



Wireless ADSL2+ 4-Port Router

User's Manual



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FCC Warning

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 communication. 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
- Consult the dealer or an experienced radio/TV technician for help. the receiver is connected.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Notice

Changes or modifications to the equipment, which are not approved by the party responsible for compliance could affect the user's authority to operate the equipment. Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information.

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Revision History

Revision	History
V1.3	4 th release

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1. Introduction

1.1 Introduction

This full rate Wireless ADSL2+ router is an all-in-one gateway for Home and SOHO applications. This gateway are with full-featured ADSL router that provides high-speed Internet access, 4-port Ethernet switch direct connections to individual PCs or local area network with 10/100 Base-T Ethernet and 54Mbps IEEE802.11g wireless connectivity. This device uses advanced ADSL chipset solution with complete set of industry standard features for high-speed Internet access. Also built-in 54Mbps IEEE802.11g wireless service can provide you easy and convenient way to connect the PCs and Internet. User can enjoy higher quality multimedia and real-time applications such as online gaming, Video-on-Demand, VoIP and other bandwidth consuming services. Also the feature-rich routing functions are seamlessly integrated to ADSL service for existing corporate or home users. This product is made in ISO9001 approved factory and complies with FCC part15 regulations and CE approval.

1.2 Product Features

◆ Application Diagram



◆ High Speed Internet Access

This Wireless ADSL2+ router complies with ADSL / ADSL2 / ADSL2+ standards. It can support downstream rates of up to 24Mbps and upstream rates of up to 1Mbps. This ADSL2+ router is compliant with the following standards.

- ANSI T1.413 issue 2
- ITU-T G.992.1 (G.dmt)
- ITU-T G.992.2 (G.lite)
- G.994.1 (G.hs, Multimode)
- ITU-T G.992.3 (ADSL2 G.dmt.bis)

- ITU-T G.992.4 (ADSL2 G.lite.bis)
- ITU-T G.992.5 (ADSL2+; Annex A, B, I, J, L & M)
- Reach Extended ADSL (RE ADSL)

◆ **Quick Setup Wizard**

Support Quick Setup Wizard Web GUI and Easy setup software to install this Wireless ADSL2+ router easily and quickly.

◆ **Multi-connection protocol support**

- Multi Protocol over AAL5 (RFC1483 / 2684)
- Classical IP over ATM (RFC 1577)
- VC and LLC Multiplexing
- PPP over Ethernet (RFC 2516)
- PPP over ATM (RFC 2364)
- Supports OAM F4/F5 loop-back, AIS and RDI OAM cells.
- ATM Forum UNI 3.1/4.0 PVC
- Support up to 8PVCs.
- Traffic Shaping (ATM QoS) UBR, CBR, VBR-rt, VBR-nrt

◆ **Network Address Translation (NAT)**

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

◆ **Universal Plug and Play (UPnP)**

Universal Plug and Play is a standard that uses Internet and Web protocols to enable devices such as PCs, peripherals, intelligent appliances, and wireless devices to be plugged into a network and automatically know about each other. This protocol is used to enable simple and robust connectivity among stand-alone devices and PCs.

◆ **Dynamic DNS Support**

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

◆ **DHCP Support**

DHCP (Dynamic Host Configuration Protocol) allows individual clients to obtain TCP/IP

configuration at start-up from a centralized DHCP server. The ADSL router has built-in DHCP server capability enabled by default. It can assign IP addresses, an IP default gateway and DNS servers to DHCP clients. It can also act as a surrogate DHCP server (DHCP Relay) where it relays IP address assignment from the actual real DHCP server to the clients.

◆ **Device Management**

- Web-based GUI Configuration / Management
- Command-line Interpreter (CLI)
- SNMP support (V.1 and V.2C)
- Telnet Remote Management
- Firmware upgrade via FTP / TFTP (Web-based GUI)
- Built-in Diagnostic tool
- TR-069 support (CPE WAN Management Protocol)

◆ **10/100M Auto-negotiation Fast Ethernet switch**

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

◆ **Bridging / Routing support**

- Ethernet to ADSL self-learning Transparent Bridging (IEEE 802.1D)
- IP routing-RIPv2 (backward compatible with RIPv1)
- Static IP routing
- Routing (TCP/IP/UDP/ARP/ICMP)
- IP Multicast IGMP v1/v2

◆ **Wireless**

- IEEE802.11g compliance, backward compatible with 802.11b (at 11Mbps)
- 64/128-bit WEP, WPA, WPA2 security
- Dynamic data rate scaling at 54, 48, 36, 24, 18, 12, 9 and 6Mbps for IEEE802.11g
- Dynamic data rate scaling at 11, 5.5, 2 and 1Mbps for IEEE802.11b
- Supports Quality of Service (QoS), 802.11e, WMM
- MAC Address Filtering

◆ **Security**

- PPP over PAP (Password Authentication Protocol; RFC1334)
- PPP over CHAP (Challenge Authentication Protocol; RFC1994)

- DoS Protection
- Stateful Packet Inspection (SPI)
- VPN (IPSec, PPTP, L2TP) pass through
- Built-in NAT Firewall
- IP-based Packet filtering
- Password Protected System Management

2. Hardware Installation

2.1 System Requirements

- Pentium III 266 MHz processor or higher
- 128 MB RAM minimum
- 20 MB of free disk space minimum
- RJ45 Ethernet Port

2.2 Package Contents

- Wireless ADSL2+ Router
- RJ-45 Ethernet cable
- RJ-11 Phone cable
- Power Adapter
- Quick Installation Guide
- One External Antenna (for detachable model)

2.3 Front Panel Indicators and Description

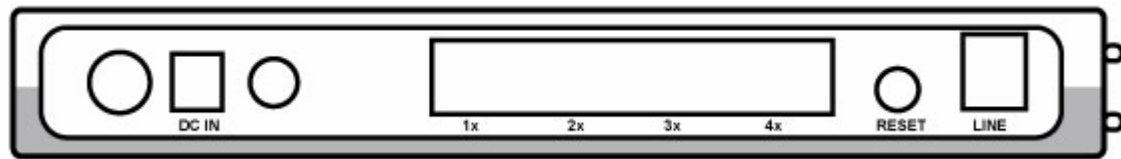
Front panel of this Wireless ADSL2+ router has LED indicators to display router's operating status.



