# 6212-I1 4-Port Router User's Guide

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#### Important Safety Instructions

- 1. Read and follow all warning notices and instructions marked on the product or included in the manual.
- 2. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
- 3. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
- 4. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
- General purpose cables are used with this product for connection to the network. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer. Use a UL Listed, CSA certified, minimum No. 24 AWG line cord for connection to the Digital Subscriber Line (DSL) network.
- 6. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.
- 7. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are interconnected, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.
- Input power to this product must be provided by one of the following: (1) a UL Listed/CSA certified power source with a Class 2 or Limited Power Source (LPS) output for use in North America, or (2) a certified transformer, with a Safety Extra Low Voltage (SELV) output having a maximum of 240 VA available, for use in the country of installation.
- 9. In addition, since the equipment is to be used with telecommunications circuits, take the following precautions:
  - Never install telephone wiring during a lightning storm.
  - Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
  - Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
  - Use caution when installing or modifying telephone lines.
  - Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of
    electric shock from lightning.
  - Do not use the telephone to report a gas leak in the vicinity of the leak.

#### **CE Marking**

When the product is marked with the CE mark on the equipment label, a supporting Declaration of Conformity may be downloaded from the Paradyne World Wide Web site at **www.paradyne.com**. Select *Library*  $\rightarrow$  *Technical Manuals*  $\rightarrow$  *CE Declarations of Conformity.* 

#### FCC Part 15 Declaration

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless the changes or modifications are expressly approved by the responsible party.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### Notice to Users of the United States Telephone Network

The following notice applies to versions of the modem that have been FCC Part 68 approved.

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council for Terminal Attachment (ACTA). On the bottom side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the Telephone Company.

This equipment is intended to connect to the Public Switched Telephone Network through a Universal Service Order Code (USOC) type RJ11C jack. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It has been designed to be connected to a compatible modular jack that is also compliant.

The Ringer Equivalence Number (or REN) is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point. For example, 03 represents a REN of 0.3.

If the modem causes harm to the telephone network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service. If trouble is experienced with the modem, refer to the repair and warranty information in this document.

If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is resolved.

The user may make no repairs to the equipment.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If the site has specially wired alarm equipment connected to the telephone line, ensure the installation of the modem does not disable the alarm equipment. If you have questions about what will disable alarm equipment, consult your Telephone Company or a qualified installer.

#### Notice to Users of the Canadian Telephone Network

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation IC before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is labeled on the equipment. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

If your equipment is in need of repair, contact your local sales representative, service representative, or distributor directly.

#### **A** CANADA - EMI NOTICE:

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du règlement sur le matérial brouilleur du Canada.

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This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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# **About This Guide**

## **Document Purpose and Intended Audience**

This guide contains detailed information about the 6212-I1 router. It is intended for all users of the router.

## **Document Summary**

Section	Description
Chapter 1, Introduction	Describes the features of the router.
Chapter 2, Hardware Installation and PC Setup	Shows how to connect the router and set up your PC to manage the router.
Chapter 3, Device Information	Explains how to use the web interface to obtain statistics and other information about the router.
Chapter 4, Quick Setup	Describes the Quick Setup configuration process.
Chapter 5, Advanced Setup	Describes configuration of the advanced router features.
Chapter 6, Diagnostics	Describes the test screen.
Chapter 7, Management	Describes the management functions of the router, including backing up and restoring configuration settings, viewing the system log, configuraing access control, and upgrading software.
Appendix A, Specifications	Lists the specifications of the router.
Index	Lists key terms, concepts, and sections in alphabetical order.

A master glossary of terms and acronyms used in Paradyne documents is available online at **www.paradyne.com**. Select Support  $\rightarrow$  Technical Manuals  $\rightarrow$  Technical Glossary.

# **Product-Related Documents**

Complete documentation for Paradyne products is available online at **www.paradyne.com**. Select Support  $\rightarrow$  Technical Manuals.

To order a paper copy of a Paradyne document, or to speak with a sales representative, please call 1-727-530-2000.

# Introduction

# 1

#### Introduction

Congratulations on becoming the owner of a 6212 ADSL router.

This User's Guide will show you how to set up the router, and how to customize its configuration to get the most out of this product.

#### Features

The 6212 router has the following features:

- Built-in ADSL modem which offers G.Dmt, G.lite, T1.413, ADSL2, Annex L, and ADSL2+ to meet different linking speeds from your ISP.
- Four 10/100BaseT Ethernet ports to provide Internet connectivity to all computers on your LAN.
- Easy-to-use configuration program accessible through a standard web browser.

#### **System Requirements**

In order to use the 6212 ADSL router for Internet access, you must have the following:

- ADSL service subscription from your ISP
- A PC with:
  - An Ethernet 10/100BaseT network interface card
  - A processor equivalent to or faster than a Pentium II 133 MHz
  - 32 MB RAM or greater
  - Windows 95b, 98, 98SE, 2000, ME, NT, or XP (Note: Windows 95 requires the installation of the Winsock program, not included.)
  - (Optional) An Ethernet hub or switch, if you wish to connect the router to several computers on an Ethernet network.

 For system configuration using the supplied web-based program: a web browser such as Internet Explorer Version 6.0 or later. Netscape is not supported.

#### **Parts List**

In addition to this document, your 6212 ADSL router should come with the following:

- 6212 ADSL router
- Power adapter
- Ethernet cable (RJ45, straight-through type)
- Phone cable (RJ11)

# **Front Panel**

The front panel contains LED indicators that show the status of the unit.

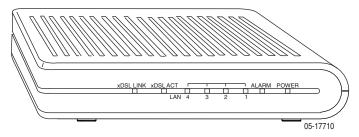


Figure 1-1. Front Panel LEDs

Table 1-1.	Front Panel Label and LEDs

Label	Color	Function
xDSL LNK	Green	On: ADSL link is established.
		Flashing: ADSL link is established and active.
		Off: No ADSL link.
xDSL ACT	Green	Off: No PPP connection is established or the connection is not used.
		Blinking: a PPP connection is being attempted.
		Solid: A PPP connection is established.
		Flickering: There is activity over the link.
LAN 1-4	Green	On: The Ethernet interface is successfully connected to a device through the LAN port.
		Flashing: Data transfer at LAN connection
		Off: No LAN link
ALARM	Red	On: ADSL is not connected.
		Off: ADSL is connected.
POWER	Green	On: Unit is powered on.
		Off: Unit is powered off.

# **Rear Panel**

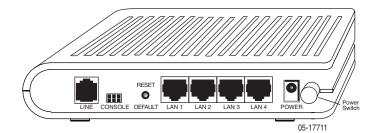


Figure 1-2. Back Panel

The rear panel contains the ports for the router's data and power connections.

 Label
 Function

 LINE
 Connects to your ADSL line

 LAN 1-4
 Connects the router to Ethernet devices on your LAN, such as your PC's Ethernet port, or the uplink port on a hub or switch

 RESET/DEFAULT
 To reset the router to its default settings

 POWER
 Connects to the supplied power adapter

Table 1-2. Rear Panel Labels and Connectors

# Hardware Installation and PC Setup



#### **Overview**

This chapter provides basic instructions for connecting the router to a computer or a LAN and to the Internet using DSL. The first part provides instructions to set up the hardware, and the second part describes how to prepare your PC for use with the router.

It is assumed that you have already subscribed to DSL service with your Internet service provider (ISP).

#### **Connecting the Hardware**

Shut down your PC and any other equipment before connecting it to the router. To connect your router:

#### Procedure

- 1. Verify that the router's power switch is in the Off (outward) position. Verify that any PCs and other LAN devices you will attach (such as hubs or switches) are turned off.
- 2. Use the provided modular phone cable to connect the LINE jack of the router to your RJ11 wall jack.
- 3. Use the provided Ethernet cable to connect your computer to the router. Attach one end of the Ethernet cable to one of the LAN ports on the back of the router and connect the other end to the Ethernet port or Network Interface Card (NIC) in your PC.

Connect any other PCs, hubs, and switches to the remaining LAN ports. Either a crossover or a straight-through Ethernet cable can be used: the router determines the type of signal required.

- 4. Connect the cylindrical power plug into the POWER connector on the back of the device. Next:
  - If you have a wall-mount adapter, plug the AC adapter into a wall outlet or a power strip.
  - If you have a table-top adapter, use the AC power cord to connect the adapter to a wall outlet or power strip.

The supplied power adapter may look different than the one illustrated here.

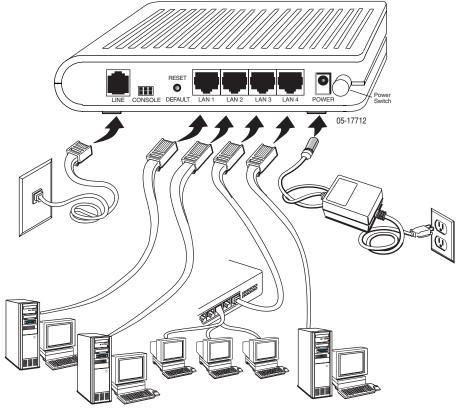


Figure 2-1. Hardware Installation

- 5. Turn on your PC and any other LAN devices, such as hubs or switches.
- 6. Turn on the router using its power switch.
- 7. Verify that the router's LEDs are illuminated as shown in Table 2-1.

This LED	Should be:
POWER	Solid green to indicate that the device is turned on. If this light is not on, check if the power adapter is attached to the router and plugged into an AC power source.
STATUS	Solid green to indicate that the router can communicate with your ISP via ADSL, or flashing when the router is trying to connect to your ISP.
ACTIVITY	Flashing when the device is sending or receiving data over the ADSL connection.
LAN	Solid green to indicate that the device can communicate with your PC via Ethernet, or flashing when the router is sending or receiving data over Ethernet.

Table 2-1.LED Indicators

If the LEDs are illuminated as expected, the router is working properly.

## **Configuring Your Computer**

Before you can access the router over the LAN you have to configure your PC's TCP/IP address to be 192.168.1.x (where x is any number between 3 and 254), with a subnet mask of 255.255.255.0. Your router's default IP address is 192.168.1.1.

If you know the version of Windows that you use, go to the appropriate section below to learn how to set the IP address of your PC. To determine the version of Windows running on your PC, click on the Windows Start button, then click on Run... in the Start menu. Type **winver** in the Open selection box and click on OK.

Run	? 🗙
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	winver
	OK Cancel Browse

Figure 2-2. Windows Run Dialog

The Windows version is displayed.



