Prestige 794M

SHDSL 4-Port Internet Security Gateway

User's Guide

Version 1.00
10/2005
Edition 1

ZyXEL

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- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operations.

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 commercial environment. 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.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the 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 1

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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1. Go to www.zyxel.com.
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3. Select the certification you wish to view from this page.

Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions.

- Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact your vendor for further information.
- Connect the power cord to the right supply voltage (110V AC in North America or 230V AC in Europe).
- Place connecting cables carefully so that no one will step on them or stumble over them. Do NOT allow anything to rest on the power cord and do NOT locate the product where anyone can walk on the power cord.
- If you wall mount your device, make sure that no electrical, gas or water pipes will be damaged.
- Do NOT install nor use your device during a thunderstorm. There may be a remote risk of electric shock from lightning.
- Do NOT expose your device to dampness, dust or corrosive liquids.
- Do NOT use this product near water, for example, in a wet basement or near a swimming pool.
- Make sure to connect the cables to the correct ports.
- Do NOT obstruct the device ventilation slots, as insufficient airflow may harm your device.
- Do NOT store things on the device.
- Connect ONLY suitable accessories to the device.

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ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in materials or workmanship for a period of up to two years from the date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product is modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

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To obtain the services of this warranty, contact ZyXEL's Service Center for your Return Material Authorization number (RMA). Products must be returned Postage Prepaid. It is recommended that the unit be insured when shipped. Any returned products without proof of purchase or those with an out-dated warranty will be repaired or replaced (at the discretion of ZyXEL) and the customer will be billed for parts and labor. All repaired or replaced products will be shipped by ZyXEL to the corresponding return address, Postage Paid. This warranty gives you specific legal rights, and you may also have other rights that vary from country to country.

Safety Warnings

1. To reduce the risk of fire, use only No. 26 AWG or larger telephone wire.
2. Do not use this product near water, for example, in a wet basement or near a swimming pool.
3. Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightening.

Customer Support

Please have the following information ready when you contact customer support.

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

METHOD	SUPPORT E-MAIL	TELEPHONE[A]	WEB SITE	REGULAR MAIL
LOCATION	SALES E-MAIL	FAX	FTP SITE	
CORPORATE HEADQUARTERS (WORLDWIDE)	support@zyxel.com.tw	+886-3-578-3942	www.zyxel.com www.europe.zyxel.com	ZyXEL Communications Corp. 6 Innovation Road II Science Park Hsinchu 300 Taiwan
	sales@zyxel.com.tw	+886-3-578-2439	ftp.zyxel.com ftp.europe.zyxel.com	
CZECH REPUBLIC	info@cz.zyxel.com	+420-241-091-350	www.zyxel.cz	ZyXEL Communications Czech s.r.o. Modranská 621 143 01 Praha 4 - Modrany Ceská Republika
	info@cz.zyxel.com	+420-241-091-359		
DENMARK	support@zyxel.dk	+45-39-55-07-00	www.zyxel.dk	ZyXEL Communications A/S Columbusvej 2860 Soeborg Denmark
	sales@zyxel.dk	+45-39-55-07-07		
FINLAND	support@zyxel.fi	+358-9-4780-8411	www.zyxel.fi	ZyXEL Communications Oy Malminkaari 10 00700 Helsinki Finland
	sales@zyxel.fi	+358-9-4780 8448		
FRANCE	info@zyxel.fr	+33-4-72-52-97-97	www.zyxel.fr	ZyXEL France 1 rue des Vergers Bat. 1 / C 69760 Limonest France
		+33-4-72-52-19-20		
GERMANY	support@zyxel.de	+49-2405-6909-0	www.zyxel.de	ZyXEL Deutschland GmbH. Adenauerstr. 20/A2 D-52146 Wuerselen Germany
	sales@zyxel.de	+49-2405-6909-99		
HUNGARY	support@zyxel.hu	+36-1-3361649	www.zyxel.hu	ZyXEL Hungary 48, Zoldlomb Str. H-1025, Budapest Hungary
	info@zyxel.hu	+36-1-3259100		
KAZAKHSTAN	http://zyxel.kz/support	+7-3272-590-698	www.zyxel.kz	ZyXEL Kazakhstan 43, Dostyk ave.,Office 414 Dostyk Business Centre 050010, Almaty Republic of Kazakhstan
	sales@zyxel.kz	+7-3272-590-689		
NORTH AMERICA	support@zyxel.com	1-800-255-4101 +1-714-632-0882	www.us.zyxel.com	ZyXEL Communications Inc. 1130 N. Miller St. Anaheim CA 92806-2001 U.S.A.
	sales@zyxel.com	+1-714-632-0858	ftp.us.zyxel.com	
NORWAY	support@zyxel.no	+47-22-80-61-80	www.zyxel.no	ZyXEL Communications A/S Nils Hansens vei 13 0667 Oslo Norway
	sales@zyxel.no	+47-22-80-61-81		

METHOD	SUPPORT E-MAIL	TELEPHONE[A]	WEB SITE	REGULAR MAIL
LOCATION	SALES E-MAIL	FAX	FTP SITE	
POLAND	info@pl.zyxel.com	+48-22-5286603	www.pl.zyxel.com	ZyXEL Communications ul.Emilli Plater 53 00-113 Warszawa Poland
		+48-22-5206701		
RUSSIA	http://zyxel.ru/support	+7-095-542-89-29	www.zyxel.ru	ZyXEL Russia Ostrovityanova 37a Str. Moscow, 117279 Russia
	sales@zyxel.ru	+7-095-542-89-25		
SPAIN	support@zyxel.es	+34-902-195-420	www.zyxel.es	ZyXEL Communications Alejandro Villegas 33 1º, 28043 Madrid Spain
	sales@zyxel.es	+34-913-005-345		
SWEDEN	support@zyxel.se	+46-31-744-7700	www.zyxel.se	ZyXEL Communications A/S Sjöporten 4, 41764 Göteborg Sweden
	sales@zyxel.se	+46-31-744-7701		
UKRAINE	support@ua.zyxel.com	+380-44-247-69-78	www.ua.zyxel.com	ZyXEL Ukraine 13, Pimonenko Str. Kiev, 04050 Ukraine
	sales@ua.zyxel.com	+380-44-494-49-32		
UNITED KINGDOM	support@zyxel.co.uk	+44-1344 303044 08707 555779 (UK only)	www.zyxel.co.uk	ZyXEL Communications UK Ltd.,11 The Courtyard, Eastern Road, Bracknell, Berkshire, RG12 2XB, United Kingdom (UK)
	sales@zyxel.co.uk	+44-1344 303034	ftp.zyxel.co.uk	

[a] "+" is the (prefix) number you enter to make an international telephone call.

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Preface

Congratulations on your purchase of the Prestige 794M.

Note: Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

Your Prestige is easy to install and configure.

About This User's Guide

This manual is designed to guide you through the configuration of your Prestige for its various applications using the web-based configurator.

Related Documentation

- Supporting Disk

  Refer to the included CD for support documents.

- Quick Start Guide

  The Quick Start Guide is designed to help you get up and running right away. They contain connection information and instructions on getting started.

- ZyXEL Glossary and Web Site

  Please refer to www.zyxel.com for an online glossary of networking terms and additional support documentation.

User Guide Feedback

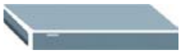
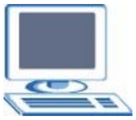
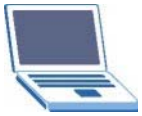
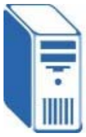
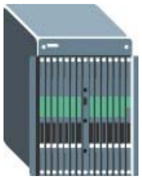
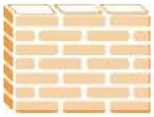
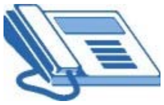
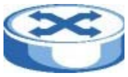
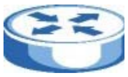
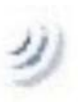
Help us help you. E-mail all User Guide-related comments, questions or suggestions for improvement to techwriters@zyxel.com.tw or send regular mail to The Technical Writing Team, ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu, 300, Taiwan. Thank you!

Syntax Conventions

- "Enter" means for you to type one or more characters. "Select" or "Choose" means for you to use one predefined choices.
- The SMT menu titles and labels are in **Bold Times New Roman** font. Predefined field choices are in **Bold Arial** font. Command and arrow keys are enclosed in square brackets. [ENTER] means the Enter, or carriage return key; [ESC] means the Escape key and [SPACE BAR] means the Space Bar.
- Mouse action sequences are denoted using a comma. For example, "click the Apple icon, **Control Panels** and then **Modem**" means first click the Apple icon, then point your mouse pointer to **Control Panels** and then click **Modem**.

- For brevity's sake, we will use "e.g.," as a shorthand for "for instance", and "i.e.," for "that is" or "in other words" throughout this manual.
- The Prestige 794M may be referred to as "the Prestige" in this user's guide.

Graphics Icons Key

Prestige 	Computer 	Notebook computer 
Server 	DSLAM 	Firewall 
Telephone 	Switch 	Router 
Wireless Signal 		

CHAPTER 1 Introduction

1.1 About Your Prestige

Your Prestige integrates high-speed 10/100Mbps auto-negotiating LAN interface(s) and a high-speed SHDSL port into a single package. The Prestige is ideal for high-speed Internet browsing and making LAN-to-LAN connections to remote networks. The Prestige is also an SHDSL router.

By integrating SHDSL and NAT, the Prestige provides ease of installation and Internet access. The Prestige is also a complete security solution with a robust firewall and content filtering.

1.2 Features

The following sections describe the features of the Prestige.

Multi-Mode Standard

Your Prestige supports symmetric data rates of up to 4.6Mbps. It also supports rate management that allows subscribers to select a speed to fit their needs and budgets. The Prestige uses the ITU standard PAM16 Line Code, complies with G.991.2 and G.994.1 standards.

10/100M Auto-negotiating Ethernet/Fast Ethernet Interface(s)

This auto-negotiation feature allows the Prestige to detect the speed of incoming transmissions and adjust appropriately without manual intervention. It allows data transfer of either 10 Mbps or 100 Mbps in either half-duplex or full-duplex mode depending on your Ethernet network.

4-Port Switch

A combination of switch and router makes your Prestige a cost-effective and viable network solution. You can connect up to four computers to the Prestige without the cost of a hub. Use a hub to add more than four computers to your LAN.

Encapsulation

The Prestige supports PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM, MAC encapsulated routing (ENET encapsulation), IPoA (RFC1577) as well as PPP over Ethernet (RFC 2516).

Multiplexing

The Prestige supports VC-based and LLC-based multiplexing.

Full Network Management

The embedded web configurator is an all-platform web-based utility that allows you to easily access the Prestige's management settings. Most functions of the Prestige are also configurable via the CLI (Command Line Interface) over a telnet/console connection.

Universal Plug and Play (UPnP)

Using the standard TCP/IP protocol, the Prestige and other UPnP enabled devices can dynamically join a network, obtain an IP address and convey its capabilities to other devices on the network.

Network Address Translation (NAT)

Network Address Translation (NAT) allows the translation of an Internet protocol address used within one network (for example a private IP address used in a local network) to a different IP address known within another network (for example a public IP address used on the Internet).

Firewall

The Prestige is a stateful inspection firewall with DoS (Denial of Service) protection. By default, when the firewall is activated, all incoming traffic from the WAN to the LAN is blocked unless it is initiated from the LAN. The Prestige firewall supports TCP/UDP inspection, DoS detection and prevention, real time alerts, reports and logs.

Content Filtering

The Prestige can block web features such as ActiveX controls, Java applets and cookies, as well as disable web proxies. The Prestige can block or allow access to web sites that you specify. The Prestige can also block access to web sites containing keywords that you specify. You can define time periods and days during which content filtering is enabled and include or exclude a range of users on the LAN from content filtering.

Packet Filtering

The packet filtering mechanism blocks unwanted traffic from entering/leaving your network.

Dynamic DNS (DDNS)

With Dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet. You must register for this service with a Dynamic DNS service provider.

VPN

Establish a Virtual Private Network (VPN) to connect with business partners and branch offices using data encryption and the Internet to provide secure communications without the expense of leased site-to-site lines. The Prestige VPN is based on the IPSec standard and is fully interoperable with other IPSec-based VPN products.

DHCP (Dynamic Host Configuration Protocol)

DHCP (Dynamic Host Configuration Protocol) allows the individual client computers to obtain the TCP/IP configuration at start-up from a centralized DHCP server. The Prestige has built-in DHCP server capability, disabled by default, which means it can assign IP addresses, an IP default gateway and DNS servers to all systems that support the DHCP client.

SNMP

SNMP (Simple Network Management Protocol) is a protocol used for exchanging management information between network devices. SNMP is a member of the TCP/IP protocol suite. Your Prestige supports SNMP agent functionality, which allows a manager station to manage and monitor the Prestige through the network.

Firmware Upgradeable

The firmware of the Prestige can be upgraded via the web configurator.

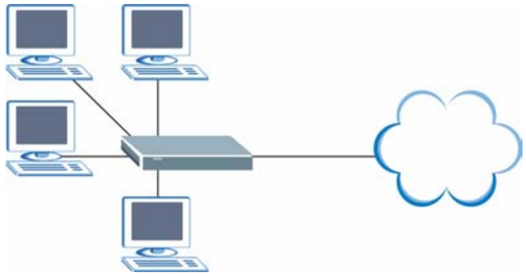
1.3 Applications

Here are some examples of what you can do with your Prestige.

1.3.1 Internet Access

The Prestige is the ideal high-speed Internet access solution. Your Prestige supports the TCP/IP protocol, which the Internet uses exclusively. It is compatible with all major DSL DSLAM (Digital Subscriber Line Access Multiplexer) providers. A DSLAM is a rack of DSL line cards with data multiplexed into a backbone network interface/connection (for example, T1, OC3, DS3, ATM or Frame Relay). Think of it as the equivalent of a modem rack for SHDSL.

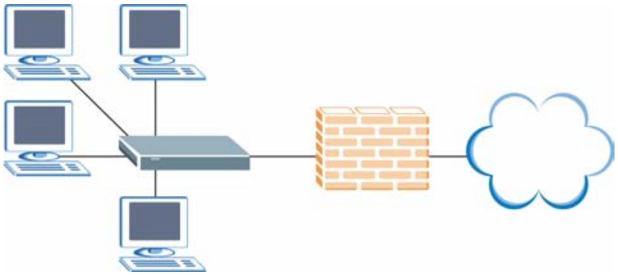
Figure 1 Application: Internet Access



1.3.2 Firewall for Secure Broadband Internet Access

The Prestige provides protection from attacks by Internet hackers. By default, the firewall blocks all incoming traffic from the WAN. The firewall supports TCP/UDP inspection and DoS (Denial of Services) detection and prevention, as well as real time alerts, reports and logs.

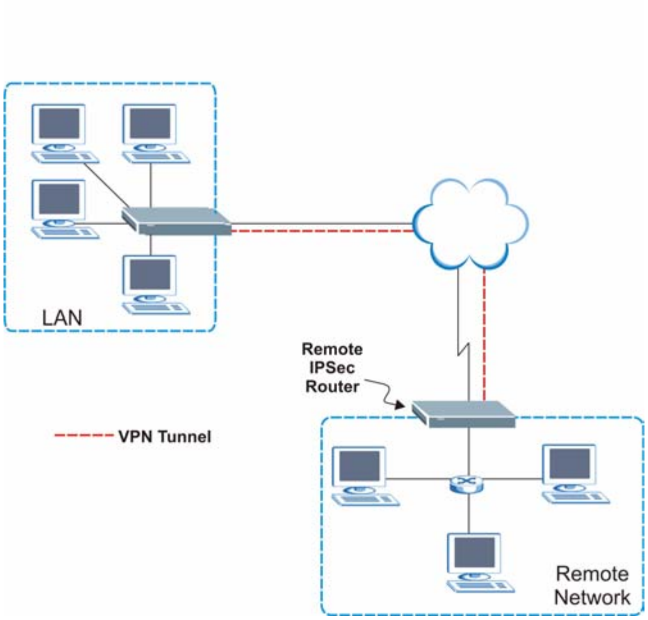
Figure 2 Application: Firewall



1.3.3 VPN Application

The Prestige’s VPN feature makes it an ideal cost-effective way to connect branch offices and business partners over the Internet without the need (and expense) for leased lines between sites. VPN ensures the privacy and integrity of your data transmissions.

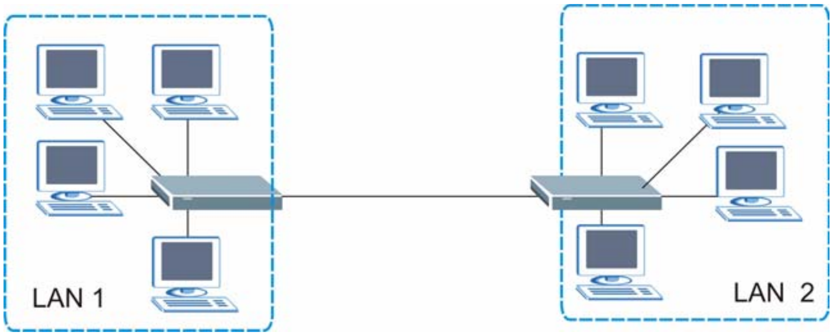
Figure 3 Application: VPN



1.3.4 LAN-to-LAN Application

You can use the Prestige to connect two geographically dispersed networks over the SHDSL line. A typical LAN-to-LAN application for your Prestige is shown as follows.

Figure 4 Application: LAN-to-LAN



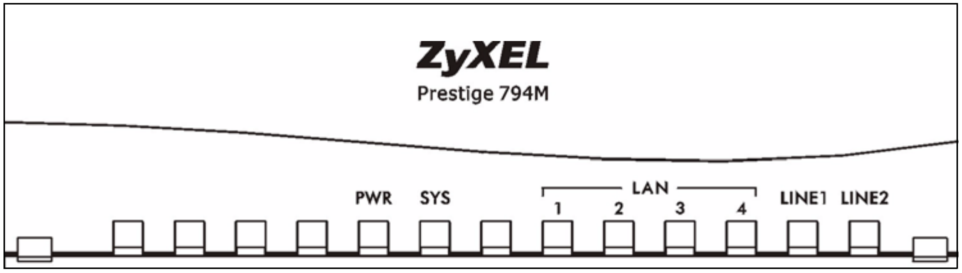
1.4 Hardware Connection

Refer to the Quick Start Guide for more information on hardware connection and initial setup using the **Quick Start** screen.

1.4.1 Front Panel

The following figure shows the front panel LEDs.

Figure 5 Front Panel: LEDs



The following table describes the LEDs.

Table 1 Front Panel: LEDs

LED	COLOR	STATUS	DESCRIPTION
PWR	Green	On	The Prestige is turned on.
		Off	The Prestige is turned off.
SYS	Green	On	The Prestige is ready and working properly.
		Flashing	The Prestige is starting up or rebooting.
		Off	The Prestige is not ready.

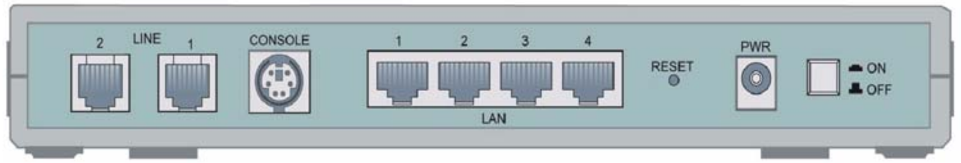
Table 1 Front Panel: LEDs (continued)

LED	COLOR	STATUS	DESCRIPTION
LAN 1..4	Orange	On	The Prestige has a successful 10Mbps Ethernet connection.
		Flashing	The 10M LAN is sending or receiving packets.
	Green	On	The Prestige has a successful 100Mbps Ethernet connection.
		Flashing	The 100M LAN is sending or receiving packets.
		Off	The LAN is not connected.
LINE 1, 2	Green	On	The Prestige has a successful SHDSL link.
		Off	The SHDSL link is down or not connected.

1.5 Rear Panel

The following figure shows the rear panel of the Prestige.

Figure 6 Rear Panel



The following table describes the ports.

Table 2 Rear Panel

LABEL	DESCRIPTION
LAN 1..4 (RJ-45 connector)	Connect a computer to this port with an Ethernet cable. This port is auto-negotiating (can connect at 10 or 100Mbps) and auto-crossover (automatically adjust to straight-through or crossover Ethernet cable).
CONSOLE	Only connect this port if you want to configure the Prestige via console port. Connect one end of the console cable to the console port of the Prestige and the other end to a serial port (COM1, COM2 or other COM port) on your computer. Your computer should have a terminal emulation communications program (such as HyperTerminal) set to VT100 terminal emulation, no parity, 8 data bits, 1 stop bit, no flow control and 9600 bps port speed.
LINE 1..2	Connect to a telephone jack using the included telephone cable.
RESET	You only need to use this button if you’ve forgotten the Prestige’s password. It returns the Prestige to the factory defaults. Press this button is for less than three seconds to restart the Prestige. Press this button in for more than six seconds to reset the Prestige to the factory default settings.
PWR	Connect to a power source using only the included power adaptor for your region.
Power Switch	After you’ve made the connections and connect the power adaptor to a power supply, push in the power button to turn on the Prestige.

CHAPTER 2
The Web Configurator

This chapter introduces the web configurator and describes the **Quick Start** screen.

2.1 Overview

The embedded web configurator (eWC) allows you to manage the Prestige from anywhere through a browser such as Microsoft Internet Explorer or Netscape Navigator. Use Internet Explorer 6.0 and later or Netscape Navigator 7.0 and later versions with JavaScript enabled. It is recommended that you set your screen resolution to 1024 by 768 pixels. The screens you see in the web configurator may vary somewhat from the ones shown in this document due to differences between individual firmware versions.

2.2 Accessing the Web Configurator

1 Make sure your Prestige hardware is properly connected and prepare your computer/ computer network to connect to the Prestige (refer to the *Quick Start Guide*).

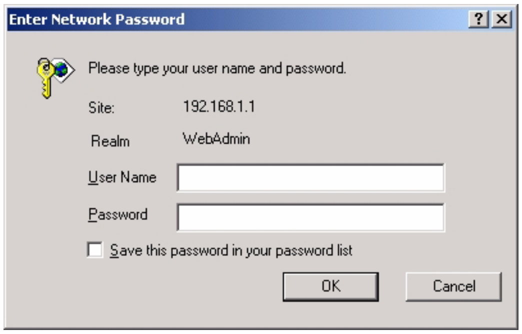
2 Make sure the IP addresses of your computer and the Prestige are in the same range. Refer to the appendix on setting up your computer IP address for more information.

3 Launch your web browser and type "192.168.1.1" as the URL.

4 Enter the username ("admin" is the default) and the password ("1234" is the default).

5 Click **OK** to log in.

Figure 7 Web Configurator: Login



Enter Network Password

Please type your user name and password.

Site: 192.168.1.1

Realm WebAdmin

User Name

Password

□ Save this password in your password list

6 You should now see the **HOME** screen.

Note: The management session automatically times out when the time period expires (default 180 seconds or 3 minutes). Simply log back into the Prestige if this happens to you. You can change this timeout in the **Device Management** screen (see Section 12.2 on page 112).

2.3 Resetting the Prestige

If you forget your password or cannot access the web configurator, you will need to reload the factory-default configuration file or use the **RESET** button on the Prestige. Uploading this configuration file replaces the current configuration file with the factory-default configuration file. This means that you will lose all configurations that you had previously and the password will be reset to 1234, also.

2.3.1 Procedure To Use The Reset Button

1. Make sure the **PWR** LED is on before you begin this procedure.
2. Press the **RESET** button for more than six seconds, and then release it. If the **SYS** LED begins to blink, the defaults have been restored and the Prestige restarts.

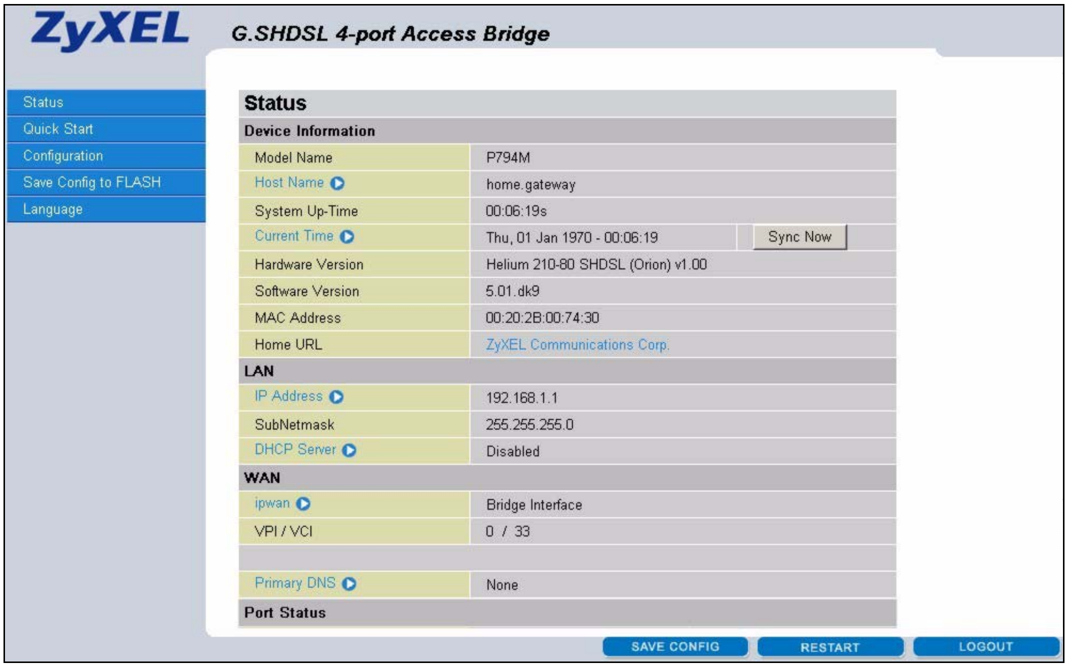
2.4 Navigating the Web Configurator

The following summarizes how to navigate the web configurator from the **HOME** screen.

2.4.1 The Status Screen

The following screen shows the **Status** screen. This is the first screen that displays every time you access the web configurator.

Figure 8 Web Configurator: Status



Status	
Device Information	
Model Name	P794M
Host Name	home.gateway
System Up-Time	00:06:19s
Current Time	Thu, 01 Jan 1970 - 00:06:19 Sync Now
Hardware Version	Helium 210-80 SHDSL (Orion) v1.00
Software Version	5.01.dk9
MAC Address	00:20:2B:00:74:30
Home URL	ZyXEL Communications Corp.
LAN	
IP Address	192.168.1.1
SubNetmask	255.255.255.0
DHCP Server	Disabled
WAN	
ipwan	Bridge Interface
VPI / VCI	0 / 33
Primary DNS	None
Port Status	

- Click the links in the navigation panel to configure the Prestige features.
- Click the **SAVE CONFIG** button to save the current settings to the Prestige.

- Click the **RESTART** button to reboot the Prestige.
- Click the **LOGOUT** button at any time to exit the web configurator.

2.5 System Status

Display the **Status** screen (see Figure 8 on page 27) to view general system information. The following table describes the labels in this screen.

Table 3 Status

LABEL	DESCRIPTION
Device Information	
Model Name	This field displays the model number of your Prestige.
Host Name	This field displays the host name of the Prestige for identification purposes. Click this label to display the **Host Name** screen.
System Up-Time	This field displays the time (in the format of hh:mm:ss) since the Prestige was last restarted.
Current TIme	This field displays the system time. Click this label to display the **Time Zone** screen. Click **Sync Now** to synchronize the system time to the time server specified in the **Time Zone** screen.
Hardware Version	This is the hardware version associated with your Prestige.
Software Version	This is the firmware version the Prestige is currently using.
MAC Address	This is the MAC (Media Access Control) or Ethernet address unique to your Prestige.
Home URL	Click this link to go to the ZyXEL company web site.
LAN	
IP Address	This is the IP address (in dotted decimal notation) on the LAN. Click the label to display the **Ethernet** screen.
Subnet Mask	This is the subnet mask (in dotted decimal notation) on the LAN.
DHCP Server	This field displays the LAN DNCP server status. Click the label to display the **DHCP Server** screen.
WAN	
ipwan	This field displays the type of WAN interface. Click this label to display the **WAN Connection** screen.
VPI/VCI	This field displays the VCI (Virtual Circuit Identifier) and VPI (Virtual Path Identifier) numbers.
Primary DNS	This field displays the primary DNS server IP address (in dotted decimal notation). Click this label to display the **DNS** screen.
Port Status	
Port	This field displays interface name (Ethernet or SHDSL). Click a label to display the **Port Setting** or the **SHDSL** screen.
Connected	This field displays a check to indicate that a port is up. Otherwise a cross is displayed.
Statistics	

Table 3 Status (continued)

LABEL	DESCRIPTION
RFC1483 WAN Link	This field displays the VCI and VPI number and the number of packets received/ transmitted. Click this label to display detailed information.
Ethernet	This field displays the number of packets received/transmitted. Click this label to display detailed information.
SAVE CONFIG	Click **SAVE CONFIG** to save the changes.
RESTART	Click **RESTART** to reboot the device. All unsaved changes will be lost.
LOGOUT	Click **LOGOUT** to exit from the web configurator. All unsaved changes will be lost.