Descriptions of LED status

PWR	When an active power adapter is connected with this router, this LED will light up.
WLAN	When WLAN card installed properly, this LED will be flashing. When transferring data, the LED will be steadily.
ADSL	When connection with Internet (ADSL Connected) is established, this LED will light up. When this LED is flashing: NO ADSL physical connection
X1	When port 1 connection with PC or Switch / Hub is established, this LED will light up.
X2	When port 2 connection with PC or Switch / Hub is established, this LED will light up.
X3	When port 3 connection with PC or Switch / Hub is established, this LED will light up.
X4	When port 4 connection with PC or Switch / Hub is established, this LED will light up.

2.4 Back Panel



LINE	Connect with phone cable
RESET	Reset button. Reset the setting to default.
4x	Connect with Ethernet Cable to Switch Hub or PC
3x	Connect with Ethernet Cable to Switch Hub or PC
2x	Connect with Ethernet Cable to Switch Hub or PC
1x	Connect with Ethernet Cable to Switch Hub or PC
DC IN	Connect to DC Power Adapter

2.5 Connect Related Devices

1) Connect Router to **LINE**

Plug the provided **RJ-11 phone cable** into **LINE port** on the back panel of the router and insert the other end into splitter or wall phone jack.

2) Connect Router to **LAN**

Plug **RJ-45 Ethernet Cable** into **LAN port** on the back panel of the router and insert the other end of the Ethernet cable on your PC's Ethernet port or switch / hub.

3) Connect Router to Power Adapter

Plug **Power Adapter** to **PWR port** on the back panel of the router and the other end to a power outlet.

Warning! Only use the power adapter provided in the package, otherwise it may cause hardware damage.

3. Connecting Wireless ADSL2+ Router via Ethernet

Your router can be managed from anywhere with the embedded Web configuration using a Web browser, such as Microsoft Internet Explorer or Netscape Navigator. Internet Explorer 6.0 and later or Netscape Navigator 7.0 and later versions with JavaScript enabled should be used.

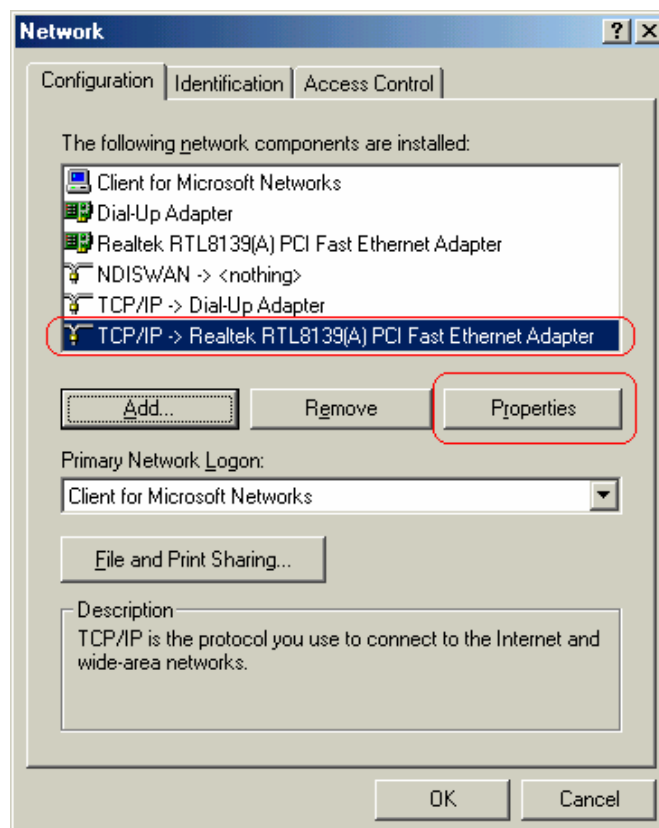
3.1 Setup Wireless ADSL2+ router via Ethernet Cable

If there is an available LAN card present on your PC, you just simply connect ADSL router and PC through the Ethernet cable. Once you establish Internet connection, you could browse the Web through the Ethernet cable.

3.2 Configure TCP/IP

For Windows 98SE and ME

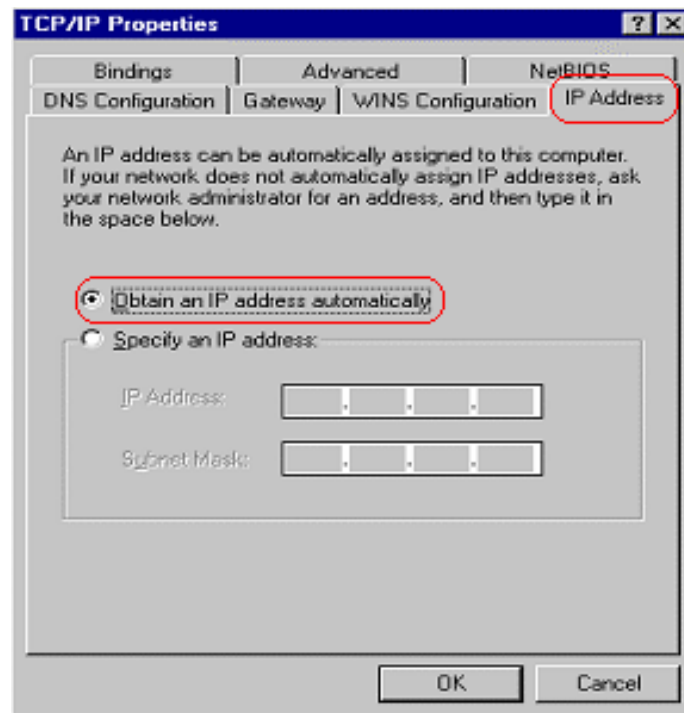
- Step 1:** Click **Start** then **Settings** and choose **Control Panel**
- Step 2:** Double click **Network** icon.
- Step 3:** Select **Configuration** tab, then choose **TCP/IP** from the list of installed network Components and click **Properties** button.
- Step 4:** You can setup the following configurations in **two** methods:



