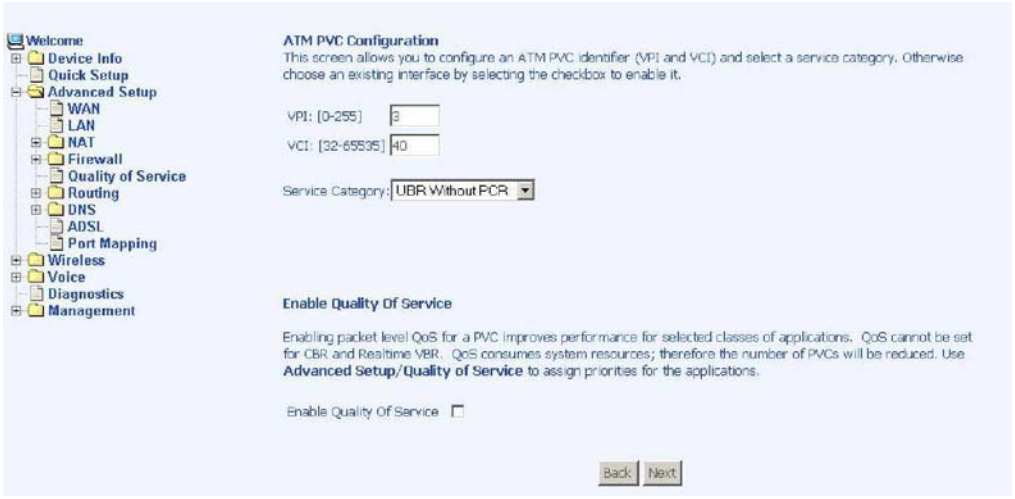
Advanced Setup

This section of the setup is an advanced version of the quick setup. If you want to make specific configurations to your router such as firewall, port mapping, quality of service, DNS, etc., consider going through this advanced setup for a more comprehensive configuration.

WAN

Configure the WAN settings as provided by your ISP. The following screen shows the PPPoA connection that was established in the previous Quick Setup example.

Click on the Add button if you want to add a new connection for the WAN interface. The ATM PVC Configuration screen is seen below. The ATM PVC Configuration screen allows you to configure an ATM PVC identifier (VPI and VCI) and select a service category.



Find out the following values from your ISP before you change them.

- VPI : Virtual Path Identifier. The valid range is 0 to 255.
- VCI : Virtual Channel Identifier. The valid range is 32 to 65535.
- Service Category : Five classes of traffic are listed–

    - UBR Without PCR (Unspecified Bit Rate without Peak Cell Rate)–UBR service is suitable for applications that can tolerate variable delays and some cell losses. Applications suitable for UBR service include text/data/image transfer, messaging, distribution, and retrieval and also for remote terminal applications such as telecommuting.

    - UBR With PCR (Unspecified Bit Rate with Peak Cell Rate)

    - CBR (Constant Bit Rate)–used by applications that require a fixed data rate that is continuously available during the connection time. It is commonly used for uncompressed audio and video information such as videoconferencing, interactive audio (telephony), audio / video distribution (e.g. television, distance learning, and pay-per-view), and audio / video retrieval (e.g. video-on-demand and audio library).

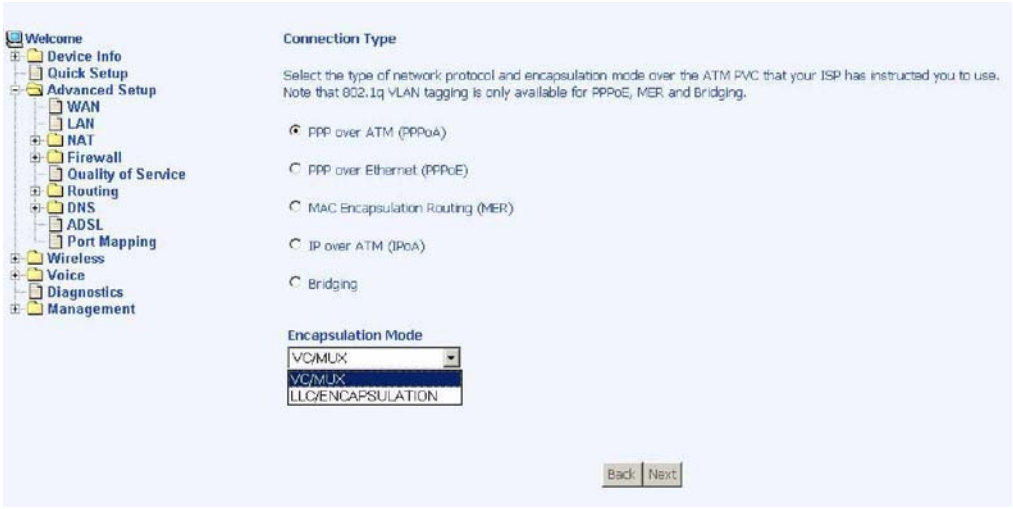
- Non Realtime VBR (Non-Real-time Variable Bit Rate)—can be used for data transfers that have critical response-time requirements such as airline reservations, banking transactions, and process monitoring.

- Realtime VBR (Real-time Variable Bit Rate)—used by time-sensitive applications such as real-time video. Rt-VBR service allows the network more flexibility than CBR.

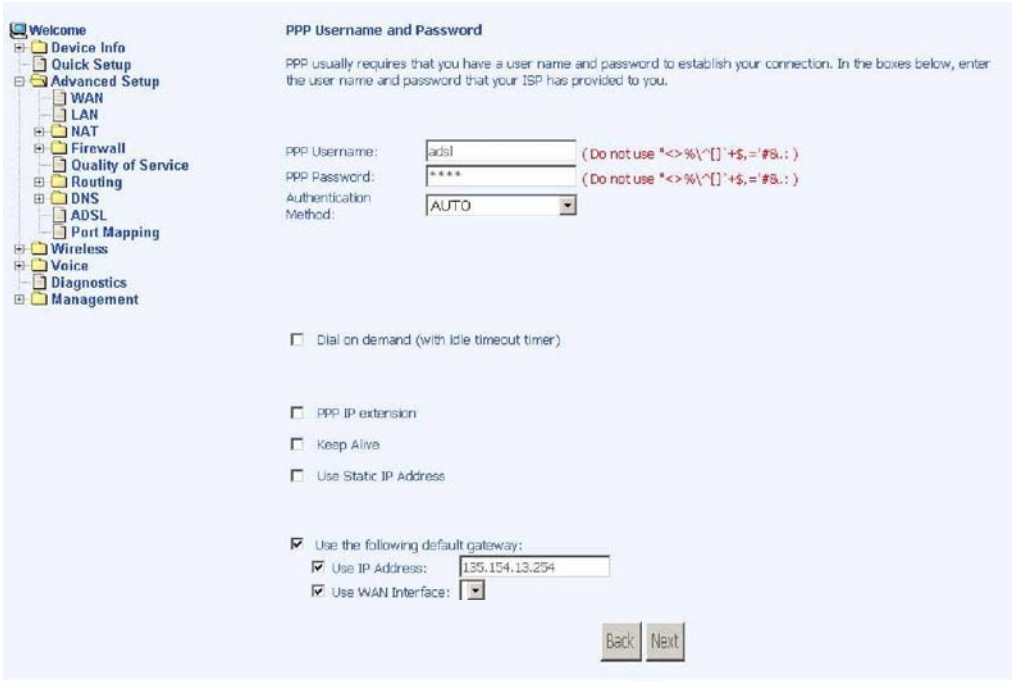
The next screen shows the below types of network protocols and encapsulation modes—

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- MAC Encapsulation Routing (MER)
- IP over ATM (IpoA)
- Bridging