Figure 2-3. Windows Version

#### Windows XP

- 1. In the Windows task bar, click on the Start button, and then click on Control Panel.
- 2. Double-click on the Network Connections icon.
- In the LAN or High-Speed Internet window, right-click on the icon corresponding to your network interface card (NIC), and select Properties. (Often this icon is labeled Local Area Connection). The Local Area Connection dialog box displays with a list of currently installed network items.
- 4. Ensure that the check box to the left of the item labeled Internet Protocol (TCP/IP) is checked, and click on Properties.

S Network Connections	
Eile Edit View Favorites Iools Advanced Help	27
🕞 Back - 🕥 - 🏂 🔎 Search 🌔 Folders 🕼 🔌 🗙 🍫 [	
Address Network Connections	• 🛃 Go
LAN or High-Speed Internet	-
Local Area Connection         Network cable unplugged         Intel(R) PRO/100 VM Network         Wizard         New Connection Wizard         Vetwork Setup Wizard	

Figure 2-4. Network Connections (Windows XP)

	00 VM Network	Adapter		
		C	onfigure	
This connection uses th	e following items:			
l <u>n</u> stall	Uninstall		roperties	
Description Transmission Control wide area network pr across diverse interco	otocol that provide	s communic		

Figure 2-5. Local Area Connection Properties (Windows XP)

 In the Internet Protocol (TCP/IP) Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field (192.168.1.20 is shown here as an example) and 255.255.255.0 in the Subnet Mask field.

	rties
eral	
	utomatically if your network supports I to ask your network administrator for
C Obtain an IP address automa	tically
Use the following IP address:	
IP address:	192.168.1.20
S <u>u</u> bnet mask:	255 . 255 . 255 . 0
Default gateway:	
f c O <u>b</u> tain DNS server address a	utomatically
Use the following DNS server	addresses:
Preferred DNS server:	

Figure 2-6. TCP/IP Properties (Windows XP)

6. Click on OK twice to confirm your changes, and close the Control Panel.

#### Windows 2000

- 1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
- 2. Double-click on the Network and Dial-up Connections icon.
- 3. In the Network and Dial-up Connections window, right-click on the Local Area Connection icon, and then select Properties.

The Local Area Connection Properties dialog box display a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), the protocol has already been enabled; skip to Step 10.

- 4. If Internet Protocol (TCP/IP) does not appear as an installed component, click on Install.
- 5. In the Select Network Component Type dialog box, select Protocol, and then click on Add.
- Select Internet Protocol (TCP/IP) in the Network Protocols list, and then click on OK.

You may be prompted to install files from your Windows 2000 installation CD or other medium. Follow the instructions to install the files.

- 7. If prompted, click on OK to restart your computer with the new settings.
- 8. After restarting your PC, double-click on the Network and Dial-up Connections icon in the Control Panel.
- 9. In Network and Dial-up Connections window, right-click on the Local Area Connection icon, and then select Properties.
- 10. In the Local Area Connection Properties dialog box, select Internet Protocol (TCP/IP), and then click on Properties.
- In the Internet Protocol (TCP/IP) Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
- 12. Click on OK twice to confirm and save your changes, and then close the Control Panel.

#### Windows ME

- 1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
- 2. Double-click on the Network and Dial-up Connections icon.
- 3. In the Network and Dial-up Connections window, right-click on the Network icon, and then select Properties.

The Network Properties dialog box displays a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), the protocol has already been enabled; skip to Step 11.

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- 4. If Internet Protocol (TCP/IP) does not appear as an installed component, click on Add.
- 5. In the Select Network Component Type dialog box, select Protocol, and then click on Add.
- 6. Select Microsoft in the Manufacturers box.
- 7. Select Internet Protocol (TCP/IP) in the Network Protocols list, and then click on OK.

You may be prompted to install files from your Windows Me installation CD or other media. Follow the instructions to install the files.

- 8. If prompted, click on OK to restart your computer with the new settings.
- 9. After restarting your PC, double-click on the Network and Dial-up Connections icon in the Control Panel.
- 10. In Network and Dial-up Connections window, right-click on the Network icon, and then select Properties.
- 11. In the Network Properties dialog box, select TCP/IP, and then click on Properties.
- In the TCP/IP Settings dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
- 13. Click on OK twice to confirm and save your changes, and then close the Control Panel.

#### Windows 95 and Windows 98

- 1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
- 2. Double-click on the Network icon.

The Network dialog box displays a list of currently installed network components. If the list includes TCP/IP, the protocol has already been enabled. Skip to step 9.

- 3. If TCP/IP does not appear as an installed component, click on Add. The Select Network Component Type dialog box appears.
- 4. Select Protocol, and then click on Add.

The Select Network Protocol dialog box appears.

- 5. Click on Microsoft in the Manufacturers list box, and then click on TCP/IP in the Network Protocols list box.
- 6. Click on OK to return to the Network dialog box, and then click on OK again.

You may be prompted to install files from your Windows 95/98 installation CD. Follow the instructions to install the files.

7. Click on OK to restart the PC and complete the TCP/IP installation.

- 8. After restarting your PC, open the Control Panel window, and then click on the Network icon.
- 9. Select the network component labeled TCP/IP, and then click on Properties.

If you have multiple TCP/IP listings, select the listing associated with your network card or adapter.

- 10. In the TCP/IP Properties dialog box, click on the IP Address tab.
- Click in the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
- 12. Click on OK twice to confirm and save your changes. You will be prompted to restart Windows. Click on Yes.

#### Windows NT 4.0

- 1. In the Windows NT task bar, click on the Start button, point to Settings, and then click on Control Panel.
- 2. In the Control Panel window, double click on the Network icon.
- 3. In the Network dialog box, click on the Protocols tab.

The Protocols tab displays a list of currently installed network protocols. If the list includes TCP/IP, the protocol has already been enabled. Skip to Step 9.

- 4. If TCP/IP does not appear as an installed component, click on Add.
- 5. In the Select Network Protocol dialog box, select TCP/IP, and then click on OK.

You may be prompted to install files from your Windows NT installation CD or other medium. Follow the instructions to install the files.

After all files are installed, a window appears to inform you that a TCP/IP service called DHCP can be set up to dynamically assign IP information.

- 6. Click on Yes to continue, and then click on OK, if prompted, to restart your computer.
- 7. After restarting your PC, open the Control Panel window, and then double-click on the Network icon.
- 8. In the Network dialog box, click on the Protocols tab.
- 9. In the Protocols tab, select TCP/IP, and then click on Properties.
- In the Microsoft TCP/IP Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
- 11. Click on OK twice to confirm and save your changes, and then close the Control Panel.

#### Logging in to Your Router

This section shows how to connect to the router's web interface, configure settings, and observe some statistics of your Internet connection.

1. Open your Web browser, and type the following URL in the address/location box, and press Enter:

http://192.168.1.1

This is the default IP address for the LAN port on the router.

A login screen appears.

Enter Netv	vork Passwor	d		<u>? ×</u>
<b>?</b> >	Please type yo	ur user name	and password.	
រ	Site:	192.168.1.1		
	Realm	DSL Router		
	<u>U</u> ser Name	l		
	<u>P</u> assword			
	🔲 <u>S</u> ave this p	assword in yo	our password list	
			OK	Cancel

Figure 2-7. Login Screen

If you have problem connecting to the router, verify that your PC is properly configured within the subnet of the router's default IP address 192.168.1.1. Setup is described in *Configuring Your Computer* on page 2-4.

2. Enter your user name and password, and then click on OK to display the home page of the router's web interface. There are two default user name and password combinations:

Table 2-2.	Default	User	Names	and	Passwords

User Name	Password	Capability
user	user	Can display device status, but cannot change or save configuration options.
admin	admin	Can perform all functions.

You can change the passwords at any time.

The home page is shown in Figure 2-8.

ADSL Router - Microsoft Internet			<u>_ 8</u>
File Edit View Favorites Tools			
	earch 📓 Favorites 🎯 Media 🎯 🔂 🚽		
Address 🙋 http://192.168.1.1/			💌 🤗 Go Links
PARADY	NE <sup>®</sup> GPE		
₩elcome	Device Info This information reflects the current si	tatus of your DSL connection.	
Advanced Setup     Diagnostics	Line Rate - Upstream (Kbps):	800	
🗄 🧰 Management	Line Rate - Downstream (Kbps):	8000	
	Software Version:	2-20-02-0300.A2pB017b.d15	
	Bootloader (CFE) Version:	1.0.37-5.16	
	LAN IP Address:	192.168.1.1	
	Default Gateway:		
	Primary DNS Server:	192.168.1.1	
	Secondary DNS Server:	192.168.1.1	

Figure 2-8. Web Interface Home Page

# **Device Information**

# 3

# **Status Summary**

Display the general status report for the router by clicking on Summary under Device Info (Figure 3-1).

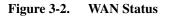
Welcome 🔄 Device Info	Device Info				
Summary WAN	Board ID:	R4P			
E G Statistics	Software Version:	3-00-0	03-0400.A2pB018b2.d15h		
- Route	Bootloader (CFE) Version:	1.0.37	0.7		
Quick Setup Advanced Setup Diagnostics	This information reflects the cu		· · ·	SL connect	
Advanced Setup Diagnostics	Line Rate - Upstream (Kbp	s):	800	SL connect	
Advanced Setup Diagnostics	Line Rate - Upstream (Kbp Line Rate - Downstream (I	s):	800 8000	)SL connect	
Advanced Setup Diagnostics	Line Rate - Upstream (Kbp	s):	800	OSL connect	
Advanced Setup Diagnostics	Line Rate - Upstream (Kbp Line Rate - Downstream (I	s):	800 8000	OSL connect	
Advanced Setup	Line Rate - Upstream (Kbp Line Rate - Downstream (I LAN IP Address:	s):	800 8000	OSL connect	

Figure 3-1. Status Summary

#### WAN

Display the WAN status report from the by clicking on WAN under Device Info (Figure 3-3).

💭 Welcome B 😋 Device Info	WAN Info										
Summary     WAN     Statistics	VPI/VCI	Con. ID	Category	Service Name	Interface Name	Protocol	IGMP	QoS	State	Status	IP Address
- Route ARP - Quick Setup											
Advanced Setup     Diagnostics											
🗄 🇀 Management											



When a WAN connection is configured, the screen looks like Figure 3-3.