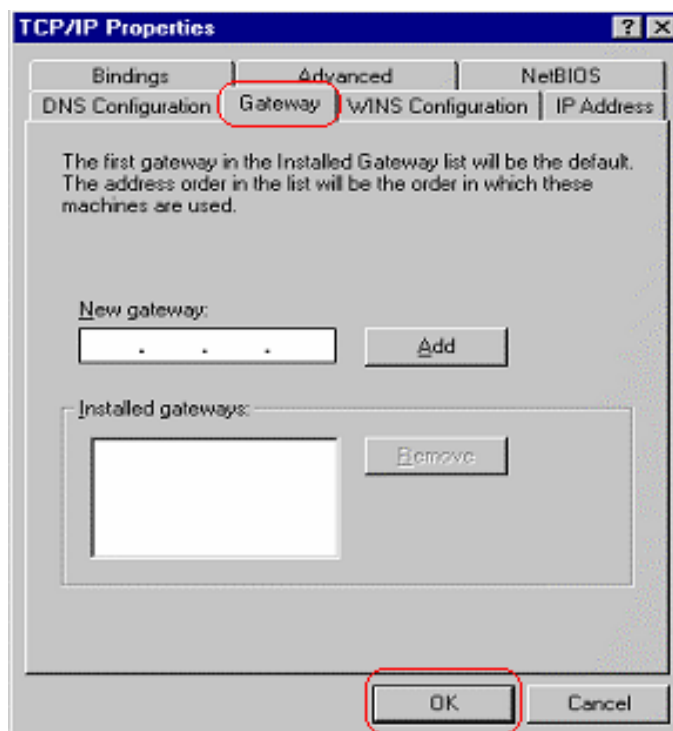
Option1: Get an IP from Router Automatically

Select the **IP Address** tab.

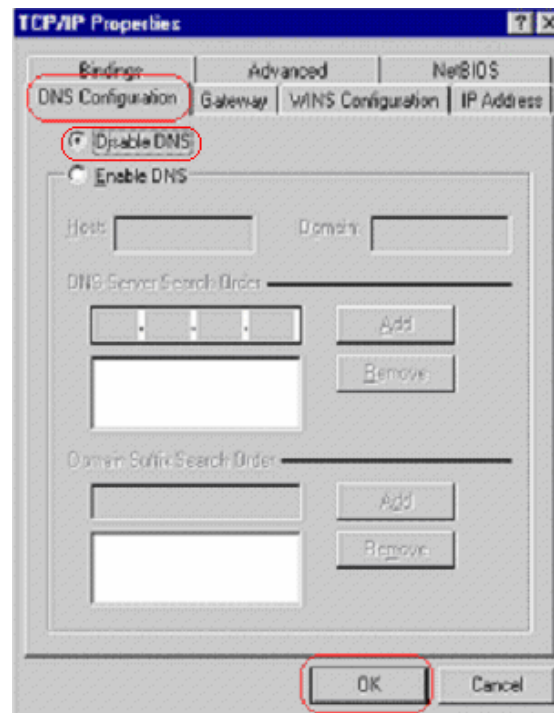
In this page, click **Obtain an IP address automatically** radio button.



- 1) Select **Gateway** tab and click **OK**

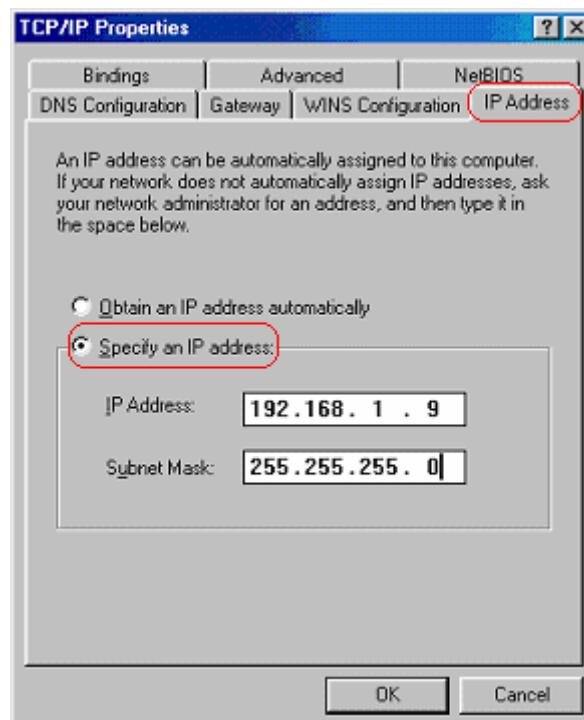


- 2) Then, select **DNS Configuration** tab and select **Disable DNS** then click **OK** to finish the configuration.