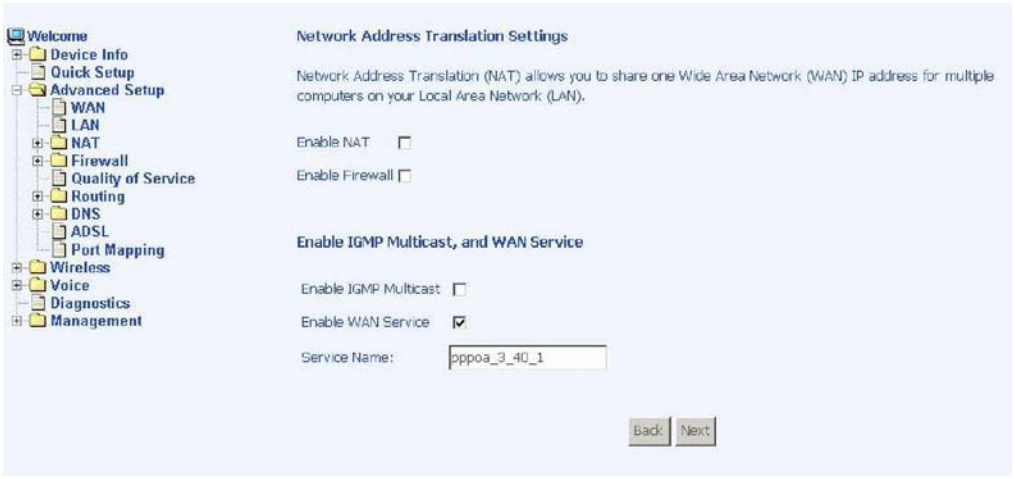
Select the mode that your ISP has instructed you to use and click on Next.



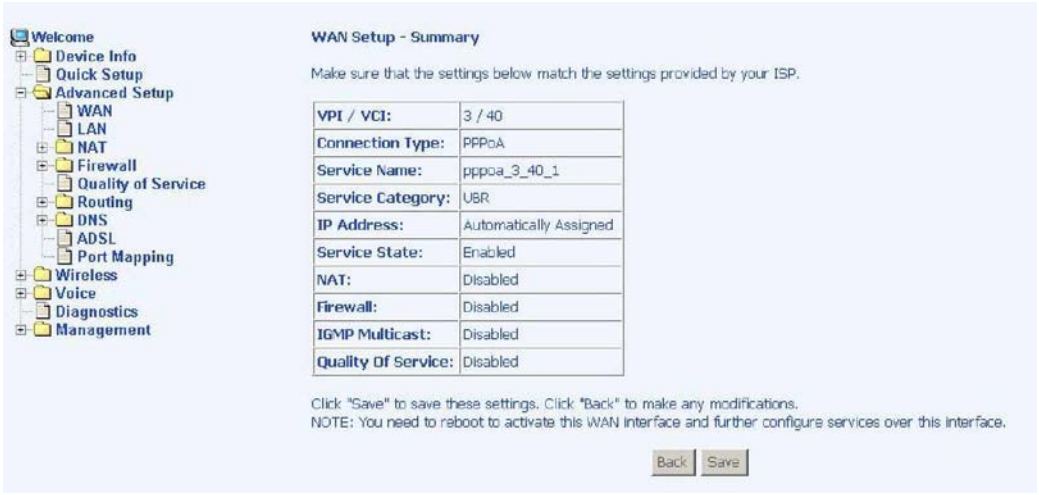
Since this example uses a PPPoA connection, the next screen requires you to enter a PPP username and password. After filling in the page and making any selections your ISP has instructed you to, click on Next to continue.



The next screen allows you to configure NAT either by enabling or disabling it. Other services include IGMP multicast and WAN service. After making your selections, click on Next to go on to the next page.



When the settings are complete, the next screen shows a WAN Setup – Summary screen displaying the WAN configurations made. Click on Save to save the settings.

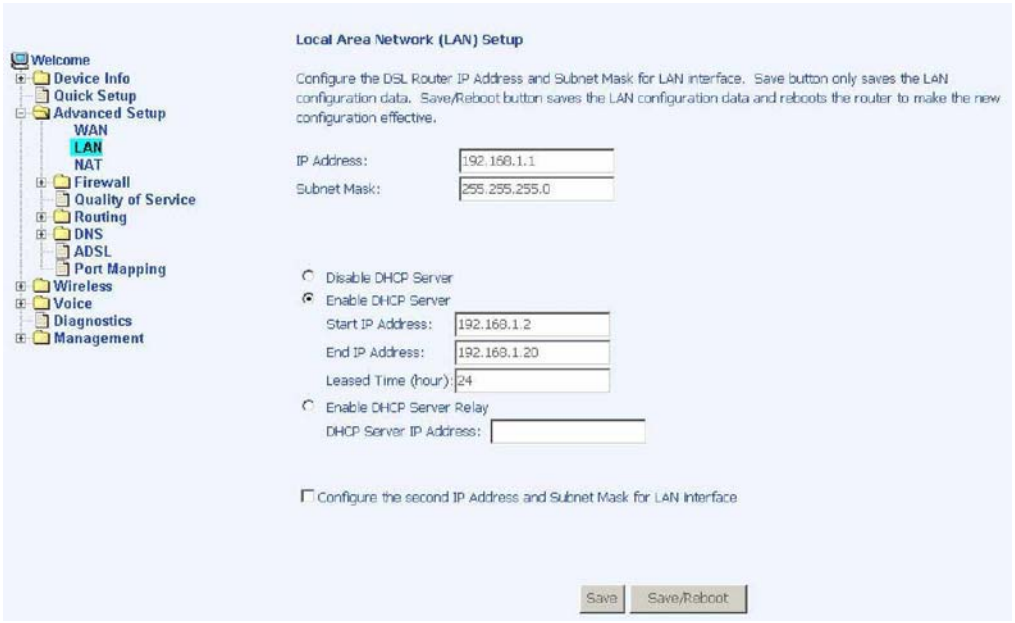


After the settings are saved, the below screen will follow displaying the WAN settings that you made with the option to Add or Remove any of the connections that you have made. When satisfied with the settings click on the Finish button.

After selecting the Finish button, the below screen will appear. At this point, the router will reboot to save the changes made.

LAN Local Area Network (LAN) Setup

You can configure the DSL Router IP address and Subnet Mask for the LAN interface to correspond to your LAN's IP Subnet. If you want the DHCP server to automatically assign IP addresses, then enable the DHCP server and enter the range of IP addresses that the DHCP server can assign to your computers. Disable the DHCP server if you prefer to manually assign IP addresses. Click on Next to continue. The Save button only saves the LAN configuration data, but does not apply the configurations. Select the Save/Reboot button to save the LAN configuration data and reboot the router and apply the new configurations.

