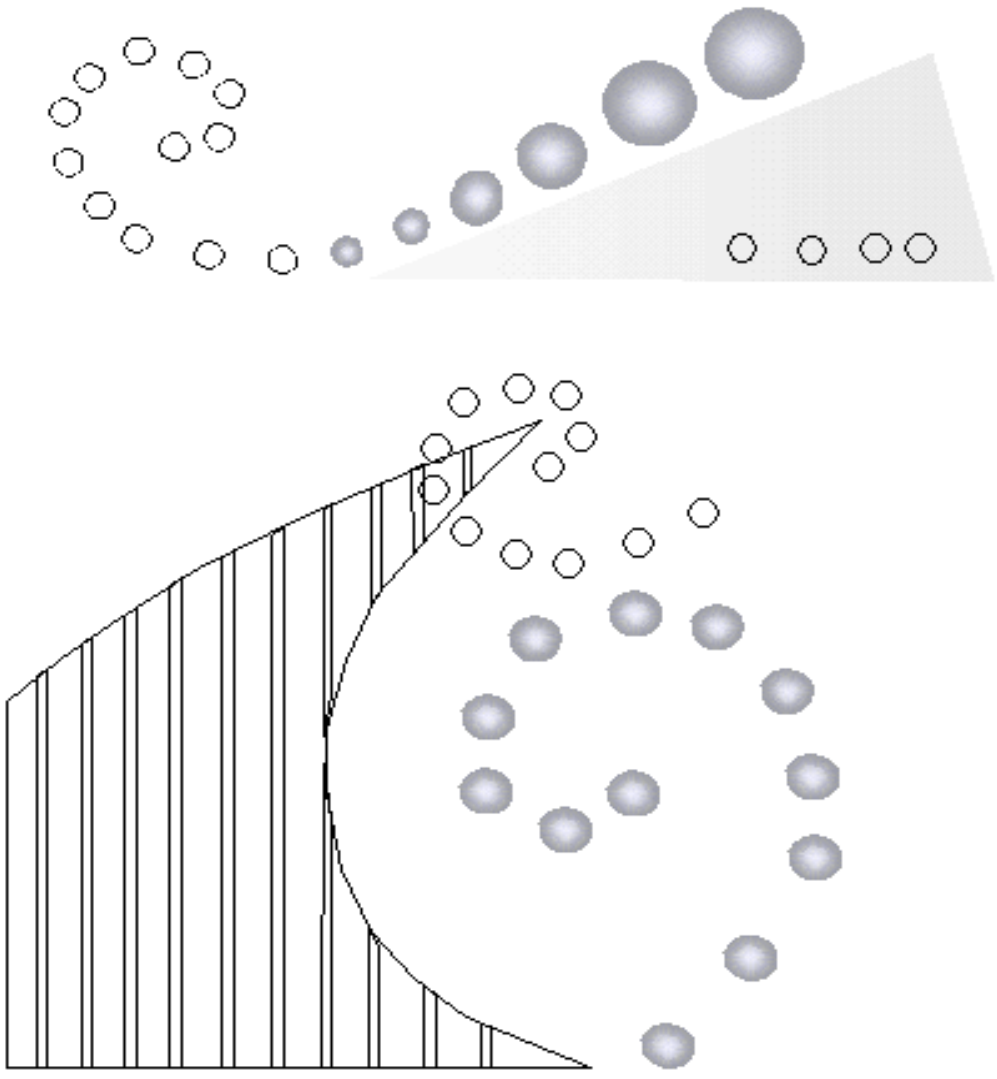
# AR1061
# 1-port ADSL2+ Router
# User's Manual




M/C: TDSL-1061AR-UM
DC: 960910B-2

## FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause interference to radio communications. This equipment as been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against radio interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at is own expense, will be required to take whatever measures are necessary to correct the interface.

## CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN55022 class B for ITE and EN 50082-1. This meets the essential protection requirements of the European Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

## Environment

The device you have purchased, as well as any used batteries must not be disposed of with household waste. You should return these to your distributor if they are able to replace or dispose of them in an approved recycling centre.

## Trademarks

Windows 98/2000/XT/NT™ and Internet Explorer™ are registered trademarks of Microsoft Corporation. All other company, brand and product names, like Netscape Navigator™ are trademarks or registered trademarks of their respective owners.

**WARNING!**

1. Read all installation instructions carefully before connecting the device to its power source.
2. To reduce the risk of electric shock, do not remove the cover from this device or attempt to dismantle it. Opening or removing covers may expose you to dangerous voltage levels. Equally, incorrect reassembly could cause electric shock on re-use of the appliance.
3. Do not expose this device to Fire, direct sunlight or excessive heat.
4. Do not expose the device to rain or moisture and do not allow it to come into contact with water.
5. Do not install the this device in an environment likely to present a THREAT OF IMPACT.
6. You may clean this device using a fine damp cloth. Never use solvents (such as trichloroethylene or acetone), which may damage the device's plastic surface. Never spray this device with any cleaning product whatsoever.
7. Take care not to scratch the surface of plastic housings.
8. The device is designed to work in temperatures from 5°C to 40°C.
9. The this device must be installed at least 1 meter from radio frequency equipment, such as TVs, radios, hi-fi or video equipment (which radiate electromagnetic fields).
10. Do not connect the LAN/PC port to any network other than an Ethernet network.
11. Do not attempt to upgrade your this device in an unstable power environment. This could cause unexpected issues.
12. Do not work on the system or connect or disconnect cables during lightning storms.
13. Children don't recognize the risks of electrical appliances. Therefore use or keep this device only under supervision of adults or out of the reach from children.
14. No repair can by performed by the end user, if you experience trouble with this equipment, for repair or warranty information, please contact your supplier.

# Contents

# 1 Introduction

The AR1061 is an ADSL2+ router that can be used to connect to a twisted copper pair ADSL2+ broadband network. The AR1061 is backwards compatible to all ADSL modulation technology including G.lite, G.dmt, T1.413, ADSL2 and ADSL2+. AR1061 also supports various internet service provider networks via common WAN protocol such as PPPOE, PPPOA, Bridge/MER 1483 modes. With advanced features such as remote configuration, the AR1061 reduces provisioning, maintenance and deployment overheads and ensures a hassle free user experience. Leveraging adoption of Annex-M DSL technology, the AR1061 is capable to provide increased upstream rates to better fulfill growing demand from the SOHO/SMB user. Compliant to Annex L technology, the AR1061 can reach users in a larger service radius increasing the operators' Central Office user density. The AR1061 is a reliable and full-featured ADSL2+ router capable of supporting data traffic and IP services which allows for minimum overhead deployment.

This User's Manual mainly contains the guidance to install and configure this ADSL2+ Router using the Web GUI.

# 2 System Overview

## 2.1 General Description

This AR1061 Router is a high-speed ADSL Ethernet router that is specifically designed to connect to the Internet and to directly connect to your local area network (LAN) via high-speed 10/100 Mbps Ethernet, or wireless LAN (WLAN). The ADSL modem is compatible with the latest ADSL standards, including ADSL2 and ADSL2+, and supports up to 24 Mbps downstream and 1.5 Mbps upstream to deliver true broadband speed and throughput.

To ensure fully compatibility, the DSL device was tested with all major DSLAMs, and support standard 10/100 Mbps Base-T Ethernet interface Auto MDI / MDIX 10/100 Switch function allowing user easily to link to PC or other Switches/Hubs. The DSL device is an idea solution for multi-users utilizing build-in channel mode (PPPoE/A, IPoA, IPoE), IP routing, NAT functionalities sharing the ADSL link. The DSL device is also a perfect solution for the residential users, it supports the users with bridge mode in host based PPPoE Client.

## 2.2 Specifications

**ADSL Standard**

- ITU-T G.992.1(G.dmt)
- ANSI T1.413 Issue 2
- G.992.2 (G.lite)
- G.994.1 (G.hs)
- Auto-negotiating rate adaptation
- ADSL2 G.dmt.bis (G.992.3)
- ADSL2 G.lite.bis (G.992.4)
- ADSL2+ (G.992.5)

**Software Features**

- RFC-1483/2684 LLC/VC-Mux bridged/routed mode
- RFC-1577 Classical IP over ATM
- RFC-2516 PPPoE
- RFC-2364 PPPoA
- ITU-T 1.610 F4/F5 OAM send and receive loop-back
- 802.1d Spanning-Tree Protocol
- DHCP Client/Server/Relay
- NAT
- RIP v1/v2
- DNS Relay Agent
- DMZ support
- IGMP Proxy/Snooping
- Packet Inspection
- Protection against Denial of Service attacks
- IP Packet Filtering
- QoS
- Dynamic DNS

**Management**

- Web-based Configuration
- Menu-driven Command-line Interpreter
- Telnet Remote Management
- SNMP v1/v2/Trap
- Firmware upgrade through FTP, TFTP and HTTP
- Configuration backup/restore
- Diagnostic Tool

# 3 Hardware Installation

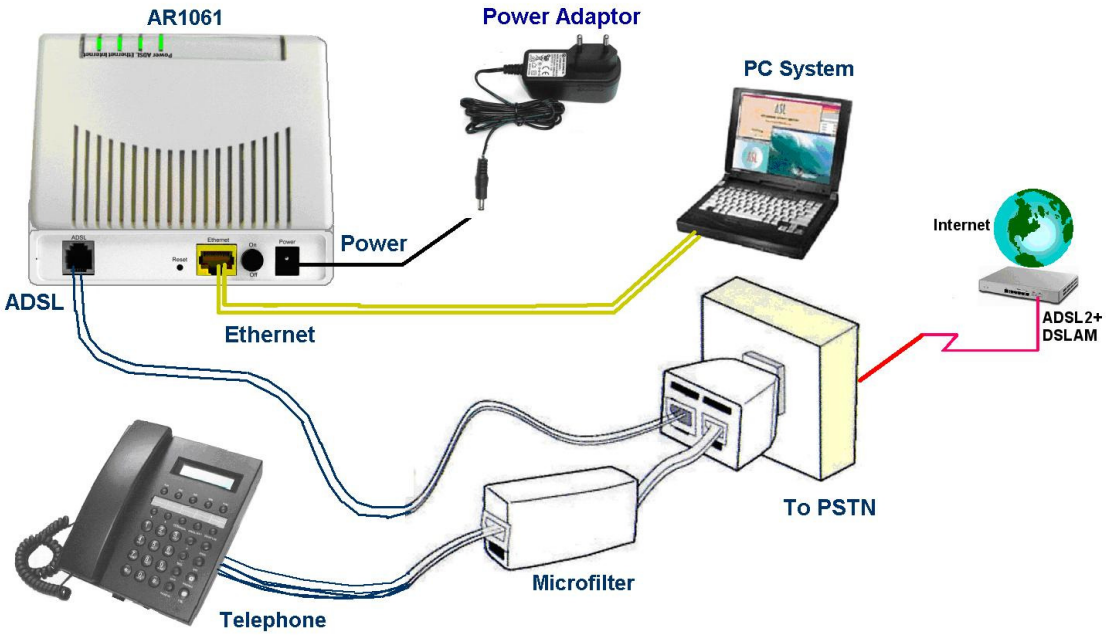
## 3.1 Package Content

Upon opening the gift box of AR1061 Router, you will find the following items.

- 1 x AR1061 Router Main Unit
- 1 x 15VDC/500mA power adaptor
- 1 x CD-ROM
- 1 x Quick Install Guide
- 1 x Warranty Card
- 1 x RJ-45 Ethernet cable
- 1 x T-Connector
- 1 x RJ-11 ADSL line
- 3 x Microfilters

## 3.2 Hardware Setup Procedure

Referring to the figure below and connect this ADSL router to the ADSL line and PC.




1. Connect RJ-11 Telephone wire from AR1061 Router ADSL port to the T-connector that connects the ADSL line to the DSLAM located at central office. Thus it is the gate to the world-wide Internet.
2. An analog telephone can be connected to the Microfilter. This phone can work as

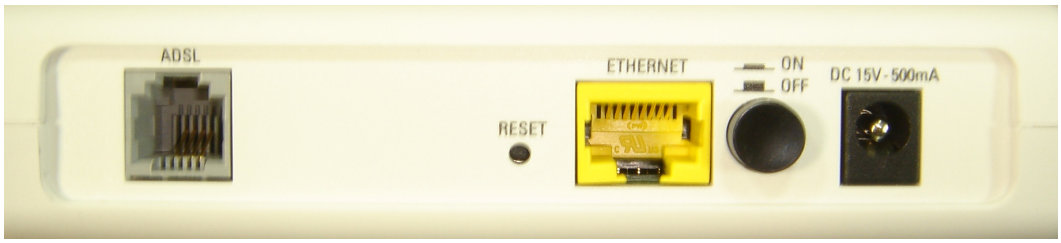
it were connected directly to the PSTN Line (also called as ADSL line now)

3. Connect RJ-45 Ethernet Cable from your PC to AR1061 Router Ethernet port. If you have two or more PC systems, you have to prepare a low-density Ethernet switch or hub for expansion purpose.
4. Connect the AC Power Adaptor (15V) and then the AR1061 Router will start to run and connect the Home local network to the Broadband world.

## 3.3 The I/O Port Definition

The definition for each port is shown in the following Table.

**ADSL** **RESET** **ETHERNET** **ON/OFF** **POWER**




| No | Part Name | Description of function |
|---|---|---|
| 1 | **POWER** | Please use the standard power adaptor supplied in the package (15VDC/500mA). |
| 2 | **ON/OFF** | The power On/Off control Switch |
| 3 | **ETHERNET** | RJ-45 Jack 100/10Mbps Ethernet port for connecting to PC/ Notebook/ Switch |
| 3 | **RESET** | Reset the settings to the factory defaults (*) |
| 4 | **ADSL** | RJ-11 Jack to connect to Twisted Pair copper network. |

(*) **To reset the modem to factory default settings**, please press the Reset button in the back (with a pen, for instance) and hold it for at least 10 seconds, then release. After 10 seconds aprox., the Power LED will become red, which indicates the MODEM is in process of restarting, and the Ethernet LED will be blinking green. After another 20 more seconds aprox. all LED indicators will be green, indicating that the reset has been successfully performed.

## 3.4 The LED Indicator Definition

The following table is a description of the meaning of the different LEDs on the AR1061:

| LED | Color | Status | Description |
|---|---|---|---|
| POWER | Green | Off | Power Off |
| | | Steady | Power On |
| | Red | Blinking or Steady | Restarting or Failure |
| ETHERNET | Green | Off | No packets in transit through router |
| | | Blinking | Packets in transit through router |
| CONEXION | Green | Off | No active DSL link |
| | | Steady | DSL Link active |
| | | Blinking | DSL connection in progress |
| INTERNET | Green | Off | No LAN connection |
| | | Steady | LAN connection established |
| | Red | Blinking or Steady | Establishment of PPP session or it doesn't have static WAN IP assigned |


The LED sequence is "**Power, ETHERNET, CONEXION,** and then **INTERNET** ".

# 4 Software Configuration

User can change settings via PC's WEB browser. The following sections describe the set up procedures. After successful setting, when you power on the AR1061 Router, it will boot up and connect to ADSL line automatically. The Router can provide a PVC (Permanent Virtual Channel) for "Bridge test" by default. The default configurations for the system are listed below.

- **LAN IP address: 192.168.1.1, NetMask: 255.255.255.0**
- **UART setting : 115200bps, 8 bits, no parity, 1 stop bit, no flow control.**
- **VPI/VCI for ATM : 8/32 for PPPoE**
  **8/36 for PPPoE with Imagnio service**
- **ADSL Line mode : Auto-detect.**

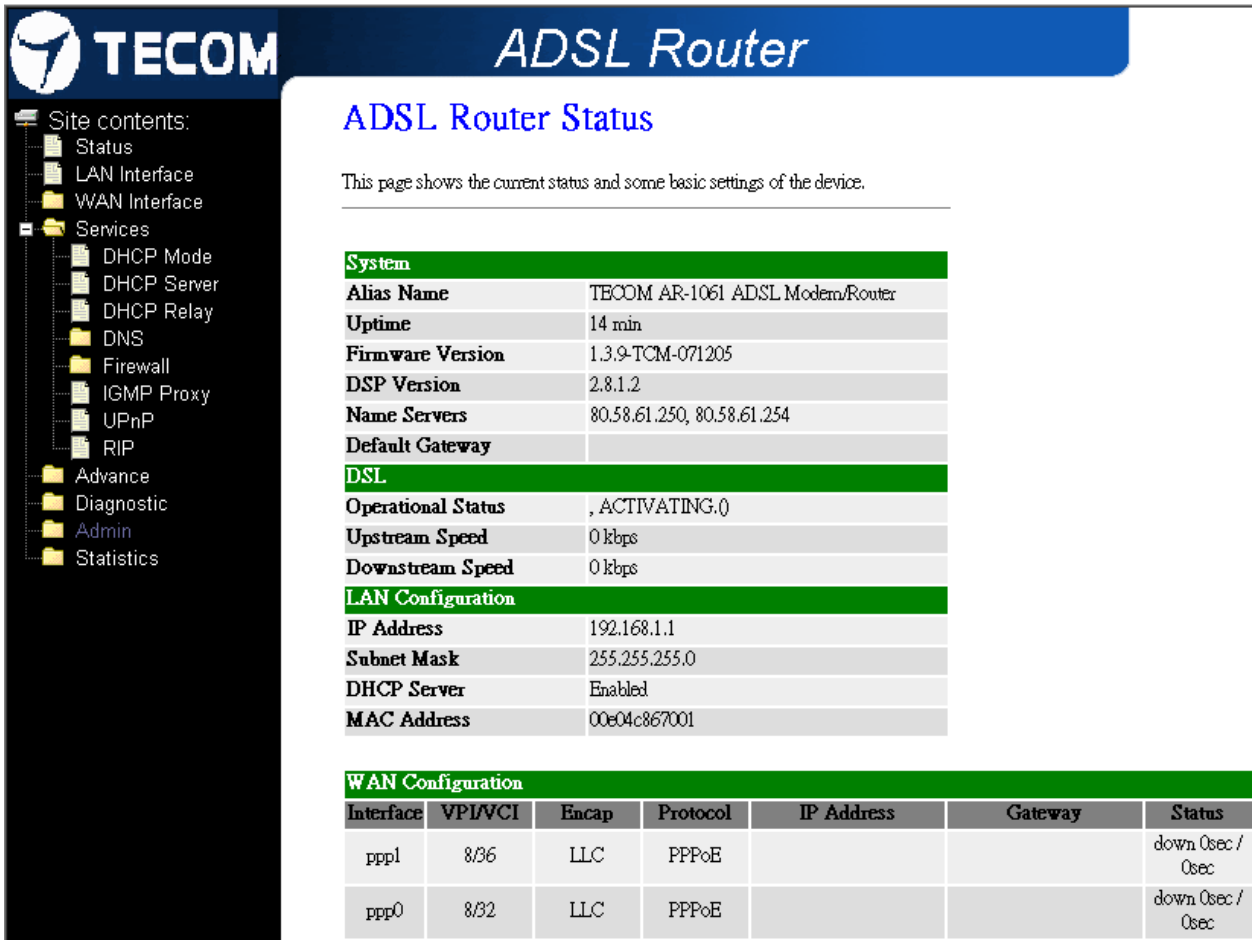
## 4.1 Set your PC's Ethernet port

AR1061 is an ADSL Router which support DHCP and default enable. You also can set your computer IP Address as **192.168.1.x** within the same subnet as AR1061 (default IP address is **192.168.1.1**) and netmask (default netmask is **255.255.255.0**). It can be done thru the following way.

1. Click start > Control Panel
2. In the Control Panel, double-click Network Connections
3. Right-click Local Area Connection the click Properties
4. Select Internet Protocol (TCP/IP) then click Properties
5. The TCP/IP Properties windows appear. You can select obtain an IP address automatically and click OK to have the AR1061 assign your computer an IP address. Or you can enter the IP within the same subnet as AR1061.
6. If your Internet Service Provider (ISP) gave you Domain Name System (DNS) settings, enter them in the Use the following DNS server addresses fields. If you are not sure of your DNS setting, contact your ISP.
7. Click OK to finish the setting.

## 4.2 Access the Web Page of Router

- Type the Ethernet IP address of the modem/router on the address bar of the browser. Default IP address is **192.168.1.1.**
- The "Enter Network Password" dialog box appears. Type the user name and password and then click OK.
  Default admin user name/password is as follows:
  Username: **1234** / Password: **1234**
- Once you have connected to ADSL router. You will see the status page.




