Prestige 645M-A1

ADSL Bridge

User's Guide

Version 3.40

May 2003

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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.

Federal Communications Commission (FCC) Interference Statement

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- 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.

If this equipment does cause harmful interference to radio/television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. 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.

Certifications

Refer to the product page at www.zyxel.com.

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 LOCATION	E-MAIL SUPPORT/SALES	TELEPHONE/FAX	WEB SITE/ FTP SITE	REGULAR MAIL
WORLDWIDE	support@zyxel.com.tw sales@zyxel.com.tw	+886-3-578-3942 +886-3-578-2439	www.zyxel.com www.europe.zyxel.com ftp.europe.zyxel.com	ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu 300, Taiwan.
NORTH AMERICA	support@zyxel.com sales@zyxel.com	+1-714-632-0882 800-255-4101 +1-714-632-0858	www.zyxel.com ftp.zyxel.com	ZyXEL Communications Inc., 1650 Miraloma Avenue, Placentia, CA 92870, U.S.A.
SCANDINAVIA	support@zyxel.dk sales@zyxel.dk	+45-3955-0700 +45-3955-0707	www.zyxel.dk ftp.zyxel.dk	ZyXEL Communications A/S, Columbusvej 5, 2860 Soeborg, Denmark.
GERMANY	support@zyxel.de sales@zyxel.de	+49-2405-6909-0 +49-2405-6909-99	www.zyxel.de	ZyXEL Deutschland GmbH. Adenauerstr. 20/A2 D-52146 Wuerselen, Germany

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Preface

About This User's Guide

This user's guide covers all aspects of the Prestige's operations and shows you how to get the best out of the multiple advanced features of your ADSL Bridge using the SMT. It is designed to guide you through the correct configuration of your Prestige for various applications.

Related Documentation

- Supporting Disk
  More detailed information and examples can be found in our included disk (as well as on the zyxel.com web site). This disk contains information on configuring your Prestige for Internet Access, general and advanced FAQs, Application Notes, Troubleshooting, a reference for CI Commands and bundled software.
- Read Me First
  Our Read Me First is designed to help you get up and running right away. It contains a detailed easy-to-follow connection diagram, default settings, handy checklists and information on setting up your network and configuring for Internet access.
- ZyXEL Web Site
  The ZyXEL download library at www.zyxel.com contains additional support documentation. Please also refer to www.zyxel.com for an online glossary of networking terms.

Syntax Conventions

- "Type" means for you to type one or more characters and press the carriage return. "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.
- 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 645M-A1 ADSL Bridge may be referred to as the P645M or the Prestige in this user's guide.

The following section offers some background information on DSL. Skip to *Chapter 1* if you wish to begin working with your Prestige right away.

What Is DSL?

DSL (Digital Subscriber Line) technology enhances the data capacity of the existing twisted-pair wire that runs between the local telephone company switching offices and most homes and offices. While the wire itself can handle higher frequencies, the telephone switching equipment is designed to cut off signals above 4,000 Hz to filter noise off the voice line, but now everybody is searching for ways to get more bandwidth to improve access to the Web - hence DSL technologies.

There are actually seven types of DSL service, ranging in speeds from 16 Kbits/sec to 52 Mbits/sec. The services are either symmetrical (traffic flows at the same speed in both directions), or asymmetrical (the downstream capacity is higher than the upstream capacity). Asymmetrical services (ADSL) are suitable for Internet users because more information is usually downloaded than uploaded. For example, a simple button click in a web browser can start an extended download that includes graphics and text.

As data rates increase, the carrying distance decreases. That means that users who are beyond a certain distance from the telephone company's central office may not be able to obtain the higher speeds.

A DSL connection is a point-to-point dedicated circuit, meaning that the link is always up and there is no dialing required.

What is ADSL?

It is an asymmetrical technology, meaning that the downstream data rate is much higher than the upstream data rate. As mentioned, this works well for a typical Internet session in which more information is downloaded, for example, from Web servers, than is uploaded. ADSL operates in a frequency range that is above the frequency range of voice services, so the two systems can operate over the same cable.

Part I:

Getting Started

This part covers Getting to Know Your Prestige, Hardware Installation and Setup and Internet Access.

Chapter 1
Getting to Know Your Prestige

This chapter describes the key features and applications of your ADSL Internet Access Bridge.

1.1 Prestige 645M ADSL Internet Access Bridge Overview

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

1.2 Features of the Prestige 645M

Your Prestige is packed with a number of features that give it the flexibility to provide a complete Internet access solution for almost any user.

Ease of Installation

Your Prestige is designed for quick, intuitive and easy installation. Physically, its compact size and lightness make it easy to position anywhere in your busy office.

High Speed Internet Access

The P645M ADSL bridge can support downstream transmission rates of up to 8Mbps and upstream transmission rates of 800 Kbps.

10/100Mbps Fast Ethernet LAN Interface

The P645M's 10/100M LAN interface enables fast data transfers of 10Mbps or 100Mbps in either half-duplex or full-duplex mode depending on your Ethernet network.

Protocols Supported

- TCP/IP (Transmission Control Protocol/Internet Protocol) network layer protocol.

- PPP (Point-to-Point Protocol) link layer protocol.

Networking Compatibility

Your Prestige is compatible with the major ADSL DSLAM (Digital Subscriber Line Access Multiplexer) providers, making configuration as simple as possible for you.

Multiplexing

The P645M supports VC-based and LLC-based multiplexing.

Encapsulation

The Prestige 645M supports PPP (RFC 2364 - PPP over ATM Adaptation Layer 5) and RFC 1483 encapsulation over ATM.

Full Network Management

- SMT (System Management Terminal) through a telnet connection.

PAP and CHAP Security

The Prestige supports PAP (Password Authentication Protocol) and CHAP (Challenge Handshake Authentication Protocol). CHAP is more secure since the password is scrambled prior to transmission. However, PAP is readily available on more platforms.

Filters

The Prestige's packet filtering functions allow added network security and management.

Reset Button

The Prestige comes with a reset button built into the rear panel. Use this button to restore the factory default password to 1234, IP address to 192.168.1.1 and the subnet mask to 255.255.255.0.

1.3 Applications for the Prestige 645M

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 ADSL DSLAM providers. A DSLAM is a rack of ADSL line cards with data multiplexed into a backbone network interface/connection (e.g., T1, OC3, DS3, ATM or Frame Relay). Think of it as the equivalent of a modem rack for ADSL. A typical Internet Access application is shown below.

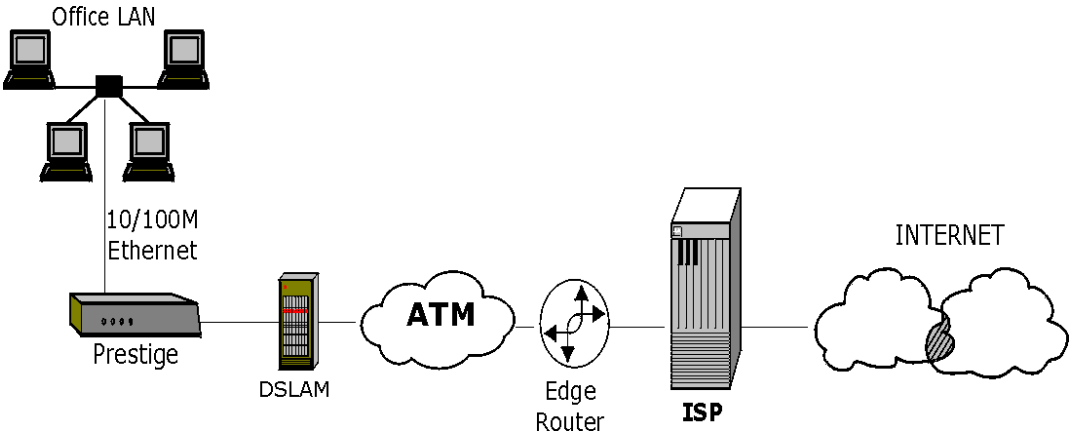


Figure 1-1 Internet Access Application

Chapter 2
Hardware Installation & Initial Setup

This chapter describes the physical features and cable connections of the Prestige and how to access and use the SMT interface for configuration.

2.1 Front Panel LEDs of the Prestige

The LED indicators on the front panel indicate the operational status of the Prestige

Figure 2-1 Prestige Front Panel

The table below describes the status of the front panel LEDs.

Table 2-1 Front Panel LED Description

LED	COLOR	STATUS	DESCRIPTION
PWR	Green	On	The Prestige is receiving power.
		Off	The Prestige is not receiving power.
SYS	Green	On	The Prestige is functioning properly.
		Blinking	The Prestige is rebooting.
		Off	The Prestige is not ready or has malfunctioned.
	Red	On	Dying gasp action. The power to the Prestige is too low.
LAN 10M	Green	On	The Prestige has a successful 10Mb Ethernet connection.
		Blinking	The Prestige is receiving or sending data.
		Off	No device is connected at 10Mb.

Table 2-1 Front Panel LED Description

LED	COLOR	STATUS	DESCRIPTION
LAN 100M	Orange	On	The Prestige has a successful 100Mb Ethernet connection.
		Blinking	The Prestige is receiving or sending data.
		Off	No device is connected at 100Mb.
ADSL	Green	On	The Prestige is linked successfully to a DSLAM.
		Blinking	The Prestige is initializing the DSL line.
		Off	The DSL link is down.
ACT	Green	Blinking	The Prestige is receiving or sending data.
		Off	The Prestige is ready but not sending or receiving data.

2.2 Rear Panel and Connections

The following figure shows the rear panel connectors of your Prestige.

Figure 2-2 Rear Panel Connections

2.2.1 DSL Port

Connect the Prestige directly to the wall jack using the included DSL cable. Connect a microfilter(s) between the wall jack and your telephone(s). A microfilter acts as low-pass filter (voice transmission takes place in the 0 to 4KHz bandwidth) and is an optional purchase.

2.2.2 One Auto-sensing, Auto-negotiating LAN 10/100M Port

Ethernet 10Base-T/100Base-T networks use Shielded Twisted Pair (STP) cable with RJ-45 that look like a bigger telephone plug with 8 pins. The LAN port is auto-sensing, so you may use a crossover or a straight-through Ethernet cable to connect your Prestige to a computer or an external hub.

The auto-negotiating 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.

When the Prestige is on and properly connected to a computer or a hub, the LAN **LED on the front panel turns on.**

2.2.3 Using the Reset Button

Resetting the Prestige deletes your entire custom configuration.

Restore the default configuration file by holding this button in for more than five seconds.

2.2.4 Making the Connections

Step 1. Connecting the DSL line

Connect the RJ-11 DSL port on the Prestige to the POTS splitter using the included DSL cable (telephone wire). Connect the micro filter(s) (optional– see *2.5 Telephone Microfilters*) between the wall jack and your telephone(s). The micro filters act as low pass filters (voice transmission takes place in the 0 to 4KHz bandwidth).

Step 2. Connecting a computer or an external hub to the Prestige's 10/100M LAN port

Be careful not to plug an RJ-11 connector into the RJ-45 port.

Step 3. Connecting the power adapter to your Prestige

Make sure that you use the supplied power adapter. See *Power Adapter Specifications* **appendix for information.**

Connect the power adapter to the port labeled POWER on the rear panel of your Prestige.

2.3 Additional Installation Requirements

- A computer must have a properly installed and enabled Ethernet 10Base-T/100Base-T NIC.
- A computer equipped with a web browser (with JavaScript enabled) and/or Telnet.