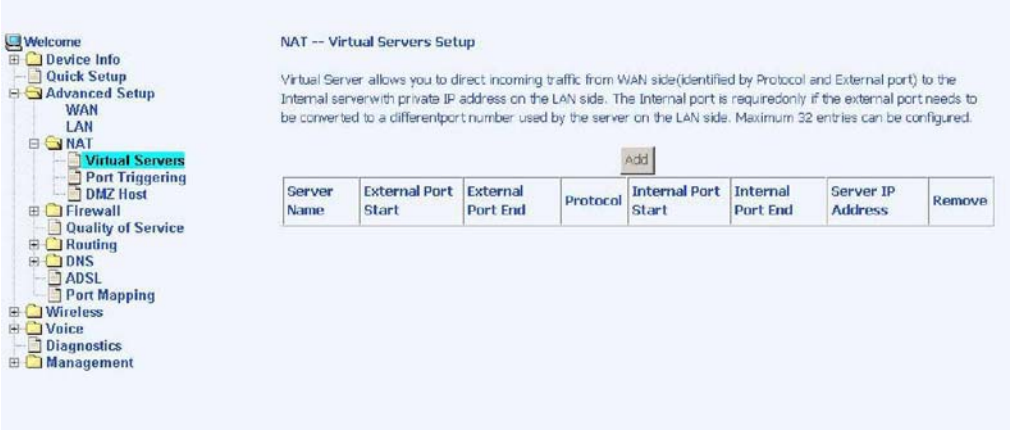


NAT

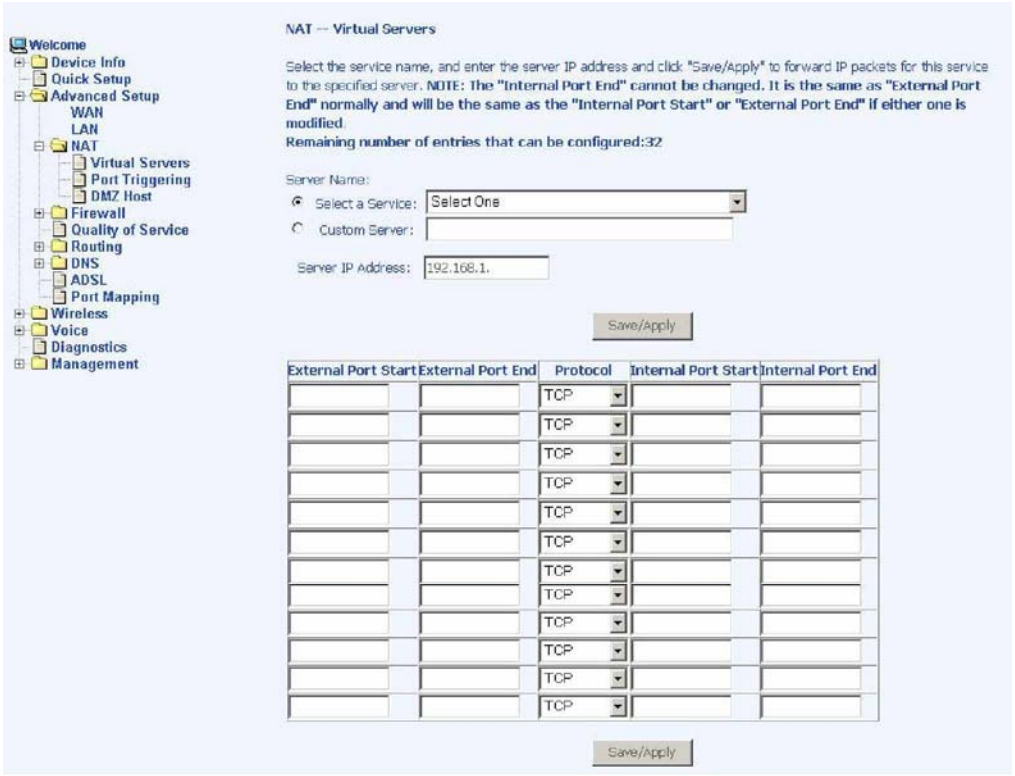
If you enable NAT (Network Address Translation), you can configure the Virtual Server, Port Triggering, and DMZ Host.

Virtual Servers

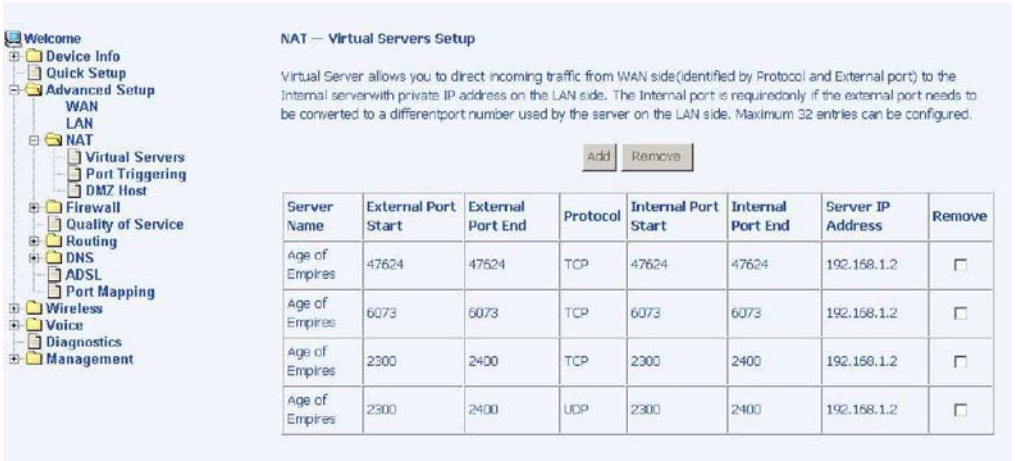
A virtual server allows you to direct incoming traffic from the WAN side to a specific IP address on the LAN side. Click on Add to configure a virtual server.



Select the virtual server from the drop-down list and complete the server IP address, then click on the Save / Apply button.

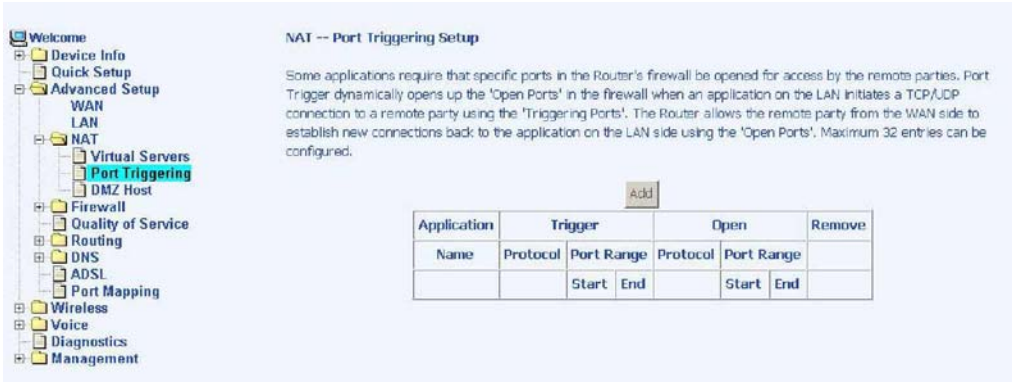


The following screen appears after you save your selection. To add additional virtual servers, click on the Add button. If you need to remove any of the server names, select the check box and click on the Remove button.

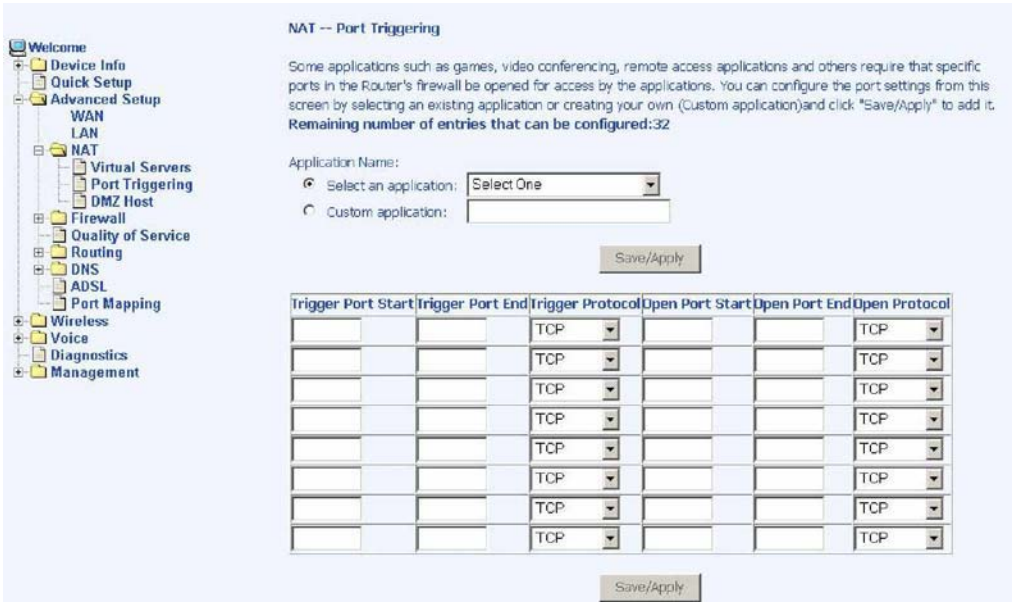


Port Triggering

Click on the Add button to add Port Triggering to your Internet application.