2.6 ARP Table

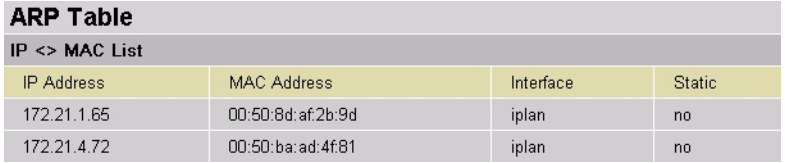
Address Resolution Protocol (ARP) is a protocol for mapping an Internet Protocol address (IP address) to a physical machine address, also known as a Media Access Control (MAC) address, on the local area network. An IP (version 4) address is 32 bits long. In an Ethernet LAN, MAC addresses are 48 bits long. The ARP table maintains an association between each MAC address and its corresponding IP address.

2.6.1 How ARP Works

When an incoming packet destined for a host device on a local area network arrives at the device, the device's ARP program looks in the ARP table and, if it finds the address, sends it to the device. If no entry is found for the IP address, ARP broadcasts the request to all the devices on the LAN. The device fills in its own MAC and IP address in the sender address fields, and puts the known IP address of the target in the target IP address field. In addition, the device puts all ones in the target MAC field (FF.FF.FF.FF.FF.FF is the Ethernet broadcast address). The replying device (which is either the IP address of the device being sought or the router that knows the way) replaces the broadcast address with the target's MAC address, swaps the sender and target pairs, and unicasts the answer directly back to the requesting machine. ARP updates the ARP table for future reference and then sends the packet to the MAC address that replied.

To view the ARP table, click **Status** and **ARP Table** in the navigation panel.

Figure 9 Status: ARP Table



ARP Table

IP <> MAC List

IP Address	MAC Address	Interface	Static
172.21.1.65	00:50:8d:af:2b:9d	iplan	no
172.21.4.72	00:50:ba:ad:4f:81	iplan	no

The following table describes the labels in this screen.

Table 4 Status: ARP Table

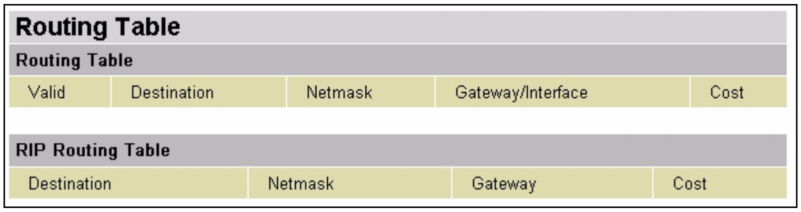
LABEL	DESCRIPTION
IP Address	This is the learned IP address of a device connected to a switch port with corresponding MAC address below.
MAC Address	This is the MAC address of the device with corresponding IP address above.
Interface	This is the interface name on the Prestige to which a device is connected.
Static	This shows whether the MAC address is dynamic (learned by the Prestige) or static (manually entered).

2.7 Routing Table

The routing table contains the route information to the network(s) that the Prestige can reach. The Prestige automatically updates the routing table with the RIP information received from other Ethernet devices.

Click **Status** and **Routing Table** in the navigation panel to display the **Routing Table** screen.

Figure 10 Status: Routing Table



Routing Table

Routing Table

Valid	Destination	Netmask	Gateway/Interface	Cost

RIP Routing Table

Destination	Netmask	Gateway	Cost

The following table describes the labels in this screen.

Table 5 Status: Routing Table

LABEL	DESCRIPTION
Routing Table	
Valid	This field indicates whether a routing status is successful.
Destination	This field displays the IP address of a destination network.
Netmask	This field displays the subnet mask of a destination network.
Gateway/Interface	This field displays the IP address of a gateway or the interface name on the Prestige this route uses.
Cost	This field displays the cost (or hope count) for this route.
RIP Routing Table	
Destination	This field displays the IP address of a destination network.
Netmask	This field displays the subnet mask of a destination network.

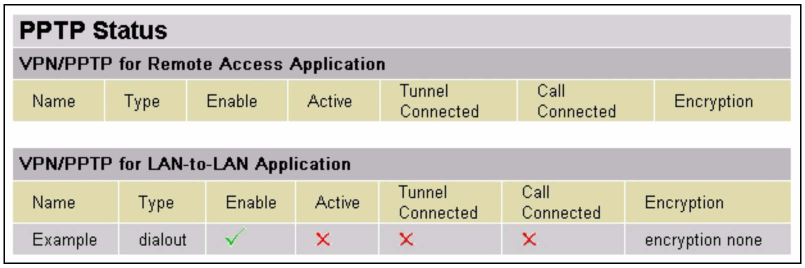
Table 5 Status: Routing Table (continued)

LABEL	DESCRIPTION
Gateway	This field displays the IP address of a gateway that this route uses.
Cost	This field displays the cost (or hope count) for this route.

2.7.1 PPTP Status

Use the **PPTP Status** screen to view PPTP VPN connection information. Click **Status** and **PPTP Status** in the navigation panel to display the screen as shown next.

Figure 11 Status: PPTP Status



PPTP Status

VPN/PPTP for Remote Access Application

Name	Type	Enable	Active	Tunnel Connected	Call Connected	Encryption

VPN/PPTP for LAN-to-LAN Application

Name	Type	Enable	Active	Tunnel Connected	Call Connected	Encryption
Example	dialout	✓	✗	✗	✗	encryption none

The following table describes the labels in this screen.

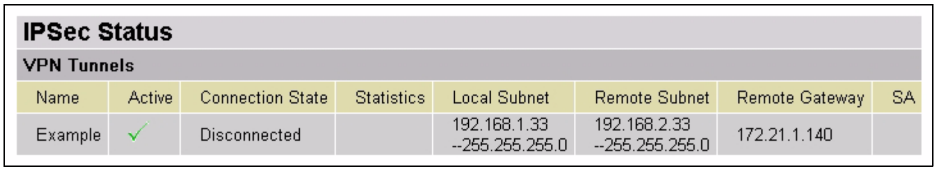
Table 6 Status: PPTP Status

LABEL	DESCRIPTION
Name	This field displays the name of the VPN rule used for this connection.
Type	This field displays the type of VPN connection (**dial-in** or **dial-out**).
Enable	This field indicates whether the VPN rule is currently enabled.
Active	This field indicates whether the VPN rule is activated.
Tunnel Connected	This field indicates whether the VPN tunnel is up.
Call Connected	If the Call for this VPN entry is currently connected.
Encryption	This field displays the encryption type for this VPN connection.

2.7.2 IPSec Status

Use the **IPSec Status** screen to view IPSec VPN connection information. Click **Status** and **IPSec Status** in the navigation panel to display the screen as shown next.

Figure 12 Status: IPSec Status



IPSec Status

VPN Tunnels

Name	Active	Connection State	Statistics	Local Subnet	Remote Subnet	Remote Gateway	SA
Example	✓	Disconnected		192.168.1.33 --255.255.255.0	192.168.2.33 --255.255.255.0	172.21.1.140	

The following table describes the labels in this screen.

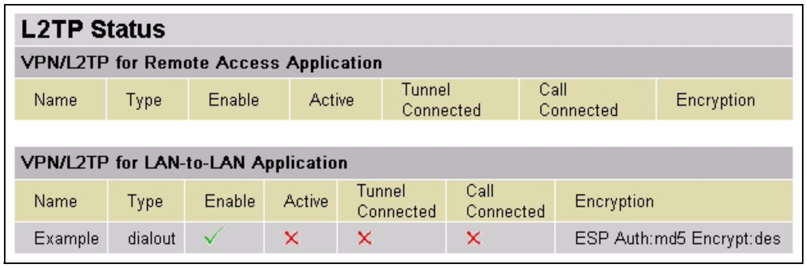
Table 7 Status: IPSec Status

LABEL	DESCRIPTION
Name	This field displays the name of the VPN rule used for this connection.
Active	This field indicates whether the VPN rule is activated.
Connection State	This field displays the connection status (**Connected** or **Disconnected**).
Statistics	This field displays the number of packets sent using this VPN connection.
Local Subnet	This field displays the IP address and/or subnet mask of the local network behind the Prestige.
Remote Subnet	This field displays the subnet mask of the local network behind the remote IPSec router.
Remote Gateway	This field displays the IP address of the remote IPsec router.
SA	This field displays the number of Security Association (SA) for this VPN connection.

2.7.3 L2TP Status

Use the **L2TP Status** screen to view L2TP VPN connection information. Click **Status** and **L2TP Status** in the navigation panel to display the screen as shown next.

Figure 13 Status: L2TP Status



L2TP Status

VPN/L2TP for Remote Access Application

Name	Type	Enable	Active	Tunnel Connected	Call Connected	Encryption

VPN/L2TP for LAN-to-LAN Application

Name	Type	Enable	Active	Tunnel Connected	Call Connected	Encryption
Example	dialout	✓	✗	✗	✗	ESP Auth:md5 Encrypt:des

The following table describes the labels in this screen.

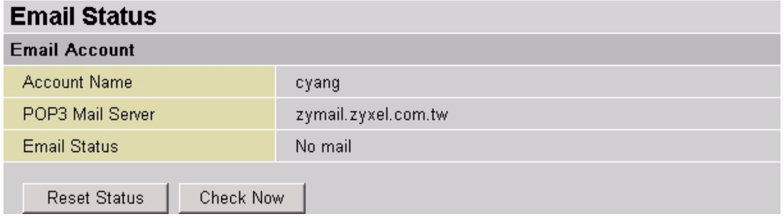
Table 8 Status: L2TP Status

LABEL	DESCRIPTION
Name	This field displays the name of the VPN rule used for this connection.
Type	This field displays the type of VPN connection (**dial-in** or **dial-out**).
Enable	This field indicates whether the VPN rule is currently enabled.
Active	This field indicates whether the VPN rule is activated.
Tunnel Connected	This field indicates whether the VPN tunnel is up.
Call Connected	If the Call for this VPN entry is currently connected.
Encryption	This field displays the encryption type for this VPN connection.

2.7.4 Email Status

The **Email Status** screen shows the current E-mail account information (that you configured in the **Check Email** screen). You can also check your Email account status in this screen. Click **Status** and **Email Status** in the navigation panel.

Figure 14 Status: Email Status



Email Status

Email Account

Account Name	cyang
POP3 Mail Server	zymail.zyxel.com.tw
Email Status	No mail

The following table describes the labels in this screen.

Table 9 Status: Email Status

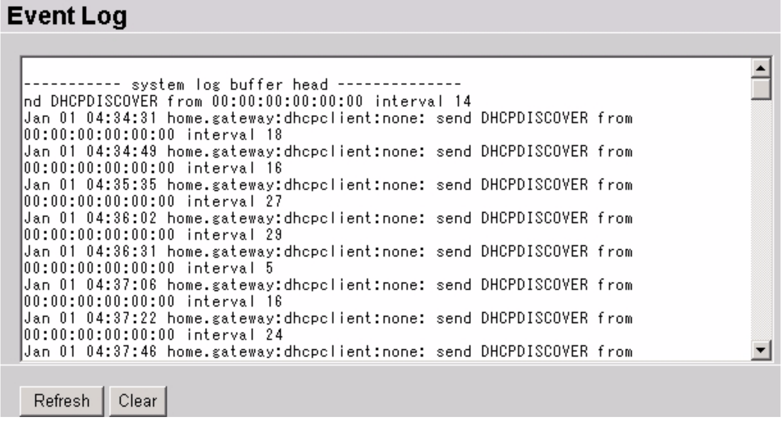
LABEL	DESCRIPTION
Email Account	
Account Name	This field displays the E-mail account user name.
POP3 Mail Server	This field displays the IP address or domain name of a POP3 mail server.
Email Status	This field displays the status of this mail account.
Reset Status	This button is available when you enable this E-mail account. Click **Reset Status** to reset the status.
Check Now	This button is available when you enable this E-mail account. Click **Check Now** to check for any new mail(s) on the mail server. **Note:** You need to use an E-mail program (such as Microsoft Outlook or Netscape Composer) to retrieve and view E-mails.

2.7.5 Event Log

Use the **Event Log** screen to view system logs (such as when an SHDSL connection is up). Click **Status** and **Event Log** in the navigation panel to display the screen as shown next.

Note: To display and log firewall events, enable firewall event logging in the **Firewall Log** screen.

Figure 15 Event Log



```
----------- system log buffer head --------------
nd DHCPDISCOVER from 00:00:00:00:00:00 interval 14
Jan 01 04:34:31 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 18
Jan 01 04:34:49 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 16
Jan 01 04:35:35 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 27
Jan 01 04:36:02 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 29
Jan 01 04:36:31 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 5
Jan 01 04:37:06 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 16
Jan 01 04:37:22 home.gateway:dhcpclient:none: send DHCPDISCOVER from
00:00:00:00:00:00 interval 24
Jan 01 04:37:46 home.gateway:dhcpclient:none: send DHCPDISCOVER from
```

Click **Refresh** to update the event log entries. Click **Clear** to delete all event log entries from the text box.

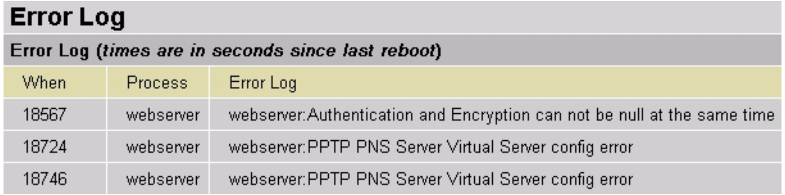
2.7.6 Error Log

Use the **Error Log** screen to view errors (such as VPN configuration errors).

Note: This screen automatically displays when you click **Apply** and there is an error in the configuration screen. If this happens, simply check the error message here and try configuring the screen again.

Click **Status** and **Error Log** in the navigation panel to display the screen as shown next.

Figure 16 Status: Error Log



Error Log (*times are in seconds since last reboot*)

When	Process	Error Log
18567	webserver	webserver:Authentication and Encryption can not be null at the same time
18724	webserver	webserver:PPTP PNS Server Virtual Server config error
18746	webserver	webserver:PPTP PNS Server Virtual Server config error

The following table describes the labels in this screen.

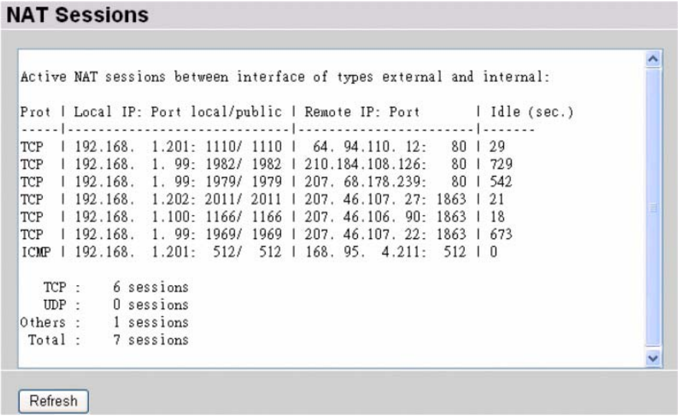
Table 10 Status: Error Log

LABEL	DESCRIPTION
When	This field displays the time (in seconds since the Prestige was last restarted) the error occurred.
Process	This field displays the name of the application process (or system job) that creates this error.
Error Log	This field displays detailed error message.

2.7.7 NAT Sessions

ClicK **Status** and **NAT Sessions** in the navigation panel to display current NAT sessions.

Figure 17 Status: NAT Session



```
Active NAT sessions between interface of types external and internal:

Prot | Local IP: Port local/public | Remote IP: Port       | Idle (sec.)
-----|----------------------------|----------------------|-------
TCP  | 192.168.  1.201: 1110/ 1110 |  64. 94.110. 12:   80 | 29
TCP  | 192.168.  1. 99: 1982/ 1982 | 210.184.108.126:   80 | 729
TCP  | 192.168.  1. 99: 1979/ 1979 | 207. 68.178.239:   80 | 542
TCP  | 192.168.  1.202: 2011/ 2011 | 207. 46.107. 27: 1863 | 21
TCP  | 192.168.  1.100: 1166/ 1166 | 207. 46.106. 90: 1863 | 18
TCP  | 192.168.  1. 99: 1969/ 1969 | 207. 46.107. 22: 1863 | 673
ICMP | 192.168.  1.201:  512/  512 | 168. 95.  4.211:  512 | 0

   TCP :    6 sessions
   UDP :    0 sessions
Others :    1 sessions
 Total :    7 sessions
```

The following table describes the fields in the text box.

Table 11 Status: NAT Session

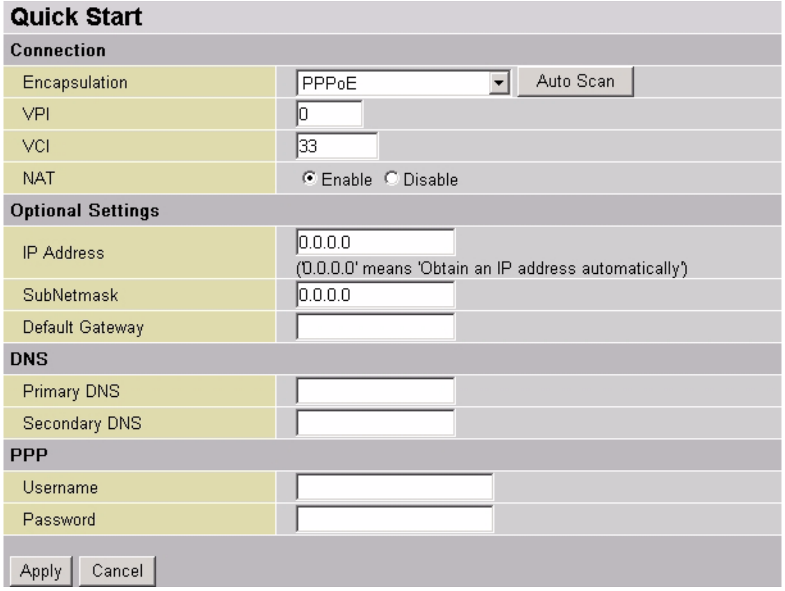
LABEL	DESCRIPTION
Prot.	This field displays the protocol name (such as TCP, UDP or ICMP) of the NAT session.
Local IP	This field displays the local IP address of the NAT session.
Port local/public	This field displays the local-to-public port translation.
Remote IP	This field displays the public IP address used for this NAT session.
Port	This field displays the port number used to connect to the local port.
Idle	This field displays the time (in seconds) this NAT session is not being used.
TCP	This field displays the number of TCP NAT sessions.
UDP	This field displays the number of UDP NAT sessions.
Others	This field displays the number of NAT sessions that are not of either TCP or UDP type.
Total	This field displays the total number of NAT sessions.
Refresh	Click **Refresh** to update the NAT session information.

2.8 Internet Access Quick Start Setup

This section shows you how to configure the Prestige for Internet access using the **Quick Start** screen.

Note: You must already have an Internet access account and obtained the connection information from an ISP Internet Service Provider).

Click **Quick Start** in the navigation panel to display the screen as shown.



Quick Start

Connection	
Encapsulation	PPPoE
VPI	0
VCI	33
NAT	● Enable ○ Disable
Optional Settings	
IP Address	0.0.0.0 ('0.0.0.0' means 'Obtain an IP address automatically')
SubNetmask	0.0.0.0
Default Gateway	
DNS	
Primary DNS	
Secondary DNS	
PPP	
Username	
Password	

Figure 18 Quick Start

The following table describes the labels in this screen.

Table 12 Quick Start

LABEL	DESCRIPTION
Connection	
Encapsulation	Select the connection type from the drop-down list. Click **Auto Scan** to have the Prestige automatically detect and select the connection type. Refer to Section 2.8.1 on page 37 for more information.
VCI	Enter the VCI number.
VPI	Enter the VPI number.
NAT	Select **Enable** to allow more than one computer behind the Prestige to access the Internet. Select **Disable** to allow only one user to access the Internet or if computer(s) behind the Prestige is provided with a public IP address(es).
Optional Settings	
IP Address	Enter the IP address (in dotted decimal notation) If you are provided with a static public IP address. Otherwise, enter 0.0.0.0 if your ISP provides you with a dynamic IP address.
Subnet Mask	Enter the subnet mask (in dotted decimal notation) associated with the static IP address above.
Default Gateway	Enter the IP address of the default gateway.
DNS	
Primary/ Secondary DNS	If provided by your ISP, enter the IP address(es) of the DNS server(s).
PPP	Set the fields below if you select **PPPoA** or **PPPoE** in the **Encapsulation** field. above.

Table 12 Quick Start (continued)

LABEL	DESCRIPTION
Username	Enter the Internet access account username.
Password	Enter the password associated with the username above.
Apply	Click **Apply** to save the changes.
Cancel	Click **Cancel** to start configuring this screen again.

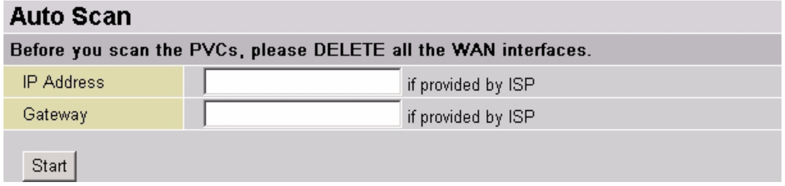
2.8.1 Auto Scan

Use the **Auto Scan** screen to set the Prestige to automatically detect the Internet connection type.

Follow the steps below to allow the Prestige to automatically detect the Internet connection settings.

1 Click **Auto Scan** in the **Quick Start** screen to display the screen as shown next.

Figure 19 Quick Start: Auto Scan



Auto Scan

Before you scan the PVCs, please DELETE all the WAN interfaces.

IP Address		if provided by ISP
Gateway		if provided by ISP

2 If provided, enter the IP addresses of the DSLAM device or a gateway.

3 Click **Start** to begin the scanning process.

4 When the auto scan is complete and successful, a screen displays. Select your option from the list and click **Apply**. Otherwise, click **Cancel** and return to the **Quick Start** screen and configure the Internet access settings manually.

CHAPTER 3
LAN

This chapter describes how to configure LAN settings.

3.1 Overview

Local Area Network (LAN) is a shared communication system to which many computers are attached. The LAN screens can help you configure a LAN DHCP server and manage IP addresses.

3.2 LAN TCP/IP

The Prestige has built-in DHCP server capability that assigns IP addresses and DNS servers to systems that support DHCP client capability.

3.2.1 Factory LAN Defaults

The LAN parameters of the Prestige are preset in the factory with the following values:

- IP address of 192.168.1.1 with subnet mask of 255.255.255.0 (24 bits).
- DHCP server is disabled.

These parameters should work for the majority of installations. If your ISP gives you explicit DNS server address(es), read the embedded web configurator help regarding what fields need to be configured.

3.2.2 IP Address and Subnet Mask

Similar to the way houses on a street share a common street name, so too do computers on a LAN share one common network number.

Where you obtain your network number depends on your particular situation. If the ISP or your network administrator assigns you a block of registered IP addresses, follow their instructions in selecting the IP addresses and the subnet mask.

If the ISP did not explicitly give you an IP network number, then most likely you have a single user account and the ISP will assign you a dynamic IP address when the connection is established. If this is the case, it is recommended that you select a network number from 192.168.0.0 to 192.168.255.0 and you must enable the Network Address Translation (NAT) feature of the Prestige. The Internet Assigned Number Authority (IANA) reserved this block of addresses specifically for private use; please do not use any other number unless you are told otherwise. Let's say you select 192.168.1.0 as the network number; which covers 254 individual addresses, from 192.168.1.1 to 192.168.1.254 (zero and 255 are reserved). In other words, the first three numbers specify the network number while the last number identifies an individual computer on that network.

Once you have decided on the network number, pick an IP address that is easy to remember, for instance, 192.168.1.1, for your Prestige, but make sure that no other device on your network is using that IP address.

The subnet mask specifies the network number portion of an IP address. Your Prestige will compute the subnet mask automatically based on the IP address that you entered. You don't need to change the subnet mask computed by the Prestige unless you are instructed to do otherwise.

3.2.3 RIP

RIP (Routing Information Protocol, RFC 1058 and RFC 1389) allows a router to exchange routing information with other routers. By default, the Prestige sends and receives RIP packets.

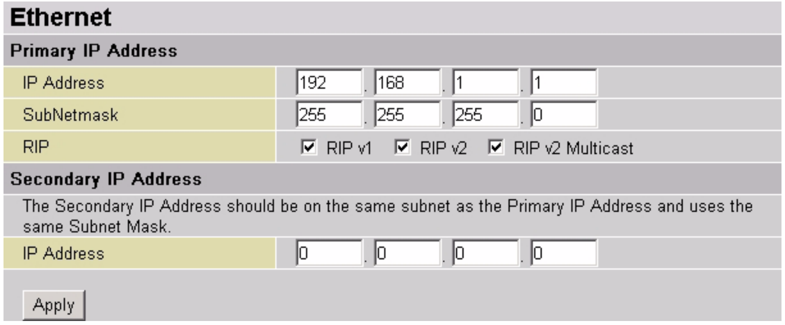
RIP version controls the format and the broadcasting method of the RIP packets that the Prestige sends (it recognizes both formats when receiving). The follow lists the RIP versions that your Prestige supports:

- **RIP v1** is universally supported (and is probably adequate for most networks, unless you have an unusual network topology).
- **RIP v2** carries more information.
- **RIP v2 Multicast** sends routing data in RIP-2 format using multicasting. Multicasting can reduce the load on non-router machines since they generally do not listen to the RIP multicast address and so will not receive the RIP packets. However, if one router uses multicasting, then all routers on your network must use multicasting, also.

3.3 The Ethernet Screen

To set the LAN TCP/IP settings, click **Configuration**, **LAN** and **Ethernet** in the navigation panel to display the screen as shown next.

Figure 20 LAN: Ethernet



Ethernet

Primary IP Address

IP Address	192 . 168 . 1 . 1
SubNetmask	255 . 255 . 255 . 0
RIP	☑ RIP v1 ☑ RIP v2 ☑ RIP v2 Multicast

Secondary IP Address

The Secondary IP Address should be on the same subnet as the Primary IP Address and uses the same Subnet Mask.

IP Address	0 . 0 . 0 . 0

The following table describes the labels in this screen.

Table 13 LAN: Ethernet

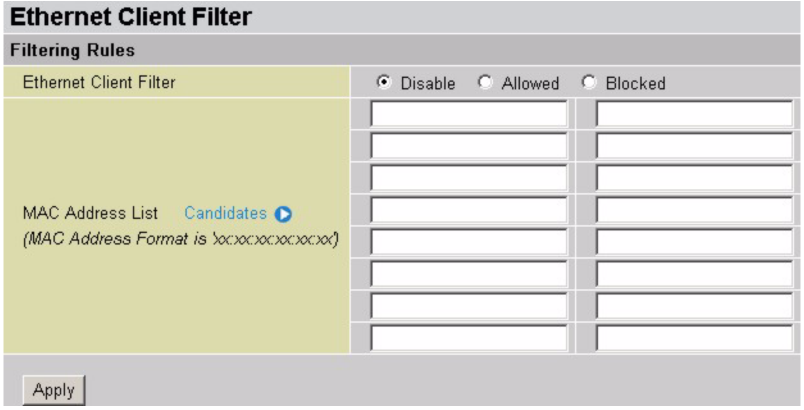
LABEL	DESCRIPTION
Primary IP Address	
IP Address	Type the IP address of your Prestige in dotted decimal notation. 192.168.1.1 is the factory default.
IP Subnet Mask	The subnet mask specifies the network number portion of an IP address. Your Prestige automatically calculate the subnet mask based on the IP address that you assign. Unless you are implementing subnetting, use the subnet mask computed by the Prestige.
RIP	The **RIP** field controls the format and the broadcasting method of the RIP packets that the Prestige sends (it recognizes both formats when receiving). Select **RIP v1** if you are unsure what RIP version other Ethernet device(s) supports. RIP v1 is universally supported. Select **RIP v2** to send detailed routing data. Select **RIP v2 Multicast** to set the Prestige to send routing data in RIP-2 format using multicasting.
Secondary IP Address You can assign a different IP address (in the same subnet as the primary IP address) to the LAN interface.	
IP Address	Type the secondary IP address of your Prestige in dotted decimal notation. **Note:** Make sure this IP address is in the same subnet as the primary IP address above.
Apply	Click **Apply** to save your changes back to the Prestige.

3.4 Ethernet Client Filter

Use the **Ethernet Client Filter** screen to set the Prestige to allow or block specified Ethernet devices from accessing the LAN.

Click **LAN** and **Ethernet Client Filter** in the navigation panel to display the configuration screen.

Figure 21 LAN: Ethernet Client Filter



Ethernet Client Filter

Filtering Rules

Ethernet Client Filter	● Disable ○ Allowed ○ Blocked
MAC Address List Candidates (MAC Address Format is 'xx:xx:xx:xx:xx:xx')	

The following table describes the labels in this screen.