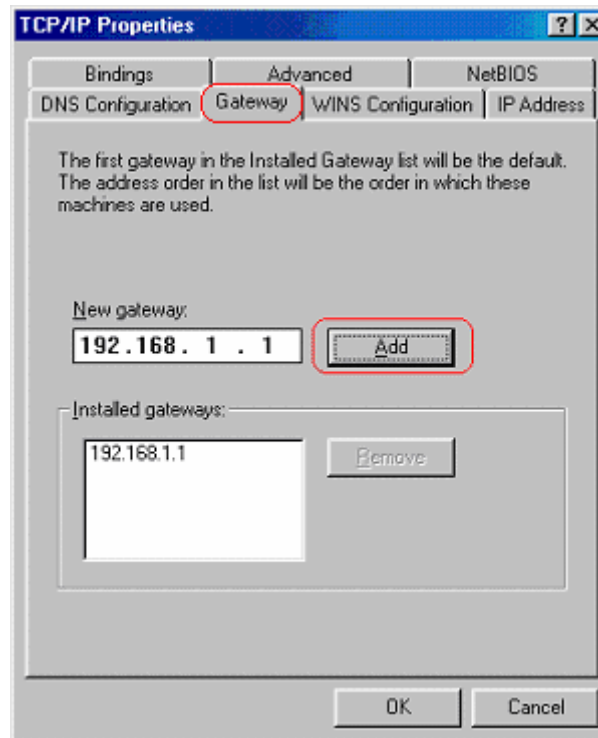


Option2: Configure IP Manually

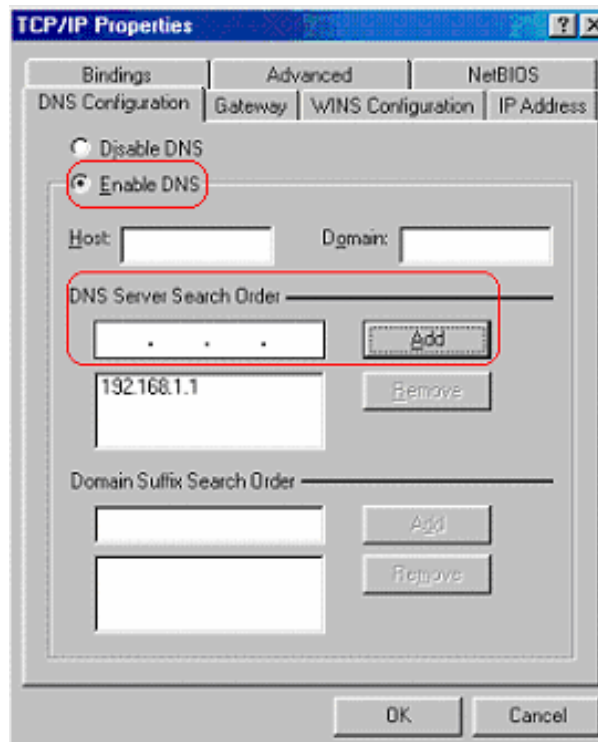
- 1) At **IP Address** tab, select **Specify an IP address**, set default IP address for the Router is **192.168.1.1**, so use **192.168.1.X** (X is a number between 2 to 254) for **IP Address** field and **255.255.255.0** for **Subnet Mask** field.



- 2) Select **Gateway** tab and add default Router IP Address “**192.168.1.1**” in the **New gateway** field and click **Add**.



Under **DNS Configuration** tab, select **Enable DNS** and add DNS values (192.168.1.1) in **DNS Server Search Order** field then click **Add**.

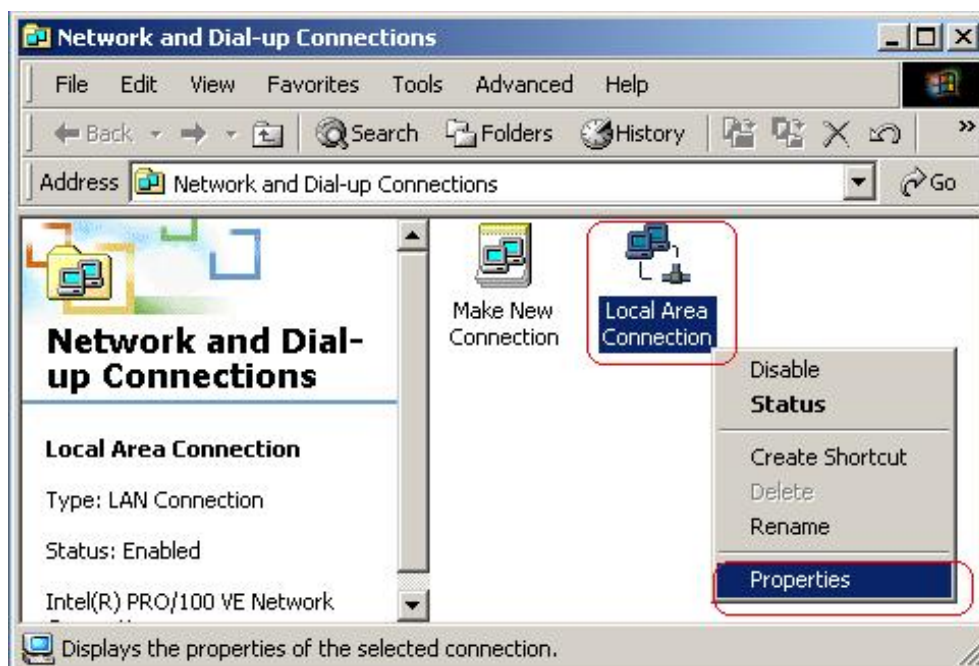


For Windows 2000

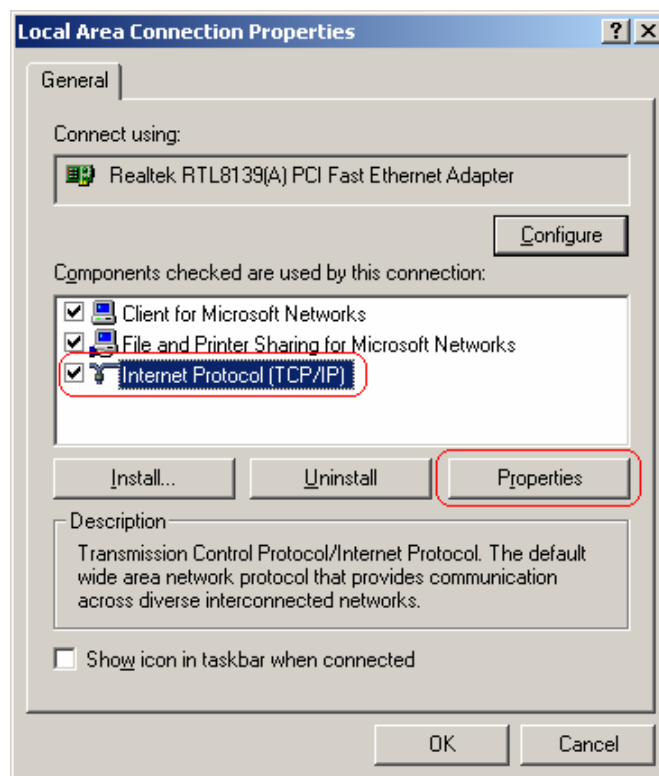
- Step 1:** (a) Right-click **My Network Places** and select **Properties** in the main window screen
(b) Or, go to **Start / Settings / Control Panel**. In the **Control Panel**, double-click on **Network and Dial-up Connections**.



- Step 2:** Right click **Local Area Connection** (your local network hooked up with ADSL router) and select **Properties**:

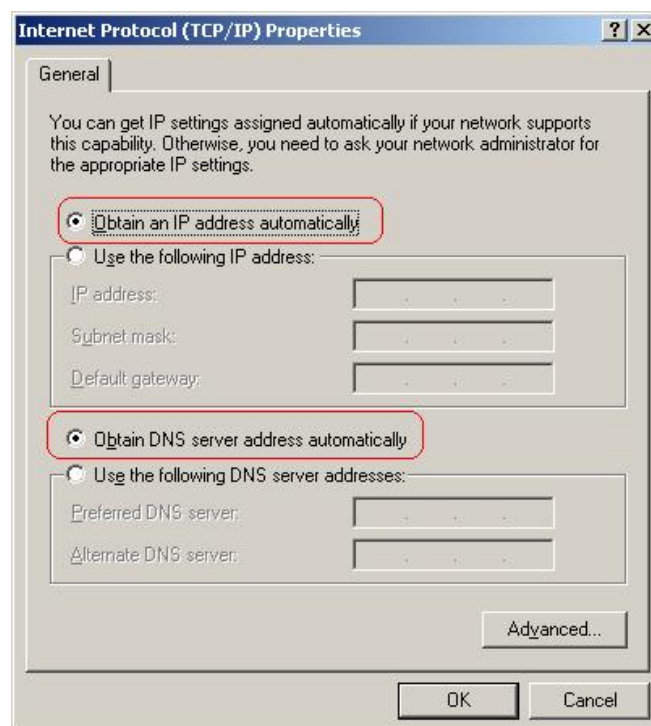


Step 3: Select **Internet Protocol (TCP/IP)** then click **Properties**:



Configure IP Automatically:

Step 4: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically** then click **OK** to complete IP configuring process.