- Summary - WAN	VPI/VCI	Con. ID	Category	Service Name	Interface Name	Protocol	IGMP	QoS	State	Status	IP Address
Gate     AP	3/40	1	UBR	pppoa_3_40_1	ppp_3_40_1	PPPoA	Disabled	Disabled	Bhabled	Up	135,154,13,1
Ourick Setup     Advanced Setup     WAN     WAN     Ourick Setup     Ourity of Service     Ourity of Service											

Figure 3-3. WAN Status with WAN Connection

#### **LAN Statistics**

🖳 Welcome Statistics --- LAN 🗟 🔄 Device Info Summary WAN Interface Received Transmitted Bytes Pkts Errs Drops Bytes Pkts Errs Drops 🖻 🔄 Statistics LAN WAN 15 0 Ethernet 1862 15 0 0 3266 0 ATM ADSL Reset Statistics Route ARP Quick Setup ÷ Diagnostics 🗄 🛄 Management

Display LAN statistics by clicking on LAN under Statistics (Figure 3-4).



#### **WAN Statistics**

Display WAN statistics by clicking on WAN under Statistics (Figure 3-5).

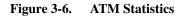
E-Summary	Service	VPI/VCI	Protocol	Interface		Rece	ived		T	ransr	nitte	d
- WAN					Bytes	Pkts	Enrs	Drops	Bytes	Pkts	Errs	Drops
E C Statistics	pppoa_3_40_1	3/40	<b>PPPoA</b>	ppp_3_40_1	64	4	0	0	82	4	0	0
- D LAN	mer_3_41	3/41	MER	nas_3_41	0	0	0	0	954	3	0	0
Coute     ARP     Ouick Setup     Advanced Setup     Diagnostics     Management												

Figure 3-5. WAN Statistics

#### **ATM Statistics**

Display ATM statistics by clicking on ATM under Statistics (Figure 3-6).

₩akome ■ 😋 Device Info	Statisti	is AT	м									
- Summary	ATM Int	erface 5	Statisti	cs								
WAN     Statistics     LAN	ln Octets	Out Octets	In Errors	în Unknown	In Hec Errors	In Invalid Vpi Vci Errors	In Port Not Enable Errors	in PTI Errors	ln Idle Cells	In Circuit Type Errors	In OAM RM CRC Errors	In GFC Errors
- D WAN	0	0	0	0	0	0	0	0	0	0	0	0
ADSL Route ARP Ouick Setup	AAL5 Interface Statistics In Octets/Dut Octets/In Ucast Pkts/Dut Ucast Pkts/In Errors/Dut Errors/In Discards/Dut Discards 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											
Ouck Setup     Orignostics     Management			rors SA	R Timeout	s Oversi	and SDUs SI	hort Packet	Errors	ength.	Errors		



#### **ADSL Statistics**

Display ADSL statistics by clicking on ADSL under Statistics (Figure 3-7).

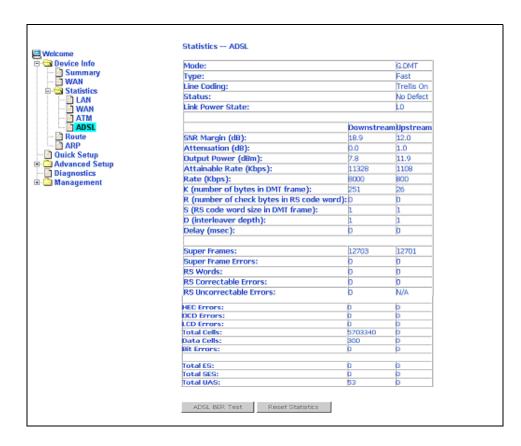


Figure 3-7. ADSL Status

#### **ADSL BER Test**

The ADSL Bit Error Rate (BER) test determines the quality of the ADSL connection. The test is performed by transferring idle cells containing a known pattern and comparing the received data with this known pattern to check for any errors (Figure 3-8 and Figure 3-9).

#### Procedure

To run a BER test:

- 1. Click on the ADSL BER Test button.
- 2. Select the test duration and click on Start
- 3. Check the result.

🚰 http://192.168.1.1/berstart.tst?ber5tate=0 - Microsoft I 💶 🗙
ADSL BER Test - Start
The ADSL Bit Error Rate (BER) test determines the quality of the ADSL connection. The test is done by transferring idle cells containing a known pattern and comparing the received data with this known pattern to check for any errors.
Select the test duration below and click "Start".
Tested Time (sec): 20
Start Close
×

Figure 3-8. ADSL BER Test — Start

🚰 http://192.168.1.1/berstop.tst - M	icrosoft Internet Explo 💶 🗙
ADSL BER Test - Result	-
The ADSL BER test complete	d successfully.
Test Time (sec):	20
Total Transferred Bits:	144905856
Total Error Bits:	0
Error Ratio:	0.00e+00
Close	

Figure 3-9. ADSL BER Test — Result

## Route

Obtain the Routing status report by clicking on the Route item under Device Info (Figure 3-10)

Welcome Device Info Summary WAN Statistics	Device Info Route Flags: U - up, I - rejact, G - gateway, H - host, R - reinstate D - dynamic (redirect), M - modified (redirect).						
	Destination	Gateway	Subnet Mask	Flags	Metric	Service	Interface
MTA 🖸	192.169.1.0	0.0.0.0	255.255.255.0	U	0		br0
ADSL     Route     ArP     Ouick Setup     Advanced Setup     Diagnostics     Management	<u>.</u>	-	-		-	-	

Figure 3-10. Route Information

## ARP

Display the ARP status report by clicking on ARP under Device Info (Figure 3-11)

Welcome	Device Info ARP					
Summary WAN	IP Address	Flags	HW Address	Device		
Calification	192.168.1.177	Complete	00:08:9B:82:16:60	br0		
- Duick Setup						
📋 Diagnostics 🕀 🛄 Management						

Figure 3-11. ARP Status

# **Quick Setup**

# 4

#### **Quick Setup with Auto-Connect Enabled**

Auto-connect will automatically detect the first usable PVC and automatically detect PPPoE, PPPoA, and Bridge Protocol (with DHCP Server available). To use auto-connect:

#### Procedure

1. Select Quick Setup. The Quick Setup initial screen appears.



Figure 4-1. Quick Setup Initial Screen

2. Select DSL Auto-Connect, then click on Next. The progress information screen appears.

Welcome Device Info Cuick Setup Cuick Set	DSI. Router Auto-connection Progress In The DSI. Router Auto-connect is in progress. DEI. Router is trying PVC (0/32).	nformation	
	Please wait	Cancel	



⊒Welcome ∋	DSL Router Auto-connection Progress Information			
- Quick Setup	The DSL Router Auto-connect is in progress.			
Advanced Setup     Diagnostics     Management	DSL Router can be connected using PVC (2/41) with PPPoE protocol.			
	Cancel			

Figure 4-3. Detecting available PVC – Available PVC Detected

## **Quick Setup with Auto-Connect Disabled**

#### Procedure

- 1. Select Quick Setup. The Quick Setup initial screen appears.
- 2. Verify that DSL Auto-Connect is not selected. Entry boxes for VPI and VCI appear when DSL Auto-Connect is not selected.
- 3. Specify VPI and VCI as directed by your ISP.

🛄 Welcome	Quick Setup
Device Info	Quick Setup
Quick Setup     Advanced Setup	This Quick Setup will guide you through the steps necessary to configure your DSL Router.
Diagnostics     Management	ATM PVC Configuration
	Select the check box below to enable DSL Auto-connect process.
	DSL Auto-connect
	The Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VPI and VCI numbers unless your ISP instructs you otherwise.
	VPI: [0-255] 0
	VCI: [32-65535] 35
	Enable Quality Of Service
	Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs will be reduced consequently. Use <b>Advanced Setup/Quality of Service</b> to assign priorities for the applications.
	Enable Quality Of Service
	Next

Figure 4-4. Specifying VPI and VCI

4. Click on Next. The Connection Type screen appears.

Welcome	Connection Type
B Device Info	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
B Statistics	PPP over ATM (PPPoA)
	C PRP over Ethernet (PPPoE)
- Route	C MAC Encapsulation Routing (MER)
- Cuick Setup	C IP over ATM (IPOA)
	O Bridging
Ort Mapping     Outling     Outling	Encapsulation Mode VCMUX
DNS DNS DNS Dynamic DNS ADSL Diagnostics B Management	Badi Next

Figure 4-5. Connection Type

5. Select the protocol and encapsulation type required by your ISP.

6. Click on Next. Further parameters for the selected protocol are presented. For example, if you selected PPPoA, the PPP Username and Password screen appears.

Welcome Device Info Summary 	PPP Username and Password PPP usually requires that you have a user name and password to establish your connection. In the boxes below, enter the user name and password that your ISP has provided to you.
ADSL ADSL ARP	PPP Username:         (Do not use "<>%\^[]+\$,='#6.; )           PPP Password:         (Do not use "<>%\^[]+\$,='#6.; )           Authentication         AUTO
Advanced Setup WAN LAN D LAN D NAT D Cont Mapping D Cont Mapping D Routing D Routing D NS	<ul> <li>Dial on demand (with idle timeout timer)</li> </ul>
DNS Server Dynamic DNS ADSL Management	PPP IP extension     Keep Alwo
	Use the following default gateway: Use the following default gateway: Use WAN Interface:
	Badi Next

Figure 4-6. PPP Username and Password

7. Click on Next. The Network Address Translation Settings screen appears.

Welcome	Network Address Translation Settings Network Address Translation (NAT) allows you to share one Wide Area Network (WAN) IP address for multiple
Statistics	computers on your Local Area Network (LAN). Enable NAT 🔽 Enable Firewall 🗖
ADSL Boute ARP Quick Setup	Enable IGMP Multicast, and WAN Service
WAN     LAN     LAN     WAT     Port Mapping	Enable IGMP Multicast  Enable WAN Service  Service Name: pppol. 3, 40_1
Ouality of Service     Ouality of Service     DNS     DNS     DNS     DNS     DNS     DNS     Donamic DNS     Data     Diagnostics     Management	Black Next

Figure 4-7. NAT Settings

8. Enter the settings specified by your ISP and click on Next. The Device Setup screen appears.

🖳 Welcome	Device Setup	
- 📄 Summary	Configure the DS	L Router IP Address and Subnet Mask for LAN interface.
WAN     Statistics     LAN     WAN	IP Address: Subnet Mask:	192.168.1.1
- WAN - ATM - ADSL - Route - ARP	<ul> <li>Disable DHC</li> <li>Enable DHCI Start IP Add</li> </ul>	P Server
Quick Setup     Advanced Setup     WAN     DAN     LAN     AN	End IP Add Leased Time	ess: 192.168.1.254
Firewall     Port Mapping     Quality of Service     Routing     DNS     DNS     DNS Server     Dynamic DNS	Configure the	second IP Address and Subnet Mask for LAN interface
Diagnostics		Back Next

Figure 4-8. Device Setup

9. If desired, configure 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.

If you have a second IP address and subnet mask for the LAN interface, click on the checkbox to configure it.