Table 14 LAN: Ethernet Client Filter

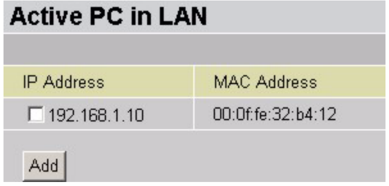
LABEL	DESCRIPTION
Ethernet Client Filter	Select Disable to deactivate this feature. This allows any computer to access the network through the Prestige. Select **Allowed** to set the Prestige to permit the specified computers to access the network. Select **Blocked** to set the Prestige to deny the specified computers from accessing the network.
MAC Address List	Specify the computer(s) which you want to allow or deny network access. Enter the MAC address of a computer in hexadecimal notation. Click **Candidates** to add one or more MAC addresses of the devices that are currently connected to the Prestige.
Apply	Click **Apply** to save the settings.

3.4.1 Ethernet Client Filter Candidates

You can display a list of MAC address of the devices that are currently connected to the Prestige. You can use the Active PC in LAN screen to add the selected MAC address(es) to the **Ethernet Client Filter** screen.

In the **Ethernet Client Filter** screen, click **Candidates** to display the screen.

Figure 22 LAN: Ethernet Client Filter: Active PC in LAN



Active PC in LAN

IP Address	MAC Address
□ 192.168.1.10	00:0f:fe:32:b4:12

The following table describes the labels in this screen.

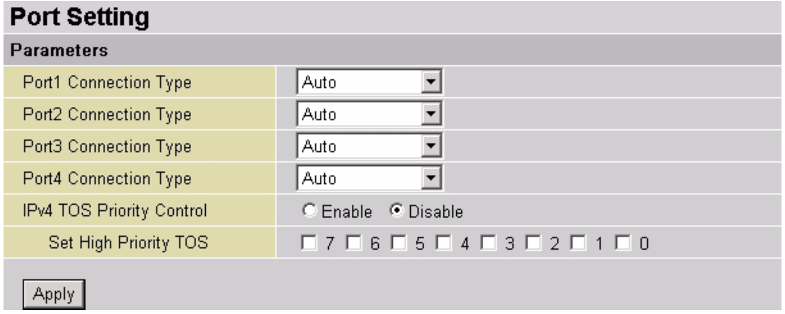
Table 15 LAN: Ethernet Client Filter: Active PC in LAN

LABEL	DESCRIPTION
IP Address	This field displays the IP address of an Ethernet device connected to the Prestige.
MAC Address	This field displays the MAC address associated with the IP address in the I**P Address** field.
Add	Click **Add** to add the select entry(ies) in the **Ethernet Client Filter** screen.

3.5 Port Setting

Use the **Port Setting** screen to configure the LAN port settings on the Prestige. Click **Configuration**, **LAN** and **Port Setting** to display the screen as shown next.

Figure 23 LAN: Port Setting



Port Setting

Parameters	
Port1 Connection Type	Auto
Port2 Connection Type	Auto
Port3 Connection Type	Auto
Port4 Connection Type	Auto
IPv4 TOS Priority Control	○ Enable ● Disable
Set High Priority TOS	□ 7 □ 6 □ 5 □ 4 □ 3 □ 2 □ 1 □ 0

The following table describes the labels in this screen.

Table 16 LAN: Port Setting

LABEL	DESCRIPTION
Port 1 .. 4 Connection Type	Select the speed and the duplex mode of the Ethernet connection on this port. Choices are **Auto**, **10Mfalfduplex**, **10Mfullduplex**, **100Mhalfduplex** and **100Mfullduplex**. Selecting **Auto** (auto-negotiation) allows one port to negotiate with a peer port automatically to obtain the connection speed and duplex mode that both ends support. When auto-negotiation is turned on, a port on the Prestige negotiates with the peer automatically to determine the connection speed and duplex mode. If the peer port does not support auto-negotiation or turns off this feature, the Prestige determines the connection speed by detecting the signal on the cable and using half duplex mode. When the Prestige's auto-negotiation is turned off, a port uses the pre-configured speed and duplex mode when making a connection, thus requiring you to make sure that the settings of the peer port are the same in order to connect.
IPv4 TOS Priority Control	Select **Enable** to set the Prestige to send traffic based on the priority level. Select **Disable** to set the Prestige to treat all traffic equally.

Table 16 LAN: Port Setting (continued)

LABEL	DESCRIPTION
Set High Priority TOS	This field is applicable when you enable TOS priority control. IEEE 802.1p defines up to 8 separate traffic types by inserting a tag into a MAC-layer frame that contains bits to define class of service. Frames without an explicit priority tag are given the default priority of the ingress (incoming) port. Select the high priority level(s). The Prestige will first send packets with matching priority level(s).
Apply	Click **Apply** to save your changes.

3.6 DHCP

DHCP (Dynamic Host Configuration Protocol, RFC 2131 and RFC 2132) allows individual clients to obtain TCP/IP configuration at start-up from a server. You can configure the Prestige as a DHCP server or disable it. When configured as a server, the Prestige provides the TCP/IP configuration for the clients. If DHCP service is disabled, you must have another DHCP server on your LAN, or else the computer must be manually configured.

3.6.1 IP Pool Setup

When you set the Prestige as a DHCP server, you can use the default DHCP client IP address pool setting. The default address pool has 20 IP addresses starting from 192.168.1.2 to 192.168.1.21. This configuration leaves the other IP addresses for other server computers, for instance, servers for mail, FTP, TFTP, web, etc., that you may have.

3.6.2 DNS Servers

There are two places where you can configure DNS setup on the Prestige.

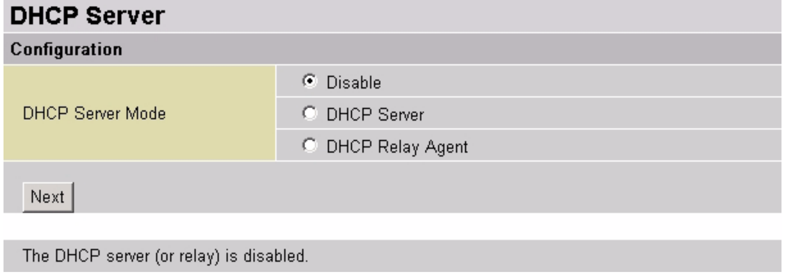
1 Use the **WAN DNS** screen to configure the Prestige to use a DNS server to resolve domain names for Prestige system features like VPN, DDNS and the time server.

2 Use the **LAN DHCP Server** screen to configure the DNS server information that the Prestige sends to the DHCP client devices on the LAN.

3.6.3 DHCP Setup

To configure DHCP settings on the LAN, click **Configuration**, **LAN** and **DHCP Server** to display the screen as shown.

Figure 24 LAN: DHCP Server



DHCP Server

Configuration

DHCP Server Mode ● Disable ○ DHCP Server ○ DHCP Relay Agent

The DHCP server (or relay) is disabled.

The following table describes the labels in this screen.

Table 17 LAN: DHCP Server

LABEL	DESCRIPTION
Configuration	
DHCP Server Mode	Select **Disable** to disable DHCP on the LAN. Select **DHCP Server** to set the Prestige as a DHCP server. Select **DHCP Relay Agent** to set the Prestige to act as a DHCP relay agent.
Next	Click **Next** to continue.

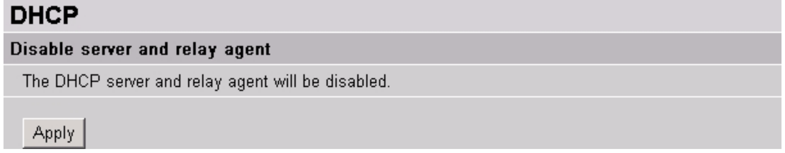
3.6.3.1 Disable DHCP

Follow the steps below to disable DHCP server/relay on the LAN.

1 In the **DHCP Server** screen (see Figure 24 on page 44), select **Disable** and click **Next**.

2 A screen displays as shown next. Click **Apply**.

Figure 25 LAN: DHCP Server: Disable



DHCP

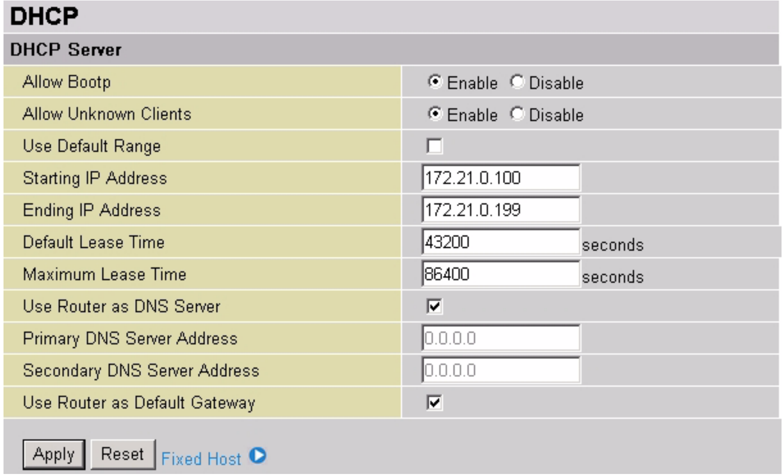
Disable server and relay agent

The DHCP server and relay agent will be disabled.

3.6.3.2 DHCP Server Setup

To set the Prestige as a DHCP server, select **DHCP Server** and click **Next** in the **DHCP Server** screen. A screen displays as shown next.

Figure 26 LAN: DHCP Server: DHCP



DHCP

DHCP Server

Allow Bootp	● Enable ○ Disable
Allow Unknown Clients	● Enable ○ Disable
Use Default Range	□
Starting IP Address	172.21.0.100
Ending IP Address	172.21.0.199
Default Lease Time	43200 seconds
Maximum Lease Time	86400 seconds
Use Router as DNS Server	☑
Primary DNS Server Address	0.0.0.0
Secondary DNS Server Address	0.0.0.0
Use Router as Default Gateway	☑

The follow table describes the labels in this screen.

Table 18 LAN: DHCP Server: DHCP

LABEL	DESCRIPTION
DHCP Server	
Allow Bootp	Select **Enable** to allow BootP (Bootstrap Protocol) clients. Otherwise, select **Disable**.
Allow Unknown Clients	Select **Enable** to assign network settings (such as IP address) to any client computer. Select **Disable** to assign network settings (such as IP address) to the client(s) you specify in the **Fixed Host** screen.
Use Default Range	Select this check box to use the default client IP address pool. The default address pool has 20 IP addresses starting from 192.168.1.2 to 192.168.1.21.
Starting IP Address	This field specifies the first of the contiguous addresses in the IP address pool.
Ending IP Address	This field specifies the last of the contiguous addresses in the IP address pool.
Default Lease Time	Specify the default time (in seconds) a client is allowed to use the assigned IP address.
Maximum Lease Time	Specify the maximum time (in seconds) a client is allowed to use the assigned IP address.
Use Router as DNS Server	Select this check box to use the Prestige as the default DNS server. The Prestige performs the domain name lookup and forwards the mapping information to the requesting client.
Primary/ Secondary DNS Server	This field is applicable when the **Use Router as DNS Server** check box is *not* selected. Enter the IP address of the DNS server in dotted decimal notation.
Use Router as Default Gateway	Select this check box to use the Prestige as a default gateway for the client computer(s) on the LAN.
Apply	Click **Apply** to save your changes back to the Prestige.

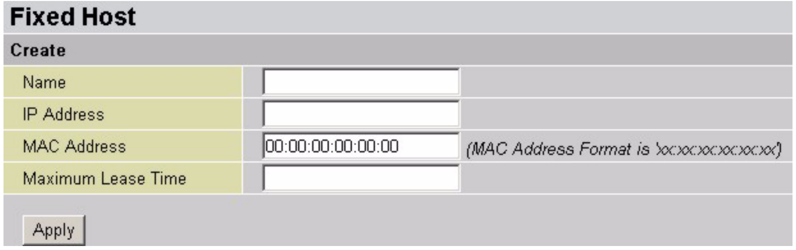
Table 18 LAN: DHCP Server: DHCP (continued)

LABEL	DESCRIPTION
Reset	Click **Reset** to start configuring this screen again.
Fixed Host	Click **Fixed Host** to display a screen where you can assign a static LAN IP address to the specified device MAC address.

3.6.3.2.1 Fixed Host

You can set the Prestige to assign one IP address on the LAN to a specific computer based on the MAC address. In the **DHCP** screen (see Figure 26 on page 45), click **Fixed Host** to display the screen as shown next.

Figure 27 LAN: DHCP Server: DHCP: Fixed Host



Fixed Host

Create

Name		
IP Address		
MAC Address	00:00:00:00:00:00	(MAC Address Format is xx:xx:xx:xx:xx:xx)
Maximum Lease Time		

The following table describes the labels in this screen.

Table 19 LAN: DHCP Server: DHCP: Fixed Host

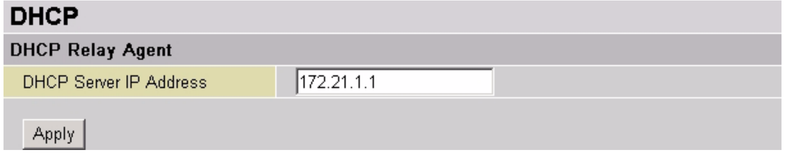
LABEL	DESCRIPTION
Name	Enter a descriptive name for identification purposes.
IP Address	Type the IP address that you want to assign to the computer on your LAN. Alternatively, click the right mouse button to copy and/or paste the IP address.
MAC Address	Type the MAC address of a computer on your LAN.
Maximum Lease Time	Specify the maximum time (in seconds) the client is allowed to use the assigned IP address. **Note:** If you do not specify the lease time here, the Prestige uses the global lease time setting in the **DHCP** screen (see Figure 26 on page 45).
Apply	Click **Apply** to save your changes back to the Prestige.

3.6.4 DHCP Relay Agent

If there is an Ethernet device that performs the DHCP server function for your network, then you can configure the Prestige as a DHCP relay agent. When the switch receives a request from a computer on your network, it contacts the Ethernet device (the DHCP server) for the necessary IP information, and then relays the assigned information back to the computer.

In the main **DHCP Server** screen, select **DHCP Relay** and click **Next** to display the configuration screen.

Figure 28 LAN: DHCP Server: DHCP Relay Agent



DHCP

DHCP Relay Agent

DHCP Server IP Address: 172.21.1.1

The following table describes the labels in this screen.

Table 20 LAN: DHCP Server: DHCP Relay Agent

LABEL	DESCRIPTION
DHCP Server IP Address	Enter the IP address of the DHCP server on the LAN.
Apply	Click **Apply** to save the settings and return to the previous screen.

CHAPTER 4 WAN

This chapter describes how to configure WAN settings.

4.1 Overview

A WAN (Wide Area Network) is an outside connection to another network or the Internet. Use the WAN screens to change your Prestige's WAN settings, click **Configuration** and **WAN** in the navigation panel.

4.1.1 Encapsulation Types

This section describes the various encapsulation (Internet connection) types the Prestige offers.

4.1.1.1 RFC 1483

RFC 1483 describes two methods for Multiprotocol Encapsulation over ATM Adaptation Layer 5 (AAL5). The first method allows multiplexing of multiple protocols over a single ATM virtual circuit (LLC-based multiplexing) and the second method assumes that each protocol is carried over a separate ATM virtual circuit (VC-based multiplexing). Please refer to the RFC for more detailed information.

In addition, the Prestige supports two RFC 1483 methods; routed or bridged. In RFC 1483 Bridged, the Prestige sends the packets based on the MAC address information. That is, the Prestige bridges the packets. In RFC 1483 Routed, the Prestige sends the packets based on the IP address. That is, the Prestige routes the packets. Refer to the RFC for more information.

4.1.1.2 PPPoE

The Prestige supports PPPoE (Point-to-Point Protocol over Ethernet). PPPoE is an IETF Draft standard (RFC 2516) specifying how a computer interacts with a broadband modem (DSL, cable, wireless, etc.) connection. PPPoE is for a dial-up connection using PPPoE. For the service provider, PPPoE offers an access and authentication method that works with existing access control systems (for example RADIUS). PPPoE provides a login and authentication method that the existing Microsoft Dial-Up Networking software can activate, nd therefore requires no new learning or procedures for Windows users. One of the benefits of PPPoE is the ability to let you access one of multiple network services, a function known as dynamic service selection. This enables the service provider to easily create and offer new IP services for individuals.

Operationally, PPPoE saves significant effort for both you and the ISP or carrier, as it requires no specific configuration of the broadband modem at the customer site. By implementing PPPoE directly on the Prestige (rather than individual computers), the computers on the LAN do not need PPPoE software installed, since the Prestige does that part of the task. Furthermore, with NAT, all of the LAN computers will have access.

4.1.1.3 PPPoA

PPPoA stands for Point to Point Protocol over ATM Adaptation Layer 5 (AAL5). A PPPoA connection functions like a dial-up Internet connection. The Prestige encapsulates the PPP session based on RFC1483 and sends it through an ATM PVC (Permanent Virtual Circuit) to the Internet Service Provider's (ISP) DSLAM (digital access multiplexer). Please refer to RFC 2364 for more information on PPPoA. Refer to RFC 1661 for more information on PPP.

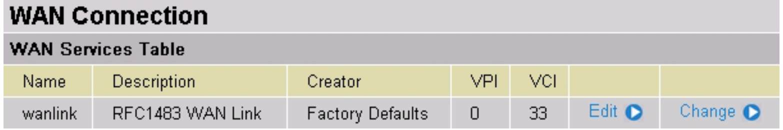
4.1.1.4 IPoA

With IPoA (IP over ATM), the Prestige attempts to map the IP subnet onto the ATM network.

4.2 ISP

Use the **ISP** screens to configure the Prestige for Internet access. The screen differs by the encapsulation.

Figure 29 WAN: ISP



WAN Connection

WAN Services Table

Name	Description	Creator	VPI	VCI		
wanlink	RFC1483 WAN Link	Factory Defaults	0	33	Edit	Change

The following table describes the labels in this screen.

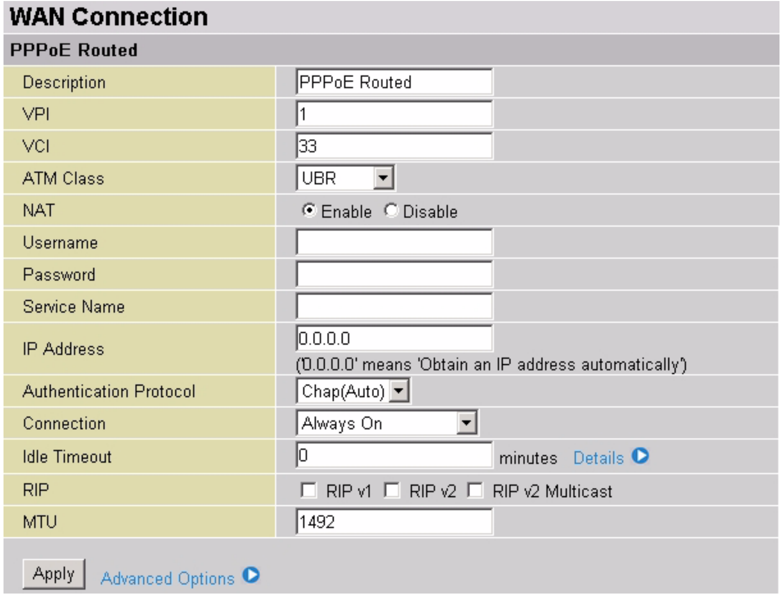
Table 21 WAN: ISP

LABEL	DESCRIPTION
Name	This field displays the descriptive name of this Internet access setting for identification purposes.
Encapsulation	This field displays the connection type.
Creator	This field indicates how this Internet access setting is created.
VPI	This field displays the VPI (Virtual Path Identifier) number.
VCI	This field displays the VCI (Virtual Circuit Identifier) number.
Edit	Click **Edit** to change the Internet access settings. The configuration screen varies depending on the encapsulation (or connection type).
Change	Click **Change** to select a different encapsulation and change the settings.

4.2.1 Edit Settings

Click **Edit** in the main ISP screen to modify the settings. The configuration screen varies depending on the encapsulation type.

Figure 30 WAN: ISP: Edit



WAN Connection

PPPoE Routed

Description	PPPoE Routed
VPI	1
VCI	33
ATM Class	UBR
NAT	● Enable ○ Disable
Username	
Password	
Service Name	
IP Address	0.0.0.0 ('0.0.0.0' means 'Obtain an IP address automatically')
Authentication Protocol	Chap(Auto)
Connection	Always On
Idle Timeout	0 minutes Details
RIP	□ RIP v1 □ RIP v2 □ RIP v2 Multicast
MTU	1492

The following table describes the labels in this screen.

Table 22 WAN: ISP: Edit (PPPoE)

LABEL	DESCRIPTION
Description	This read-only field displays the encapsulation type.
VPI	The valid range for the VPI is 0 to 255. Enter the VPI assigned to you.
VCI	The valid range for the VCI is 32 to 65535 (0 to 31 is reserved for local management of ATM traffic). Enter the VCI assigned to you.
ATM Class	Select **CBR** (Continuous Bit Rate) to specify fixed (always-on) bandwidth for voice or data traffic. Select **UBR** (Unspecified Bit Rate) for applications that are non-time sensitive, such as e-mail. Select **UBRPlus** for non-real-time applications (such as e-mail). However, UBRPlus guarantees service at least the MCR (Maximum Cell Rate). Select **VBR** (Variable Bit Rate) for bursty traffic and bandwidth sharing with other applications. Select **VBR-rt** (Variable Bit Rate - Real Time) for bursty traffic that is intolerable of delays.
Encapsulation Method	This information is provided by your ISP. Select the encapsulation method your ISP uses.
Ether Filter Type	Specify what kind of Ethernet packets the Prestige allows through the WAN connection. Select **All** to allow all Ethernet packet types. Select **Ip** to allow only IP or ARP related Ethernet packets to pass through. Select **Pppoe** to allow only PPPoE Ethernet packets to pass through.

Table 22 WAN: ISP: Edit (PPPoE) (continued)

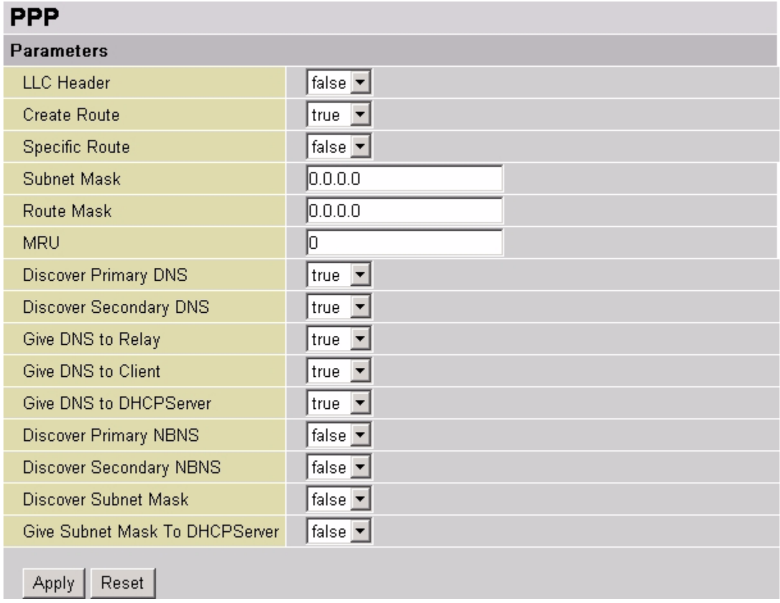
LABEL	DESCRIPTION
Spanning Bridge Interface	Select **Enable** to activate spanning tree feature on the WAN interface. Select **Disable** to deactivate this feature.
NAT	Select **Enable** to activate NAT (Network Address Translation) to allow more than one computer to access the Internet through the Prestige. Otherwise, select **Disable**. In this case, only one computer can access the Internet from the LAN.
Username	This field is applicable for **PPPoA** or **PPPoE** only. Enter the user name exactly as your ISP assigned. If assigned a name in the form user@domain where domain identifies a service name, then enter both components exactly as given.
Password	This field is applicable for **PPPoA** or **PPPoE** only. Enter the password associated with the user name above.
Service Name	This field is applicable for **PPPoE** only. Type the name of your PPPoE service here.
IP Address	This field is applicable for **PPPoA** and **PPPoE** only. Enter a static public IP address (in dotted decimal notation) provided by your ISP. Leave this field as **0.0.0.0** to set the Prestige to obtain an IP address (and other TCP/IP information) from the ISP every time.
Authentication Protocol	Select an authentication type your ISP uses. Choices are **CHAP** and **PAP**. Select **None** if no authentication is required.
Connection	Select **Always On** when you want your connection up all the time. The Prestige will try to bring up the connection automatically if it is disconnected. Select **Connect on Demand** when you don't want the connection up all the time and specify an idle time-out in the **Idle Timeout** field.
Idle Timeout	Specify an idle time-out (in minutes) when you select **Connect on Demand** in the **Connection** field. The default setting is **0**, which means the Internet session will not timeout.
RIP	The **RIP** field controls the format and the broadcasting method of the RIP packets that the Prestige sends (it recognizes both formats when receiving). Select **RIP v1** if you are unsure what RIP version other Ethernet device(s) supports. RIP v1 is universally supported. Select **RIP v2** to send detailed routing data. Select **RIP v2 Multicast** to set the Prestige to send routing data in RIP-2 format using multicasting. Refer to Section 3.2.2 on page 38 for more information.
MTU	Specify the MTU (Maximum Transmission Unit) in this field.
Apply	Click **Apply** to save the settings and return to the main ISP screen.
Advanced Options	Click **Advanced Options** to configure advanced PPPoE settings.

4.2.1.1 Advanced PPP Options

For PPPoA or PPPoE connection type, you can configure advanced PPP settings in the **Advanced Options** screen.

In the **WAN Connection** screen, click **Advanced Options** to display the screen shown next.

Figure 31 WAN: Edit: Advanced PPP Options



PPP

Parameters

LLC Header	false
Create Route	true
Specific Route	false
Subnet Mask	0.0.0.0
Route Mask	0.0.0.0
MRU	0
Discover Primary DNS	true
Discover Secondary DNS	true
Give DNS to Relay	true
Give DNS to Client	true
Give DNS to DHCPServer	true
Discover Primary NBNS	false
Discover Secondary NBNS	false
Discover Subnet Mask	false
Give Subnet Mask To DHCPServer	false

The following table describes the labels in his screen.

Table 23 WAN: Edit: Advanced PPP Options

LABEL	DESCRIPTION
LLC Header	Specify an encapsulation mode in this field. Select **true** for LLC or **false** for VC.
Create Route	Specify whether the Prestige is to add a route after IPCP (Internet Protocol Control Protocol) negotiation is completed. Select **true** to add a route to direct packets to the remote end of the PPP link. Otherwise, select **false** to disable auto-route creation.
Specific Route	Specify whether the route created (after a successful PPP connection) is a default or specific route. Select **true** to set the created route for packets between the Prestige and the remote network. The address of this subnet is obtained during the connection negotiation. Select **false** to set the route as a default route for all packets.
Subnet Mask	Specify the subnet mask for PPP connection. If you enter 0.0.0.0, the Prestige calculates the subnet mask from the IP address obtained during connection negotiation.
Route Mask	Specify the subnet mask the route (after a successful PPP connection) uses. If you enter 0.0.0.0, the subnet mask is determined by the IP address of the remote end. The IP address is obtained during connection negotiation.
MRU	This field is optional. Enter the MRU (Maximum Receive Unit) if your ISP provides the information. The MRU is automatically obtained during the LCP protocol stage.
Discover Primary/ Secondary DNS	Enable this feature to allow the Prestige to automatically obtain the DNS server IP address(es) from the ISP. Otherwise, select **false**.
Give DNS to Relay	Enable this feature to set the Prestige to provide DNS server information to DNS request from a local computer.
Give DNS to Client	Enable this feature to set Prestige to provide DNS server information to a remote PPP peer device.

Table 23 WAN: Edit: Advanced PPP Options (continued)

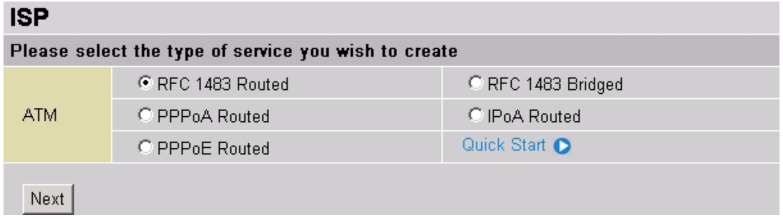
LABEL	DESCRIPTION
Give DNS to DHCP Server.	Enable this feature to set the Prestige to provide DNS server information to a DHCP server.
Discover Primary/ Secondary NBNS.	Enable this feature to set the Prestige to request NBNS (NetBIOS Name Server) server information from the remote PPP peer device. An NBNS server (also known as a WINS server) maps a NetBIOS name to an IP address.
Discover Subnet Mask	Enable this feature to set the Prestige to use the subnet mask obtained after the Internet connection is established.
Give Subnet Mask to DHCP Server	Enable this feature to set the Prestige to provide the subnet mask information to the DHCP server. The subnet mask is obtained during the connection negotiation.
Apply	Click **Apply** to save the changes.
Reset	Click **Reset** to start configuring this screen again.

4.2.2 Change Connection Type

Follow the steps below to change your Internet connection type and settings.