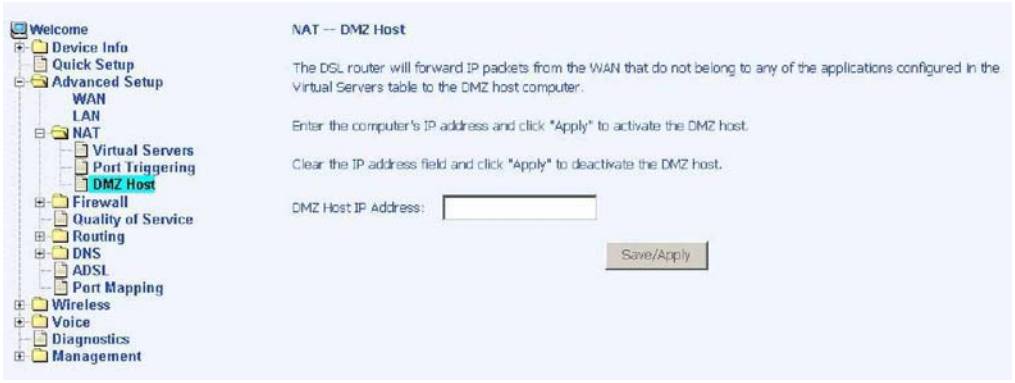
The below screen appears when you click on Add allowing you to select the application that you want to set the port settings for. After a selection has been made, click on the Save / Apply button.



The below screen appears after you save your selections. You will be able to add or remove selections made, by clicking on the Add and Remove buttons.

DMZ Host

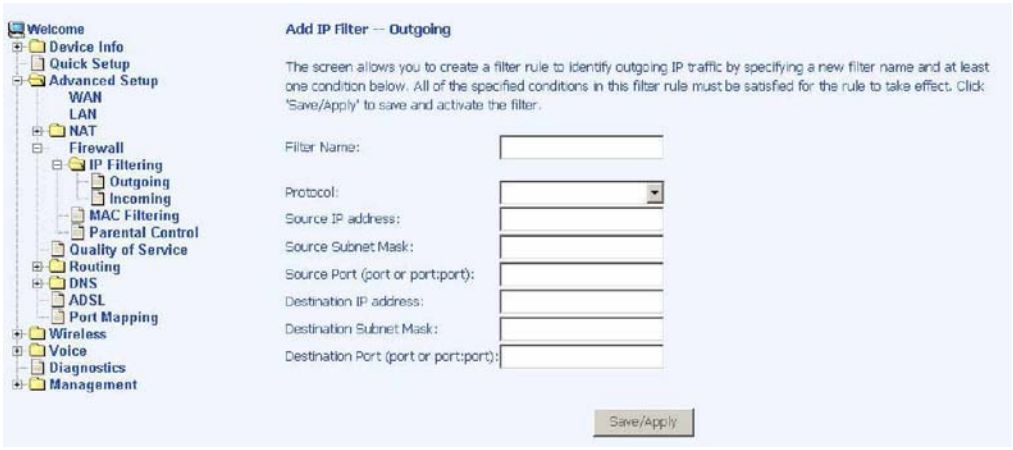
You can define the IP address of the DMZ Host on this screen. Enter the IP address and click on Save / Apply.



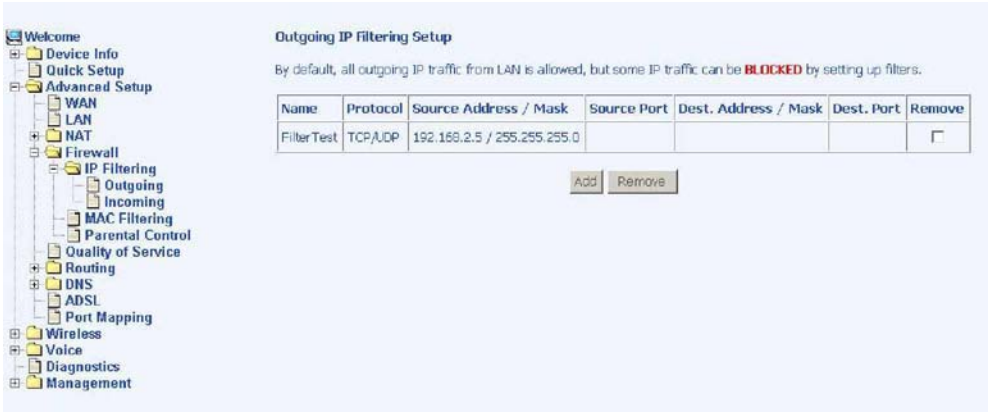
IP Filtering–Outgoing

The outgoing filter will block the LAN traffic from entering the WAN side. Click on the Add button to create filters.

The below screen will appear when you click on Add. Input the filter name, source information (from the LAN side), and destination information (from the WAN side). Then click on Save / Apply.

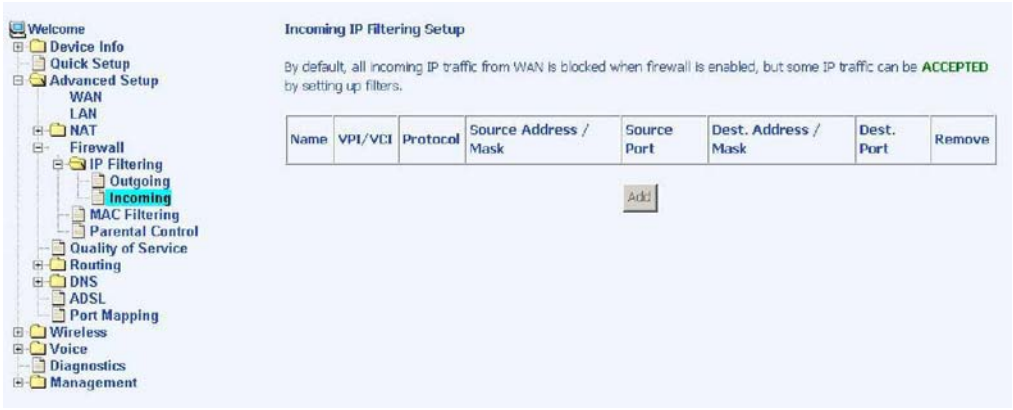


The following screen appears when you Save / Apply the IP filter. The screen lists the IP filters that were added from the previous screen. To change your settings, click on the Add or Remove buttons.



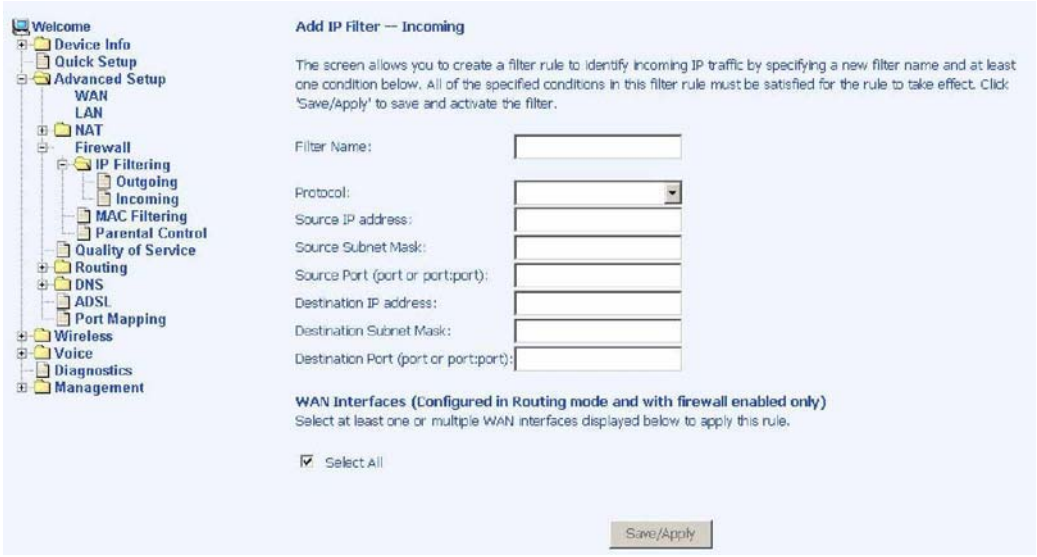
IP Filtering–Incoming

Incoming IP filter filters the WAN traffic to the LAN side. Click on the Add button to add incoming filter settings.



