

Zhone 6388-A2 4-Port Wi-Fi with In-Line Filter

User Manual *Version 1.0*

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General Information

The 4-Port Wi-Fi Router with In-Line Filter presents convenient networking for the entire home or office environment providing wireless function and completely configurable interface for specific settings.

Package Contents

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

- 4-Port Wi-Fi Router with In-Line Filter
- Power adapter
- USB cable
- RJ-11 telephone cable
- RJ-45 Ethernet cable
- User Manual / Quick Guide

Safety Instructions

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

Front Panel View



LED	Mode	Indication
Power	Solid	Boot-up successful.
	No light	The router may not be turned on. Check if the AC power adapter is connected to the router and plugged in.
Status	Solid	ADSL is connected.
	No light	ADSL is not connected.
Link	Blinking	The router is connected to ADSL.
	Solid	Connection established. The router is able to communicate with your ISP via ADSL.
LAN1-4	Flashing	The router is trying to connect to your ISP.
	Solid	Router is connected to the LAN.
	No light	No connection to the LAN. Check if the LAN cable is connected to the router.
WLAN	Blinking	LAN traffic
	Solid	Wireless is enabled.
	No light	Wireless is disabled.

Back Panel View



Port	Description
Line	RJ-11 cable connects between telephone and the LINE port using a splitter (not included) if needed.
Phone	RJ-11 cable connects to telephone (no external splitter necessary; unit has internal splitter).
Reset / Default	Press the button for 7 seconds or longer to revert to factory default settings.
LAN1-4	RJ-45 connects the unit to an Ethernet device such as a PC or a switch.
Power	Connects to power adapter.
On/Off	Press to turn the router on and off.

Installing the Router

Connect the ADSL Line and Telephone

- Connect one end of an RJ-11 cable from your ADSL connection and the other end to the LINE port of the router. Use a second RJ-11 cable to connect between a telephone and the PHONE port of the router.

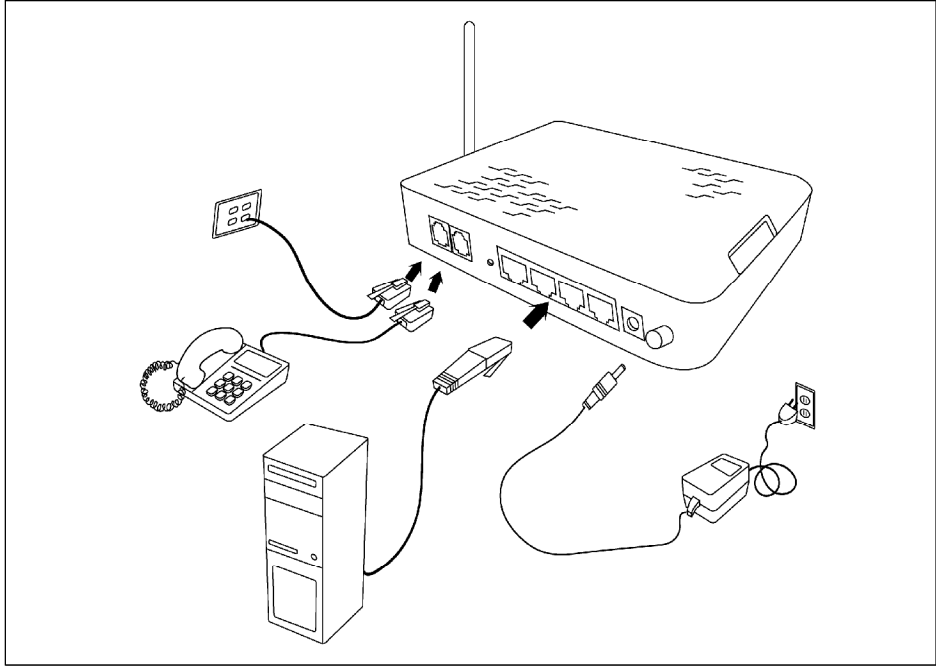
Connect the PC to the Router

- To use the Ethernet connection, connect the Ethernet cable from the computer directly to the router. Connect one end of the Ethernet cable to the port labeled LAN on the back of the router and attach the other end to the Ethernet port of your computer.
- Or, you can use the supplied USB cable to connect your computer directly to the router. Connect one end of the USB cable to the USB port on the back of the router and connect the other end to a free USB port on your PC. The Found New Hardware Wizard will open on your PC. See USB Driver Installation below.
- If your LAN has more than one computer, you can attach one end of an Ethernet cable to a hub or a switch and the other to the Ethernet port (labeled LAN) on the router. Note that either a crossover or straight-through Ethernet cable can be used. The router automatically recognizes the type of connection that is required.

Connect the Power Adapter

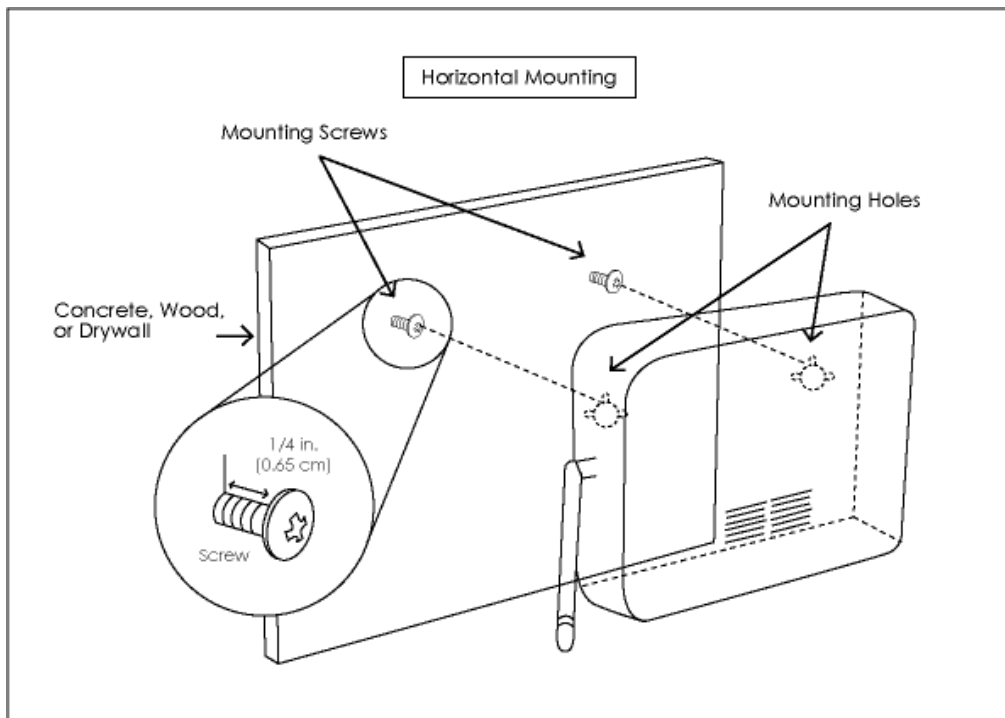
- Complete the process by connecting the AC power adapter to the POWER connector on the back of the device and plug the adapter into a wall outlet or power strip. Then turn on and boot up your PC and any LAN devices, such as hubs or switches, and any computers connected to them.

Installation Diagram



Mounting the Router

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



Configuring Your Computer

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

- Your PC's TCP/IP address: **192.168.1.____** (the last number is any number between 2 and 254)
- The router's default IP address: **192.168.1.1**
- Subnet mask: **255.255.255.0**

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

Windows 2000

1. In the Windows taskbar, click on the Start button and point to Settings, Control Panel, and Network and Dial-up Connections (in that order).
2. Click on Local Area Connection. When you have the Local Area Connection Status window open, click on **Properties**.
3. Listed in the window are the installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled, and you can skip to Step 10.
4. If Internet Protocol (TCP/IP) does not appear as an installed component, then click on **Install**.
5. In the Select Network Component Type window, click on protocol and then the **Add** button.
6. Select Internet Protocol (TCP/IP) from the list and then click on **OK**.
7. If prompted to restart your computer with the new settings, click **OK**.
8. After your computer restarts, click on the Network and Dial-up Connections icon again, and right click on the Local Area Connection icon and then select Properties.
9. In the Local Area Connection Properties dialog box, select Internet Protocol (TCP/IP) and then click on **Properties**.
10. In the Internet Protocol (TCP/IP) Properties dialog box, click in the radio button labeled **Use the following IP address** and type 192.168.1.x (where x is any number between 2 and 254) and 255.255.255.0 in the IP address field and Subnet Mask field.
11. Click on **OK** twice to save your changes and then close the **Control Panel**.

Windows XP

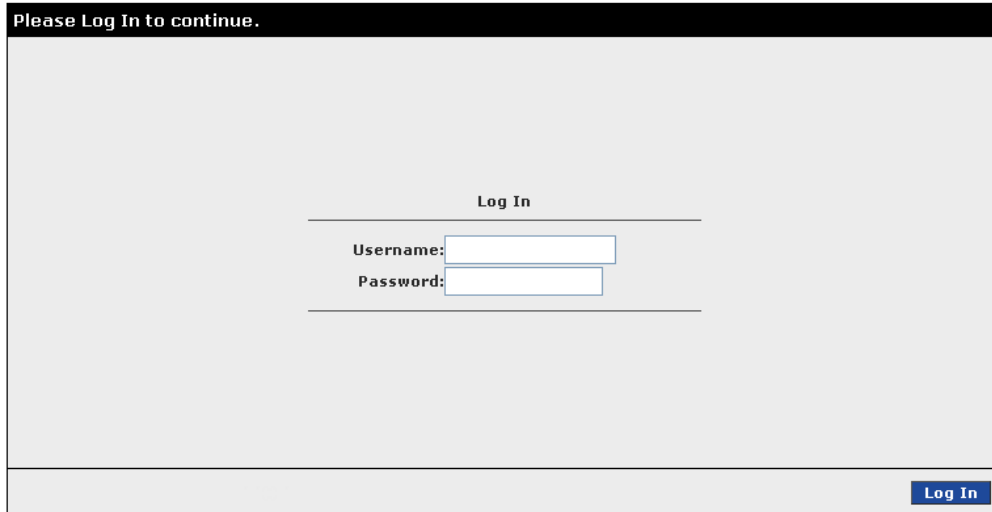
1. In the Windows taskbar, click on the Start button and point to Settings and then click Network Connections.
2. In the Network Connections window, right click on the Local Area Connection icon and click on properties.
3. Listed in the Local Area Connection window are the installed network components. Make sure the box for Internet Protocol (TCP/IP) is checked and then click on **Properties**.
4. In the Internet Protocol (TCP/IP) Properties dialog box, click in the radio button labeled **Use the following IP address** and type 192.168.1.x (where x is any number between 2 and 254) and 255.255.255.0 in the IP address field and Subnet Mask field.
5. Click on **OK** twice to save your changes and then close the **Control Panel**.