1. Click **Change** in the main ISP screen (see Figure 29 on page 49).
2. A screen displays as shown. Select the connection type your ISP uses and click **Next**. Click **Quick Start** to configure the line settings in the **Quick Start** screen (refer to Section 2.7.4 on page 33 for more information).

Figure 32 ISP: Change Connection Type



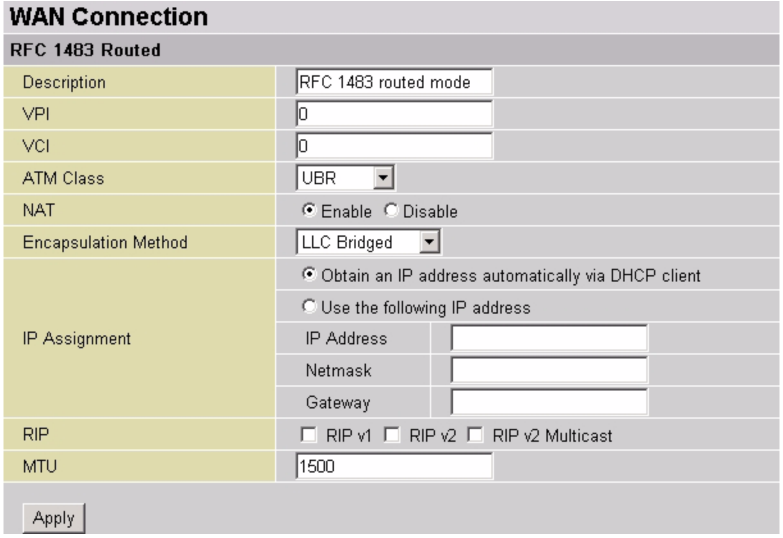
ISP

Please select the type of service you wish to create

ATM	● RFC 1483 Routed	○ RFC 1483 Bridged
	○ PPPoA Routed	○ IPoA Routed
	○ PPPoE Routed	Quick Start

3. A configuration screen displays. This screen varies depending on the connection type you select. Refer to Section 4.2 on page 49 for more information.

Figure 33 ISP: Change Connection Type Settings (RFC 1483 Routed)



WAN Connection

RFC 1483 Routed

Description	RFC 1483 routed mode	
VPI	0	
VCI	0	
ATM Class	UBR	
NAT	● Enable ○ Disable	
Encapsulation Method	LLC Bridged	
IP Assignment	● Obtain an IP address automatically via DHCP client	
	○ Use the following IP address	
	IP Address	
	Netmask	
	Gateway	
RIP	□ RIP v1 □ RIP v2 □ RIP v2 Multicast	
MTU	1500	

4 Click **Apply** to save the changes and return to the main **ISP** screen.

4.3 DNS

Use DNS (Domain Name System) to map a domain name to its corresponding IP address and vice versa, for instance, the IP address of www.zyxel.com is 204.217.0.2. The DNS server is extremely important because without it, you must know the IP address of a computer before you can access it.

The Prestige can get the DNS server addresses in the following ways.

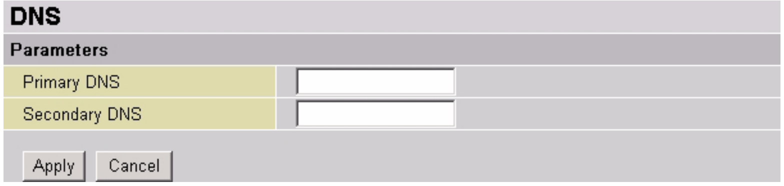
1 The ISP tells you the DNS server addresses, usually in the form of an information sheet, when you sign up. If your ISP gives you DNS server addresses, manually enter them in the DNS server fields.

2 If your ISP dynamically assigns the DNS server IP addresses (along with the Prestige's WAN IP address), set the DNS server fields to get the DNS server address from the ISP.

3 You can manually enter the IP addresses of other DNS servers. These servers can be public or private. A DNS server could even be behind a remote IPSec router.

Use the **DNS** screen to specify the DNS server IP address(es) provided by your ISP.

Figure 34 DNS



DNS

Parameters

Primary DNS	
Secondary DNS	

Apply Cancel

The following table describes the labels in this screen.

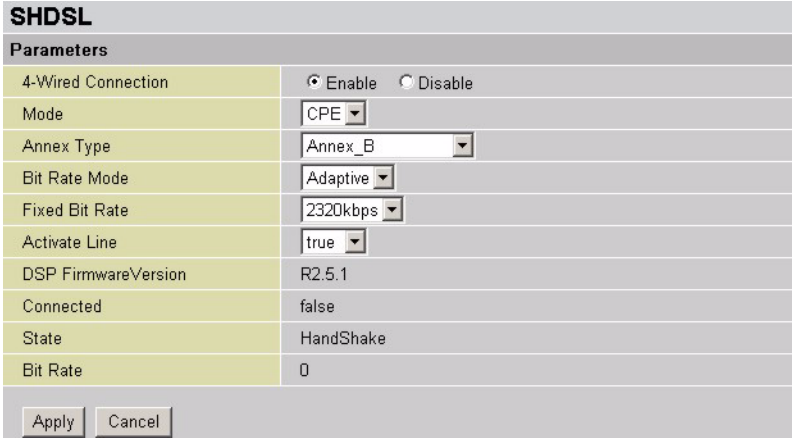
Table 24 DNS

LABEL	DESCRIPTION
Primary/ Secondary DNS	Enter the DNS server IP address(es) in dotted decimal notation. For example, 192.168.1.1.
Apply	Click **Apply** to save the settings.
Cancel	Click **Cancel** to discard all changes.

4.4 SHDSL Parameters

Use the **SHDSL** screen to configure advanced SHDSL settings. Click **Configuration**, **WAN** and **SHDSL** in the navigation panel to display the screen as shown next.

Figure 35 SHDSL



SHDSL

Parameters

4-Wired Connection	● Enable ○ Disable
Mode	CPE
Annex Type	Annex_B
Bit Rate Mode	Adaptive
Fixed Bit Rate	2320kbps
Activate Line	true
DSP FirmwareVersion	R2.5.1
Connected	false
State	HandShake
Bit Rate	0

Apply Cancel

The following table describes the labels in this screen.

Table 25 SHDSL

LABEL	DESCRIPTION
4 Wire Connection	Select **Enable** to activate 4-wire connection. The 4-wire mode is described in ITU-T G.991.2. 4-wire mode can increase the reach of a particular data rate without having to regenerate the signal. It can also give increased bandwidth for LAN-to-LAN applications. Otherwise, select **Disable**.
Mode	Select **CPE** (Customer Premises Equipment) if the Prestige is connected to the ISP. This is the default setting. To connect the Prestige to another SHDSL router, select **CO** (Central Office) here and set the remote SHDSL router to CPE mode. Or vise versa if you select **CPE** on the Prestige.
Annex Type	Select a DSL operating mode. **Annex_A** (default) is mostly used in North America, whereas **Annex_B** is more widespread in Europe. **Annex_A_B**, **Annex_A_B_ANFP** (Access Network Frequency Plan) and **Annex_B_ANFP** are automatically selected when the DSL line is in training state. These options are not available in **CO** mode. **Note:** For LAN-LAN connection, make sure the annex type is the same on Prestige and the remote SHDSL router.
Bit Rate Mode	Specify the bit rate. Choices are fixed or adaptive.
Fix Bit Rate	This field is applicable when you select Fixed in the Bit Rate Mode field. Select a fixed transfer rate for the DSL line from the drop-down list box.
Activate Line	Select **false** to disable SHDSL connection. Select **true** to enable SHDSL connection. **Note:** After you change the SHDSL line settings here, you must disable and enable the SHDSL line again to make the changes take effect.
DSP FirmwareVersion	This read-only field displays the SHDSL line code firmware version.
Connected	This field displays current SHDSL connection status.
State	This field displays current SHDSL connection state.
Bit Rate	This field displays the connection speed.
Apply	Click **Apply** to save the changes.
Cancel	Click **Cancel** to discard all changes.

CHAPTER 5 System

This chapter describes the **System** screens.

5.1 Overview

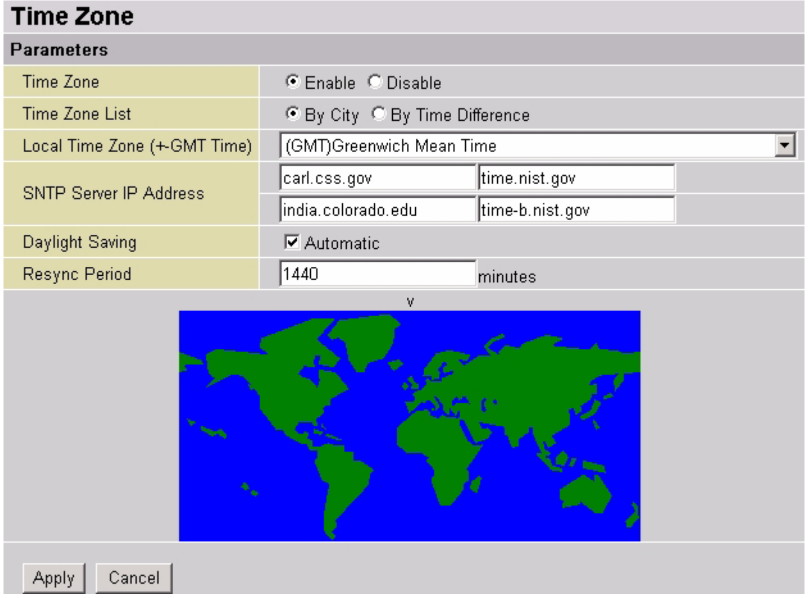
Use the **System** screens to configure the time server and user account settings, upgrade firmware and backup/restore configuration on the Prestige.

5.2 Time Zone

To change your Prestige's time and date, click **Configuration**, **System** and **Time Server** in the navigation panel. The screen appears as shown. Use this screen to configure the Prestige's time based on your local time zone.

The world map and the **v** indicator shows the current time zone you select.

Figure 36 System: Time Zone



Time Zone

Parameters

Time Zone	● Enable ○ Disable	
Time Zone List	● By City ○ By Time Difference	
Local Time Zone (+-GMT Time)	(GMT)Greenwich Mean Time	
SNTP Server IP Address	carl.css.gov india.colorado.edu	time.nist.gov time-b.nist.gov
Daylight Saving	☑ Automatic	
Resync Period	1440 minutes	

The following table describes the labels in this screen.

Table 26 System: Time Zone

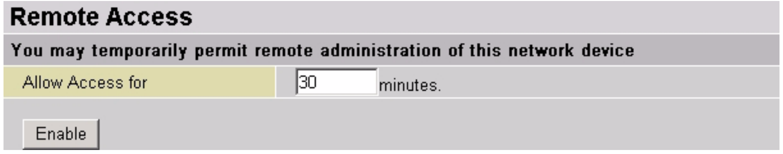
LABEL	DESCRIPTION
Time Zone	Select **Enable** to use the time zone settings to set your Prestige system time. Select **Disable** to deactivate this feature.
Time Zone List	Specify the order of the **Local Time Zone** list is to be displayed. Select **By City** to display the list alphabetically based on the cities for each time zone. Select **By Time** Different to display the list in ascending order.
Local Time Zone (GMT Time)	Select a time zone from the drop-down list box. Note that world map indicates the current time zone you select.
SNTP Server IP Address	Enter the IP address or URL of your time server. Check with your ISP/network administrator if you are unsure of this information.
Daylight Saving	This field is available when you select **By City** in the **Time Zone List** field. Daylight saving is a period from late spring to early fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening. Select **Automatic** if you use daylight savings time.
Resync Period	Specify the time period (in minutes) the Prestige waits before updating the system time with the time server specified.
Apply	Click **Apply** to save the settings.
Cancel	Click **Cancel** to discard all changes.

5.3 Remote Access

Use the **Remote Access** screen to the session time limit a user is allowed to remotely access the Prestige for management. After the time period is reached, the Prestige automatically disconnects a management session. In this case, you need to log in again with the login username and password.

Click **Configuration**, **System** and **Remote Access** to display the screen as shown.

Figure 37 System: Remote Access



Remote Access

You may temporarily permit remote administration of this network device

Allow Access for 30 minutes.

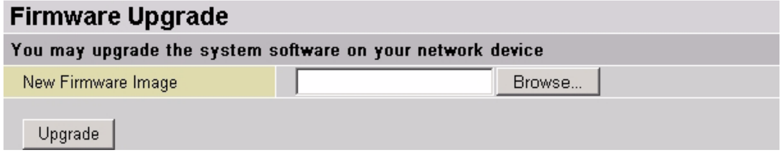
Enter a time period (in minutes) in the **Allow Access** field. Enter a time period of **0** to not time out a management session. Then click **Enable**.

5.4 Firmware Upgrade

Find firmware at www.zyxel.com in a file that (usually) uses the system model name with a ".bin" extension, e.g., "prestige.bin". The upload process may take up to two minutes. After a successful upload, the system will reboot.

1 Click **Configuration**, **System** and **Firmware Upgrade** in the navigation panel to display the screen as shown.

Figure 38 System: Firmware Upgrade



Firmware Upgrade

You may upgrade the system software on your network device

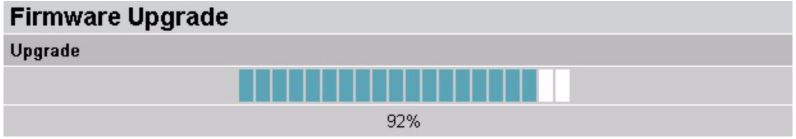
New Firmware Image

2 Click **Browse...** to find the firmware file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.

3 Click **Upload** to begin the upload process. A screen displays showing the firmware upgrade progress.

Note: Do NOT turn off the Prestige while firmware upload is in progress!

Figure 39 System: Firmware Upgrade: Progress



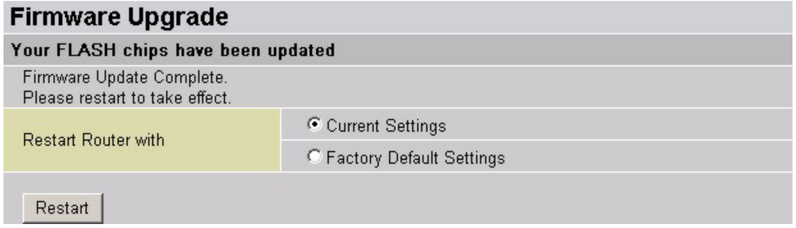
Firmware Upgrade

Upgrade

92%

4 After the Prestige successfully upgrades the firmware, a screen displays. Select **Current Settings** to keep current Prestige settings. Select **Factory Default Settings** to reset the Prestige to the factory defaults.

Figure 40 System: Firmware Upgrade: Device Configuration Option



Firmware Upgrade

Your FLASH chips have been updated

Firmware Update Complete.
Please restart to take effect.

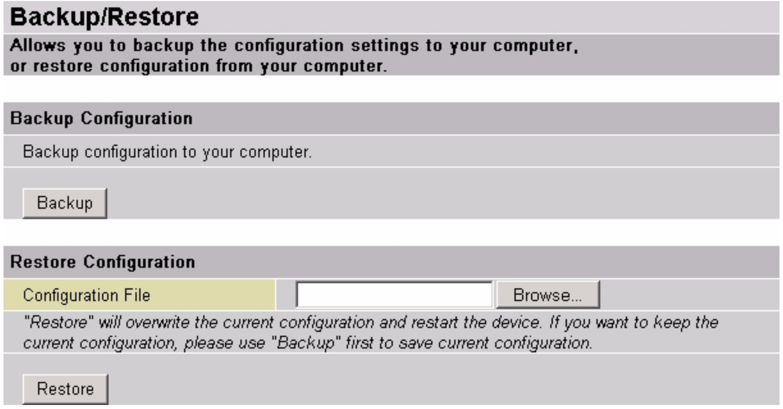
Restart Router with ● Current Settings ○ Factory Default Settings

5 Click **Restart** to reboot the Prestige. Wait for about one minute before accessing the Prestige again.

5.5 Backup/Restore

Use the **Backup/Restore** screen for configuration file maintenance. Click **Configuration**, **System** and **Backup/Restore** in the navigation panel.

Figure 41 System: Configuration Backup/Restore



Backup/Restore

Allows you to backup the configuration settings to your computer, or restore configuration from your computer.

Backup Configuration

Backup configuration to your computer.

Restore Configuration

Configuration File	Browse...

"Restore" will overwrite the current configuration and restart the device. If you want to keep the current configuration, please use "Backup" first to save current configuration.

Backup configuration allows you to back up (or save) the Prestige’s current configuration to a file on your computer. Once your Prestige is configured and functioning properly, it is highly recommended that you back up your configuration file before making configuration changes. The backup configuration file will be useful in case you need to return to your previous settings.

Click **Backup** to save the Prestige’s current configuration to your computer.

Restore configuration allows you to upload a new or previously saved configuration file from your computer to your Prestige.

Click **Browse...** to find the file you want to upload. Click **Restore** to begin the upload process.

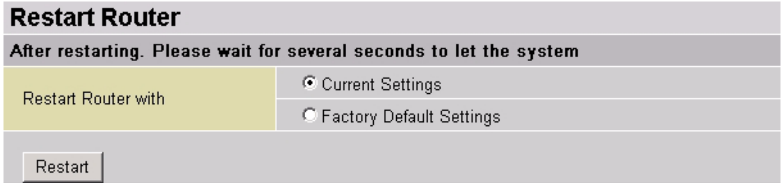
Note: Restore only the configuration file that you have previously backed up using the **Backup/Restore** screen.

Do NOT manually edit the configuration file.

5.6 Restart Router

The **Restart Router** screen allows you to reboot the Prestige without turning the power off. Click **Configuration**, **System** and **Restart** in the navigation panel to display the screen as shown below.

Figure 42 System: Restart



Restart Router

After restarting. Please wait for several seconds to let the system

Restart Router with	● Current Settings ○ Factory Default Settings

In the **Restart Router with** field, select **Current Settings** and click **Restart** to reboot the Prestige with the current settings.

Note: All unsaved configuration settings will be lost.

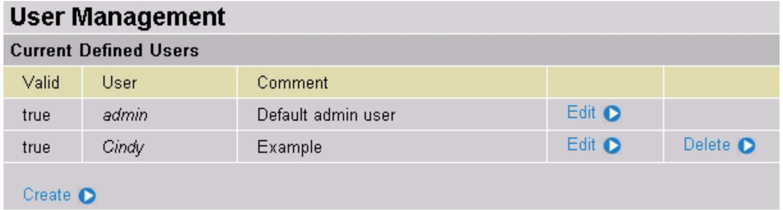
Select **Factory Default Settings** and click **Restart** to reboot and reset the Prestige to the factory default.

Note: All custom settings will be lost.

5.7 User Management

Use the **User Management** screen to maintain login accounts.

Figure 43 System: User Management



User Management

Current Defined Users

Valid	User	Comment		
true	*admin*	Default admin user	Edit	
true	*Cindy*	Example	Edit	Delete

Create

The following table describes the labels in this screen.

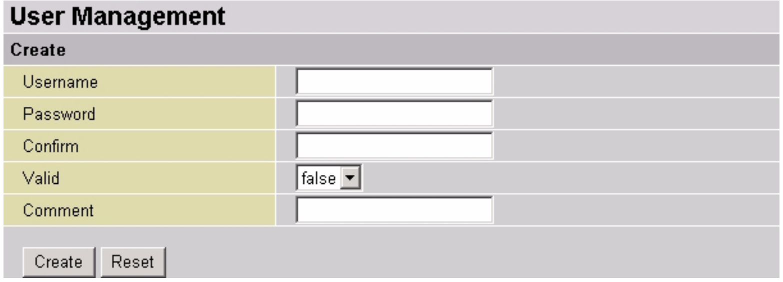
Table 27 System: User Management

LABEL	DESCRIPTION
Valid	This field indicates whether the account is activated (**true**) or not (**false**).
User	This field displays the account username.
Comment	This field displays additional information about the login account.
Edit	Click **Edit** to change the settings of a login account. Refer to Table 28 on page 63 for field descriptions.
Delete	Click **Delete** to remove an account from the table. **Note:** You cannot delete the account with the "admin" username.
Create	Click **Create** to add a new login account.

5.7.1 Create a New User Account

To add a new user account, click **Create** in the **User Management** screen. A screen displays as shown.

Figure 44 System: User Management: Edit Account



Valid: false

The following table describes the labels in this screen.

Table 28 System: User Management: Edit Account

LABEL	DESCRIPTION
Username	Enter an account username.
Password	Enter a password associated to the username above.
Confirm	Enter the password again for confirmation.
Valid	Select **true** to activate this account. Otherwise, select **false** to disable it.
Comment	Enter additional information about this account.
Create	Click **Create** to add this new account and return to the main User Management screen.
Reset	Click **Reset** to start configuring this screen again.

CHAPTER 6 Firewall

This chapter gives some background information on firewalls.

6.1 Overview

Originally, the term *firewall* referred to a construction technique designed to prevent the spread of fire from one room to another. The networking term firewall is a system or group of systems that enforces an access-control policy between two networks. It may also be defined as a mechanism used to protect a trusted network from an untrusted network. Of course, firewalls cannot solve every security problem. A firewall is *one* of the mechanisms used to establish a network security perimeter in support of a network security policy. It should never be the *only* mechanism or method employed. For a firewall to guard effectively, you must design and deploy it appropriately. This requires integrating the firewall into a broad information-security policy. In addition, specific policies must be implemented within the firewall itself.

6.2 Types of Firewalls

There are three main types of firewalls:

1. Packet Filtering Firewalls
2. Application-level Firewalls
3. Stateful Inspection Firewalls

6.2.1 Packet Filtering Firewalls

Packet filtering firewalls restrict access based on the source/destination computer network address of a packet and the type of application.

6.2.2 Application-level Firewalls

Application-level firewalls restrict access by serving as proxies for external servers. Since they use programs written for specific Internet services, such as HTTP, FTP and telnet, they can evaluate network packets for valid application-specific data. Application-level gateways have a number of general advantages over the default mode of permitting application traffic directly to internal hosts:

1 Information hiding prevents the names of internal systems from being made known via DNS to outside systems, since the application gateway is the only host whose name must be made known to outside systems.

2 Robust authentication and logging pre-authenticates application traffic before it reaches internal hosts and causes it to be logged more effectively than if it were logged with standard host logging. Filtering rules at the packet filtering router can be less complex than they would be if the router needed to filter application traffic and direct it to a number of specific systems. The router need only allow application traffic destined for the application gateway and reject the rest.

6.2.3 Stateful Inspection Firewalls

Stateful inspection firewalls restrict access by screening data packets against defined access rules. They make access control decisions based on IP address and protocol. They also "inspect" the session data to assure the integrity of the connection and to adapt to dynamic protocols. These firewalls generally provide the best speed and transparency; however, they may lack the granular application level access control or caching that some proxies support.

Firewalls, of one type or another, have become an integral part of standard security solutions for enterprises.

Your Prestige includes a full SPI (Stateful Packet Inspection) firewall for controlling Internet access from your LAN, as well as helping to prevent attacks from hackers. In addition to this, when using NAT (Network Address Translation), the Prestige acts as a “natural” Internet firewall, as all computers on your LAN will use private IP addresses that cannot be directly accessed from the Internet.

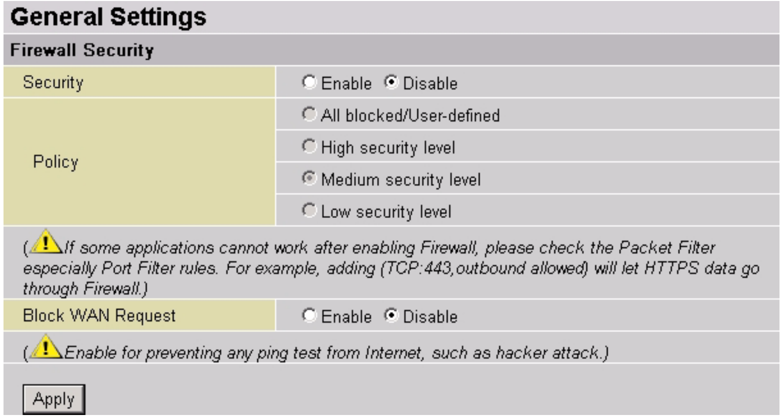
The following lists the different security features on the Prestige:

- **Firewall**: This prevents access from outside your network. The router provides three levels of security support:
- **NAT**: This masks the IP addresses of the computers on the LAN invisible to the WAN. This makes it much more difficult for a hacker to target a machine on your network.
- **Firewall Security and Policy (General Settings)**: Inbound direction of packet filter rules to block unauthorized computers or applications access to your local network from the Internet.
- **Intrusion Detection**: Enable this feature to detect, prevent and log malicious attacks.
- **Access Control**: Prevents specified local computers from accessing your local network:
- **Firewall Security and Policy (General Settings)**: Outbound direction of packet filter rules to block unauthorized computers or applications access from the Internet.
- **MAC Filter rules**: To prevent unauthorized computers from accessing the network through the Prestige.
- **URL Filter**: To block computers on your local network from accessing specific web sites.

6.3 General Settings

Enable the firewall in the **General Settings** screen. Click **Configuration**, **Firewall** and **General Settings** in the navigation panel to display the screen as shown.

Figure 45 Firewall: General Settings



General Settings

Firewall Security

Security	○ Enable ● Disable
Policy	○ All blocked/User-defined
	○ High security level
	● Medium security level
	○ Low security level

(⚠*If some applications cannot work after enabling Firewall, please check the Packet Filter especially Port Filter rules. For example, adding (TCP:443,outbound allowed) will let HTTPS data go through Firewall.)*

Block WAN Request	○ Enable ● Disable

(⚠*Enable for preventing any ping test from Internet, such as hacker attack.)*

The following table describes the labels in this screen.

Table 29 Firewall: General Settings

LABEL	DESCRIPTION
Security	Select **Enable** to activate firewall on the Prestige. Select **Disable** to deactivate firewall on the Prestige.
Policy	The options are applicable when you select **Enable** in the **Security** field. Select **All blocked/User-defined** to block all out-going (LAN to Internet) and incoming packets (Internet to LAN) based on the firewall filters you configure. By default, there is no custom filters. Select **High security level**, **Medium security level** (default) or **Low security level** to block packets based on the pre-defined firewall filters. Refer to Table 30 on page 67 for more information.
Block WAN Request	Select **Enable** to set the Prestige not to respond to any incoming Ping requests. Select **Disable** to deactivate this feature. THe Prestige will respond to all Ping requests.
Apply	Click **Apply** to save the settings.

The following table lists inbound (Internet to LAN) and outbound (LAN to Internet) traffic that is allowed or not allowed for the pre-defined port filters. The Prestige uses the pre-defined port filters when you select a security level in the **General Settings** screen.

Table 30 Pre-defined Port Filter

APPLICATION	PROTOCOL	PORT NUMBER		FIREWALL					
				HIGH		MEDIUM		LOW	
		START	END	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND
HTTP(80)	TCP(6)	80	80	NO	YES	NO	YES	NO	YES
DNS (53)	UDP(17)	53	53	NO	YES	NO	YES	YES	YES
DNS (53)	TCP(6)	53	53	NO	YES	NO	YES	YES	YES
FTP(21)	TCP(6)	21	21	NO	NO	NO	YES	NO	YES
Telnet(23)	TCP(6)	23	23	NO	NO	NO	YES	NO	YES
SMTP(25)	TCP(6)	25	25	NO	YES	NO	YES	NO	YES
POP3(110)	TCP(6)	110	110	NO	YES	NO	YES	NO	YES
NEWS(119)	TCP(6)	119	119	NO	NO	NO	YES	NO	YES
RealAudio (7070)	UDP(17)	7070	7070	NO	NO	YES	YES	YES	YES
PING	ICMP(1)	N/A	N/A	NO	YES	NO	YES	NO	YES
H.323(1720)	TCP(6)	1720	1720	NO	NO	NO	YES	YES	YES
T.120(1503)	TCP(6)	1503	1503	NO	NO	NO	YES	YES	YES
SSH(22)	TCP(6)	22	22	NO	NO	NO	YES	YES	YES
NTP(123)	UDP(17)	123	123	NO	YES	NO	YES	NO	YES
HTTPS(443)	TCP(6)	443	443	NO	NO	NO	YES	NO	YES
ICQ (5190)	TCP(6)	5190	5190	NO	NO	NO	NO	YES	YES

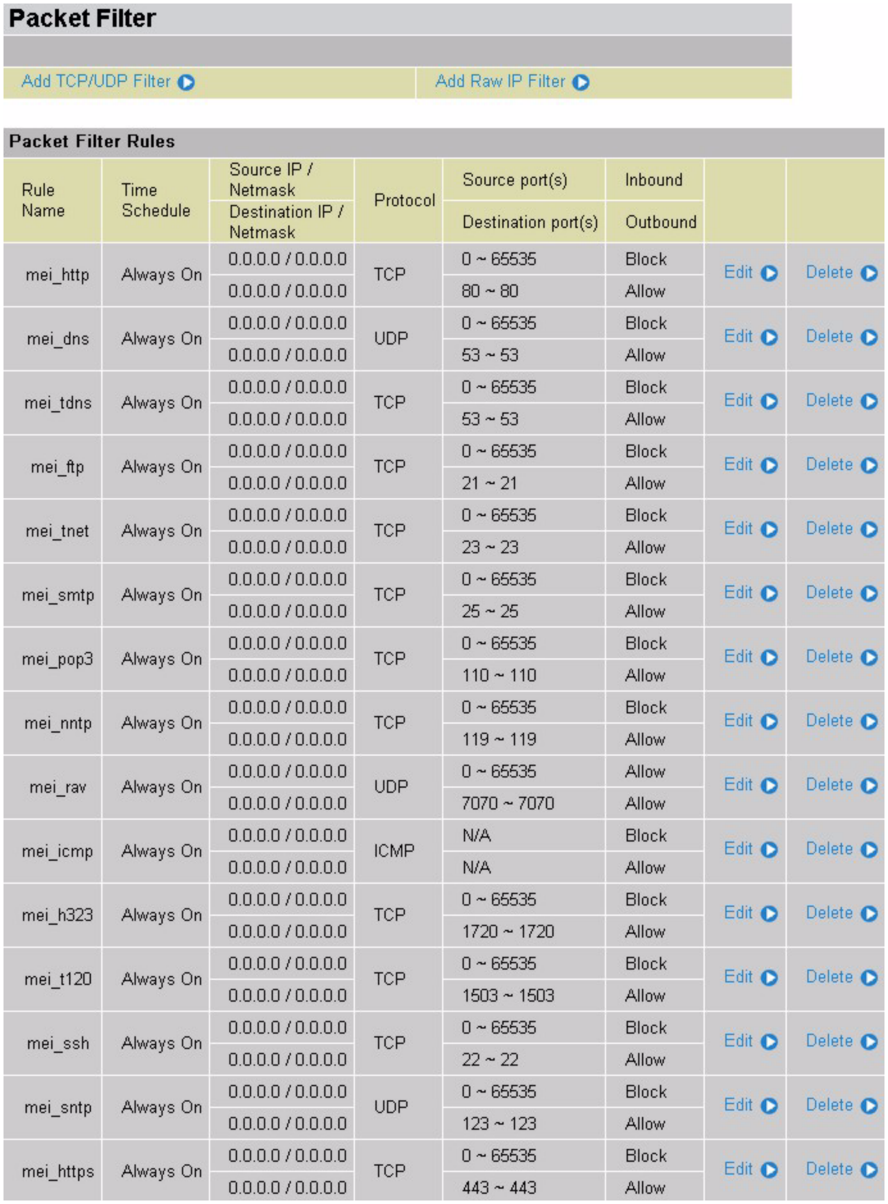
6.4 Packet Filter

The packet filters are applicable when the firewall is enabled in the **General Settings** screen.