Enter a filter name, information about the source address (from the WAN side), and information about the destination address (to the LAN side). Select the protocol and WAN interface, then click on Save/Apply to add the setting.

You can view and delete the incoming filter settings from this screen.



MAC Filtering

MAC filtering can forward or block traffic by MAC address. You can change the policy or add settings to the MAC filtering table using the MAC Filtering Setup screen.

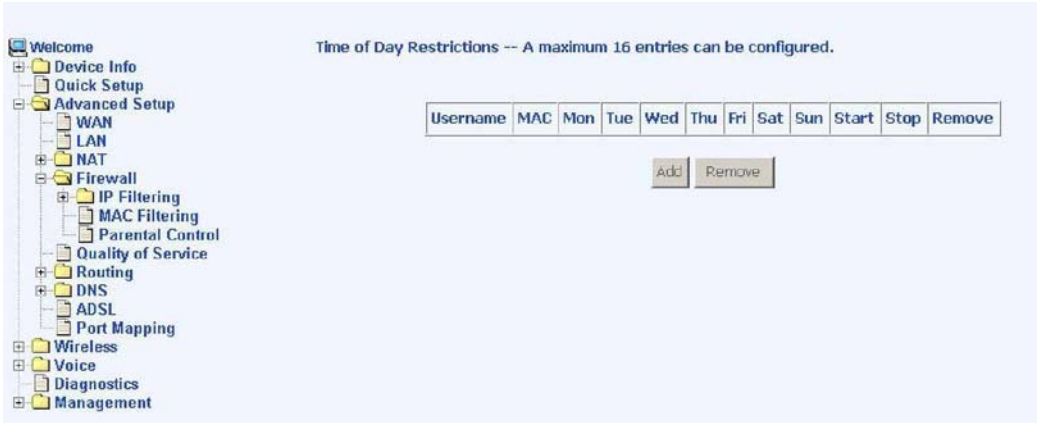
If you click on Change Policy, a confirmation dialog allows you to verify your change.

If you want to add a setting to the MAC filtering table, enter the Source and Destination MAC address, and select protocol type, frame direction, and WAN interface. Then click on Save / Apply to save it.

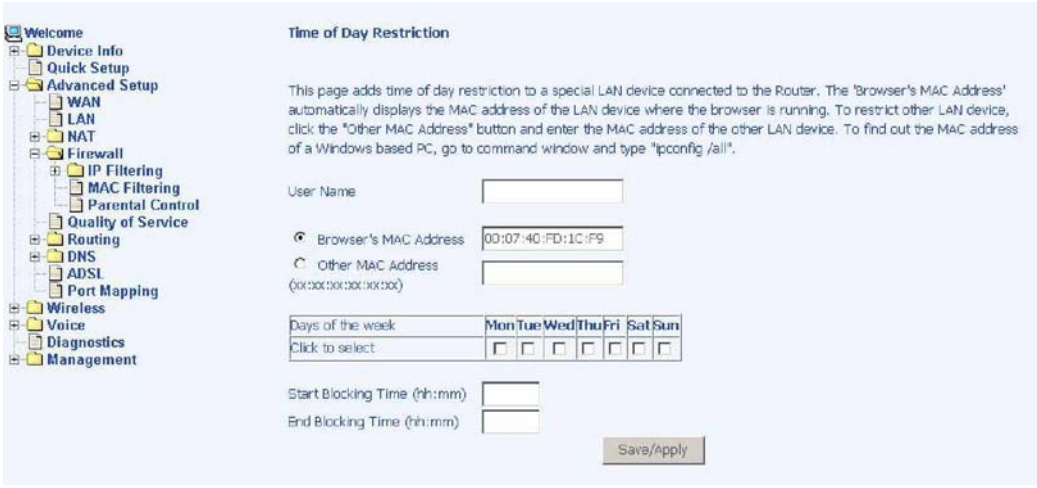
After you save the settings, a screen showing the settings will appear. On this screen you will be able to view and delete MAC filtering rules.

Parental Control

In a home setting, parents can also restrict the day of the week certain computers can access the router. Click on Add to set up the restrictions.

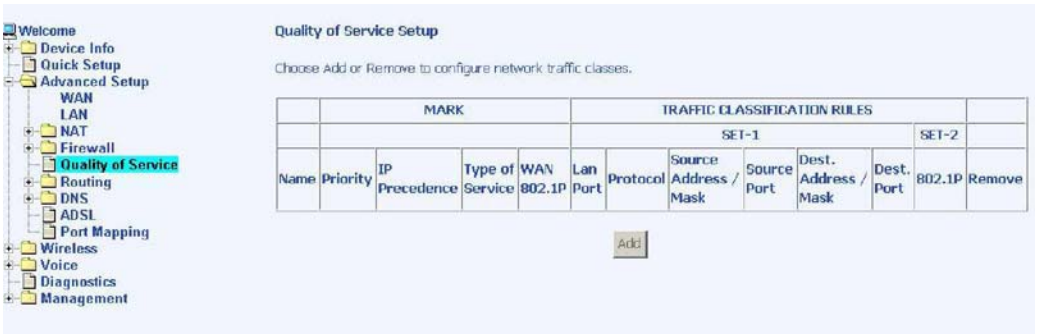


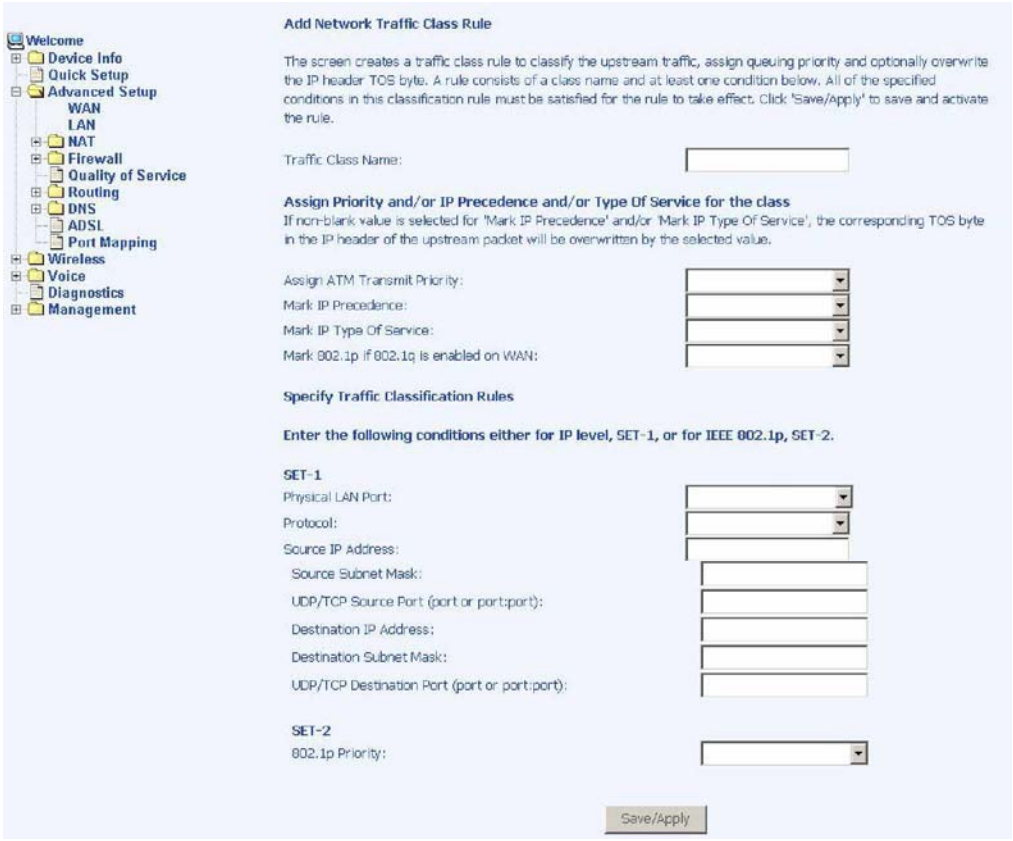
To set up a restricted user, enter the user name, the MAC address, and select the days to restrict. You can also enter the start and end of the blocking time. When completed, click on Save / Apply.