This page displays the AR-1061 Router current status and settings. This information is read-only except for the PPPoE/PPPoA channel for which user can connect/disconnect the channel on demand. Click the "Refresh" button to update the status

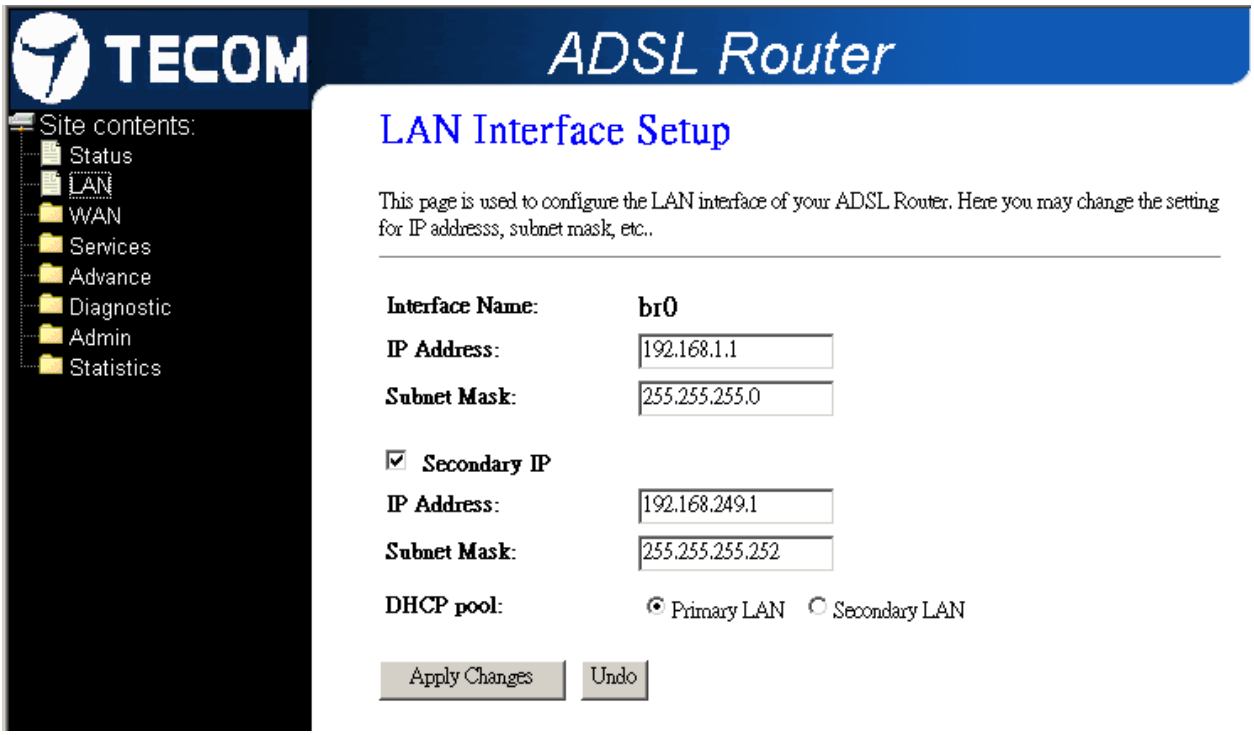
Function buttons in this page:

**Connect / Disconnect**

The two buttons take effect only when PVC is configured as PPPoE / PPPoA mode. Click Connect / Disconnect button to connect/disconnect the PPP dial up link.

## 4.3 LAN Configuration

This page shows the current setting of LAN interface. You can set IP address, subnet mask for LAN interface in this page.




Fields in this page:

| Field | Description |
|---|---|
| **IP Address** | The IP address your LAN hosts use to identify the device's LAN port. |
| **Subnet Mask** | LAN subnet mask. |
| **Secondary IP** | The secondary IP address assignment for the device's LAN port. |

Function buttons in this page:

**Apply Changes**

Click to save the setting to the configuration. New parameters will take effect after save into flash memory and reboot the system. See section "Admin" for save details.

**Undo**

Discard your changes.

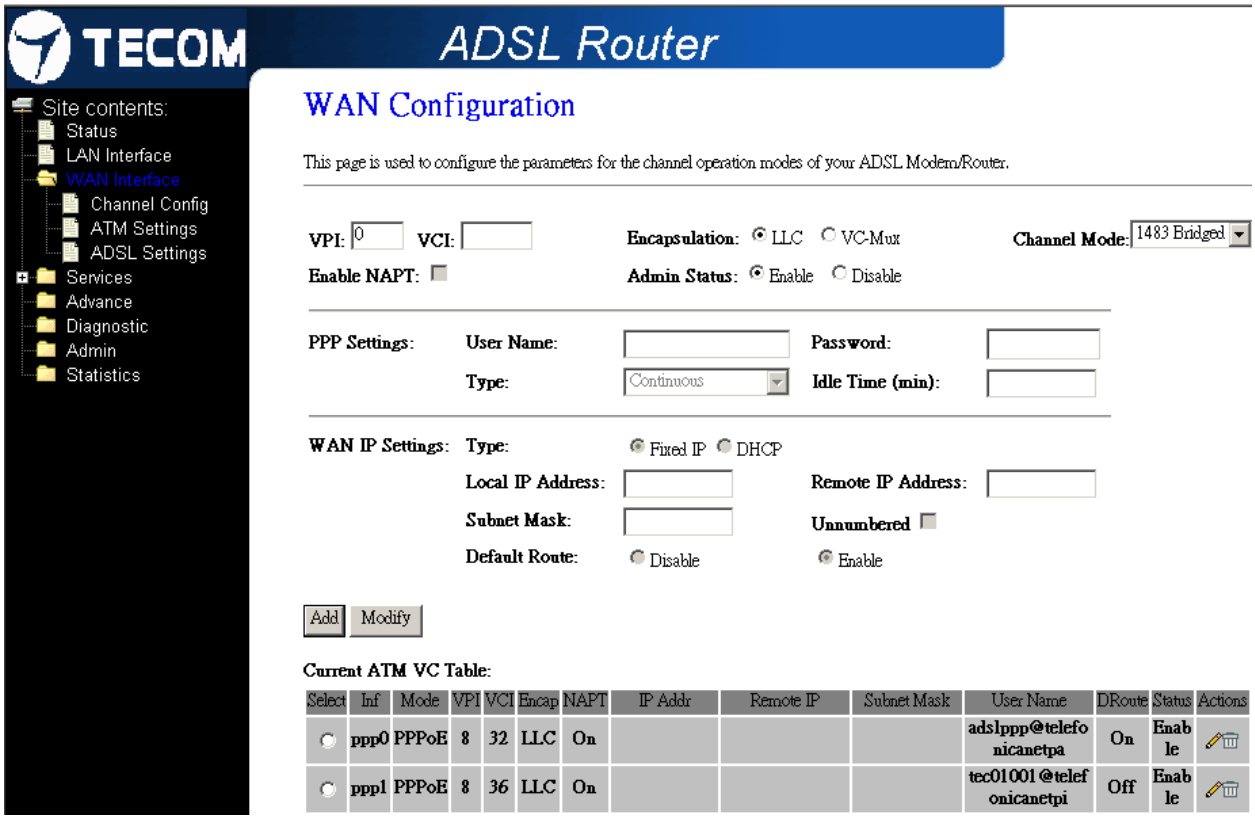
## 4.4 WAN Configuration

There are three sub-menus for WAN configuration: [Channel Comfit], [ATM Settings], and [ADSL Settings].

### Channel Configuration

ADSL modem/router comes with 8 ATM Permanent Virtual Channels (PVCs) at the most. There are mainly three operations for each of the PVC channels: add, delete and modify. And there are several channel modes to be selected for each PVC channel. For each of

the channel modes, the setting is quite different accordingly. Please refer to the section – **Channel Mode Configuration** for details.




Function buttons in this page:

**Add**

Click **Add** to complete the channel setup and add this PVC channel into configuration.

**Modify**

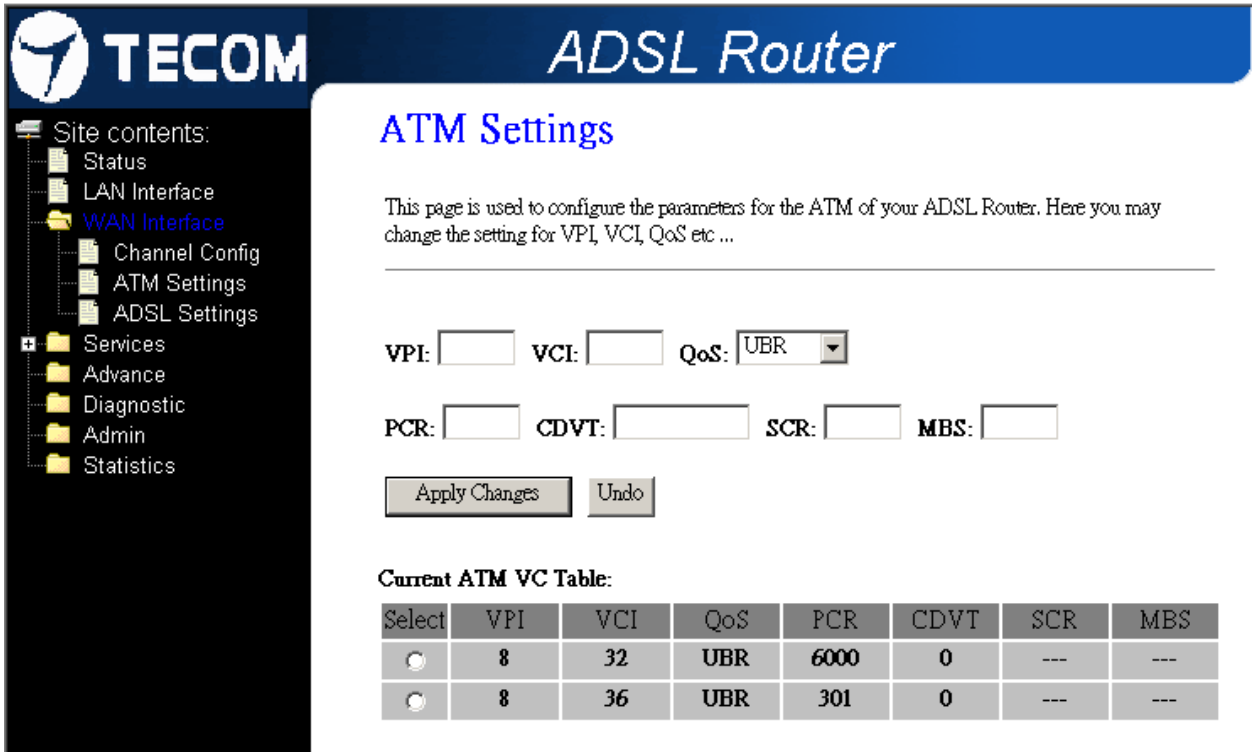
Select an existing PVC channel by clicking the radio button at the **Select** column of the **Current ATM VC Table** before we can modify the PVC channel. After selecting a PVC channel, we can modify the channel configuration at this page. Click **Modify** to complete the channel modification and apply to the configuration.

**Delete**

Select an existing PVC channel to be deleted by clicking the radio button at the **Select** column of the **Current ATM VC Table**. Click **Delete** to delete this PVC channel from configuration.

### ATM Setting

The page is for ATM PVC QoS parameters setting. The DSL device support 4 QoS mode —UBR/CBR/rt-VBR/nrt-VBR.




Fields in this page:

| Field | Description |
|---|---|
| **VPI** | Virtual Path Identifier. This is read-only field and is selected on the **Select** column in the Current ATM VC Table. |
| **VCI** | Virtual Channel Identifier. This is read-only field and is selected on the **Select** column in the Current ATM VC Table. The VCI, together with VPI, is used to identify the next destination of a cell as it passes through to the ATM switch. |
| **QoS** | Quality of Server, a characteristic of data transmission that measures how accurately and how quickly a message or data is transferred from a source host to a destination host over a network. The four QoS options are:<br>– UBR (Unspecified Bit Rate): When UBR is selected, the SCR and MBS fields are disabled.<br>– CBR (Constant Bit Rate): When CBR is selected, the SCR and MBS fields are disabled.<br>– nrt-VBR (non-real-time Variable Bit Rate): When nrt-VBR is selected, the SCR and MBS fields are enabled.<br>– rt-VBR (real-time Variable Bit Rate): When rt-VBR is selected, the SCR and MBS fields are enabled. |
| **PCR** | Peak Cell Rate, measured in cells/sec., is the cell rate which the source may never exceed. |

| | |
|---|---|
| **SCR** | Sustained Cell Rate, measured in cells/sec., is the average cell rate over the duration of the connection. |
| **MBS** | Maximum Burst Size, a traffic parameter that specifies the maximum number of cells that can be transmitted at the peak cell rate. |

Function buttons in this page:

**Apply Changes**

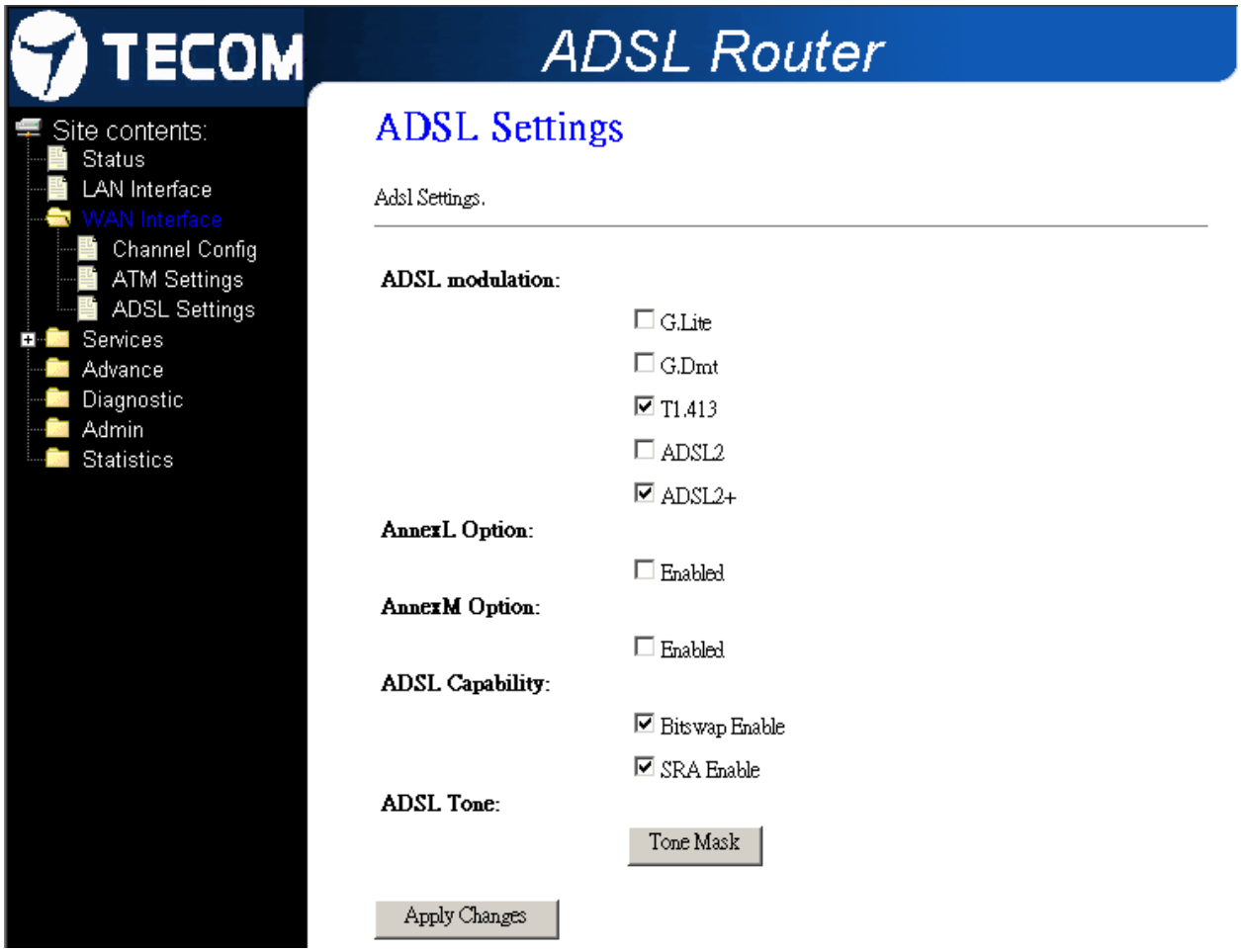
Set new PVC QoS mode for the selected PVC. New parameters will take effect after save into flash memory and reboot the system. See section "Admin" for save details.

**Undo**

Discard your settings.

### ADSL Setting

The ADSL setting page allows you to select any combination of DSL training modes.



Fields in this page:

| Field | Description |
|---|---|
| **ADSL modulation** | Choose preferred xDSL standard protocols.<br>G.lite : G.992.2 Annex A<br>G.dmt : G.992.1 Annex A<br>T1.413 : T1.413 issue #2<br>ADSL2 : G.992.3 Annex A<br>ADSL2+ : G.992.5 Annex A |
| **AnnexL Option** | Enable/Disable ADSL2/ADSL2+ Annex L capability. |
| **AnnexM Option** | Enable/Disable ADSL2/ADSL2+ Annex M capability. |
| **ADSL Capability** | "Bit-swap Enable" : Enable/Disable bit-swap capability.<br>"SRA Enable" : Enable/Disable SRA (seamless rate adaptation) capability. |

Function buttons in this page:

**Tone Mask**

Choose tones to be masked. Masked tones will not carry any data.

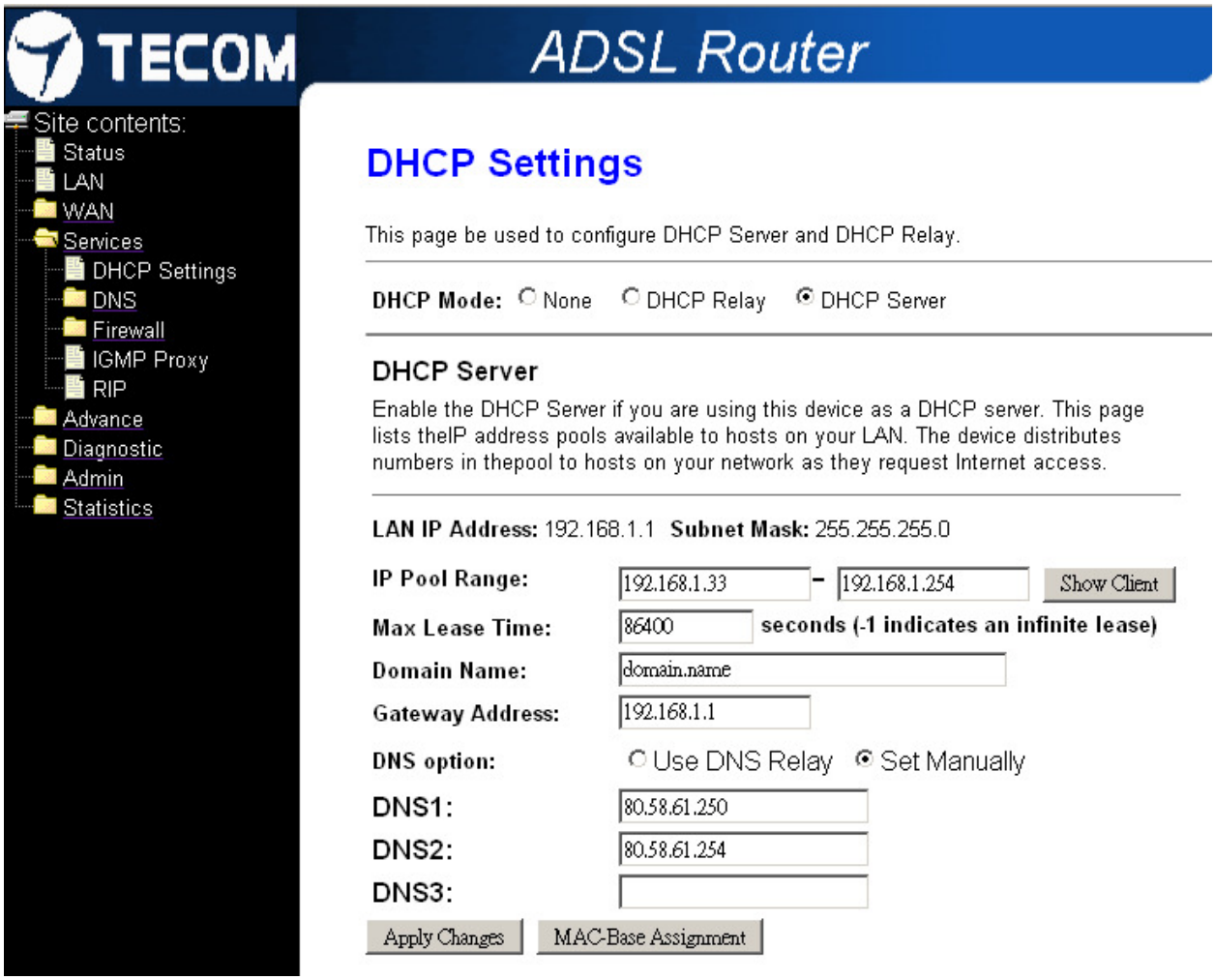
**Apply Changes**

Click to save the setting to the configuration and the modem will be retrained.

## 4.5 Services Configuration

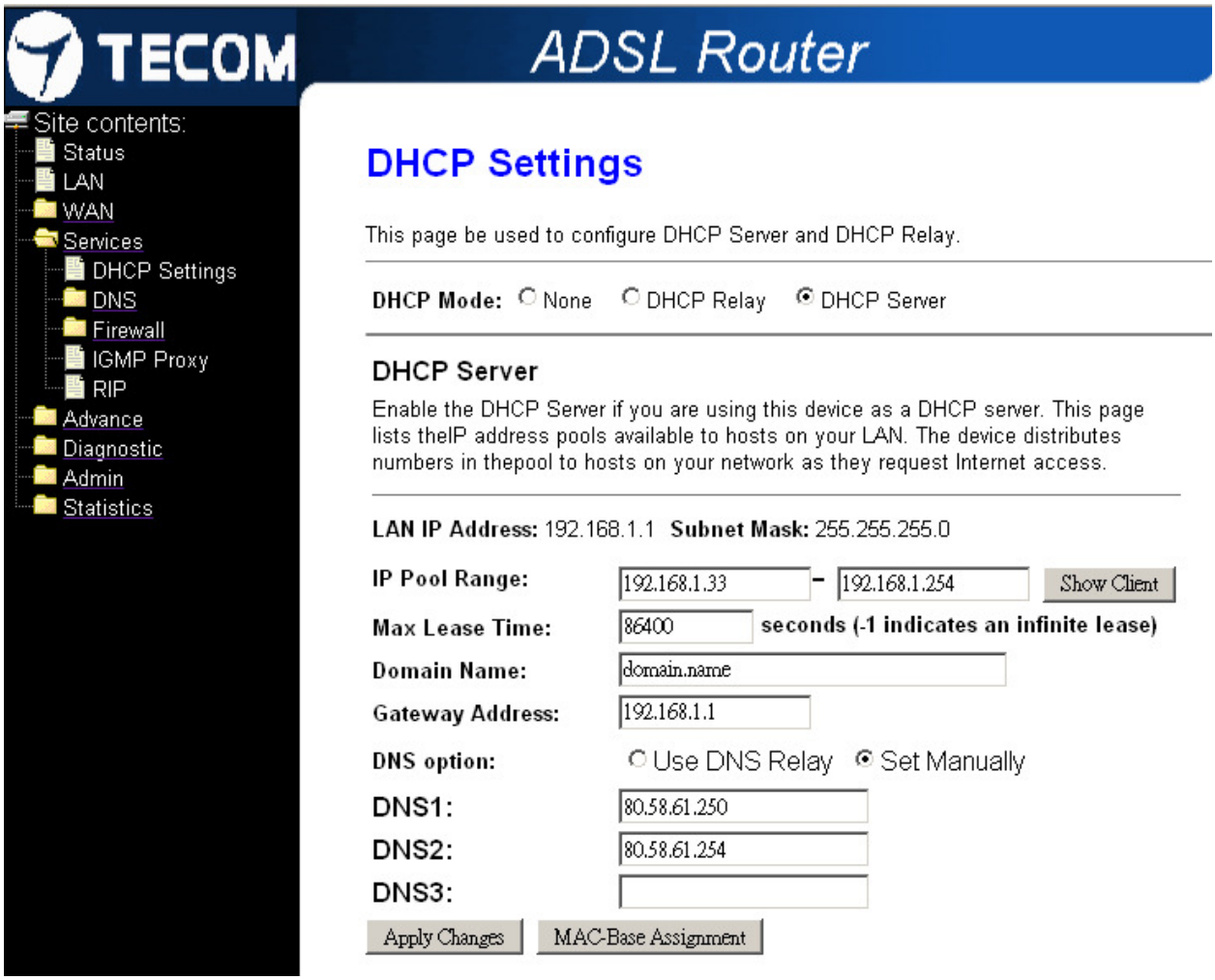
### DHCP Mode

You can configure your network and DSL device to use the Dynamic Host Configuration Protocol (DHCP). This page provides DHCP instructions for implementing it on your network by selecting the role of DHCP protocol that this device wants to play. There are two different DHCP roles that this device can act as: DHCP Serve and DHCP Relay. When acting as DHCP server, you can setup the server parameters at the **DHCP Server** page; while acting as DHCP Relay, you can setup the relay at the **DHCP Relay** page.