10. Click on Next to continue. 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 saves your settings and restarts your router.

Welcome	WAN Setup - Summa	ary	
Device Info     Summary     WAN	Make sure that the set	ttings below match the se	attings provided by your ISP.
E-G Statistics	VPI / VCI:	3 / 40	-
	Connection Type:	PPPoA	-
- ATM ADSL	Service Name:	pppoa_3_40_1	-
🛅 Route	Service Category:	UBR	-
ARP Quick Setup	IP Address:	Automatically Assigned	
Advanced Setup	Service State:	Enabled	
WAN	NAT:	Enabled	
	Firewall:	Disabled	
Firewall     Port Mapping	IGMP Multicast:	Disabled	
Quality of Service	Quality Of Service:	Disabled	
Routing     DNS Server     Dynamic DNS     DADSL     Dagnostics     Management		on process takes about 1	reboot router. Click "Back" to make any modifications. minute to complete and your DSL Router will reboot. Back Save/Reboot

Figure 4-9. WAN Setup - Summary

# **Advanced Setup**

# 5

# WAN

Set up WAN parameters as directed by your ISP.

Device Info     Quick Setup     Advanced Setup     MAN				to configure WAI anges and reboo								
LAN     AT     Firewall	VPI/VCI	Con. ID	Category	Service	Interface	Protocol	IGMP	QoS	State	Remove	Edit	Actic
Port Mapping Quality of Service	3/40	1	UBR	pppoa_3_40_1	ppp_3_40_1	PPPoA	Disabled	Disabled	Enabled		Edit	Dow
Routing     DNS	3/41	1	UBR	mer_3_41	nas_3_41	MER	Disabled	Disabled	Enabled		Edit	
Diagnostics Management				l	Add Remo	/e Finish	1					

Figure 5-1. WAN Setup Screen

#### Add Function – ATM PVC Configuration

If you want to add a new rule for the WAN interface, click on the Add button. The 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.

Welcome     Ouick Setup     Quick Setup     Advanced Setup     Advanced Setup     Ouick     Ouick Setup     Ouick Setup     Ouick Setup     Ouick Setup	ATM PVC Configuration         This screen allows you to configure an ATM PVC identifier (VPI and VCI) and select a service category. Otherwise choose an existing interface by selecting the checkbox to enable it.         VPI: [0-255]       0         VCI: [32-65535]       35         Service Category: UBR Without PCR       ▼         UBR Without PCR       ▼         UBR Without PCR       ▼         UBR WithPCR       ■         UBR With PCR       ■    <
	Back Next

Figure 5-2. ATM PVC Configuration Screen

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 defined are defined:
  - UBR Without PCR (Unspecified Bit Rate without Peak Cell Rate)
  - UBR With PCR (Unspecified Bit Rate with Peak Cell Rate) UBR service is suitable for applications that can tolerate variable delays and some cell loss, such as data transfer, messaging, distribution, and retrieval, and remote terminal applications such as telecommuting.
  - 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), and audio and video distribution and retrieval.
  - 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 for time-sensitive applications such as real-time video. Rt-VBR service allows the network more flexibility than CBR.

### **Connection Type Screen**

1. Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use, then click on Next button.

r	
Welcome	Connection Type
E - Device Info	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
Contraction	O PPP over ATM (PPPoA)
	C PPP over Ethernet (PPPoE)
ADSL	
ARP	O MAC Encapsulation Routing (MER)
Advanced Setup	C IP over ATM (IPoA)
LAN     AN     AT     Firewall	© Bridging
Port Mapping	Encapsulation Mode
	LLC/SNAP-BRIDGING
- Diagnostics	Back Next
🗄- 🦳 Management	

Figure 5-3. Connection Type Screen

2. Select a connection type and click on Next. In this example, the Bridge Service screen appears.

Welcome	Unselect the check b	ox below to disable this	WAN service
E Statistics	Enable Bridge Service:		
ATM	Service Name:	br_0_35	
ADSL December 2015			
ARP Duick Setup			
⊟⊡ Advanced Setup			Back Next
DNS ADSL			
- Diagnostics			
🗄 🗂 Management			

Figure 5-4. Bridge Service Screen

3. Enter or select the parameters presented for the service type, and click on Next. The WAN Setup - Summary screen appears.

#### WAN Setup - Summary

1. Make sure that the settings on the WAN Setup - Summary screen match the settings provided by your ISP. If all settings are correct, click on the Save button to save these settings; if not, click on the Back button to make any modifications. If you want to change any item after saving, click on the Edit button to make any modifications.

Welcome	WAN Setup - Summa	ary	
Quick Setup	Make sure that the set	tings below mat	th the settings provided by your ISP.
	VPI / VCI:	0 / 35	
⊕- 🗀 NAT ⊕- 🗀 Firewall	Connection Type:	Bridge	
- 🛅 Port Mapping	Service Name:	br_0_35	
Quality of Service     General Routing	Service Category:	UBR	
DNS ADSL	IP Address:	Not Applicable	
— Diagnostics	Service State:	Enabled	
🗄 🧰 Management	NAT:	Disabled	
	Firewall:	Disabled	
	IGMP Multicast:	Not Applicable	
	Quality Of Service:	Disabled	
			k "Back" to make any modifications. his WAN interface and further configure services over this interface. Back Save

Figure 5-5. WAN Setup Summary

2. Activate this WAN interface by clicking on the Finish button and further configuring services over this interface. The router supports up to five WAN connections.

#### **Remove Function**

If you want to delete a connection from the listed WAN setup, click in the Remove check box next to the item, then click on the Remove button.

Welcome C Device Info Quick Setup	WAN Setup Choose Add, Edit, or Remove to configure WAN interfaces.											
Advanced Setup					re WAN inter reboot the s							
Interval     Firewall     Port Mapping	VPI/VCI	Con. ID	Category	Service	Interface	Protocol	IGMP	QoS	State	Remove	Edit	Action
Quality of Service     Generating     DNS	0/35	1	UBR	br_0_35	nas_0_35	Bridge	N/A	Disabled	Enabled		Edit	
- ADSL - Diagnostics					Add	Remove	Finis	ſ				
B-🗀 Management												

Figure 5-6. WAN Setup List

#### **Finish Function**

After you change any item in WAN Setup, remember to click on the Finish button to apply the changes and reboot the system.

## Local Area Network (LAN) Setup

You can configure the DSL Router IP address and Subnet Mask for the LAN interface to conform 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.

The Save button only saves the LAN configuration data. The Save/Reboot button saves the LAN configuration data and reboots the router to make the new configuration effective.

Welcome	Local Area Network (LAN) Setup
Device into     Device into     Outick Setup     Advanced Setup     Device Into     Devic	Configure the DSL Router IP Address and Subnet Mask for LAN interface. Save button only saves the LAN configuration data. Save/Reboot button saves the LAN configuration data and reboots the router to make the new configuration effective.  IP Address:  192.168.1.1  Subnet Mask:  255.255.255.0
Outling of Service     Outling     Outling     ONS     ADSL     Diagnostics     Management	C Disable DHCP Server C Enable DHCP Server Start IP Address: 192.168.1.2 End IP Address: 192.168.1.254 Leased Time (hour):24
	Configure the second IP Address and Subnet Mask for LAN interface

Figure 5-7. LAN Setup

## NAT

You can configure the Virtual Server, Port Triggering, and DMZ Host when NAT is enabled.

#### **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 add a virtual server.

cocol and External port) to the lonly if the external port needs to im 32 entries can be configured.	requiredonly if	ie Internal port is	e LAN side. Th d by the serve	address on the	verwith private IP	Internal ser	Device Info     Quick Setup     Advanced Setup     Advanced Setup     Device Info     Device Setup     Advanced Setup     Device Setup     Device Setup     Dot Triggering     Dot Triggering     Dot Mat Host     Coulty of Service     Routing     Days     ADSL     Dagnostics     Management
	Internal Port End	Internal Port Start	Protocol	External Port End	External Port Start	Server Name	

Figure 5-8. NAT Virtual Server Setup

You can select a Service or make new one. Enter the Server IP Address, then click on Save/Apply to submit your configuration.

🖳 Welcome	NAT Virtual Serve	ers				
Device Info     Quick Setup     Quick Setup     WAN     LAN     NAT     Virtual Servers     Port Triggering	to the specified server	. NOTE: The "Int vill be the same	ernal Port E as the "Inte	nd" cannot be rnal Port Sta	Save/Apply" to forward IP packets for this service changed. It is the same as "External Port rt" or "External Port End" if either one is	
DMZ Host DMZ Host Firewall Culty of Service Ruting DNS Dispositics Management	<ul> <li>Select a Service:</li> <li>Custom Server :</li> <li>Server IP Address:</li> </ul>	Age of Empire: Select One Active Worlds Age of Empires Age of Empires Age of Empires Age of Kings	Expansion: 7 11 Expansion: 8 11 Expansion 11: The Age c	The Conquer		
	External Port Start 47624	Age of Wonder Aliens vs. Pred AOL Instant Me Audiogalaxy S	ator ssenger		t <mark>Internal Port End</mark> ↓ 47624	
	6073	6073	TCP	<b>•</b> 6073	6073	
	2300	2400	TCP	2300	2400	
	2300	2400	UDP	2300	2400	
			TCP	•		
			TCP	-		
			TCD			

Figure 5-9. Virtual Server Add Screen

On this screen you can view and delete servers. Click in the check box under Remove and click on the Remove button to delete selected virtual servers.

Device Info	Virtual Server allows you to direct incoming traffic from WAN side(identified by Protocol and External port) to the Internal server with private IP address on the LAN side. The Internal port is requiredonly if the external port needs to be converted to a differentport number used by the server on the LAN side. Maximum 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				
Quality of Service     Routing     DNS	Age of Empires	47624	47624	TCP	47624	47624	192.168.1.10	ম				
Diagnostics	Age of Empires	6073	6073	тср	6073	6073	192.168.1.10	ঘ				
] Management	Age of Empires	2300	2400	TCP	2300	2400	192.168.1.10					
	Age of Empires	2300	2400	UDP	2300	2400	192.168.1.10					

Figure 5-10. Removing Selected Virtual Servers

# **Port Triggering**

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

Device Info		- 1000 C								
Quick Setup Quick Setup WAN LAN VAT Virtual Servers	Some applications re Trigger dynamically connection to a rem establish new conne configured.	opens up the 'O ote party using	pen Ports' the 'Trigge	in the fir ring Port	rewall <sup>1</sup> ts'. The	when an ap Router all side using	plicatio ows the	n on th remot	e LAN initiate e party from	the WAN side to
DMZ Host     Firewall		Application	Tr	igger		Open			Remove	
		1252	Dectocol	Dort P	ande	Protocol	Port R	lange		
Quality of Service		Name	FIOLOCOI	TOTER						
		Name	PIOLOCOI	Start	_	-	Start	End		

Figure 5-11. Port Triggering Setup Page

You can select an application every time or create new one for your application. Then click on Save/Apply to save your settings.