2.4 Connecting the POTS Splitter

This is for the Prestige that follows the Full Rate (G.dmt) standard only. One major difference between ADSL and dial-up modems is the optional telephone splitter. This device keeps the telephone and ADSL signals separated, giving them the capability to provide simultaneous Internet access and telephone service on the same line. Splitters also eliminate the destructive interference conditions caused by telephone sets. The purchase of a POTS splitter is optional.

Noise generated from a telephone in the same frequency range as the ADSL signal can be disruptive to the ADSL signal. In addition, the impedance of a telephone when off-hook may be so low that it shunts the strength of the ADSL signal. When a POTS splitter is installed at the entry point, where the line comes into the home, it will filter the telephone signals before combining the ADSL and telephone signals transmitted and received. The issues of noise and impedance are eliminated with a single POTS splitter installation.

A telephone splitter is easy to install as shown in the following figure.

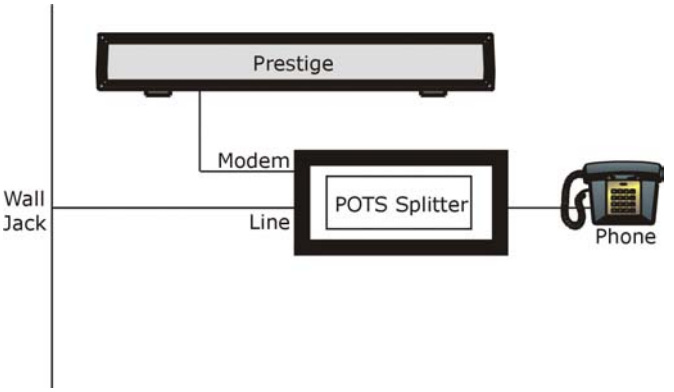


Figure 2-3 Connecting a POTS Splitter

Step 1. Connect the side labeled “Phone” to your telephone.

Step 2. Connect the side labeled “Modem” to your Prestige.

Step 3. Connect the side labeled “Line” to the telephone wall jack.

2.5 Telephone Microfilters

Telephone voice transmissions take place in the lower frequency range, 0 - 4KHz, while ADSL transmissions take place in the higher bandwidth range, above 4KHz. A microfilter acts as a low-pass filter, for your telephone, to ensure that ADSL transmissions do not interfere with your telephone voice transmissions. The purchase of a telephone microfilter is optional.

Step 1. Connect a phone cable from the wall jack to the single jack end of the Y- Connector.

Step 2. Connect a cable from the double jack end of the Y-Connector to the “wall side” of the microfilter.

Step 3. Connect another cable from the double jack end of the Y-Connector to the Prestige.

Connect the “phone side” of the microfilter to your telephone as shown in the following figure.

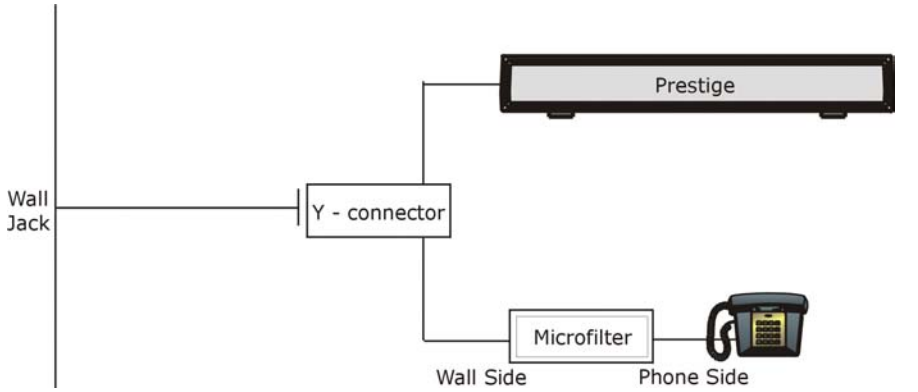


Figure 2-4 Connecting the Microfilter

2.6 Turning On Your Prestige

At this point, you should have connected the ADSL line, the Ethernet port and the power port to the appropriate devices or lines. Push in the power button (located on the back of your Prestige) to turn on your Prestige.

2.7 Configuring Your Prestige For Internet Access

Configure your Prestige for Internet access using:

- SMT (System Management Terminal). Access the SMT via LAN or WAN using Telnet.

2.7.1 Connect to your Prestige Using Telnet

The following procedure details how to telnet into your Prestige.

Step 1. In Windows, click **Start** (usually in the bottom left corner), **Run** and then type "telnet 192.168.1.1" (the default IP address) and click **OK**.

Step 2. Enter "1234" (the default) in the **Password** field.

Step 3. After entering the password you will see the main menu.

Please note that if there is no activity for longer than five minutes (default timeout period) after you log in, your Prestige will automatically log you out. You will then have to telnet into the Prestige again.

2.7.2 Entering Password

The login screen appears after you press [ENTER], prompting you to enter the password, as shown next.

For your first login, enter the default password “1234”. As you type the password, the screen displays an asterisk “*” for each character you type.

Please note that if there is no activity for longer than five minutes after you log in, your Prestige will automatically log you out.

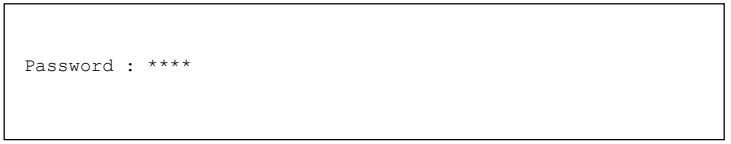


Figure 2-5 Login Screen

2.7.3 SMT Menu Overview

The following figure shows the titles and layout of the various SMT menu screens of your Prestige.

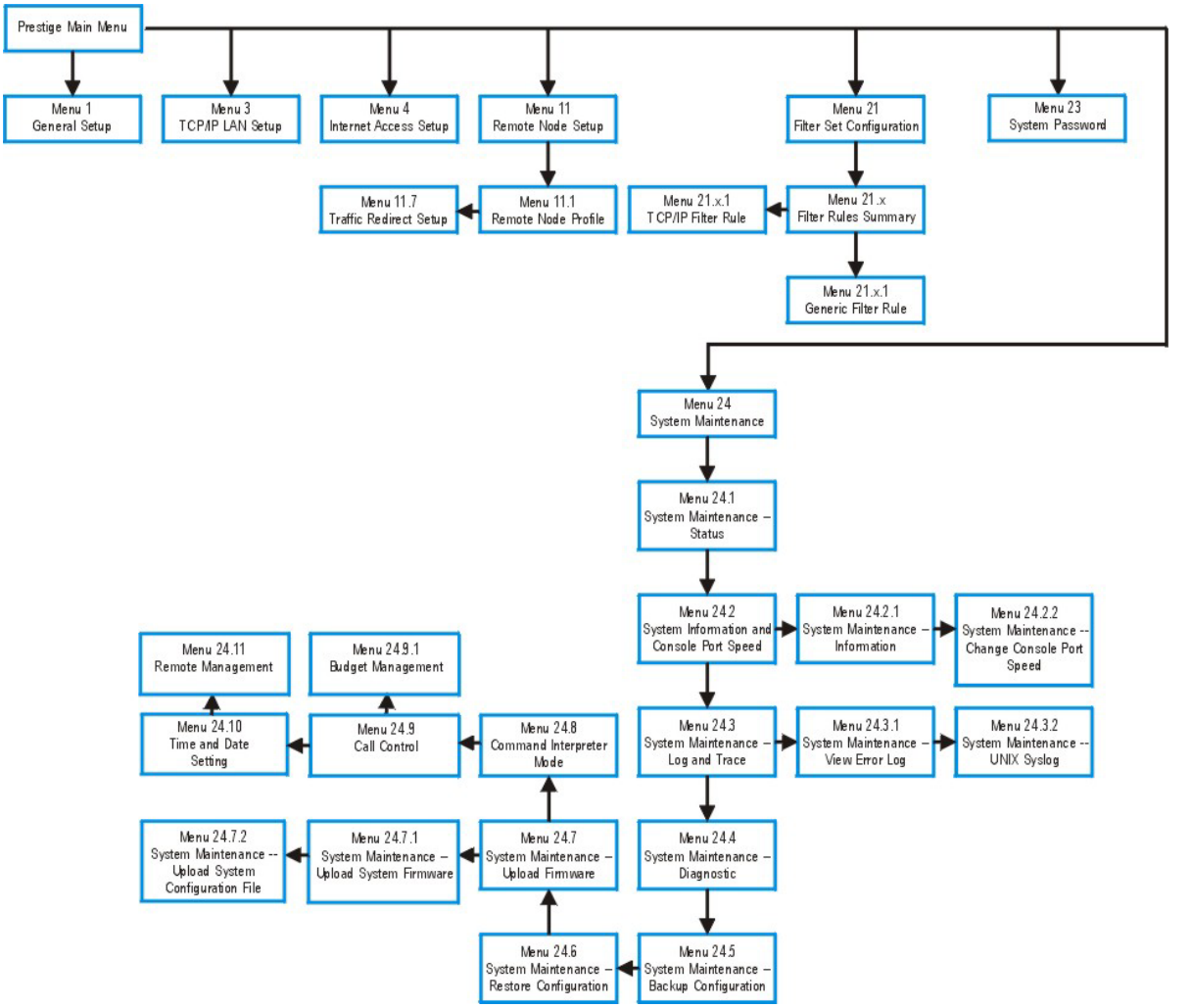


Figure 2-6 SMT Menu Overview

2.8 Navigating the SMT Interface

The SMT (System Management Terminal) is the interface that you use to configure your Prestige.

Several operations that you should be familiar with before you attempt to modify the configuration are listed in the following table.

Table 2-2 Main Menu Commands

OPERATION	KEYSTROKE	DESCRIPTION
Move down to another menu	[ENTER]	To move forward to a sub-menu, type in the number of the desired sub-menu and press [ENTER].
Move up to a previous menu	[ESC]	Press the [ESC] key to move back to the previous menu.
Move to a “hidden” menu	Press the [SPACE BAR] to change **No** to **Yes** then press [ENTER]**.**	Fields beginning with “Edit” lead to hidden menus and have a default setting of **No**. Press the [SPACE BAR] to change **No** to **Yes**, then press [ENTER] to go to a “hidden” menu.
Move the cursor	[ENTER] or [Up]/[Down] arrow keys	Within a menu, press [ENTER] to move to the next field. You can also use the [Up]/[Down] arrow keys to move to the previous and the next field, respectively.
Enter information	Fill in, or Press the [SPACE BAR] to select	You need to fill in two types of fields. The first requires you to type in the appropriate information. The second allows you to cycle through the available choices by pressing the [SPACE BAR].
Required fields	<? > or **ChangeMe**	All fields with the symbol <?> must be filled in order be able to save the new configuration. All fields with **ChangeMe** must not be left blank in order to be able to save the new configuration.
N/A fields	<N/A>	Some of the fields in the SMT will show a <N/A>. This symbol refers to an option that is Not Applicable.
Save your configuration	[ENTER]	Save your configuration by pressing [ENTER] at the message [Press ENTER to confirm or ESC to cancel]. Saving the data on the screen will take you, in most cases to the previous menu.
Exit the SMT	Type 99, then press [ENTER].	Type 99 at the main menu prompt and press [ENTER] to exit the SMT interface.