Quality of Service

You can configure the Quality of Service to apply different priorities to traffic on the router. Click on Add to configure network traffic classes.





- Traffic Class Name– the name that you name this class of traffic for which you are configuring quality of service

- Assign ATM Transmit Priority– select from low, medium, or high priority level for transmitting ATM packets.

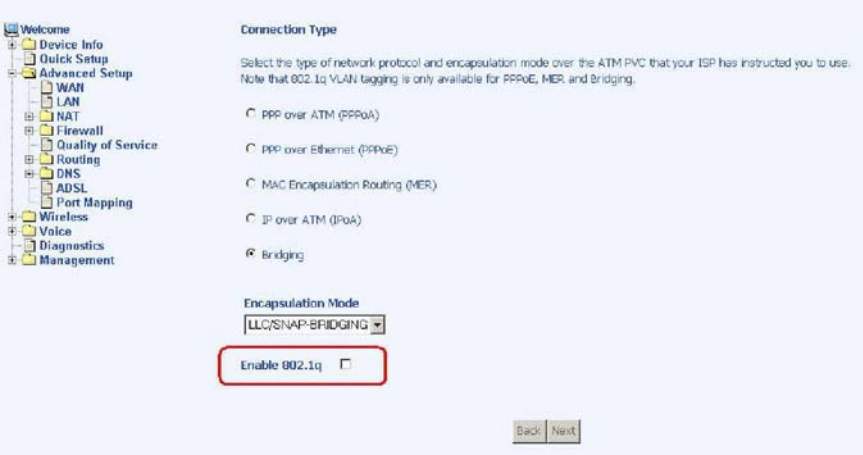
- Mark IP Precedence– used to mark a packet to notify the network in regard to the importance of the packet. IP precedence values range from 0-7 with 6 and 7 reserved and should not be used. The 8 precedence values have the following meanings–

    - (0) - Routine
    - (1) - Priority
    - (2) - Immediate
    - (3) - Flash
    - (4) - Flash Override
    - (5) - Critical
    - (6) - Internetwork Control
    - (7) - Network Control

- Mark IP Type of Service– select from the following choices–

    - Normal Service
    - Minimize Cost
    - Maximize Reliability
    - Maximize Throughput
    - Minimize Delay

- Mark 802.1p if 802.1q is enabled on WAN– (see below ”Connection Type” screen located under “WAN” under “Advanced”.) The values range from 0-7.



NOTE: Enter the following conditions either for SET-1 or for SET-2.

SET-1

- Physical LAN Port– select the physical port–Ethernet LAN 1-4, USB, or wireless
- Protocol– select from the following protocols–TCP/UDP, TCP, UDP, or ICMP
- Source IP Address– the IP address for the computer which packets are coming from
- Source Subnet Mask– the subnet mask for the source of the packets being sent
- UDP / TCP Source Port (port or port:port)– if TCP or UDP was selected , then enter the port number
- Destination IP Address– the IP address of the computer where the packets will be sent to
- Destination Subnet Mask– the subnet mask for the destination of the packets being sent to
- UDP / TCP Destination Port (port or port:port)– if TCP or UDP was selected , then enter the port number

SET-2

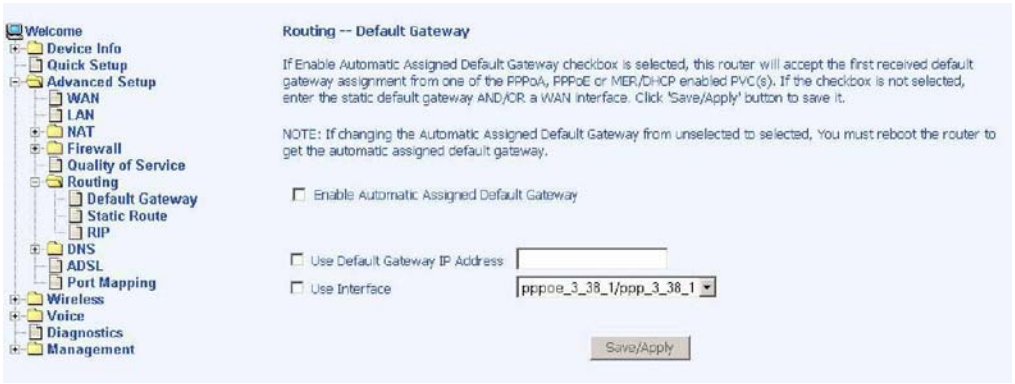
- 802.1p Priority– if 802.1q was enabled on WAN, then select a value between 0-7.

Routing

Default Gateway

You can enable automatic assigned default gateway on the Routing – Default Gateway screen. As default, the box is checked for automatic assigned default gateway to be enabled. Click the Save / Apply button to enable or disable this feature.

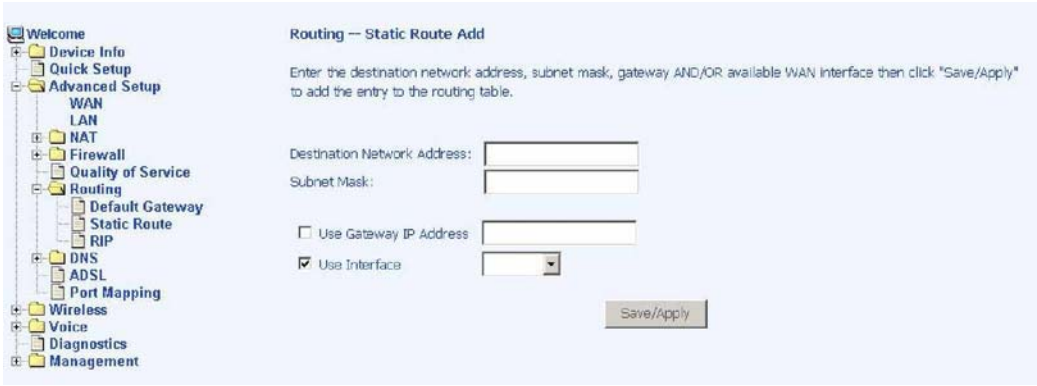
By deselecting the Enable Automatic Assigned Default Gateway option, you will be asked to manually enter the default gateway IP address and select the appropriate user interface that you will be using. Click on Save / Apply to continue.