Log in to the Router

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

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

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



Please Log In to continue.

Log In

Username:

Password:

Log In

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



NOTE: The user name / password are **Admin / Admin** and case sensitive.

Home

The Home section provides a summary of the system information such as **system uptime**, **DSL status / speed**, **wireless RF status**, **Ethernet connection**, **software version**, **temporary access update** and **SSID**.

On this page you can also perform the following functions—

LOG OUT—click to log out of the router’s Internet user interface.

QUICK START—click to proceed to the setup of the WAN setup on the Setup page.

REFRESH—click to refresh the information on this page.

In addition, the connection status can also be seen along with the type of connection and its status.

The screenshot shows the Zhone router's Home page. At the top, there is a navigation bar with the Zhone logo and menu items: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. Below the navigation bar, the page title is "Home" and the IP address is "9270423". The main content area displays system information in a table:

System Uptime: 0 hours 50 minutes	Ethernet: Connected
DSL Status: Connecting...	Software Version: R4.00.00
DSL Speed: 0/0kbps	Temporary access Update: Disabled
Wireless RF: Enabled	SSID: wireless

Below the table, there are three buttons: Log Out, Quick Start, and Refresh. At the bottom, there is a section titled "Connection Status (1)" with a table showing the connection details:

Description	Type	IP	State	Online	Disconnect Reason
Bridge	bridge	NA	NA	NA	NA

Quick Start

When you click on the **Quick Start** button, you will notice that you are at the Setup page under WAN Setup.

Select from the three connection types—DHCP, PPPoE, and Static.

Below is a PPPoE example. NAT and firewall can be enabled on the page.

Zhone HOME SETUP **ADVANCED** WIRELESS TOOLS STATUS HELP

LAN Setup
LAN Configuration
Ethernet Switch
Firewall/NAT Services
WAN Setup
New Connection
Modem
Bridge
Log Out

Quick Start PPPoE Connection Setup

Options: NAT Firewall Type: PPPoE

PPP Settings
Username: username
Password: ●●●●

Save Cancel

If a DHCP connection type is selected, only the NAT and firewall options are shown.

Zhone HOME SETUP **ADVANCED** WIRELESS TOOLS STATUS HELP

LAN Setup
LAN Configuration
Ethernet Switch
Firewall/NAT Services
WAN Setup
New Connection
Modem
Bridge
Test1
Log Out

Quick Start DHCP Connection Setup

Options: NAT Firewall Type: DHCP

Save Cancel

If Static connection is selected, the settings for connection need to be entered.
Enter the IP address, subnet mask, gateway, default gateway, and DNS1-3.

The screenshot shows the Zhone web interface. At the top, there is a navigation bar with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. On the left side, there is a vertical menu with the following items: LAN Setup, LAN Configuration, Ethernet Switch, Firewall/NAT Services, WAN Setup, New Connection, Modem, Bridge, Test1, and Log Out. The main content area is titled "Quick Start Static Connection Setup". It contains the following elements:

- Options: NAT Firewall
- Type: Static (dropdown menu)
- Static Settings section with the following fields:
 - IP Address: 0.0.0.0
 - Mask: [empty text box]
 - Gateway: [empty text box]
 - Default Gateway: [empty text box]
 - DNS 1: [empty text box]
 - DNS 2: [empty text box]
 - DNS 3: [empty text box]
- At the bottom right, there are two buttons: Save and Cancel.

Setup

To set up your router with a basic configuration, from the Home page, select Setup. The page is divided into two subsections—LAN configuration and WAN configuration.

LAN Configuration

On one side of your router, you have your own Local Area network (LAN) connections. This is where you plug in your local computers to the router. The router is normally configured to automatically provide all PCs on your network with Internet addresses.

The screenshot displays the 'LAN Group 1 Configuration' page on a Zhone router. The top navigation bar includes 'HOME', 'SETUP', 'ADVANCED', 'WIRELESS', 'TOOLS', 'STATUS', and 'HELP'. The left sidebar lists various configuration options: LAN Setup, LAN Configuration, Ethernet Switch, Firewall/NAT Services, WAN Setup, New Connection, Modem, Bridge, and Log Out. The main content area is titled 'LAN Group 1 Configuration' and features 'IP Settings' with three radio button options: 'Obtain an IP address automatically', 'PPP IP Address', and 'Use the following Static IP address'. The 'Static IP address' option is selected, with fields for IP Address (192.168.1.1), Netmask (255.255.255.0), Default Gateway, Host Name (mygateway1), and Domain (imarc). Below this, there are checkboxes for 'Enable DHCP Server' (with an 'Assign ISP DNS, SNTP' checkbox) and 'Enable DHCP Relay'. The 'DHCP Server' section includes 'Configure DHCP Classes' with fields for Start IP (192.168.1.2), End IP (192.168.1.254), and Lease Time (3600 seconds). The 'DHCP Relay' section has a 'Relay IP' field (20.0.0.3). A 'Server and Relay Off' option is also present. On the right, a 'Services Status' panel shows IP Filters (green), Bridge Filters (red), UPnP (red), LAN Clients (red), and Static Routing (red). 'Apply' and 'Cancel' buttons are at the bottom right.

Ethernet Switch

The router also has Ethernet switch capabilities for the 4 physical ports. Select the value for each enabled port. Values include *auto*, *10/half duplex*, *100/half duplex*, *100/half duplex*, and *100/full duplex*.

	Set Value	Fallback Value
Physical Port1:	Auto	Disabled
Physical Port2:	Auto	100/Full Duplex
Physical Port3:	Auto	Disabled
Physical Port4:	Auto	Disabled

Firewall / NAT Services

The default setting for firewall and NAT services is enabled.

Enable Firewall and NAT Service

New Connection

Before the router will pass any data between the LAN interface(s) and the WAN interface, the WAN side of the router must be configured. Depending upon your DSL service provider or your ISP, you will need some (or all) of the following information before you can properly configure the WAN—

- Your DSL line VPI and VCI
- Your DSL encapsulation type and multiplexing
- Your DSL training mode

For PPPoA or PPPoE users, you also need these values from your ISP—

- Your username and password

For RFC 1483 (Bridged or Routed IP Over ATM) users, you may need these values from your ISP—

- Your DSL fixed Internet IP address
- Your Subnet Mask
- Your Default router
- Your primary DNS IP address

Since multiple users can use the router, the router can simultaneously support multiple connection types. Hence, the user must set up different profiles for each connection. The router supports the following protocols:

- DHCP
- PPPoA
- PPPoE
- Static
- Bridge
- CLIP

The screenshot shows the Zhone router's web interface. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar lists various configuration options: LAN Setup, LAN Configuration, Ethernet Switch, Firewall/NAT Services, WAN Setup, New Connection (highlighted), Modem, Bridge, and Log Out. The main content area is titled "PPPoE Connection Setup". It features several input fields and checkboxes. The "Name" field is empty. The "Type" is set to "PPPoE" and "Sharing" is set to "Disable". There are checkboxes for "Options" (NAT and Firewall), "VLAN ID" (0), and "Priority Bits" (0). The "PPP Settings" section includes fields for "Username" (username), "Password" (masked with dots), "Idle Timeout" (60 secs), "Keep Alive" (3 min), "Authentication" (Auto selected), and "MTU" (1492 bytes). There are checkboxes for "On Demand", "Enforce MTU", "PPP Unnumbered", and "Host Trigger". The "PVC Settings" section includes fields for "PVC" (New), "VPI" (0), "VCI" (0), "QoS" (UBR), "PCR" (0 cps), "SCR" (0 cps), "MBS" (0 cells), and "Auto PVC" (unchecked). There are also checkboxes for "Default Gateway" (checked), "Debug", and "Valid Rx". At the bottom, there are buttons for "Configure", "Connect", "Disconnect", "Apply", "Delete", and "Cancel".

Username: The username for the PPPoA access; this is provided by your DSL service provider or your ISP.

Password: The password for the PPPoA access; this is provided by your DSL service provider or your ISP.

Idle Timeout: Specifies that PPPoA connection should disconnect if the link has no activity detected for n seconds. This field is used in conjunction with the On-Demand feature. To ensure that the link is always active, enter a 0 in this field.

Keep Alive: When on-demand option is not enable, this value specifies the time to wait without being connected to your provider before terminating the connection. To ensure that the link is always active, enter a 0 in this field.

On-Demand: Enables on-demand mode. The connection will disconnect if no activity is detected after the specified idle timeout value.

Set Route: Specify this connection as the default-route.

Debug: Enables PPPoA connection debugging facilities.

Modem

Select the modulation type from the list and click **Apply** to continue.

The screenshot shows the Zhone web interface for Modem Setup. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar lists various configuration options: LAN Setup, LAN Configuration, Ethernet Switch, Firewall/NAT Services, WAN Setup, New Connection, Modem (highlighted), Bridge, and Log Out. The main content area is titled 'Modem Setup' and contains the instruction 'Select the modulation type.' followed by a list of modulation options with checkboxes:

- NO_MODE
- ADSL_G.dmt
- ADSL_G.lite
- ADSL_G.dmt.bis
- ADSL_G.dmt.bis_DELT
- ADSL_2plus
- ADSL_2plus_DELT
- ADSL_re-adsl
- ADSL_re-adsl_DELT
- ADSL_ANSI_T1.413
- MULTI_MODE
- ADSL_G.dmt.bis_AnXI
- ADSL_G.dmt.bis_AnxJ
- ADSL_G.dmt.bis_AnxM
- ADSL_2plus_AnXI
- ADSL_2plus_AnxJ
- ADSL_2plus_AnxM
- REACH

At the bottom right of the configuration area, there are 'Apply' and 'Cancel' buttons.