Welcome	NAT Port T	riggering				
Device Info     Outo: Setup     Advanced Setup     WAN     LAN     NAT     Outo: Virtual Servers     Virtual Servers     Dort Triggering	ports in the Ro screen by sele <b>Remaining nu</b> Application Na	outer's firewall cting an existir <b>umber of enti</b> me:	ames, video conferencing, ren be opened for access by the a ng application or creating your ries that can be configured Napster	pplications. own (Custo	You can configure	the port settings from this
DMZ Host     DMZ Host     DMZ Host     Quality of Service     Outing     DNS		application:	Select One Aim Talk Asheron's Call Calista IP Phone Delta Force (Client/Server)	pply		
Diagnostics	Trigger Port	Start Trigger		en Port :	Start Open Port	End Open Protocol
🛅 Management	6699	6699	Napster Net2Phone	99	6699	TCP 👤
	6699	6699	QuickTime 4 Client	97	6697	TCP -
	6699	6699	Rainbow Six/Rogue Spea	4444	4444	TCP -
	6699	6699	TCP 🔹	5555	5555	TCP -
	6699	6699	TCP 🔹	6666	6666	TCP 💌
	6699	6699	TCP 💌	7777	7777	TCP
	6699	6699	TCP 🔽	8888	8888	TCP 💌
			TCP -		· · ·	TCP

Figure 5-12. Port Triggering Add Page

On this screen you can view and delete applications. Click in the check box under Remove and click on the Remove button to delete selected applications.

Uvelcome	NAT Port Triggering Setup							
Device Info     Ouick Setup     Advanced Setup     WAN     LAN     Virtual Servers     Port Triggering	Some applications require that sp Trigger dynamically opens up the connection to a remote party using establish new connections back to configured.	Open Ports' the 'Trigge	in the fi ring Por	irewall ts'. Thi he LAN	when an ap e Router all	plicatio ows the	n on th remot	e LAN initia e party fror
	Application	Application Trigger				Open		
Control C	Name	ame Protocol		ol Port Range		Protocol Port Range		
ADSL		Ĩ	Start	End	1	Start	End	
🗋 Diagnostics 🗅 Management	Napster	TCP	6699	6699	тср	6699	6699	<b>v</b>
	Napster	ТСР	6699	6699	тср	6697	6697	•
	Napster	TCP	6699	6699	тср	4444	4444	
	Napster	тср	6699	6699	тср	5555	5555	Ē
	Napster	TCP	6699	6699	тср	6666	6666	•
	Napster	TCP	6699	6699	тср	7777	7777	
	Napster	ТСР	6699	6699	тср	8888	8888	

Figure 5-13. Port Triggering List

## **DMZ Host**

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

Welcome	NAT DMZ Host
ڬ Device Info	
– 🛄 Quick Setup	The DSL router will forward IP packets from the WAN that do not belong to any of the applications configured in the
Advanced Setup	Virtual Servers table to the DMZ host computer.
	Enter the computer's IP address and click "Apply" to activate the DMZ host.
Virtual Servers	Clear the IP address field and click "Apply" to deactivate the DMZ host.
Port Triggering	DMZ Host IP Address: 192.168.1.12
Eirewall     Quality of Service	
Guarry of Service     Routing	Save/Apply
I DNS	
ADSL .	
🗉 🛄 Management	

Figure 5-14. DMZ Host Setup

## Firewall

For security reasons, firewall options can be configured only from the LAN side of the router.

#### **IP** Filtering – Outgoing

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

Contraction Contractic Con	By default,	all outgoin	g IP traffic from LAN is allow	ed, but some IF	<sup>o</sup> traffic can be <b>BLOCK</b>	ED by setting up I	îlters.
WAN	Name	Protocol	Source Address / Mask	Source Port	Dest. Address / M	ask Dest. Port	Remove
NAT     Firewall     Outgoing     Outgoing     Outgoing     MAC Filtering     MAC Filtering     MAC Filtering     MAC Filtering     MAC Jobs     NNS     Dagnostics     Management				Add			

Figure 5-15. IP Filtering – Outgoing Filter Setup

Input the filter name, source information (from the LAN side), and Destination information (from the WAN side). Then click on Save/Apply.

Welcome ⊕	Add IP Filter Outgoing	
Quick Setup     Advanced Setup	one condition below. All of the sp	a filter rule to identify outgoing IP traffic by specifying a new filter name and at least ecified conditions in this filter rule must be satisfied for the rule to take effect. Click
	'Save/Apply' to save and activate	the filter.
😐 🗀 NAT 😑 🚭 Firewall	Filter Name:	out1
🖻 🔄 IP Filtering	Protocol:	TCP
	Source IP address:	192.168.1.15
MAC Filtering	Source Subnet Mask:	255.255.255.0
🖽 🧰 Routing	Source Port (port or port:port):	123
DNS     DNS     DNS	Destination IP address:	100.100.100.1
- Diagnostics	Destination Subnet Mask:	255.255.255.0
🖮 🛄 Management	Destination Port (port or port:por	(): 456
		Save/Apply

Figure 5-16. IP Filtering - Outgoing Filter Add Page

You can view and delete the outgoing filter settings on this screen.

Device Info Quick Setup Advanced Setup	By default, all outgoing IP traffic from LAN is allowed, but some IP traffic can be <b>BLOCKED</b> by setting up filters.									
	Name	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove			
INAT Firewall G IP Filtering	out1	тср	192.168.1.15 / 255.255.255.0	123	100.100.100.1 / 255.255.255.0	456				
Incoming     MAC Filtering     Quality of Service     Routing     DNS     ADSL     Diagnostics				Add Re	emove					

Figure 5-17. IP Filtering - Outgoing Filter Setup List

#### **IP** Filtering – Incoming

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

⊕	By default, all incoming IP traffic from WAN is blocked when firewall is enabled, but some IP traffic can be <b>ACCEPTED</b> by setting up filters.										
- C LAN C NAT Firewall	Name	VPI/VCI	Protocol	Source Address / _ Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove			
Outgoing     Outgoing     Outgoing     Outgoing     MAC Filtering     Outly of Service     Outling     ODNS     ODNS     ODNS     ODNS     ODNS     Odd Anagement					Add						

Figure 5-18. IP Filtering – Incoming Filter Setup Page

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.

	I filter rule to identify incoming IP traffic by specifying a new filter name and at least ecified conditions in this filter rule must be satisfied for the rule to take effect. Click the filter.
Filter Name:	
	in1
Protocol:	UDP
Source IP address:	100.100.100.1
Source Subnet Mask:	255.255.255.0
Source Port (port or port:port):	147
Destination IP address:	192.168.1.15
Destination Subnet Mask:	255.255.255.0
Destination Port (port or port:port	); 369
	n Routing mode and with firewall enabled only)
	Source Subnet Mask: Source Port (port or port:port): Destination IP address: Destination Subnet Mask: Destination Port (port or port:port WAN Interfaces (Configured i Select at least one or multiple W/

Figure 5-19. IP Filtering - Incoming Filter Add

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

Quick Setup Advanced Setup		ilt, all incol ig up filters		tic from WAN is blocked	when firewall	is enabled, but some IP t	rattic can be	ACCEPTED
LAN NAT	Name	VPI/VCI	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove
	in1	0/36	UDP	100.100.100.1 / 255.255.255.0	147	192.168.1.15 / 255.255.255.0	369	
				Add	Remove			

Figure 5-20. IP Filtering - Incoming Filtering List

#### **Firewall – 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.



Figure 5-21. IP Filtering - MAC Filtering Setup

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

Welcome Device Info	Change MAC Filtering Global Policy
📄 Quick Setup 🔄 Advanced Setup	WARNING: Changing from one global policy to another will cause all defined rules to be REMOVED AUTOMATICALLY! You will need to create new rules for the new policy.
	Are you sure you want to change MAC Filtering Global Policy from FORWARDED to BLOCKED ?
Firewall     Grading     Grading     Grading     Grading     Grading     Grading     Grading     Grading     Grading     Grading	NO VES
Guaring     Guaring     Guaring     Guaring     Guaring     Guaring     Guaring     Dis     Diagnostics     Management	

Figure 5-22. IP Filtering - MAC Filtering Policy Change Confirmation

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.

Welcome	Add MAC Filter			
Oevice Info     Quick Setup	Crosto a filter to identify the	NAAC Journ fea	maa ku an	ecifying at least one condition below. If multiple conditions are
Guick Setup     Advanced Setup	specified, all of them take ef			
- 🗋 WAN	1.4 26	C04	E Miller	
	Protocol Type:	IPv4	•	
AT     Firewall				
B C IP Filtering	Destination MAC Address:	00:11:22:3		
- Dutgoing	Source MAC Address:	00:55:44:3	3:22:11	
- Coming			-	
Quality of Service	Frame Direction:	LAN<=>WA	AN 🗾	
🕀 🧰 Routing	WAN Interfaces (Configured	t in Bridge mod	te only)	
	tinni Illeriaceo (asiniga sa	in bridge mea	io only.	
- Diagnostics	Select All			
E 🗋 Management	✓ br_0_35/nas_0_35			
				Save/Apply
				Caro, r.pp.)

Figure 5-23. IP Filtering - MAC Filtering Add Page

On this screen you can view and delete MAC filtering rules.

Welcome Device Info	10AG HICEH	MAC Filtering Setup						
	MAC Filtering Global Policy: FORWARDED							
WAN LAN G NAT G Firewall Outpoing Incoming MAC Filtering	frames will	be FORWA all MAC lay	RDED exce	.TM PVCs configured pt those matching w	in Bridge mode. FOR ith any of the specifie ept those matching w	d rules in the follow	/ing table. B	LOCKED
			e to configu	re MAC filtering rules				
AC Filtering Quality of Service Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Contro			1.7	re MAC filtering rules		Frame Direction	Remove	
MAC Filtering Quality of Service Routing		or Remove	1.7	Destination MAC			Remove	

Figure 5-24. IP Filtering - MAC Filtering List

#### **Parental Control**

Use the Parental Control feature to restrict the days and times a particular device is allowed to access the Internet.