After you enter the password, the SMT displays the **Main Menu**, as shown next.

2.8.1 System Management Terminal Interface Summary

```
            Copyright (c) 1994 - 2003 ZyXEL Communications Corp.
                        Prestige 645M-A1 Main Menu

Getting Started                         Advanced Management
1. General Setup                        21. Filter Set Configuration
3. TCP/IP Setup                         23. System Password
4. Internet Access Setup                24. System Maintenance


Advanced Applications
11. Remote Node Setup

                                        99. Exit



                          Enter Menu Selection Number:
```

Figure 2-7 SMT Main Menu

Table 2-3 SMT Main Menu

#	MENU TITLE	DESCRIPTION
1	General Setup	Use this menu to set up general information.
3	TCP/IP	Use this menu to set up your LAN connection.
4	Internet Access Setup	This menu provides convenient set up for an Internet connection.
11	Remote Node Setup	Use this menu to configure the Remote Node(s) for LAN-to-LAN connection(s), including the Internet.
21	Filter Set Configuration	Use this menu to set up filters to provide security, etc.
23	System Password	Use this menu to change your password.
24	System Maintenance	This menu provides diagnostic, file transfer, time setting and other tools for maintaining your Prestige.
99	Exit	Use this to exit the SMT and return to a blank screen.

2.9 Changing the System Password

Change the Prestige default password by following the steps shown next.

Step 1. Enter 23 in the main menu to open **Menu 23 - System Password** as shown next.

Step 2. Type your existing system password (1234 is the default) in the **Old Passoword** field and press [ENTER].

```
                    Menu 23 - System Password

            Old Password= ?
            New Password= ?
            Retype to confirm= ?



              Enter here to CONFIRM or ESC to CANCEL:
```

Figure 2-8 System Password

Step 3. Type your new system password in the **New Password** field (up to 30 alphanumeric characters. Do not use spaces, but dashes "-" and underscores "_" are accepted). Then press [ENTER].

Step 4. Re-type your new system password in the **Retype to Confirm** field for confirmation and press [ENTER].

Note that as you type a password, the screen displays an asterisk "*" for each character you type.

If you forget your password, use the reset button to restore the default password of 1234. This will allow you to enter the SMT. Then use the above instructions to set a new password.

2.10 General Setup

Menu 1 – General Setup contains administrative and system-related information (shown next). The **System Name** field is for identification purposes. However, because some ISPs check this name you should enter your computer's "Computer Name".

- In Windows 95/98 click **Start**, **Settings**, **Control Panel**, **Network**. Click the **Identification** tab, note the entry for the **Computer name** field and enter it as the Prestige **System Name**.
- In Windows 2000 click **Start**, **Settings**, **Control Panel** and then double-click **System**. Click the **Network Identification** tab and then the **Properties** button. Note the entry for the **Computer name** field and enter it as the Prestige **System Name**.
- In Windows XP, click **start**, **My Computer**, **View system information** and then click the **Computer Name** tab. Note the entry in the **Full computer name** field and enter it as the Prestige **System Name**.

2.10.1 Procedure to Configure Menu 1

Step 1. Enter 1 in the main menu to open **Menu 1 – General Setup**.

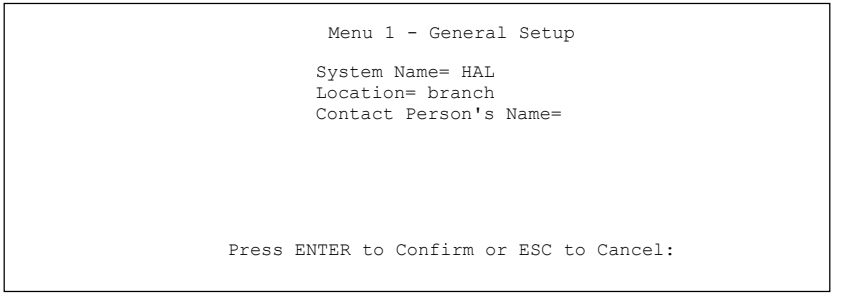


Figure 2-9 General Setup

Step 2. Fill in the required fields. Refer to the table shown next for more information about these fields.

Table 2-4 General Setup

FIELD	DESCRIPTION	EXAMPLE
System Name	Choose a descriptive name for identification purposes. This name can be up to 30 alphanumeric characters long. Spaces are not allowed, but dashes “-” and underscores "_" are accepted.	HAL
Location (optional)	Enter the geographic location (up to 31 characters) of your Prestige.	branch
Contact Person's Name (optional)	Enter the name (up to 30 characters) of the person in charge of this Prestige.	JohnDoe
When you have completed this menu, press [ENTER] at the prompt “Press ENTER to Confirm…” to save your configuration, or press [ESC] at any time to cancel.		

Chapter 3
Internet Access

This chapter shows you how to configure the LAN as well as the WAN of your Prestige for Internet access.

3.1 Internet Access Overview

This section provides information on LANs, WANs, TCP/IP parameters and configuring your prestige for Internet access.

3.2 LANs and WANs

A LAN (Local Area Network) is a computer network limited to the immediate area, usually the same building or floor of a building. A WAN (Wide Area Network), on the other hand, is an outside connection to another network or the Internet.

3.2.1 LANs, WANs and the Prestige

The actual physical connection determines whether the Prestige ports are LAN or WAN ports. There are two separate IP networks, one inside the LAN network; the other outside: the WAN network as shown next:

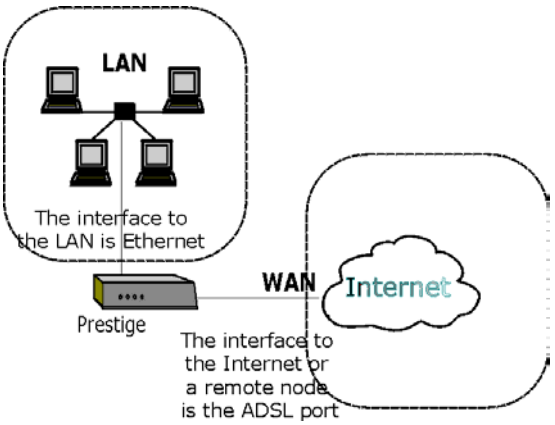


Figure 3-1 LAN & WAN IPs

3.3 IP Address and Subnet Mask

Similar to the way houses on a street share a common street name, the machines on a LAN also 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 (ignoring the trailing zero). The Internet Assigned Number Authority (IANA) has 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 3 numbers specify the network number while the last number identifies an individual computer on that network.

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.

3.3.1 Private IP Addresses

Every machine on the Internet must have a unique address. If your networks are isolated from the Internet, e.g., only between your two branch offices, you can assign any IP addresses to the hosts without problems. However, the Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of IP addresses specifically for private networks:

```
10.0.0.0      -  10.255.255.255

172.16.0.0    -  172.31.255.255

192.168.0.0   -  192.168.255.255
```

You can obtain your IP address from the IANA, from an ISP, or have it assigned by a private network. If you belong to a small organization and your Internet access is through an ISP, the ISP can provide you with the Internet addresses for your local networks. On the other hand, if you are part of a much larger organization, you should consult your network administrator for the appropriate IP addresses.

Regardless of your particular situation, do not create an arbitrary IP address; always follow the guidelines above. For more information on address assignment, please refer to RFC 1597, *Address Allocation for Private Internets* and RFC 1466, *Guidelines for Management of IP Address Space.*

3.4 Factory Ethernet Defaults

The Ethernet 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).

3.5 TCP/IP Ethernet Setup

This section describes how to configure the Ethernet using **Menu 3 – Ethernet Setup**. From the main menu, enter 3 to open menu 3.

```
                    Menu 3 - TCP/IP Ethernet Setup


               TCP/IP Setup:
                 IP Address= 192.168.1.1
                 IP Subnet Mask= 255.255.0.0


                Press ENTER to Confirm or ESC to Cancel:
```

Figure 3-2 TCP/IP Ethernet Setup

Table 3-1 TCP/IP Ethernet Setup

FIELD	DESCRIPTION	EXAMPLE
TCP/IP Setup		
IP Address	Enter the (LAN) IP address of your Prestige in dotted decimal notation	192.168.1.1 (default)
IP Subnet Mask	Your Prestige will 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	255.255.255.0
When you have completed this menu, press [ENTER] at the prompt [Press ENTER to Confirm…] to save your configuration, or press [ESC] at any time to cancel.		

3.6 VPI & VCI

Be sure to use the correct Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) numbers supplied by your telephone company. The valid range for the VPI is 1 to 255 and for the VCI is 32 to 65535 (1 to 32 is reserved for local management of ATM traffic). Please see the appendix on VPI and VCI for more information.

3.7 Multiplexing

There are two conventions to identify what protocols the virtual circuit (VC) is carrying. Be sure to use the multiplexing method required by your ISP.

3.7.1 VC-based multiplexing

In this case, by prior mutual agreement, each protocol is assigned to a specific virtual circuit, e.g., VC1 carries IP, VC2 carries IPX, etc. VC-based multiplexing may be dominant in environments where dynamic creation of large numbers of ATM VCs is fast and economical.

3.7.2 LLC-based multiplexing

In this case one VC carries multiple protocols with protocol identifying information being contained in each packet header. Despite the extra bandwidth and processing overhead, this method may be advantageous if it is not practical to have a separate VC for each carried protocol, e.g., if charging heavily depends on the number of simultaneous VCs.

3.8 Encapsulation

Be sure to use the encapsulation method required by your ISP. The Prestige supports the following methods.

3.8.1 PPPoA

Please refer to RFC 2364 for more information on PPP over ATM Adaptation Layer 5 (AAL5). Refer to RFC 1661 for more information on PPP.

3.8.2 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.

3.9 IP Address Assignment

A static IP is a fixed IP that your ISP gives you. A dynamic IP is not fixed. The ISP assigns you a different one each time.

3.9.1 Using PPP Encapsulation

If you have a dynamic IP, then the IP Address field is not applicable (N/A). If you have a static IP, then you *only* need to fill in the IP Address field.

3.9.2 Using RFC 1483 Encapsulation

In this case the IP Address Assignment *must* be static with the same requirements for the IP Address.

3.10 Traffic Shaping

Traffic Shaping is an agreement between the carrier and the subscriber to regulate the average rate and "burstiness" or fluctuation of data transmission over an ATM network. This agreement helps eliminate congestion, which is important for transmission of real time data such as audio and video connections.

Peak Cell Rate (PCR) is the maximum rate at which the sender can send cells. This parameter may be lower (but not higher) than the maximum line speed. 1 ATM cell is 53 bytes (424 bits), so a maximum speed of 832 Kbps gives a maximum PCR of 1962 cells/sec. This rate is not guaranteed because it is dependent on the line speed.

Sustained Cell Rate (SCR) is the mean cell rate of a bursty, on-off traffic source that can be sent at the peak rate, and a parameter for burst-type traffic. SCR may not be greater than the PCR; the system default is 0 cells/sec.

Maximum Burst Size (MBS) is the maximum number of cells that can be sent at the PCR. After MBS is reached, cell rates fall below SCR until cell rate averages to the SCR again. At this time, more cells (up to the MBS) can be sent at the PCR again.

If the PCR, SCR or MBS is set to the default of "0", the system will assign a maximum value that correlates to your upstream line rate.

The following figure illustrates the relationship between PCR, SCR and MBS.

