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# ASUS 4-Port ADSL Router

## User Manual *Version 1.1*

## Revision Documentation

10/12/05	Version 1.1 changes include upgraded firmware Version 3-02-02-0C00.A2pB018e.d16f. Also included is a section on how to mount the router on a wall (p.9). Front and back panel pictures now show a white housing for the ASUS brand.

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## General Information

The 4-Port ADSL Router features 4 LAN ports for added convenience and accessibility.

## Package Contents

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

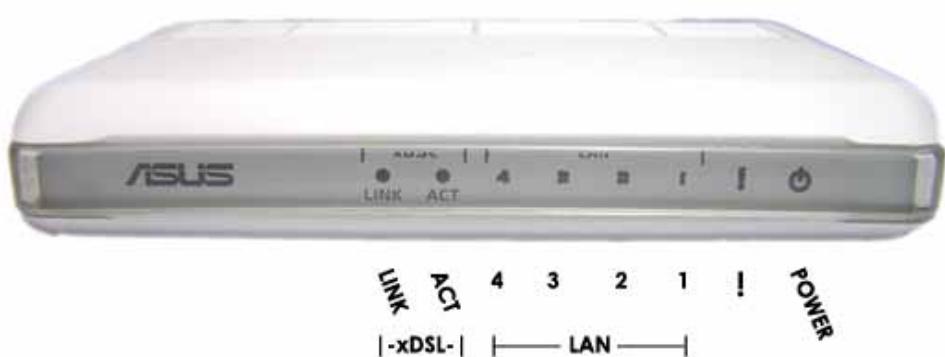
- 4-Port ADSL router
- 15 VAC AC power adapter
- RJ-11 telephone cable
- RJ-45 Ethernet cable
- Splitter
- User Manual / Quick Guide



## 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.
- Do not open the cover of this equipment. Opening the cover will void any warranties on the equipment.
- 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.

## Front Panel View



LED	Mode	Indication
XDSL Link	Solid	ADSL is connected.
	No light	ADSL is not connected. The ALARM led will be red.
	Blinking	The router is connected to ADSL.
XDSL ACT	Solid	ADSL is connected, and there is no ADSL traffic.
	No light	ADSL is not connected.
	Quick blinking	There is ADSL traffic.
LAN1-LAN4	Solid	Router is connected to the LAN.
	No light	No connection to the LAN. Check if the LAN cable is connected to the router.
	Blinking	LAN traffic
! (Alarm)	Solid (red)	ADSL is not connected.
	No light	ADSL is connected.
	Solid	Router is powered on.
(Power)	No light	Router is not powered. Check if the router is plugged in and if the power switch is turned on.

## Back Panel View

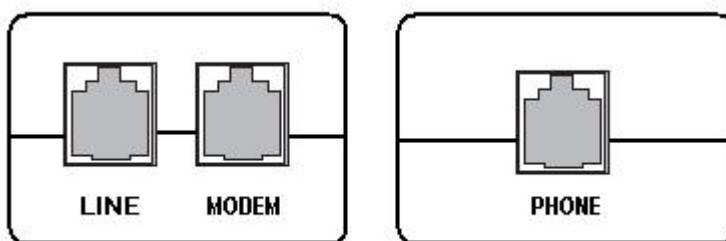


Port	Description
Line	RJ-11 cable connects to the splitter provided. <i>NOTE:</i> To be used by maintenance professionals only. If the router needs repair, bring it to a service professional.
Console	
Reset	<i>Restart</i> —press the button for less than 4 seconds. <i>Default settings</i> —press the button for 4 seconds or longer.
LAN1-LAN4	RJ-45 connects the unit to an Ethernet device such as a PC or a switch.
Power	Connects to a 15 VAC AC power adapter.
On / Off	Press to turn the router on and off.

## Installing the Router

### Connect the ADSL Line and Telephone

An RJ-11 cable will be connected to the wall phone jack and the line-end of the splitter. Connect another RJ-11 phone cable from the modem-end of the splitter to the port labeled "line" on the router. A third RJ-11 phone cable will be needed to connect the telephone to the phone-end of the splitter.



*NOTE: See connections on the installation diagram.*

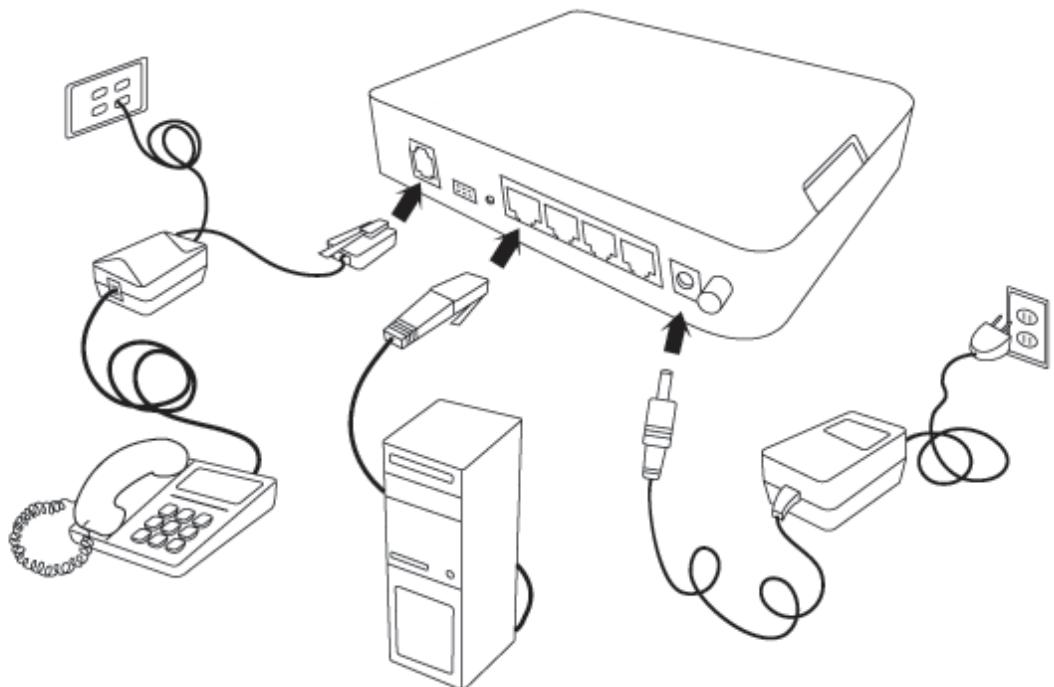
### Connect the PC to the Router

Use the Ethernet cable to connect your computer directly to the router. Connect one end of the Ethernet cable to one of the ports labeled LAN on the rear panel of the router and connect the other end to the Ethernet port of your computer. Attach any additional PCs to the router using RJ-45 cables to the port labeled LAN on the rear panel of the router.

### Connect the Power Adapter

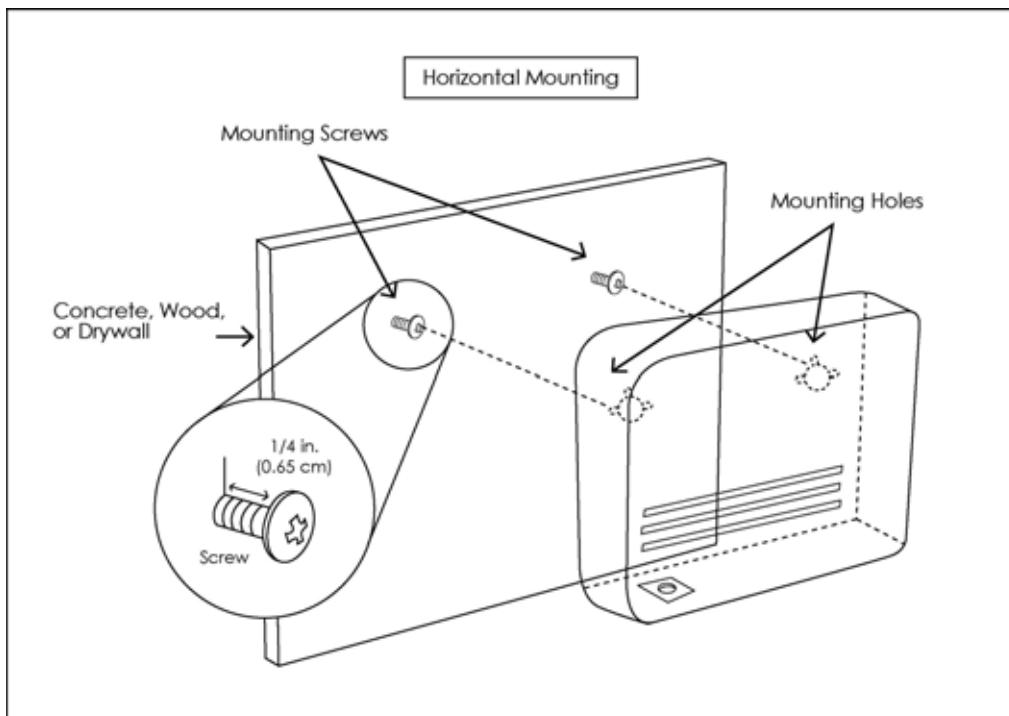
Complete the process by connecting the AC power adapter to the POWER connector on the back of the device and plug the adapter into a wall outlet or power strip. Then turn on and boot up your PC and any LAN devices, such as hubs or switches, and any computers connected to them.

## Installation Diagram



## Mounting the Router

The router can be mounted on the wall with the screws provided. Mounting can be done on wall material including concrete, wood, or drywall. Select an appropriate location free from obstructions or any possible interference. Make sure the cables can be easily attached to the router without strain. The illustration below shows how to mount the router horizontally on a wall.