Static Route

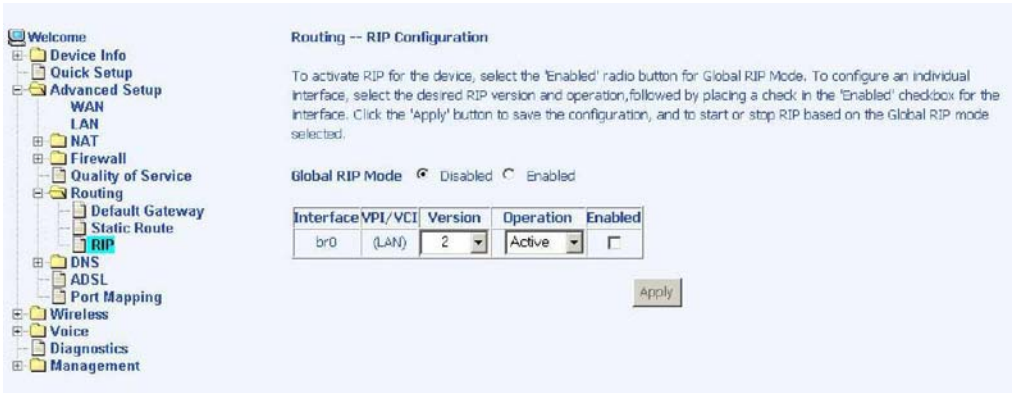
The Static Route screen can be used to add a routing table (a maximum of 32 entries can be configured). Click on Next to add.

Enter the route information and then save and apply your configurations.



RIP

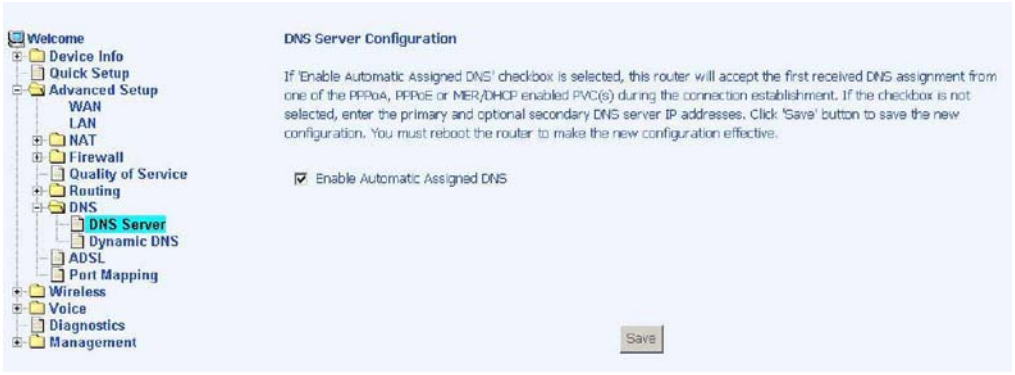
If RIP is enabled, the router operation can be configured as active or passive.



DNS

DNS Server

Use the DNS Server screen to enable automatic assignment of a DNS or to specify a primary and secondary DNS.

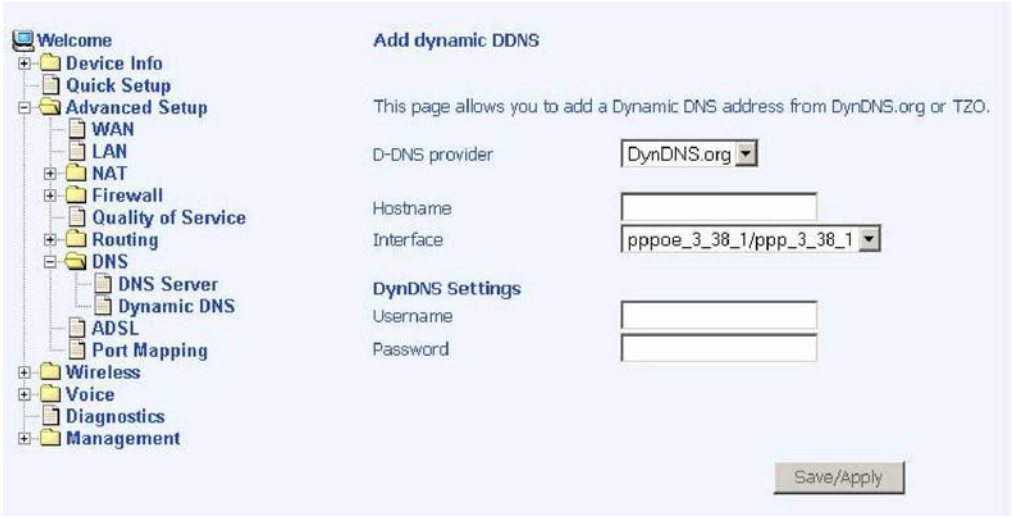


If you uncheck the Enable Automatic Assigned DNS checkbox, then there will be two additional fields–primary and secondary DNS server–to enter as seen below.

Dynamic DNS

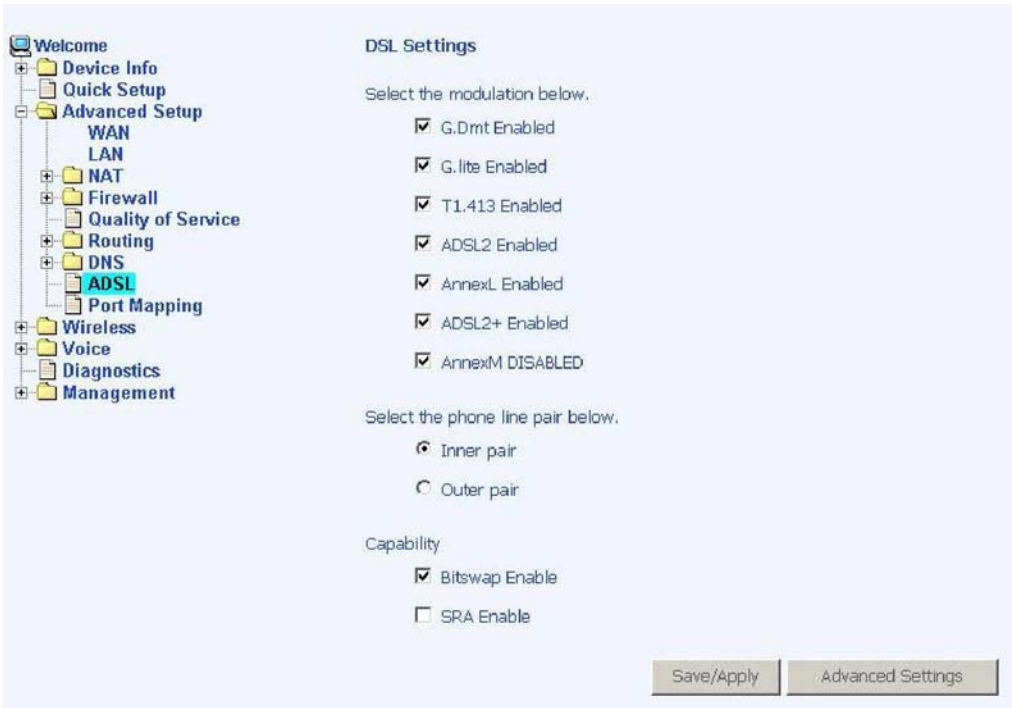
Access “Dynamic DNS” located under “DNS”. Dynamic DNS (Domain Name Service) is a system that allows more than one IP address to be assigned to one domain name.

The following Add dynamic DDNS screen allows you to set up your DDNS server. Select the Dynamic DNS provider from the list–DynDNS.org or TZO. Enter the hostname and the ADSL interface and the username / password provided by the DNS server site. Note that you will need to register first at DynDNS.org.