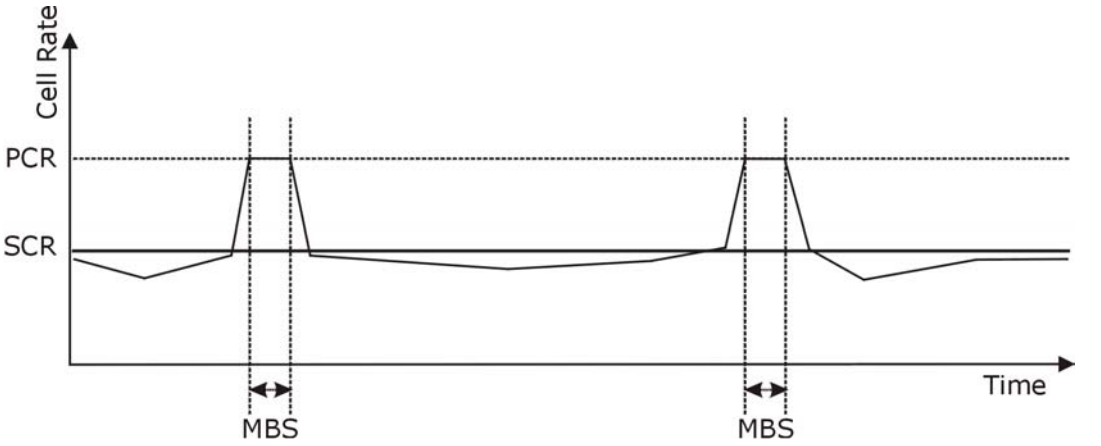


Figure 3-3 Traffic Shaping Example

3.11 Internet Access Configuration

Menu 4 allows you to enter the Internet Access information in one screen. **Menu 4** is actually a simplified setup for one of the remote nodes that you can access in menu 11. Before you configure your Prestige for Internet access, you need to collect your Internet account information from your ISP and telephone company.

Use the following table to record your Internet Account Information. Note that if you are using PPP encapsulation, then the only ISP information you need is a login name and password.

Table 3-2 Internet Account Information

Internet Account Information	Write your account information here
Telephone Company Information	
VPI (Virtual Path Identifier)	_____
VCI (Virtual Channel Identifier)	_____
ISP Information	
IP Address of the ISP's Gateway (Optional)	_____
Login Name	_____
Password for ISP authentication	_____
Type of Multiplexing	_____
Type of Encapsulation	_____

From the main menu, enter 4 to go to **Menu 4 - Internet Access Setup**, as shown next. The following table contains instructions on how to configure your Prestige for Internet access.

```
Menu 4 - Internet Access Setup

    ISP's Name= MyISP
    Encapsulation= RFC 1483
    Multiplexing= LLC-based
    VPI #= 8
    VCI #= 35
    ATM QoS Type= UBR
      Peak Cell Rate (PCR)= 0
      Sustain Cell Rate (SCR)= 0
      Maximum Burst Size (MBS)= 0
    My Login= N/A
    My Password= N/A



Press ENTER to Confirm or ESC to Cancel:
```

Get the VPI and VCI from your telephone company and the other information from your ISP.

Figure 3-4 Internet Access Setup

Table 3-3 Internet Access Setup

FIELD	DESCRIPTION	EXAMPLE
ISP's Name	Enter the name of your Internet Service Provider, e.g., MyISP. This information is for identification purposes only.	MyISP
Encapsulation	Press the [SPACE BAR] to select the method of encapsulation used by your ISP. The choices are PPP or RFC 1483.	**PPP**
Multiplexing	Press the [SPACE BAR] to select the method of multiplexing used by your ISP - either VC-based or LLC-based.	**VC-based**
VPI #	Enter the Virtual Path Identifier (VPI) that the telephone company gives you.	8 (default)
VCI #	Enter the Virtual Channel Identifier (VCI) that the telephone company gives you.	35 (default)
ATM QoS Type	Press [SPACE BAR] and select **CBR** (Continuous Bit Rate) to specify fixed (always-on) bandwidth. Select **UBR** (Unspecified Bit Rate) for applications that are non-time sensitive, such as e-mail. Select **VBR** (Variable Bit Rate) for bursty traffic and bandwidth sharing with other applications.	**UBR**
Peak Cell Rate (PCR)	This is the maximum rate at which the sender can send cells. Type the PCR.	0
Sustain Cell Rate (SCR)	Sustained Cell Rate is the mean cell rate of a bursty, on-off traffic source that can be sent at the peak rate, and a parameter for burst-type traffic. Type the SCR; it must be less than the PCR.	0
Maximum Burst Size (MBS)	Refers to the maximum number of cells that can be sent at the peak rate. Type the MBS. The MBS must be less than 65535.	0
My Login	Enter the login name that your ISP gives you.	tarbuck
My Password	Enter the password associated with the login name above.	***

At this point, if all your settings are correct your Prestige should connect automatically to the Internet.

Part II:

Remote Node Configuration, Filter Configuration, System Maintenance, Toubleshooting, Appendices, Index

This part describes Remote Node Configuration, Filter Configuration, System Maintenance, Toubleshooting, the Appenices, and the Index.

Chapter 4
Remote Node Configuration

This chapter is about parameters that are protocol independent. The protocol-dependent configuration will be covered in subsequent chapters.

4.1 Remote Node Overview

A remote node is required for placing calls to a remote gateway. A remote node represents both the remote gateway and the network behind it across a WAN connection. Note that when you use **Menu 4** to set up Internet access, you are actually configuring one of the remote nodes.

4.2 Remote Node Setup

This section describes the protocol-independent parameters for a remote node.

4.2.1 Encapsulation and Multiplexing Scenarios

For Internet access, you should use the encapsulation and multiplexing methods used by your ISP. For a LAN-to-LAN application, e.g., branch office and corporate headquarters, prior mutual agreement on methods used is necessary because there is no mechanism to automatically determine encapsulation/multiplexing. Selection of which encapsulation and multiplexing methods to use depends on how many VCs you have and how many different network protocols you need.

Scene 1. One VC, Multiple Protocols

PPPoA (RFC 2364) encapsulation with **VC-based** multiplexing is the best combination because the extra protocol identifying headers that **LLC-based** multiplexing uses are unneeded. The PPP protocol already contains this information.

Scene 2. One VC, One Protocol (IP)

Selecting **RFC-1483** encapsulation with VC-based multiplexing requires the least amount of overhead (0 octets). However, if there is a potential need for multiple protocol support in the future, it may be safer to select **PPPoA** encapsulation instead of **RFC-1483**, so you don't need to reconfigure when the time comes.

Scene 3. Multiple VCs

If you have an equal number (or more) of VCs than the number of protocols, then select **RFC-1483** encapsulation and **VC-based** multiplexing.

4.2.2 Remote Node Profile

To configure a remote node, follow these steps:

Step 1. From the main menu, enter 11 to open **Menu 11 - Remote Node Setup**.

Step 2. When menu 11 appears, as shown below, enter the number of the remote node that you wish to configure.

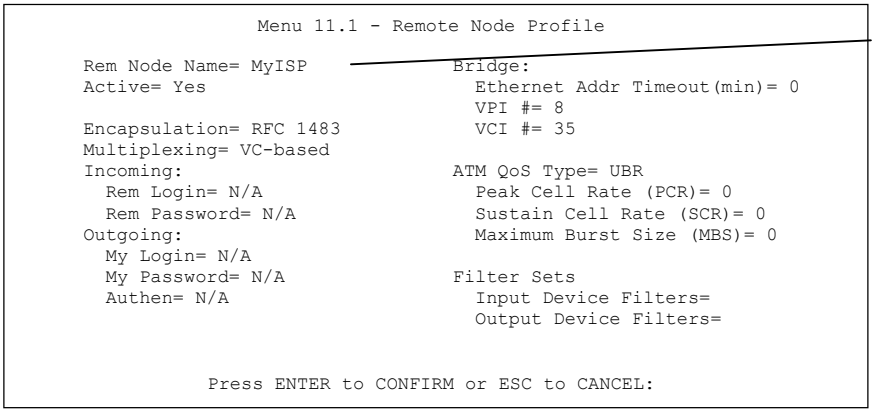
```
                    Menu 11 - Remote Node Setup

                1. MyISP (ISP)
                2. ________
                3. ________
                4. ________
                5. ________
                6. ________
                7. ________
                8. ________


                     Enter Node # to Edit:
```

Figure 4-1 Remote Node Setup

When **Menu 11.1 - Remote Node Profile** appears fill in the fields to define this remote profile. Descriptions and information about configuring the fields is given in the table that follows.



Enter a unique name, up to eight characters, for the

Figure 4-2 Remote Node Profile

Table 4-1 Remote Node Profile

FIELD	DESCRIPTION	EXAMPLE
Rem Node Name	Type a unique, descriptive name of up to eight characters for this node.	MyISP
Active	Press [SPACE BAR] and then [ENTER] to select **Yes** to activate or **No** to deactivate this node. Inactive nodes are displayed with a minus sign "–" in SMT menu 11.	**Yes**
Encapsulation	**PPPoA** refers to RFC-2364 (PPP Encapsulation over ATM Adaptation Layer 5). If RFC-1483 (Multiprotocol Encapsulation over ATM Adaptation Layer 5) of **ENET ENCAP** are selected, then the **Rem Login**, **Rem Password**, **My Login**, **My Password**, **Edit PPP** Options and **Authen** fields are not applicable (**N/A**).	**PPPoA**
Multiplexing	Press [SPACE BAR] and then [ENTER] to select the method of multiplexing that your ISP uses, either **VC-based** or **LLC-based**.	**LLC-based**
Incoming: Rem Login	Type the login name that this remote node will use to call your Prestige. The login name and the **Rem Password** will be used to authenticate this node.	
Rem Password	Type the password used when this remote node calls your Prestige.	

Table 4-1 Remote Node Profile

FIELD	DESCRIPTION	EXAMPLE
Outgoing: My Login	Type the login name assigned by your ISP when the Prestige calls this remote node.	
My Password	Type the password assigned by your ISP when the Prestige calls this remote node.	
Authen	This field sets the authentication protocol used for outgoing calls. Options for this field are: **CHAP**/**PAP** – Your Prestige will accept either **CHAP** or **PAP** when requested by this remote node. **CHAP** – accept **CHAP** (Challenge Handshake Authentication Protocol) only. **PAP** – accept PAP (Password Authentication Protocol) only.	**PAP**
Bridge		
Ethernet Addr. Timeout (min)	In this field, enter the time (number of minutes) that you wish your Prestige 645M to retain the Ethernet Addr information in its internal tables while the line is down. If this information is retained, your Prestige 645M will not have to recompile the tables when the line is brought back up.	0
VPI #	Enter the Virtual Path Identifier (VPI) that the telephone company gives you.	8
VCI #	Enter the Virtual Path Channel (VCI) that the telephone company gives you.	35
ATM QoS Type	Press [SPACE BAR] and select **CBR** (Continuous Bit Rate) to specify fixed (always-on) bandwidth. Select **UBR** (Unspecified Bit Rate) for applications that are non-time sensitive, such as e-mail. Select **VBR** (Variable Bit Rate) for bursty traffic and bandwidth sharing with other applications.	**UBR**
Peak Cell Rate (PCR)	This is the maximum rate at which the sender can send cells. Type the PCR.	0
Sustain Cell Rate (SCR)	Sustained Cell Rate is the mean cell rate of a bursty, on-off traffic source that can be sent at the peak rate, and a parameter for burst-type traffic. Type the SCR; it must be less than the PCR.	0

Table 4-1 Remote Node Profile

FIELD	DESCRIPTION	EXAMPLE
Maximum Burst Size (MBS)	Refers to the maximum number of cells that can be sent at the peak rate. Type the MBS. The MBS must be less than 65535.	0
Filter Sets	See Chapter 5 for more details.	
Input Device Filters	Use this to specify filter sets to apply to incoming traffic. You can specify up to four filter sets separated by commas. None are applied by default.	1, 5, 9, 12
Output Device Filters	Use this to specify filter sets to apply to outgoing traffic. You can specify up to four filter sets separated by commas. None are applied by default.	6
When you have completed this menu, press [ENTER] at the prompt "Press ENTER to confirm or ESC to cancel" to save your configuration or press [ESC] to cancel and go back to the previous screen.		