## Configuring Your Computer

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

- Your PC's TCP/IP address: **192.168.1.\_**( the last number is any number between 2 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 explains 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 click on 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 combination can display device status, but cannot change or save configurations and are limited to only certain screens. The admin / admin combination can perform all functions. Passwords can be changed at any time. The following manual shows configurations based on the admin / admin log in.

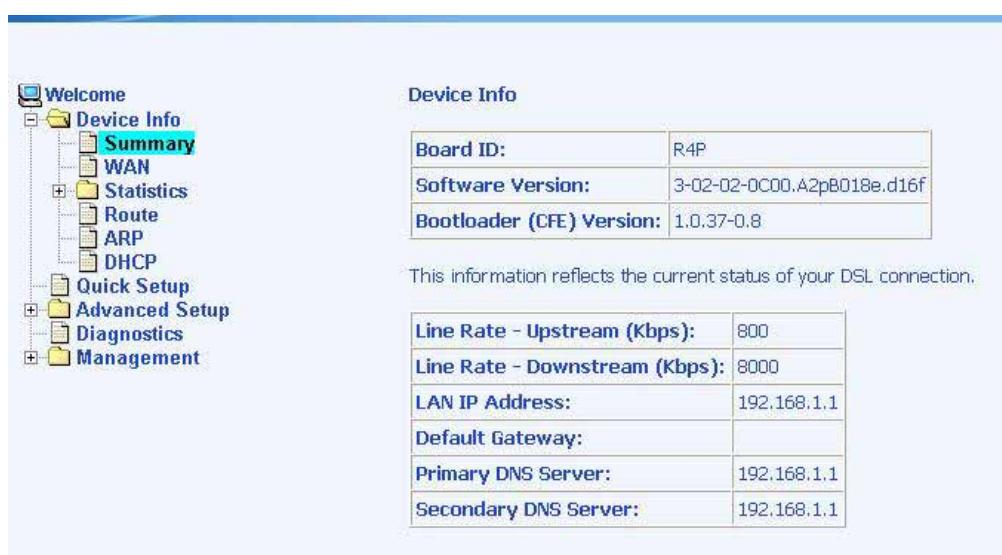
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## Device Info

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

### Summary

Access the general status report from the router by clicking on "Summary" under "Device Info". It shows information about the router such as software version, bootloader, 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.

The screenshot shows the "WAN Info" section of the router's configuration interface. On the left is a navigation tree with "WAN" selected under "Statistics". The main area displays a table with one row of data:

VPI/VCI	Conn_ID	Category	Service Name	Interface Name	Protocol	IGMP	QoS	Status	IP Address
14/40	1	USB	br_3_35	ppp_14_40_1	PPPoE	Disabled	Disabled	Enabled	PPP Down

## STATISTICS

### LAN Statistics

Access the LAN statistics from the router by clicking on the "LAN" item under "Statistics".

The screenshot shows the "Statistics -- LAN" page. The left sidebar has "LAN" selected under "Statistics". The main area contains a table showing LAN interface statistics:

Interface	Received				Transmitted			
	Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops
Ethernet	1872	15	0	0	3196	15	0	0

A "Reset Statistics" button is located below the table.

### WAN Statistics

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

The screenshot shows the "WAN Statistics" page. The left sidebar has "WAN" selected under "Statistics". The main area contains a table showing WAN interface statistics:

Service	VPI/VCI	Protocol	Interface	Received			Transmitted		
				Bytes	Pkts	Errs	Drops	Bytes	Pkts
br_3_35	14/40	PPPoE	ppp_14_40_1	0	0	0	0	0	0

A "Reset Statistics" button is located below the table.

## ATM Statistics

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

The screenshot shows the ATM Statistics interface with the following data:

In Octets	Out Octets	In Errors	In Unknown	In Hec Errors	In Invalid Vpi Vcl Errors	In Port Not Enable Errors	In PTI Errors	In Idle Cells	In Circuit Type Errors	In OAM RM CRC Errors	In GFC Errors
0	350	0	0	0	0	0	0	0	0	0	0

In Octets	Out Octets	In Broadcast Pkts	Out Broadcast Pkts	In Errors	Out Errors	In Discards	Out Discards
0	350	0	5	0	0	0	0

VPI/VCI	CRC Errors	SAR Timeouts	Oversized SDUs	Short Packet Errors	Length Errors
14/40	0	0	0	0	0

## 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.

**Statistics -- ADSL**

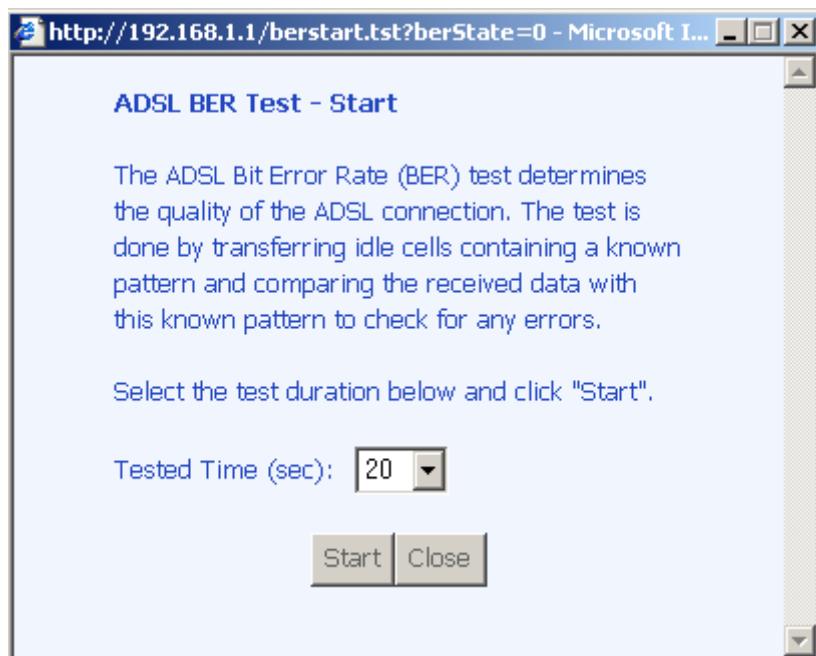
Mode:	G.DMT	
Type:	Fast	
Line Coding:	Trellis On	
Status:	No Defect	
Link Power State:	L0	
	Downstream	Upstream
SNR Margin (dB):	12.3	13.0
Attenuation (dB):	15.5	0.5
Output Power (dBm):	7.8	12.5
Attainable Rate (Kbps):	9888	1056
Rate (Kbps):	8000	800
K (number of bytes in DMT frame):	251	26
R (number of check bytes in RS code word):	0	0
S (RS code word size in DMT frame):	1	1
D (interleaver depth):	1	1
Delay (msec):	0	0
Super Frames:	32111	32109
Super Frame Errors:	0	916
RS Words:	0	0
RS Correctable Errors:	0	0
RS Uncorrectable Errors:	0	N/A
HEC Errors:	0	388
ODC Errors:	0	0
LCD Errors:	0	0
Total Cells:	11505147	0
Data Cells:	0	0
Bit Errors:	0	0
Total ES:	0	0
Total SES:	0	0
Total UAS:	20	0

[ADSL BER Test](#)   [Reset Statistics](#)

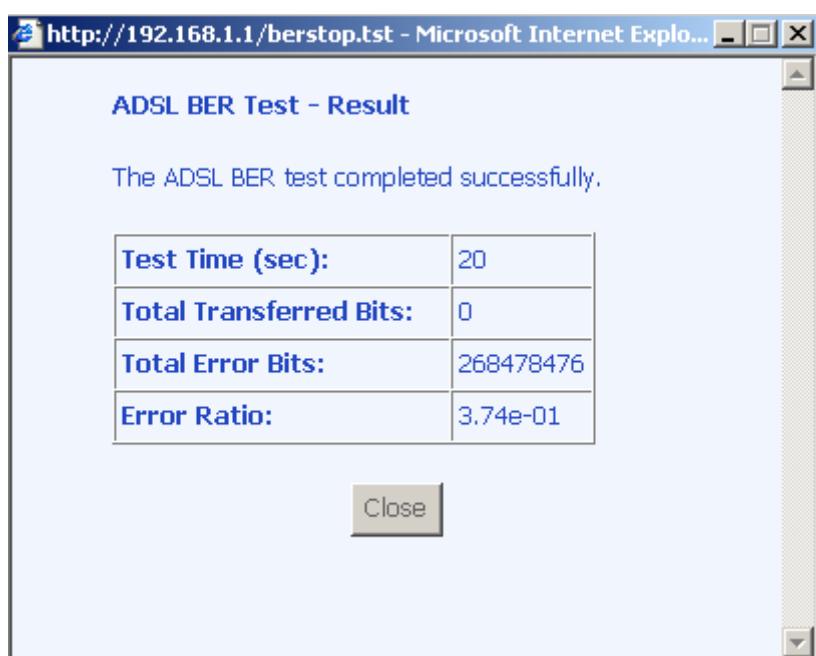
## ADSL BER Test

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 page, the following pop-up screen will appear allowing you to set the tested time and to begin the test.



Below is an ADSL BER Test result screen displaying information about the test and the error bits and ratio.



## Route

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

The screenshot shows the "Device Info -- Route" page. On the left is a navigation tree with "Device Info" selected. Under "Device Info", "Route" is highlighted in blue. The main area displays a table titled "Device Info -- Route" with one row of data. The table has columns: Destination, Gateway, Subnet Mask, Flags, Metric, Service, and Interface. The data row is: Destination 192.168.1.0, Gateway 0.0.0.0, Subnet Mask 255.255.255.0, Flags U, Metric 0, Service (empty), and Interface br0.

Destination	Gateway	Subnet Mask	Flags	Metric	Service	Interface
192.168.1.0	0.0.0.0	255.255.255.0	U	0		br0

## ARP

Access the ARP status report from the router by clicking on the "ARP" item under "Device Info".