Configure IP Manually:

Step 4: Select **Use the following IP address** and **Use the following DNS server addresses**.

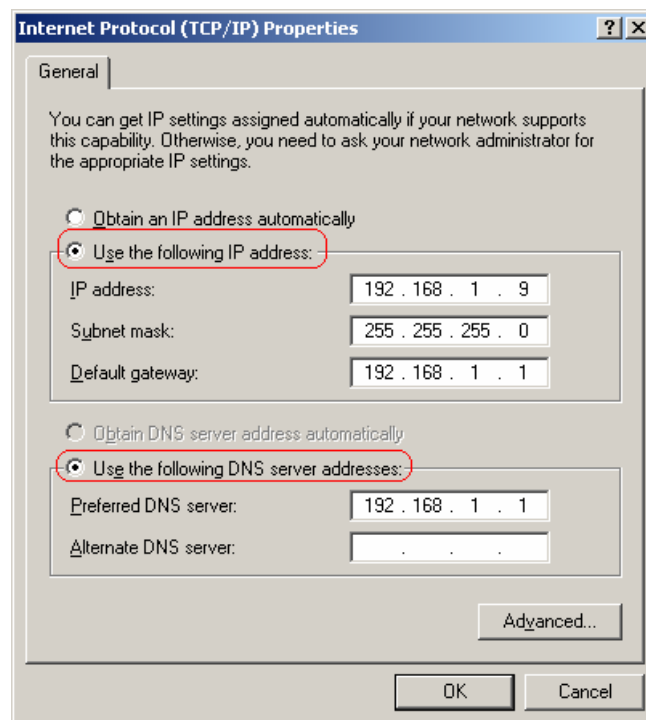
IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

Alternate DNS server: Fill in alternate DNS server IP address.

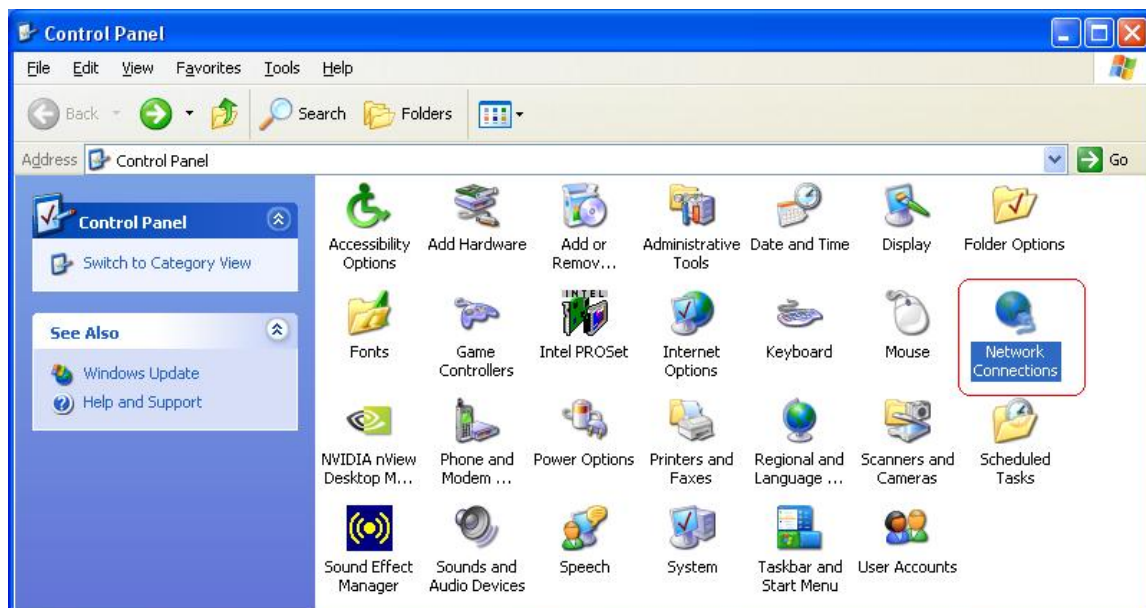


For Windows XP

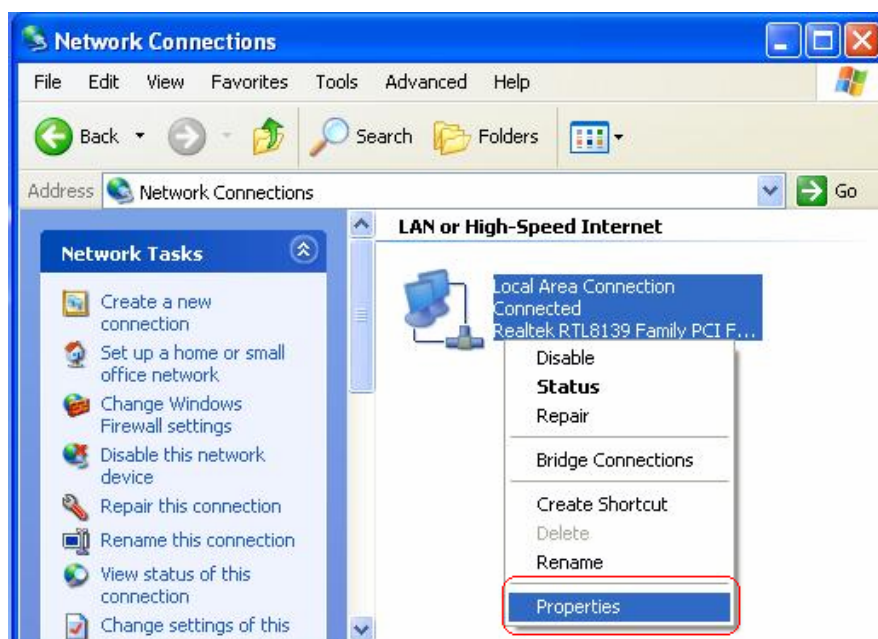
Step 1: Click **Start** then select **Control Panel**.