4.2.3 Outgoing Authentication Protocol

For obvious reasons you should generally employ the strongest authentication protocol possible. However, some vendors' implementation includes a specific authentication protocol in the user profile. It will disconnect if the negotiated protocol is different from that in the user profile, even when the negotiated protocol is stronger than specified. If you encounter a case where the peer disconnects right after a successful authentication, please make sure that you specify the correct authentication protocol when connecting to such an implementation.

4.2.4 Bridging in General

Bridging bases the forwarding decision on the MAC (Media Access Control), or hardware address and allows the Prestige to transport packets of network layer protocols.

Chapter 5
Filter Configuration

This chapter shows you how to create and apply filter(s).

5.1 Filtering Overview

Your Prestige uses filters to decide whether or not to allow passage of a packet. Data filters are divided into incoming and outgoing filters, depending on the direction of the packet relative to a port. These filters are further subdivided into device and protocol filters, which are discussed later. Data filtering can be applied on either the WAN side or the Ethernet side.

For incoming packets, your Prestige applies data filters only. Packets are processed depending upon whether a match is found. The following sections describe how to configure filter sets.

The Filter Structure of the Prestige

A filter set consists of one or more filter rules. Usually, you would group related rules, e.g., all the rules for Telnet, into a single set and give it a descriptive name. The Prestige allows you to configure up to twelve filter sets with six rules in each set, for a total of 72 filter rules in the system. You cannot mix device filter rules and protocol filter rules within the same set.

You can apply up to four filter sets to a particular port to block multiple types of packets. With each filter set having up to six rules, you can have a maximum of 24 rules active for a single port.

5.2 Filter Set Configuration

To configure a filter set, follow this procedure:

Step 1. Enter 21 from the main menu to open **Menu 21 - Filter Set Configuration**.

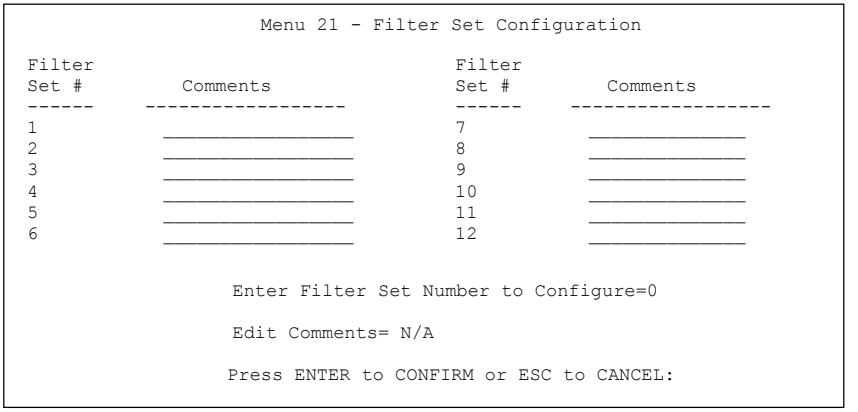


Figure 5-1 Filter Set Configuration

Step 2. Enter the index of the filter set you wish to configure (no. 1-12) and press [ENTER].

Step 3. Enter a descriptive name or comment in the Edit Comments field and press [ENTER].

Step 4. Press [ENTER] at the message: [Press ENTER to Confirm] to open **Menu 21.x - Filter Rules Summary**.

5.2.1 Filter Rules Summary

The next screen shows a summary of the existing rules in an example filter set. The following tables contain a brief description of the abbreviations used in menu 21.x, where x refers to the filter number being configured.

```
                    Menu 21.x - Filter Rules Summary

# A Type                       Filter Rules                              M m n
- - ---- ------------------------------------------------------------- - - -
1 N
2 N
3 N
4 N
5 N
6 N
                Enter Filter Rule Number (1-6) to Configure:
```

Figure 5-2 Filter Rules Summary

Table 5-1 Filter Rules Summary

FIELD	DESCRIPTION	EXAMPLE
#	Refers to the filter rule number (1-6).	
A	Shows whether the rule is active or not.	[Y] means the filter rule is active. [N] means the filter rule is inactive.
Type	Refers to the type of filter rule.	[GEN] = Generic.
Filter Rules	The filter rule parameters will be displayed here (see below).	

Table 5-1 Filter Rules Summary

FIELD	DESCRIPTION	EXAMPLE
M	Refers to **More**. **More** in a set behaves like a logical AND i.e., the set is only matched if ALL rules in it are matched. [Y] means an action can not yet be taken as there are more rules to check, which are concatenated with the present rule to form a rule chain. When the rule chain is complete an action can be taken. [N] means you can now specify an action to be taken i.e., forward the packet, drop the packet or check the next rule. For the latter, the next rule is independent of the rule just checked. If More is **Yes**, then **Action Matched** and **Action Not Matched** will be **N/A**.	[Y] means there are more rules to check. [N] means there are no more rules to check.
m	Refers to **Action Matched**. [F] means to forward the packet immediately and skip checking the remaining rules.	[F] means to forward the packet. [D] means to drop the packet. [N] means check the next rule.
N	Refers to **Action Not Matched.** [F] means to forward the packet immediately and skip checking the remaining rules.	[F] means to forward the packet. [D] means to drop the packet. [N] means check the next rule.

The abbreviations listed in the following table will be used for GEN (generic) filters.

Table 5-2 Abbreviations Used If Filter Type Is GEN

Abbreviation	DESCRIPTION
Off	Offset
Len	Length

Refer to the next section for information on configuring the filter rules.

5.3 Configuring a Filter Rule

To configure a filter rule, enter its number in **Menu 21.3 - Filter Rules Summary** and press [ENTER] to open menu 21.x.3 for the rule.

5.3.1 Generic Filter Rule

This section shows you how to configure a generic filter rule. The purpose of generic rules is to allow you to filter non-IP packets.

For generic rules, the Prestige treats a packet as a byte stream. You specify the portion of the packet to check with the Offset (from 0) and the Length fields, both in bytes. The Prestige applies the Mask (bit-wise ANDing) to the data portion before comparing the result against the Value to determine a match. The Mask and Value are specified in hexadecimal numbers. Note that it takes two hexadecimal digits to represent a byte, so if the length is 4, the value in either field will take 8 digits, e.g., FFFFFFFF.

```
                Menu 21.x.1 - Generic Filter Rule

           Filter #: 1,1

           Active= No
           Offset= 0
           Length= 0
           Mask= N/A
           Value= N/A
           More= No              Log= None
           Action Matched= Check Next Rule
           Action Not Matched= Check Next Rule



          Press ENTER to Confirm or ESC to Cancel:
```

Figure 5-3 Generic Filter Rule

Table 5-3 Generic Filter Rule

FIELD	DESCRIPTION	EXAMPLE
Filter #	This is the filter set, filter rule co-ordinates, i.e., 2,3 refers to the second filter set and the third filter rule of that set.	2,3
Active	Select **Yes** to turn on the filter rule or **No** to turn the filter rule off.	**Yes**

Table 5-3 Generic Filter Rule

FIELD	DESCRIPTION	EXAMPLE
Offset	Enter the starting byte of the data portion in the packet that you wish to compare. The range for this field is from 0 to 255.	0 (default)
Length	Enter the byte count of the data portion in the packet that you wish to compare. The range for this field is 0 to 8.	0 (default)
Mask	Enter the mask (in Hexadecimal) to apply to the data portion before comparison.	
Value	Enter the value (in Hexadecimal) to compare with the data portion.	
More	If **Yes**, a matching packet is passed to the next filter rule before an action is taken; otherwise the packet is disposed of according to the action fields. If More is **Yes**, then Action Matched and Action Not Matched will be **N/A**.	**Yes**
Log	Select the logging option from the following: **None** – No packets will be logged. **Action Matched** - Only packets that match the rule parameters will be logged. **Action Not Matched** - Only packets that do not match the rule parameters will be logged. **Both** – All packets will be logged.	**None**
Action Matched	Select the action for a matching packet: **Check Next Rule**, **Forward** or **Drop**.	**Forward**
Action Not Matched	Select the action for a packet not matching the rule: **Check Next Rule**, **Forward or Drop**.	**Drop**
Once you have completed filling in **Menu 21.1.1 - Generic Filter Rule**, press [ENTER] at the message [Press ENTER to Confirm] to save your configuration, or press [ESC] to cancel. This data will now be displayed on **Menu 21.x - Filter Rules Summary**.		

5.4 Applying a Filter

This section shows you where to apply the filter(s) after you design it (them).

5.4.1 Ethernet traffic

You seldom need to filter Ethernet traffic; however, the filter sets may be useful to block certain packets, reduce traffic and prevent security breaches.

5.4.2 Remote Node Profile

Go to **Menu 11.1** and enter the number(s) of the filter set(s) as appropriate. You can cascade up to four filter sets by entering their numbers separated by commas.

```
                Menu 11.1 - Remote Node Profile

Rem Node Name= ChangeMe          Bridge:
Active= Yes                        Ethernet Addr Timeout(min)= 0
                                   VPI #= 8
Encapsulation= PPP                 VCI #= 35
Multiplexing= VC-based
Incoming:
  Rem Login= bucket              Filter Sets
  Rem Password=********            Input Device Filters= 1,5,9,12
Outgoing:                          Output Device Filters= 6
  My Login= oscar
  My Password= ********
  Authen= CHAP/PAP



          Press ENTER to CONFIRM or ESC to CANCEL:
```

Specify up to 4 filters separated by commas.

Chapter 6
System Maintenance

This chapter covers the diagnostic tools that help you to maintain your Prestige.

6.1 System Maintenance Overview

The diagnostic tools include updates on system status, port status, log and trace capabilities and upgrades for the system software. This chapter describes how to use these tools in detail.

Select menu 24 in the main menu to open **Menu 24 - System Maintenance**, as shown below.

```
Menu 24 - System Maintenance

1.  System Status
2.  System Information and Console Port Speed
3.  Log and Trace
4.  Diagnostic
5.  Backup Configuration
6.  Restore Configuration
7.  Upload Firmware
8.  Command Interpreter Mode



Enter Menu Selection Number:
```

Figure 6-1 System Maintenance

6.2 System Status

The first selection, System Status, gives you information on the status and statistics of the ports, as shown below. System Status is a tool that can be used to monitor your Prestige. Specifically, it gives you information on your ADSL line status, number of packets sent and received.

To get to the System Status, enter number 24 to go to **Menu 24 - System Maintenance.** From this menu, select number 1. System Status**.** There are two commands in **Menu 24.1 - System Maintenance - Status**. Entering 1 resets the counters and [ESC] takes you back to the previous screen.