The screenshot shows the "Device Info -- ARP" page. On the left is a navigation tree with "Device Info" selected. Under "Device Info", "ARP" is highlighted in blue. The main area displays a table titled "Device Info -- ARP" with one row of data. The table has columns: IP Address, Flags, HW Address, and Device. The data row is: IP Address 192.168.1.2, Flags Complete, HW Address 00:07:40:FD:1C:F9, and Device br0.

IP Address	Flags	HW Address	Device
192.168.1.2	Complete	00:07:40:FD:1C:F9	br0

## 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.

The screenshot shows a web-based management interface for a network device. On the left is a navigation tree:

- Welcome
- Device Info
  - Summary
  - WAN
- Statistics
  - LAN
  - WAN
  - ATM
  - ADSL
  - Route
  - ARP
  - DHCP**
- Quick Setup
- Advanced Setup
- Diagnostics
- Management

The "DHCP" node is highlighted with a blue border. To the right, the title "Device Info - DHCP Leases" is displayed above a table:

Hostname	MAC Address	IP Address	Expires In
d510-q60j0nc0w	00:08:02:0C:36:0C	192.168.1.2	23 hours, 46 minutes, 41 seconds

## Quick Setup

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

### ATM PVC Configuration

To enable the DSL 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.

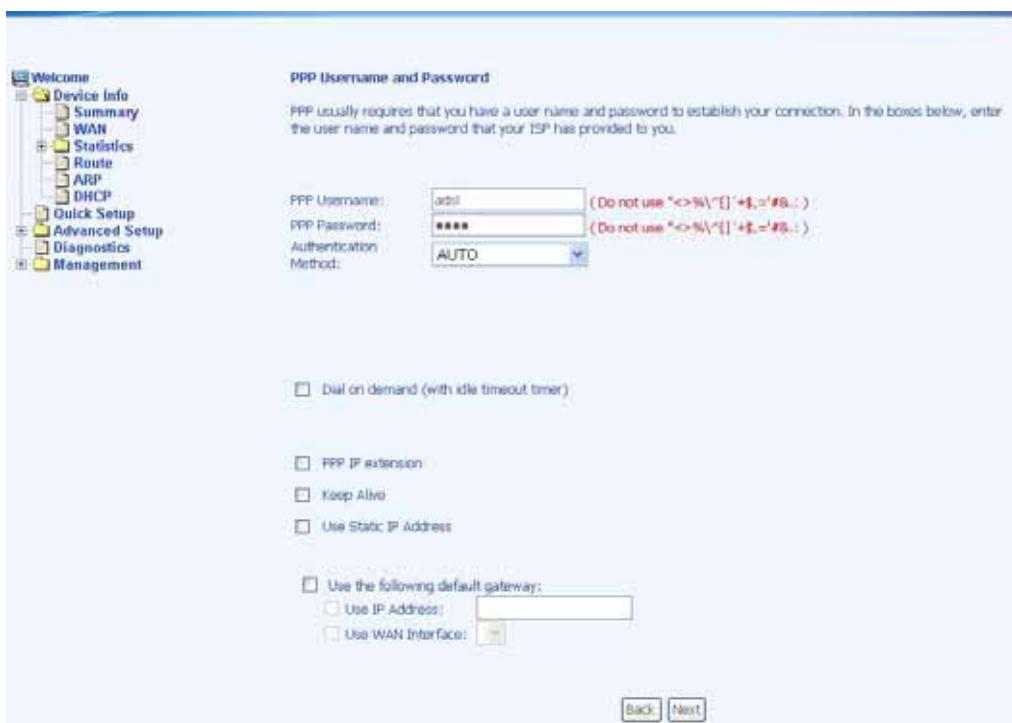
If you uncheck the *DSL Auto-connect* box, the resulting screen is seen below. Enter the VPI / VCI as indicated by your ISP and click on **Next**.



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 PPPoE example. Click on **Next** to continue.



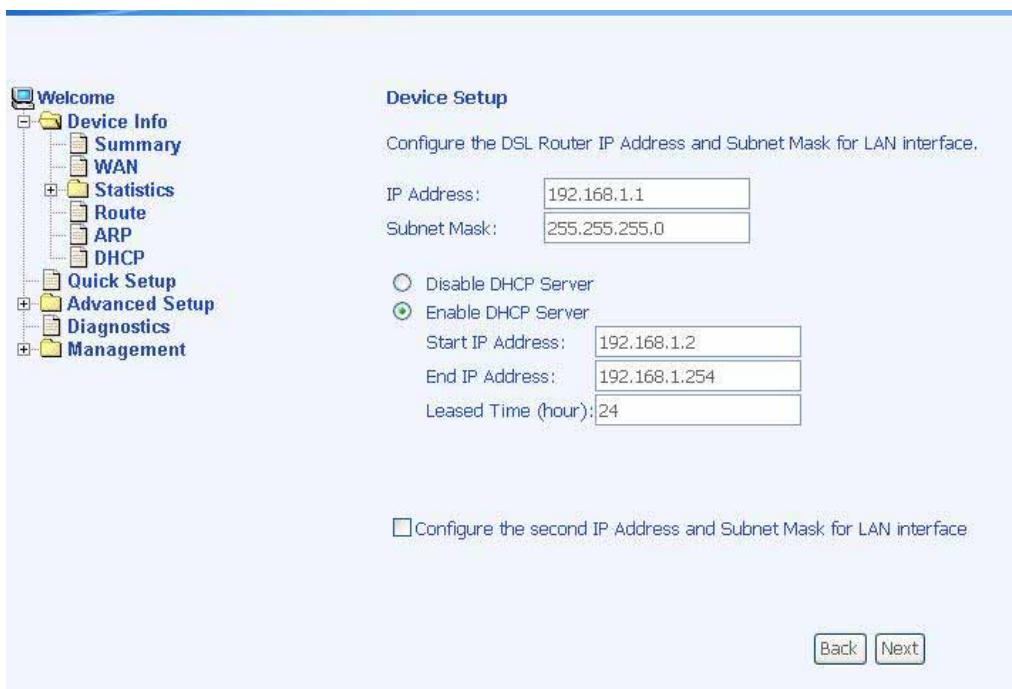
Enter the PPP username and password as given by your ISP. Then decide if you will be using any features such as *dial on demand*, *PPP IP extension*, *keep alive* and then click on **Next**.



The next step is to configure the Network Address Translation (NAT) settings. For the example, NAT will be enabled. Leave the remaining fields at default and 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.



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.

The screenshot shows the 'WAN Setup - Summary' configuration page. On the left is a navigation tree with 'Device Info' expanded, showing 'Summary', 'WAN', 'Statistics', 'Route', 'ARP', 'DHCP', and 'Quick Setup'. Under 'Advanced Setup', 'Diagnostics' and 'Management' are listed. The main area is titled 'WAN Setup - Summary' with the sub-instruction 'Make sure that the settings below match the settings provided by your ISP.' Below this is a table of configuration parameters:

VPI / VCI:	14 / 40
Connection Type:	PPPoE
Service Name:	pppoe_14_40_2
Service Category:	UBR
IP Address:	Automatically Assigned
Service State:	Enabled
NAT:	Enabled
Firewall:	Disabled
IGMP Multicast:	Disabled
Quality Of Service:	Disabled

At the bottom, a note says: 'Click "Save/Reboot" to save these settings and reboot router. Click "Back" to make any modifications. NOTE: The configuration process takes about 1 minute to complete and your DSL Router will reboot.' There are 'Back' and 'Save/Reboot' buttons at the bottom.

When you click on **Save / Reboot**, the below message will appear and the router will reboot simultaneously for about 2 minutes.

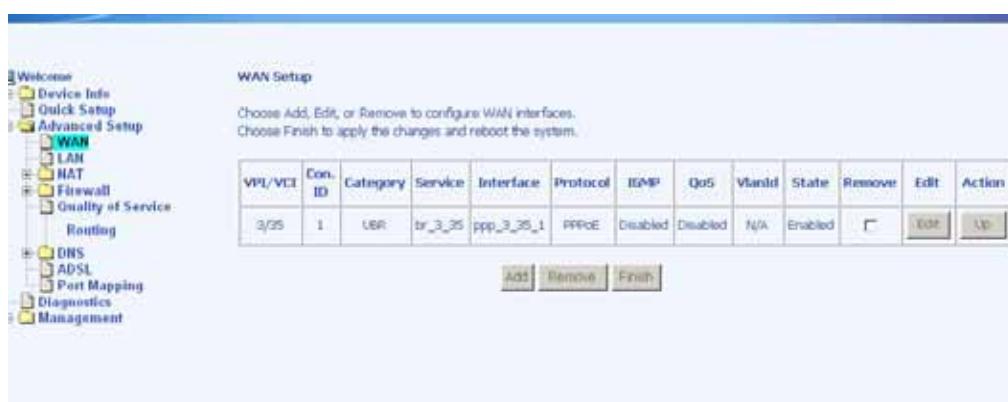
The screenshot shows the 'DSL Router Reboot' confirmation message. The left sidebar has the same navigation tree as the previous screenshot. The main area displays the message: 'The DSL Router has been configured and is rebooting. Close the DSL Router Configuration window and wait for 2 minutes before reopening your web browser. If necessary, reconfigure your PC's IP address to match your new configuration.'