**DHCP Server Configuration**

By default, the device is configured as a DHCP server, with a predefined IP address pool of 192.168.1.33 through 192.168.1.254 (subnet mask 255.255.255.0).




Function buttons in this page:

| Field | Description |
|---|---|
| **IP Pool Range** | Specify the lowest and highest addresses in the pool. |
| **Max Lease Time** | The Lease Time is the amount of time that a network user is allowed to maintain a network connection to the device using the current dynamic IP address. At the end of the Lease Time, the lease is either renewed or a new IP is issued by the DHCP server. The amount of time is in units of seconds. The default value is 86400 seconds (1 day). The value –1 stands for the infinite lease. |
| **Domain Name** | A user-friendly name that refers to the group of hosts (subnet) that will be assigned addresses from this pool. |

Function buttons in this page:

**Apply Changes**

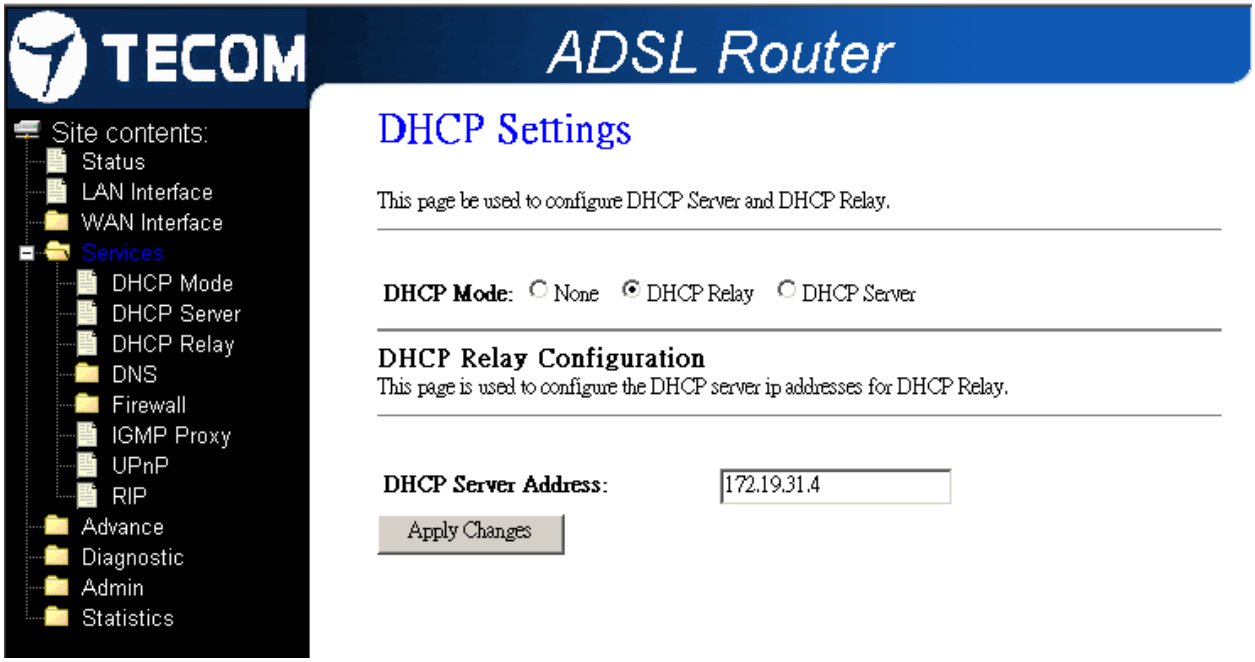
Set new DHCP server configuration. New parameters will take effect after save into flash memory and reboot the system. See section "Admin" for save details.

**Undo**

Discard your changes.

### DHCP Relay Configuration

Some ISPs perform the DHCP server function for their customers' home/small office network. In this case, you can configure this device to act as a DHCP relay agent. When a host on your network requests Internet access, the device contacts your ISP to obtain the IP configuration, and then forward that information to the host. You should set the DHCP mode after you configure the DHCP relay.




Fields in this page:

| Field | Description |
|---|---|
| **DHCP Server Address** | Specify the IP address of your ISP's DHCP server. Requests for IP information from your LAN will be passed to the default gateway, which should route the request appropriately. |

Function button in this page

**Apply Changes**

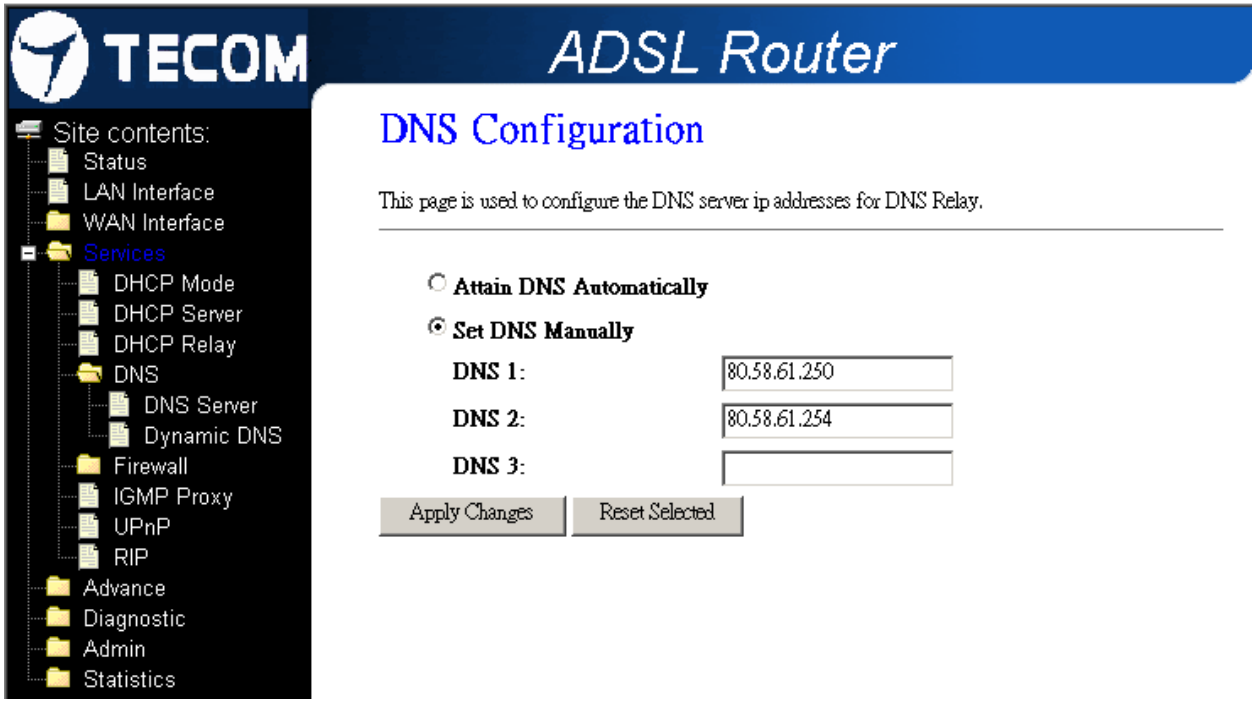
Click to save the setting to the configuration.

### DNS Configuration

There are two submenus for the DNS Configuration: [DNS Server] and [Dynamic DNS]

#### *4.5.1.1 DNS Server*

This page is used to select the way to obtain the IP addresses of the DNS servers.




| Field | Description |
|---|---|
| **Attain DNS Automatically** | Select this item if you want to use the DNS servers obtained by the WAN interface via the auto-configuration mechanism. |
| **Set DNS Manually** | Select this item to configure up to three DNS IP addresses. |

Function buttons in this page:

**Apply Changes**

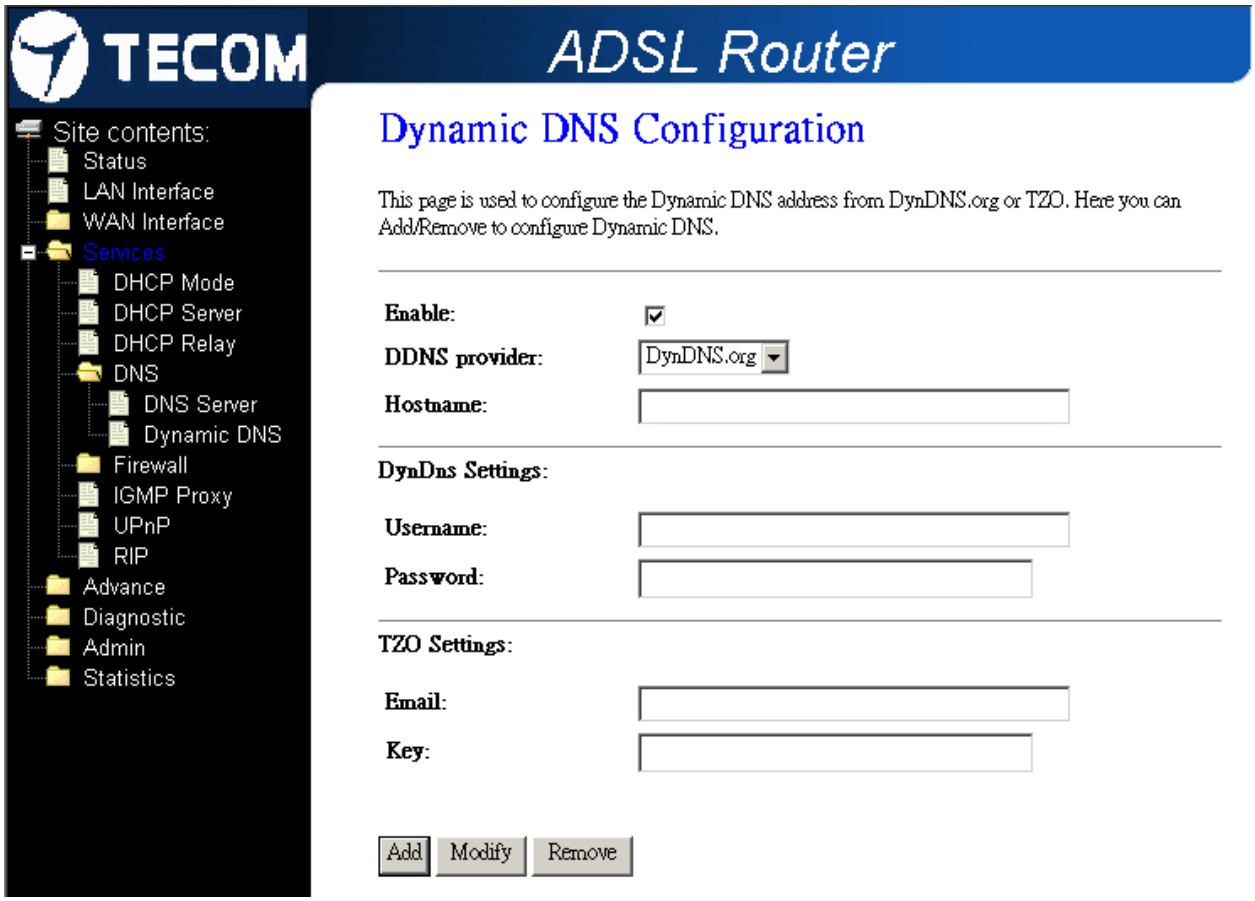
Set new DNS relay configuration. New parameters will take effect after save into flash memory and reboot the system. See section "Admin" for save details.

**Undo**

Discard your changes.

#### *4.5.1.2 Dynamic DNS*

Each time your device connects to the Internet, your ISP assigns a different IP address to your device. In order for you or other users to access your device from the WAN-side, you need to manually track the IP that is currently used. The Dynamic DNS feature allows you to register your device with a DNS server and access your device each time using the same host name. The **Dynamic DNS** page allows you to enable/disable the Dynamic DNS feature.




On the **Dynamic DNS** page, configure the following fields:

| Field | Description |
|---|---|
| **Enable** | Check this item to enable this registration account for the DNS server. |
| **DDNS provider** | There are two DDNS providers to be selected in order to register your device with: DynDNS and TZO. A charge may occur depends on the service you select. |
| **Hostname** | Domain name to be registered with the DDNS server. |
| **Interface** | This field defaults to your device's WAN interface over which your device will be accessed. |
| **Username** | User-name assigned by the DDNS service provider. |
| **Password** | Password assigned by the DDNS service provider. |

Function buttons in this page:

**Add**

Click Add to add this registration into the configuration.

**Remove**

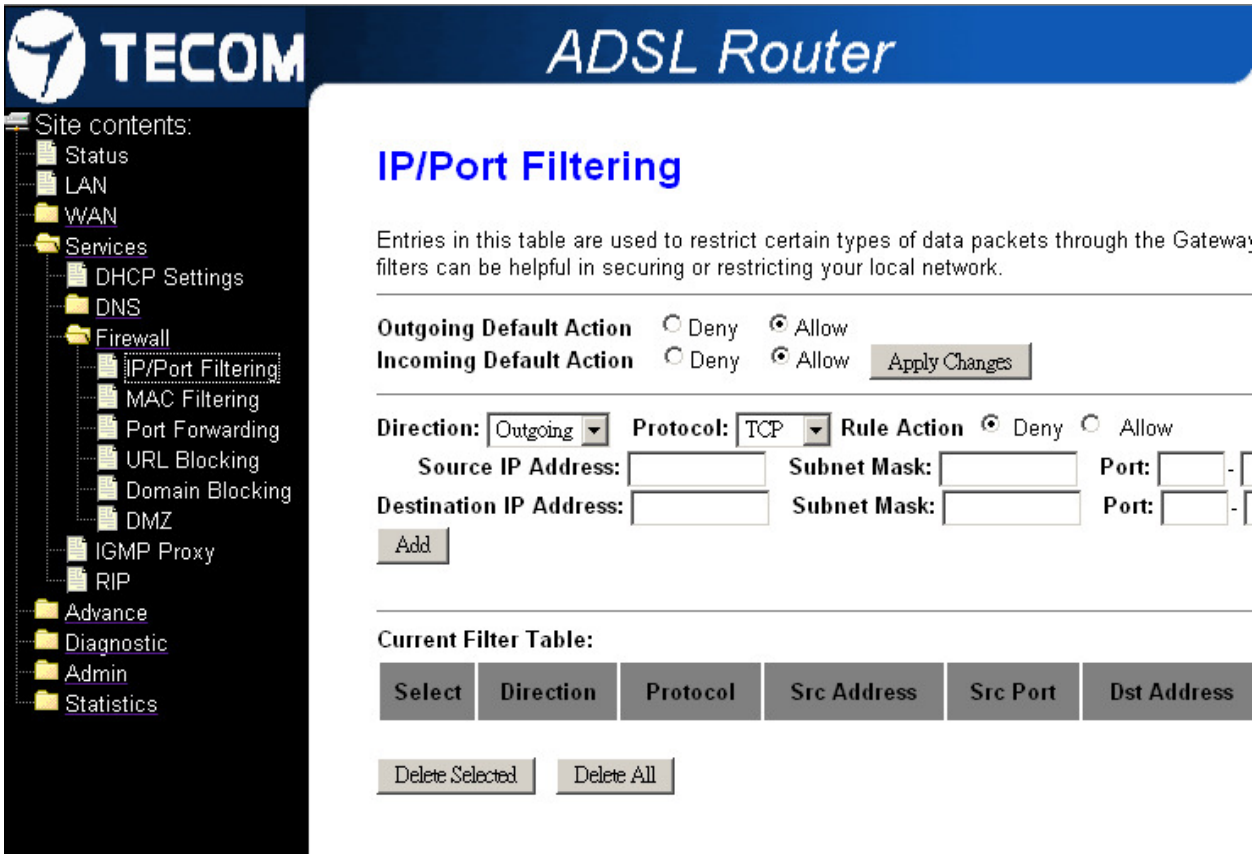
Select an existing DDNS registration by clicking the radio button at the **Select**

column of the **Dynamic DNS Table**. Click **Remove** button to remove the selected registration from the configuration.

### Firewall Configuration

Firewall contains several features that are used to deny or allow traffic from passing through the device.

#### *4.5.1.3 IP/Port Filtering*




The IP/Port filtering feature allows you to deny/allow specific services or applications in the forwarding path.

Fields on the first setting block:

| Field | Description |
|---|---|
| **Outgoing Default Action** | Specify the default action on the LAN to WAN forwarding path. |
| **Incoming Default Action** | Specify the default action on the WAN to LAN forwarding path. |

Function button for this first setting block:

**Apply Changes**

Click to save the setting of default actions to the configuration.

Fields on the second setting block:

| Field | Description |
|---|---|
| **Rule Action** | Deny or allow traffic when matching this rule. |
| **Direction** | Traffic forwarding direction. |
| **Protocol** | There are 3 options available: TCP, UDP and ICMP. |
| **Src IP Address** | The source IP address assigned to the traffic on which filtering is applied. |
| **Src Subnet Mask** | Subnet-mask of the source IP. |
| **Src Port** | Starting and ending source port numbers. |
| **Dst IP Address** | The destination IP address assigned to the traffic on which filtering is applied. |
| **Dst Subnet Mask** | Subnet-mask of the destination IP. |
| **Dst Port** | Starting and ending destination port numbers. |

Function buttons for this second setting block:

**Apply Changes**

Click to save the rule entry to the configuration.

Function buttons for the **Current Filter Table**:

**Delete Selected**

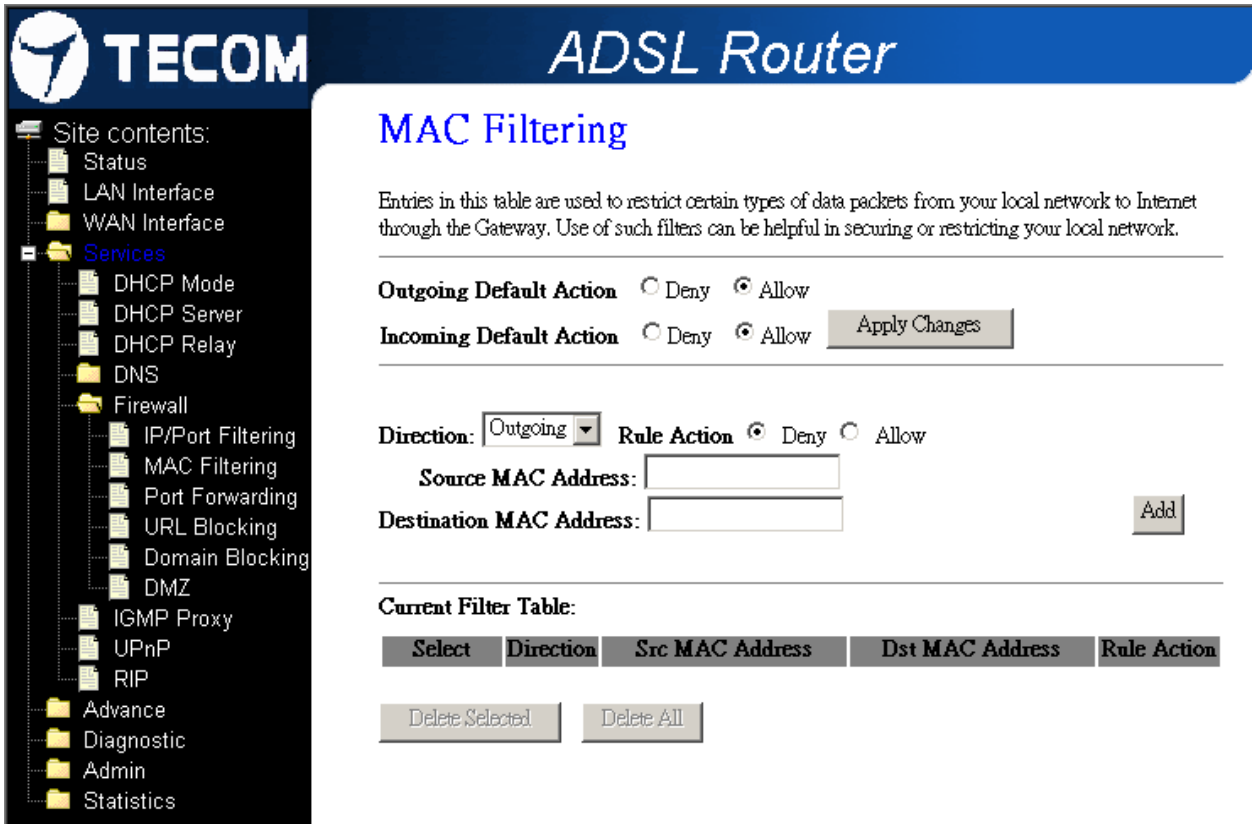
Delete selected filtering rules from the filter table. You can click the checkbox at the **Select** column to select the filtering rule.