The table below describes the fields present in **Menu 24.1 - System Maintenance - Status**. It should be noted that these fields are READ-ONLY and are meant to be used for diagnostic purposes.

Please note that displaying this screen degrades system performance.

```
                    Menu 24.1 - System Maintenance - Status

 Node-Lnk  Status      TxPkts       RxPkts     Errors   Tx  B/s      Rx B/s     Up Time
1-1483     Up            1462         1567          0      222         211     2:15:16
2          N/A              0            0          0        0           0     0:00:00
3          N/A              0            0          0        0           0     0:00:00
4          N/A              0            0          0        0           0     0:00:00
5          N/A              0            0          0        0           0     0:00:00
6          N/A              0            0          0        0           0     0:00:00
7          N/A              0            0          0        0           0     0:00:00
8          N/A              0            0          0        0           0     0:00:00




     Ethernet:                                  WAN:
       Status: 10M/Full Duplex  Tx Pkts: 1583     Line Status: Up
        Collisions: 0           Rx Pkts: 1521     Upstream Speed: 608 kbps
                                                  Downstream Speed: 4000 kbps
     CPU Load = 4.25%

                                 Press Command:
                          COMMANDS: 1-Reset Counters  ESC-Exit
```

Figure 6-2 System Maintenance – Status

Table 6-1 System Maintenance – Status

FIELD	DESCRIPTION
Node-Lnk	This is the remote node index number and link type. Link types are **PPP** and **RFC 1483**.
Status	Shows the status of the remote node.
TxPkts	The number of packets transmitted to this remote node.
RxPkts	The number of packets received from this remote node.
Errors	The number of error packets on this connection.

Table 6-1 System Maintenance – Status

FIELD	DESCRIPTION
Tx B/s	Shows the transmission rate in bytes per second.
Rx B/s	Shows the receiving rate in bytes per second.
Up Time	Time this channel has been connected to the remote node.
Ethernet	
Status	Shows the current status of the LAN.
Tx Pkts	The number of transmitted packets to the LAN.
Rx Pkts	The number of received packets from the LAN.
Collision	Number of collisions.
WAN	
Line Status	Shows the current status of the ADSL line which can be **Up, Down, Wait for Init** or **Initializing**.
Upstream Speed	Shows the ADSL line upstream speed.
Downstream Speed	Shows the ADSL line downstream speed
CPU Load	Specifies the percentage of CPU utilization.
Press Command	
1 - Reset Counters	Press 1 to reset all the above statistics to 0.
ESC - Exit	Press [ESC] to go back to menu 24.

6.3 System Information and Console Port Speed

System Information lists important data about your Prestige and its firmware.

Console port speed is included for use by qualified technical support personnel. Do not configure it.

Menu 24.2 System Information and Console Port Speed is as follows.

```
Menu 24.2 - System Information and Console Port Speed


        1. System Information

        2. Console Port Speed


                Please enter selection:
```

Figure 6-3 System Information and Console Port Speed

Press 1 to display the next screen, **Menu 24.2.1 - System Maintenance - Information.**

```
Menu 24.2.1 - System Maintenance - Information

   Name: P645M-A1
   Routing: BRIDGE
   ZyNOS F/W Version: V3.40(KY.0)b2 | 3/4/2003
   ADSL Chipset Vendor: SAMSUNG, DSP Version 109.030130
   Standard: G.DMT

   LAN
     Ethernet Address: 00:a0:c5:01:23:45
     IP Address: 192.168.1.1
     IP Mask: 255.255.255.0
     DHCP: None
```

Figure 6-4 System Maintenance - Information

Table 6-2 System Maintenance - Information

FIELD	DESCRIPTION
Name	Displays the system name of your Prestige. This information can be modified in **Menu 1 - General Setup**.
Routing	Refers to the routing protocol used.
ZyNOS F/W Version	Refers to the ZyNOS (ZyXEL Network Operating System) firmware version and date created. ZyNOS is a registered trademark of ZyXEL Communications Corporation.
ADSL Chipset Vendor	Displays the vendor of the ADSL chipset and ADSL bridge software version.

FIELD	DESCRIPTION
Standard	Refers to the ADSL standard in use. Full rate G.dmt and ANSI T1.413 allow rates up to 8 Mbps downstream and 832 Kbps upstream and require the use of a telephone splitter. The reduced rate G.Lite provides up to 1.536 Mbps downstream and 512 Kbps upstream and does not require a telephone splitter. Multi-Mode allows the standard to be negotiated automatically.
LAN	
Ethernet Address	Refers to the Ethernet MAC (Media Access Control) of your Prestige.
IP Address	This is the IP address of the Prestige in dotted decimal notation.
IP Mask	This shows the subnet mask of the Prestige.
DHCP	This field shows the DHCP setting (**None, Server**, or **Server Inact.**) of the Prestige.

Press 2 to display the next screen, **Menu 24.2.1 – Change Consol Port Speed**. Press the space bar to select a new consol port speed.

```
Menu 24.2.2 - System Maintenance – Change Console Port Speed

       Console Port Speed: 9600


       Press ENTER to Confirm or ESC to Cancel:

Press Space Bar to Toggle.
```

Figure 6-5 Change Consol Port Speed

6.4 Log and Trace

There are two logging facilities in the Prestige. The first is the error logs and trace records that are stored locally. The second is the UNIX syslog facility for message logging.

6.4.1 Error Log

The first place you should look for clues when something goes wrong is the error log. Follow the procedure below to view the local error/trace log:

Step 1. Enter 24 from the main menu to open **Menu 24 - System Maintenance**.

Step 2. From menu 24, enter 3 to open **Menu 24.3 - System Maintenance - Log and Trace**.

```
      Menu 24.3 - System Maintenance - Log and Trace

                  1. View Error Log
                  2. UNIX Syslog
```

Figure 6-6 System Maintenance – Log and Trace

Step 3. Enter 1 in **Menu 24.3 - System Maintenance - Log and Trace** to display the error log in the system.

After the Prestige finishes displaying the error log, you will have the option to clear it. Samples of typical error and information messages are presented in the next figure.

```
   58 Sat Jan  1 00:00:01 2000 PP0a  INFO  LAN promiscuous mode <0>
   59 Sat Jan  1 00:00:01 2000 PINI -WARN  SNMP TRAP 0: cold start
   60 Sat Jan  1 00:00:01 2000 PINI  INFO  main: init completed
   61 Sat Jan  1 00:00:06 2000 PP0f  INFO  adjtime task pause 1 day
   62 Sat Jan  1 00:00:11 2000 PINI  INFO  SMT Session Begin
   63 Sat Jan  1 00:00:22 2000 PP06  WARN  MPOA Link Down
Clear Error Log (y/n):
```

Figure 6-7 Error and Information Messages Examples

6.4.2 Unix Syslog

The Prestige uses the UNIX syslog facility to log the CDR (Call Detail Record) and system messages to a syslog server. Syslog can be configured in **Menu 24.3.2 - System Maintenance – Unix Syslog**, as shown next.

```
Menu 24.3.2 -- System Maintenance - UNIX Syslog

      Syslog:
      Active= No
      Syslog IP Address= ?
      Log Facility= Local 1

    Types:
      CDR= No

      Filter log= No
      PPP log= No

  Press ENTER to Confirm or ESC to Cancel:
        Press Space Bar to Toggle.
```

Figure 6-8 System Maintenance – UNIX Syslog

You need to configure the UNIX syslog parameters described in the following table to activate syslog then choose what you want to log.

Table 6-3 System Maintenance - UNIX Syslog

FIELD	DESCRIPTION
Syslog:	
Active	Press [SPACE BAR] and then [ENTER] to turn syslog on or off.
Syslog IP Address	Type the IP address of your syslog server.
Log Facility	Press [SPACE BAR] and then [ENTER] to select one of seven different local options. The log facility lets you log the message in different server files. Refer to your UNIX manual.
Types:	
CDR	Call Detail Record (CDR) logs all data phone line activity if set to **Yes.**
Filter log	No filters are logged when this field is set to **No.** Filters with the individual filter **Log Filter** field set to **Yes** are logged when this field is set to **Yes.**
PPP log	PPP events are logged when this field is set to **Yes.**

Your Prestige sends four types of syslog messages. Some examples of these syslog messages with their message formats are shown next:

1. CDR

CDR Message Format

```
        SdcmdSyslogSend( SYSLOG_CDR, SYSLOG_INFO, String );
        String = board xx line xx channel xx, call xx, str
        board = the hardware board ID
        line = the WAN ID in a board
        Channel = channel ID within the WAN
        call = the call reference number which starts from 1 and increments by 1 for each new call
        str = C01 Outgoing Call dev xx ch xx (dev:device No. ch:channel No.)
                  L02     Tunnel Connected(L2TP)
                  C02 OutCall Connected xxxx (means connected speed) xxxxx (means Remote Call
Number)
                  L02 Call Terminated
                  C02 Call Terminated
```

```
Jul 19 11:19:27 192.168.102.2 ZyXEL Communications Corp.: board 0 line 0 channel 0, call
1, C01 Outgoing Call dev=2 ch=0 40002

Jul 19 11:19:32 192.168.102.2 ZyXEL Communications Corp.: board 0 line 0 channel 0, call
1, C02 OutCall Connected 64000 40002

Jul 19 11:20:06 192.168.102.2 ZyXEL Communications Corp.: board 0 line 0 channel 0, call
1, C02 Call Terminated
```

2. Packet triggered

Packet triggered Message Format

```
sdcmdSyslogSend( SYSLOG_PKTTRI, SYSLOG_NOTICE, String );
        String = Packet trigger: Protocol=xx Data=xxxxxxxxxx…..x
        Protocol: (1:IP 2:BPDU 3:ATALK 4:IPNG)
        Data: We will send forty-eight Hex characters to the server
```

```
Jul 19 11:28:39 192.168.102.2 ZyXEL Communications Corp.: Packet Trigger: Protocol=1,
Data=4500003c100100001f010004c0a86614ca849a7b08004a5c020001006162636465666768696a6b6c6d6e6
f7071727374

Jul 19 11:28:56 192.168.102.2 ZyXEL Communications Corp.: Packet Trigger: Protocol=1,
Data=4500002c1b0140001f06b50ec0a86614ca849a7b0427001700195b3e00000000600220008cd4000002040
5b4

Jul 19 11:29:06 192.168.102.2 ZyXEL Communications Corp.: Packet Trigger: Protocol=1,
Data=450000282401400001f06ac12c0a86614ca849a7b0427001700195b451d1430135004000077600000
```

3. Filter log

Filter log Message Format
SdcmdSyslogSend(SYSLOG_FILLOG, SYSLOG_NOTICE, String); String = IP[Src=xx.xx.xx.xx Dst=xx.xx.xx.xx prot spo=xxxx dpo=xxxx] S04>R01mD IP[…] is the packet header and S04>R01mD means filter set 4 (S) and rule 1 (R), match (m) drop (D). Src: Source Address Dst: Destination Address prot: Protocol (“TCP”,”UDP”,”ICMP”) spo: Source port dpo: Destination port

```
Jul 19 14:43:55 192.168.102.2 ZyXEL Communications Corp.: IP[Src=202.132.154.123
Dst=255.255.255.255 UDP spo=0208  dpo=0208]}S03>R01mF

Jul 19 14:44:00 192.168.102.2 ZyXEL Communications Corp.: IP[Src=192.168.102.20
Dst=202.132.154.1 UDP spo=05d4  dpo=0035]}S03>R01mF

Jul 19 14:44:04 192.168.102.2 ZyXEL Communications Corp.: IP[Src=192.168.102.20

Dst=202.132.154.1 UDP spo=05d4  dpo=0035]}S03>R01mF
```

4. PPP log

PPP Log Message Format
sdcmdSyslogSend(SYSLOG_PPPLOG, SYSLOG_NOTICE, String); String = ppp:Proto Starting / ppp:Proto Opening / ppp:Proto Closing / ppp:Proto Shutdown Proto = LCP / ATCP / BACP / BCP / CBCP / CCP / CHAP/ PAP / IPCP /

```
Jul 19 11:42:44 192.168.102.2 ZyXEL Communications Corp.: ppp:LCP Closing

Jul 19 11:42:49 192.168.102.2 ZyXEL Communications Corp.: ppp:IPCP Closing

Jul 19 11:42:54 192.168.102.2 ZyXEL Communications Corp.: ppp:CCP Closing
```

6.5 Diagnostic

The diagnostic facility allows you to test the different aspects of your Prestige to determine if it is working properly. **Menu 24.4** allows you to choose among various types of diagnostic tests to evaluate your system, as shown. Follow the procedure below to get to the diagnostic functions.