## Advanced Setup

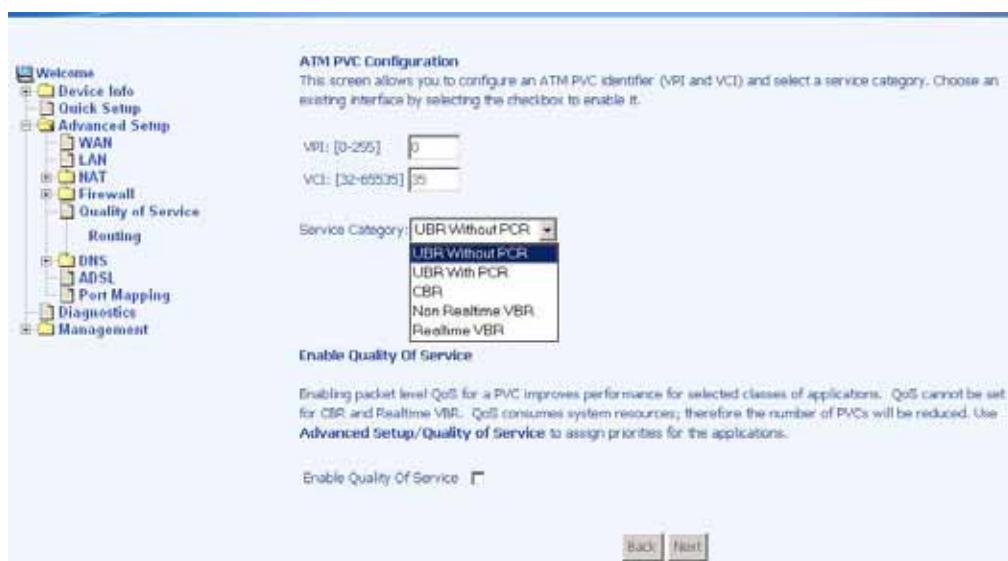
This section of the setup is an advanced version of the quick setup. If you want to make specific configurations to your router such as firewall, port mapping, quality of service, DNS, etc., consider going through this advanced setup for a more comprehensive configuration.

### WAN

Configure the WAN settings as provided by your ISP. This section is basically the same as the Quick Setup section for configuring a WAN connection.



Click on the **Add** button if you want to add a new rule for the WAN interface. The following ATM PVC Configuration screen appears.



The ATM PVC Configuration screen allows you to configure an ATM PVC identifier (VPI and VCI) and select a service category.

Verify the following values with 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.

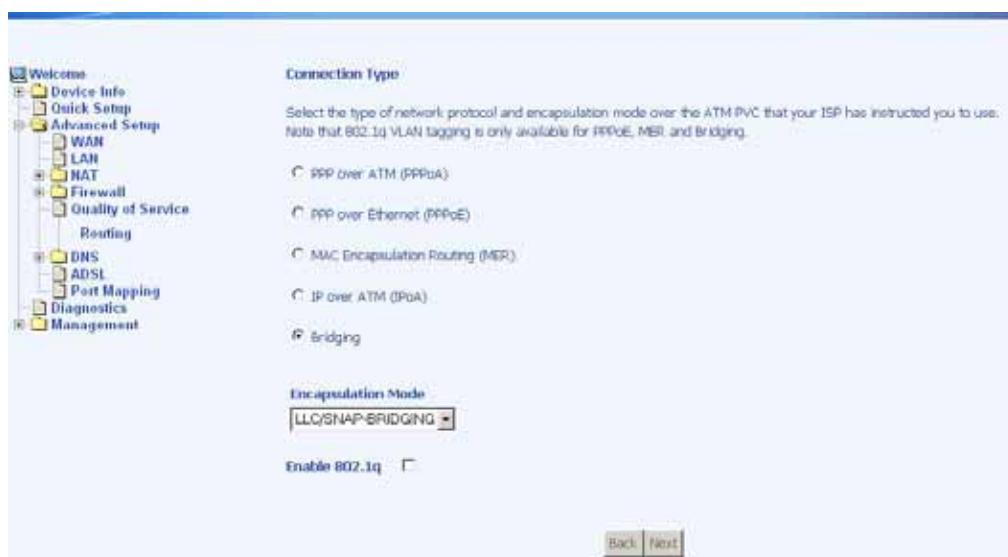
Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs is reduced. If you want to enable QoS service, click on the **Enable Quality Of Service** check box.

## Connection Type

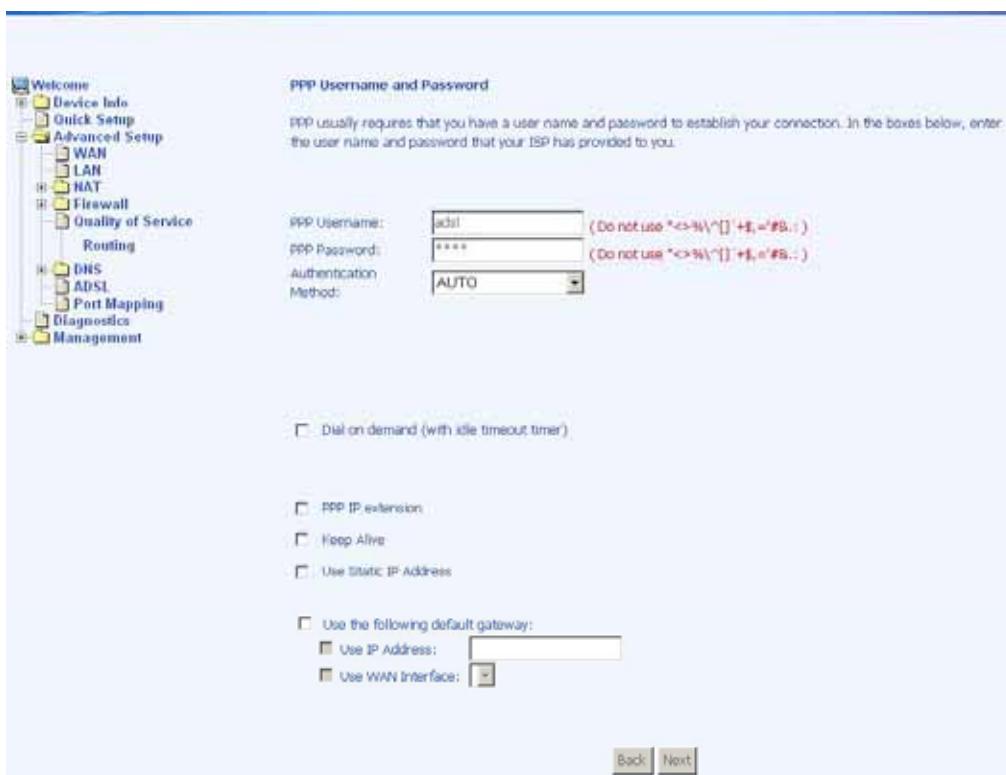
This screen shows the below types of network protocols and encapsulation modes–

- 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**. The example below is a *bridge connection type*.



After you click on **Next**, the below screen appears allowing you to disable the bridge service if desired.



If you wish to enable Network Address Translation (NAT), then click on the *Enable NAT* radio button. Other services include firewall, IGMP multicast, WAN service.



When the settings are complete, the next screen shows a **WAN Setup - Summary** screen displaying the WAN configurations made.



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.



## 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 would like 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 the **Add** button to set up a virtual server.



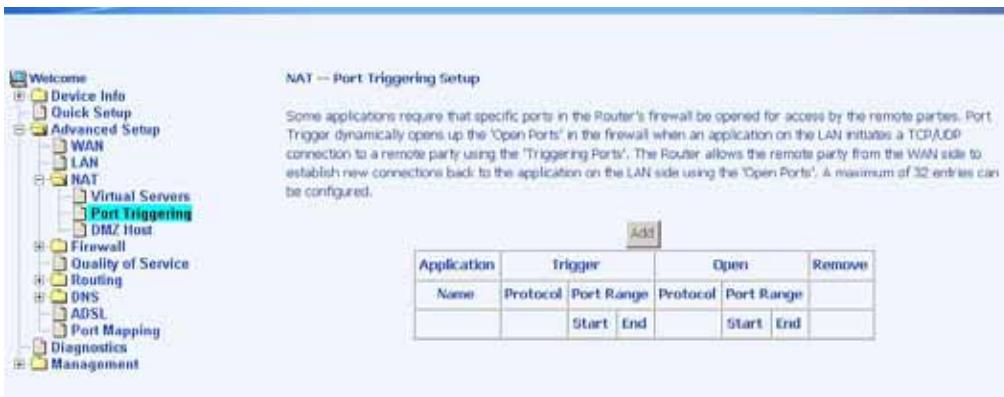
In the next screen, select the virtual server from the drop-down list and complete the server IP address, then click on the **Save / Apply** button.

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.

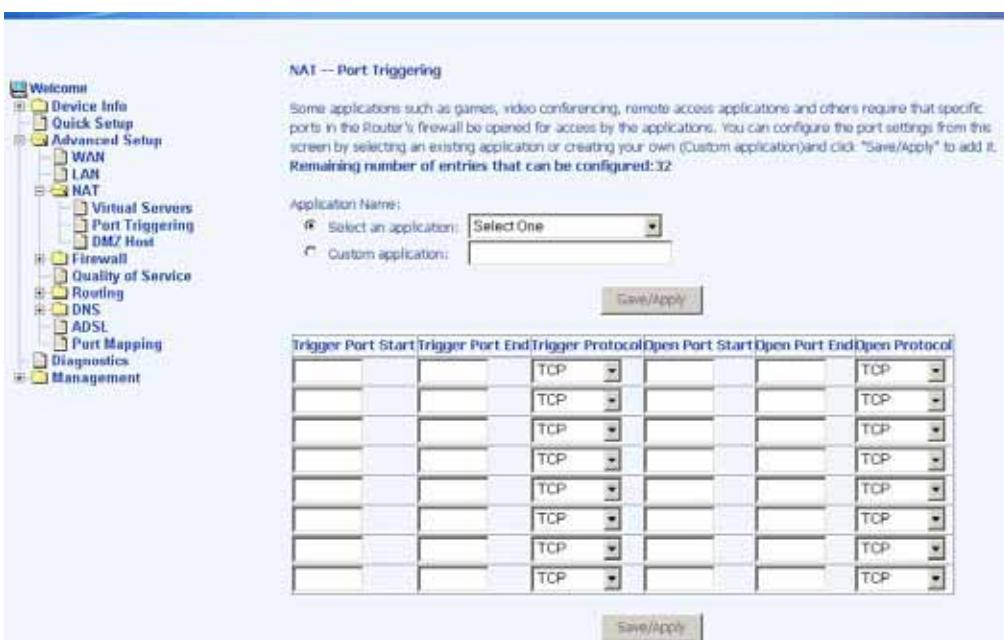
NAT -- Virtual Servers Setup							
Virtual Server allows you to direct incoming traffic from the WAN side (identified by protocol and external port) to the internal server with a private IP address on the LAN side. The internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. A maximum of 32 entries can be configured.							
						Add	Remove
Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IP Address	Remove
Age of Empires	47624	47624	TCP	47624	47624	192.168.1.2	█
Age of Empires	6073	6073	TCP	6073	6073	192.168.1.2	█
Age of Empires	2300	2400	TCP	2300	2400	192.168.1.2	█
Age of Empires	2300	2400	UDP	2300	2400	192.168.1.2	█

## 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 showing the name of the application that you have added a port triggering function. You will be able to add or remove selections made, by clicking on the **Add** and **Remove** buttons.