Bridge

A pure bridged connection does not assign and IP address to the WAN interface. NAT and firewall rules are not enabled. This connection method makes the router act as a hub, and just passes packets across the WAN interface to the LAN interface.

To configure the router as a bridge, from the Home page, click on Setup and then click on New Connection. The default PPPoE connection setup is displayed. At the Type field select Bridge and the Bridge connection setup page is displayed. Give your Bridge connection a unique name; the name must not have spaces and cannot begin with numbers. Select the encapsulation type (LLC or VC); if you are not sure just use the default mode. Select the VPI and VCI settings; your DSL service provider or your ISP will supply these. Also select the quality of service (QoS); leave the default value if you are unsure or the ISP did not provide this information.

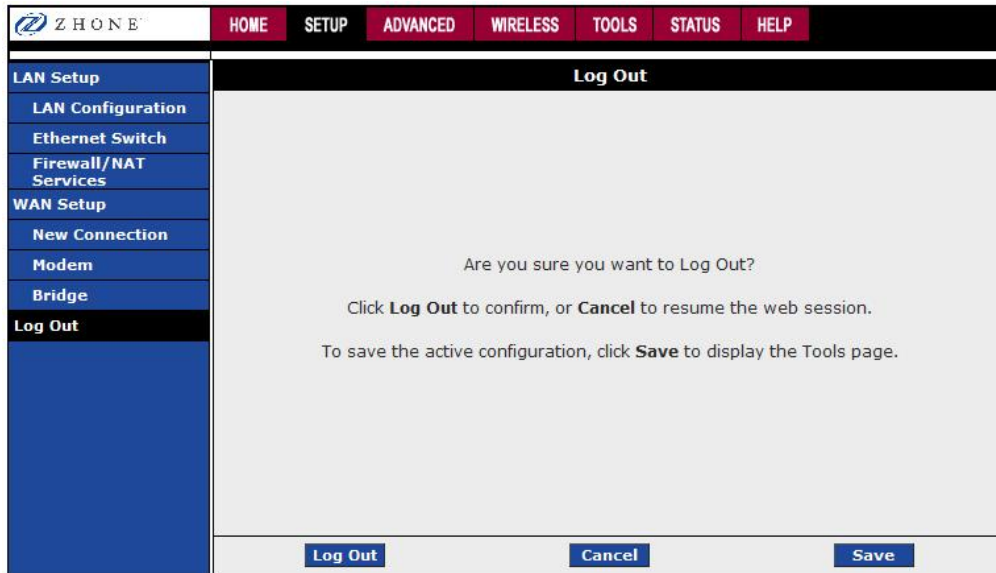
The screenshot displays the 'Bridged Connection Setup' configuration page on a Zhone router. The interface includes a top navigation bar with 'HOME', 'SETUP', 'ADVANCED', 'WIRELESS', 'TOOLS', 'STATUS', and 'HELP'. A left sidebar lists various configuration options, with 'Bridge' selected. The main content area is titled 'Bridged Connection Setup' and contains the following fields and sections:

- Name:** Bridge
- Type:** Bridge
- Sharing:** Disable
- VLAN ID:** 0
- Priority Bits:** 0
- Bridge Settings:** Encapsulation: LLC VC
- PVC Settings:**
 - PVC: New
 - VPI: 0
 - VCI: 35
 - QoS: UBR
 - PCR: 0 cps
 - SCR: 0 cps
 - MBS: 0 cells
 - Auto PVC:

At the bottom right, there are three buttons: 'Apply', 'Delete', and 'Cancel'.

Log Out

To log out of configuration screen at any time, click on the **Save** button to save your configurations and then click on **Log Out** to exit.



Advanced

The router supports a multitude of advanced features. For basic router functionality, the user does not need to utilize these advanced features. The features help with routing, security, port configuration, and plug-and-play capability.

UPnP

UPnP NAT and Firewall Traversal allow traffic to pass through the router for applications using the UPnP protocol. This feature requires one active DSL connection. In the presence of multiple DSL connections, select the one that the incoming traffic will be present, for example the default Internet connection.

To enable UPnP, you must first have a WAN connection configured. Once a WAN connection is configured, from the Home screen click Advanced and under Advanced, select UPnP. This will bring up the screen shown below. You must enable UPnP and then select which connection will utilize UPnP.

The screenshot displays the Zhone router's web interface. At the top, there is a navigation bar with tabs for HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The ADVANCED tab is selected. On the left side, there is a vertical menu with various configuration options, including UPnP, SNTP, Port Forwarding, IP Filters, LAN Clients, LAN Isolation, TR-068 WAN Access, Bridge Filters, Web Filters, Dynamic DNS Client, IGMP Proxy, Static Routing, Dynamic Routing, Policy Database, Ingress, Egress, Shaper, Access Control, and Log Out. The main content area is titled 'UPnP' and contains the following text: 'To enable UPnP, check the Enable UPnP box and select a connection below.' Below this text, there is an unchecked checkbox labeled 'Enable UPnP'. Underneath the checkbox, there are two dropdown menus: 'WAN Connection:' and 'LAN Connection:'. The 'LAN Connection:' dropdown is currently set to 'LAN group 1'. At the bottom right of the main content area, there are two buttons: 'Apply' and 'Cancel'.

SNTP

The main function of the Simple Network Time Protocol (SNTP) is to provide the network with a precise time based on Internet standards. Enter the information of the SNTP server that you will be connecting to.

ZHONE		HOME	SETUP	ADVANCED	WIRELESS	TOOLS	STATUS	HELP
UPnP	SNTP							
SNTP	To enable SNTP, check the Enable SNTP box and enter a time server.							
Port Forwarding	<input type="checkbox"/> Enable SNTP							
IP Filters	Primary SNTP Server: <input type="text" value="0.0.0.0"/>							
LAN Clients	Secondary SNTP Server: <input type="text" value="0.0.0.0"/>							
LAN Isolation	Tertiary SNTP Server: <input type="text" value="0.0.0.0"/>							
TR-068 WAN Access	Timeout: <input type="text" value="5"/> Secs							
Bridge Filters	Polling Interval: <input type="text" value="30"/> Mins							
Web Filters	Retry Count: <input type="text" value="2"/>							
Dynamic DNS Client	Time Zone: <input type="text" value="(GMT-12:00) International Date Line West"/>							
IGMP Proxy	Day Light: <input type="checkbox"/>							
Static Routing	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>							
Dynamic Routing								
Policy Database								
Ingress								
Egress								
Shaper								
Access Control								
Log Out								

When you click on the Enable SNTP checkbox, the grayed out fields will be available for you to enter the information.

ZHONE		HOME	SETUP	ADVANCED	WIRELESS	TOOLS	STATUS	HELP
UPnP	SNTP							
SNTP	To enable SNTP, check the Enable SNTP box and enter a time server.							
Port Forwarding	<input checked="" type="checkbox"/> Enable SNTP							
IP Filters	Primary SNTP Server: <input type="text" value="0.0.0.0"/>							
LAN Clients	Secondary SNTP Server: <input type="text" value="0.0.0.0"/>							
LAN Isolation	Tertiary SNTP Server: <input type="text" value="0.0.0.0"/>							
TR-068 WAN Access	Timeout: <input type="text" value="5"/> Secs							
Bridge Filters	Polling Interval: <input type="text" value="30"/> Mins							
Web Filters	Retry Count: <input type="text" value="2"/>							
Dynamic DNS Client	Time Zone: <input type="text" value="(GMT-12:00) International Date Line West"/>							
IGMP Proxy	Day Light: <input type="checkbox"/>							
Static Routing	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>							
Dynamic Routing								
Policy Database								
Ingress								
Egress								
Shaper								
Access Control								
Log Out								

Port Forwarding

Using the Port Forwarding page, you can provide local services (for example web hosting) for people on the Internet or play Internet games. When users send this type of request to your network via the Internet, the router will forward those requests to the appropriate PC. Port forwarding can be used with DHCP assigned addresses but remember that a DHCP address is dynamic (not static). For example, if you were configuring a NetMeeting server, you would want to assign this server a static IP address so that the IP address is not reassigned. Also remember that if an Internet user is trying to access an Internet application, they must use the WAN IP address. The port forwarding will translate the WAN IP address into a LAN IP address.

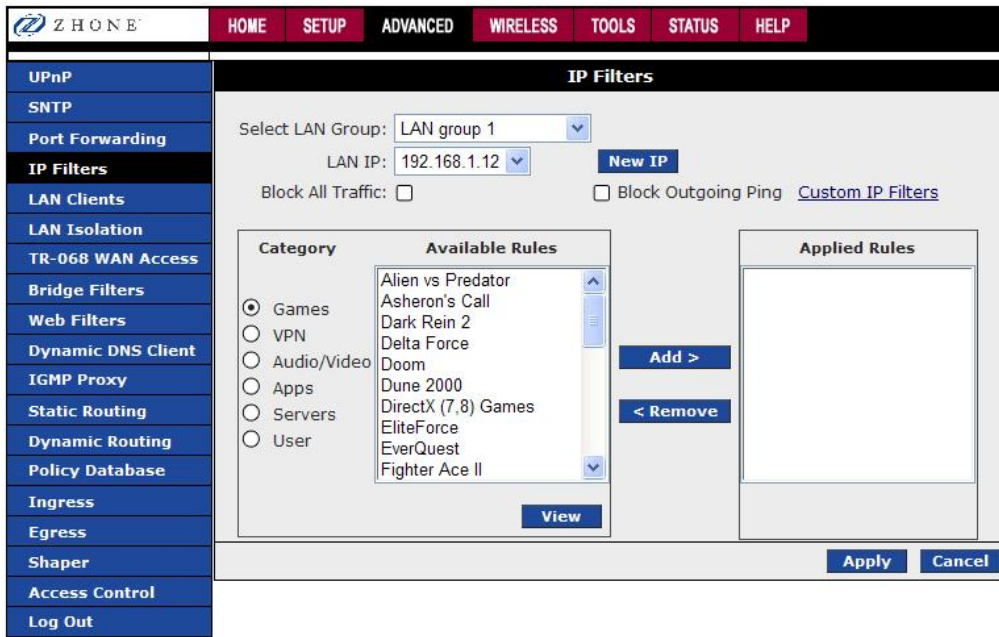
To configure a service, game, or other application select the external connection (for example the Internet connection), from the Home screen, click Advanced and under Advanced, select Port Forwarding. Next select the computer hosting the service and add the corresponding firewall rule. If you want to add a custom application, select the User category, click New and fill in the port, protocols and description for your application.