**Delete All**

Delete all filtering rules from the filter table.

#### *4.5.1.4 MAC Filtering*

The MAC filtering feature allows you to define rules to allow or deny frames through the device based on source MAC address, destination MAC address, and traffic direction.




Fields on the first setting block:

| Field | Description |
|---|---|
| **Outgoing Default Action** | Specify the default action on the LAN to WAN bridging/forwarding path. |
| **Incoming Default Action** | Specify the default action on the WAN to LAN bridging/forwarding path. |

Function button for this first setting block:

**Apply Changes**

Click to save the setting of default actions to the configuration.

Fields on the second setting block:

| Field | Description |
|---|---|
| **Rule Action** | Deny or allow traffic when matching this rule. |
| **Direction** | Traffic bridging/forwarding direction. |

| | |
|---|---|
| **Src MAC Address** | The source MAC address. It must be xxxxxxxxxxx format. Blanks can be used in the MAC address space and are considered as don't care. |
| **Dst MAC Address** | The destination MAC address. It must be xxxxxxxxxxx format. Blanks can be used in the MAC address space and are considered as don't care. |

Function buttons for this second setting block:

**Apply Changes**

Click to save the rule entry to the configuration.

Function buttons for the **Current Filter Table**:

**Delete Selected**

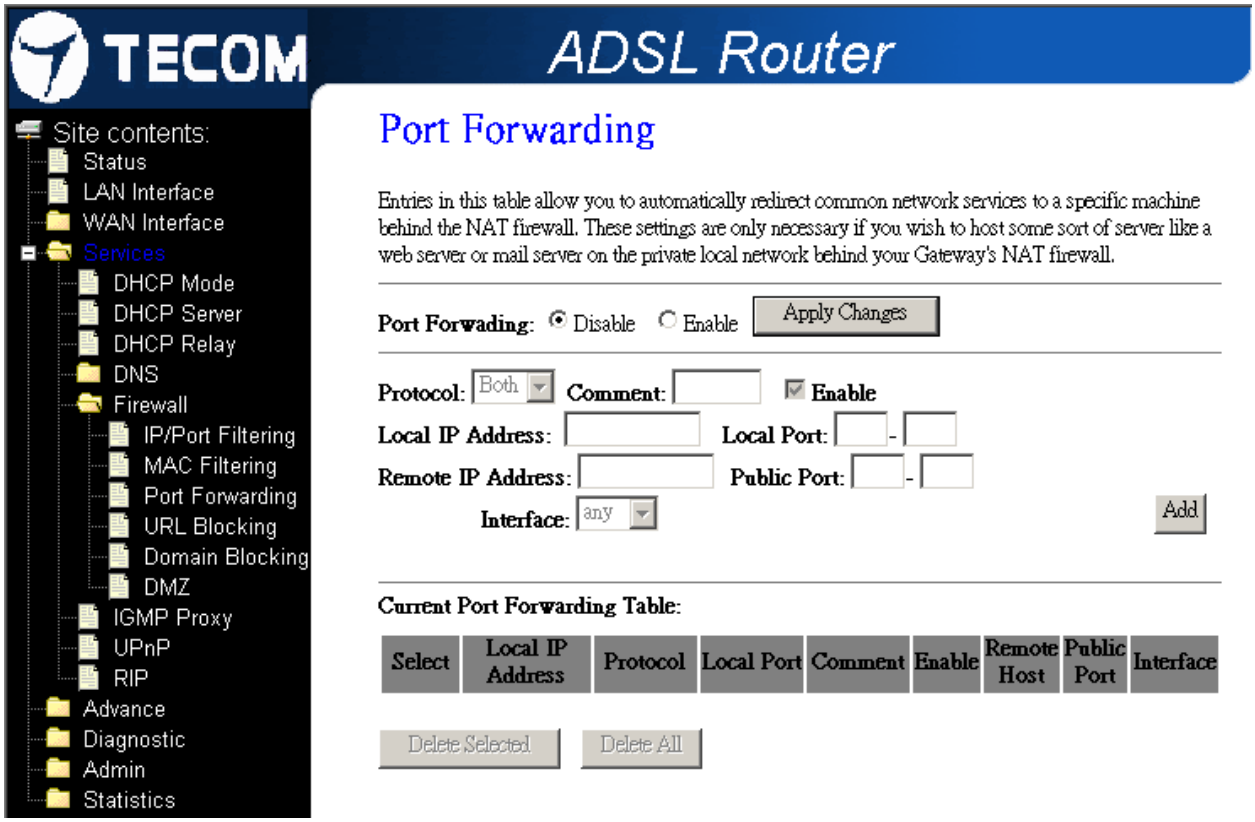
Delete selected filtering rules from the filter table. You can click the checkbox at the **Select** column to select the filtering rule.

**Delete All**

Delete all filtering rules from the filter table.

#### *4.5.1.5 Port Forwarding*

Firewall keeps unwanted traffic from the Internet away from your LAN computers. Add a Port Forwarding entry will create a tunnel through your firewall so that the computers on the Internet can communicate to one of the computers on your LAN on a single port.



Fields in this page:

| Field | Description |
|---|---|
| **Enable Port Forwarding** | Check this item to enable the port-forwarding feature. |
| **Protocol** | There are 3 options available: TCP, UDP and Both. |
| **Enable** | Check this item to enable this entry. |
| **Local IP Address** | IP address of your local server that will be accessed by Internet. |
| **Port** | The destination port number that is made open for this application on the LAN-side. |
| **Remote IP Address** | The source IP address from which the incoming traffic is allowed. Leave blank for all. |
| **External Port** | The destination port number that is made open for this application on the WAN-side |
| **Interface** | Select the WAN interface on which the port-forwarding rule is to be applied. |

Function buttons for the setting block:

**Apply Changes**

Click to save the rule entry to the configuration.

Function buttons for the **Current Port Forwarding Table**:

**Delete Selected**

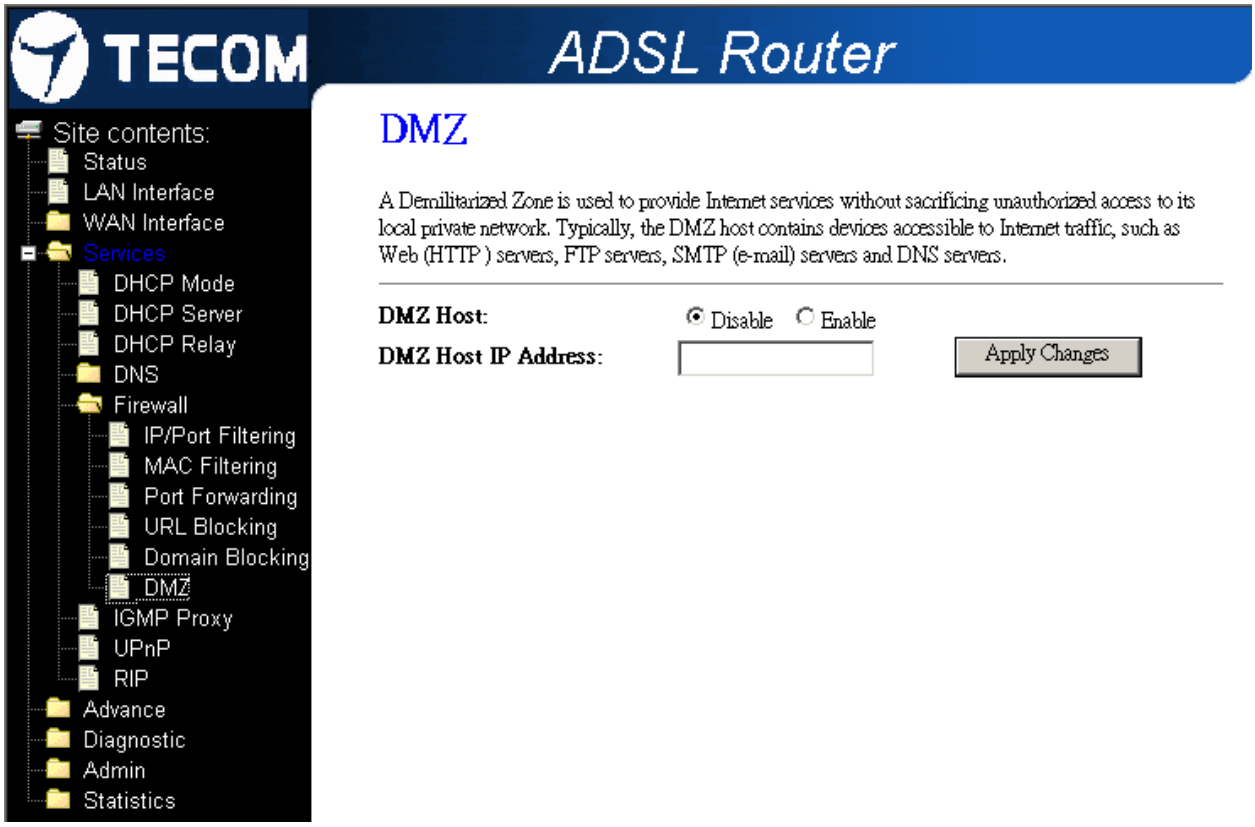
Delete the selected port forwarding rules from the forwarding table. You can click the checkbox at the **Select** column to select the forwarding rule.

**Delete All**

Delete all forwarding rules from the forwarding table.

#### *4.5.1.6 DMZ*

A DMZ (Demilitarized Zone) allows a single computer on your LAN to expose ALL of its ports to the Internet. Enter the IP address of that computer as a DMZ (Demilitarized Zone) host with unrestricted Internet access. When doing this, the DMZ host is no longer behind the firewall.




Fields in this page:

| Field | Description |
|---|---|
| **Enable DMZ** | Check this item to enable the DMZ feature. |
| **DMZ Host IP Address** | IP address of the local host. This feature sets a local host to be exposed to the Internet. |

Function buttons in this page:

**Apply Changes**

Click to save the setting to the configuration.

### IGMP Proxy Configuration

Multicasting is useful when the same data needs to be sent to more than one hosts. Using multicasting as opposed to sending the same data to the individual hosts uses less network bandwidth. The multicast feature also enables you to receive multicast video stream from multicast servers.

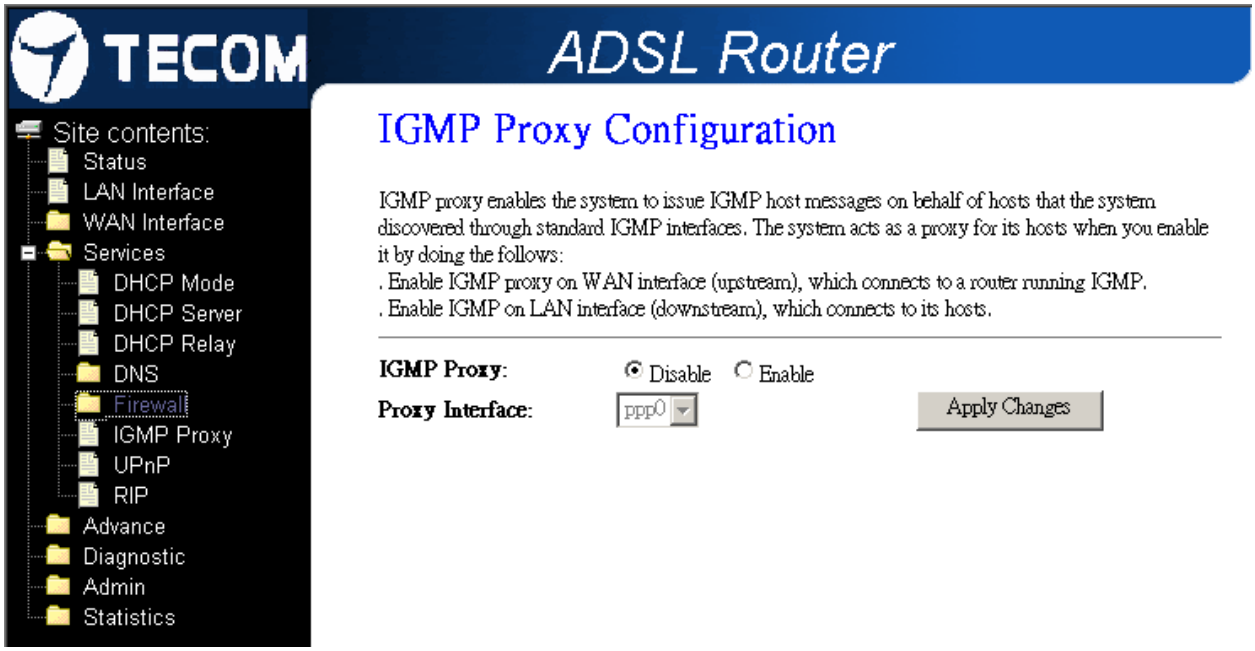
IP hosts use Internet Group Management Protocol (IGMP) to report their multicast group memberships to neighboring routers. Similarly, multicast routers use IGMP to discover which of their hosts belong to multicast groups. This device supports IGMP proxy that handles IGMP messages. When enabled, this device acts as a proxy for a LAN host

making requests to join and leave multicast groups, or a multicast router sending multicast packets to multicast group on the WAN side.

When a host wishes to join a multicast group, it sends IGMP REPORT message to the device's IGMP downstream interface. The proxy sets up a multicast route for the interface and host requesting the video content. It then forwards the Join to the upstream multicast router. The multicast IP traffic will then be forwarded to the requesting host. On a leave, the proxy removes the route and then forwards the leave to the upstream multicast router.

The IGMP Proxy page allows you to enable multicast on WAN and LAN interfaces. The LAN interface is always served as downstream IGMP proxy, and you can configure one of the available WAN interfaces as the upstream IGMP proxy.

- Upstream: The interface that IGMP requests from hosts are sent to the multicast router.
- Downstream: The interface data from the multicast router are sent to hosts in the multicast group database.




Fields in this page:

| Field | Description |
|---|---|
| **IGMP Proxy** | Enable/disable IGMP proxy feature |
| **Proxy Interface** | The upstream WAN interface is selected here. |

Function buttons in this page:

**Apply Changes**

Click to save the setting to the configuration.

**Undo**

Discard your settings.

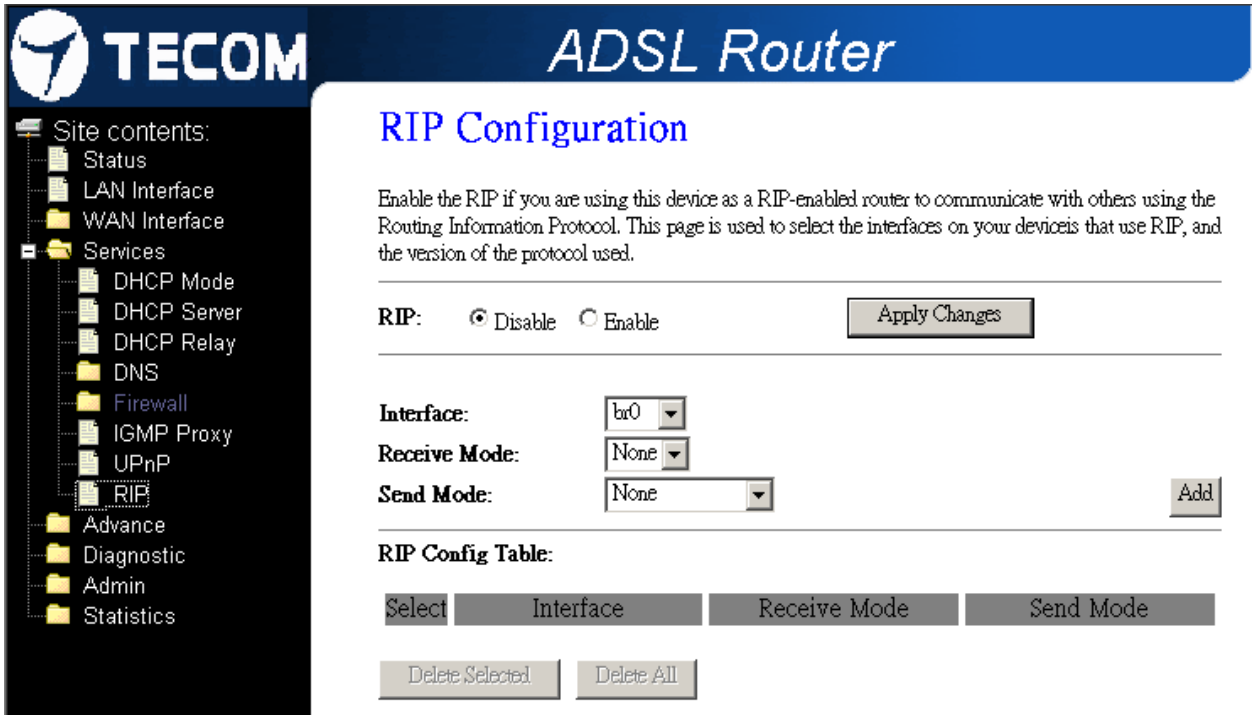
### RIP Configuration

RIP is an Internet protocol you can set up to share routing table information with other routing devices on your LAN, at your ISP's location, or on remote networks connected to your network via the ADSL line.

Most small home or office networks do not need to use RIP; they have only one router, such as the ADSL Router, and one path to an ISP. In these cases, there is no need to share routes, because all Internet data from the network is sent to the same ISP gateway.

You may want to configure RIP if any of the following circumstances apply to your network:

- Your home network setup includes an additional router or RIP-enabled PC (other than the ADSL Router). The ADSL Router and the router will need to communicate via RIP to share their routing tables.
- Your network connects via the ADSL line to a remote network, such as a corporate network. In order for your LAN to learn the routes used within your corporate network, they should both be configured with RIP.
- Your ISP requests that you run RIP for communication with devices on their network.




Fields on the first setting block:

| Field | Description |
|---|---|
| **RIP** | Enable/disable RIP feature. |

Function buttons for the second setting block in this page:

**Apply Changes**

Click to save the setting of this setting block to the system configuration

Fields on the second setting block:

| Field | Description |
|---|---|
| **Interface** | The name of the interface on which you want to enable RIP. |
| **Receive Mode** | Indicate the RIP version in which information must be passed to the DSL device in order for it to be accepted into its routing table. |
| **Send Mode** | Indicate the RIP version this interface will use when it sends its route information to other devices. |

Function buttons for the second setting block in this page:

**Add**

Add a RIP entry and the new RIP entry will be display in the table

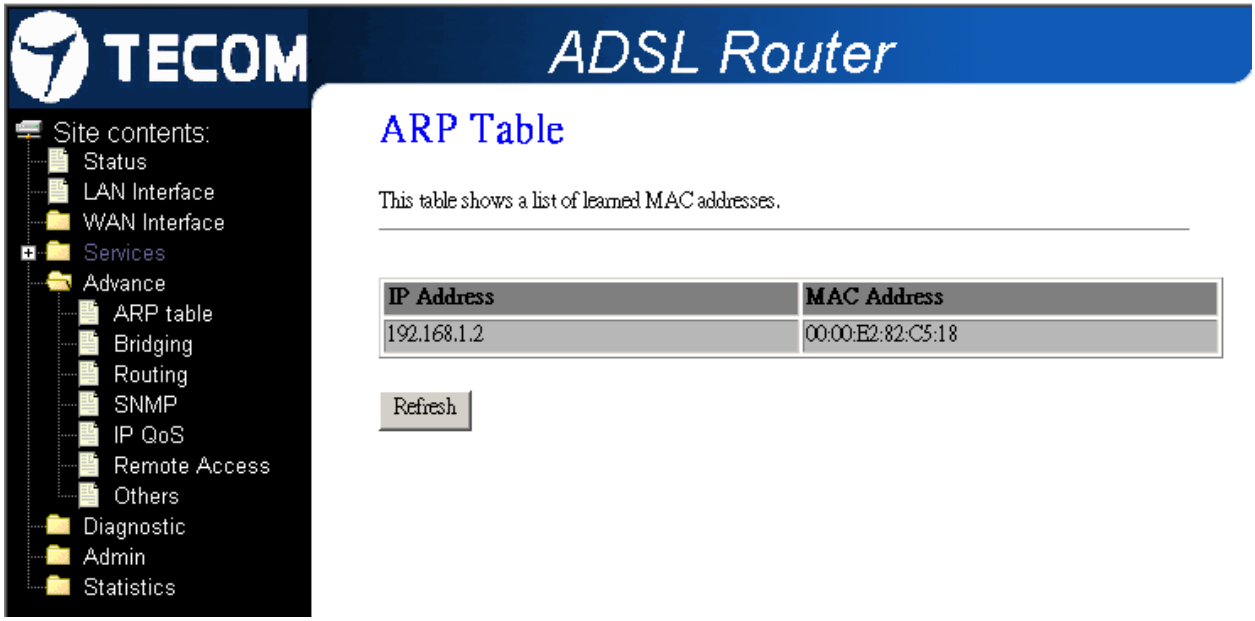
**Delete Selected Entry**

Delete a selected RIP entry. The RIP entry can be selected on the **Select** column of the **RIP Config Table.**

## 4.6 Advance Configuration

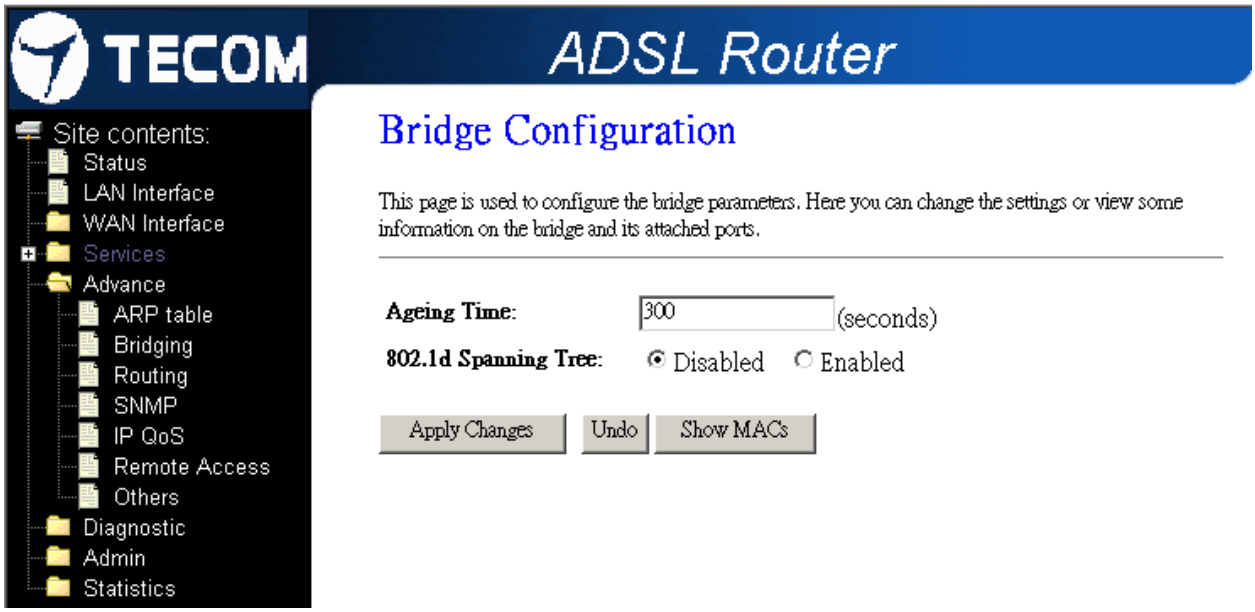
### ARP table

You can see the show list of learned MAC addresses through ARP in this page.