Use the **Packet Filter** screen to configure port and address filters. Click **Configuration**, **Firewall** and **Packet Filters**.

The Prestige comes with pre-configured packet filters as shown in the screen. These filters are for the **Policy** security levels in the **Firewall: General Settings** screen (refer to Section 6.3 on page 66). You can modify or delete the pre-configured packet filters.

Figure 46 Firewall: Packet Filter



Packet Filter

Add TCP/UDP Filter ▶ Add Raw IP Filter ▶

Packet Filter Rules

Rule Name	Time Schedule	Source IP / Netmask	Protocol	Source port(s)	Inbound		
		Destination IP / Netmask		Destination port(s)	Outbound		
mei_http	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		80 ~ 80	Allow		
mei_dns	Always On	0.0.0.0 / 0.0.0.0	UDP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		53 ~ 53	Allow		
mei_tdns	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		53 ~ 53	Allow		
mei_ftp	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		21 ~ 21	Allow		
mei_tnet	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		23 ~ 23	Allow		
mei_smtp	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		25 ~ 25	Allow		
mei_pop3	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		110 ~ 110	Allow		
mei_nntp	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		119 ~ 119	Allow		
mei_rav	Always On	0.0.0.0 / 0.0.0.0	UDP	0 ~ 65535	Allow	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		7070 ~ 7070	Allow		
mei_icmp	Always On	0.0.0.0 / 0.0.0.0	ICMP	N/A	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		N/A	Allow		
mei_h323	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		1720 ~ 1720	Allow		
mei_t120	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		1503 ~ 1503	Allow		
mei_ssh	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		22 ~ 22	Allow		
mei_sntp	Always On	0.0.0.0 / 0.0.0.0	UDP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		123 ~ 123	Allow		
mei_https	Always On	0.0.0.0 / 0.0.0.0	TCP	0 ~ 65535	Block	Edit ▶	Delete ▶
		0.0.0.0 / 0.0.0.0		443 ~ 443	Allow		

The following table describes the labels in this screen.

Table 31 Firewall: Packet Filter

LABEL	DESCRIPTION
Add TCP/UDP Filter	Click **Add TCP/UDP Filter** to configure a new TCP/UFDP packet filter.
Add Raw IP Filter	Click **Add Raw IP Filter** to configure a new IP packet filter.

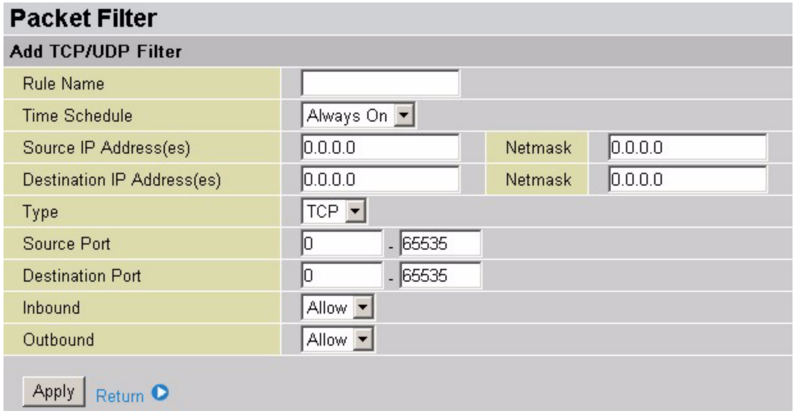
Table 31 Firewall: Packet Filter (continued)

LABEL	DESCRIPTION
Packet Filter Rules	
Rule Name	This field displays the descriptive name for a rule.
Time Schedule	This field displays the time when this rule is active.
Source IP/ Netmask	This field displays the source IP address and subnet mask.
Destination IP/ Netmask	This field displays the destination IP address and subnet mask
Protocol	This field displays the protocol name.
Source Port	This field displays the source port number or port number range.
Destination Port	This field displays the destination port number or port number range.
Inbound	This field displays whether the incoming packets are forwarded (**Allow**) or dropped (**Block**).
Outbound	This field displays whether the outgoing packets are forwarded (**Allow**) or dropped (**Block**).
Edit	Click **Edit** to modify the settings of the selected filter.
Delete	Click **Delete** to remove the selected filter.

6.4.1 Add a New TCP/UDP Packet Filter

To add a new TCP/UDP packet filter, click **Add TCP/UDP Filter** in the **Packet FIlter** screen.

Figure 47 Firewall: Packet Filters: Add TCP/UDP Filter



Packet Filter

Add TCP/UDP Filter

Rule Name			
Time Schedule	Always On		
Source IP Address(es)	0.0.0.0	Netmask	0.0.0.0
Destination IP Address(es)	0.0.0.0	Netmask	0.0.0.0
Type	TCP		
Source Port	0 - 65535		
Destination Port	0 - 65535		
Inbound	Allow		
Outbound	Allow		

The following table describes the labels in this screen.

Table 32 Firewall: Packet Filters: Add TCP/UDP Filter

LABEL	DESCRIPTION
Rule Name	Enter a descriptive name for identification purposes.
Time Schedule	Specify the time in which this filter is active. Select **Always On** to activate the rule all the time. Otherwise select a time you configure in the **Time Schedule** screen.

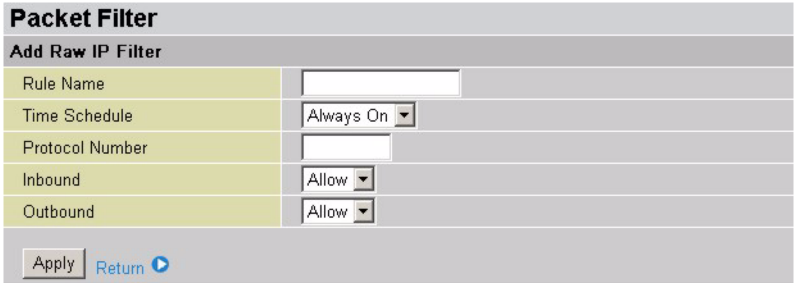
Table 32 Firewall: Packet Filters: Add TCP/UDP Filter (continued)

LABEL	DESCRIPTION
Source IP Address(es)	Enter the start source IP address in dotted decimal notation. For example, 192.168.1.10. In the **Netmask** field, enter the source subnet mask address in dotted decimal notation. For example, 255.255.255.0.
Destination IP Address(es)	Enter the end source IP address in dotted decimal notation. Enter the same source IP address here if you want to filter packets to or from an IP address. For example, 192.168.1.10. In the **Netmask** field, enter the destination subnet mask in dotted decimal notation. For example, 255.255.255.0.
Type	Select the packet type to filter. Choices are **TCP** and **UDP**.
Source Port	Specify the source port or a range of source port numbers in the fields provided.
Destination Port	Specify the destination port or a range of destination port numbers in the fields provided.
Inbound/Outbound	Specify whether to deny (**Block**) or allow (**Allow**) incoming (from the Internet) or out-going (to the Internet) traffic.
Apply	Click **Apply** to save the settings and return to the main **Packet Filter** screen.
Return	Click **Return** to discard all changes and go back to the main **Packet Filter** screen.

6.4.2 Add a New Raw Packet Filter

To add a new raw packet filter, click **Add Raw Filter** in the **Packet Filters** screen.

Figure 48 Firewall: Packet Filters: Add Raw Filter



Packet Filter

Add Raw IP Filter

Rule Name	
Time Schedule	Always On
Protocol Number	
Inbound	Allow
Outbound	Allow

The following table describes the labels in this screen.

Table 33 Firewall: Packet Filters: Add Raw Filter

LABEL	DESCRIPTION
Rule Name	Enter a descriptive name for identification purposes.
Time Schedule	Specify the time in which this filter is active. Select **Always On** to activate the rule all the time. Otherwise select a time you configure in the **Time Schedule** screen.
Protocol Number	Enter a protocol number.
Inbound/Outbound	Specify whether to deny (**Block**) or allow (**Allow**) incoming (from the Internet) or out-going (to the Internet) traffic.

Table 33 Firewall: Packet Filters: Add Raw Filter (continued)

LABEL	DESCRIPTION
Apply	Click **Apply** to save the settings and return to the main **Packet Filter** screen.
Return	Click **Return** to discard all changes and go back to the main **Packet Filter** screen.

6.5 Intrusion Detection

The Prestige's Intrusion Detection System (IDS) is used to detect hacker attacks and intrusion attempts from the Internet. When you enable IDS on the Prestige, inbound packets are filtered and blocked depending on whether they are detected as possible hacker attacks, intrusion attempts or other connections that the router determines to be suspicious.

If the Prestige detects a possible attack, the source IP or destination IP address will be added to the Blacklist. Any further attempts using this IP address will be blocked for the time period specified in the **Block Duration** field. The default setting for this function is false (disabled). Some attack types are denied immediately without using the Blacklist function, such as Land attack and Echo/CharGen scan.

The following table lists the types of attacks that the IDS is able to detect and the actions performed.

Table 34 IDS: Detectable Attacks

NAME	PARAMETER	BLACKLIST	TYPE OF BLOCK DURATION	DROP PACKET	LOG
Ascend Kill	Ascend Kill data	Source IP	DoS	Yes	Yes
WinNuke	TCP Port 135, 137~139, Flag: URG	Source IP	DoS	Yes	Yes
Smurf	ICMP type 8 Des IP is broadcast	Destination IP	Victim Protection	Yes	Yes
Land attack	SrcIP = DstIP			Yes	Yes
Echo/ CharGen Scan	UDP Echo Port and CharGen Port			Yes	Yes
Echo Scan	UDP Dst Port = Echo(7)	Source IP	Scan	Yes	Yes
CharGen Scan	UDP Dst Port = CharGen(19)	Source IP	Scan	Yes	Yes
X'mas Tree Scan	TCP Flag: X'mas	Source IP	Scan	Yes	Yes
IMAP SYN/FIN Scan	TCP Flag: SYN/FIN DstPort: IMAP(143) SrcPort: 0 or 65535	Source IP	Scan	Yes	Yes

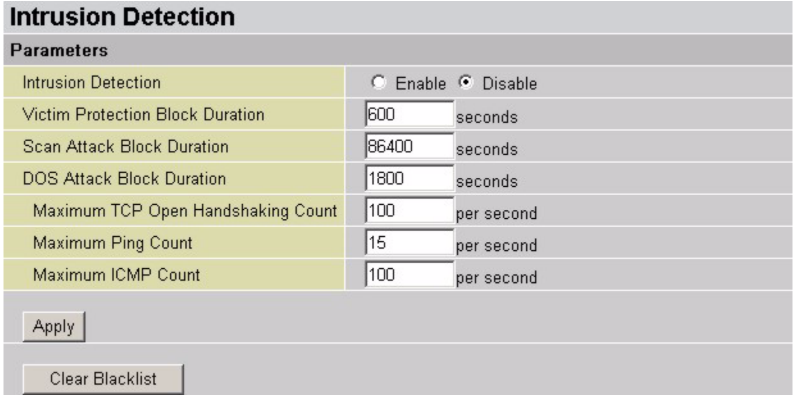
Table 34 IDS: Detectable Attacks (continued)

NAME	PARAMETER	BLACKLIST	TYPE OF BLOCK DURATION	DROP PACKET	LOG
SYN/FIN/ RST/ACK Scan	TCP, No Existing session And Scan Hosts more than five.	Source IP	Scan	Yes	Yes
Net Bus Scan	TCP No Existing session DstPort = Net Bus 12345,12346, 3456	Source IP	Scan	Yes	Yes
Back Orifice Scan	UDP, DstPort = Orifice Port (31337)	Source IP	Scan	Yes	Yes
SYN Flood	Max TCP Open Handshaking Count (Default 100 c/sec)				Yes
ICMP Flood	Max ICMP Count (Default 100 c/sec)				Yes
ICMP Echo	Max PING Count (Default 15 c/sec)				Yes

Click **Configuration**, **Firewall** and **Intrusion Detection** in the navigation panel to display the screen as shown.

Note: The **Intrusion Detection** screen is available when you enable the firewall feature on the Prestige.

Figure 49 Firewall: Intrusion Detection



Intrusion Detection

Parameters

Intrusion Detection	○ Enable ● Disable
Victim Protection Block Duration	600 seconds
Scan Attack Block Duration	86400 seconds
DOS Attack Block Duration	1800 seconds
Maximum TCP Open Handshaking Count	100 per second
Maximum Ping Count	15 per second
Maximum ICMP Count	100 per second

The following table describes the labels in this screen.

Table 35 Firewall: Intrusion Detection

LABEL	DESCRIPTION
Intrusion Detection	Select **Enable** to activate this feature. Select **Disable** to deactivate this feature.
Victim Protection Block Duration	Specify the time period (in seconds) the Prestige blocks any Smurf attacks when detected.
Scan Attack Block Duration	Specify the time period (in seconds) the Prestige blocks hosts that attempt a possible Scan attack. Scan attack types include X’mas scan, IMAP SYN/FIN scan and similar attempts.
DoS Attack Block Duration	Specify the time period (in seconds) the Prestige blocks hosts that attempt a possible Denial of Service (DoS) attack. Possible DoS attacks this attempts to block include *Ascend Kill* and WinNuke.
Max TCP Open Handshaking Count	This is the rate of new TCP handshake open sessions that causes the firewall to determine that this is a SYN Flood attack. The Prestige then starts to delete new sessions.
Max PING Count	This is the rate of ICMP echo (or Ping) requests that the Prestige receives per second. If the current rate is above this number, the firewall decides that this is an ICMP Echo Storm attack.
Max ICMP Count	This is the rate of ICMP packets that the Prestige receives per second. If the current rate is above this number, the firewall decides that this is an ICMP Flood attack.
Apply	Click **Apply** to save the settings.
Clear Blacklist	Click **Clear Blacklist** to reset the blacklist.

Note: For SYN Flood, ICMP Echo Storm and ICMP flood attacks, the Prestige logs the event in the **Event Log** screen. The Prestige cannot prevent such attacks from occurring.

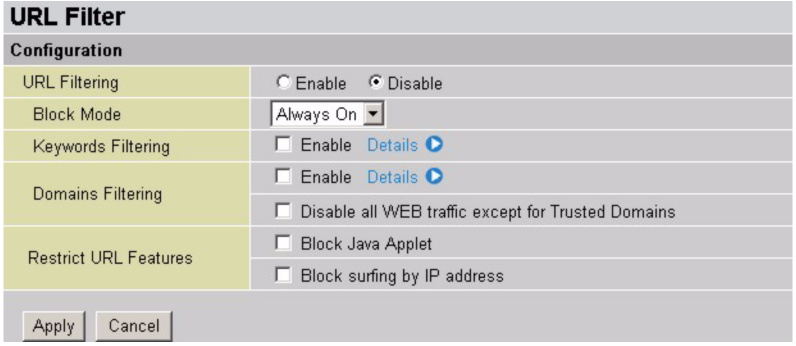
6.6 URL Filter

URL (Uniform Resource Locator) filtering allows you to create and enforce Internet access policies tailored to your needs. URL filtering gives you the ability to block web sites that contain key words (that you specify) in the web address (such as www.xxx.com). You can set a schedule for when the Prestige performs content filtering.

Note: URL filter blocks web browser (HTTP) connection attempts using port 80 only.

Click **Configuration**, **Firewall** and **URL Filter** in the navigation panel to display the screen as shown next.

Figure 50 Firewall: URL Filter



URL Filter

Configuration

URL Filtering	○ Enable ● Disable
Block Mode	Always On
Keywords Filtering	□ Enable Details
Domains Filtering	□ Enable Details □ Disable all WEB traffic except for Trusted Domains
Restrict URL Features	□ Block Java Applet □ Block surfing by IP address

The following table describes the labels in this screen.

Table 36 Firewall: URL Filter

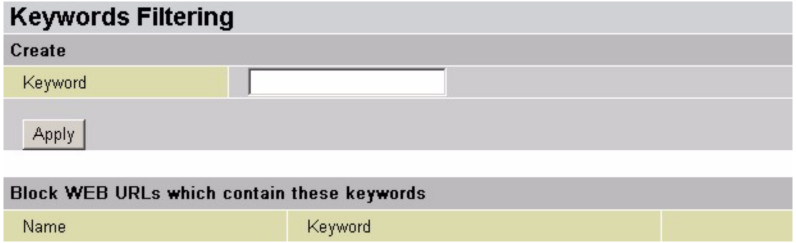
LABEL	DESCRIPTION
URL Filter	Select **Enable** to activate this feature. Select **Disable** to deactivate this feature.
Block Mode	Select **Always Block** to apply the filter(s) at all times. Select **Block From** and specify the time period the Prestige applies the filter(s).
Keywords Filtering	Select **Enable** to set the Prestige to block access to web address containing the specified keyword(s). Click **Details** to configure the keywords.
Domain Filtering	Select **Disable all WEB traffic except for Trusted Domains** to set the Prestige to allow access to the specified web sites whose address contains trusted keywords or domains you configure in the **Keyword Filer** and **Domain Filter** screens.
Restrict URL Features	Select **Block Java Applet** to prevent Java applet applications from running. Select **Block surfing by IP address** to set the Prestige to disallow Internet access based on a device’s IP address.
Apply	Click **Apply** to save the settings.
Cancel	Click **Cancel** to discard all changes.

6.6.1 Keywords Filtering

Use the **Keywords Filtering** screen to specify the keywords in the URL. For example, if you specify the keyword "xxx", the Prestige blocks all sites containing this keyword including the URL http://www.website.com/xxx.html.

In the **URL Filter** screen, select **Enable** for **Keywords Filtering** and click **Details** to display the screen as shown next.

Figure 51 Firewall: URL Filter: Keywords Filtering


Keywords Filtering

Create

Keyword

Apply

Block WEB URLs which contain these keywords

Name	Keyword	

The following table describes the labels in this screen.

Table 37 Firewall: URL Filter: Keywords Filtering

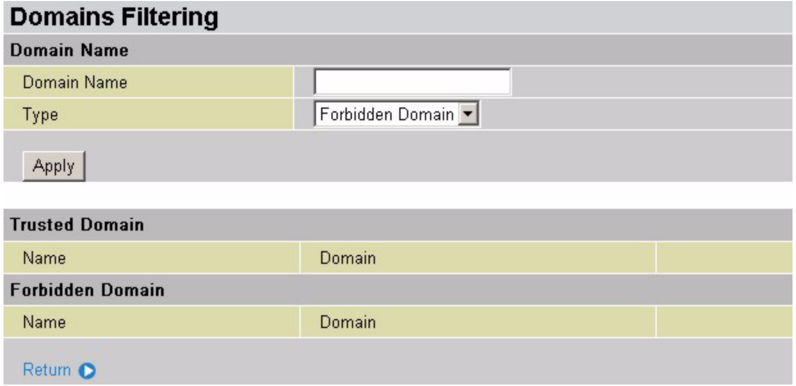
LABEL	DESCRIPTION
Create	
Keyword	Enter a keyword in this field.
Apply	Click **Apply** to add the keyword to the table below.
Block WEB URLs which contain these keywords	This read-only table lists the keywords in the web site address to which the Prestige blocks access.
Name	This field displays the name of the filter rule.
Keyword	This field displays the keyword you created.
Delete	Click **Delete** to remove the select keyword from this table.

6.6.2 Domain Filtering

Use the **Domains Filtering** screen to specify the URL domain. For example, if you specify the domain "www.xxx.com", the Prestige blocks access to the sites in this domain, including "www.xxx".

In the **URL Filter** screen, select **Enable** for **Domains Filtering** and click **Details** to display the screen as shown next.

Figure 52 Firewall: URL Filter: Domains Filtering


Domains Filtering

Domain Name

Domain Name

Type: Forbidden Domain

Apply

Trusted Domain

Name	Domain	

Forbidden Domain

Name	Domain	

Return

The following table describes the labels in this screen.

Table 38 Firewall: URL Filter: Domains Filtering

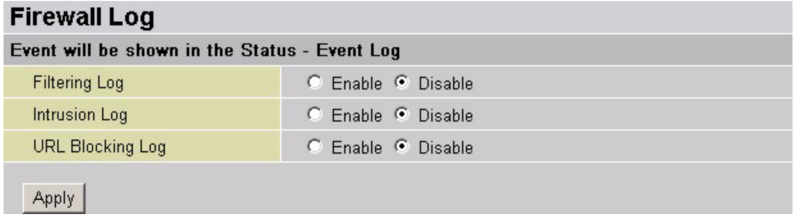
LABEL	DESCRIPTION
Domain Name	
Domain Name	Enter a domain name in this field.
Type	Specify whether to allow access (**Trusted Domain**) or deny access (**Forbidden Domain**) from the drop-down list box.
Apply	Click **Apply** to add the keyword to the table below.
Trusted Domain	This read-only table lists the domains to which the Prestige allows access.
Name	This field displays the name of the filter rule.
Domain	This field displays the specified domain.
Forbidden Domain	This read-only table lists the domains to which the Prestige blocks access.
Name	This field displays the name of the filter rule.
Domain	This field displays the specified domain.
Delete	Click **Delete** to remove the select keyword from this table.

6.7 Firewall Log

Use the **Firewall Log** screen to set the Prestige to log firewall events (such as when an attack is detected). View the event logs in the **Event Log** screen.

Click **Configuration**, **Firewall** and **Firewall Log** in the navigation panel to display the screen as shown.

Figure 53 Firewall: Firewall Logs



Firewall Log

Event will be shown in the Status - Event Log

Filtering Log	○ Enable ● Disable
Intrusion Log	○ Enable ● Disable
URL Blocking Log	○ Enable ● Disable

The following table describes the labels in this screen.

Table 39 Firewall: Firewall Logs

LABEL	DESCRIPTION
Filtering Log	Select **Enable** to log filtering events. Select **Disable** not to log filtering events.

Table 39 Firewall: Firewall Logs (continued)

LABEL	DESCRIPTION
Intrusion Log	Select **Enable** to log intrusion detections. Select **Disable** not to log intrusion detections.
URL Blocking Log	Select **Enable** to log URL blocking events. Select **Disable** not to log URL blocking events.

Chapter 7 VPN

This chapter shows you how to configure the Prestige for VPN connection.

7.1 Overview

A VPN (Virtual Private Network) provides secure communications between sites without the expense of leased site-to-site lines. A secure VPN is a combination of tunneling, encryption, authentication, access control and auditing technologies/services used to transport traffic over the Internet or any insecure network that uses the TCP/IP protocol suite for communication.

Your Prestige supports three main types of VPN (Virtual Private Network): **PPTP**, **IPSec** and **L2TP**.

7.2 PPTP

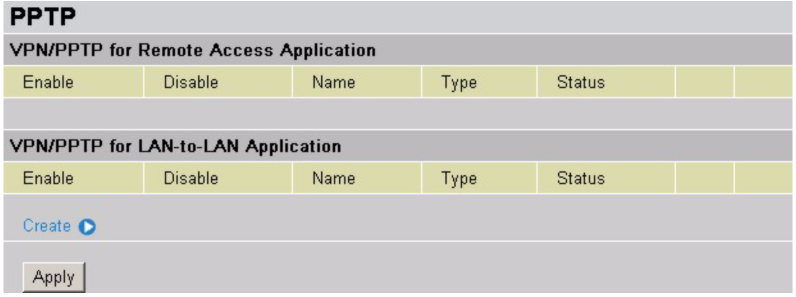
Point-to-Point Tunneling Protocol (PPTP) is a network protocol that enables secure transfer of data from a remote client to a private server, creating a Virtual Private Network (VPN) using TCP/IP-based networks.

PPTP supports on-demand, multi-protocol and virtual private networking over public networks, such as the Internet. You can set the Prestige to initiate a VPN connection or accept connection requests from a VPN client.

7.2.1 PPTP Summary

To view PPTP VPN rule summary, click **VPN** and **PPTP** in the navigation panel to display the main **PPTP** screen.

Figure 54 VPN: PPTP



PPTP

VPN/PPTP for Remote Access Application

Enable	Disable	Name	Type	Status		

VPN/PPTP for LAN-to-LAN Application

Enable	Disable	Name	Type	Status		

The following table describes the labels in this screen.

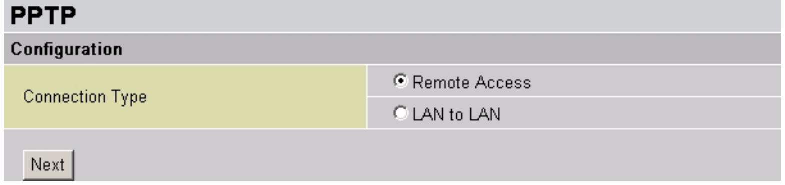
Table 40 VPN: PPTP

LABEL	DESCRIPTION
Enable	Select this option to activate this VPN rule.
Disable	Select this option to deactivate this VPN rule.
Name	This field displays the descriptive name for the VPN rule.
Type	This field displays whether the Prestige acts as a client (**Dialout**) or server (**Dialin**) for the VPN rule.
Status	This field displays whether the VPN rule is in use or not.
Edit	Click **Edit** to modify the settings of the selected rule.
Create	Click **Create** to add a new VPN rule.
Apply	Click **Apply** to save the changes.

7.2.2 Creating a PPTP VPN Rule

To configure a PPTP VPN rule, click **Create** in the summary screen to display the screen as shown.

Figure 55 VPN: PPTP



PPTP

Configuration

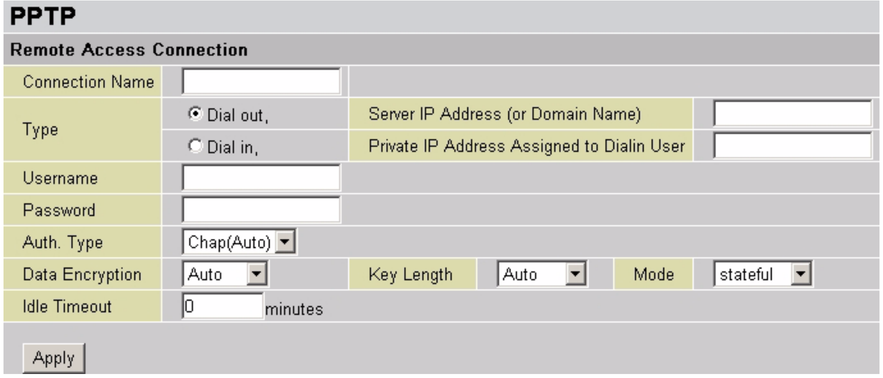
Connection Type: ● Remote Access ○ LAN to LAN

In the **Connection Type** field, select **Remote Access** or **LAN to LAN** and click **Next** to display the configuration screen.

7.2.2.1 Remote Access Connection

Use **PPTP Remote Access Connection** screen to configure the Prestige to set up PPTP connection to a remote VPN device.