Application	Trigger		Open		Remove		
	Name	Protocol	Port Range	Protocol		Port Range	
Aim Talk	TCP	4099	4099	TCP	5191	5191	<input type="checkbox"/>
		Start	End		Start	End	

### DMZ Host

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

## Firewall

### IP Filtering—Outgoing

The outgoing filter will block 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**.

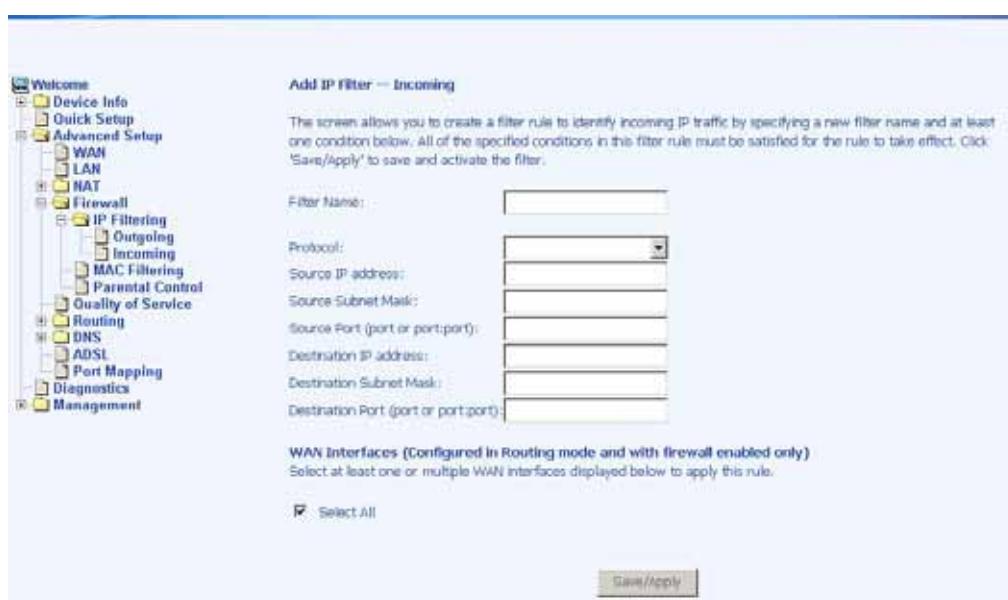


## IP Filtering—Incoming

Incoming 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, and then click on **Save/Apply** to add the setting.



## 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 appears, allowing 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.



After you click you **Add**, you will see the below screen. You will be able to enter the MAC address of the PC that you wish to place on a time of day restriction. Click on **Save / Apply** to save the settings and to continue.

## Quality of Service

You can configure the Quality of Service to apply different priorities to traffic on the router. Click on **Add** to view the *Add Network Traffic Class Rule* screen.

This screen allows you to add a network traffic class rule. Procedures for this setup are as follows—

1. Give a name to this traffic class.
2. Assign a priority level—low, medium, and high—to this traffic class.
3. Select an IP precedence from the 0-7 range.
4. Enter an IP Type of Service from the following selections—

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

5. Last, enter the traffic conditions for the class such as the protocol (TCP / UDP, TCP, UDP, or ICMP) to be used. Click **Save / Apply** to save the settings.

## 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.

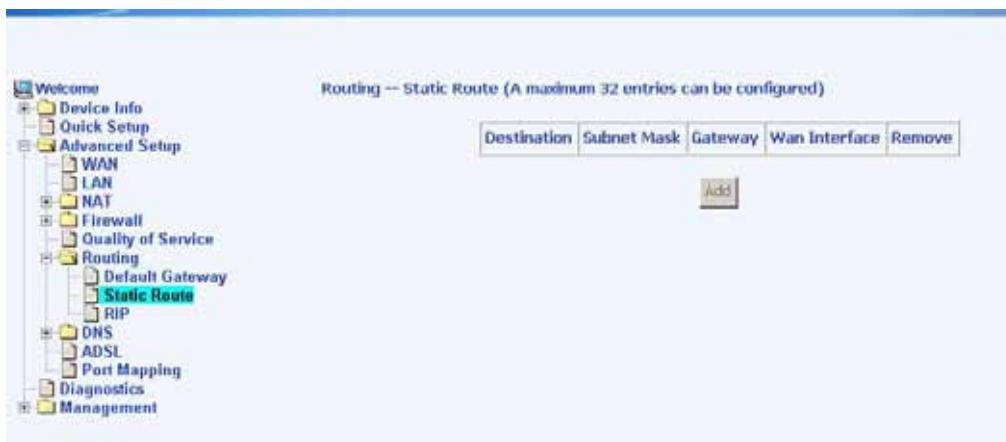


If you do not want to enable *Automatic Assigned Default Gateway*, then uncheck the box as seen below. You will be given the choice to use the default gateway IP address. If you decide to change the automatic assigned default gateway address, you must reboot the router to be assigned a new default gateway IP address. Also, select the WAN interface that you will be using. Click on **Save / Apply** to save the settings.

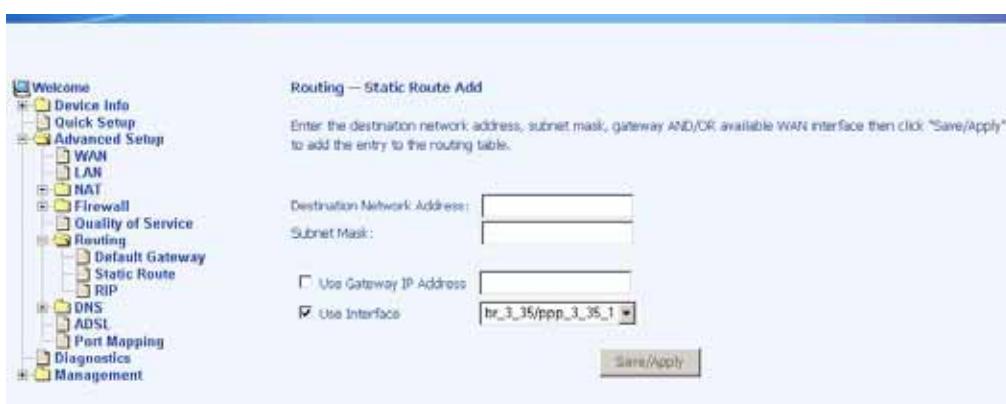


## Static Route

Use the Routing - Static Route screen to add a static route to the routing table.

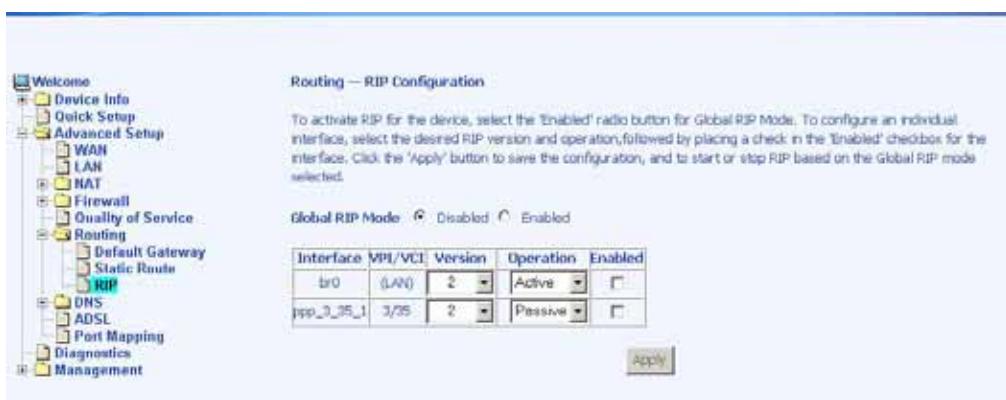


Enter the route information and click on **Save/Apply** to make it active. No reboot is required.