The screenshot shows the Zhone router's web interface. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar lists various configuration options, with Port Forwarding selected. The main content area is titled 'Port Forwarding' and contains the following fields and options:

- WAN Connection: Bridge (dropdown menu)
- Allow Incoming Ping:
- Select LAN Group: LAN group 1 (dropdown menu)
- LAN IP: 192.168.1.12 (dropdown menu)
- Buttons: New IP, DMZ, Custom Port Forwarding
- Category selection: Games (selected), VPN, Audio/Video, Apps, Servers, User
- Available Rules list: Alien vs Predator, Asheron's Call, Dark Rein 2, Delta Force, Doom, Dune 2000, DirectX (7,8) Games, EliteForce, EverQuest, Fighter Ace II
- Buttons: Add >, < Remove, View
- Applied Rules: (empty box)
- Buttons: Apply, Cancel

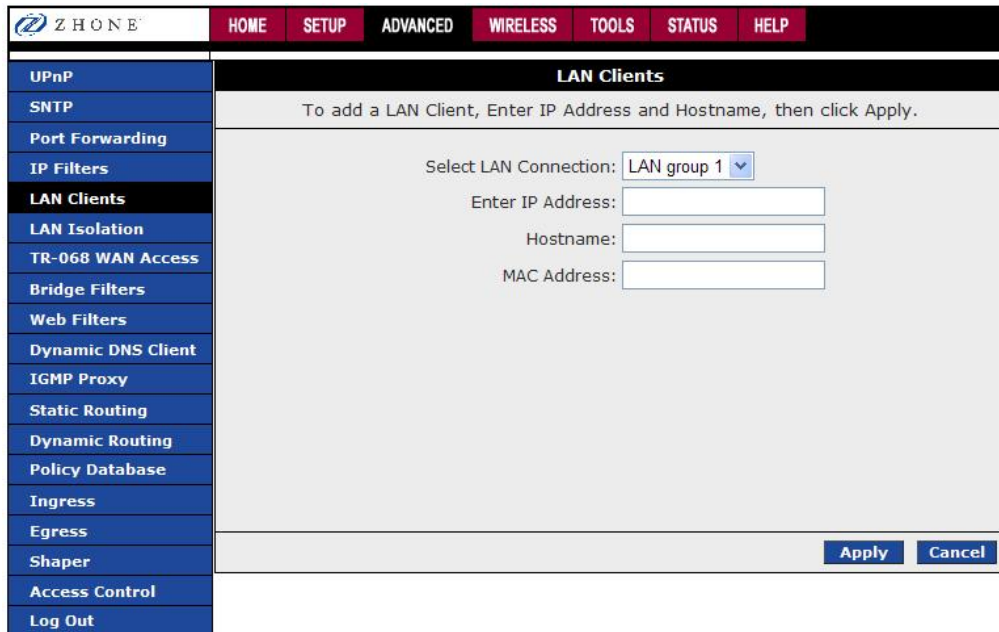
IP Filters

This firewall feature allows you to block network access based on a user's computer IP address. You can use this page to block specific traffic (for example block web access) or any traffic from a computer on your local network. To configure an IP Filter rule select the computers' IP address and add the corresponding firewall traffic definition from the Firewall Policy Database. If the traffic type is set to "Any", all network traffic from that computer will be blocked.



LAN Clients

To add a LAN client, from the Home screen, click Advanced and under Advanced, select LAN Clients. If DHCP is used, all DHCP clients are automatically assigned. If a fixed IP address server is on the LAN and you want this server to be visible via the WAN, you must add its IP address. Once the IP address has been added, you can apply Port Forwarding and Access Control rules to this IP address. The apply button will temporarily save this connection. To make the change permanent, click on Tools (at the top of the page) and select **System Commands**. At the system commands page, click on **Save**.



Z H O N E

HOME SETUP **ADVANCED** WIRELESS TOOLS STATUS HELP

UPnP
SNTP
Port Forwarding
IP Filters
LAN Clients
LAN Isolation
TR-068 WAN Access
Bridge Filters
Web Filters
Dynamic DNS Client
IGMP Proxy
Static Routing
Dynamic Routing
Policy Database
Ingress
Egress
Shaper
Access Control
Log Out

LAN Clients

To add a LAN Client, Enter IP Address and Hostname, then click Apply.

Select LAN Connection: LAN group 1

Enter IP Address:

Hostname:

MAC Address:

Static Addresses

Delete	IP Address	Hostname	MAC	Type
<input type="checkbox"/>	192.168.1.12			Class 0:Static

Apply Cancel

LAN Isolation

LAN groups can be isolated from each other by blocking the LAN traffic from each group.

The screenshot shows the Zhone web interface with the 'LAN Isolation' page selected in the left-hand menu. The page title is 'LAN Isolation'. Below the title, there is a sub-header 'LAN Isolation' and a descriptive text: 'To block traffic from one LAN to another LAN, check the Disable check box.' Below this text, there is a checkbox labeled 'Disable traffic between' followed by two dropdown menus, 'LAN group 1' and 'LAN group 2', and the word 'and' between them. At the bottom right of the page, there are 'Apply' and 'Cancel' buttons.

TR-068 WAN Access

The TR-068 WAN Access page allows for webpage update from the WAN side.

The screenshot shows the Zhone web interface with the 'TR-068 WAN Access' page selected in the left-hand menu. The page title is 'Enable WAN Access Update'. Below the title, there is a sub-header 'Enable WAN Access Update' and a descriptive text: 'To Enable Webpage Update from WAN side'. Below this text, there are several form fields: 'WAN Update:' with a checkbox, 'WAN Access:' with a checkbox, 'User Name:' with a text input field containing 'tech', 'Password:' with a text input field, and 'Port:' with a text input field containing '51003'. At the bottom right of the page, there are 'Apply' and 'Cancel' buttons.

Bridge Filters

The bridge filtering mechanism provides a way for the users to define rules to allow/deny frames through the bridge based on source MAC address, destination MAC address and/or frame type. When bridge filtering is enabled, each frame is examined against the defined filter rules sequentially, and when a match is determined, the appropriate filtering action (determined by the access type selected, i.e. allow or deny) is performed. The user should note that the bridge filter only examines frames from interfaces that are part of the bridge itself. Twenty filter rules are supported with bridge filtering. To enable Bridge Filters, from the Home screen, click Advanced and under Advanced, select Bridge Filters.

The User Interface for Bridge Filter allows the user to add/edit/delete, as well as, enables the filter rules. To add rules, simply define the source MAC address, destination MAC address and frame type with desired filtering type (i.e. allow/deny), and press the "Add" button. The MAC address must be in a xx-xx-xx-xx-xx-xx format, with 00-00-00-00-00-00 as "automatically allow". Blanks can be used in the MAC address space, and would be considered also as "automatically allow".

To edit/modify an existing filter rule, select the desired rule created previously from "Add" in the "Edit" select box. The selected filter rule will appear on top section, as with the "Add" filter rule. Make the desired change to the MAC address, frame type and/or access type, and press "Apply".

The "Enable Bridge Filters" button allows the user to enable or disable bridge filtering. It can be set/unset during any add/edit/delete operation. It can also be set/unset independently by just pressing the "Apply" button.

Src MAC	Src Port	Dest MAC	Dest Port	Protocol	Mode
00-00-00-00-00-00	ANY	00-00-00-00-00-00	ANY	PPPoE Session	Deny

Web Filters

Web filters allow you to enable or disable certain computer applications to run.

The screenshot shows the Zhone router's configuration interface. The top navigation bar includes 'HOME', 'SETUP', 'ADVANCED', 'WIRELESS', 'TOOLS', 'STATUS', and 'HELP'. The left sidebar lists various configuration options, with 'Web Filters' currently selected. The main content area is titled 'Web Filters' and contains the following settings:

Proxy	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Cookies	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Java Applets	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
ActiveX	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Pop-Ups	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

At the bottom right of the configuration area, there are 'Apply' and 'Cancel' buttons.

Dynamic DNS Client

The router can also act as a dynamic DNS client connecting to one of the DNS servers listed. Enter the user name and password that has been provided.

The screenshot shows the Zhone router's configuration interface for the Dynamic DNS Client. The top navigation bar and left sidebar are the same as in the previous screenshot. The main content area is titled 'Dynamic DNS Client' and contains the following settings:

Connection	Test1
DDNS Server	DynDNS
DDNS Client	<input type="checkbox"/>
User Name	<input type="text"/>
Password	<input type="text"/>
Domain Name	<input type="text"/>

At the bottom right of the configuration area, there are 'Apply' and 'Cancel' buttons.