Figure 56 VPN: PPTP: Remote Access



PPTP

Remote Access Connection

Connection Name					
Type	● Dial out,	Server IP Address (or Domain Name)			
	○ Dial in,	Private IP Address Assigned to Dialin User			
Username					
Password					
Auth. Type	Chap(Auto)				
Data Encryption	Auto	Key Length	Auto	Mode	stateful
Idle Timeout	0 minutes				

The following table describes the labels in this screen.

Table 41 VPN: PPTP: Remote Access

LABEL	DESCRIPTION
Connection Name	Enter a descriptive name for identification purposes.
Type	Select **Dial Out** if you want your Prestige to operate as a client (connecting to a remote VPN device). Select **Dial In** to allow computers to establish a VPN connection to the Prestige.
Server IP Address (or Domain Name)	This field is applicable when you select **Dial Out** in the **Type** field Enter the IP address or the domain name of the remote VPN device.
Private IP Address Assigned to Dialin User	This field is applicable when you select **Dial In** in the **Type** field. Enter the IP address (in dotted decimal notation) to assign to the remote VPN client that initiates the VPN connection. For example, 192.168.1.10.
Username	If you select **Dial Out** in the **Type** field, enter the username provided. If you select **Dial In** in the **Type** field, enter a username to be used when establishing a VPN connection.
Password	Enter the password associated with the username above.
PPP Authentication Type	Specify the authentication type to use when accepting or establishing a VPN connection. Choices are **PAP** (Password Authentication Protocol) and **CHAP** (Challenge Handshake Authentication Protocol). The default is **CHAP**. When you select PAP, password is sent unencrypted. While CHAP provides better security by encrypting the password before transmission and reauthenticates the VPN client to protect against identity theft.
Data Encryption	You can set the Prestige to encrypt data sent over the VPN connection using MPPE (Microsoft Point to Point Encryption). Select **Auto** to set the Prestige to automatically detect whether the remote VPN device uses data encryption. Select **Enable** to activate data encryption on the Prestige. Make sure the remote VPN device also has data encryption activated with the same encryption settings as the Prestige. Select **Disable** to deactivate data encryption on the Prestige. You cannot establish a VPN connection if data encryption in enabled on the remote VPN device.
Key Length	Specify the key length for data encryption. Choices are **Auto**, **40 bits** and **128 bits**. Select **Auto** to set the Prestige to automatically detect the key length used by the remote VPN device. Otherwise select **40 bits** or **128 bits** (for stronger encryption) to set the key length manually. **Note:** Make sure the key length is the same on the Prestige and the remote VPN device.
Mode	Specify the encryption mode. Choices are **Stateful** and **Stateless**. Select **Stateful** to use a different encryption key after 256 packets of data transmitted. Select **Stateless** to use a different encryption key for each packet.

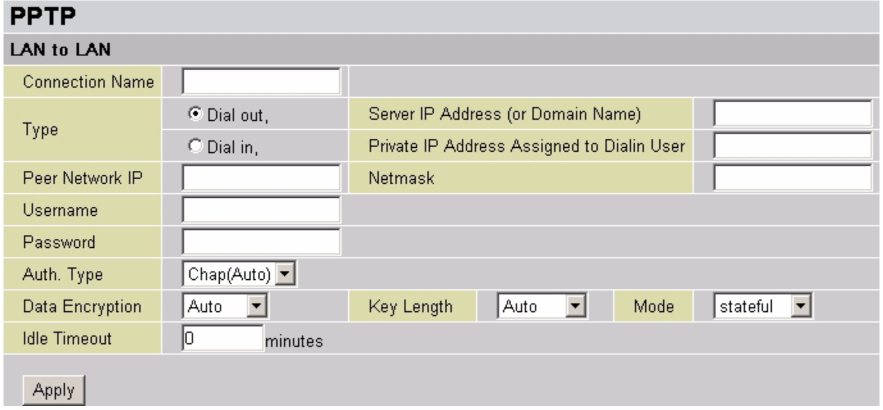
Table 41 VPN: PPTP: Remote Access (continued)

LABEL	DESCRIPTION
Idle Time	Specify the time interval in minutes (where there is no traffic between the Prestige and the computer) that can elapse before the Prestige automatically disconnects the connection. Enter **0** to allow connection up all the time.
Apply	Click **Apply** to save the changes.

7.2.2.2 LAN to LAN Connection

Use the **PPTP LAN to LAN** screen to configure the Prestige to accept connection requests from a VPN client.

Figure 57 VPN: PPTP: LAN to LAN Connection



PPTP

LAN to LAN

Connection Name			
Type	● Dial out,	Server IP Address (or Domain Name)	
	○ Dial in,	Private IP Address Assigned to Dialin User	
Peer Network IP		Netmask	
Username			
Password			
Auth. Type	Chap(Auto)		
Data Encryption	Auto	Key Length: Auto	Mode: stateful
Idle Timeout	0 minutes		

The following table describes the labels in this screen.

Table 42 VPN PPTP: LAN to LAN Connection

LABEL	DESCRIPTION
Connection Name	Enter a descriptive name for identification purposes.
Type	Select **Dial Out** if you want your Prestige to operate as a client (connecting to a remote VPN device). Select **Dial In** to allow computers to establish a VPN connection to the Prestige. When configuring your Prestige as a client, enter the remote **Server IP Address (or Hostname)** you wish to connection to. When configuring your router as a server, enter the **Private IP Address Assigned to Dial in User** address.
Server IP Address (or Domain Name)	This field is applicable when you select **Dial Out** in the **Type** field Enter the IP address or the domain name of the remote VPN device.
Private IP Address Assigned to Dialin User	This field is applicable when you select **Dial In** in the **Type** field. Enter the IP address (in dotted decimal notation) to assign to the remote VPN client that initiates the VPN connection. For example, 192.168.1.10.

Table 42 VPN PPTP: LAN to LAN Connection (continued)

LABEL	DESCRIPTION
Netmask	This field is applicable when you select **Dial In** in the **Type** field. Enter the subnet mask (in dotted decimal) notation to assign to the remote VPN client that initiates this VPN connection. For example, 255.255.255.0.
Peer Network IP	Enter the IP address (in dotted decimal notation) of the remote network. For example, 192.168.1.1.
Username	If you select **Dial Out** in the **Type** field, enter the username provided. If you select **Dial In** in the **Type** field, enter a username to be used when establishing a VPN connection.
Password	Enter the password associated with the username above.
PPP Authentication Type	Specify the authentication type to use when accepting or establishing a VPN connection. Choices are **PAP** (Password Authentication Protocol) and **CHAP** (Challenge Handshake Authentication Protocol). The default is **CHAP**. When you select PAP, password is sent unencrypted. While CHAP provides better security by encrypting the password before transmission and reauthenticates the VPN client to protect against identity theft.
Data Encryption	You can set the Prestige to encrypt data sent over the VPN connection using MPPE (Microsoft Point to Point Encryption). Select **Auto** to set the Prestige to automatically detect whether the remote VPN device uses data encryption. Select **Enable** to activate data encryption on the Prestige. Make sure the remote VPN device also has data encryption activated with the same encryption settings as the Prestige. Select **Disable** to deactivate data encryption on the Prestige. You cannot establish a VPN connection if data encryption in enabled on the remote VPN device.
Key Length	Specify the key length for data encryption. Choices are **Auto**, **40 bits** and **128 bits**. Select **Auto** to set the Prestige to automatically detect the key length used by the remote VPN device. Otherwise select **40 bits** or **128 bits** (for stronger encryption) to set the key length manually. **Note:** Make sure the key length is the same on the Prestige and the remote VPN device.
Mode	Specify the encryption mode. Choices are **Stateful** and **Stateless**. Select **Stateful** to use a different encryption key after 256 packets of data transmitted. Select **Stateless** to use a different encryption key for each packet.
Idle Time	Specify the time interval in minutes (where there is no traffic between the Prestige and the computer) that can elapse before the Prestige automatically disconnects the connection. Enter **0** to allow connection up all the time.
Apply	Click **Apply** to save the changes.

7.3 IPSec

Internet Protocol Security (IPSec) is a standards-based VPN that offers flexible solutions for secure data communications across a public network like the Internet. IPSec is built around a number of standardized cryptographic techniques to provide confidentiality, data integrity and authentication at the IP layer.

7.3.1 AH (Authentication Header)

AH protocol (RFC 2402) was designed for integrity, authentication, sequence integrity (replay resistance), and non-repudiation but not for confidentiality, for which the **ESP** was designed.

In applications where confidentiality is not required or not sanctioned by government encryption restrictions, an **AH** can be employed to ensure integrity. This type of implementation does not protect the information from dissemination but will allow for verification of the integrity of the information and authentication of the originator.

7.3.2 ESP (Encapsulating Security Payload)

The **ESP** protocol (RFC 2406) provides encryption as well as the services offered by **AH**. **ESP** authenticating properties are limited compared to the **AH** due to the non-inclusion of the IP header information during the authentication process. However, **ESP** is sufficient if only the upper layer protocols need to be authenticated.

An added feature of the **ESP** is payload padding, which further protects communications by concealing the size of the packet being transmitted.

Table 43 ESP and AH

	ESP	AH
Encryption	**DES** (default) Data Encryption Standard (DES) is a widely used method of data encryption using a secret key. DES applies a 56-bit key to each 64-bit block of data.	
	3DES Triple DES (3DES) is a variant of DES, which iterates three times with three separate keys (3 x 56 = 168 bits), effectively doubling the strength of DES.	
	AES Advanced Encryption Standard is a newer method of data encryption that also uses a secret key. Various secret key lengths (128, 192 and 256 bits) are implemented. AES is faster than 3DES.	
	Select **NULL** to set up a phase 2 tunnel without encryption.	

Table 43 ESP and AH (continued)

	ESP	AH
Authentication	**None** (default) No authentication	
	MD5 MD5 (Message Digest 5) produces a 128-bit digest to authenticate packet data.	**MD5** (default) MD5 (Message Digest 5) produces a 128-bit digest to authenticate packet data.
	SHA1 SHA1 (Secure Hash Algorithm) produces a 160-bit digest to authenticate packet data.	**SHA1** SHA1 (Secure Hash Algorithm) produces a 160-bit digest to authenticate packet data.
	Select **MD5** for minimal security and **SHA1** for maximum security.	

7.3.3 Perfect Forward Secrecy (PFS)

Enabling PFS means that the key is transient. The key is thrown away and replaced by a brand new key using a new Diffie-Hellman exchange for each new IPSec SA setup. With PFS enabled, if one key is compromised, previous and subsequent keys are not compromised, because subsequent keys are not derived from previous keys. The (time-consuming) Diffie-Hellman exchange is the trade-off for this extra security.

This may be unnecessary for data that does not require such security, so PFS is disabled (**None**) by default in the Prestige. Disabling PFS means new authentication and encryption keys are derived from the same root secret (which may have security implications in the long run) but allows faster SA setup (by bypassing the Diffie-Hellman key exchange).

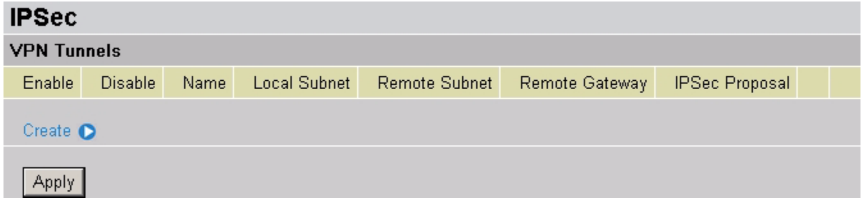
7.3.4 Pre-Shared Key

A pre-shared key identifies a communicating party during a phase 1 IKE negotiation. It is called pre-shared because you have to share it with another party before you can communicate with them over a secure connection.

7.3.5 IPSec VPN Summary

To configure a IPSec VPN rule, click **VPN** and **IPSec** in the navigation panel to display the main **IPSec** screen. Click **Create** to configure a new IPSec VPN connection.

Figure 58 IPSec Summary



IPSec

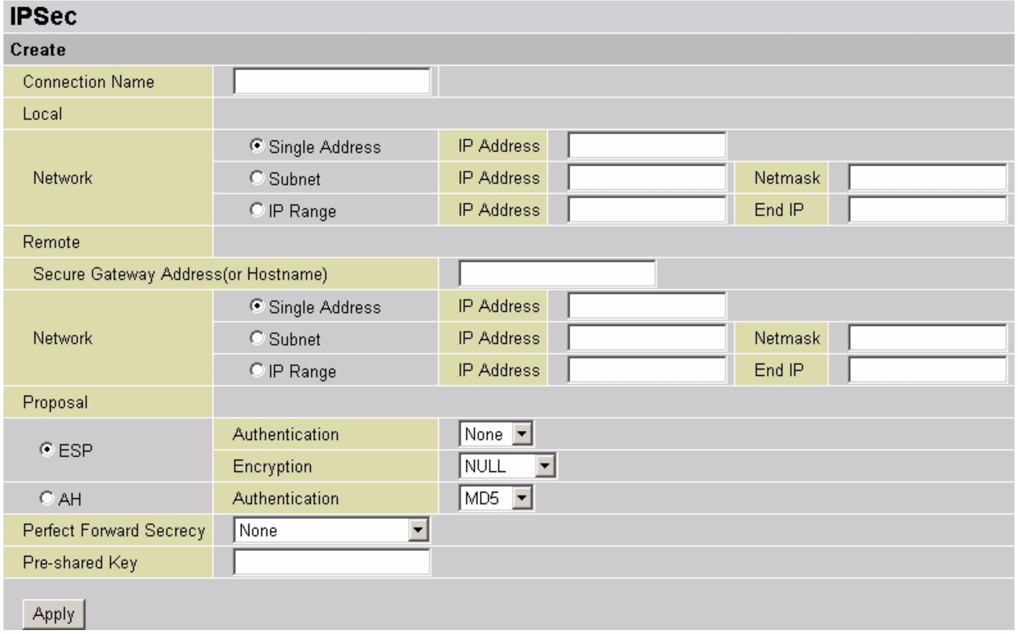
VPN Tunnels

Enable	Disable	Name	Local Subnet	Remote Subnet	Remote Gateway	IPSec Proposal

7.3.6 IPSec VPN Configuration

To configure an IPSec VPN connection, click **Create** in the main **IPSec** screen.

Figure 59 IPSec: Create



IPSec

Create

Connection Name

Local

Network: ● Single Address, IP Address; ○ Subnet, IP Address, Netmask; ○ IP Range, IP Address, End IP

Remote

Secure Gateway Address(or Hostname)

Network: ● Single Address, IP Address; ○ Subnet, IP Address, Netmask; ○ IP Range, IP Address, End IP

Proposal

● ESP: Authentication None; Encryption NULL

○ AH: Authentication MD5

Perfect Forward Secrecy: None

Pre-shared Key

The following table describes the labels in this screen.

Table 44 VPN Rules (IKE): Add Policy

LABEL	DESCRIPTION
Connection Name	Enter a descriptive name for identification purposes.
Local	Configure the fields to allow one or more than one computer on the LAN to use a VPN connection.
Single Address	Select **Single Address** to allow one VPN client with the specified IP address to use the VPN connection. Enter a single IP address in the **IP Address** field.
Subnet	Select **Subnet Address** to allow more than one computer in the specified subnet to use the VPN connection. Enter the IP address and subnet mask in the **IP Address** and **Netmask** fields respectively.
IP Range	Select **IP Range** to allow more than one computer in the specified IP address range to use the VPN connection. Enter the starting and ending IP addresses in the **IP Address** and **End IP** fields respectively.
Remote	Configure the fields to allow one or more than one computer on the remote network to use a VPN connection.
Secure Gateway Address (or Hostname)	Type the WAN IP address or hostname of the remote IPSec router with which you're making the VPN connection.

Table 44 VPN Rules (IKE): Add Policy (continued)

LABEL	DESCRIPTION
Single Address	Select **Single Address** to allow one VPN client with the specified IP address to use the VPN connection. Enter a single IP address in the **IP Address** field.
Subnet	Select **Subnet Address** to allow more than one computer in the specified subnet to use the VPN connection. Enter the IP address and subnet mask in the **IP Address** and **Netmask** fields respectively.
IP Range	Select **IP Range** to allow more than one computer in the specified IP address range to use the VPN connection. Enter the starting and ending IP addresses in the **IP Address** and **End IP** fields respectively.
Proposal	
ESP	Select **ESP** to provide basic authentication and data encryption for the VPN connection.
Authentication	Specify the method to authenticate data packet in this field. Choices are **None**, **MD5** and **SHA1**. Select **None** to disable authentication. Select **MD5** (Message Digest 5) for minimal security and **SHA1** (Secure Hash Algorithm) for maximum security.
Encryption	Specify the method to encrypt data packet in this field. Choices are **NULL**, **DES**, **3DES**, **AES128**, **AES 192** and **AES 256**. When **DES** is used for data communications, both sender and receiver must know the same secret key, which can be used to encrypt and decrypt the message or to generate and verify a message authentication code. The DES encryption algorithm uses a 56-bit key. Triple DES (**3DES**) is a variation on DES that uses a 168-bit key. As a result, **3DES** is more secure than **DES**. It also requires more processing power, resulting in increased latency and decreased throughput. For this implementation, select **AES 128**, **AES 192** or **AES 256** that uses different encryption key lengths. **AES** is faster than **3DES**. S elect **NULL** to set up a tunnel without encryption. When you select **NULL**, you do not enter an encryption key.
AH	Select **AH** to authenticate and ensure the integrity of data packets.
Authentication	Specify the method to authenticate data packet in this field. Choices are **MD5** and **SHA1**. Select **MD5** (Message Digest 5) for minimal security and **SHA1** (Secure Hash Algorithm) for maximum security.
Perfect Forward Secret	Perfect Forward Secret (PFS) is disabled (**None**) by default in phase 2 IPSec SA setup. This allows faster IPSec setup, but is not so secure. Specify an MODP (Modular Exponentiation Groups) mode from the drop-down list box. Choices are **MODP 768-bit (Group 1)**, **MODP 1024-bit (Group 2)** and **MODP 1536-bit (Group 5)**. The larger the random number bits, the higher the security ut slower.

Table 44 VPN Rules (IKE): Add Policy (continued)

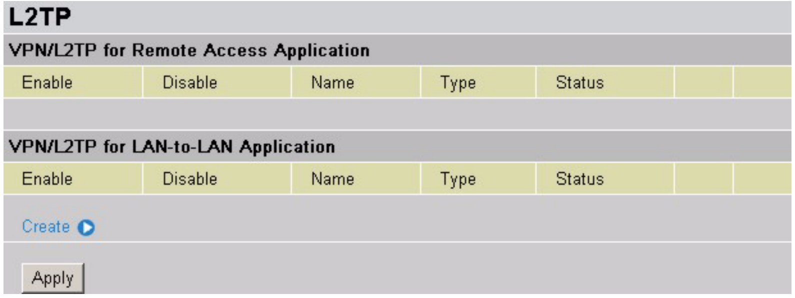
LABEL	DESCRIPTION
Pre-Shared Key	Enter your pre-shared key in this field. A pre-shared key identifies a communicating party during a phase 1 IKE negotiation. It is called "pre-shared" because you have to share it with another party before you can communicate with them over a secure connection. Type from 8 to 31 case-sensitive ASCII characters or from 16 to 62 hexadecimal ("0-9", "A-F") characters. You must precede a hexadecimal key with a "0x (zero x), which is not counted as part of the 16 to 62 character range for the key. For example, in "0x0123456789ABCDEF", 0x denotes that the key is hexadecimal and 0123456789ABCDEF is the key itself. **Note:** Both ends of the VPN tunnel must use the same pre-shared key. You will receive a PYLD_MALFORMED (payload malformed) packet if the same pre-shared key is not used on both ends.
Apply	Click **Apply** to save the changes.
Cancel	Click **Cancel** to discard all changes and return to the main VPN screen.

7.4 L2TP

L2TP (Layer 2 Tunneling Protocol) is another tunneling protocol to support VPN. L2TP allows a PPP session to travel through the Internet and a user to access a corporate network.

Click **VPN** and **L2TP** to display the summary screen.

Figure 60 VPN: L2TP



L2TP

VPN/L2TP for Remote Access Application

Enable	Disable	Name	Type	Status		

VPN/L2TP for LAN-to-LAN Application

Enable	Disable	Name	Type	Status		

The following table describes the labels in this screen.

Table 45 VPN: PPTP

LABEL	DESCRIPTION
Enable	Select this option to activate this VPN rule.
Disable	Select this option to deactivate this VPN rule.
Name	This field displays the descriptive name for the VPN rule.
Type	This field displays whether the Prestige acts as a client (**Dialout**) or server (**Dialin**) for the VPN rule.

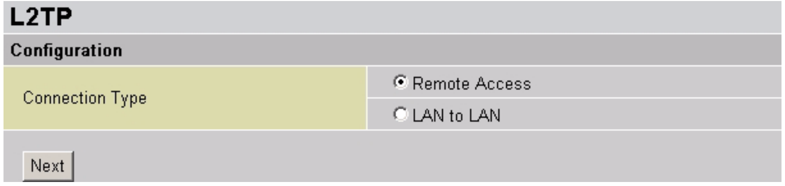
Table 45 VPN: PPTP (continued)

LABEL	DESCRIPTION
Status	This field displays whether the VPN rule is in use or not.
Edit	Click **Edit** to modify the settings of the selected rule.
Create	Click **Create** to add a new VPN rule.
Apply	Click **Apply** to save the changes.
Delete	Click **Delete** to remove the selected VPN rule.

7.4.1 Creating a New L2TP Rule

Click **Create** to configure a new VPN connection. There are two types of L2TP VPN supported, **Remote Access** and **LAN-to-LAN**. Select a connection type and click **Next**.

Figure 61 VPN: L2TP: Create



L2TP

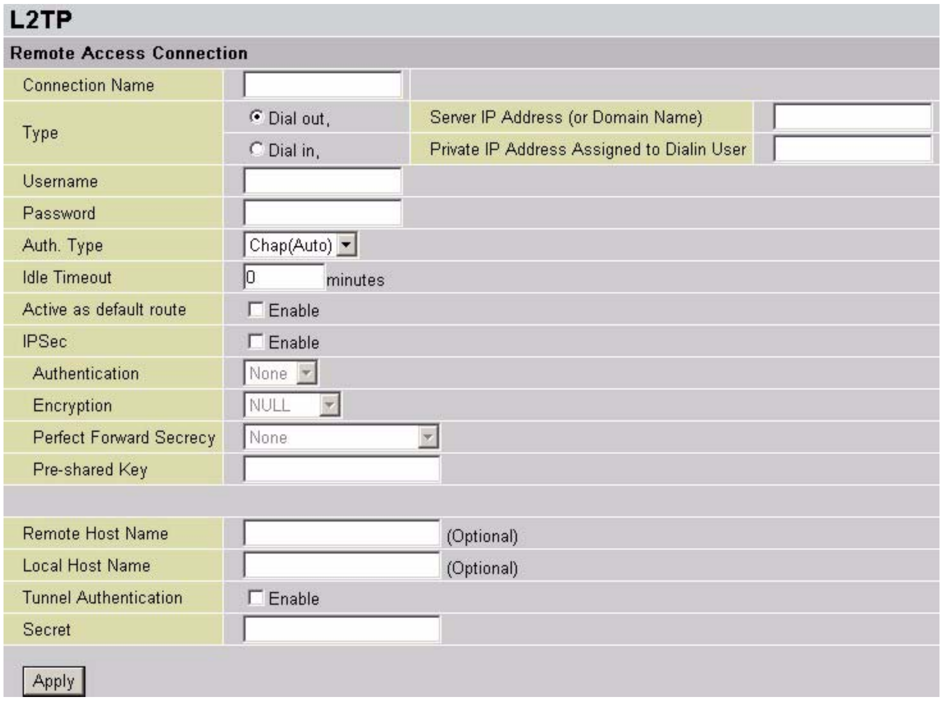
Configuration

Connection Type	● Remote Access ○ LAN to LAN

7.4.1.1 Remote Access L2TP Connection

Use the **L2TP Remote Access Connection** screen to create an L2TP VPN rule for accessing a remote network.

Figure 62 L2TP: Remote Access Connection



L2TP

Remote Access Connection

Connection Name			
Type	● Dial out,	Server IP Address (or Domain Name)	
	○ Dial in,	Private IP Address Assigned to Dialin User	
Username			
Password			
Auth. Type	Chap(Auto)		
Idle Timeout	0 minutes		
Active as default route	□ Enable		
IPSec	□ Enable		
Authentication	None		
Encryption	NULL		
Perfect Forward Secrecy	None		
Pre-shared Key			
Remote Host Name	(Optional)		
Local Host Name	(Optional)		
Tunnel Authentication	□ Enable		
Secret			

The following table describes the labels in this screen.

Table 46 VPN: L2TP: Create: Remote Access Connection

LABEL	DESCRIPTION
Connection Name	Enter a descriptive name for identification purposes.
Type	Select **Dial Out** to set the Prestige to act as a client (connecting to a remote VPN server). Select **Dial In** to set the Prestige to act as a VPN server.
Server IP Address (or Domain Name)	This field is applicable when you select **Dial Out** in the **Type** field Enter the IP address or the domain name of the remote VPN device.
Private IP Address Assigned to Dial in User	This field is applicable when you select **Dial In** in the **Type** field. Enter the IP address (in dotted decimal notation) to assign to the remote VPN client that initiates the VPN connection. For example, 192.168.1.10.
Username	If you select **Dial Out** in the **Type** field, enter the username provided. If you select **Dial In** in the **Type** field, enter a username to be used when establishing a VPN connection.
Password	Enter the password associated with the username above.
Authentication Type	Specify the authentication type to use when accepting or establishing a VPN connection. Choices are **PAP** (Password Authentication Protocol) and **CHAP** (Challenge Handshake Authentication Protocol). The default is **CHAP**. When you select PAP, password is sent unencrypted. While CHAP provides better security by encrypting the password before transmission and reauthenticates the VPN client to protect against identity theft.
Idle Time	Specify the time interval in minutes (where there is no traffic between the Prestige and the computer) that can elapse before the Prestige automatically disconnects the connection. Enter **0** to allow connection up all the time.
Active as default route	Select this option to set this VPN connection as a default route.
IPSec	Select this option to enable IPSec security for your LT2P VPN connection.
Authentication	Specify the method to authenticate data packet in this field. Choices are **None**, **MD5** and **SHA1**. Select **None** to disable authentication. Select **MD5** (Message Digest 5) for minimal security and **SHA1** (Secure Hash Algorithm) for maximum security.
Encryption	Specify the method to encrypt data packet in this field. Choices are **NULL**, **DES**, **3DES**, **AES128**, **AES 192** and **AES 256**. When **DES** is used for data communications, both sender and receiver must know the same secret key, which can be used to encrypt and decrypt the message or to generate and verify a message authentication code. The DES encryption algorithm uses a 56-bit key. Triple DES (**3DES**) is a variation on DES that uses a 168-bit key. As a result, **3DES** is more secure than **DES**. It also requires more processing power, resulting in increased latency and decreased throughput. For this implementation, select **AES 128**, **AES 192** or **AES 256** that uses different encryption key lengths. **AES** is faster than **3DES**. elect **NULL** to set up a tunnel without encryption. When you select **NULL**, you do not enter an encryption key.