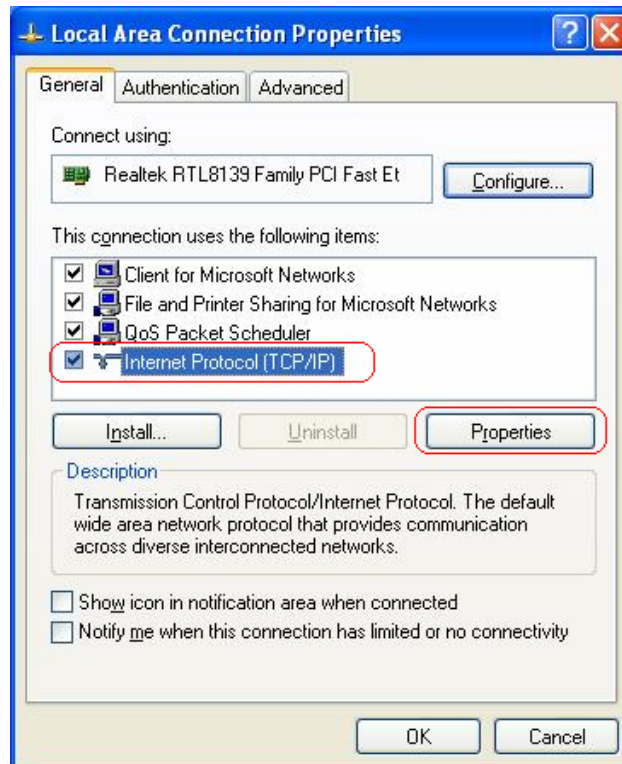
Step 2: Double-click **Network Connections** icon.



Step 3: Right-click **Local Area Connection** (local network your ADSL hooked up with) and select **Properties**:

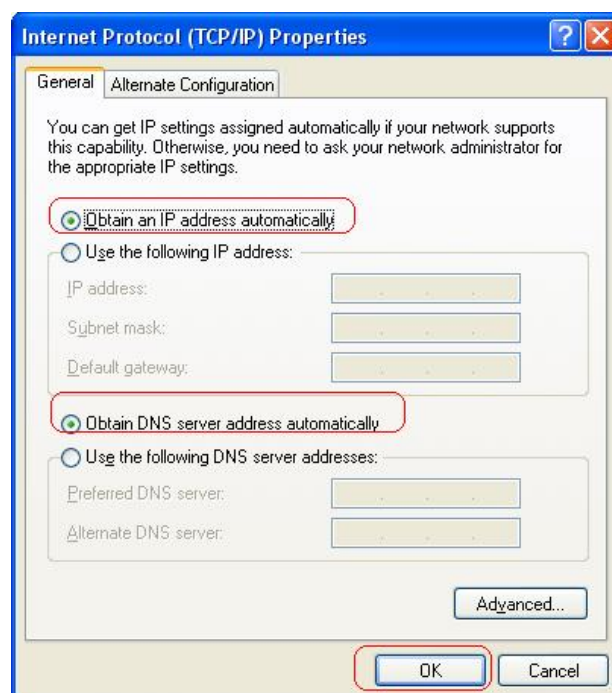


Step 4: Select **Internet Protocol (TCP/IP)** then click **Properties**:



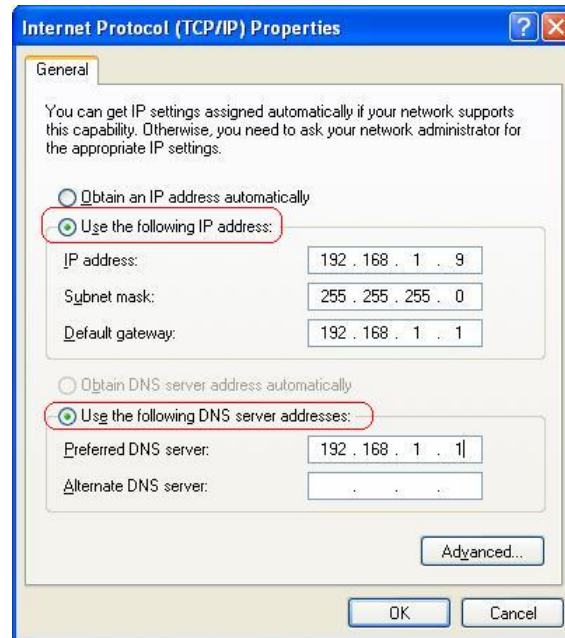
Configure IP address Automatically:

Step 5: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Click **OK** to finish the configuration.



Configure IP Address Manually:

Step 5: Select **Use the following IP address** and **Use the following DNS server addresses**.



IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

Alternate DNS server: Fill in alternate DNS server IP address.

You can use ping command under DOS prompt to check if you have setup TCP/IP protocol correctly and if your computer has successfully connected to this router.

- 1) Type **ping 192.168.1.1** under DOS prompt and the following messages will appear:

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 times<2ms TTL=64

Reply from 192.168.1.1: bytes=32 times<1ms TTL=64

Reply from 192.168.1.1: bytes=32 times<10ms TTL=64

- 2) If the communication link between your computer and router is not setup correctly, after you type **ping 192.168.1.1** under DOS prompt following messages will appear:

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

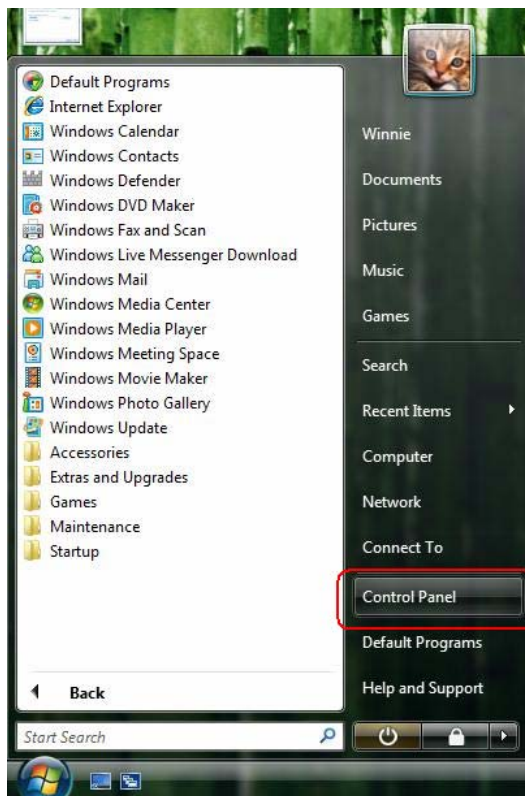
Request timed out.