### Bridging

You can enable/disable Spanning Tree Protocol and set MAC address aging time in this page.




Fields in this page:

| Field | Description |
|---|---|

| | |
|---|---|
| **Ageing Time** | Set the Ethernet address ageing time, in seconds. After [Ageing Time] seconds of not having seen a frame coming from a certain address, the bridge will time out (delete) that address from Forwarding Database (fdb). |
| **802.1d Spanning Tree** | Enable/disable the spanning tree protocol |

Function buttons in this page:

**Apply Changes**

Save this bridge configuration. New configuration will take effect after saving into flash memory and rebooting the system. See section "Admin" for details.

**Show MACs**

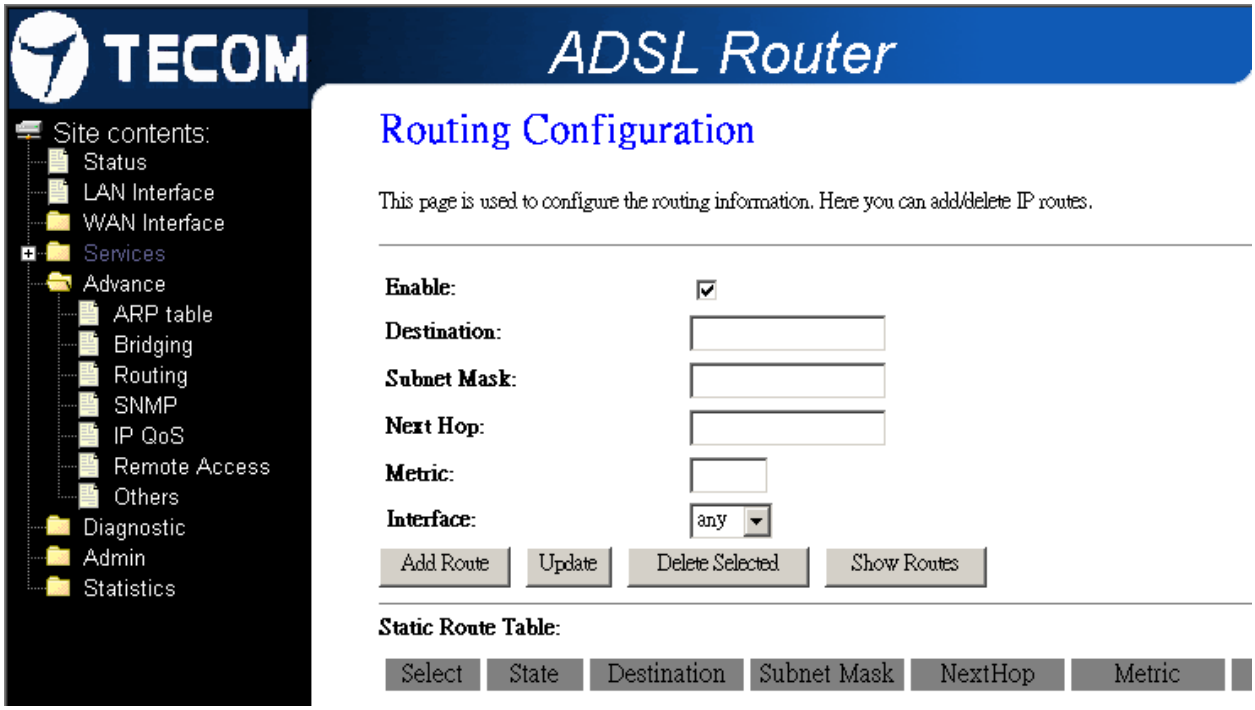
List MAC address in forwarding table.

### Routing

The Routing page enables you to define specific route for your Internet and network data. Most users do not need to define routes. On a typical small home or office LAN, the existing routes that set up the default gateways for your LAN hosts and for the DSL device provide the most appropriate path for all your Internet traffic.

- On your LAN hosts, a default gateway directs all Internet traffic to the LAN port(s) on the DSL device. Your LAN hosts know their default gateway either because you assigned it to them when you modified your TCP/IP properties, or because you configured them to receive the information dynamically from a server whenever they access the Internet.
- On the DSL device itself, a default gateway is defined to direct all outbound Internet traffic to a route at your ISP. The default gateway is assigned either automatically by your ISP whenever the device negotiates an Internet access, or manually by user to setup through the configuration.

You may need to define routes if your home setup includes two or more networks or subnets, if you connect to two or more ISP services, or if you connect to a remote corporate LAN.




Fields in this page:

| Field | Description |
|---|---|
| **Enable** | Check to enable the selected route or route to be added. |
| **Destination** | The network IP address of the subnet. The destination can be specified as the IP address of a subnet or a specific host in the subnet. It can also be specified as all zeros to indicate that this route should be used for all destinations for which no other route is defined (this is the route that creates the default gateway). |
| **Subnet Mask** | The network mask of the destination subnet. The default gateway uses a mask of 0.0.0.0. |
| **Next Hop** | The IP address of the next hop through which traffic will flow towards the destination subnet. |
| **Metric** | Defines the number of hops between network nodes that data packets travel. The default value is 0, which means that the subnet is directly one hop away on the local LAN network. |
| **Interface** | The WAN interface to which a static routing subnet is to be applied. |

Function buttons in this page:

**Add Route**

Add a user-defined destination route.

**Update**

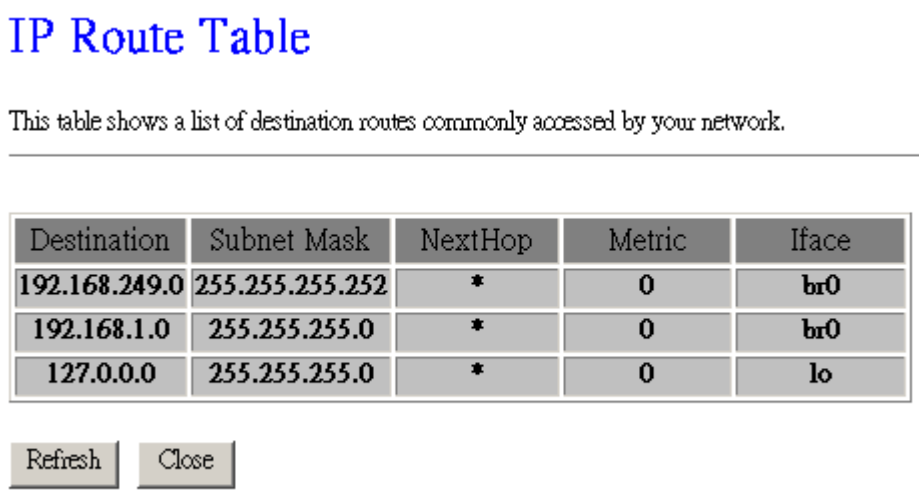
Update the selected destination route on the **Static Route Table**.

**Delete Selected**

Delete a selected destination route on the **Static Route Table**.

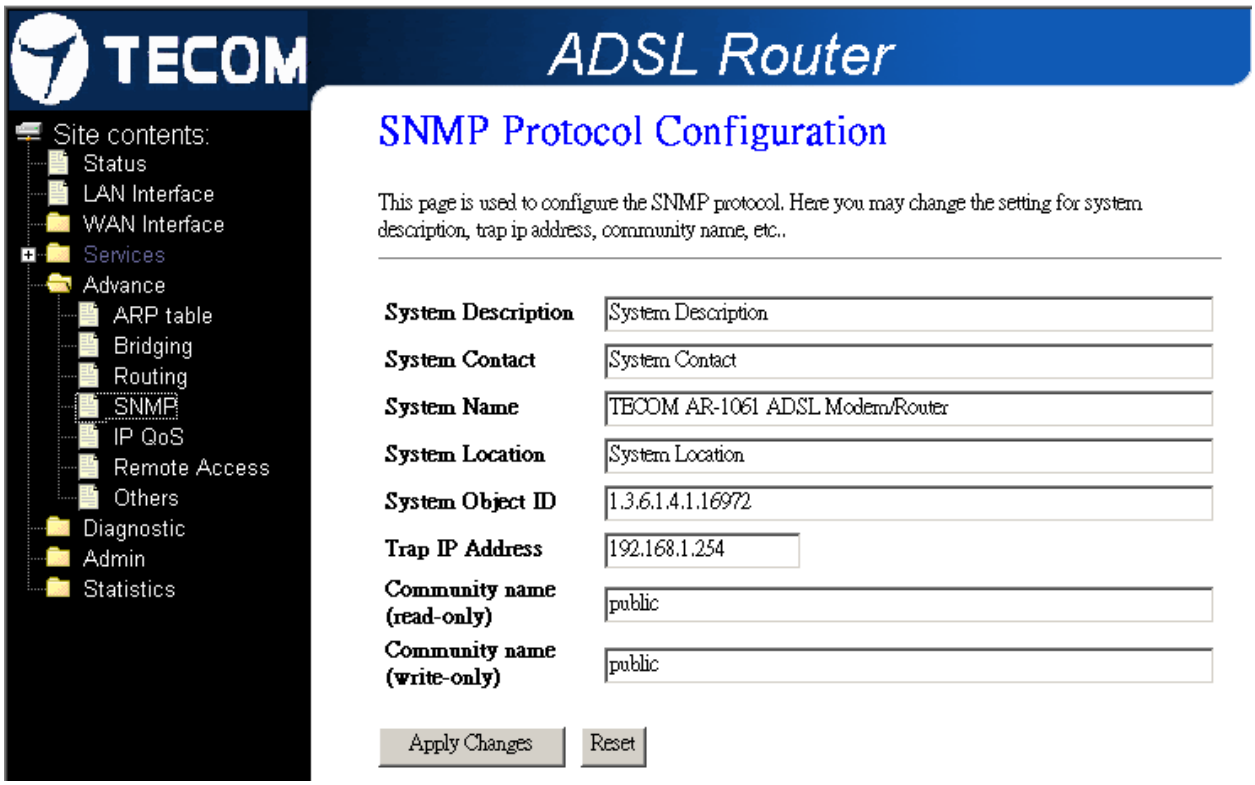
**Show Routes**

Click this button to view the DSL device's routing table. The IP Route Table displays, as shown in Figure.




### SNMP Configuration

Simple Network Management Protocol (SNMP) is a troubleshooting and management protocol that uses the UDP protocol on port 161 to communicate between clients and servers. The DSL device can be managed locally or remotely by SNMP protocol



Fields in this page:

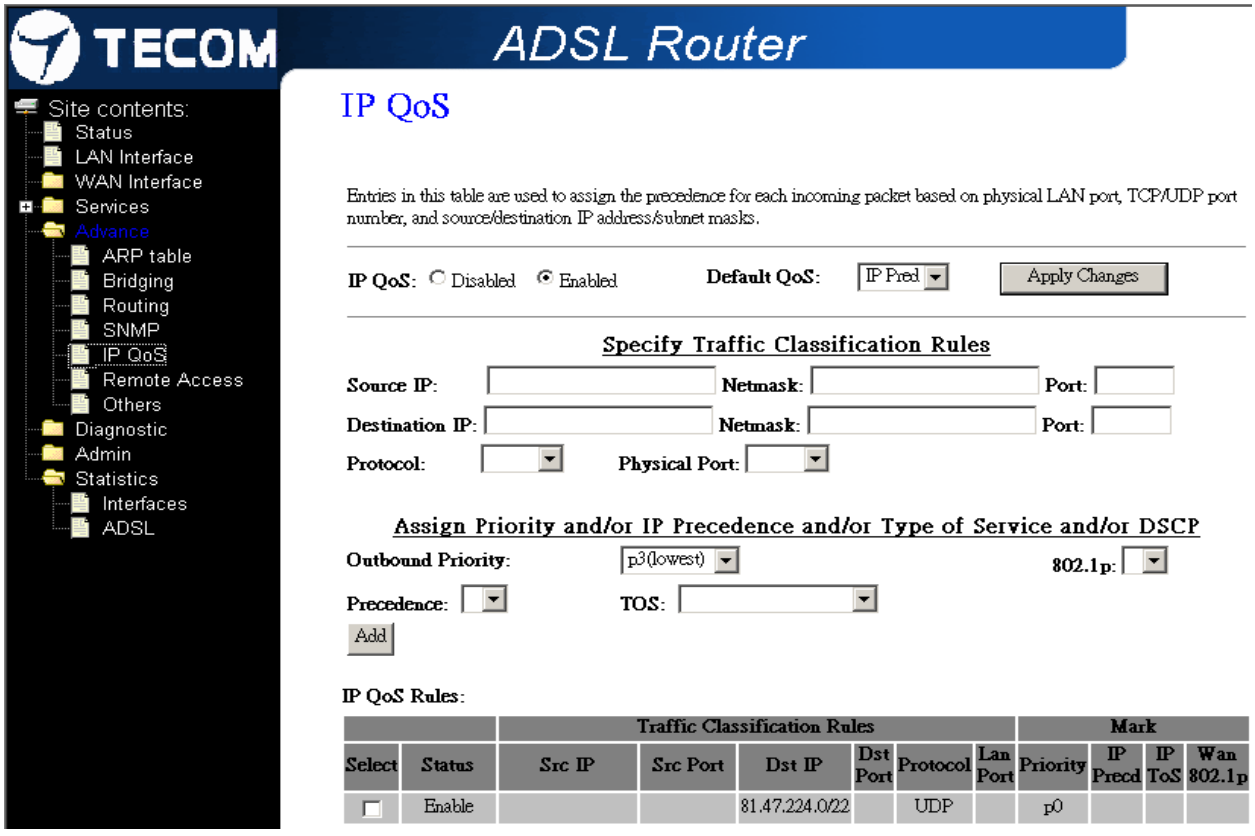
| Field | Description |
|---|---|
| **System Description** | System description of the DSL device. |
| **System Contact** | Contact person and/or contact information for the DSL device. |
| **System Name** | An administratively assigned name for the DSL device. |
| **System Location** | The physical location of the DSL device. |
| **System Object ID** | Vendor object identifier. The vendor's authoritative identification of the network management subsystem contained in the entity. |
| **Trap IP Address** | Destination IP address of the SNMP trap. |
| **Community name (read-only)** | Name of the read-only community. This read-only community allows read operation to all objects in the MIB. |
| **Community name (write-only)** | Name of the write-only community. This write-only community allows write operation to the objects defines as read-writable in the MIB. |

Function buttons in this page:

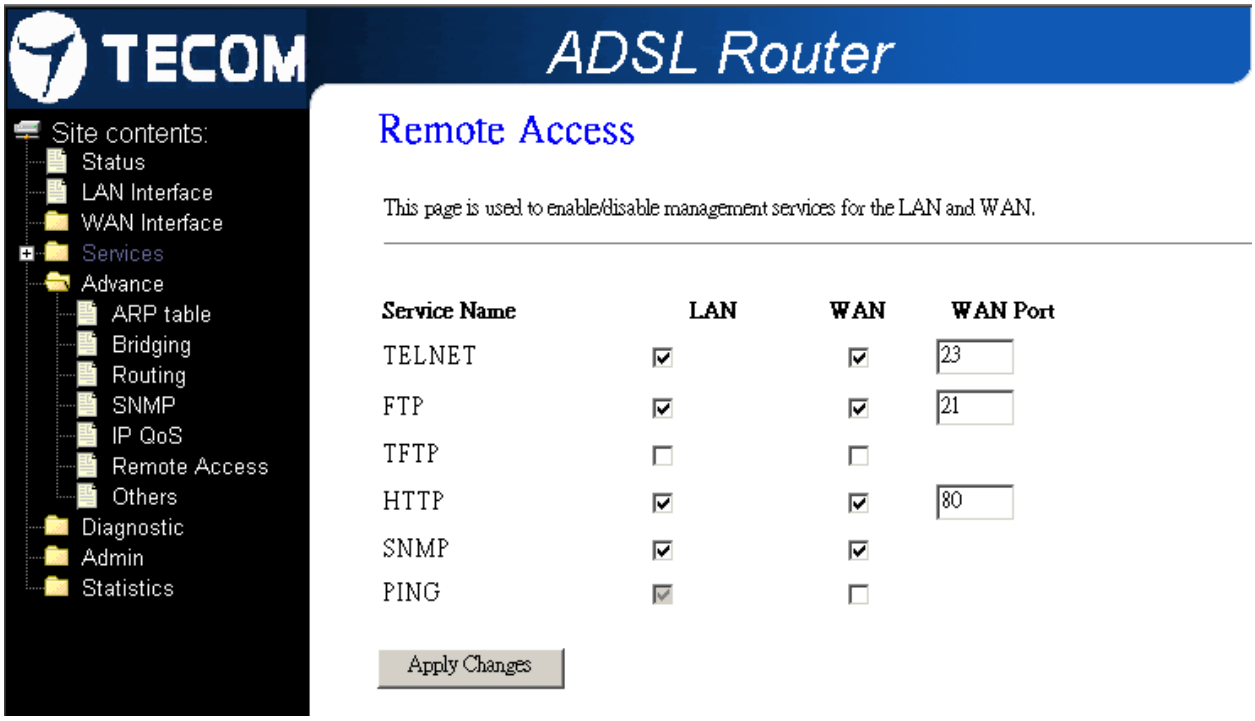
**Apply Changes**

Save SNMP configuration. New configuration will take effect after saving into flash memory and rebooting the system. See section "Admin" for details.

### IP QoS



### Remote Access




The Remote Access function can secure remote host access to your DSL device from LAN and WLAN interfaces for some services provided by the DSL device.

Fields in this page:

| Field | Description |
|---|---|
| **LAN** | Check/un-check the services on the LAN column to allow/un-allow the services access from LAN side; and "WAN": |
| **WAN** | Check/un-check the services on the WAN column to allow/un-allow the services access from WAN side. |
| **WAN Port** | This field allows the user to specify the port of the corresponding service. Take the HTTP service for example; when it is changed to 8080, the HTTP server address for the WAN side is http://dsl_addr:8080, where the dsl_addr is the WAN side IP address of the DSL device. |

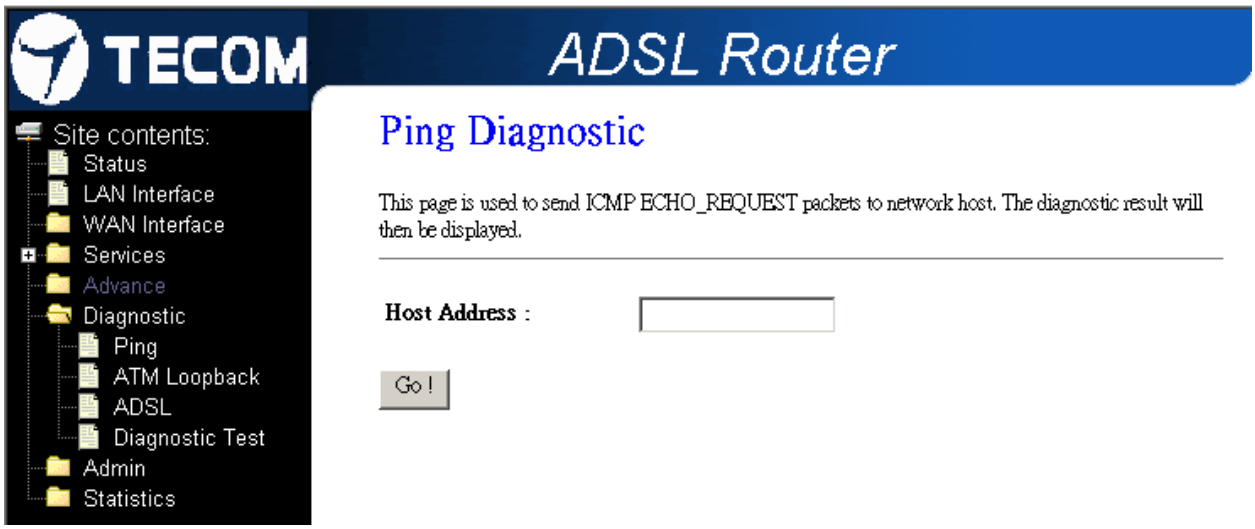
## 4.7 Diagnostic

The DSL device supports some useful diagnostic tools.