IGMP Proxy

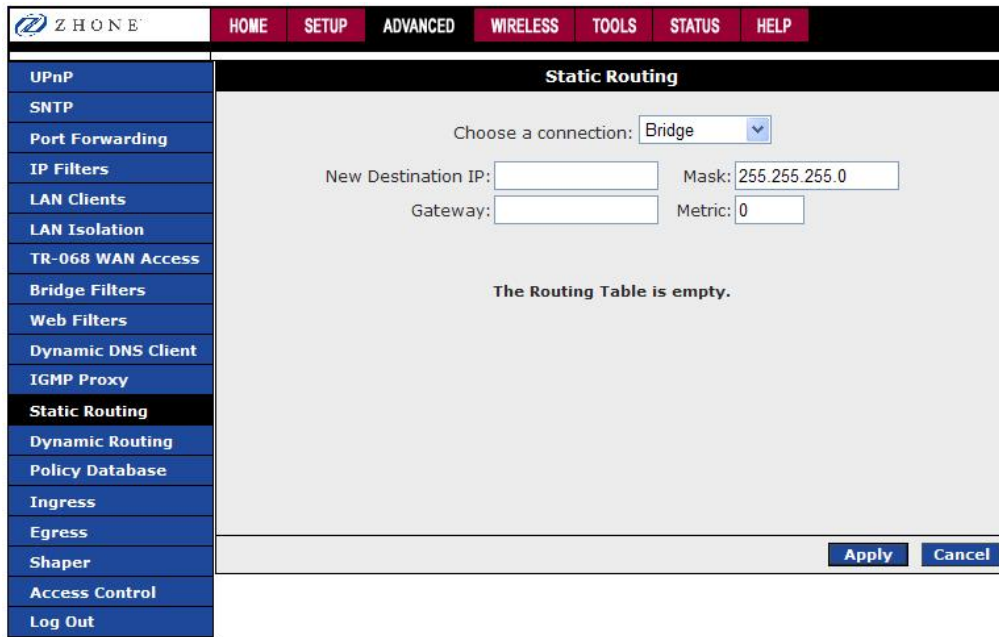
IGMP Proxy allows for forwarding of multicast traffic between networks.

IGMP Proxy	
IGMP Proxy could be enabled on WAN and LAN connections.	
<input type="checkbox"/> Enable IGMP Proxy	
Interface	Upstream/Downstream/Ignore
Test1	Ignore
LAN group 1	Ignore

Static Routing

If the router is connected to more than one network, you may need to set up a static route between them. A static route is a pre-defined pathway that network information must travel to reach a specific host or network. You can use static routing to allow different IP domain users to access the Internet through the router.

The New Destination IP is the address of the remote LAN network or host to which you want to assign a static route. Enter the IP address of the host for which you wish to create a static route here. For a standard Class C IP domain, the network address is the first three fields of the New Destination IP, while the last field should be 0. The Subnet Mask identifies which portion of an IP address is the network portion, and which portion is the host portion. For a full Class C Subnet, the Subnet Mask is 255.255.255.0. The router IP address should be the IP address of the router device that allows for contact between the router and the remote network or host. The Hop Count determines the maximum number of steps between network nodes that data packets will travel. A node is any device on the network (such as a router or switch).



Dynamic Routing

Dynamic Routing allows the router to automatically adjust to physical changes in the network. The router, using the RIP protocol, determines the network packets' route based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.

The Direction determines the direction that RIP routes will be updated. Selecting **In** means that the router will only incorporate received RIP information. Selecting **Out** means that the router will only send out RIP information. Selecting both means that the router will incorporate received RIP information and send out updated RIP information.

The protocol is dependent upon the entire network. Most networks support Rip v1. If RIP v1 is selected, routing data will be sent in RIP v1 format. If Rip V2 is selected, routing data will be sent in RIP v2 format using subnet broadcasting. If Rip V1 Compatible is selected, routing data will be sent in RIP v2 format using multicasting.

Policy Database

The Policy Database page allows you to route packets based on the various fields in the packet. Fields that can be configured for this policy routing include the following—

- | Destination IP Address / Mask
- | Source IP Address / Mask
- | Source MAC Address
- | Protocol—TCP, UDP, ICMP, etc.
- | Source Port
- | Destination Port
- | Incoming Interface
- | DSCP

Policy routing if selected, used the egress interface. Therefore the ingress interface is not applicable if policy routing is used.

Ingress Interface	DSCP	Source IP	Destination IP	Source Port Start	Destination Port Start	Protocol	Local Mark	Delete
Dest Interface	CoS	Mask	Mask	Source Port End	Destination Port End	Source MAC		

Ingress

Ingress is the direction of traffic entering a network. QoS can be configured on a per interface basis. Select the interface—USB, Ethernet, Bridge—that needs to be configured.

The screenshot shows the Zhone web interface with the 'Ingress' configuration page. The navigation menu on the left includes: UPnP, SNTP, Port Forwarding, IP Filters, LAN Clients, LAN Isolation, TR-068 WAN Access, Bridge Filters, Web Filters, Dynamic DNS Client, IGMP Proxy, Static Routing, Dynamic Routing, Policy Database, Ingress (highlighted), Egress, Shaper, Access Control, and Log Out. The main configuration area has a title 'Ingress' and an 'Interface' dropdown menu set to 'Ethernet'. Below the interface selection are radio buttons for 'Untrusted' (selected), 'Layer2', 'Layer3', and 'Static'. A horizontal line separates this from the QoS settings, which include 'TOS' (set to 'All') and 'Class of Service' (set to 'CoS6'). A 'Cancel' button is at the bottom right.

Egress

Egress is the direction of a frame exiting an interface—USB, Ethernet, Bridge.

The screenshot shows the Zhone web interface with the 'Egress' configuration page. The navigation menu on the left is the same as in the Ingress page. The main configuration area has a title 'Egress' and a 'Connection' dropdown menu set to 'Ethernet'. Below the connection selection are radio buttons for 'No Egress' (selected), 'Layer2', and 'Layer3'. The main content area displays the text 'No Egress TCA defined'. A 'Cancel' button is at the bottom right.

Shaper

The shaper provides a way of determining priorities of different traffic classes.

The screenshot shows the Zhone web interface. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar menu lists various configuration options, with 'Shaper' highlighted. The main content area is titled 'Shaper Configuration' and contains the following elements:

- Interface: Ethernet (dropdown menu)
- Max Rate: [input field]
- HTB Queue Discipline
- Low Latency Queue Discipline
- CoS1 : [input field] Kbits CoS2 : [input field] Kbits
- CoS3 : [input field] Kbits CoS4 : [input field] Kbits
- CoS5 : [input field] Kbits CoS6 : [input field] Kbits
- PRIOWRR
- CoS2 : [input field] % CoS3 : [input field] % CoS4 : [input field] % CoS5 : [input field] % CoS6 : [input field] %

At the bottom right of the configuration area are three buttons: Reset, Apply, and Cancel.

Access Control

Specific types of traffic that is destined to a selected LAN IP address can be blocked. To enable any of the Access Control features, from the Home screen, click Advanced and under Advanced, select Access Control. All Access Control rules have precedence over rules that were added via the port-forwarding page.

The apply button will temporarily save this connection. To make the change permanent, click on Tools (at the top of the page) and select **System Commands**. At the system commands page, click on **Save All**.

Zhone

HOME SETUP **ADVANCED** WIRELESS TOOLS STATUS HELP

UPnP
SNTP
Port Forwarding
IP Filters
LAN Clients
LAN Isolation
TR-068 WAN Access
Bridge Filters
Web Filters
Dynamic DNS Client
IGMP Proxy
Static Routing
Dynamic Routing
Policy Database
Ingress
Egress
Shaper
Access Control
Log Out

Access Control

Enable Access Control

All LAN access allowed, all WAN access denied.

Service Name	WAN	LAN group 1
Telnet	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Web	<input type="checkbox"/>	<input checked="" type="checkbox"/>
FTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TFTP	<input type="checkbox"/>	<input type="checkbox"/>

IP Access List: Delete

New IP: Add

Apply Cancel

Wireless

The Wireless section allows you to configure the router's wireless connection.

Setup

The setup contains the wireless LAN user settings.

Below are the procedures for setting up the configurations—

- I **Enable AP:** Enabling the Access Point (AP) turns on the router's wireless capability. To use wireless devices, verify that the box is checked.
- I **SSID:** Specify the Service Set Identifier (SSID) for your wireless LAN. It can be up to 32 characters and cannot include spaces.
- I **Hidden SSID:** Enable Hidden SSID by clicking in the check box. When Hidden SSID is enabled, the SSID is not advertised. Users must know the SSID to connect to the wireless LAN.
- I **Channel B/G:** Specify the RF (Radio Frequency) channel (1–11) for the router to use. Recommended values are 1, 6, and 11. These three values do not overlap and could be used by three neighboring wireless LANs.
- I **802.11 Mode:** Specify whether the router will support only 802.11b (11 Mbps) clients, only 802.11b+ clients (22 Mbps), only 802.11g (54 Mbps) clients, or all. To allow any client to connect, select Mixed.
- I **4X:** Enable 4X mode only if all clients that will connect to the wireless LAN support 802.11b+.
- I **User Isolation:** Select if you want to forbid communications between users on the wireless LAN.

The screenshot shows the 'Wireless Setup' configuration page in a web browser. The page has a navigation bar at the top with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. On the left side, there is a 'Setup' menu with options: Configuration, Multiple SSID, Security, Management, and Log Out. The main content area is titled 'Wireless Setup' and contains the following settings:

- Enable AP:
- Primary SSID:
- Hidden SSID: *Restarting AP not required
- ACS:
- Channel B/G:
- 802.11 Mode:
- 4X:
- User Isolation:
- QoS Support:

At the bottom, there is a note: "Note: you must [Restart Access Point](#) for Wireless changes to take effect." and two buttons: "Apply" and "Cancel".

Configuration

The Wireless Configuration screen contains the wireless LAN operational settings. Do not change anything on the Wireless Configuration screen unless you are so directed by your ISP.

The screenshot shows the 'Wireless Configuration' page. The left sidebar has a menu with 'Setup', 'Configuration', 'Multiple SSID', 'Security', 'Management', and 'Log Out'. The main content area is titled 'Wireless Configuration' and contains the following fields:

- Beacon Period: 100 msec
- DTIM Period: 3
- RTS Threshold: 2347
- Frag Threshold: 2346
- Power Level: Full (dropdown)
- Multi Domain Capability: (checkbox)
- Country String: US
- Band B/G: (dropdown)
- Current Reg. Domain: FCC (dropdown)
- Private Reg. Domain: 0

At the bottom, there is a note: "Note: you must [Restart Access Point](#) for Wireless changes to take effect." and two buttons: 'Apply' and 'Cancel'.

Multiple SSID

The Multiple SSID screen allows you to enable the use of a second SSID for your wireless LAN. Enter the SSID if this feature is enabled. To hide the SSID from users on the LAN, click on the **Hide this SSID** checkbox and then click on **Add** and **Apply** buttons to finish.