## RIP

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



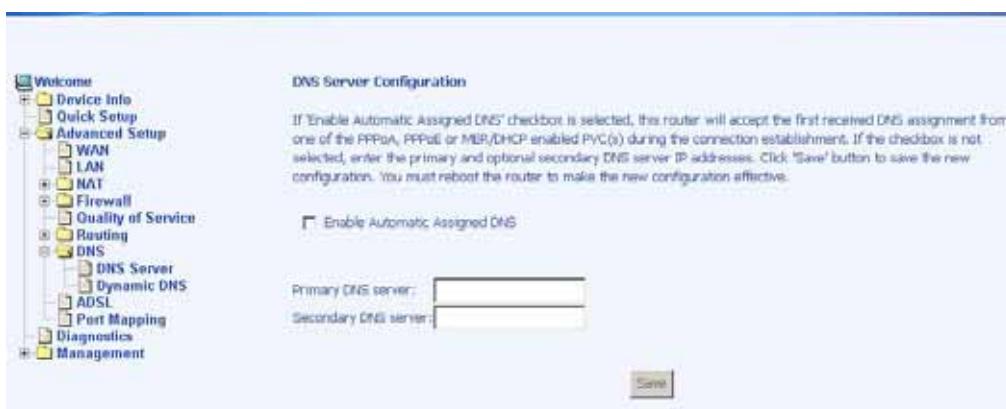
## DNS

### DNS Server

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

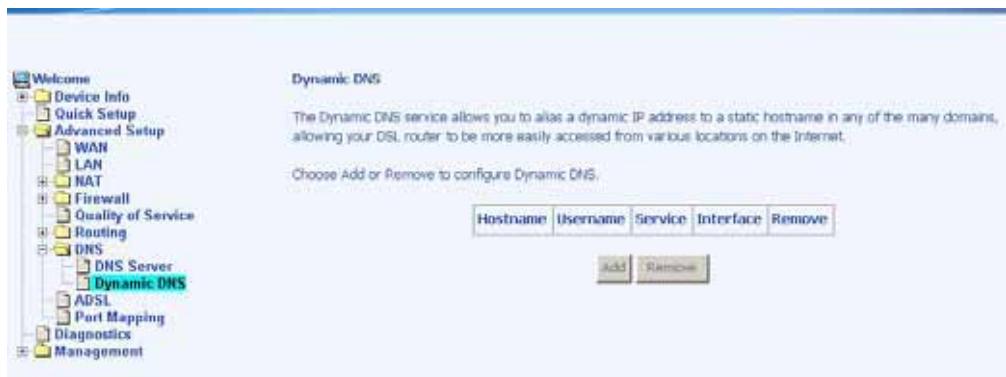


If you uncheck the *Enable Automatic Assigned DNS* checkbox, then there will be two additional fields—primary and secondary DNS server—to enter as seen below.

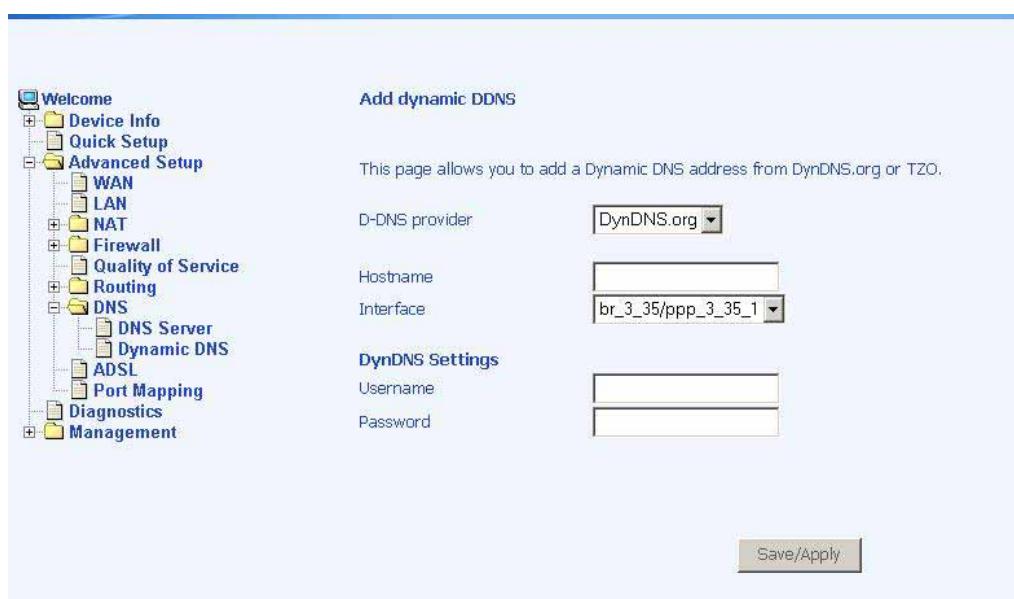


### Dynamic DNS

Dynamic DNS is a service for allowing an Internet domain name to be assigned to a varying IP address. This makes it possible for other sites on the Internet to establish connections to your without needing to track the IP address themselves. Click on **Add** to set up a dynamic DNS configuration.

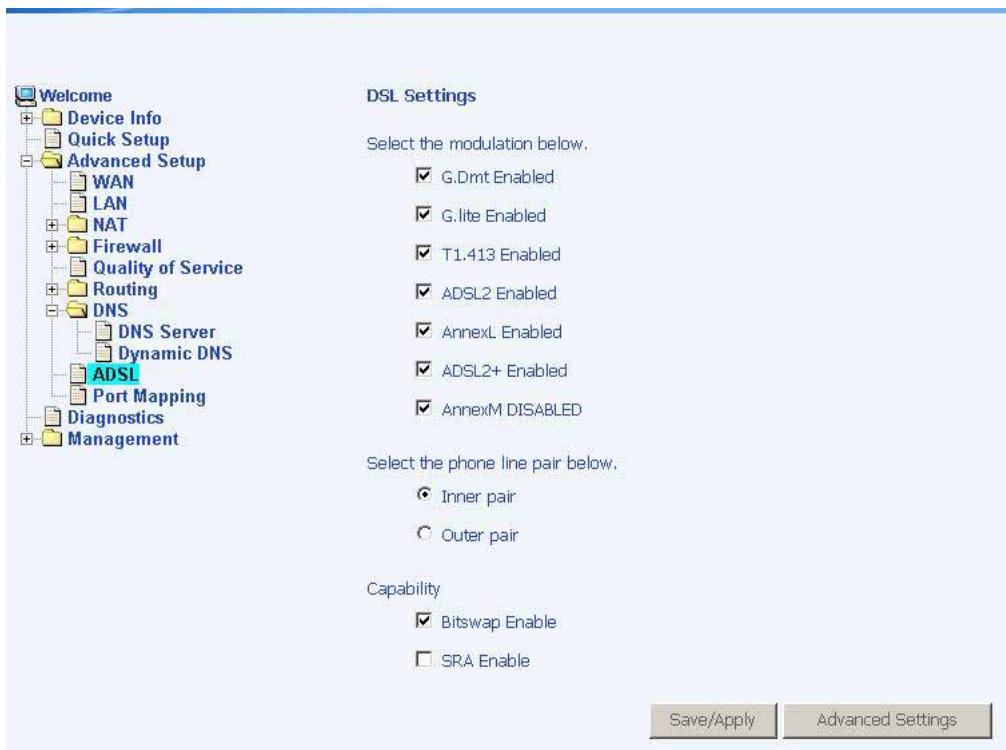


This screen allows you to add a dynamic DNS address from DynDNS.org or TZO. Enter the hostname and the interface that you are using. Also enter the username and password assigned by the DNS service. Click on **Save / Apply** to save these configurations.



## ADSL

The DSL settings page 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 page. Test modes include—normal, reverb, medley, no retrain, and L3. After you make your selections of the test mode, click on **Apply** to save these settings first before you go to *Tone Selection*.



## 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.

The screenshot shows a Microsoft Internet Explorer window titled "http://192.168.1.1/adslcfgtone.html - Microsoft Internet Explorer". The main title is "ADSL Tone Settings". Below it are two sections: "Upstream Tones" and "Downstream Tones", each containing a list of tone numbers with checkboxes. At the bottom are buttons for "Check All", "Clear All", "Apply", and "Close".

**Upstream Tones**

0  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  
 16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31

**Downstream Tones**

32  33  34  35  36  37  38  39  40  41  42  43  44  45  46  47  
 48  49  50  51  52  53  54  55  56  57  58  59  60  61  62  63  
 64  65  66  67  68  69  70  71  72  73  74  75  76  77  78  79  
 80  81  82  83  84  85  86  87  88  89  90  91  92  93  94  95  
 96  97  98  99  100  101  102  103  104  105  106  107  108  109  110  111  
 112  113  114  115  116  117  118  119  120  121  122  123  124  125  126  127  
 128  129  130  131  132  133  134  135  136  137  138  139  140  141  142  143  
 144  145  146  147  148  149  150  151  152  153  154  155  156  157  158  159  
 160  161  162  163  164  165  166  167  168  169  170  171  172  173  174  175  
 176  177  178  179  180  181  182  183  184  185  186  187  188  189  190  191  
 192  193  194  195  196  197  198  199  200  201  202  203  204  205  206  207  
 208  209  210  211  212  213  214  215  216  217  218  219  220  221  222  223  
 224  225  226  227  228  229  230  231  232  233  234  235  236  237  238  239  
 240  241  242  243  244  245  246  247  248  249  250  251  252  253  254  255

## 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 should be created.

Click on the **Add** button as displayed below. If you need to edit an entry, then click on the **Edit** button.

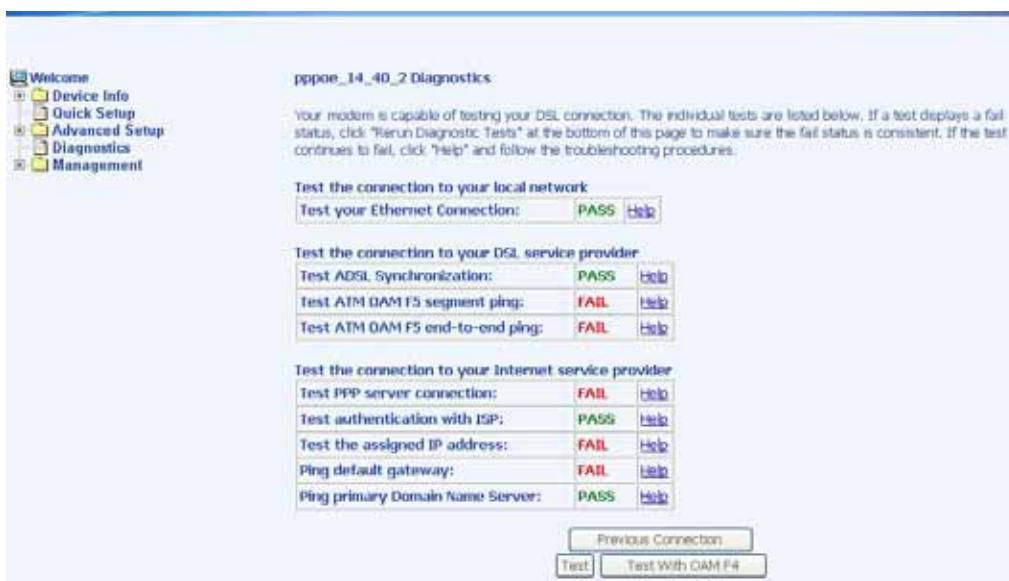
After clicking the **Add** button, the below configuration screen appears, allowing you enter the groups and the interfaces they are associated with.