### Ping

Once you have your DSL device configured, it is a good idea to make sure you can ping

the network. A ping command sends a message to the host you specify. If the host receives the message, it sends messages in reply. To use it, you must know the IP address of the host you are trying to communicate with and enter the IP address in the Host Address field. Click Go! To start the ping command, the ping result will then be shown in this page.




Fields in this page:

| Field | Description |
|---|---|
| **Host Address** | The IP address you want to ping. |

### ATM Loopback

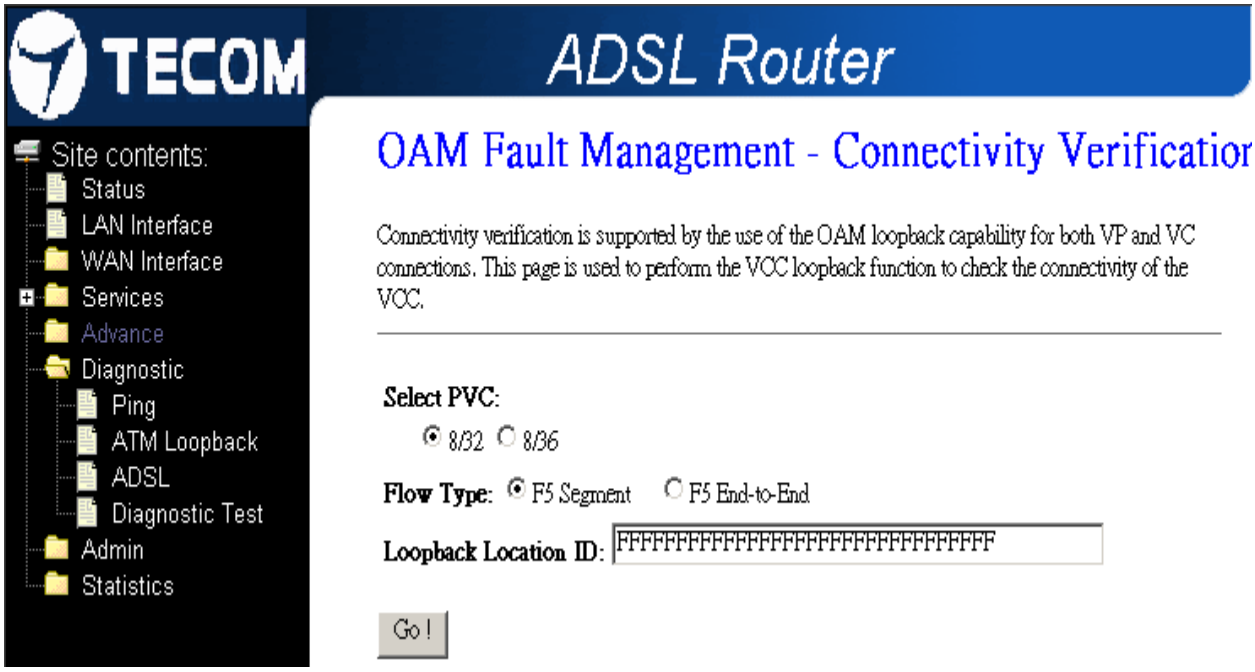
In order to isolate the ATM interface problems, you can use ATM OAM loopback cells to verify connectivity between VP/VC endpoints, as well as segment endpoints within the VP/VC. ATM uses F4 and F5 cell flows as follows:

- F4: used in VPs
- F5: used in VCs

An ATM connection consists of a group of points. This OAM implementation provides management for the following points:

- Connection endpoint: the end of a VP/VC connection where the ATM cell are terminated
- Segment endpoint: the end of a connection segment

This page allows you to use ATM ping, which generates F5 segment and end-to-end loop-back cells to test the reachability of a segment endpoint or a connection endpoint.

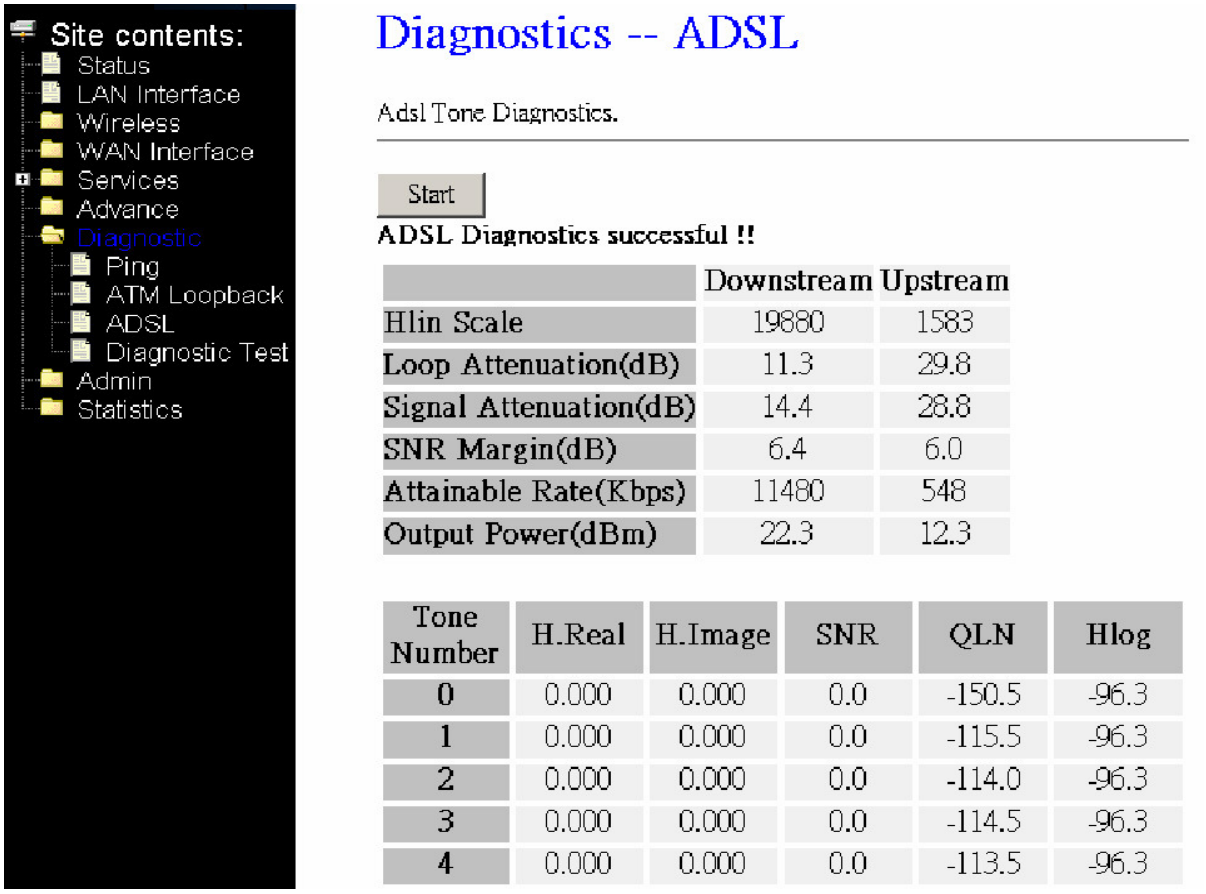



Fields in this page:

| Field | Description |
|---|---|
| **Select PVC** | Select the PVC channel you want to do the loop-back diagnostic. |
| **Flow Type** | The ATM OAM flow type. The selection can be F5 Segment or F5 End-to-End. |
| **Loopback Location ID** | The loop-back location ID field of the loop-back cell. The default value is all 1s (ones) to indicate the endpoint of the segment or connection. |

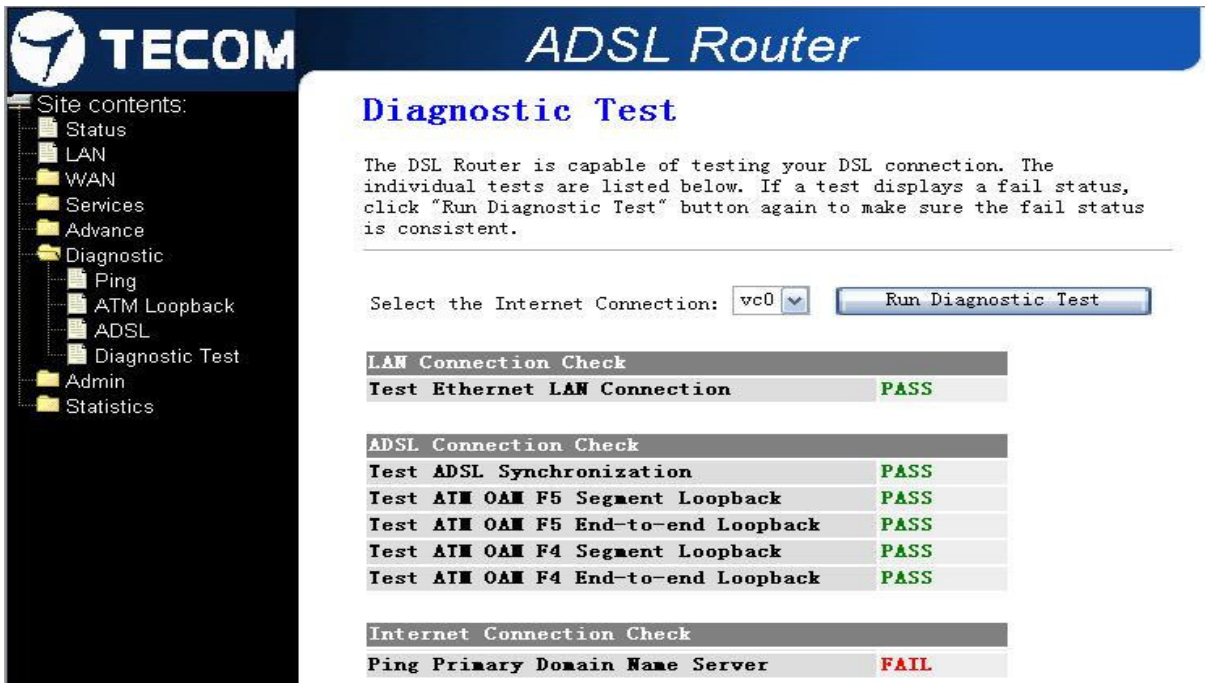
### ADSL

This page shows the ADSL diagnostic result. Click **Start** button to start the ADSL diagnostic.




### Diagnostic Test

The Diagnostic Test page shows the test results for the connectivity of the physical layer and protocol layer for both LAN and WAN sides.



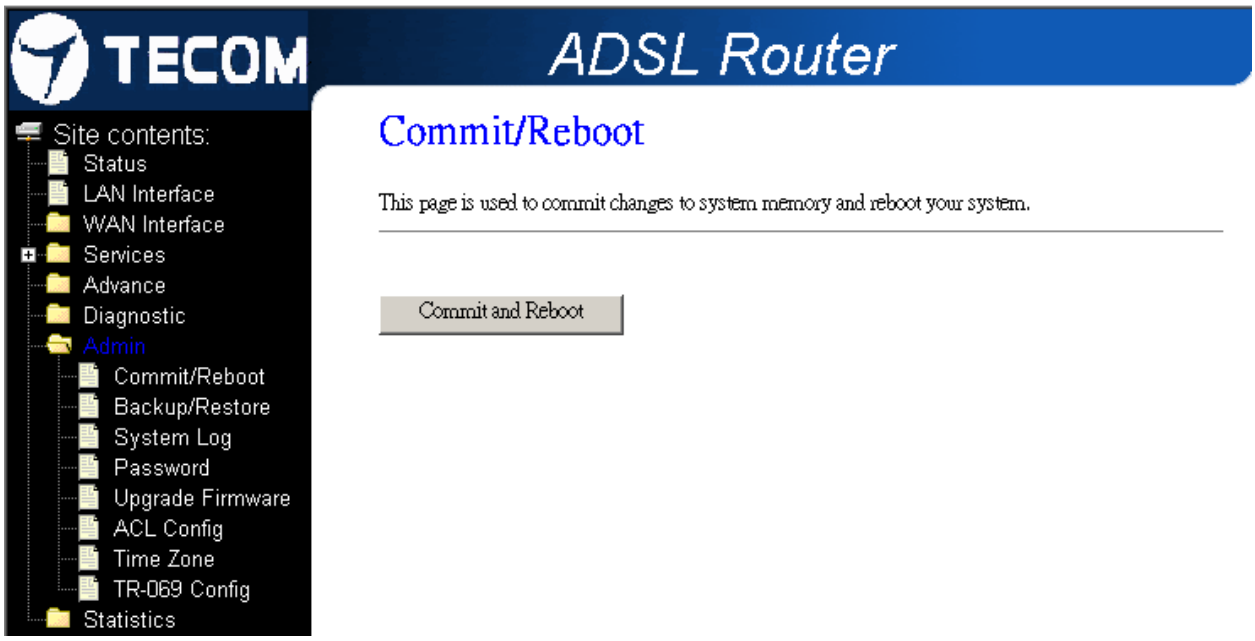
Fields in this page:

| Field | Description |
|---|---|
| **Select the Internet Connection** | The available WAN side interfaces are listed. You have to select one for the WAN side diagnostic. |
| | |

## 4.8 Admin

### Commit / Reboot

Whenever you use the Web configuration to change system settings, the changes are initially placed in temporary storage. These changes will be lost if the device is reset or turn off. To save your change for future use, you can use the commit function.




Function buttons in this page:

**Commit and Reboot**

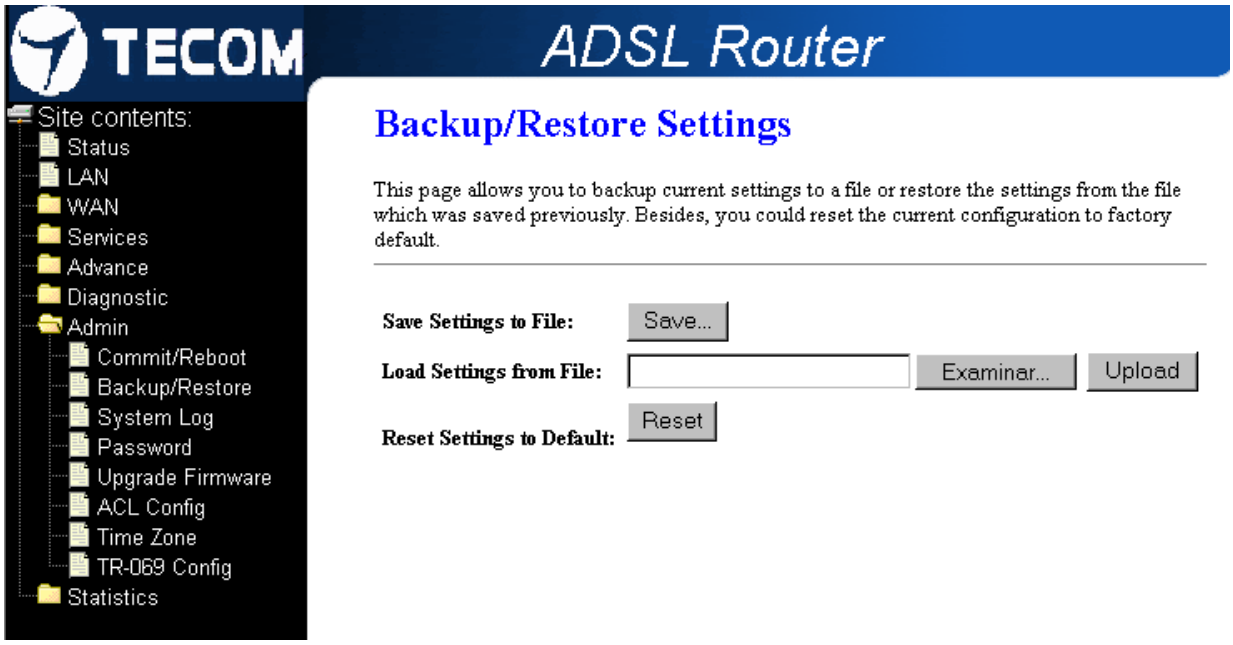
Whenever you use the web console to change system settings, the changes are initially placed in temporary storage. To save your changes for future use, you can use the Commit/Reboot function. This function saves your changes from RAM to flash memory and reboot the system.

**IMPORTANT!**

Do not turn off your modem or press the Reset button while this procedure is in progress.

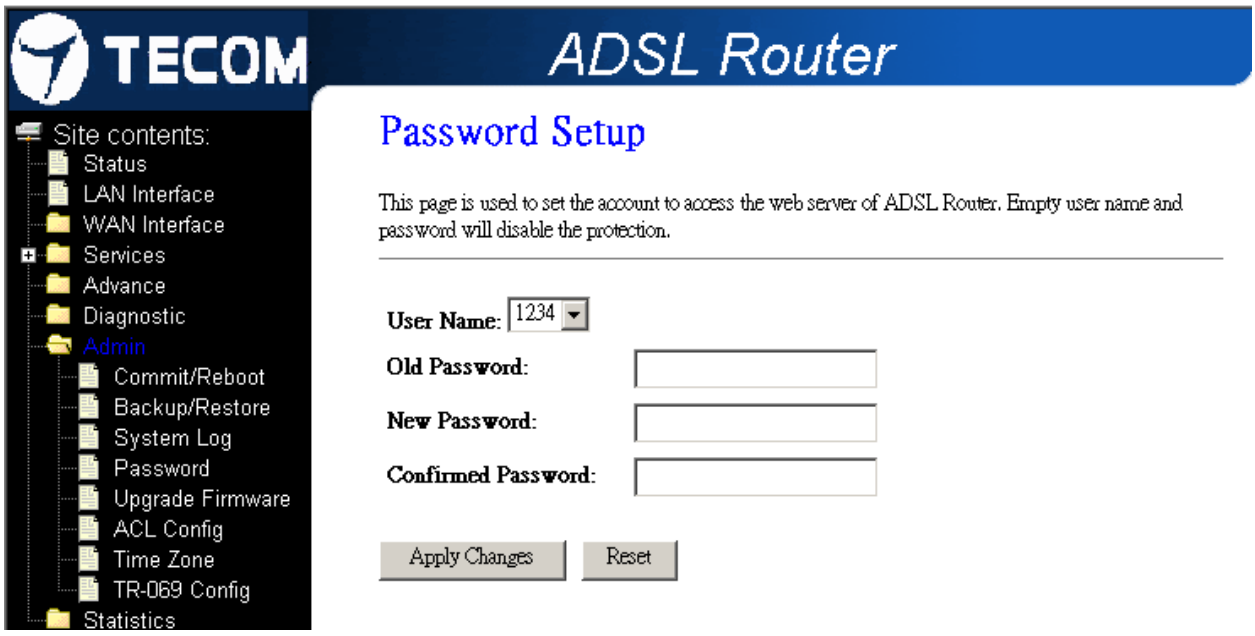
### Backup/Restore

This page allows you to backup and restore your configuration into and from file in your host.




### Password

The first time you log into the system, you use the default password. There are two-level logins: **1234** and **user**. The **1234** and **user** password configuration allows you to change the password for administrator and user.