The screenshot shows the 'Configure Multiple SSID' page. The left sidebar is the same as in the previous screenshot. The main content area is titled 'Configure Multiple SSID' and contains the following fields:

- Enable Multiple SSID
- Secondary SSID: (text input field)
- Hide this SSID:

At the bottom, there is a note: "Note: you must [Restart Access Point](#) for Wireless changes to take effect." and two buttons: 'Apply' and 'Cancel'.

Security

The Wireless Security screen contains the settings for applying security to your wireless LAN.

Select a security type—

If **None** is selected, then there is nothing else to do.

The screenshot shows the 'Wireless Security' configuration page. The left sidebar contains a navigation menu with 'Security' highlighted. The main content area has a dropdown menu set to 'wireless'. Below it, four radio buttons are visible: 'None' (selected), 'WEP', '802.1x', and 'WPA'. At the bottom, there is a note: 'Note: you must Restart Access Point for Wireless changes to take effect.' and two buttons: 'Apply' and 'Cancel'.

WEP (Wired Equivalent Privacy). Users of the wireless LAN must supply an encryption key, as defined on this screen. If an Authentication Type of Shared is selected, the client must properly encrypt a packet sent by the router using the encryption key; however, this method allows hackers to deduce the key. An Authentication Type of Open is recommended.

The screenshot shows the 'Wireless Security' configuration page with 'WEP' selected. The 'Authentication Type' is set to 'Open'. There are four radio buttons for 'Select' encryption keys, each with a '64 bits' cipher dropdown. A note at the bottom states: 'Note: you must Restart Access Point for Wireless changes to take effect.' and 'Apply' and 'Cancel' buttons are present.

802.1x. This security level uses a RADIUS (Remote Authentication Dial-In User Service) authentication server to manage network access. Specify the address of the RADIUS server, the Port, the shared Secret, and the Interval in seconds at which authentication must be repeated.

WPA (Wi-Fi Protected Access). For WPA you can specify a RADIUS server (as with 802.1x, above) or a Pre-Shared Key (PSK).

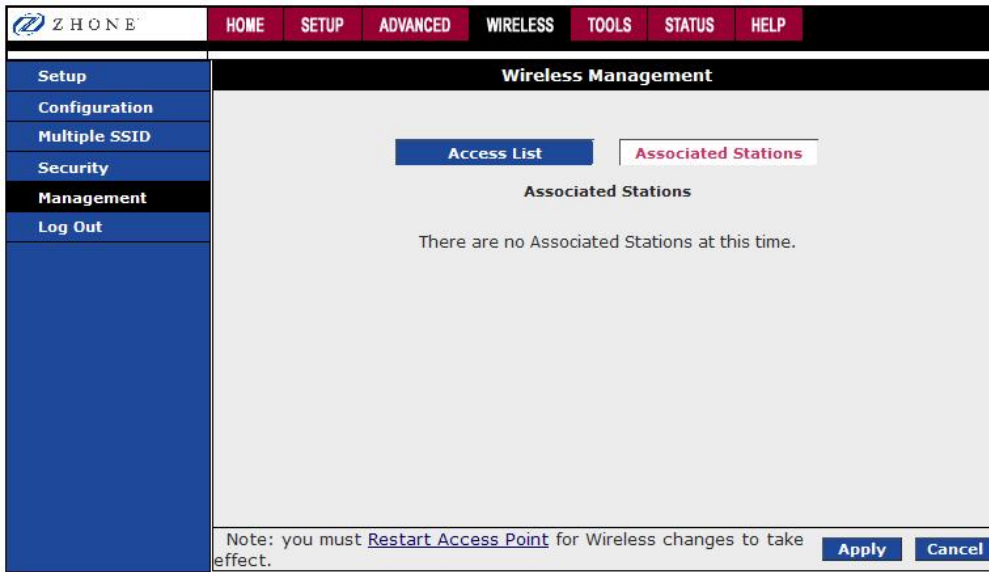
Management

The Wireless Management screen allows you to control access, display clients, and establish multiple SSIDs.

Below is the screen if Access List is selected—

- I **Access List:** allows or denies access to the wireless LAN by MAC address. Enable the access list, then add allowed or denied MAC addresses.

- I **Associated Stations:** displays wireless clients currently connected to the router.



Tools

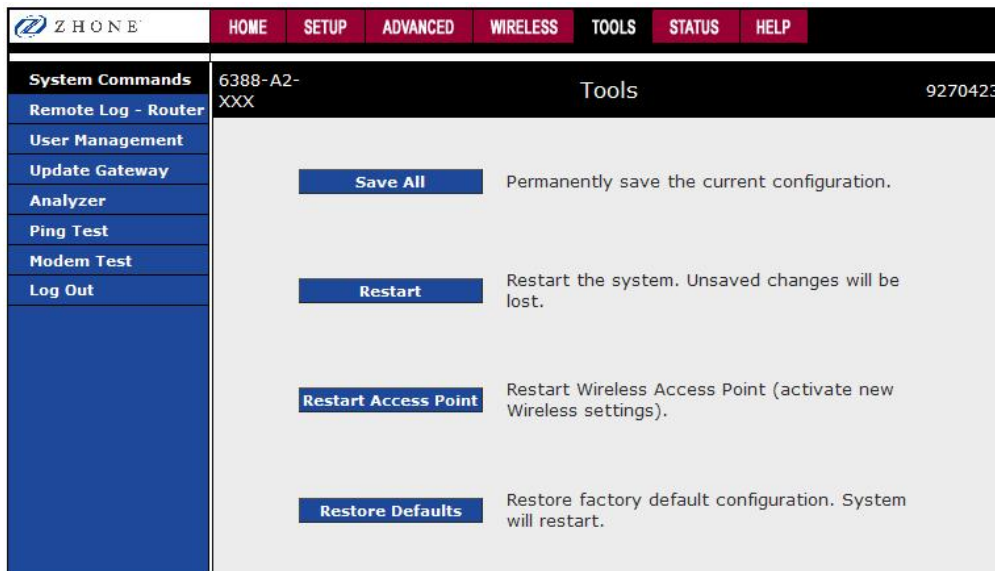
This section provides access to the following system commands and functions—

- I System Commands
- I Remote Log—Router
- I User Management
- I Analyzer
- I Ping Test
- I Router Test

System Commands

To make the changes permanent, click on **Tools** (at the top of the page) and select **System Commands**. The following commands are used to configure the router:

- a. **Save all:** Press this button in order to permanently save the current configuration of the router. If you do re-start the system without saving your configuration, the router will revert back to the previously saved configuration.
- b. **Restart:** Use this button to re-start the system. If you have not saved your configurations, the router will revert back to the previously saved configuration upon re-starting. **NOTE:** Connectivity to the unit will be lost. You can reconnect after the unit reboots.
- c. **Restore Defaults:** Use this button to restore factory default configuration. **NOTE:** Connectivity to the unit will be lost. You can reconnect after the unit reboots.



Remote Log - Router

The remote log feature will forward all logged information to the remote PC. The type of information forwarded to the remote PC depends upon the Log level. Each log message is assigned a severity level, which indicates how seriously the triggering event

affects router functions. When you configure logging, you must specify a severity level for each facility. Messages that belong to the facility and are rated at that level or higher are logged to the destination.

The screenshot shows the Zhone router's web interface. At the top, there is a navigation bar with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. On the left side, there is a vertical menu with the following items: System Commands, Remote Log - Router (highlighted), User Management, Update Gateway, Analyzer, Ping Test, Modem Test, and Log Out. The main content area is titled "Remote Log - Router Settings". It contains a "Log Level" section with a dropdown menu currently set to "Notice". Below this is an "Add an IP Address:" field with an "Add" button. Further down is a "Select a logging destination:" dropdown menu currently set to "None" with a "Delete" button. At the bottom right of the main content area, there are "Apply" and "Cancel" buttons.

User Management

You can change your router's username and password by going to the Home screen, under the tools menu, and click User Management. From here you can change the login name and password. You can also change the idle timeout; you will need to log back onto the router once the timeout expires.

If you forget your password, press and hold the reset to factory defaults button for 10 seconds. The router will reset to its factory default configuration and all custom configurations will be lost.

The apply button will temporarily save this connection. To make the change permanent, click on **Tools** (at the top of the page) and select **System Commands**. At the system commands page, click on **Save All**.

ZHONE		HOME	SETUP	ADVANCED	WIRELESS	TOOLS	STATUS	HELP
System Commands	User Management							
Remote Log - Router	User Management is used to change your User Name or Password.							
User Management	User Name: <input type="text" value="Admin"/> Password: <input type="password"/> Confirmed Password: <input type="password"/> Idle Timeout: <input type="text" value="30"/> minutes							
Update Gateway	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>							
Analyzer								
Ping Test								
Modem Test								
Log Out								

Update Gateway

You can remotely upgrade the router's firmware by going to the Home screen, under the tools title and click Update Gateway. To upgrade the firmware, click browse, find the firmware file to download. Make sure this is the correct file. Click on upgrade firmware. Once the upgrade is complete the router will reboot. You will need to log back onto the router after the firmware upgrade is complete.

The firmware upgrade should take less than 5 minutes to complete. If it takes longer than 5 minutes, something has gone wrong.

Note: Do not remove power from the router during the firmware upgrade procedure.

ZHONE		HOME	SETUP	ADVANCED	WIRELESS	TOOLS	STATUS	HELP
System Commands	Update Gateway							
Remote Log - Router	To update your gateway, click the button below.							
User Management	<input type="button" value="Update Gateway"/>							
Update Gateway	To get the configuration file from the gateway, click the button below.							
Analyzer	<input type="button" value="Get Configuration"/>							
Ping Test	The system will give the configuration file only if it was earlier saved by pressing "Save All" in the System Commands menu.							
Modem Test								
Log Out								

Analyzer

This section shows a diagnosis of the various statuses.

The screenshot shows the Zhone web interface. At the top, there is a navigation bar with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. Below this is a sidebar menu with options: System Commands, Remote Log - Router, User Management, Update Gateway, Analyzer (highlighted), Ping Test, Modem Test, and Log Out. The main content area is titled "Analyzer" and displays the following status information:

Ethernet:	DOWN, UP, DOWN, DOWN
DSL Link:	DOWN
RX Idle Cells:	SKIPPED
OAM Ping:	SKIPPED
ping localhost:	PASS
ping gateway:	PASS
ping nameserver:	FAIL

At the bottom right of the Analyzer section, there is a "Refresh" button.