## Diagnostics

The diagnostics screen allows you to run diagnostic tests to check your DSL connection. The results will show test results of three connections–

- Connection to your local network
- Connection to your DSL service provider
- Connection to your Internet service provider

There are two buttons at the bottom of the page—**Test** and **Test with OAM F4**—which will allow you to retest if necessary.



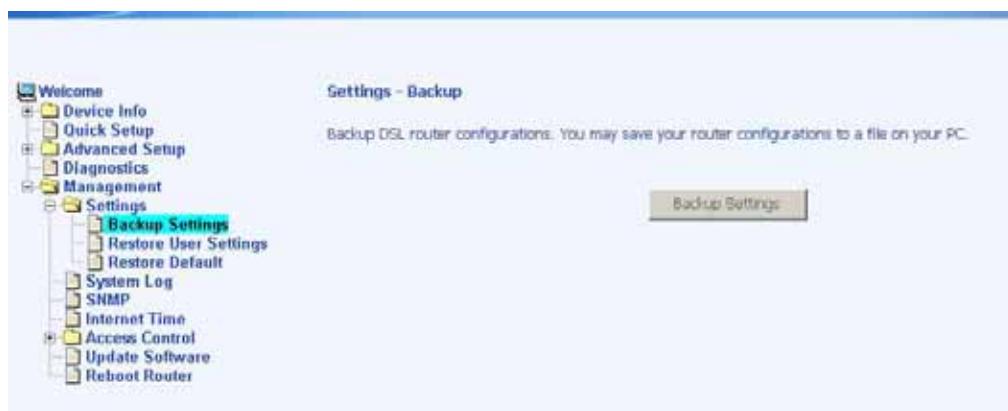
# Management

The Management section gives you access to certain setups for the purpose of maintaining the system, including backing up the configurations, viewing system log, maintaining access control, updating software, etc.

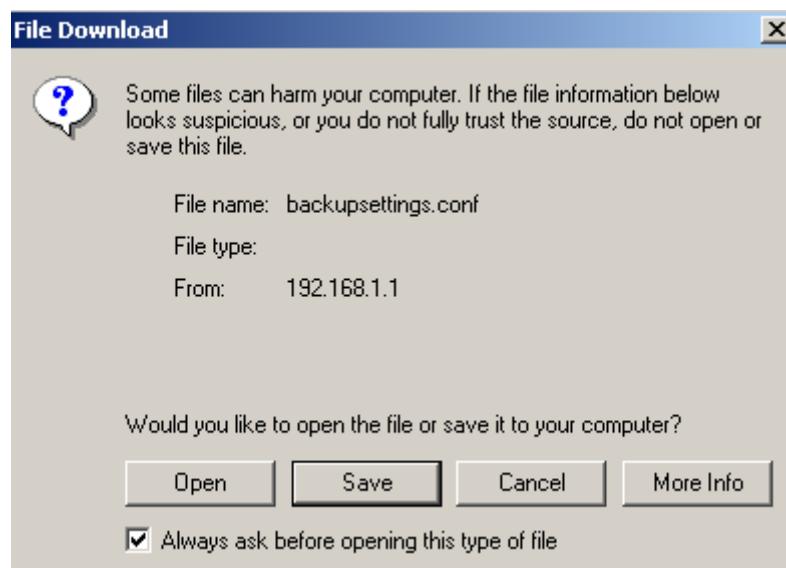
## Settings

### Backup Settings

To save a copy of the configurations that you have made on your router, click on the **Backup Settings** button.

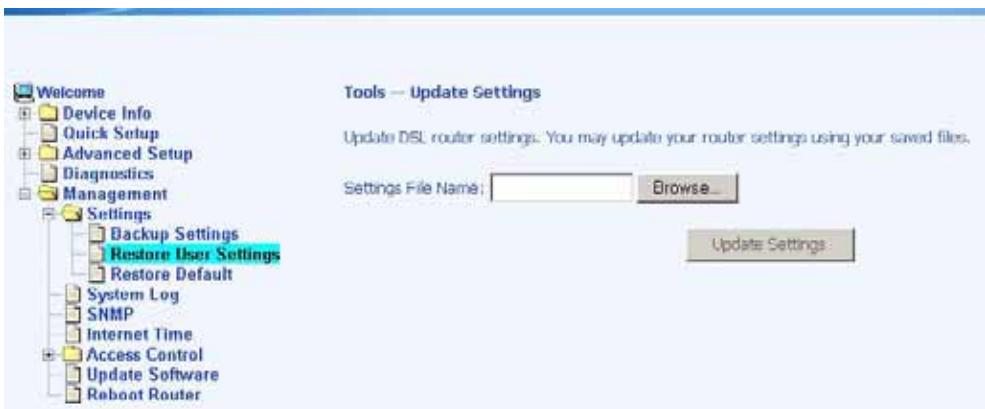


The below pop-up screen will appear with a prompt to open or save the file to your computer.



## Restore User Settings

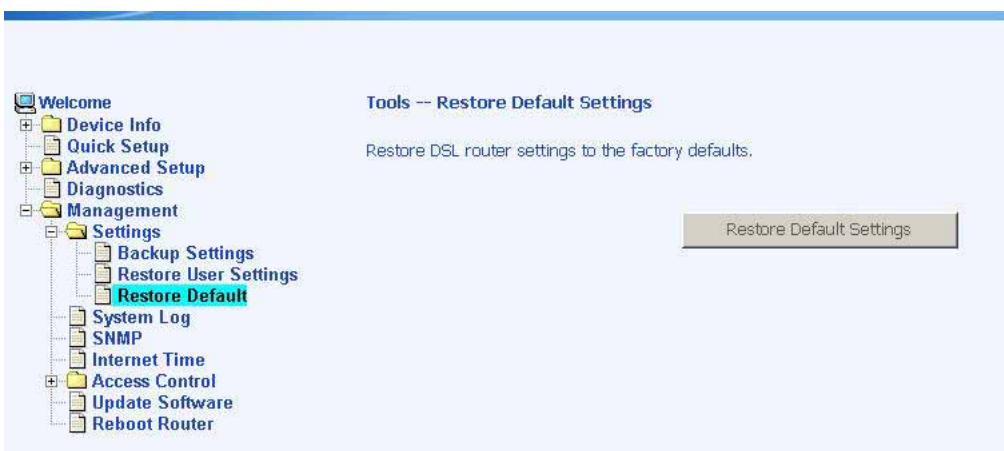
To restore saved settings, select Management Settings Restore User Settings. Then select the backup file you want to restore and click on **Update Settings**.



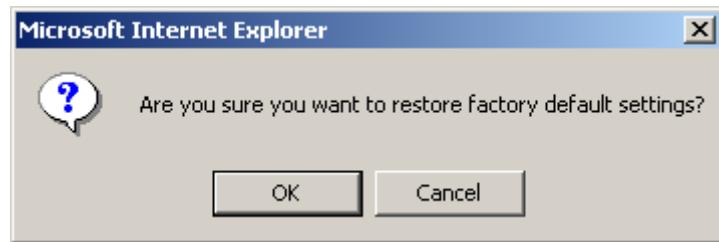
The router will restore settings and reboot to activate the restored settings.

## Restore Default

Restore Default will delete all current settings and restore the router to factory default settings. To restore the router to factory default settings, select Management Settings Restore Default. Click on the **Restore Default Settings** button.



Click on **OK** when the pop-up window appears confirming that you want to restore factory default settings to your router.



The router will restore the default settings and reboot.

## System Log

The System Log dialog allows you to view the System Log and configure the System Log options. To view the System Log click on the **View System Log** button to check the log file.

A screenshot of a web-based configuration interface. On the left is a navigation tree:

- Welcome
- Device Info
- Quick Setup
- Advanced Setup
- Diagnostics
- Management
  - Settings
    - Backup Settings
    - Restore User Settings
    - Restore Default
    - System Log** (highlighted in green)
    - SNMP
  - Internet Time
  - Access Control
  - Update Software
  - Reboot Router

On the right, under the heading "System Log", there is descriptive text and two buttons:

The System Log dialog allows you to view the System Log and configure the System Log options.

Click "View System Log" to view the System Log.

Click "Configure System Log" to configure the System Log options.

**View System Log**    **Configure System Log**

Below is a view of the **System Log**.

The screenshot shows a Microsoft Internet Explorer window with the title bar "http://192.168.1.1/logview.cmd - Microsoft Internet Explorer". The menu bar includes File, Edit, View, Favorites, Tools, and Help. The toolbar has icons for Back, Forward, Stop, Home, and Favorites. The main content area is titled "System Log" and contains a table with the following data:

Date/Time	Facility	Severity	Message
Jan 1 00:00:15	syslog	emerg	BCM96345 started: BusyBox v1.00 (2005.08.26-12:53+0000)
Jan 1 00:00:16	user	crit	kernel: eth0 Link UP.
Jan 1 00:00:16	user	crit	kernel: ADSL G.994 training
Jan 1 00:00:25	user	crit	kernel: ADSL G.992 channel analysis
Jan 1 00:00:29	user	crit	kernel: ADSL link up, fast, us=800, ds=8000
Jan 1 00:01:59	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:02:00	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:02:06	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:02:07	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:02:26	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:02:27	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:03:22	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:03:23	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/3.
Jan 1 00:03:24	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/40.
Jan 1 00:03:25	user	crit	kernel: OAM loopback response not received on VPI/VCI 14/4.