Fields in this page:

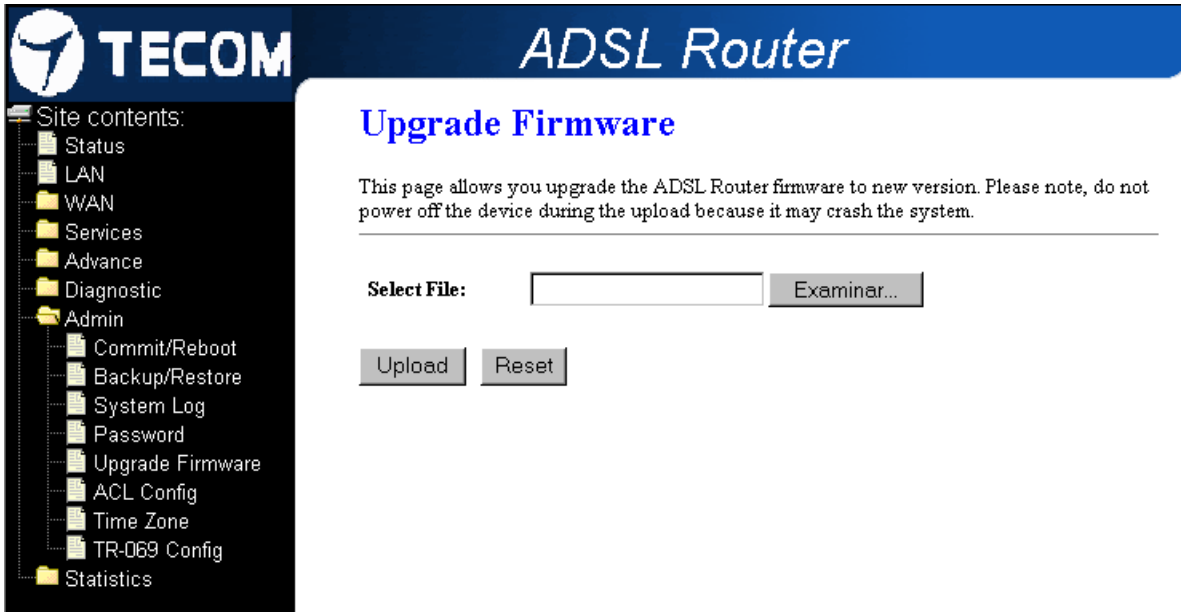
| Field | Description |
|---|---|
| **User Name** | Selection of user levels are: admin and user. |
| **Old Password** | Enter the old password for this selected login. |
| **New Password** | Enter the new password here. |
| **Confirmed Password** | Enter the new password here again to confirm. |

### Upgrade Firmware

To upgrade the firmware for the DSL device:

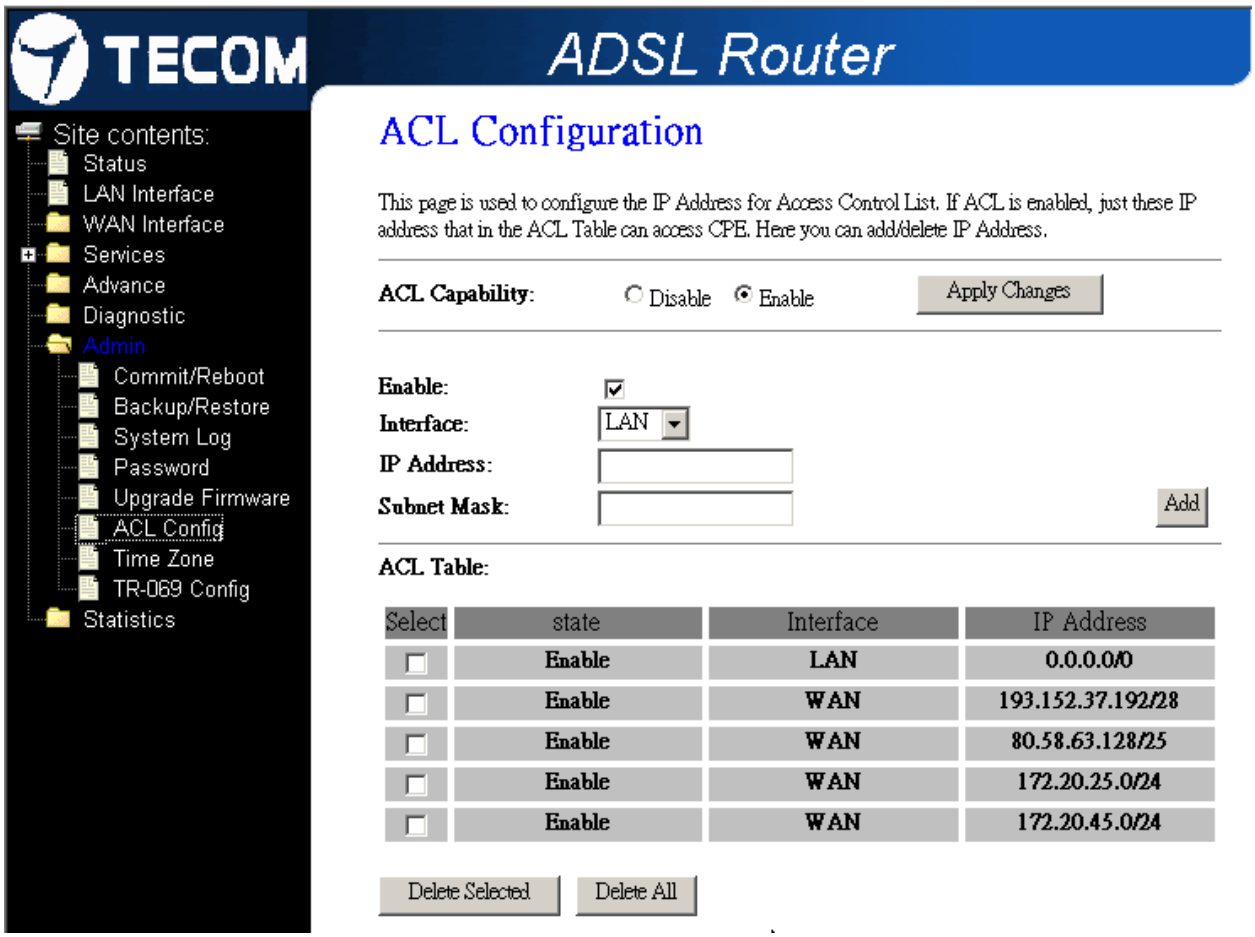
- Click the **Browse** button to select the firmware file.
- Confirm your selection.
- Click the **Upload** button to start upgrading.

**IMPORTANT!** Do not turn off your DSL device or press the Reset button while this procedure is in progress.




### ACL

The Access Control List (ACL) is a list of permissions attached to the DSL device. The list specifies who is allowed to access this device. If ACL is enabled, all hosts cannot access this device except for the hosts with IP address in the ACL table.

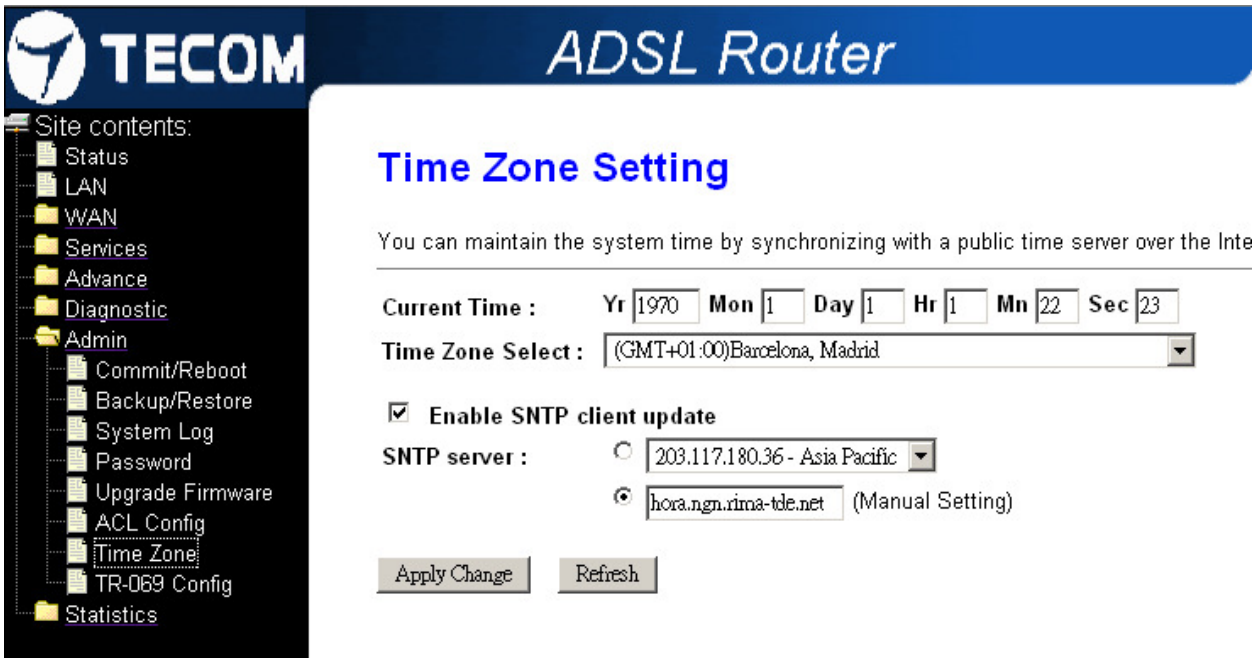



Fields in this page:

| Field | Description |
|---|---|
| **ACL Capability** | Enable/disable the ACL function |
| **Enable** | Check to enable this ACL entry |
| **Interface** | Select the interface domain: LAN or WAN |
| **IP Address** | Enter the IP address that allow access to this device. |

### Time Zone

Simple Network Timing Protocol (SNTP) is a protocol used to synchronize the system time to the public SNTP servers. The DSL device supports SNTP client functionality in compliance with IETF RFC2030. SNTP client functioning in daemon mode which issues sending client requests to the configured SNTP server addresses periodically can configure the system clock in the DSL device

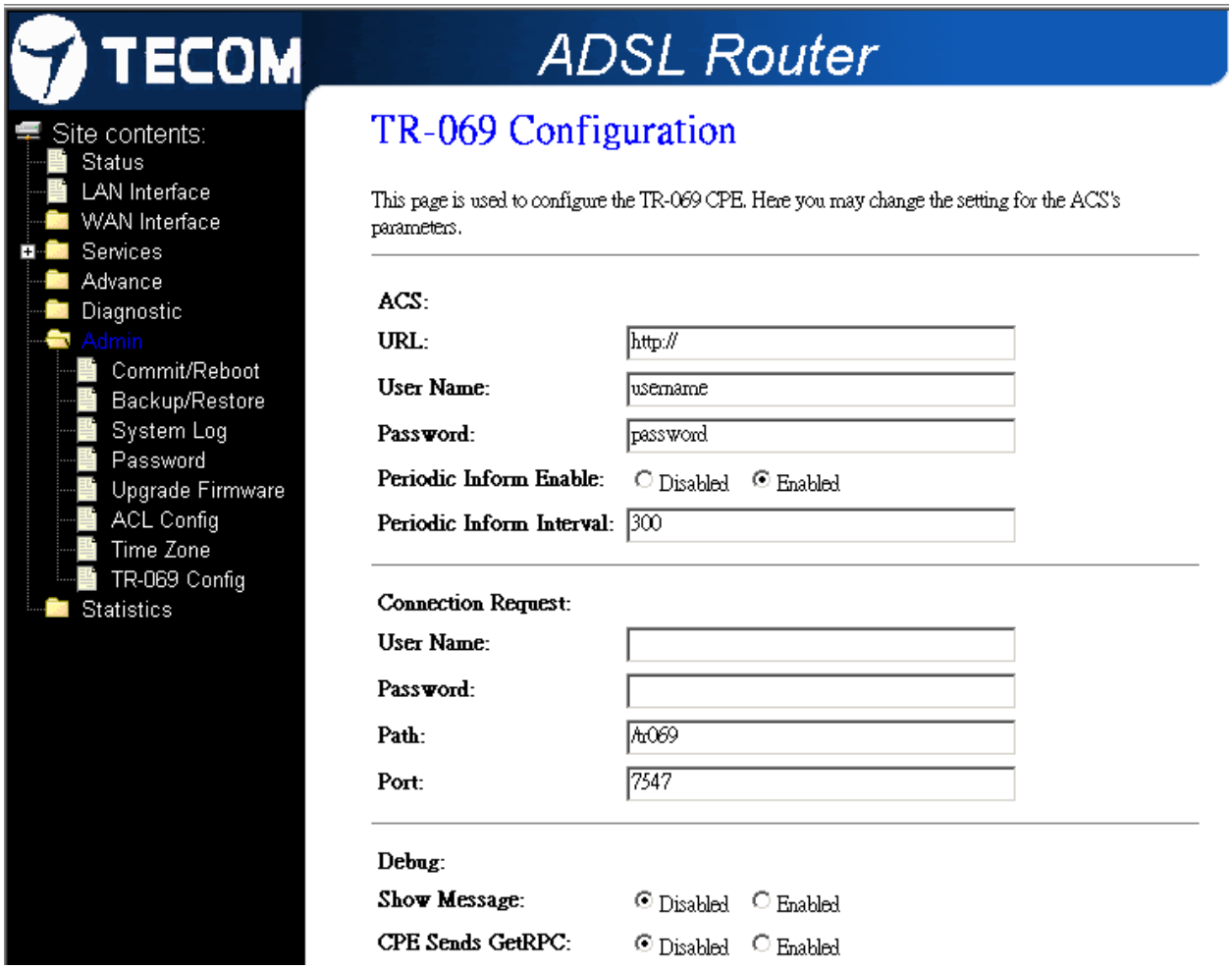



Fields in this page:

| Field | Description |
|---|---|
| **Current Time** | The current time of the specified time zone. You can set the current time by yourself or configured by SNTP. |
| **Time Zone Select** | The time zone in which the DSL device resides. |
| **Enable SNTP client update** | Enable the SNTP client to update the system clock. |
| **SNTP server** | The IP address or the host name of the SNTP server. You can select from the list or set it manually. |

### TR-069 Config.

TR-069 is a protocol for communication between a CPE and Auto-Configuration Server (ACS). The CPE TR-069 configuration should be well defined to be able to communicate with the remote ACS.




Fields in this page:

| ACS Field | Description |
|---|---|
| URL | ACS URL. For example, http://10.0.0.1:80 https://10.0.0.1:443 |
| User Name | The username the DSL device should use when connecting to the ACS. |
| Password | The password the DSL device should use when connecting to the ACS. |
| Periodic Inform Enable | When this field is enabled, the DSL device will send an Inform RPC to the ACS server at the system startup, and will continue to send it periodically at an interval defined in **Periodic Inform Interval** field; When this field is disabled, the DSL device will only send Inform RPC to the ACS server once at the system startup. |
| Periodic Inform Interval | Time interval in second to send Inform RPC. |
| Connection Request Field | Description |
| User Name | The username the remote ACS should use when connecting to this device. |
| Password | The password the remote ACS should use when connecting to this device. |
| Path | The path of the device ConnectionRequestURL. The device ConnectionRequestURL should be configured based on the Device_IP, Path and |

| | |
|---|---|
| | Port as follows:<br>http://Device_IP:Port/Path |
| Port | The port of the device ConnectionRequestURL. |

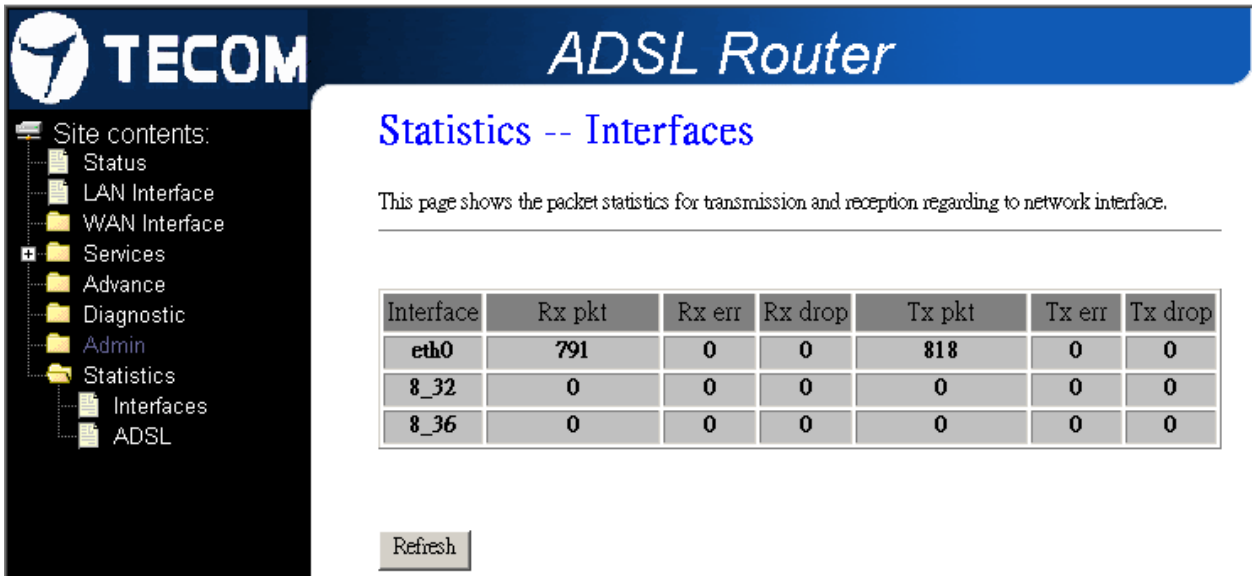
Note: Please enable the **Auto-Execution** to enable the TR-069 process

## 4.9 Statistics

The DSL device shows the different layer of network statistics information.

### Interfaces

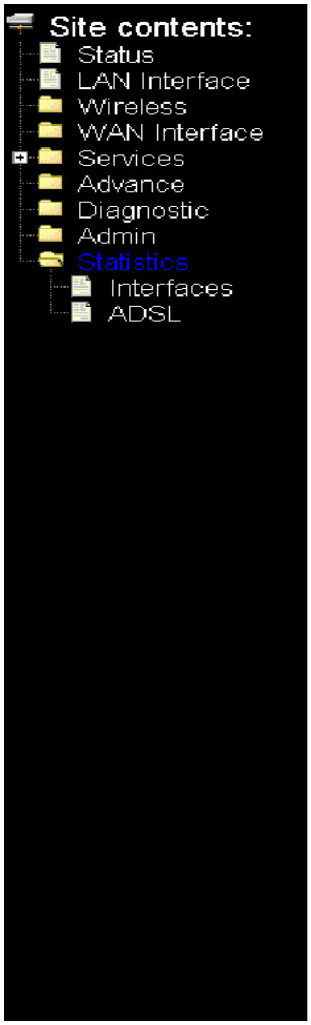
You can view statistics on the processing of IP packets on the networking interfaces. You will not typically need to view this data, but you may find it helpful when working with your ISP to diagnose network and Internet data transmission problems.




To display updated statistics showing any new data since you opened this page, click **Refresh**.

### ADSL

This page shows the ADSL line statistic information.




# Statistics -- ADSL

Adsl line statistics.

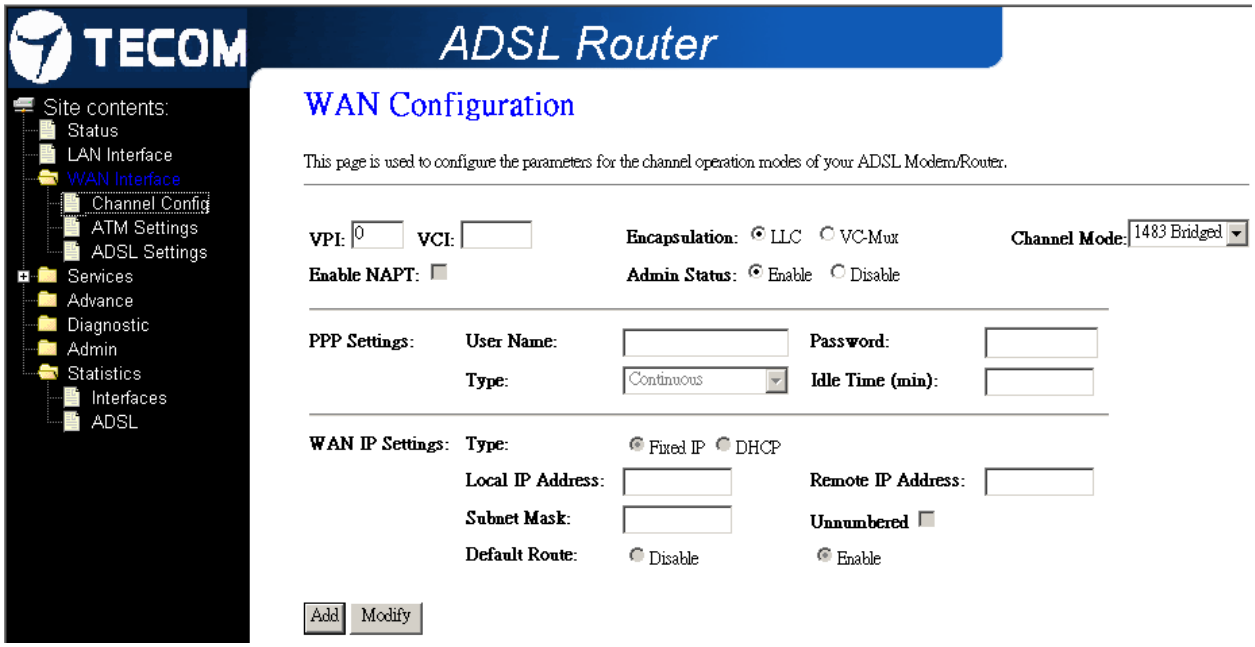
| | |
|---|---|
| Mode | ADSL2+ |
| Latency | Fast |
| Trellis Coding | Disable |
| Status | SHOWTIME.L0 |
| Power Level | L0 |

| | Downstream | Upstream |
|---|---|---|
| SNR Margin (dB) | 6.4 | 6.8 |
| Attenuation (dB) | 11.0 | 28.5 |
| Output Power (dBm) | 20.5 | 12.5 |
| Attainable Rate (Kbps) | 11216 | 464 |
| Rate (Kbps) | 10351 | 464 |
| K (number of bytes in DMT frame) | 253 | 14 |
| R (number of check bytes in RS code word) | 2 | 0 |
| S (RS code word size in DMT frame) | 0.78 | 0.94 |
| D (interleaver depth) | 1 | 1 |
| Delay (msec) | 0.19 | 0.23 |
| FEC | 5507 | 0 |
| CRC | 1366 | 23 |
| Total ES | 184 | 12 |
| Total SES | 2 | 4 |
| Total UAS | 0 | 1712 |

# Channel Mode Configuration

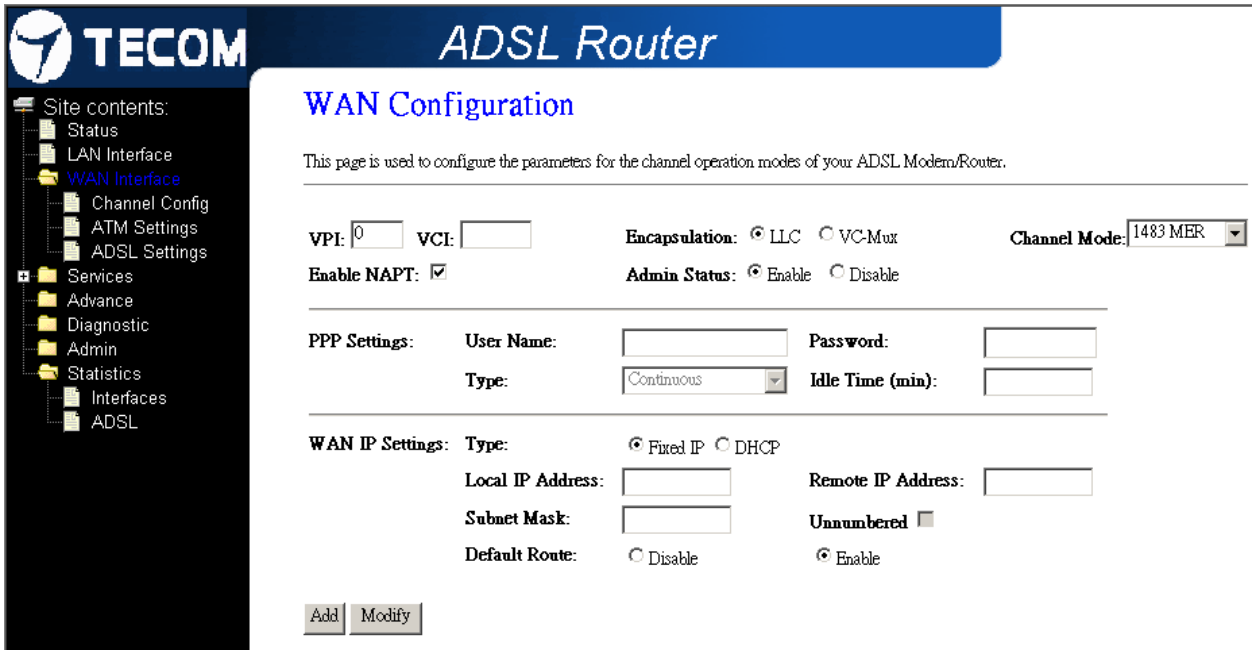
ADSL router supports multiple channel operation modes. This section will show procedures to configure the router.