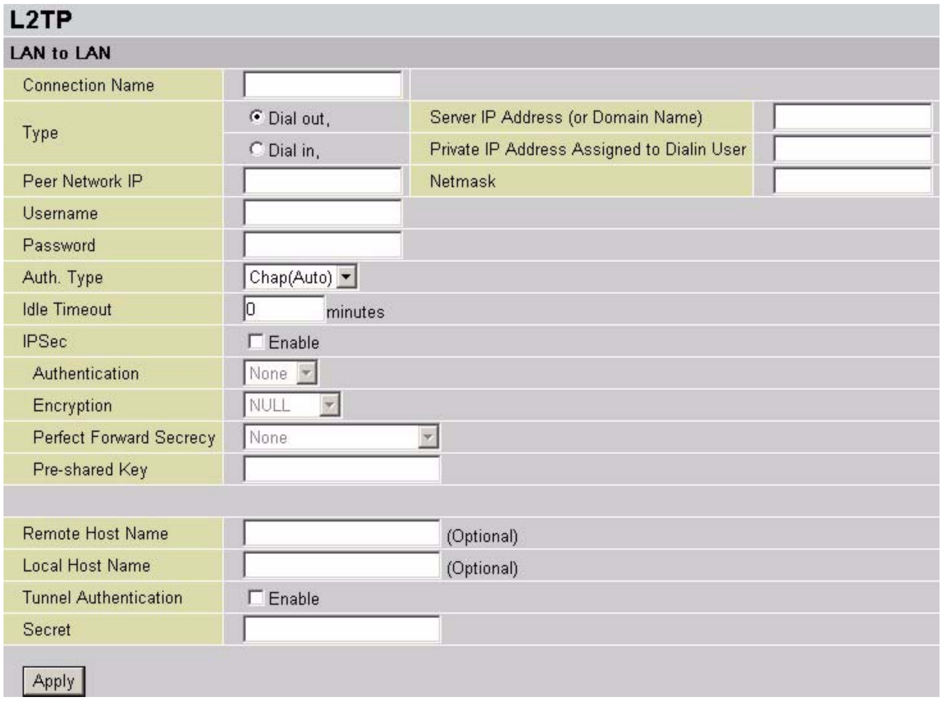
Table 46 VPN: L2TP: Create: Remote Access Connection (continued)

LABEL	DESCRIPTION
Encryption	Select the encryption method from the pull-down menu. There are four options, **DES**, **3DES**, **AES** and **NONE**. NONE means it is a tunnel only with no encryption. 3DES and AES are more powerful but increase latency. • DES stands for Data Encryption Standard, it uses 56 bits as an encryption method. • 3DES stands for Triple Data Encryption Standard, it uses 168 (56*3) bits as an encryption method. • AES stands for Advanced Encryption Standards, it uses 128 bits as an encryption method.
Perfect Forward Secrecy	Perfect Forward Secret (PFS) is disabled (**None**) by default in phase 2 IPSec SA setup. This allows faster IPSec setup, but is not so secure. Specify an MODP (Modular Exponentiation Groups) mode from the drop-down list box. Choices are **MODP 768-bit (Group 1)**, **MODP 1024-bit (Group 2)** and **MODP 1536-bit (Group 5)**. The larger the random number bits, the higher the security ut slower.
Pre-shared Key	Enter your pre-shared key in this field. A pre-shared key identifies a communicating party during a phase 1 IKE negotiation. It is called "pre-shared" because you have to share it with another party before you can communicate with them over a secure connection. Type from 8 to 31 case-sensitive ASCII characters or from 16 to 62 hexadecimal ("0-9", "A-F") characters. You must precede a hexadecimal key with a "0x (zero x), which is not counted as part of the 16 to 62 character range for the key. For example, in "0x0123456789ABCDEF", 0x denotes that the key is hexadecimal and 0123456789ABCDEF is the key itself. **Note:** Both ends of the VPN tunnel must use the same pre-shared key. You will receive a PYLD_MALFORMED (payload malformed) packet if the same pre-shared key is not used on both ends.
Remote Host Name	This optional field is applicable when you select **Dial Out** in the **Type** field above. Enter the host name of the remote VPN device. The name must match to establish a VPN connection.
Local Host Name	This field is optional. Enter the host name of the Prestige.
Tunnel Authentication	Select this option to set the Prestige to authenticate both the remote L2TP client and host. The remote L2TP client and host must also support this feature.
Secret	This field is applicable when you select **Tunnel Authentication** above. Enter the authentication key up to 16 alphanumerical characters.
Apply	Click **Apply** after changing settings.

7.4.1.2 LAN to LAN L2TP Connection

Use the **L2TP LAN to LAN** screen to create an L2TP VPN rule to connect to another VPN device on the LAN.

Figure 63 L2TP: LAN to LAN Connection



L2TP

LAN to LAN

Connection Name			
Type	● Dial out,	Server IP Address (or Domain Name)	
	○ Dial in,	Private IP Address Assigned to Dialin User	
Peer Network IP		Netmask	
Username			
Password			
Auth. Type	Chap(Auto)		
Idle Timeout	0 minutes		
IPSec	☐ Enable		
Authentication	None		
Encryption	NULL		
Perfect Forward Secrecy	None		
Pre-shared Key			
Remote Host Name	(Optional)		
Local Host Name	(Optional)		
Tunnel Authentication	☐ Enable		
Secret			

The following table describes the labels in this screen.

Table 47 VPN: L2TP: Create: LAN to LAN

LABEL	DESCRIPTION
Connection Name	Enter a descriptive name for identification purposes.
Type	Select **Dial Out** to set the Prestige to act as a client (connecting to a remote VPN server). Select **Dial In** to set the Prestige to act as a VPN server.
Server IP Address (or Domain Name)	This field is applicable when you select **Dial Out** in the **Type** field Enter the IP address or the domain name of the remote VPN device.
Private IP Address Assigned to Dial in User	This field is applicable when you select **Dial In** in the **Type** field. Enter the IP address (in dotted decimal notation) to assign to the remote VPN client that initiates the VPN connection. For example, 192.168.1.10.
Username	If you select **Dial Out** in the **Type** field, enter the username provided. If you select **Dial In** in the **Type** field, enter a username to be used when establishing a VPN connection.
Password	Enter the password associated with the username above.
Authentication Type	Specify the authentication type to use when accepting or establishing a VPN connection. Choices are **PAP** (Password Authentication Protocol) and **CHAP** (Challenge Handshake Authentication Protocol). The default is **CHAP**. When you select PAP, password is sent unencrypted. While CHAP provides better security by encrypting the password before transmission and reauthenticates the VPN client to protect against identity theft.
Idle Time	Specify the time interval in minutes (where there is no traffic between the Prestige and the computer) that can elapse before the Prestige automatically disconnects the connection. Enter **0** to allow connection up all the time.

Table 47 VPN: L2TP: Create: LAN to LAN (continued)

LABEL	DESCRIPTION
Active as default route	Select this option to set this VPN connection as a default route.
IPSec	Select this option to enable IPSec security for your LT2P VPN connection.
Authentication	Specify the method to authenticate data packet in this field. Choices are **None**, **MD5** and **SHA1**. Select **None** to disable authentication. Select **MD5** (Message Digest 5) for minimal security and **SHA1** (Secure Hash Algorithm) for maximum security.
Encryption	Specify the method to encrypt data packet in this field. Choices are **NULL**, **DES**, **3DES**, **AES128**, **AES 192** and **AES 256**. When **DES** is used for data communications, both sender and receiver must know the same secret key, which can be used to encrypt and decrypt the message or to generate and verify a message authentication code. The DES encryption algorithm uses a 56-bit key. Triple DES (**3DES**) is a variation on DES that uses a 168-bit key. As a result, **3DES** is more secure than **DES**. It also requires more processing power, resulting in increased latency and decreased throughput. For this implementation, select **AES 128**, **AES 192** or **AES 256** that uses different encryption key lengths. **AES** is faster than **3DES**. elect **NULL** to set up a tunnel without encryption. When you select **NULL**, you do not enter an encryption key.
Encryption	Select the encryption method from the pull-down menu. There are four options, **DES**, **3DES**, **AES** and **NONE**. NONE means it is a tunnel only with no encryption. 3DES and AES are more powerful but increase latency. • DES stands for Data Encryption Standard, it uses 56 bits as an encryption method. • 3DES stands for Triple Data Encryption Standard, it uses 168 (56*3) bits as an encryption method. • AES stands for Advanced Encryption Standards, it uses 128 bits as an encryption method.
Perfect Forward Secrecy	Perfect Forward Secret (PFS) is disabled (**None**) by default in phase 2 IPSec SA setup. This allows faster IPSec setup, but is not so secure. Specify an MODP (Modular Exponentiation Groups) mode from the drop-down list box. Choices are **MODP 768-bit (Group 1)**, **MODP 1024-bit (Group 2)** and **MODP 1536-bit (Group 5)**. The larger the random number bits, the higher the security ut slower.
Pre-shared Key	Enter your pre-shared key in this field. A pre-shared key identifies a communicating party during a phase 1 IKE negotiation. It is called "pre-shared" because you have to share it with another party before you can communicate with them over a secure connection. Type from 8 to 31 case-sensitive ASCII characters or from 16 to 62 hexadecimal ("0-9", "A-F") characters. You must precede a hexadecimal key with a "0x (zero x), which is not counted as part of the 16 to 62 character range for the key. For example, in "0x0123456789ABCDEF", 0x denotes that the key is hexadecimal and 0123456789ABCDEF is the key itself. **Note:** Both ends of the VPN tunnel must use the same pre-shared key. You will receive a PYLD_MALFORMED (payload malformed) packet if the same pre-shared key is not used on both ends.

Table 47 VPN: L2TP: Create: LAN to LAN (continued)

LABEL	DESCRIPTION
Remote Host Name	This optional field is applicable when you select **Dial Out** in the **Type** field above. Enter the host name of the remote VPN device. The name must match to establish a VPN connection.
Local Host Name	This field is optional. Enter the host name of the Prestige.
Tunnel Authentication	Select this option to set the Prestige to authenticate both the remote L2TP client and host. The remote L2TP client and host must also support this feature.
Secret	This field is applicable when you select **Tunnel Authentication** above. Enter the authentication key up to 16 alphanumerical characters.
Apply	Click **Apply** after changing settings.

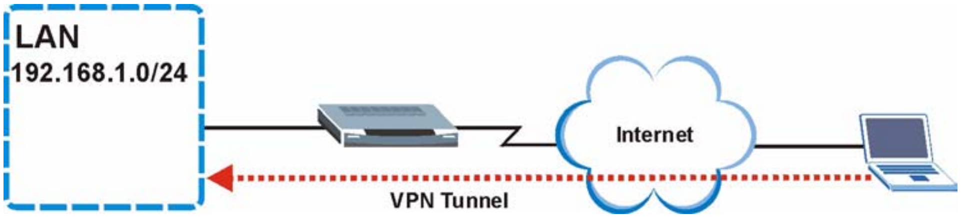
7.5 VPN Example

This section shows some VPN configuration examples.

7.5.1 Example: Remote PPTP VPN Dial-in Connection

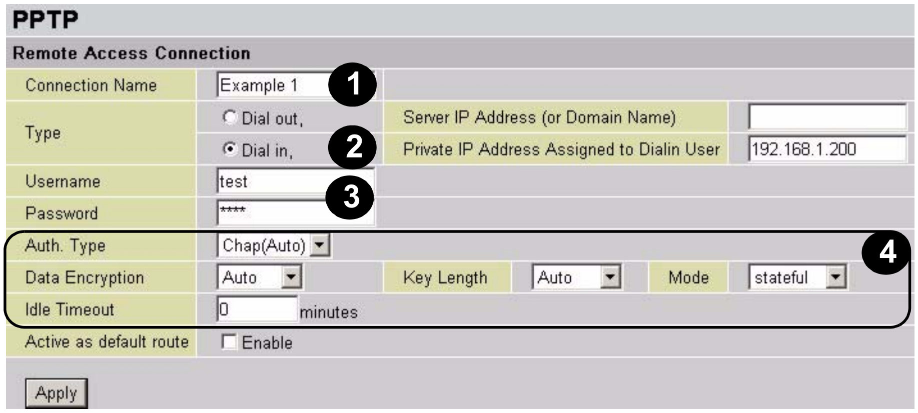
The following network example shows a remote VPN client connecting to the LAN behind the Prestige from the Internet.

Figure 64 Remote PPTP VPN Dial-in Network Example



Create a PPTP dial in VPN connection for this network example. The Prestige assigns an IP address of 192.168.1.200 to the remote VPN client when the VPN connection is established.

Figure 65 Remote PPTP VPN Dial-In Configuration Example



PPTP

Remote Access Connection

Connection Name	Example 1		
Type	○ Dial out,	Server IP Address (or Domain Name)	
	● Dial in,	Private IP Address Assigned to Dialin User	192.168.1.200
Username	test		
Password	****		
Auth. Type	Chap(Auto) ▾		
Data Encryption	Auto ▾	Key Length Auto ▾	Mode stateful ▾
Idle Timeout	0 minutes		
Active as default route	□ Enable		

Apply

The following table describes the configuration steps.

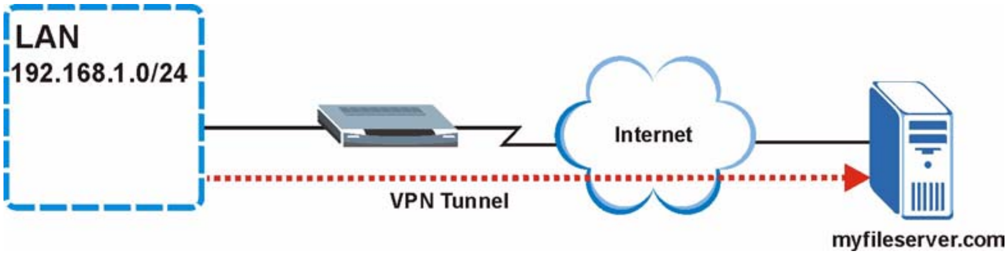
Table 48 Remote PPTP VPN Dial-In Configuration Example

STEP	FIELD	SETTING	DESCRIPTION
1	Connection Name	Example	This name is for identification purposes only.
2	Dial in		Select this field to allow a remote VPN client to establish a VPN connection to the Prestige.
	Private IP Address Assigned to Dialing User	192.168.1.200	The Prestige assigns this IP address to the remote VPN client after the VPN connection is established.
3	Username	test	Specify the user name and password the remote VPN client must supply to establish a VPN connection.
	Password	test	
4	Auth.Type	Chap(Auto)	In this network example, the default authentication and encryption settings are used.
	Data Encryption	Auto	
	Key Length	Auto	
	Mode	stateful	
	Idle Time	0	A value of **0** means the connection is always on.

7.5.2 Example: Remote PPTP VPN Dial-out Connection

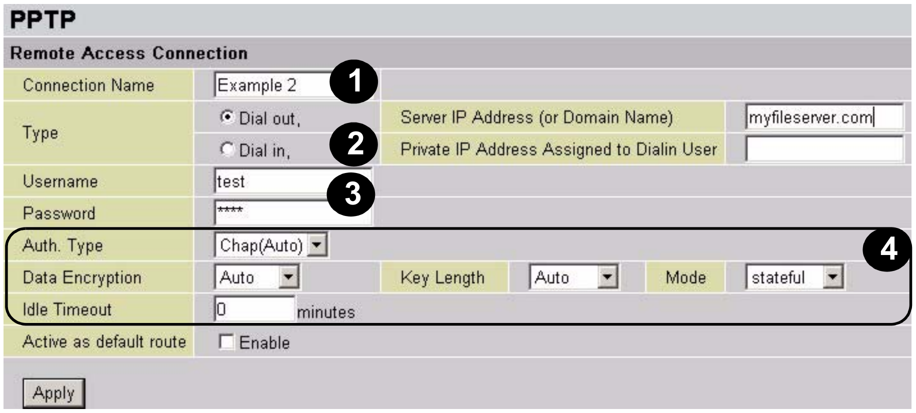
The following figure depicts a VPN network example where a computer on the LAN behind the Prestige can establish a VPN connection to the public file server.

Figure 66 PPTP: Remote VPN Dial-out Access



On the Prestige, create a dial-out PPTP VPN rule to allow a computer on the LAN to access the public file server securely.

Figure 67 PPTP VPN Example: Configuration for the Office



PPTP

Remote Access Connection

Connection Name	Example 2		
Type	● Dial out,	Server IP Address (or Domain Name)	myfileserver.com
	○ Dial in,	Private IP Address Assigned to Dialin User	
Username	test		
Password	****		
Auth. Type	Chap(Auto)		
Data Encryption	Auto	Key Length	Auto
		Mode	stateful
Idle Timeout	0 minutes		
Active as default route	□ Enable		

The following table describes the configuration steps.

Table 49 Remote PPTP VPN Dial-In Configuration Example

STEP	FIELD	SETTING	DESCRIPTION
1	Connection Name	Example	This name is for identification purposes only.
2	Dial out		Select this field to allow a VPN client behind the Prestige to establish a VPN connection to a remote network.
	Server IP Address (or Hostname)	myfileserver.com	This is the domain name for the file server on the Internet. You may also enter the IP address.
3	Username	test	Specify the user name and password a VPN client must supply to establish a VPN connection.
	Password	test	
4	Auth.Type	Chap(Auto)	In this network example, the default authentication and encryption settings are used.
	Data Encryption	Auto	
	Key Length	Auto	
	Mode	stateful	
	Idle Time	0	A value of **0** means the connection is always on.

Note: Both the local and remote networks **MUST** in different subnets with LAN to LAN application.

CHAPTER 8
QoS (Quality of Service)

This chapter shows you how to configure QoS on the Prestige.

8.1 Overview

QoS function helps you to control your network traffic for each application from LAN to WAN (Internet). It facilitates you to control the different quality and speed of throughput for each application when the system is running with full loading of upstream.

You can find two items under the **QoS** section: **Prioritization** and **IP Throttling** (bandwidth management).

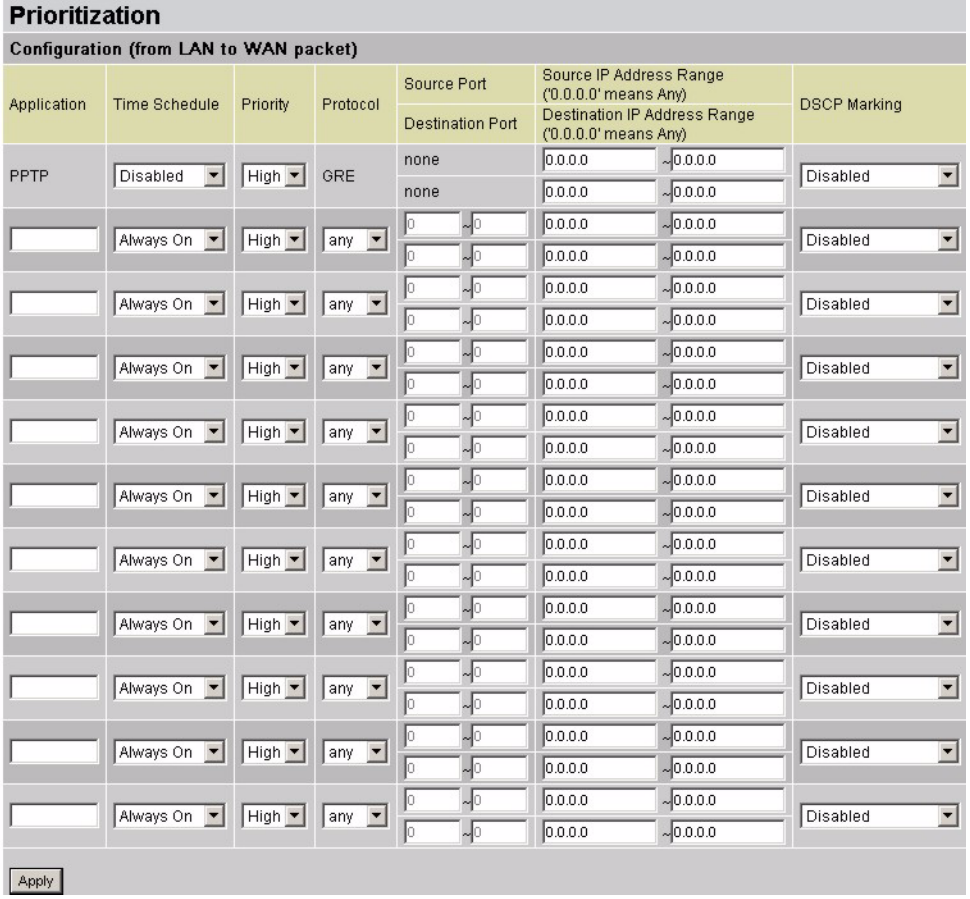
8.1.1 Prioritization

The Prestige provides three priority settings:

- High
- Normal (This is the default for the traffic type(s) that does not match any rules.)
- Low

Click **Configuration**, **QoS** and **Prioritization** in the navigation panel to display the screen as shown.

Figure 68 QoS: Prioritization



Prioritization

Configuration (from LAN to WAN packet)

Application	Time Schedule	Priority	Protocol	Source Port Destination Port	Source IP Address Range ('0.0.0.0' means Any) Destination IP Address Range ('0.0.0.0' means Any)	DSCP Marking
PPTP	Disabled	High	GRE	none	0.0.0.0 ~ 0.0.0.0	Disabled
				none	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	
	Always On	High	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	Disabled
				0 ~ 0	0.0.0.0 ~ 0.0.0.0	

The following table describes the labels in this screen.

Table 50 QoS: Prioritization

LABEL	DESCRIPTION
Application	Enter a descriptive name for identification purposes.
Time Schedule	Specify when this rule is active. Select **Always On** to activate the rule all the time. Otherwise, select a schedule (that you configure in the **Time Schedule** screen).
Priority	Select a priority level. Choices are **High** and **Low**.
Protocol	Select a protocol type from the drop-down list box. Choices are **any**, **tcp**, **udp**, **icmp** and **gre**.
Source Port	Enter the source port number from which traffic travels.
Destination Port	Enter the destination port number to which traffic travels.
Source IP Address Range	You can set the Prestige to prioritize traffic from specified source IP address(es). Specify one or a range of source IP address(es). Leave the fields as 0.0.0.0 to prioritize packets from any source IP address.
Destination IP address Range	You can set the Prestige to prioritize traffic to specified destination IP address(es). Specify one or a range of destination IP address(es). Leave the fields as 0.0.0.0 to prioritize packets from any destination IP address.

Table 50 QoS: Prioritization (continued)

LABEL	DESCRIPTION
DSCP Marking	DiffServ Code Point (DSCP) marking allows the classification of traffic based on the DSCP value. Select Disabled to deactivate DSCP marking or select a marking scheme. Refer to Table 51 on page 98 for the mapping table.
Apply	Click **Apply** to save the settings.

The following is a mapping table between the Prestige DSCP marking scheme and the standard DSCP value.

Table 51 DSCP Mapping

PRESTIGE SETTING	STANDARD DSCP MARKING
Disabled	None
Best Effort	Best Effort (000000)
Premium	Express Forwarding (101110)
Gold Service (L)	Class 1, Gold (001010)
Gold Service (M)	Class 1, Silver (001100)
Gold Service (H)	Class 1, Bronze (001110)
Silver Service (L)	Class 2, Gold (010010)
Silver Service (M)	Class 2, Silver (010100)
Silver Service (H)	Class 2, Bronze (010110)
Bronze Service (L)	Class 3, Gold (011010)
Bronze Service (M)	Class 3, Silver (011100)
Bronze Service (H)	Class 3, Bronze (011110)

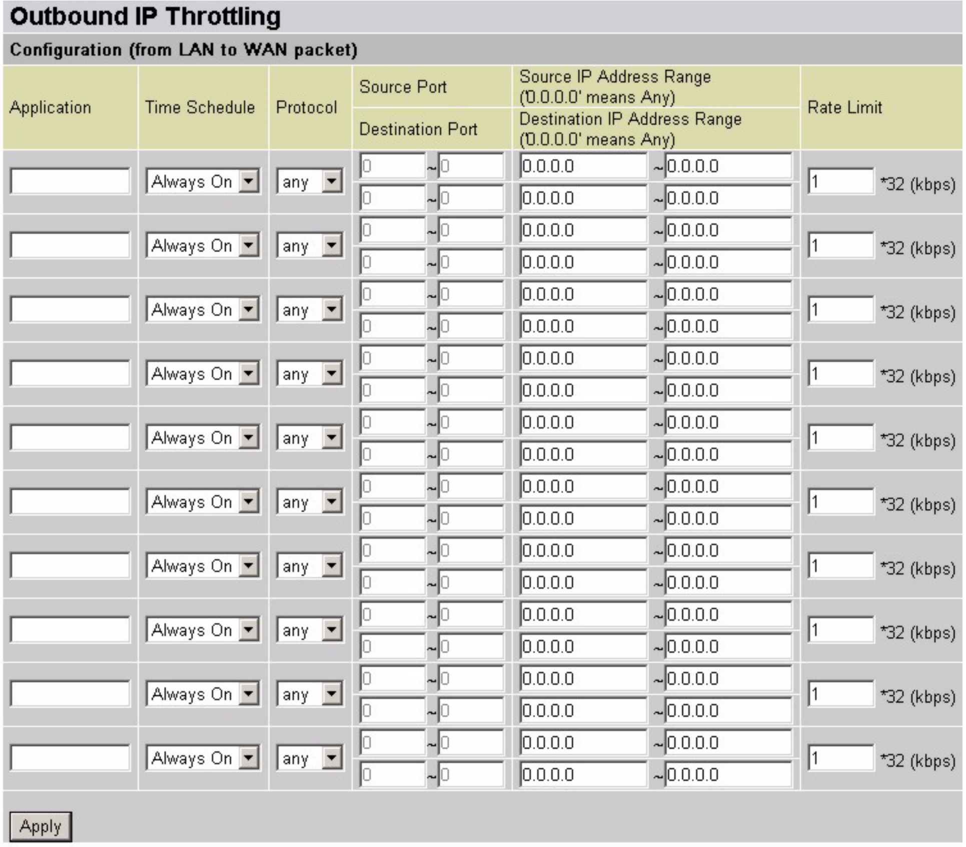
8.2 IP Throttling

IP Throttling (or bandwidth management) helps you make sure that the Prestige forwards certain types of traffic (especially real-time applications) with minimum delay.

Use the **Outbound IP Throttling** screen to limit rates on traffic from the LAN to the WAN interface on the Prestige.

Use the **Inbound IP Throttling** screen to limit rates on traffic from the WAN to the LAN interface on the Prestige.

Figure 69 QoS: Outbound IP Throttling



Outbound IP Throttling

Configuration (from LAN to WAN packet)

Application	Time Schedule	Protocol	Source Port Destination Port	Source IP Address Range ('0.0.0.0' means Any) Destination IP Address Range ('0.0.0.0' means Any)	Rate Limit
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)
	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)

The following table describes the labels in this screen.

Table 52 QoS: Outbound/Inbound IP Throttling

LABEL	DESCRIPTION
Application	Enter a descriptive name for identification purposes.
Time Schedule	Specify when this rule is active. Select **Always On** to activate the rule all the time. Otherwise, select a schedule (that you configure in the **Time Schedule** screen).
Protocol	Select a protocol type from the drop-down list box. Choices are **any**, **tcp**, **udp**, **icmp** and **gre**.
Source Port	Enter the source port number from which traffic travels.
Destination Port	Enter the destination port number to which traffic travels.
Source IP Address Range	You can set the Prestige to prioritize traffic from specified source IP address(es). Specify one or a range of source IP address(es). Leave the fields as 0.0.0.0 to prioritize packets from any source IP address.
Destination IP address Range	You can set the Prestige to prioritize traffic to specified destination IP address(es). Specify one or a range of destination IP address(es). Leave the fields as 0.0.0.0 to prioritize packets from any destination IP address.

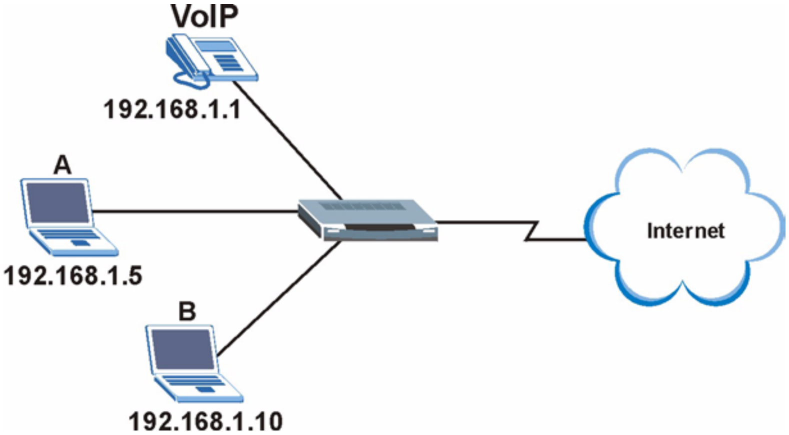
Table 52 QoS: Outbound/Inbound IP Throttling (continued)

LABEL	DESCRIPTION
Upstream Rate Limit	Specify an outgoing bandwidth limit on the WAN port to assign for this rule. Enter a number that is a multiple of 32.
Apply	Click **Apply** to save the settings.

8.3 QoS Example

The following figure shows a network example where you want to limit the rates on different traffic types. The total upstream rate and the downstream rate of the Prestige are 928kbps and 8Mbps respectively.

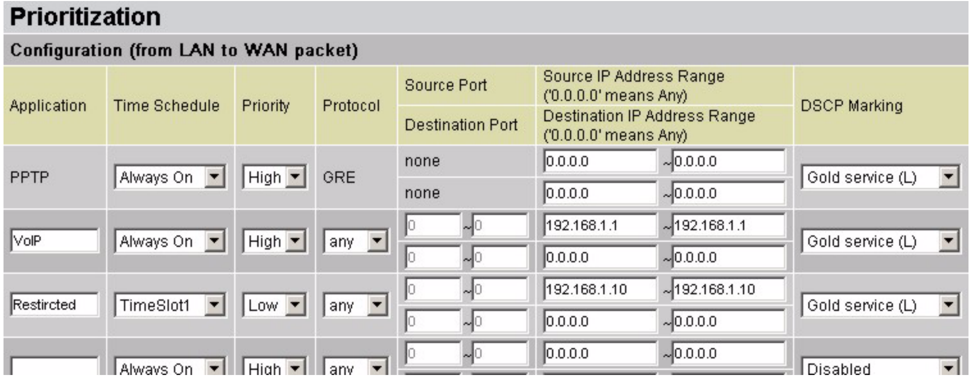
Figure 70 QoS Network Example



8.3.1 Example Prioritization with QoS

You can use the **Prioritization** screen to prioritize time-sensitive applications (like VoIP). Set a high priority level for VoIP traffic to improve service quality and prevent other applications from using most of the bandwidth. In the example figure, computer B is a restricted user whose traffic has the lowest priority on the network.