ADSL

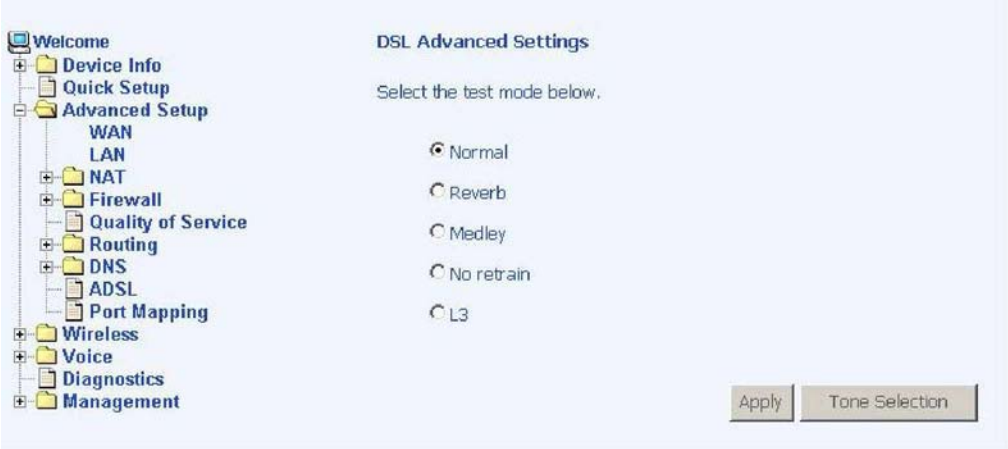
The DSL settings screen contains three sections–modulation, phone line, and capability–that should be specified by your ISP. Consult with your ISP to select the correct settings for each. Then click on Save / Apply if you are finished or click on Advanced Settings if you want to configure more advanced settings.



DSL Advanced Settings

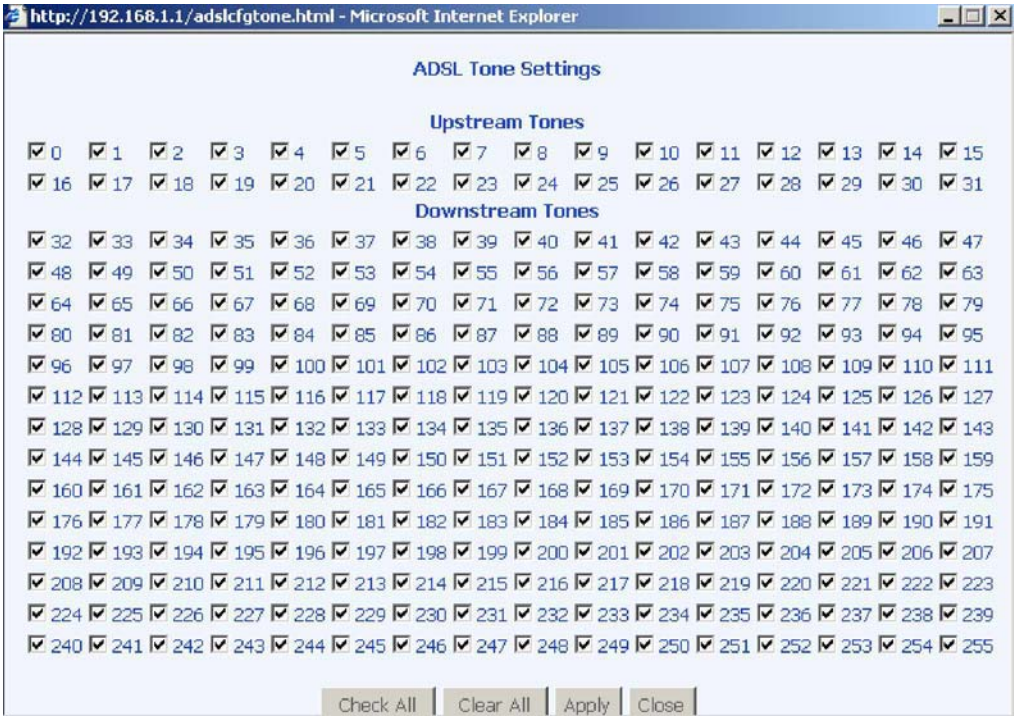
The test mode can be selected from the DSL Advanced Settings screen.

Test modes include—normal, reverb, medley, no retrain, and L3.



Tone Settings

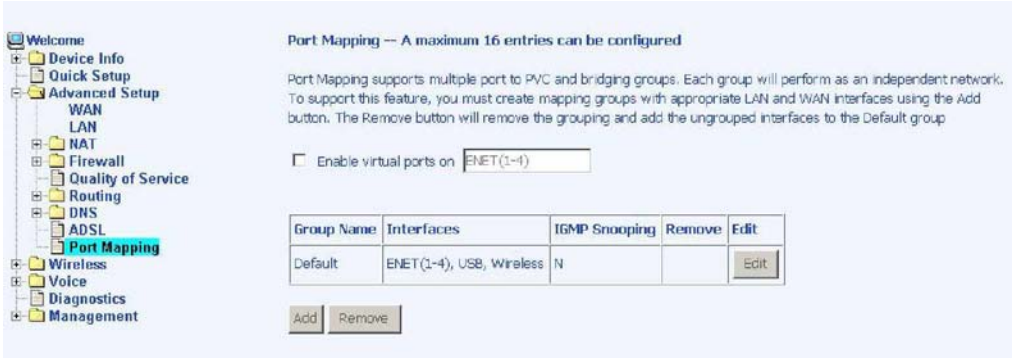
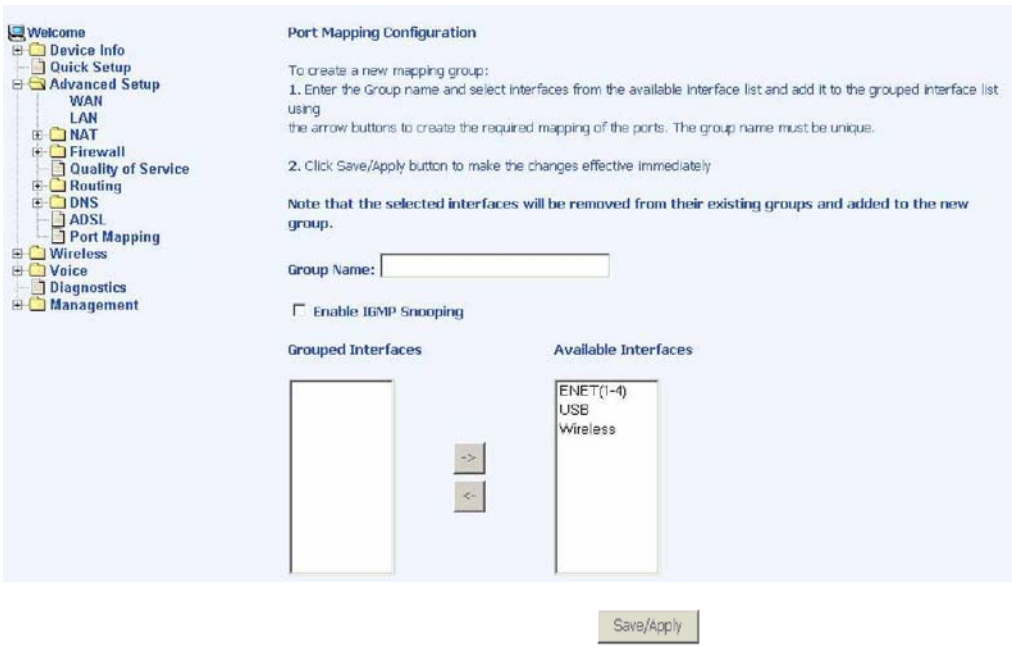
The frequency band of ADSL is split up into 256 separate tones, each spaced 4.3125 kHz apart. With each tone carrying separate data, the technique operates as if 256 separate modems were running in parallel. The tone range is from 0 to 31 for upstream and from 32 to 255 for downstream. Do not change these settings unless so directed by your ISP.



Port Mapping

Port mapping is a feature that allows you to open ports to allow certain Internet applications on the WAN side to pass through the firewall and enter your LAN. To use this feature, mapping groups need to be created.

Click on the Add button as displayed below.



After clicking the Add button, the below configuration screen appears, allowing you to enter the groups and the interfaces they are associated with.