Step 1. From the main menu, enter 24 to open **Menu 24 - System Maintenance**.

Step 2. From this menu, enter 4 to open **Menu 24.4 - System Maintenance - Diagnostic**.

```
                Menu 24.4 - System Maintenance - Diagnostic

xDSL                                    System
  1.   Reset xDSL                        21. Reboot System
                                         22. Command Mode

TCP/IP
  12. Ping Host




                        Enter Menu Selection Number:

                  Host IP Address= N/A
```

Figure 6-9 System Maintenance - Diagnostic

The following table describes the diagnostic tests available in menu 24.4 for your Prestige and the connections.

Table 6-4 System Maintenance - Diagnostic

FIELD	DESCRIPTION
Reset xDSL	This command re-initializes the xDSL link to the telephone company.
Ping Host	This diagnostic test pings the host, which determines the functionality of the TCP/IP protocol on both systems and the links in between.
Reboot System	This option restarts the Prestige.
Command Mode	This option allows you to enter the command mode. This mode allows you to diagnose and test your Prestige using a specified set of commands.

6.6 Command Interpreter Mode

The Command Interpreter (CI) is a part of the main system firmware. The CI provides much of the same functionality as the SMT, while adding some low-level setup and diagnostic functions. The CI can be entered from the SMT by selecting **Menu 24.8**. Access is by Telnet.

Enter 8 from **Menu 24 - System Maintenance**. A list of valid commands can be found by typing “help” or “?” at the command prompt. Type “exit” to return to the SMT main menu when finished.

```
                          Enter Menu Selection Number: 8

Copyright (c) 1994 - 2001 ZyXEL Communications Corp.
Ras> ?
Valid commands are:
sys             exit            device          ether
wan             ip              ppp             bridge
hdap
```

Figure 6-10 Command Interpreter Mode

Chapter 7
Configuration and Firmware File Maintenance

This chapter tells you how to backup and restore your configuration file as well as upload new firmware and configuration files.

7.1 Filename Conventions Overview

The configuration file (often called the romfile or rom-0) contains the factory default settings in the menus such as password, TCP/IP Setup, etc. It arrives from ZyXEL with a rom filename extension. Once you have customized the Prestige's settings, they can be saved back to your computer under a filename of your choosing.

ZyNOS (ZyXEL Network Operating System sometimes referred to as the “ras” file) is the system firmware and has a “bin” filename extension. With many ftp and tftp clients, the filenames are similar to those seen next.

```
ftp> put firmware.bin ras
```

This is a sample ftp session showing the transfer of the computer file " firmware.bin" to the Prestige.

```
ftp> get rom-0 config.cfg
```

This is a sample ftp session saving the current configuration to the computer file config.cfg.

If your [t]ftp client does not allow you to have a destination filename different than the source, you will need to rename them as the Prestige only recognizes “rom-0” and “ras”. Be sure you keep unaltered copies of both files for later use.

The following table is a summary. Please note that the internal filename refers to the filename on the Prestige and the external filename refers to the filename not on the Prestige, that is, on your computer, local

network or ftp site and so the name (but not the extension) will vary. After uploading new firmware see the **ZyNOS F/W Version** field in **Menu 24.2.1 - System Maintenance - Information** to confirm that you have uploaded the correct firmware version.

TABLE 7-1 FILENAME CONVENTIONS

FILE TYPE	INTERNAL NAME	EXTERNAL NAME	DESCRIPTION
Configuration File	Rom-0	*.rom	This is the configuration filename on the Prestige. Uploading the rom-0 file replaces the entire ROM file system, including your Prestige configurations, system-related data (including the default password), the error log and the trace log.
Firmware	Ras	*.bin	This is the generic name for the ZyNOS firmware on the Prestige.

7.2 Backup Configuration Overview

Option 5 from **Menu 24 - System Maintenance** allows you to backup the current Prestige configuration to your computer. Backup is highly recommended once your Prestige is functioning properly. FTP is the preferred method, although TFTP can also be used.

Please note that the terms “download” and “upload” are relative to the computer. Download means to transfer from the Prestige to the computer, while upload means from your computer to the Prestige.

7.2.1 Backup Configuration Using FTP

Enter 5 in **Menu 24 - System Maintenance** to get the following screen.

```
                    Menu 24.5 - Backup Configuration

To transfer the configuration file to your workstation, follow the procedure
below:

   1. Launch the FTP client on your workstation.
   2. Type "open" and the IP address of your system. Then type "root" and
      SMT password as requested.
   3. Locate the 'rom-0' file.
   4. Type 'get rom-0' to back up the current system configuration to your
      workstation.

 For details on FTP commands, please consult the documentation of your FTP
 client program. For details on backup using TFTP (note that you must remain
 in the menu to back up using TFTP), please see your user manual.

                              Press ENTER to Exit:
```

Figure 7-1 Backup Configuration

7.2.2 Using the FTP command from the DOS Prompt

Step 1. Launch the FTP client on your computer.

Step 2. Enter "open" and the IP address of your Prestige.

Step 3. Press [ENTER] when prompted for a username.

Step 4. Enter "root" and your SMT password as requested. The default is 1234.

Step 5. Enter "bin" to set transfer mode to binary.

Step 6. Use "get" to transfer files from the Prestige to the computer, for example, "get rom-0 config.rom" transfers the configuration file on the Prestige to your computer and renames it "config.rom". See earlier in this chapter for more information on filename conventions.

Step 7. Enter "quit" to exit the ftp prompt.

```
331 Enter PASS command
Password:
230 Logged in
ftp> bin
200 Type I OK
ftp> get rom-0 zyxel.rom
```

Figure 7-2 FTP Session Example

The following table describes some of the commands that you may see in third party FTP clients.

Table 7-2 General Commands for Third Party FTP Clients

FIELD	DESCRIPTION
Host Address	Enter the address of the host server.
Login Type	Anonymous. This is when a user I.D. and password is automatically supplied to the server for anonymous access. Anonymous logins will work only if your ISP or service administrator has enabled this option. Normal. The server requires a unique User ID and Password to login.
Transfer Type	Transfer files in either ASCII (plain text format) or in binary mode.
Initial Remote Directory	Specify the default remote directory (path).
Initial Local Directory	Specify the default local directory (path).

FTP over WAN will not work if you have applied a filter in menu 11.1 (WAN) to block Telnet service.

7.2.3 Backup Configuration Using TFTP

The Prestige supports the up/downloading of the firmware and the configuration file using TFTP (Trivial File Transfer Protocol) over LAN. Although TFTP should work over WAN as well, it is not recommended.

To use TFTP, your computer must have both telnet and TFTP clients. To backup the configuration file, follow the procedure shown next:

Step 1. Use telnet from your computer to connect to the Prestige and log in. Because TFTP does not have any security checks, the Prestige records the IP address of the telnet client and accepts TFTP requests only from this address.

Step 2. Put the SMT in command interpreter (CI) mode by entering 8 in **Menu 24 – System Maintenance**.

Step 3. Enter command "sys stdio 0" to disable the SMT timeout, so the TFTP transfer will not be interrupted. Enter command "sys stdio 5" to restore the five-minute SMT timeout (default) when the file transfer is complete.

Step 4. Launch the TFTP client on your computer and connect to the Prestige. Set the transfer mode to binary before starting data transfer.

Step 5. Use the TFTP client (see the example below) to transfer files between the Prestige and the computer. The file name for the configuration file is "rom-0" (rom-zero, not capital o).

Note that the telnet connection must be active and the SMT in CI mode before and during the TFTP transfer. For details on TFTP commands (see following example), please consult the documentation of your TFTP client program. For UNIX, use "get" to transfer from the Prestige to the computer and "binary" to set binary transfer mode.

7.2.4 Example: TFTP Command

The following is an example tftp command:

```
TFTP [-i] host get rom-0 config.rom
```

where "i" specifies binary image transfer mode (use this mode when transferring binary files), "host" is the Prestige IP address, "get" transfers the file source on the Prestige (rom-0 name of the configuration file on the Prestige) to the file destination on the computer and renames it config.rom.

The following table describes some of the fields that you may see in third party TFTP clients.

Table 7-3 General Commands for Third Party TFTP Clients

FIELD	DESCRIPTION
Host	Enter the IP address of the Prestige. 192.168.1.1 is the Prestige's default IP address when shipped.
Send/Fetch	Use "Send" to upload the file to the Prestige and "Fetch" to back up the file on your computer.
Local File	Enter the path and name of the firmware file (*.bin extension) or configuration file (*.rom extension) on your computer.
Remote File	This is the filename on the Prestige. The filename for the firmware is "ras" and for the configuration file, is "rom-0".
Binary	Transfer the file in binary mode.
Abort	Stop transfer of the file.

TFTP over WAN will not work if you have applied a filter in menu 11.1 (WAN) to block Telnet service.

7.3 Restore Configuration

Menu 24.6 -- System Maintenance - Restore Configuration allows you to restore the configuration via FTP or TFTP to your Prestige. The preferred method is FTP. Note that this function erases the current configuration before restoring the previous back up configuration; please do not attempt to restore unless you have a backup configuration stored on disk. To restore configuration using FTP or TFTP is the same as uploading the configuration file, please refer to the following sections on FTP and TFTP file transfer for more details. The Prestige restarts automatically after the file transfer is complete.

```
                    Menu 24.6 - Restore Configuration

To transfer the firmware and the configuration file, follow the procedure
below:

  1. Launch the FTP client on your workstation.
  2. Type "open" and the IP address of your system. Then type "root" and
     SMT password as requested.
  3. Type "put backupfilename rom-0" where backupfilename is the name of
     your backup configuration file on your workstation and rom-spt is the
     Remote file name on the system. This restores the configuration to your
     bridge.
  4. The system reboots automatically after a successful file transfer.

For details on FTP commands, please consult the documentation of your FTP
client program. For details on restoring using TFTP (note that you must
remain on this menu to restore using TFTP), please see your user manual.

                          Press ENTER to Exit:
```

Figure 7-3 Restore Configuration

7.4 Uploading Firmware and Configuration Files

Menu 24.7 - System Maintenance - Upload Firmware allows you to upgrade the firmware and the configuration file.