Ping Test

Once you have your router configured, make sure you can ping the network. You can get to the Ping web page by going to the Home screen, under the Tools title, and clicking Ping Test. Type the target address that you want to ping. If you have your PC connected to the router via the default DHCP configuration, you should be able to ping the network address 192.168.1.1.

If your ISP has provided their server address you can try to ping the address. If the pings for both the WAN and the LAN side complete, and you have the proper protocols configured, you should be able to access the Internet.

By default when you select ping test, the router will ping itself 3 times. If this first ping test does not pass, the TCP/IP protocol is not loaded for some reason, then you should restart the router.

Z H O N E HOME SETUP ADVANCED WIRELESS TOOLS STATUS HELP

System Commands
Remote Log - Router
User Management
Update Gateway
Analyzer
Ping Test
Modem Test
Log Out

Ping Test

Enter IP Address to ping:

TOS Byte:

Packet size: bytes

Number of echo requests:

Test

```

Status:           Alive
Pings:           Transmit  Receive  Lost  Lost Ratio
                  3          3        0     0%
Roundtrip Delay(ms):  Minimum  Maximum  Average  StdDev
                   <10     <10     <10     0

```

Modem Test

The Modem Test is used to check whether your router is properly connected to the WAN Network. This test may take a few seconds to complete. To perform the test, select your connection from the list and press the Test button. Before running this test, make sure you have a valid DSL link. If the DSL link is not connected, this test will always fail.

Z H O N E HOME SETUP ADVANCED WIRELESS TOOLS STATUS HELP

System Commands
Remote Log - Router
User Management
Update Gateway
Analyzer
Ping Test
Modem Test
Log Out

Modem Test

This test can be used to check whether your Modem is properly connected to the Network. This test may take a few seconds to complete. To perform the test, select your connection from the list and press the Test button.

Connection	Type	VPI:VCI
<input type="radio"/> Bridge	bridge	0:35
<input type="radio"/> Test1	pppoe	3:32

Test Type: **Test**

Modem Test Result: No test is running

Status

The Status section allows you to view the Status/Statistics of different connections and interfaces.

Network Statistics

Select to view the Statistics of different interfaces - Ethernet/USB/DSL.

Network Statistics	
Choose an interface to view your network statistics:	
<input checked="" type="radio"/> Ethernet <input type="radio"/> DSL <input type="radio"/> Wireless	
Transmit	
Good Tx Frames	3709
Good Tx Broadcast Frames	1
Good Tx Multicast Frames	3
Tx Total Bytes	3053729
Collisions	0
Error Frames	0
Carrier Sense Errors	0
Receive	
Good Rx Frames	2502
Good Rx Broadcast Frames	138
Good Rx Multicast Frames	9
Rx Total Bytes	311098
CRC Errors	0
Undersized Frames	0
Overruns	0

Connection Status

Select to view the Status of different connections.

ZHONE HOME SETUP ADVANCED WIRELESS TOOLS STATUS HELP

Network Statistics

Connection Status

DDNS Update Status

DHCP Clients

QOS-TCA NTCA Status

Modem Status

Product Information

System Log

WPA Notify Messages

Log Out

Connection Status (2)

Description	Type	IP	State	Online	Disconnect Reason	MAC Address	I/F Name
Bridge	bridge	NA	NA	NA	NA	None	nas0
Test1	pppoe	N/A	Not Connected	0	DSL Line is Disconnected	None	nas1 /None

Refresh

DDNS Update Status

Select to view the DDNS status for the WAN connections.

ZHONE HOME SETUP ADVANCED WIRELESS TOOLS STATUS HELP

Network Statistics

Connection Status

DDNS Update Status

DHCP Clients

QOS-TCA NTCA Status

Modem Status

Product Information

System Log

WPA Notify Messages

Log Out

DDNS Update Status

Connection: Test1

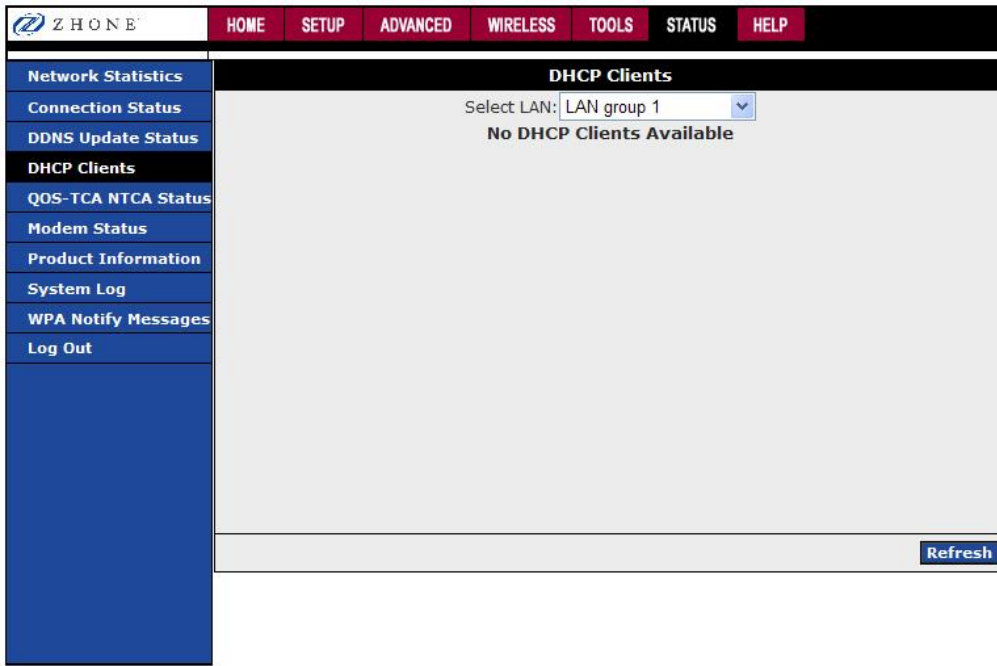
DDNS Server: DynDNS

DDNS Client is disabled

Refresh

DHCP Clients

Select to view the list of DHCP clients.



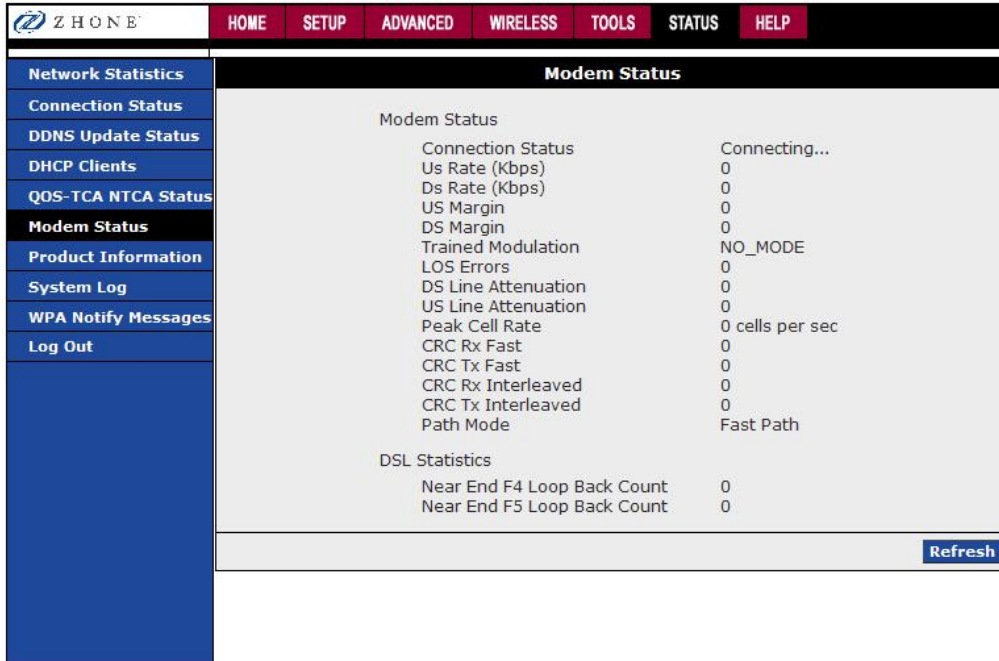
QOS-TCA NTCA Status

This page shows router's packet transfer statistics.

Z H O N E	HOME	SETUP	ADVANCED	WIRELESS	TOOLS	STATUS	HELP
Network Statistics	QOS-TCA-NTCA STATUS						
Connection Status	QOS Framework : Enabled						
DDNS Update Status	Scheduling Algorithm : Strict Round-Robin						
DNTP Clients	NQM Received Statistics						
QOS-TCA-NTCA Status	NQM Dropped Statistics						
Modem Status	Cos1 Pkts received : 0						
Product Information	Cos2 Pkts received : 0						
System Log	Cos3 Pkts received : 0						
WPA Notify Messages	Cos4 Pkts received : 0						
Log Out	Cos5 Pkts received : 0						
	Cos6 Pkts received : 5390						
	NQM Congestion Control						
	Cos1 Queue : Empty						
	Cos2 Queue : Empty						
	Cos3 Queue : Empty						
	Cos4 Queue : Empty						
	Cos5 Queue : Empty						
	Cos6 Queue : Empty						
	<p>Congestion State : is Enabled Scheduling Algorithm : Strict Round-Robin -- NQM Received Statistics -- Cos1 Pkts Received = 0 Cos2 Pkts Received = 0 Cos3 Pkts Received = 0 Cos4 Pkts Received = 0 Cos5 Pkts Received = 0 Cos6 Pkts Received = 5390 -- NQM Dropped Statistics -- Cos1 Pkts Dropped = 0 Cos2 Pkts Dropped = 0 Cos3 Pkts Dropped = 0 Cos4 Pkts Dropped = 0 Cos5 Pkts Dropped = 0 Cos6 Pkts Dropped = 0 -- NQM Congestion Control -- Cos1 Queue = Empty Cos2 Queue = Empty Cos3 Queue = Empty Cos4 Queue = Empty Cos5 Queue = Empty Cos6 Queue = Empty Congestion State = Not Congested</p> <p>Classification Errors : Enabled Scheduling Algorithm : Strict Round-Robin -- NQM Received Statistics -- Cos1 Pkts Received = 0 Cos2 Pkts Received = 0 Cos3 Pkts Received = 0 Cos4 Pkts Received = 0 Cos5 Pkts Received = 0 Cos6 Pkts Received = 5390 -- NQM Dropped Statistics -- Cos1 Pkts Dropped = 0 Cos2 Pkts Dropped = 0 Cos3 Pkts Dropped = 0 Cos4 Pkts Dropped = 0 Cos5 Pkts Dropped = 0 Cos6 Pkts Dropped = 0 -- NQM Congestion Control -- Cos1 Queue = Empty Cos2 Queue = Empty Cos3 Queue = Empty Cos4 Queue = Empty Cos5 Queue = Empty Cos6 Queue = Empty Congestion State = Not Congested -- Classification Errors = 0 Unclassified Packets = 3 Fragmented Packets = 0 -- Translation Unit Statistics -- Packets Remarkd = 141 Packets Unchanged = 0 Non-IP Packets Marked = 2 Unclassified Non-IP Packets Marked = 0</p>						

Modem Status

The router must be connected to DSL service in order to view the router's status.