Buttons at the bottom: Refresh, Close.

## Configure System Log

If the log is enabled, the system will log selected events: Emergency, Alert, Critical, Error, Warning, Notice, Informational, and Debugging. All events above or equal to the selected log level will be logged and displayed.

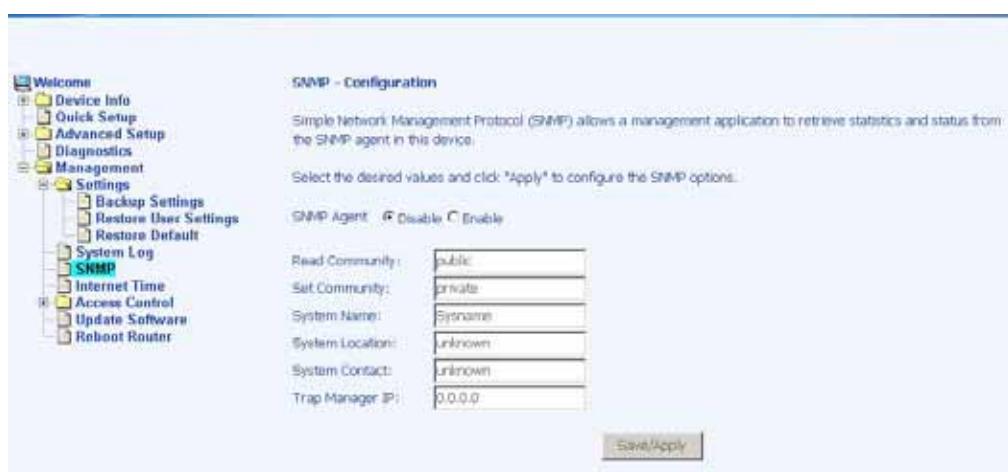
The screenshot shows the "System Log — Configuration" page. On the left is a navigation tree with nodes like Welcome, Device Info, Quick Setup, Advanced Setup, Diagnostics, Management, Settings (Backup Settings, Restore User Settings, Restore Default), System Log (selected), SNMP, Internet Time, Access Control, Update Software, and Reboot Router. The main content area has the title "System Log — Configuration". It contains the following text: "If the log mode is enabled, the system will begin to log all the selected events. For the Log Level, all events above or equal to the selected level will be logged. For the Display Level, all logged events above or equal to the selected level will be displayed. If the selected mode is 'Remote' or 'Both,' events will be sent to the specified IP address and UDP port of the remote syslog server. If the selected mode is 'Local' or 'Both,' events will be recorded in the local memory." Below this is a note: "Select the desired values and click 'Save/Apply' to configure the system log options." There are three configuration fields: "Log:" with radio buttons for Disable (selected) and Enable; "Log Level:" with a dropdown menu set to "Debugging"; "Display Level:" with a dropdown menu set to "Error"; and "Mode:" with a dropdown menu set to "Local". A "Save/Apply" button is at the bottom right.

If the selected mode is "Remote" or "Both", events will be sent to the specified IP address and UDP port of a remote system log server. If the selected mode is "Local" or "Both", events will be

recorded in the local memory. Select the desired values and click on the "Save/Apply" button to configure the system log options.

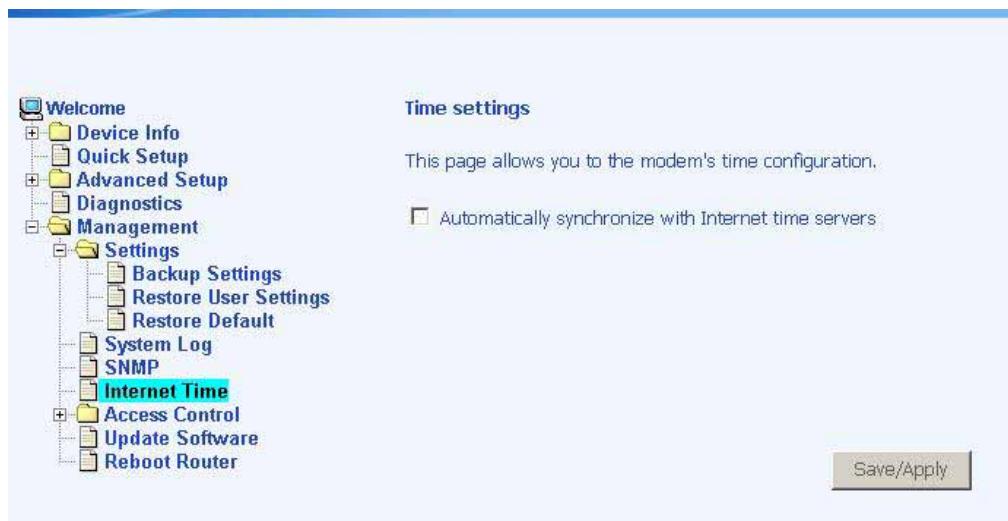
## SNMP

SNMP is Simple Network Management Protocol that provides a means to monitor status and performance as well as set configuration parameters. It enables a management station to configure, monitor and receive trap messages from network devices.



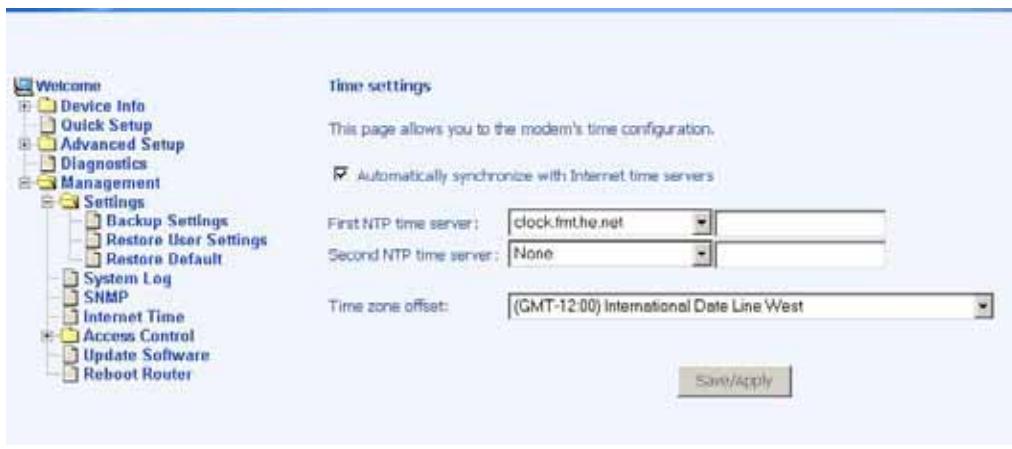
## Internet Times

The Time Settings page allows you to automatically synchronize your time with a timeserver on the Internet.



If you choose to automatically synchronize with Internet time servers, then click on the box and the below fields appear.

Select from the list of NTP (Network Time Protocol) time servers. Then select the time zone that you are in and click on **Save / Apply** to save and complete your time settings.



## Access Control

You can enable or disable some services of your router by LAN or WAN. If no WAN connection is defined, only the LAN side can be configured.

### Services

Services that can be enabled / disabled on the LAN / WAN are FTP, HTTP, ICMP, SNMP, SSH, Telnet, and TFTP.



## IP Addresses

Web access to the router can be limited when Access Control Mode is enabled. The IP addresses of allowed hosts can be added using Access Control – IP Address.

Add the IP address to the IP address list by clicking on the **Add** button, then select “**Enabled**” to enable Access Control Mode.



To assign the IP address of the management station that is permitted to access the local management services, enter the IP address in the box and click on the **Save / Apply** button.



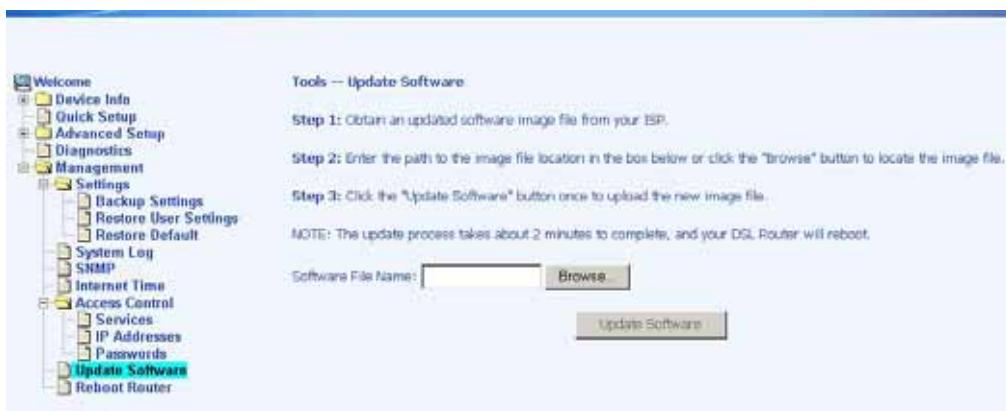
## Passwords

Access the **Passwords** screen under the **Access Control** section to change a password. Select an account and enter the current password and the new password and then click on the **Save / Apply** button.



## Update Software

If your ISP releases new software for this router, follow the below steps to perform an upgrade.



## Reboot Router

Select Management Reboot Router to reboot the router using the web interface. The router will save the current configuration and reboot itself using the new configuration.