Figure 71 QoS: Prioritization Example



Prioritization

Configuration (from LAN to WAN packet)

Application	Time Schedule	Priority	Protocol	Source Port Destination Port	Source IP Address Range ('0.0.0.0' means Any) Destination IP Address Range ('0.0.0.0' means Any)	DSCP Marking
PPTP	Always On	High	GRE	none none	0.0.0.0 ~0.0.0.0 0.0.0.0 ~0.0.0.0	Gold service (L)
VoIP	Always On	High	any	0 ~0 0 ~0	192.168.1.1 ~192.168.1.1 0.0.0.0 ~0.0.0.0	Gold service (L)
Restircted	TimeSlot1	Low	any	0 ~0 0 ~0	192.168.1.10 ~192.168.1.10 0.0.0.0 ~0.0.0.0	Gold service (L)
	Always On	High	any	0 ~0	0.0.0.0 ~0.0.0.0	Disabled

8.3.2 Rate Limiting with IP Throttling Example

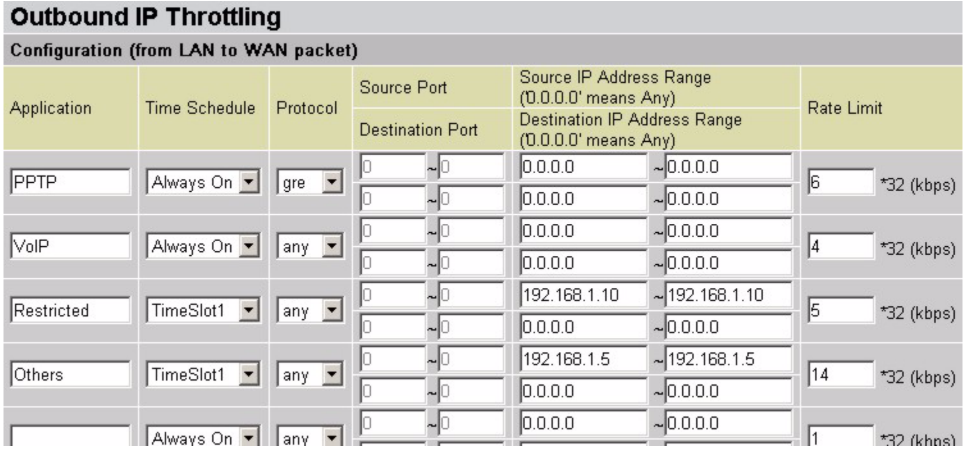
With IP throttling you can fine tune bandwidth limits for specific applications. For the example network, you want to give a guaranteed bandwidth for VoIP applications. The following table lists the bandwidth allocated for the type of applications (or users) in this example.

Table 53 Rate Limiting with IP Throttling Example

	TOTAL UPSTREAM	VOIP	PPTP	RESTRICTED	OTHERS
Bandwidth (kbps)	928 (29 x 32 kbps)	128 (4x 32)	192 (6x 32)	160 (5x32)	448 (14 x 32)

Configure the Outbound IP Throttling screen based on the calculated rates.

Figure 72 Rating Limiting with IP Throttling Example



Outbound IP Throttling

Configuration (from LAN to WAN packet)

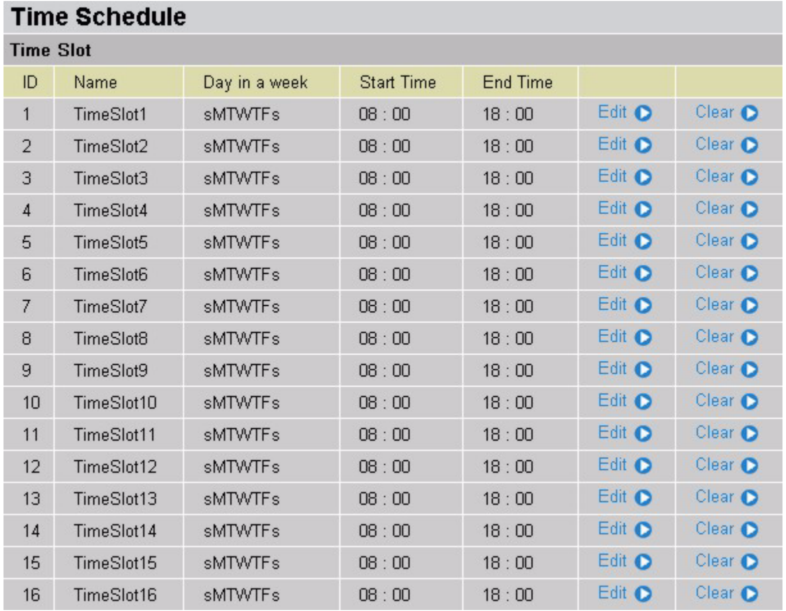
Application	Time Schedule	Protocol	Source Port Destination Port	Source IP Address Range ('0.0.0.0' means Any) Destination IP Address Range ('0.0.0.0' means Any)	Rate Limit
PPTP	Always On	gre	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	6 *32 (kbps)
VoIP	Always On	any	0 ~ 0 0 ~ 0	0.0.0.0 ~ 0.0.0.0 0.0.0.0 ~ 0.0.0.0	4 *32 (kbps)
Restricted	TimeSlot1	any	0 ~ 0 0 ~ 0	192.168.1.10 ~ 192.168.1.10 0.0.0.0 ~ 0.0.0.0	5 *32 (kbps)
Others	TimeSlot1	any	0 ~ 0 0 ~ 0	192.168.1.5 ~ 192.168.1.5 0.0.0.0 ~ 0.0.0.0	14 *32 (kbps)
	Always On	any	0 ~ 0	0.0.0.0 ~ 0.0.0.0	1 *32 (kbps)

8.4 Time Schedule

You can configure time schedule profiles and associate a profile to a Prestige setting. This allows the Prestige to automatically disable or enable the setting. The time schedule is based on the Prestige system time. You must configure the Prestige to use a time server to update the system time accurately and automatically (refer to the section on time server).

Click **Configuration** and **Time Schedule** to display the main summary screen.

Figure 73 Configuration: Time Schedule



Time Schedule

Time Slot

ID	Name	Day in a week	Start Time	End Time		
1	TimeSlot1	sMTWTFs	08 : 00	18 : 00	Edit	Clear
2	TimeSlot2	sMTWTFs	08 : 00	18 : 00	Edit	Clear
3	TimeSlot3	sMTWTFs	08 : 00	18 : 00	Edit	Clear
4	TimeSlot4	sMTWTFs	08 : 00	18 : 00	Edit	Clear
5	TimeSlot5	sMTWTFs	08 : 00	18 : 00	Edit	Clear
6	TimeSlot6	sMTWTFs	08 : 00	18 : 00	Edit	Clear
7	TimeSlot7	sMTWTFs	08 : 00	18 : 00	Edit	Clear
8	TimeSlot8	sMTWTFs	08 : 00	18 : 00	Edit	Clear
9	TimeSlot9	sMTWTFs	08 : 00	18 : 00	Edit	Clear
10	TimeSlot10	sMTWTFs	08 : 00	18 : 00	Edit	Clear
11	TimeSlot11	sMTWTFs	08 : 00	18 : 00	Edit	Clear
12	TimeSlot12	sMTWTFs	08 : 00	18 : 00	Edit	Clear
13	TimeSlot13	sMTWTFs	08 : 00	18 : 00	Edit	Clear
14	TimeSlot14	sMTWTFs	08 : 00	18 : 00	Edit	Clear
15	TimeSlot15	sMTWTFs	08 : 00	18 : 00	Edit	Clear
16	TimeSlot16	sMTWTFs	08 : 00	18 : 00	Edit	Clear

The following table describes the labels in this screen.

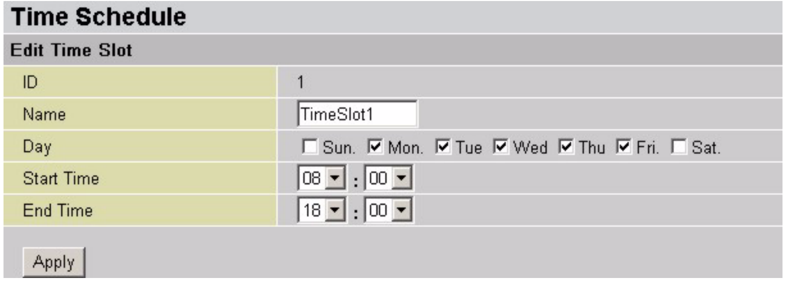
Table 54 Configuration: Time Schedule

LABEL	DESCRIPTION
ID	This field displays the index number.
Name	This field displays the descriptive name for identification purposes.
Day in a Week	This field displays whether the day of the week (in upper case) the time schedule is active.
Start/End Time	These fields display the beginning and end of the time schedule.
Edit	Click **Edit** to modify the time schedule.
Clear	Click **Clear** to reset the time settings to the factory default for the selected time schedule.

8.4.1 Configuring a Time Schedule

To configure a time schedule, click **Edit** for a time schedule policy to display the configuration screen.

Figure 74 Configuration: Time Schedule: Edit



Time Schedule

Edit Time Slot

ID	1
Name	TimeSlot1
Day	☐ Sun. ☑ Mon. ☑ Tue ☑ Wed ☑ Thu ☑ Fri. ☐ Sat.
Start Time	08 : 00
End Time	18 : 00

The following table describes the labels in this screen.

Table 55 Configuration: Time Schedule: Edit

LABEL	DESCRIPTION
ID	This read-only field displays the index number.
Name	Enter a descriptive name for identification purposes.
Day	Select the day of the week this time schedule is active.
Start Time	Set the beginning of the time range the time schedule is active.
End Time	Set the end of the time range the time schedule is active.
Apply	Click **Apply** to save the changes.

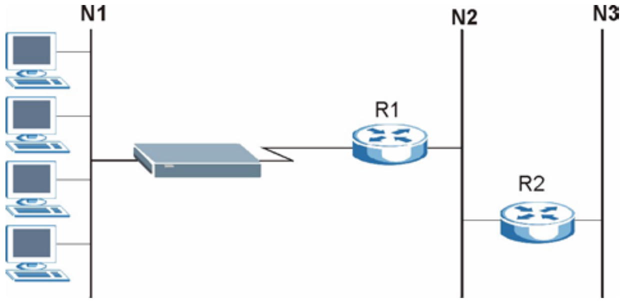
CHAPTER 9
Static Route

This chapter shows you how to set advanced system settings.

9.1 Overview

Each remote node specifies only the network to which the gateway is directly connected, and the Prestige has no knowledge of the networks beyond. For instance, the Prestige knows about network **N2** in the following figure through remote node router **R1**. However, the Prestige is unable to route a packet to network **N3** because it doesn't know that there is a route through the same remote node router **R1** (via gateway router **R2**). The static routes are for you to tell the Prestige about the networks beyond the remote nodes.

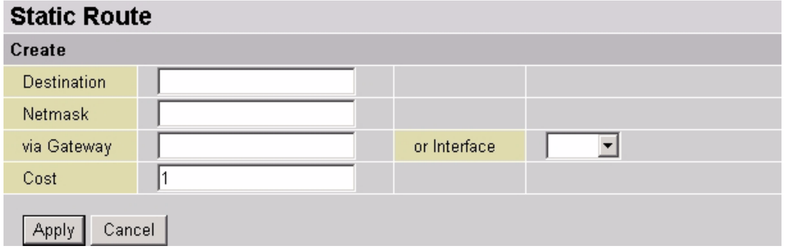
Figure 75 Static Route: Network Example]



9.2 Configuration

Click **Configuration**, **Advanced** and **Static Route** in the navigation panel to display the screen as shown.

Figure 76 Advanced: Static Route



Static Route

Create

Destination			
Netmask			
via Gateway		or Interface	
Cost	1		

The following table describes the labels in this screen.

Table 56 Advanced: Static Route

LABEL	DESCRIPTION
Destination	This parameter specifies the IP network address of the final destination. Routing is always based on network number. If you need to specify a route to a single host, use a subnet mask of 255.255.255.255 in the subnet mask field to force the network number to be identical to the host ID.
Netmask	Enter the IP subnet mask in dotted decimal notation.
via gateway	Enter the IP address of the gateway. The gateway is a router or switch on the same network segment as the device's LAN or WAN port. The gateway helps forward packets to their destinations.
or Interface	Select the interface through which packets are to be forwarded.
Cost	IP routing uses hop count as the measurement of cost, with a minimum of 1 for directly connected networks. Enter a number that approximates the cost for this link. The number need not be precise, but it must be between 1 and 15. In practice, 2 or 3 is usually a good number.
Apply	Click **Apply** to save the settings.
Cancel	Click **Cancel** to start configuring the screen again.

CHAPTER 10
Dynamic DNS

10.1 Overview

Dynamic DNS allows you to update your current dynamic IP address with one or many dynamic DNS services so that anyone can contact you (in NetMeeting, CU-SeeMe, etc.). You can also access your FTP server or Web site on your own computer using a domain name (for instance myhost.dhs.org, where myhost is a name of your choice) that will never change instead of using an IP address that changes each time you reconnect. Your friends or relatives will always be able to call you even if they don't know your IP address.

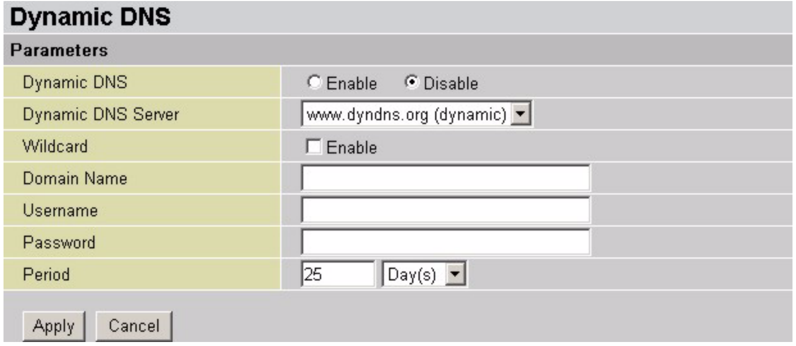
First of all, you need to have registered a dynamic DNS account with www.dyndns.org. This is for people with a dynamic IP from their ISP or DHCP server that would still like to have a domain name. The Dynamic DNS service provider will give you a password or key.

Note: You must go to the Dynamic DNS service provider's website and register a user account and a domain name before you can use the Dynamic DNS service with your Prestige.

10.1.1 Configuration

Click **Configuration**, **Advanced** and **Dynamic DNS** to display the screen as shown next.

Figure 77 Advanced: Dynamic DNS



Dynamic DNS

Parameters

Dynamic DNS	○ Enable ● Disable
Dynamic DNS Server	www.dyndns.org (dynamic)
Wildcard	□ Enable
Domain Name	
Username	
Password	
Period	25 Day(s)

The following table describes the labels in this screen.

Table 57 Advanced: Dynamic DNS

LABEL	DESCRIPTION
Dynamic DNS	Select **Enable** to activate this feature and configure the fields below. Select **Disable** to deactivate this feature.
Dynamic DNS Server	Select your DDNS service provider from the drop-down list box.
Wildcard	Enabling the wildcard feature for your host causes *.yourhost.dyndns.org to be aliased to the same IP address as yourhost.dyndns.org. This feature is useful if you want to be able to use, for example, www.yourhost.dyndns.org and still reach your hostname.
Domain Name	Enter the domain name your registered with the DDNS service provider you selected above.
Username	Enter your account username.
Password	Enter the password associated with the username above.
Period	Specify the time period the Prestige waits before updating information (such as the WAN IP address) with the DDNS server. Enter a number in the field and select a time unit (**Hour(s)** or **Day(s)**) In addition to the scheduled update period you set, the Prestige automatically updates with the DDNS server when the Prestige’s WAN IP address changes.
Apply	Click **Apply** to save the settings.
Cancel	Click **Cancel** to start configuring the screen again.

CHAPTER 11 Check Emails

This chapter shows you how to configure the **Check Emails** screen for POP3 email checking.

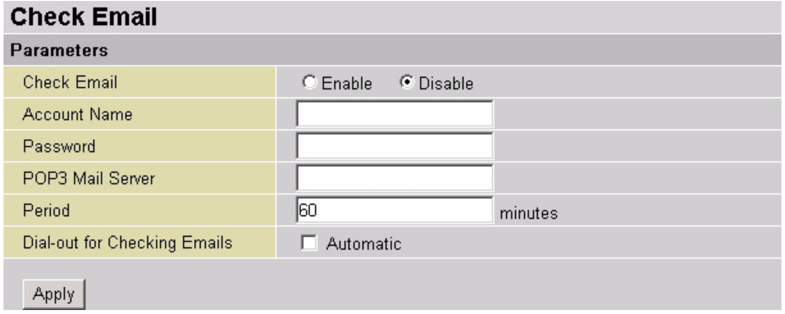
11.1 Overview

You can configure the Prestige to automatically check the your POP3 mail box for new messages. You can check your mail box status in the **Email Status** screen (see Section 2.7.4 on page 33 for more information).

11.2 Configuring

Click **Configuration**, **Advanced** and **Check Emails** in the navigation panel to display the screen as shown next.

Figure 78 Advanced: Check Emails



Check Email

Parameters

Check Email	○ Enable ● Disable
Account Name	
Password	
POP3 Mail Server	
Period	60 minutes
Dial-out for Checking Emails	□ Automatic

The following table describes the labels in this screen.

Table 58 Advanced: Check Emails

LABEL	DESCRIPTION
Check Email	Select **Enable** to activate this feature and configure the fields below. Select **Disable** to deactivate this feature.
Account Name	Enter your POP3 e-mail account name. Normally, it is the text in your email address before the "@" symbol.
Password	Enter the password associated with the account name above.
POP3 Mail Server	Enter your (POP) mail server name provided by your Internet Service Provider (ISP) or network administrator.
Interval	Enter the time period (in minutes) the Prestige waits before checking your e-mail status.

Table 58 Advanced: Check Emails (continued)

LABEL	DESCRIPTION
Automatically dial-out for checking emails	You can set the Prestige to automatically set up the SHDSL line to connect to the mail server when the line is down. Select the check box to enable automatic line set up. **Note:** Enabling this feature may add to your Internet access cost if your ISP charge by the time.
Apply	Click **Apply** to save the changes.

CHAPTER 12
Device Management

This chapter shows you how to configure device management security and monitoring settings.

12.1 Overview

Configure general system settings (such as the system name, web server port numbers, etc.), UPnP and SNMP settings in the **Device Management** screen.

12.1.1 Universal Plug and Play (UPnP)

Universal Plug and Play (UPnP) is a distributed, open networking standard that uses TCP/IP for simple peer-to-peer network connectivity between devices. A UPnP device can dynamically join a network, obtain an IP address, convey its capabilities and learn about other devices on the network. In turn, a device can leave a network smoothly and automatically when it is no longer in use.

12.1.1.1 How do I know if I'm using UPnP?

UPnP hardware is identified as an icon in the Network Connections folder (Windows XP). Each UPnP compatible device installed on your network will appear as a separate icon. Selecting the icon of a UPnP device will allow you to access the information and properties of that device.

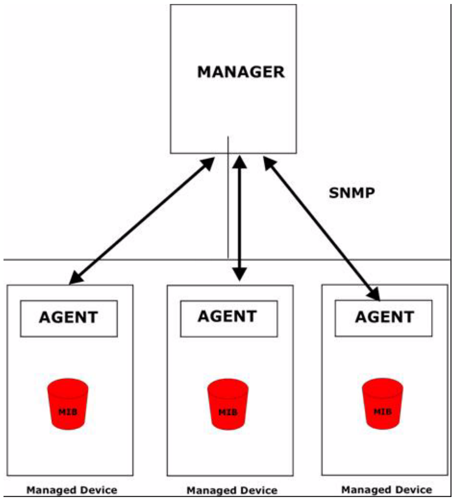
12.1.1.2 Cautions with UPnP

All UPnP-enabled devices may communicate freely with each other without additional configuration. Disable UPnP if this is not your intention.

12.1.2 SNMP

Simple Network Management Protocol (SNMP) is a protocol used for exchanging management information between network devices. SNMP is a member of the TCP/IP protocol suite. Your Prestige supports SNMP version one SNMPv1), version two (SNMPv2) and version three (SNMPv3). The next figure illustrates an SNMP management operation.

Figure 79 SNMP Management Model



An SNMP managed network consists of two main components: agents and a manager.

An agent is a management software module that resides in a managed device. An agent translates the local management information from the managed device into a form compatible with SNMP. The manager is the console through which network administrators perform network management functions. It executes applications that control and monitor managed devices.

The managed devices contain object variables/managed objects that define each piece of information to be collected about a device. Examples of variables include such as number of packets received, node port status etc. A Management Information Base (MIB) is a collection of managed objects. SNMP allows a manager and agents to communicate for the purpose of accessing these objects.

SNMP itself is a simple request/response protocol based on the manager/agent model. The manager issues a request and the agent returns responses using the following protocol operations:

- Get - Allows the manager to retrieve an object variable from the agent.
- GetNext - Allows the manager to retrieve the next object variable from a table or list within an agent. In SNMPv1, when a manager wants to retrieve all elements of a table from an agent, it initiates a Get operation, followed by a series of GetNext operations.
- Set - Allows the manager to set values for object variables within an agent.
- Trap - Used by the agent to inform the manager of some events.

12.1.2.1 SNMPv3

SNMPv3 provides a secure environment for the management of systems and stations. It is designed to protect against unauthorized modification of SNMP messages and operations by using passwords (or community) to authenticate users. SNMPv3 provides user-based security and view-based access control models.

12.1.2.2 SNMP Traps and MIBs

Traps supported: Cold Start, Authentication Failure.

The following table lists the MIBs and attributes.

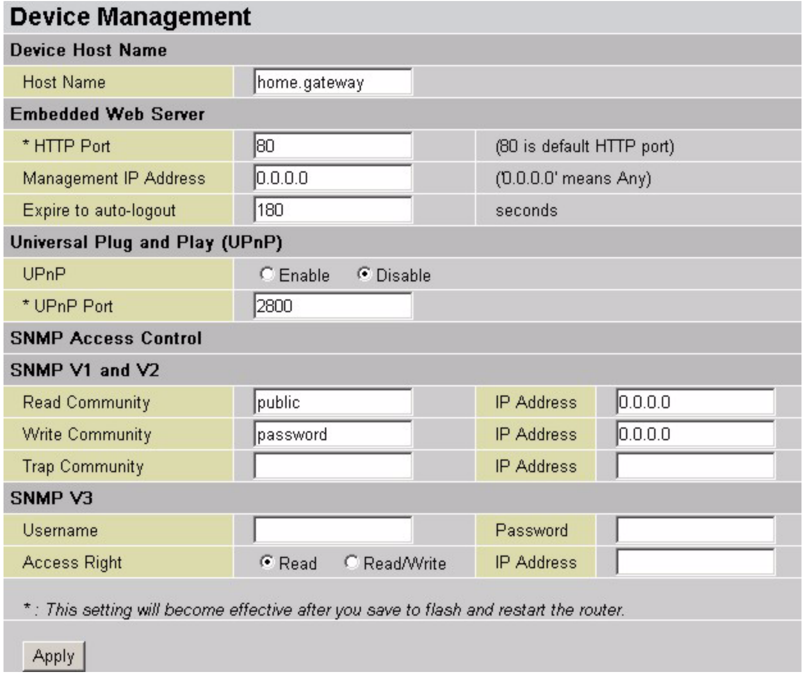
Table 59 MIBs and Attributes

MIB	ATTRIBUTE
RFC 1213 (MIB II)	• System group • Interfaces group • Address Translation group • IP group • ICMP group • TCP group • UDP group • EGP (not applicable) • Transmission • SNMP group
RFC1650 (EtherLike-MIB)	dot3Stats
RFC 1493 (Bridge MIB)	• dot1dBase group • dot1dTp group • dot1dStp group (if configured as spanning tree)
RFC 1471 (PPP/LCP MIB):	• pppLink group • pppLqr group
RFC 1472 (PPP/Security MIB)	PPP Security Group)
RFC 1473 (PPP/IP MIB)	PPP IP Group
RFC 1474 (PPP/Bridge MIB)	PPP Bridge Group
RFC1573 (IfMIB)	ifMIBObjects Group
RFC1695 (atmMIB)	atmMIBObjects
RFC 1907 (SNMPv2)	only snmpSetSerialNo OID

12.2 The Device Management Screen

Click **Configuration**, **Advanced** and **Device Management** in the navigation panel to display the screen as shown.

Figure 80 Advanced: Device Management



Device Management

Device Host Name			
Host Name	home.gateway		
Embedded Web Server			
* HTTP Port	80	(80 is default HTTP port)	
Management IP Address	0.0.0.0	('0.0.0.0' means Any)	
Expire to auto-logout	180	seconds	
Universal Plug and Play (UPnP)			
UPnP	○ Enable ● Disable		
* UPnP Port	2800		
SNMP Access Control			
SNMP V1 and V2			
Read Community	public	IP Address	0.0.0.0
Write Community	password	IP Address	0.0.0.0
Trap Community		IP Address	
SNMP V3			
Username		Password	
Access Right	● Read ○ Read/Write	IP Address	

** : This setting will become effective after you save to flash and restart the router.*

The following table describes the labels in this screen.

Table 60 Advanced: Device Management

LABEL	DESCRIPTION
Device Host Name	
Host Name	Enter a name for identification purposes.
Embedded Web Server	
HTTP Port	Specify the port number of the embedded web server on the Prestige for accessing the web configurator. The default port number is **80**. Enter a number. **Note:** Make sure the port number is not already used by another service. If you change the port number, you need to append the port number to the **WAN** or **LAN** port IP address to access the web configurator. For example, if you enter “8010” as the web server port number, then you must enter “http://www.192.168.1.1:8010” where 192.168.1.1 is the WAN or LAN port IP address.
Management IP Address	A secure client is a “trusted” computer that is allowed to access the embedded web server on the Prestige. Enter the IP address of a computer that you want to allow access. Enter 0.0.0.0 to allow a computer with any IP address to access the Prestige.

Table 60 Advanced: Device Management (continued)

LABEL	DESCRIPTION
Expire to auto-logout	Type how many minutes a management web session can be left idle before the session times out. The default is 3 minutes. After it times out you have to log in again. Very long idle timeouts may have security risks. A value of "0" means a management session never times out, no matter how long it has been left idle (not recommended).
Universal Plug and Play (UPnP)	Select this **Enable** to activate UPnP. Be aware that anyone could use a UPnP application to open the web configurator's login screen without entering the Prestige’s IP address (although you must still enter the password to access the web configurator). Select **Disable** to deactivate this feature.
UPnP Port	Specify a port number for UPnP traffic. 2800 is the default. **Note:** Make sure the port number is not already used by another service.
SNMP Access Control	
SNMP V1 and V2	
Read Community	Enter the Read Community, which is the password for the incoming Get and GetNext requests from the management station. The default is “public” and allows all requests. Enter the IP address of the computer you want to allow to view the device information in the I**P Addres**s field. Otherwise, lease this field to 0.0.0.0.
Write Community	Enter the write community, which is the password for incoming Set requests from the management station. The default is “password” and allows all requests. Enter the IP address of the computer you want to allow to view and modify the device information in the I**P Addres**s field. Otherwise, lease this field to 0.0.0.0.
Trap Community	Type the trap community, which is the password sent with each trap to the SNMP manager. Type the IP address of the station to send your SNMP traps to in the **IP Address** field.
SNMP V3	
Username	Enter a username. The Prestige authenticates computer that wishes to obtain device information with this name.
Password	Enter a password for the username above.
Access Right	Select **Read** to allow ready-only access. No information change is allowed. Select **Read/Write** to allow information display and change.
IP Address	Enter the IP address of a computer you allow to access the Prestige using SNMPv3.
Apply	Click **Apply** to save the changes.

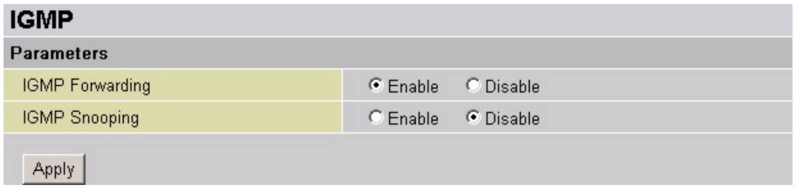
12.3 IGMP

A Prestige can passively snoop on IGMP Query, Report and Leave (IGMP version 2) packets transferred between IP multicast routers/switches and IP multicast hosts to learn the IP multicast group membership. It checks IGMP packets passing through it, picks out the group registration information, and configures multicasting accordingly. IGMP snooping allows the Prestige to learn multicast groups without you having to manually configure them.

The Prestige can also forward multicast traffic destined for multicast groups (that it has learned from IGMP snooping or that you have manually configured) to ports that are members of that group. The Prestige discards multicast traffic destined for multicast groups that it does not know. IGMP snooping generates no additional network traffic, allowing you to significantly reduce multicast traffic passing through your Prestige.

Click **Configuration**, **Advanced** and **IGMP** to display the screen as shown.

Figure 81 Advanced: IGMP



IGMP

Parameters

IGMP Forwarding	● Enable ○ Disable
IGMP Snooping	○ Enable ● Disable

The following table describes the labels in this screen.

Table 61 Advanced: IGMP

LABEL	DESCRIPTION
IGMP Forwarding	Activate this feature to set the Prestige to forward IGMP packets.
IGMP Snooping	Activate this feature to set the Prestige to learn multicast group memberships.
Apply	Click **Apply** to save the changes.

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