Welcome	Time of Day Restriction	s A ma	ximun	16 e	ntries c	an b	e cor	nfigu	red.			
─ ☐ Quick Setup □ ─ ☐ Advanced Setup	Userna	me MAC	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start	Stop	Remove
					Add	R	emov	re				
e Sirewall e Sirewall Dutgoing												
MAC Filtering												
Derived and the second se												
DNS     ADSL     Port Mapping												
Diagnostics     Management												

Figure 5-25. Parental Control Screen

To set up parental controls:

1. Click on Add. The Time of Day Restriction screen appears.

Welcome	Time of Day Restriction	
Device Info  Quick Setup  Advanced Setup  DWAN  LAN	automatically displays the MAC the "Other MAC Address" buttor	riction to a special LAN device connected to the Router. The 'Browser's MAC Address' address of the LAN device where the browser is running. To restrict other LAN device, click and enter the MAC address of the other LAN device. To find out the MAC address of a mand window and type "ipconfig /all".
	User Name	
🖻 🚭 Firewall		
🖻 🔄 IP Filtering	Browser's MAC Address	00:0A:95:E3:F4:D0
Outgoing     Incoming	Other MAC Address (xx:xx:xx:xx:xx)	
MAC Filtering	Days of the week	MonTueWedThuFri SatSun
Parental Control	Click to select	
Quality of Service		
Routing	Start Blocking Time (hh:mm)	
🖻 🚞 DNS	End Blocking Time (hh:mm)	
		Save/Apply
Port Mapping		
Diagnostics		
🗀 Management		

Figure 5-26. Parental Control – Time of Day Restrictions

- 2. Enter a User Name to identify the target of the restrictions.
- 3. Enter the MAC address of the network adapter to be restricted, and, optionally, another MAC address.
- 4. Select the days of the week the restriction is in force.
- 5. Specify the start and end times the restriction is in force. Use the form hh:mm, where 23:59, for example, is one minute before midnight.
- 6. Click on Save/Apply.

# **Port Mapping**

Use the Port Mapping screen to map multiple ports to a PVC and create bridging groups. Each group will perform as an independent network.

Device Info     Quick Setup     Quick Set	Port Mapping A maximum 16 entries can be configured Port Mapping supports multiple port to PVC and bridging groups. Each group will perform as an independent network. To support this feature, you must create mapping groups with appropriate LAN and WAN interfaces using the Add button. The Remove button will remove the grouping and add the ungrouped interfaces to the Default group Enable virtual ports on etho								
Quality of Service     Routing	Group Name	Interfaces	IGMP Snooping	Remove	Edit				
DNS DDSL	Default	eth0.2, eth0.3, eth0.4, eth0.5	N		Edit				
- ☐ Diagnostics ⊕	Add Remov	e	<u>.</u>	·	-	a			

Figure 5-27. Port Mapping

To create a new mapping group:

1. Click on Add. The Port Mapping Configuration screen appears.

Welcome Device Info Quick Setup Advanced Setup Advanced Setup LAN CAN Discrete Constraints D	using the arrow buttons to create the require 2. Click Save/Apply button to make the	erfaces from the available interface list and add it to the grouped interface list d mapping of the ports. The group name must be unique. changes effective immediately will be removed from their existing groups and added to the new
	Grouped Interfaces	Available Interfaces eth0.2 eth0.3 eth0.4 eth0.5

Figure 5-28. Creating a Port Mapping Entry

- 2. Enter a unique Group name.
- 3. Select interfaces from the available interface list and add them to the grouped interface list using the arrow buttons to create the required mapping of the ports.
- 4. Click on Save/Apply.

## **Quality of Service**

You can configure the Quality of Service to apply different priorities to traffic on the router.

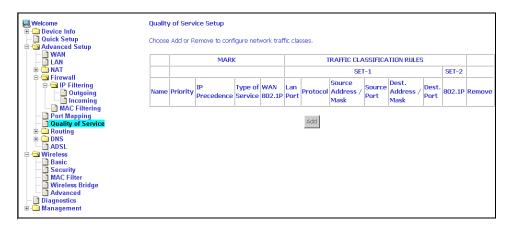


Figure 5-29. Quality of Service Setup

Click on Add and the Add Network Traffic Class Rule screen appears. To add a rule:

- 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 range of 0–7.
- 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.
- 6. Click on Save / Apply to save the settings.

Welcome	Add Network Traffic Class Rule	
Device Info     Quick Setup		
Advanced Setup		sify the upstream traffic, assign queuing priority and optionally overwrite class name and at least one condition below. All of the specified
- WAN		atisfied for the rule to take effect. Click 'Save/Apply' to save and activate
	the rule.	
🗖 🧰 Firewall		
Port Mapping     Quality of Service	Traffic Class Name:	
🕀 🧰 Routing	Assign Priority and/or IP Precedence a	ad /or Tuno Of Comise for the close
DNS     ADSL		nce' and/or 'IP Type Of Service', the corresponding TOS byte in the IP
🖨 🚔 Wireless	header of the upstream packet will be overw	ritten by the selected value.
Basic		
- MAC Filter	Priority:	
- 🔄 Wireless Bridge	IP Precedence:	<u> </u>
Advanced	IP Type Of Service:	<b>•</b>
🗄 🛅 Management	Specify Traffic Conditions for the class	
	Enter the following conditions either for IP lay	ver or for the IEEE 802.1p priority.
	Protocol:	
	Source IP Address:	
	Source Subnet Mask:	
	Source Port (port or port:port):	
	Destination IP Address:	
	Destination Subnet Mask:	
	Destination Port (port or port:port):	
	802.1p Priority:	×
		Save/Apply

Figure 5-30. Quality of Service Add Screen

# **Routing – Default Gateway**

You can change the Default Gateway on the Routing - Default Gateway screen. By default the Enable Automatic Assigned Default Gateway box is checked.

Welcome	Routing Default Gateway
B Device Info	If Enable Automatic Assigned Default Gateway checkbox is selected, this router will accept the first received default gateway assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s). If the checkbox is not selected, enter the static default gateway AND/OR a WAN interface. Click 'Save/Apply' button to save it.
AT     AT     Firewall     Ort Mapping     Quality of Service	NOTE: If changing the Automatic Assigned Default Gateway from unselected to selected, You must reboot the router to get the automatic assigned default gateway.
Control Contr	Enable Automatic Assigned Default Gateway
Wireless     Basic     Basic     Security     MAC Filter     Writeless Bridge     Advanced     Diagnostics     Magement	Save/Apply

Figure 5-31. Default Gateway Setup

If you want to specify the default gateway address, then uncheck the box as seen below. Enter the default gateway address and, optionally, the WAN interface you will use. Click on Save / Apply to save the settings.

If you add or change the default gateway address, you must reboot the router to put the new default gateway IP address into effect.

🖳 Welcome	Routing Default Gateway
😐 🧰 Device Info	
	If Enable Automatic Assigned Default Gateway checkbox is selected, this router will accept the first received default
🖻 🔄 Advanced Setup	gateway assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s). If the checkbox is not selected,
- D WAN	enter the static default gateway AND/OR a WAN interface. Click 'Save/Apply' button to save it.
- D LAN	
😟 🗀 NAT	NOTE: If changing the Automatic Assigned Default Gateway from unselected to selected. You must reboot the router to
🗄 🧰 Firewall	get the automatic assigned default gateway.
- Port Mapping	get the automatic assigned default gateway.
Quality of Service	Excellent Automatic Assistant Default Octower
🕀 🔂 Routing	Enable Automatic Assigned Default Gateway
Default Gateway	
- Static Route	
	✓ Use Default Gateway IP Address 135.154.13.254
III- DNS	
- ADSL	Use Interface pppoa_3_40_1/ppp_3_40_1
Diagnostics	
🗄 🧰 Management	
	Save/Apply
	Date(Whb)

Figure 5-32. Default Gateway Setup

## **Routing – Static Route**

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

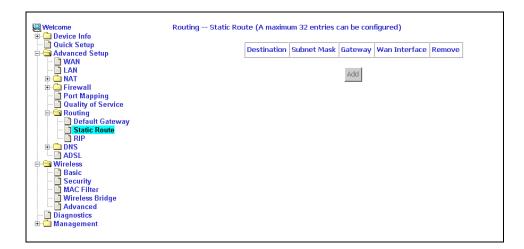


Figure 5-33. Static Route Setup

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

🖳 Welcome	Routing Static Route Add
🗄 🧰 Device Info	
- 🗋 Quick Setup	Enter the destination network address, subnet mask, gateway AND/OR available WAN interface then click "Save/Apply"
🖻 🔄 Advanced Setup	to add the entry to the routing table.
- WAN	
	Destination Network Address:
	Subnet Mask:
- Dort Mapping	
- Duality of Service	
	Use Gateway IP Address
- 🛄 Static Route	✓ Use Interface pppoa_3_40_1/ppp_3_40_1 ▼
- 🖻 RIP	
🕀 🧰 DNS	
ADSL	Save/Apply
a and management	
	Use Interface     pppoo_3_40_1/ppp_3_40_1        Save/Apply

Figure 5-34. Static Route Add

# **Routing – RIP**

If RIP is enabled, the router operation can be configured as Active or Passive.

🖳 Welcome	Routing RIP Configuration
🕀 🧰 Device Info	
- Duick Setup	To activate RIP for the device, select the 'Enabled' radio button for Global RIP Mode. To configure an individual
Advanced Setup	interface, select the desired RIP version and operation,followed by placing a check in the 'Enabled' checkbox for the interface. Click the 'Apply' button to save the configuration, and to start or stop RIP based on the Global RIP mode
	selected.
E NAT	
🕀 🛄 Firewall	Global RIP Mode 💿 Disabled 🔿 Enabled
🛄 Port Mapping	
Quality of Service	Interface VPI/VCI Version Operation Enabled
🖻 🔄 Routing	br0 (LAN) 2 🔻 Active 🕶 🗖
- Static Route	ppp 3 40 1 3/40 2 🔻 Passive 🕶 🗖
🗉 🛄 DNS	nas_3_41 3/41 2 💌 Passive 💌 🗖
ADSL	
Diagnostics	Apply
🖻 🖳 Management	

Figure 5-35. RIP Setup

## **DNS Server**

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

Welcome One Device Info	DNS Server Configuration
Quick Setup Advanced Setup WAN LAN HAT	If 'Enable Automatic Assigned DNS' checkbox is selected, this router will accept the first received DNS assignment from one of the PPPoA, PPPoE or NER/DHCP enabled PVC(s) during the connection establishment. If the checkbox is not selected, enter the primary and optional secondary DNS server IP addresses. Citch 'Save' button to save the new configuration. You must reboot the router to make the new configuration effective.
Contract Service     Quality of Service     Contract Service     Contract Service     Contract Service     Contract Service	Enable Automatic Assigned DNS
DNS Server	Primary DNS server: 123.123.123.1
Diagnostics Management	Secondary DNS server: 123.123.100
	Save

Figure 5-36. DNS Setup

## **Dynamic DNS**

Use the Dynamic DNS screen to alias a dynamic IP address to a static hostname, allowing your router to be easily accessed from anywhere on the Internet.