Request timed out.

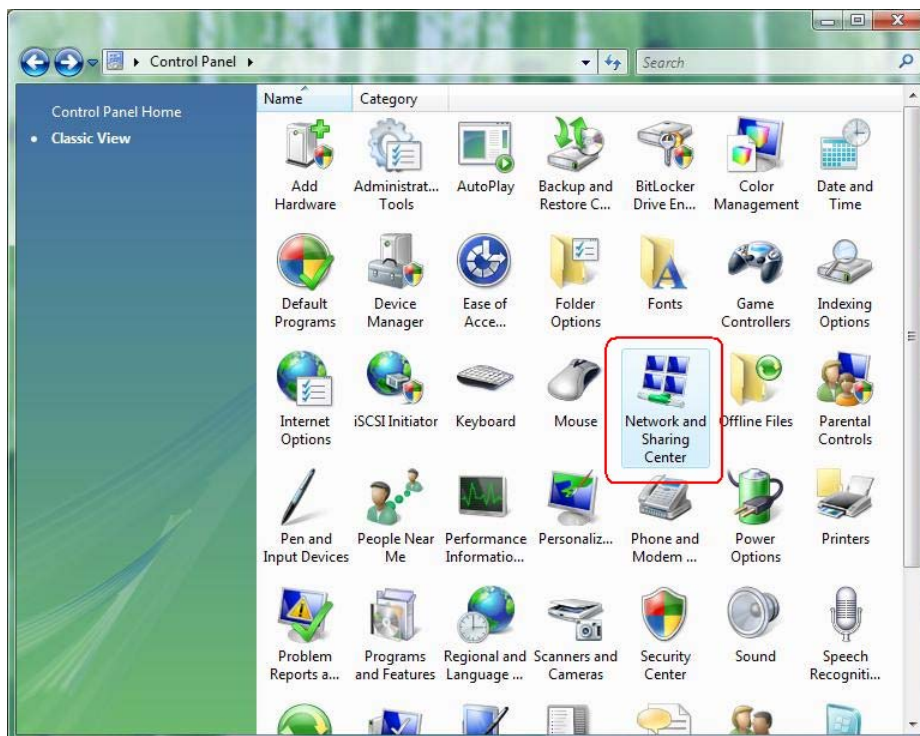
Cable issue or something wrong might cause this failure in configuration procedure.

For Windows Vista

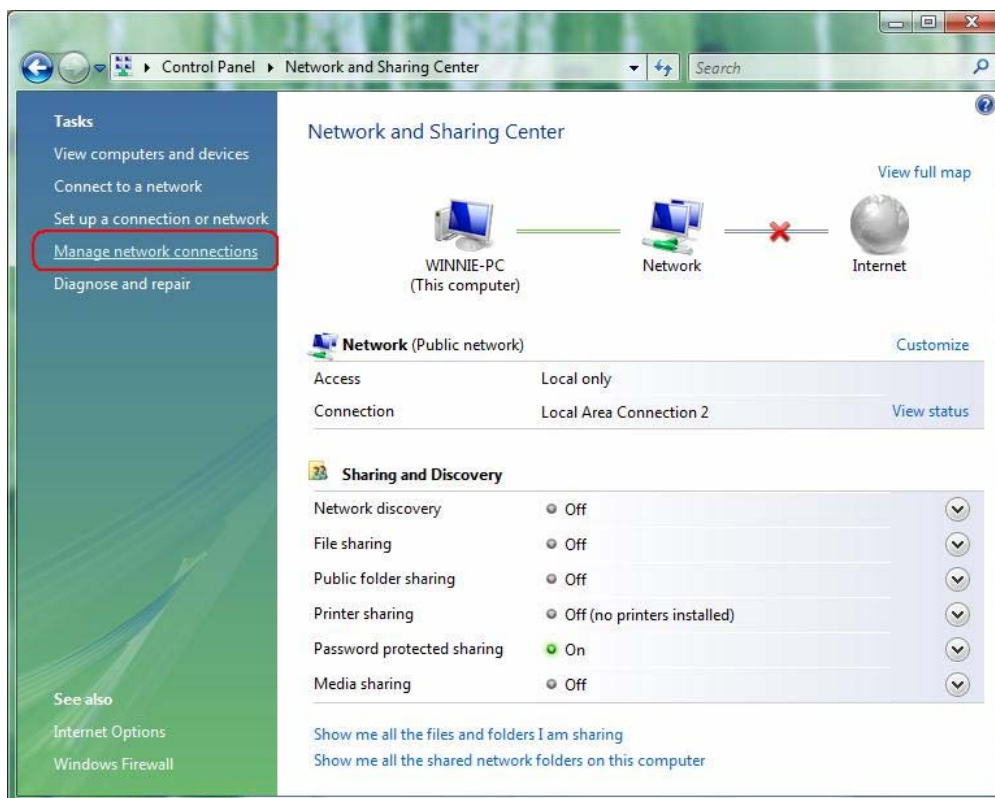
Step 1: Click **Start** then select **Control Panel (in the Classic View)**.



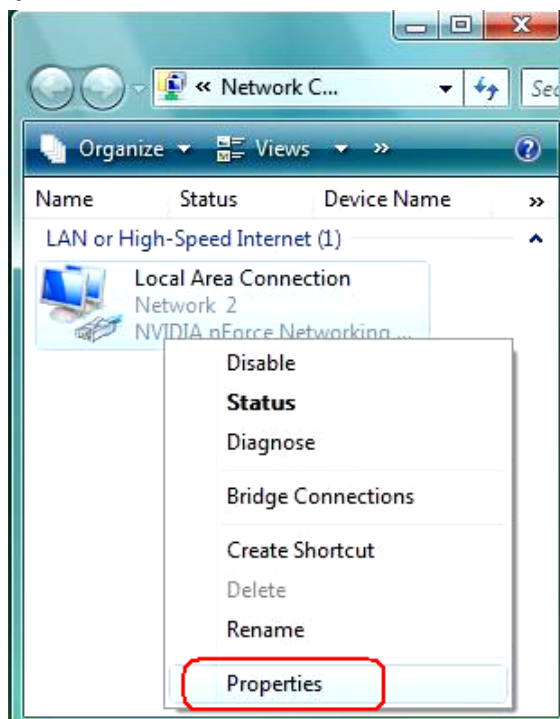
Step 2: Double-click **Network and Sharing Center** icon.