## 4.10 Bridge Mode



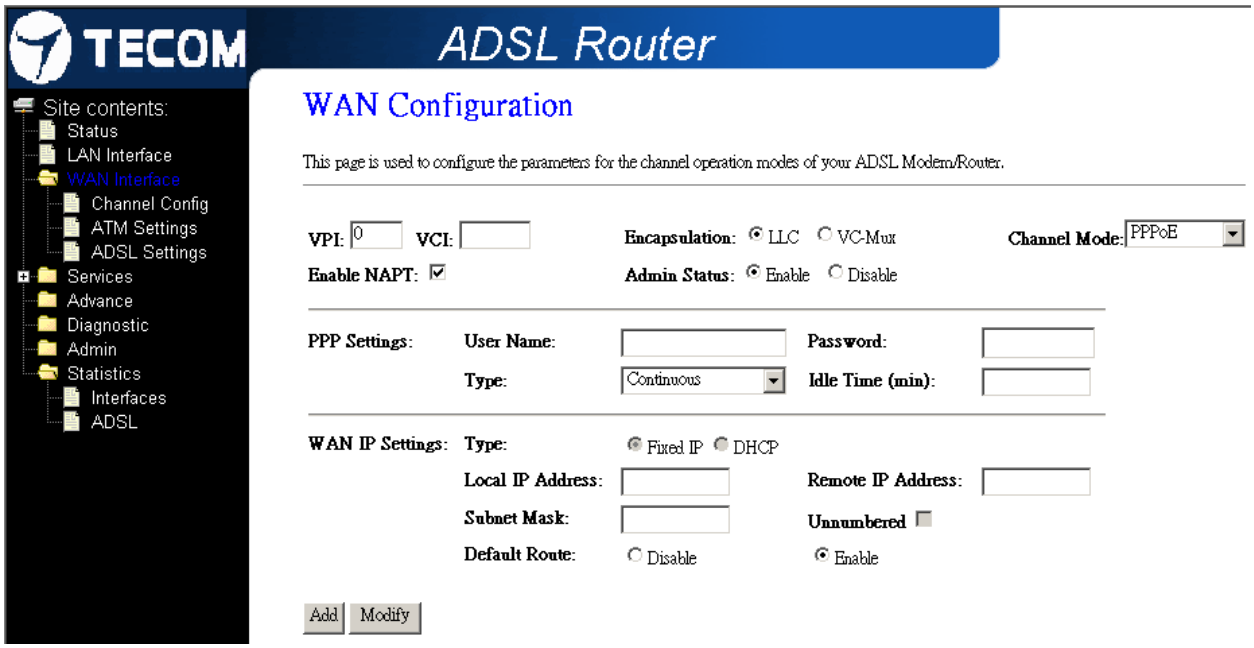

1. Open the WEB page at "WAN interface/Channel Configuration".
2. Select the Channel Mode to "1483 Bridged". Set the parameters VPI/VCI and Encapsulation mode according to the CO DSLAM setting.
3. Click "Add" button to add this channel into VC table.
4. Open the WEB page at "Admin/ Commit/Reboot". Press "Commit" to save the settings into flash memory.
5. The new settings will take effect after reboot the system.

## 4.11 MER(Mac Encapsulating Routing) Mode



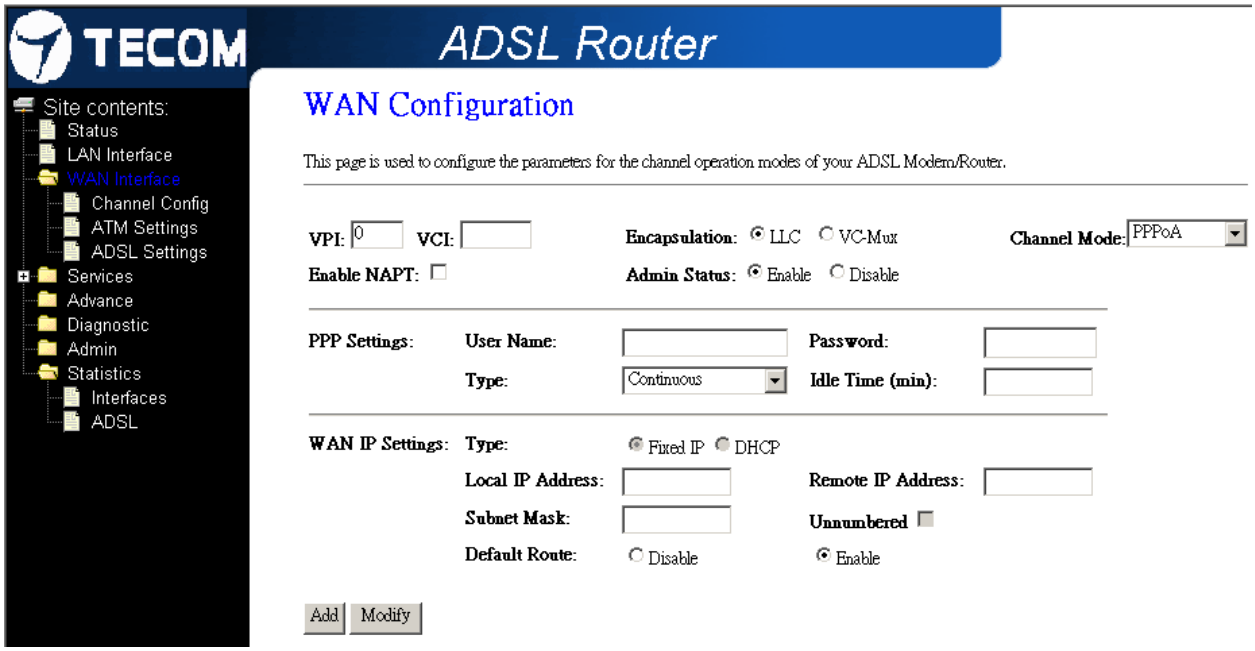

1. Open the WEB page at "WAN interface/Channel Configuration".
2. Select the Channel Mode to "1483 MER". Set the parameters VPI/VCI and Encapsulation mode according to the CO DSLAM setting.
3. Set "Local IP Address:" according to the IP that ISP assign for your router. Set "Remote IP Address" to the ISP's gateway.
4. Click "Add" button to add this channel into VC table.
5. Open the WEB page at "Admin/ Commit/Reboot". Press "Commit" to save the settings into flash memory.
6. The new settings will take effect after reboot the system.

## 4.12 PPPoE Mode



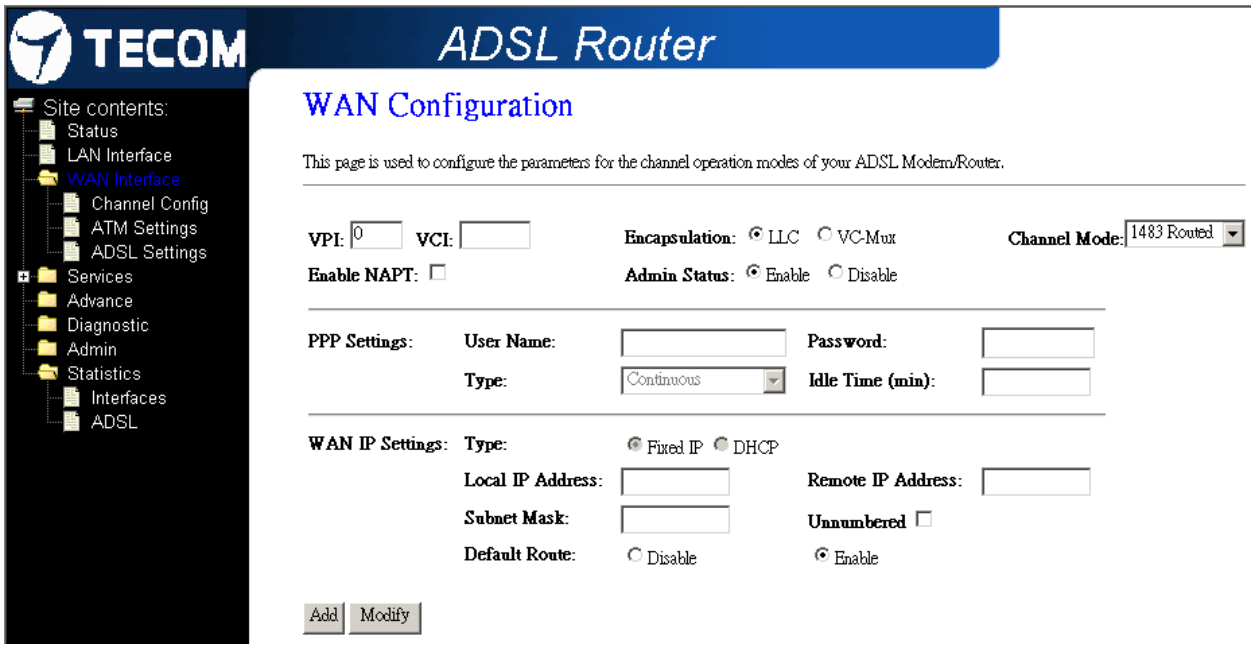

1. Open the WEB page at "WAN interface/Channel Configuration".
2. Select the Channel Mode to "PPPoE". Set the parameters VPI/VCI and Encapsulation mode according to the CO DSLAM setting.
3. Enter user/password from your ISP.
4. Click "Add" button to add this channel.
5. Enable DHCP server to allow the local PCs share the PPP connection. Reference to section 4.6.1 DHCP Server Configuration.
6. Set DNS address from your ISP. Reference to section 4.6.2 DNS Configuration.
7. Open the WEB page at "Admin/ Commit/Reboot". Press "Commit" to save the settings into flash memory.
8. The new settings will take effect after reboot the system.

## 4.13 PPPoA Mode




1. Open the WEB page at "WAN interface/Channel Configuration".
2. Select the Channel Mode to "PPPoA". Set the parameters VPI/VCI and Encapsulation mode according to the CO DSLAM setting.
3. Enter user/password from your ISP.
4. Click "Add" button to add this channel.
5. Enable DHCP server to allow the local PCs share the PPP connection. Reference to section 4.6.1 DHCP Server Configuration.
6. Set DNS address from your ISP. Reference to section 4.6.2 DNS Configuration.
7. Open the WEB page at "Admin/ Commit/Reboot". Press "Commit" to save the settings into flash memory.
8. The new settings will take effect after reboot the system.

## 4.14 1483 Routed Mode



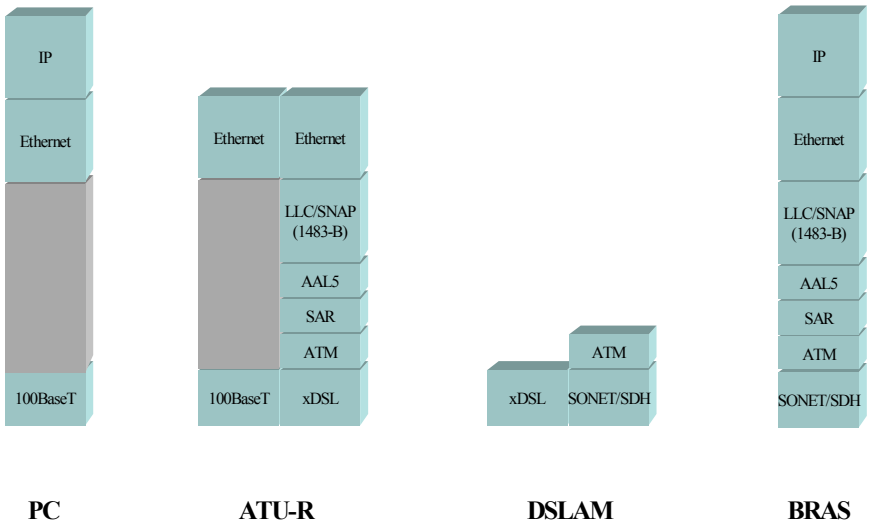

1. Open the WEB page at "WAN interface/Channel Configuration".
2. Select the Channel Mode to "1483 Routed". Set the parameters VPI/VCI and Encapsulation mode according to the CO DSLAM setting.
3. In WAN IP settings, give the local and remote IP address from your ISP or use DHCP to get them automatically if your ISP support it. Local IP is the address of ADSL router. Remote IP is the ISP's gateway address.
4. Click "Add" button to add this channel.
5. Open the WEB page at "Admin/ Commit/Reboot". Press "Commit" to save the settings into flash memory.
6. The new settings will take effect after reboot the system.

For more information or any question, please consult to your supplier for details.

# 5 Appendix

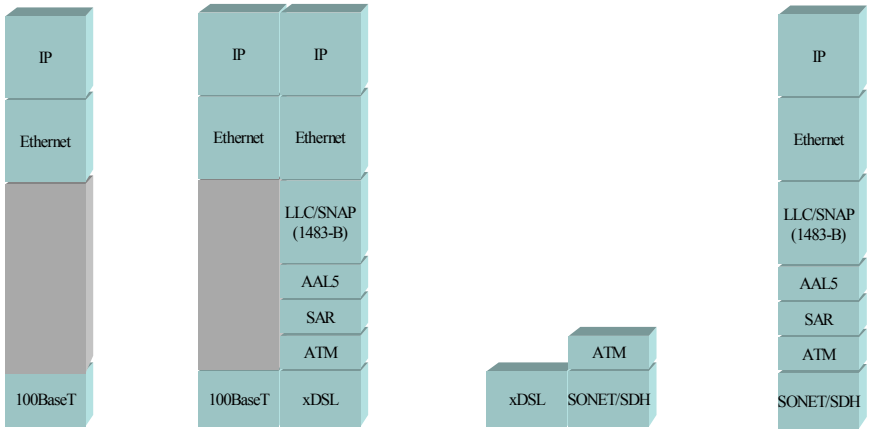
## Appendix A: Protocol Stacks

### A.1 1483 Bridged Model



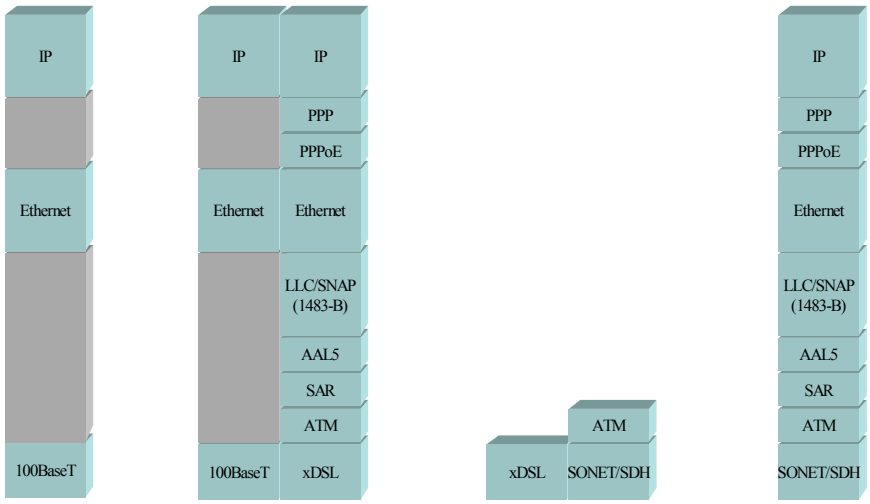

1483 Bridged Channel Mode Scenario

## A.2 1483 MER Model



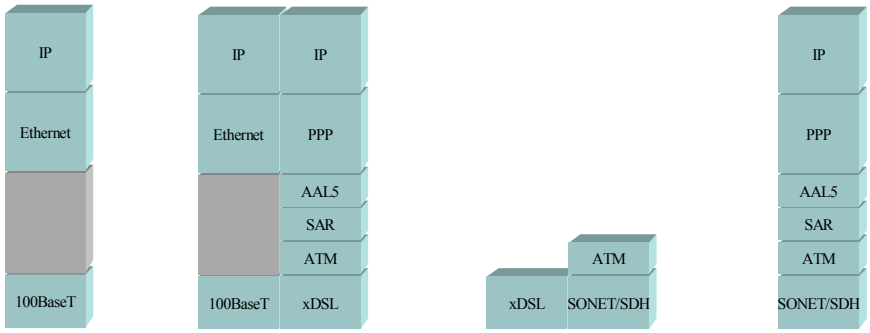

1483 MER Channel Mode Scenario

## A.3 PPPoE Model



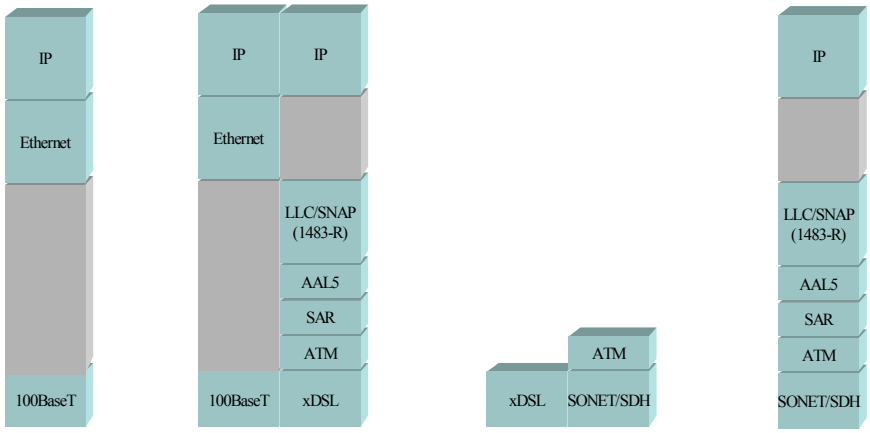

PPPoE Channel Mode Scenario

## A.4 PPPoA Model




PPPoA Channel Mode Scenario

## A.5 1483 Routed Model




1483 Routed Channel Mode Scenerio

# Appendix B: Mapping PVCs to VLANs

The AR1061 Router supports mapping ATM Permanent Virtual Circuits (PVCs) to VLANs, based on the ATM bridging standards of RFC2684. This feature allows an ATM PVC to be configured as a bridging interface and used in conjunction with a VLAN.

Figure B.1 illustrates the how the AR1061 Router adds a VLAN ID and tag to packets subject to PVC-VLAN mapping. In this example, vc3 is mapped to VLAN 20. The AR1061 Router adds VLAN ID 20 and tag 8100 to packets from vc3.

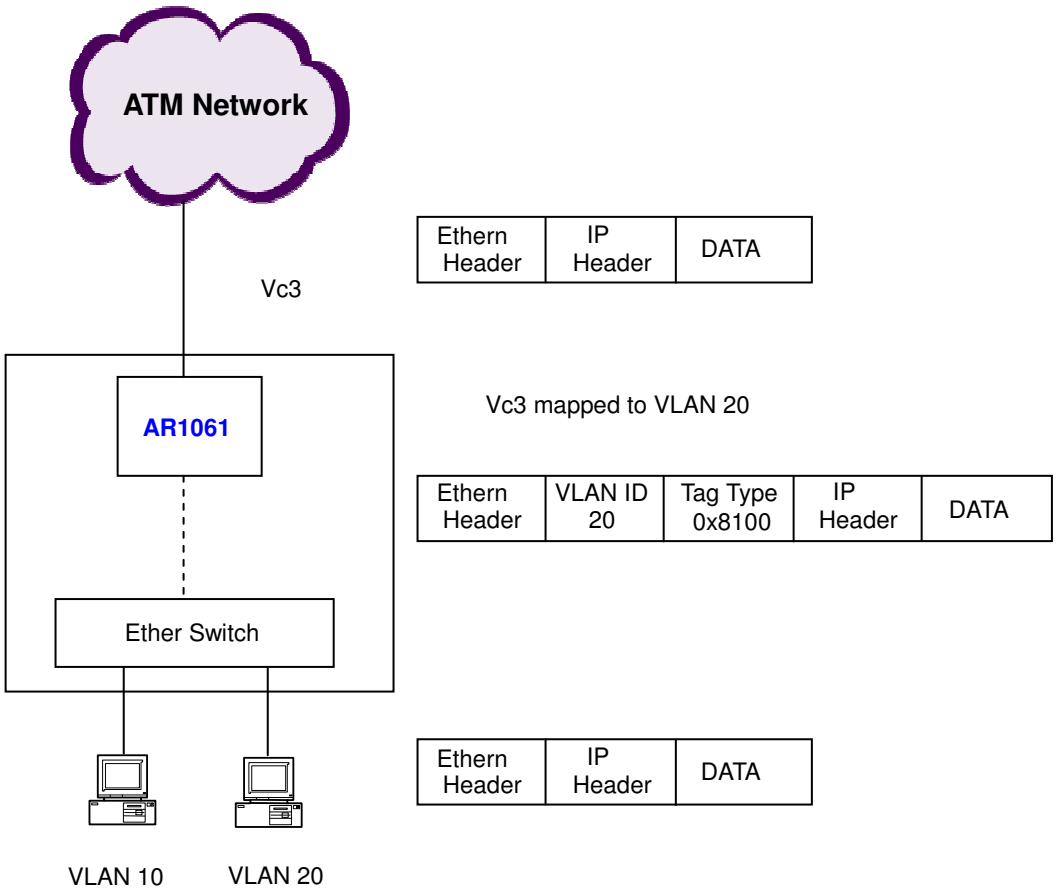



**Figure B.1 Adding a VLAN ID and tag to packets from a PVC**