Figure 5-37. Dynamic DNS

To set up a Dynamic DNS entry:

1. Click on Add. The Add Dynamic DNS screen appears.

₩elcome ⊕- Device Info	Add dynamic DDNS	
		add a Dynamic DNS address from DynDNS.org or TZO.
        	D-DNS provider Hostname	
DNS Server Dynamic DNS	Interface DynDNS Settings	mer_0_35/nas_0_35 💌
- Diagnostics	Username Password	
		Save/Apply

Figure 5-38. Adding a Dynamic DNS Entry

- 2. Select a D-DNS Provider from the drop-down list.
- 3. Enter the Hostname you have selected for the interface.
- 4. Select the router Interface from the drop-down list.
- Enter the information you used to register with the dynamic DNS service: for DynDNS, enter your Username and Password; for TOZ, enter your E-mail address and Key.
- 6. Click on Save/Apply.

### ADSL

There are three major items in the ADSL settings.

🖳 Welcome 🖻 🗀 Device Info	DSL Settings			
- 🗋 Quick Setup	Select the modulation below.			
Advanced Setup	G.Dmt Enabled			
- D LAN	G.lite Enabled			
- Diagnostics	T1.413 Enabled			
🗄 🧰 Management	ADSL2 Enabled			
	🗹 AnnexL Enabled			
	ADSL2+ Enabled			
	AnnexM DISABLED			
	Select the phone line pair below.			
	Inner pair			
	C Outer pair			
	Capability			
	🗹 Bitswap Enable			
	🗖 SRA Enable			
		Save/Apply	Advanced Settings	

Figure 5-39. DSL Settings

#### **Modulation Methods**

The following modulation methods are supported by the 6212 ADSL router:

- G.dmt Enabled
- G.lite Enabled
- T1.413 Enabled
- ADSL Enabled
- Annex L Enabled
- ADSL2+ Enabled.

Do not change this setting unless so directed by your ISP.

#### **Phone Line Pair**

The 6212 ADSL router supports phone lines on pins 2 and 3 or pins 1 and 4 to connect your ADSL line. If your phone system uses pins 2 and 3, attach a normal RJ11 cable to the router and select "Inner pair" on the screen; if your phone system uses pins 1 and 4, attach the phone with the supplied RJ11 cable and select "Outer pair" on the screen.

#### Capability

The following are included under Capability:

- Bitswap Enable
- SRA (Seamless Rate Adaptation) Enable

Do not change these settings unless so directed by your ISP.

## **DSL Advanced Settings**

Do not change the DSL Advanced Settings unless so directed by your ISP. To view the DSL Advanced Settings screen, click on the Advanced Settings button on the DSL Settings screen (see Figure 5-39).

There are five test modes between the router and your ISP:

- Normal test: Puts the router in a test mode in which it only sends a Normal signal.
- Reverb test: Puts the router in a test mode in which it only sends a Reverb signal.
- Medley test: Puts the router in a test mode in which it only sends a Medley signal.
- No Retrain: In this mode the router will try to establish a connection as in normal mode, but once the connection is up it will not retrain if the signal is lost.
- L3: Puts the router into the L3 power state.

Select a test mode and click on Apply. Then click on Tone Selection.

🖳 Welcome 🗄 🔄 Device Info	DSL Advanced Settings	
Summary	Select the test mode below.	
E Statistics	Normal	
WAN	() Reverb	
	○ Medley	
Advanced Setup	○ No retrain	
	Оц	
Diagnostics		
🗄 🛅 Management	Apply Tone Selection	

Figure 5-40. DSL Advanced Settings

## **Tone Selection**

To view the ADSL Tone Settings screen, click on the Tone Selection button of the DSL Advanced Settings screen (see Figure 5-40).

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.

http://	/192.16	8.1.1/a	lslefgto	ne htm	l - Mici	osoft I	nternet	Explore	JI.					E	
						AD	SL Ton	e Setti	ings						
						U	pstrea	m Ton	es						
0	✓ 1	2	<b>V</b> 3	✔ 4	✓ 5	6	7	8	9	✓ 10	✓ 11	12	✓ 13	14	<b>1</b> 5
<b>1</b> 6	17	18	🗹 19	20	21	22	23	24	25	26	27	28	29	<b>3</b> 0	31
						Do	wnstre	eam To	nes						
32	🗹 33	34	35	36	37	38	🗹 39	<b>₩</b> 40	✓ 41	42	<b>⊻</b> 43	44	45	46	47
<b>₩</b> 48	<b>₩</b> 49	<b>5</b> 0	51	✓ 52	53	54	<b>S</b> 5	56	57	<b>₩</b> 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	12	5 🗹 126	5 🗹 127
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	2 🗹 143
144	145	i 🗹 146	147	148	149	150	151	152	153	154	155	156	15	7 🗹 158	3 🗹 159
160	161	162	✓ 163	164	165	166	167	168	169	170	171	172	17	3 174	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
			211												
10 20		1	227	1510	1197	69	H2 H2	201 235	100	6 S.	67	2610	199	69	100
			243												
ar depaid	a decha	8 9.59 B		e tre broad	11 - 51 - 51 - 51	20110428	NE 1549	1000	al decide	u tunina	Venner Mile		ar stander	Rostowa	PC Newl
					Chec		Clear		Annly	Close	1				

Figure 5-41. Tone Settings

# **Diagnostics**

# 6

# **Testing the DSL Connection**

The diagnostics screen allows you to run diagnostic tests to check your DSL connection. The screen shows test results for three connections:

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

Use the Test and Test with OAM F4 buttons to retest if necessary.

Welcome Device Info Ouick Setup Ouica Setup Olivica Jagnostics Management Ouica Setings		e bottom of troublesho	<sup>r</sup> this pa	ndividual tests are listed below. If a test displays a fail ge to make sure the fail status is consistent. If the test rocedures.					
System Log	Test your Ethernet Connection:	PASS	<u>Help</u>						
Internet Time	Test the connection to your DSL serv	ce provide	er						
Update Software	Test ADSL Synchronization:	PASS	Help						
_	Test ATM OAM F5 segment ping:	PASS	Help						
	Test ATM OAM F5 end-to-end ping:	PASS	Help						
	Test the connection to your Internet service provider								
	Test PPP server session:	PASS	Help						
	Test authentication with ISP:	PASS	Help						
	Test the assigned IP address:	PASS	Help						
	Ping default gateway:	PASS	Help						
	Ping primary Domain Name Server:	PASS	Help						
		1	ext Conr Test W	ection th OAM F4					

Figure 6-1. Diagnostics

# Management

# 7

# Saving and Restoring the Configuration

The configuration of your router can be backed up to a file, and also can be restored from a file. You can also restore the router to its factory default configuration.

# **Backing Up Configuration Settings**

To back up your settings, select Management -> Settings -> Backup Settings.

Welcome	Settings - Backup
Quick Setup     Advanced Setup	Backup DSL router configurations. You may save your router configurations to a file on your PC.
	Backup Setting:
Contemporary	
DNS     ADSL     Diagnostics	
Management     Settings     Backup Settings	
Restore User Settings Restore Default System Log	
Access Control     Dydate Software     Reboot Router	
- 🖹 Reboot Router	

Figure 7-1. Back Up Settings Screen

Verify that you would like to save the file.

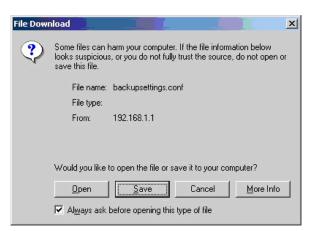


Figure 7-2. Backup Settings Upload Confirmation

Select the location where you want to save the file.

Save As	1				? ×
Save jn:	My Document		•	🗢 🗈 💣 🎫	
	My Pictures				
History					
Desktop					
My Documents					
My Computer					
	Į				
My Network P	File <u>n</u> ame:	backupsettings		•	<u>S</u> ave
	Save as type:	.conf Document		-	Cancel

Figure 7-3. Backup Settings File Location

# **Restoring Configuration Settings**

To restore saved settings, select Management -> Settings -> Restore User Settings.

Welcome	Tools Update Settings		
Device Info     Quick Setup	Update DSL router settings. You	may update your router settings using your saved files.	
🖻 🔄 Advanced Setup			
	Settings File Name:	Browse	
🗉 🧰 Firewall		Update Settings	
Quality of Service     Generating			
DNS			
ADSL			
🖃 🗋 Diagnostics 🖃 😋 Management			
🖻 🔂 Settings			
Backup Settings			
Restore User Settings			
- 📄 System Log			
Access Control Update Software			
Reboot Router			

Figure 7-4. Restore User Settings Screen

Select the backup file you want to restore and click on Update Settings.

Choose file					<u>? ×</u>
Look jn:	🔄 My Document	\$	•	+ 🗈 💣 🎟+	
iistory History Desktop	My Pictures				
My Documents					
My Computer	File <u>n</u> ame: Files of <u>type</u> :	ttt All Files (*.*)		<b>•</b>	<u>O</u> pen Cancel

Figure 7-5. Restore Settings File Location

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

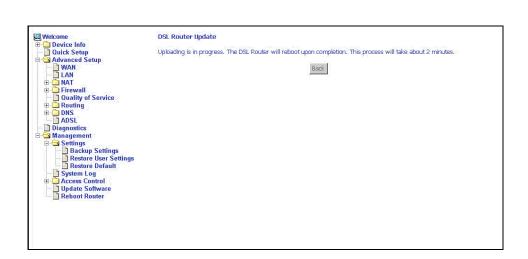


Figure 7-6. Upload in Progress Screen

# **Restoring Default Settings**

Restore Default will erase all current settings and restore the router to factory default settings.

To restore the router to factory default settings, select Management -> Settings -> Restore Default.

🖳 Welcome	Tools Restore Default Settings
🗉 🛄 Device Info	
- 🛄 Quick Setup	Restore DSL router settings to the factory defaults.
Advanced Setup	
Wireless     Diagnostics	
	Restore Default Settings
E Settings	
Backup Settings	
- Restore User Settings	
Restore Default	
System Log	
SNMP	
Access Control	
Update Software	
Reboot Router	
_	

Figure 7-7. Restore Default Settings Screen

Reply OK to the confirmation dialog.