WARNING!
PLEASE WAIT A FEW MINUTES FOR THE PRESTIGE TO RESTART AFTER FIRMWARE OR CONFIGURATION FILE UPLOAD. INTERRUPTING THE UPLOAD PROCESS MAY PERMANENTLY DAMAGE YOUR PRESTIGE.

```
Menu 24.7 -- System Maintenance - Upload Firmware

     1. Upload System Firmware
     2. Upload System Configuration File


          Enter Menu Selection Number:
```

Figure 7-5 System Maintenance — Upload Firmware

The configuration data, system-related data, the error log and the trace log are all stored in the configuration file. Please be aware that uploading the configuration file replaces everything contained within.

7.4.1 Firmware Upload

FTP is the preferred method for uploading the firmware and configuration. To use this feature, your computer must have an FTP client.

When you telnet into the Prestige, you will see the following screens for uploading firmware and the configuration file using FTP.

```
          Menu 24.7.1 - System Maintenance - Upload System Firmware

To upload the system firmware, follow the procedure below:

  1. Launch the FTP client on your workstation.
  2. Type "open" and the IP address of your system. Then type "root" and
     SMT password as requested.
  3. Type "put firmwarefilename ras" where "firmwarefilename" is the name
     of your firmware upgrade file on your workstation and "ras" is the
     remote file name on the system.
  4. The system reboots automatically after a successful firmware upload.

For details on FTP commands, please consult the documentation of your FTP
client program. For details on uploading system firmware using TFTP (note
that you must remain on this menu to upload system firmware using TFTP),
please see your manual.

                          Press ENTER to Exit:
```

Figure 7-6 Upload System Firmware

7.4.2 Configuration File Upload

You see the following screen when you telnet into menu 24.7.2.

```
          Menu 24.7.2 - System Maintenance - Upload System Configuration File

To upload the system configuration file, follow the procedure below:

  1. Launch the FTP client on your workstation.
  2. Type "open" and the IP address of your system. Then type "root" and
     SMT password as requested.
  3. Type "put configurationfilename rom-0" where "configurationfilename"
     is the name of your system configuration file on your workstation, which
     will be transferred to the "rom-0" file on the system.
  4. The system reboots automatically after the upload system configuration
     file process is complete.

For details on FTP commands, please consult the documentation of your FTP
client program. For details on uploading system firmware using TFTP (note
that you must remain on this menu to upload system firmware using TFTP),
please see your manual.

                              Press ENTER to Exit:
```

Figure 7-7 Upload System Configuration File

To transfer the firmware and the configuration file, follow these examples:

7.4.3 Using the FTP command from the DOS Prompt Example

Step 1. Launch the FTP client on your computer.

Step 2. Enter “open” and the IP address of your Prestige.

Step 3. Press [ENTER] when prompted for a username.

Step 4. Enter “root” and your SMT password as requested. The default is 1234.

Step 5. Enter “bin” to set transfer mode to binary.

Step 6. Use “put” to transfer files from the computer to the Prestige, e.g., put firmware.bin ras transfers the firmware on your computer (firmware.bin) to the Prestige and renames it “ras”. Similarly “put config.rom rom-0” transfers the configuration file on your computer (config.rom) to the

Prestige and renames it “rom-0”. Likewise “get rom-0 config.rom” transfers the configuration file on the Prestige to your computer and renames it “config.rom.” See earlier in this chapter for more information on filename conventions.

Step 7. Enter “quit” to exit the ftp prompt.

```
331 Enter PASS command

Password:

230 Logged in

ftp> bin

200 Type I OK
```

Figure 7-8 FTP Session Example

More commands that you may find in third party FTP clients, are listed earlier in this chapter.

FTP over WAN will not work if you have applied a filter in menu 11.1 (WAN) to block Telnet service.

7.4.4 TFTP File Upload

The Prestige also supports the up/downloading of the firmware and the configuration file using TFTP (Trivial File Transfer Protocol) over LAN. Although TFTP should work over WAN as well, it is not recommended.

To use TFTP, your computer must have both telnet and TFTP clients. To transfer the firmware and the configuration file, follow the procedure shown next:

Step 1. Use telnet from your computer to connect to the Prestige and log in. Because TFTP does not have any security checks, the Prestige records the IP address of the telnet client and accepts TFTP requests only from this address.

Step 2. Put the SMT in command interpreter (CI) mode by entering 8 in **Menu 24 – System Maintenance**.

Step 3. Enter the command “sys stdio 0” to disable the SMT timeout, so the TFTP transfer will not be interrupted. Enter command “sys stdio 5” to restore the five-minute SMT timeout (default) when the file transfer is complete.

Step 4. Launch the TFTP client on your computer and connect to the Prestige. Set the transfer mode to binary before starting data transfer.

Step 5. Use the TFTP client (see the example below) to transfer files between the Prestige and the computer. The file name for the firmware is “ras” and the configuration file is “rom-0” (rom-zero, not capital o).

Note that the telnet connection must be active and the SMT in CI mode before and during the TFTP transfer. For details on TFTP commands (see following example), please consult the documentation of your TFTP client program. For UNIX, use “get” to transfer from the Prestige to the computer, “put” the other way around, and “binary” to set binary transfer mode.

7.4.5 Example: TFTP Command

The following is an example tftp command:

TFTP [-i] host put firmware.bin ras

where “i” specifies binary image transfer mode (use this mode when transferring binary files), “host” is the Prestige’s IP address, “put” transfers the file source on the computer (firmware.bin – name of the firmware on the computer) to the file destination on the remote host (ras - name of the firmware on the Prestige).

Commands that you may see in third party TFTP clients are listed earlier in this chapter.

TFTP over WAN will not work if you have applied a filter in menu 11.1 (WAN) to block Telnet service.

Chapter 8
Troubleshooting

This chapter covers problems you may run into and possible remedies. After each problem description, some instructions are provided to help you diagnose and solve the problem.

8.1 Problems Starting Up the Prestige

Table 8-1 Troubleshooting the Start-Up of your Prestige

PROBLEM	CORRECTIVE ACTION
None of the LEDs are on when you turn on the Prestige	Make sure that you use the correct power adapter and that is plugged in and connected to the Prestige. If the error persists, you may have a hardware problem. In this case you should contact your vendor.

8.2 Problems Telnetting into the Prestige

Table 8-2 Troubleshooting Telnet

PROBLEM	CORRECTIVE ACTION
Can't access the Prestige through telnet.	Check the LAN port and the other Ethernet connections.
	Check your computer's IP address, it should be in the same subnet as the Prestige.
	Use the reset button as follows to restore the IP address to 192.168.1.1, subnet mask to 255.255.255.0 and the password to 1234. Turn the Prestige off. Use a pointed object to push the RESET button while you turn the Prestige back on. Keep the RESET button pressed for one minute.

Table 8-2 Troubleshooting Telnet

	Make sure your computer is set to get a dynamic IP address; or if you want to use a static IP address on your computer, make sure that it is on the same subnet as the Prestige.

8.3 Problems With the WAN Interface

Table 8-3 Troubleshooting the ADSL connection

PROBLEM	CORRECTIVE ACTION
Initialization of the ADSL connection failed.	Check the cable connections between the ADSL port and the wall jack. The DSL LED on the front panel of the Prestige should be on.
	Check that your VPI, VCI, type of encapsulation and type of multiplexing settings are the same as what you collected from your telephone company and ISP.
	Restart the Prestige. If you still have problems, you may need to verify your VPI, VCI, type of encapsulation and type of multiplexing settings with the telephone company and ISP.

8.4 Problems With the LAN Interface

Table 8-4 Troubleshooting the LAN Interface

PROBLEM	CORRECTIVE ACTION
Can't ping any station on the LAN	Check the Ethernet LEDs on the front panel. A LAN LED should be on if the port is connected to a computer or hub. If they are off, check the cable connections between your Prestige and the computer or hub.
	Verify that the IP addresses of the Prestige and the computers are on the same subnet.

8.5 Problem with Remote Node Connections

Table 8-5 Troubleshooting a Connection to a Remote Node or ISP

PROBLEM	CORRECTIVE ACTION
Can't connect to a remote node or ISP	Check menu 4 to verify that the **My Login** and **My Password** fields have the proper entries.
	In menu 11.1, verify your login name and password for the remote node.
	If these steps fail, you may need to verify your login and password with your ISP.

Appendix A
Virtual Circuit Topology

ATM is a connection-oriented technology, meaning that it sets up virtual circuits over which end systems communicate. The terminology for virtual circuits is as follows:

- Virtual Channel — Logical connections between ATM switches
- Virtual Path — A bundle of virtual channels
- Virtual Circuit — A series of virtual paths between circuit end points

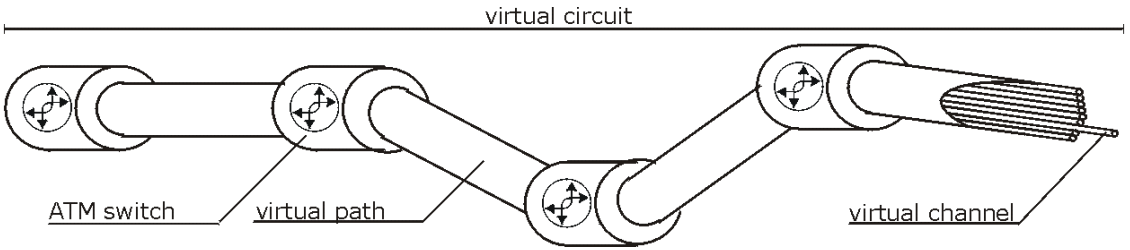


Diagram 1 Virtual Circuit Topology

Think of a virtual path as a cable that contains a bundle of wires. The cable connects two points and wires within the cable provide individual circuits between the two points. In an ATM cell header, a VPI (Virtual Path Identifier) identifies a link formed by a virtual path; a VCI (Virtual Channel Identifier) identifies a channel within a virtual path.

The VPI and VCI identify a virtual path, that is, termination points between ATM switches. A series of virtual paths make up a virtual circuit.

Your service provider should supply you with VPI/VCI numbers.

Appendix B
Power Adapter Specifications

NORTH AMERICAN PLUG STANDARDS	
AC Power Adapter Model	DV-121AACS
Input Power	AC120Volts/60Hz/23W
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	UL, CUL (UL 1310, CSA C22.2 No.223)
AC Power Adapter Model	AA121A
Input Power	AC120Volts/60Hz/18W
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	UL, CUL (UL 1310, CSA C22.2 No.223)
U.K. PLUG STANDARDS	
AC Power Adapter Model	AA-121AD
Input Power	AC230Volts/50Hz/140mA
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	ITS-GS, CE (EN 60950, BS 7002)
EUROPEAN PLUG STANDARDS	
AC Power Adapter Model	DV-121AACUP-5716
Input Power	AC230Volts/50Hz/100mA
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	TUV-GS, CE (EN 60950)

AC Power Adapter Model	AA-121ABN
Input Power	AC230Volts/50Hz/140mA
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	ITS-GS, CE (EN 60950)
CHINESE PLUG STANDARDS	
AC Power Adapter Model	DV-121AACCP-5720
Input Power	AC220Volts/50Hz/18W
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	CCEE (GB8898)
AC Power Adapter Model	BH-48 (AA-121AP)
Input Power	AC220Volts/50Hz/18W
Output Power	AC12Volts/1.0A
Power Consumption	10 W
Safety Standards	CCEE (GB8898)

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