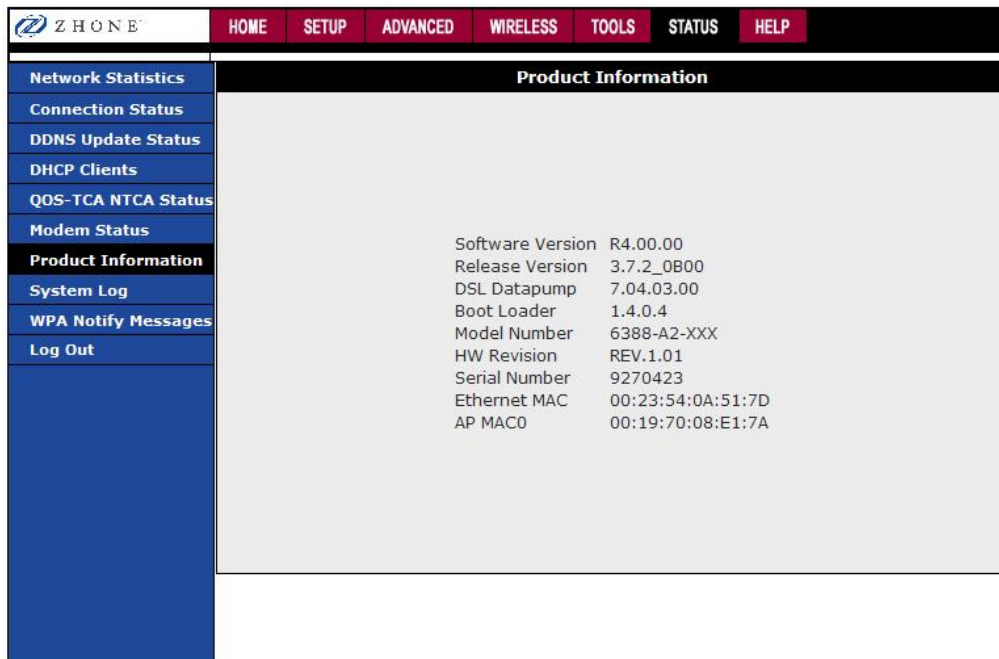
The screenshot shows the Zhone router's web interface. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar contains menu items: Network Statistics, Connection Status, DDNS Update Status, DHCP Clients, QOS-TCA NTCA Status, Modem Status (highlighted), Product Information, System Log, WPA Notify Messages, and Log Out. The main content area is titled "Modem Status" and displays the following information:

Modem Status	
Connection Status	Connecting...
Us Rate (Kbps)	0
Ds Rate (Kbps)	0
US Margin	0
DS Margin	0
Trained Modulation	NO_MODE
LOS Errors	0
DS Line Attenuation	0
US Line Attenuation	0
Peak Cell Rate	0 cells per sec
CRC Rx Fast	0
CRC Tx Fast	0
CRC Rx Interleaved	0
CRC Tx Interleaved	0
Path Mode	Fast Path
DSL Statistics	
Near End F4 Loop Back Count	0
Near End F5 Loop Back Count	0

A "Refresh" button is located at the bottom right of the main content area.

Product Information

On the Product Information page, information pertaining to the router's software and hardware are shown.



The screenshot shows the Zhone router's web interface. The top navigation bar includes HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. The left sidebar contains menu items: Network Statistics, Connection Status, DDNS Update Status, DHCP Clients, QOS-TCA NTCA Status, Modem Status, Product Information (highlighted), System Log, WPA Notify Messages, and Log Out. The main content area is titled "Product Information" and displays the following information:

Software Version	R4.00.00
Release Version	3.7.2_0B00
DSL Datapump	7.04.03.00
Boot Loader	1.4.0.4
Model Number	6388-A2-XXX
HW Revision	REV.1.01
Serial Number	9270423
Ethernet MAC	00:23:54:0A:51:7D
AP MAC0	00:19:70:08:E1:7A

System Log

You can display the router's log by going to the Home screen, under the Status title, click System log. From here you can view all logged information. Depending upon the severity level, this logged info will generate log reports to a remote host (if remote logging is enabled).

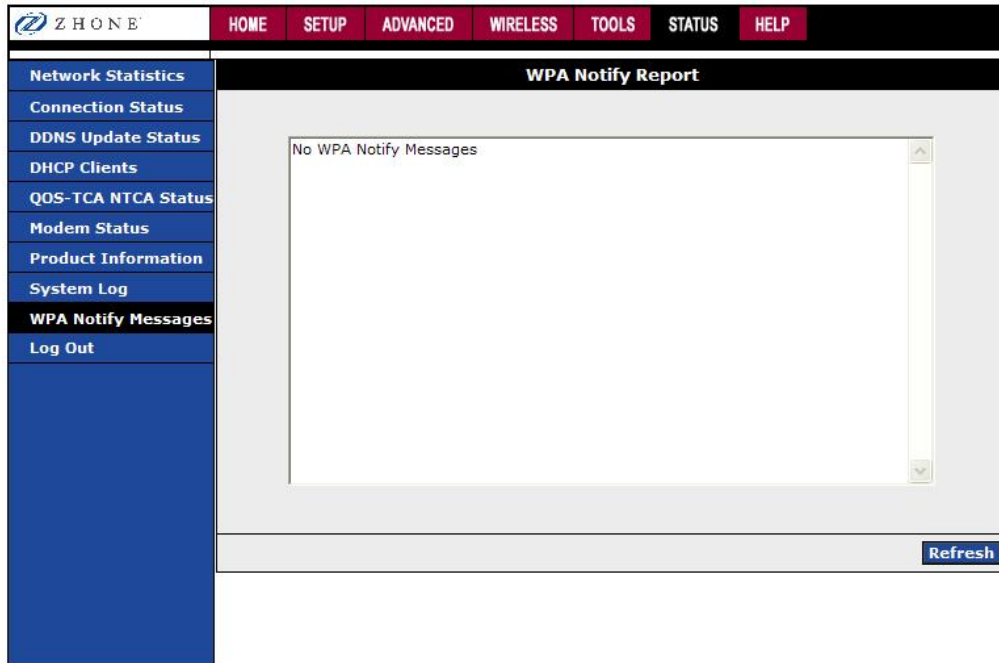
The screenshot shows the Zhone router's web interface. At the top, there is a navigation bar with tabs: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. Below this is a sidebar menu with the following items: Network Statistics, Connection Status, DDNS Update Status, DHCP Clients, QOS-TCA NTCA Status, Modem Status, Product Information, System Log (highlighted), WPA Notify Messages, and Log Out. The main content area is titled 'System Log' and contains a scrollable text box with the following log entries:

```
2002:9:8:16:4 Unclassified Packets = 3
2002:9:8:16:4 Fragmented Packets = 0
2002:9:8:16:4
2002:9:8:16:4 -- Translation Unit Statistics --
2002:9:8:16:4 Packets Remarkd = 141
2002:9:8:16:4 Packets Unchanged = 0
2002:9:8:16:4 Non-IP Packets Marked = 9
2002:9:8:16:4 Unclassified IP Packets Marked = 2
2002:9:8:16:4 Unclassified Non-IP Packets Marked= 0
2002:9:8:16:4 Unclassified Layer 2 Packets = 0
2002:9:8:16:4 Terminating ADSL
2002:9:8:16:4 Trying Reach for 15 seconds
2002:9:8:16:4 ChannelTeardown returned rc = 0
2002:9:8:16:4 closing 0.0.1.0
2002:9:8:16:4 ChannelTeardown returned rc = 1770257
2002:9:8:16:4 Initializing DSL interface for Reach
2002:9:8:16:4 DSP binary filesize = 390290 bytes
2002:9:8:16:4 EOC Open(0/1)
2002:9:8:16:4 VC Open
2002:9:8:16:4 DSP Download Successful,version= t040001
```

At the bottom right of the log area, there is a 'Refresh' button.

WPA Notify Messages

This page allows you to see a WPA notify report.



The screenshot displays the Zhone web interface. At the top, there is a navigation bar with the Zhone logo and menu items: HOME, SETUP, ADVANCED, WIRELESS, TOOLS, STATUS, and HELP. On the left side, a vertical menu lists various system status pages: Network Statistics, Connection Status, DDNS Update Status, DHCP Clients, QOS-TCA NTCA Status, Modem Status, Product Information, System Log, WPA Notify Messages (which is currently selected), and Log Out. The main content area is titled "WPA Notify Report" and contains a large text box with the message "No WPA Notify Messages". A "Refresh" button is located at the bottom right of the report area.

This is the end of the configurations. You have successfully configured your router.

Federal Communications Commission (FCC) Requirements, Part 15

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

CAUTION:

Any changes of modifications not expressly approved by the grantee of this device could void the users authority to operate the equipment.

NOTE

THIS MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.