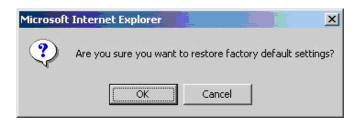


Figure 7-8. Restore Default Confirmation Dialog

The router will restore the default settings and reboot.

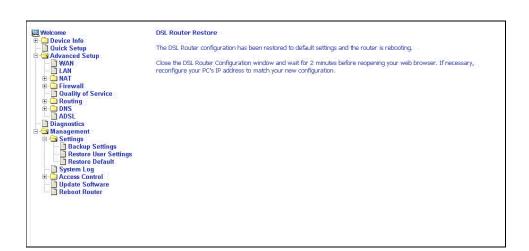


Figure 7-9. Restore Default Settings Reboot

## System Log

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

🖳 Welcome	System Log
😇 🛄 Device Info	
— 🗋 Quick Setup	The System Log dialog allows you to view the System Log and configure the System Log options.
🖻 🧰 Advanced Setup	
🗉 🧰 Wireless	Click "View System Log" to view the System Log.
Diagnostics	Click View System Edg. W View the System Edg.
🖻 🔄 Management	
🖻 🔄 Settings	Click "Configure System Log" to configure the System Log options.
– 📄 Backup Settings	
– 🛄 Restore User Settings	
🔄 🛄 Restore Default	View System Log Configure System Log
- 📑 System Log	·····
- SNMP	
Internet Time	
🖻 🧰 Access Control	
— 🛄 Update Software	
🔤 🛄 Reboot Router	

Figure 7-10. System Log

## View System Log

Click on the "View System Log" button to check the log file.

Date/Time	Facility	Severity	Message
Jan 1 00:00:16	syslog	emerg	BCM96345 started: BusyBox v1.00 (2005.06.15-04:26+0000)
Jan 1 00:00:17	kern	crit	kernel: eth0 Link UP.
Jan 1 00:00:24	kern	crit	kernel: ADSL G.994 training
Jan 1 00:00:29	kern	crit	kernel: ADSL G.992 started
Jan 1 00:00:31	kern	crit	kernel: ADSL G.992 channel analysis
Jan 1 00:00:36	kern	crit	kernel: ADSL link up, fast, us=800, ds=8000
Jan 1 00:00:39	kern	crit	pppd[285]: PPP LCP UP.
Jan 1 00:00:40	kern	crit	pppd[285]: Received valid IP address from server. Connection UP.
Jan 1 00:02:49	kern	crit	kernel: OAM loopback response not received on VPI/VCI 3/41.
Jan 1 00:02:50	kern	crit	kernel: OAM loopback response not received on VPI/VCI 3/41.
Jan 1 00:03:01	kern	crit	kernel: OAM loopback response not received on VPI/VCI 3/3.
Jan 1 00:03:03	kern	crit	kernel: OAM loopback response not received on VPI/VCI 3/4.
			Refresh Close

Figure 7-11. View System Log

#### **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 levels will be logged (maintained in the system log file) and displayed.

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.

Welcome  Device Info Device Info Advanced Setup Ad	System Log Configuration         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.         Select the desired values and click 'Save/Apply' to configure the system log options.         Log:       C Disable © Enable         Log Level:       Debugging •         Display Level:       Error •         Mode:       Local •
	Save/Apply

Figure 7-12. System Log Configuration

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

## **SNMP**

Simple Network Management Protocol (SNMP) allows a management application to retrieve statistics and status from the SNMP agent in the router. Use the SNMP screen to set up parameters for SNMP access.

₩elcome ⊕- Device Info	SNMP - Configurat	ion			
Advanced Setup     Wireless	Simple Network Management Protocol (SNMP) allows a management application to retrieve statistics and status from the SNMP agent in this device.				
Diagnostics     Management     Settings	Select the desired values and click "Apply" to configure the SNMP options.				
Backup Settings Restore User Settings	SNMP Agent 💿 Dis		_		
- System Log	Read Community:	public			
SNMP	Set Community:	private			
Internet Time     Access Control     Update Software     Reboot Router	System Name:	Sysname			
	System Location:	unknown			
	System Contact:	unknown			
	Trap Manager IP:	0.0.0.0			
			Save/Apply		

Figure 7-13. SNMP Screen

Select the desired values and click on Save/Apply to configure the SNMP options.

## **Internet Time**

Use the Internet Time screen to specify whether the router uses Simple Network Time Protocol (SNTP) to obtain the time of day from NTP servers on the Internet.

To set up the router to obtain time from an NTP server:

1. Select "Automatically synchronize with Internet time servers". The SNTP fields appear.

🖳 Welcome	Time settings		
🕀 🧰 Device Info	-		
Quick Setup	This page allows you to the modem's time configuration.		
Advanced Setup     Diagnostics			
E Stagnostics	Automatically synchronize with Internet time servers		
Settings	First NTP time server:	clock.fmt.he.net	
Backup Settings			
Restore User Settings	Second NTP time server:	None	
Restore Default			
System Log	Time zone offset:	(GMT-12:00) International Date Line West	
- Internet Time			
Access Control		Course (Association	
Update Software		Save/Apply	
🔤 🛅 Reboot Router			

Figure 7-14. Internet Time Screen

- 2. Select NTP servers.
- 3. Specify the time zone offset for your router's location.
- 4. Click on Save/Apply.

## **Access Control – Services**

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.

Welcome Device Info	Access Control Services			
- ☐ Quick Setup - ☐ Advanced Setup - ☐ Diagnostics - ← Management	A Service Control List ("SCL") enables	or disables	services from I	being used.
E G Settings		Service	LAN	WAN
Restore Default		FTP	🗹 Enabled	Enabled
- 📄 System Log		HTTP	🗹 Enabled	🗆 Enabled
Internet Time		ICMP	M Enabled	🗆 Enabled
Access Control           Services		SNMP	🗹 Enabled	🗆 Enabled
IP Addresses		SSH	🗹 Enabled	Enabled
Update Software		TELNET	🗹 Enabled	Enabled
_		TFTP	Enabled	🗆 Enabled
			Apply	

Figure 7-15. Services Setup

## Access Control – 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.

Welcome	Access Control IP Address
Quick Setup     Advanced Setup     Gramma Setup     Gramma Setup     Dragnostics	The IP Address Access Control mode, if enabled, permits access to local management services from IP adresses contained in the Access Control List. If the Access Control mode is disabled, the system will not validate IP adresses for incoming packets. The services are the system applications listed in the Service Control List
ia - Canagement ia - Canageme	Access Control Mode  C Enabled C Enabled
System Log     SNMP     Internet Time	IP Address Remove
Access Control	bbA
Update Software Reboot Router	

Figure 7-16. IP Address Setup

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.

Welcome Unick Setup Unick Set	Access Control Enter the IP address of the management station permitted to access the local management services, and click 'Save/Apply.' IP Address: Save/Apply

Figure 7-17. Access Control – IP Address Add Screen

## Access Control – Passwords

Use Access Control -> Passwords to change a password. Select an account and enter the current password and the new password. Then click on Save/Apply.

See Access Control Passwords			
Device Info			
	Access to your DSL router is controlled through three user accounts: admin, support, and user. The user name "admin" has unrestricted access to change and view configuration of your DSL Router.		
Wireless     Diagnostics			
Management			
🖻 🔄 Settings	The user name "support" is used to allow an ISP technician to access your DSL Router for maintenance and to run		
Backup Settings	diagnostics.		
Restore Default	The user name "user" can access the DSL Router, view configuration settings and statistics, as well as, update the		
— 📄 System Log	router's software.		
- SNMP			
- 📄 Internet Time	Use the fields below to enter up to 16 characters and click "Apply" to change or create passwords. Note: Password		
Services	cannot contain a space.		
- D IP Addresses			
Passwords Update Software	Username:		
Reboot Router	Old Password:		
	New Password:		
	Confirm Password:		
	Save/Apply		

Figure 7-18. Access Control – Passwords Screen

## **Update Software**

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

1. Obtain an updated software image file from your ISP.

2. Enter the path to the image file location or click on the "Browse" button to locate the image file.

3. Click on the Update Software button once to upload the new image file.

🖳 Welcome	Tools Update Software
	Tools opuate software
🕀 🧰 Device Info	
- 📄 Quick Setup	Other to Other an under disc fragment in an Alle fragment (CD
	Step 1: Obtain an updated software image file from your ISP.
🖻 🚞 Advanced Setup	
🗄 🧰 Wireless	
- Diagnostics	Step 2: Enter the path to the image file location in the box below or click the "Browse" button to locate the image file.
🖻 🔄 Management	
🖻 🔄 Settings	Step 3: Click the "Update Software" button once to upload the new image file.
Backup Settings	
Restore User Settings	NOTE: The update process takes about 2 minutes to complete, and your DSL Router will reboot.
Restore Default	
System Log	
	Software File Name: Browse
- SNMP	
- Internet Time	
Access Control	I had to be a set of the set of t
	Update Software
- D Services	
IP Addresses	
Passwords	
Update Software	
Reboot Router	

Figure 7-19. Update Software

Note

The update process takes about two minutes to complete, and your router will reboot automatically.

## **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. The rebooting process takes about two minutes to complete.

Welcome  Device Info  Quick Setup  Avanced Setup  Management  System Log  System Log  Access Control  Update Software	Click the button below to save and reboot the router.

Figure 7-20. Reboot Router Screen

# Specifications



Specifications are subject to change without notice.

Specification	Criteria
Environment	Operating Temperature: $32^{\circ}$ F to $104^{\circ}$ F ( $0^{\circ}$ C to $40^{\circ}$ C) Storage Temperature: $-4^{\circ}$ F to $149^{\circ}$ F ( $-20^{\circ}$ C to $65^{\circ}$ C) Humidity: 5% to 95%, non-condensing
Interfaces	DSL Line: RJ11 Ethernet: 10/100BaseT, RJ45
Power	100 VAC, 50 Hz 110 VAC, 60 Hz 220 VAC, 50/60 Hz
Protocol Support	ANSI T1.413 (Full Rate ADSL) ITU G.992.1 (DMT) ITU G.992.2 (G.lite) ITU G.992.3 (ADSL2) ITU G.992.5 (ADSL2+) ITU G.994.1 (G.hs) ITU G.997.1
Size	1.2" High x 6.5" Wide x 4.4" Deep (3.0 cm High x 16.5 cm Wide x 11.2 cm Deep)
Weight (Shipping)	1.5 lbs (0.7 kg)

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 6212-I1 Specifications

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