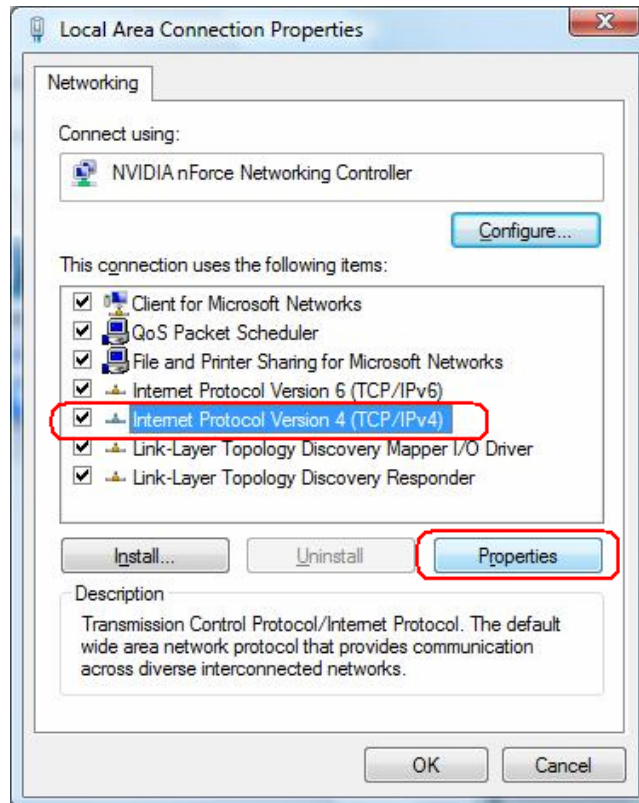
Step 3: Select “**Manage Network connections**”.



Step 4: Right-click **Local Area Connection** (local network your ADSL hooked up with) and select **Properties**:

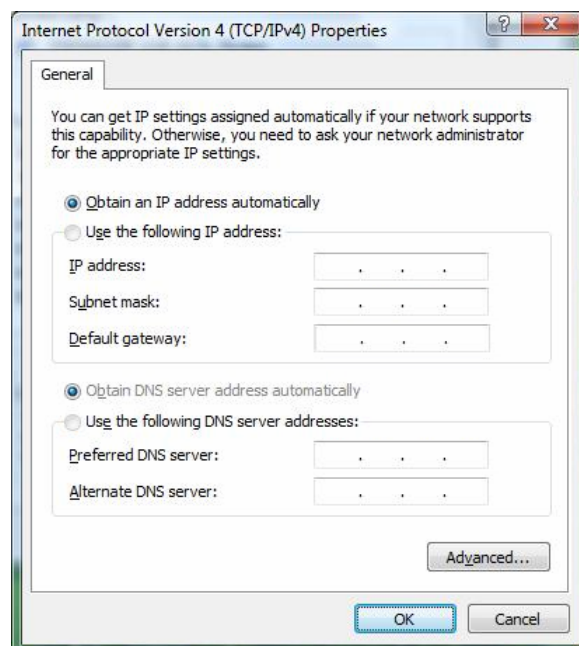


Step 5: Select **Internet Protocol (TCP/IP)** then click **Properties**:



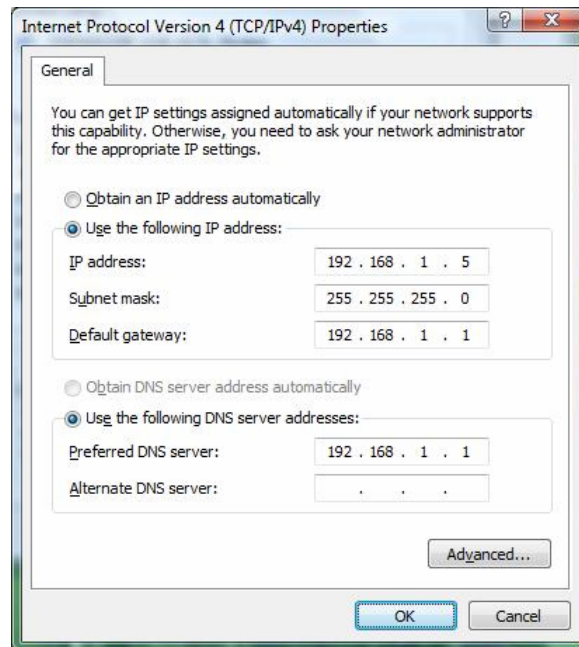
Configure IP address Automatically:

Step 6: Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Click **OK** to finish the configuration.



Configure IP Address Manually:

Step 7: Select **Use the following IP address** and **Use the following DNS server addresses**.



IP address: Fill in IP address 192.168.1.x (x is a number between 2 to 254).

Subnet mask: Default value is 255.255.255.0.

Default gateway: Default value is 192.168.1.1.

Preferred DNS server: Fill in preferred DNS server IP address.

Alternate DNS server: Fill in alternate DNS server IP address.

You can use ping command under DOS prompt to check if you have setup TCP/IP protocol correctly and if your computer has successfully connected to this router.

2) Type **ping 192.168.1.1** under DOS prompt and the following messages will appear:

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 times<2ms TTL=64

Reply from 192.168.1.1: bytes=32 times<1ms TTL=64

Reply from 192.168.1.1: bytes=32 times<10ms TTL=64

If the communication link between your computer and router is not setup correctly, after you type **ping 192.168.1.1** under DOS prompt following messages will appear:

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

This failure might be caused by cable issue or something wrong in configuration procedure.

4. Configure Wireless ADSL2+ Router via HTML

This device supports a Web-based (HTML) GUI to allow users to configure Router setting via Web browser.

4.1 Login

- 1) Launch the Web browser.
- 2) Enter the default IP address <http://192.168.1.1>



- 3) Entry of the username and password will be displayed. Enter the default **login**

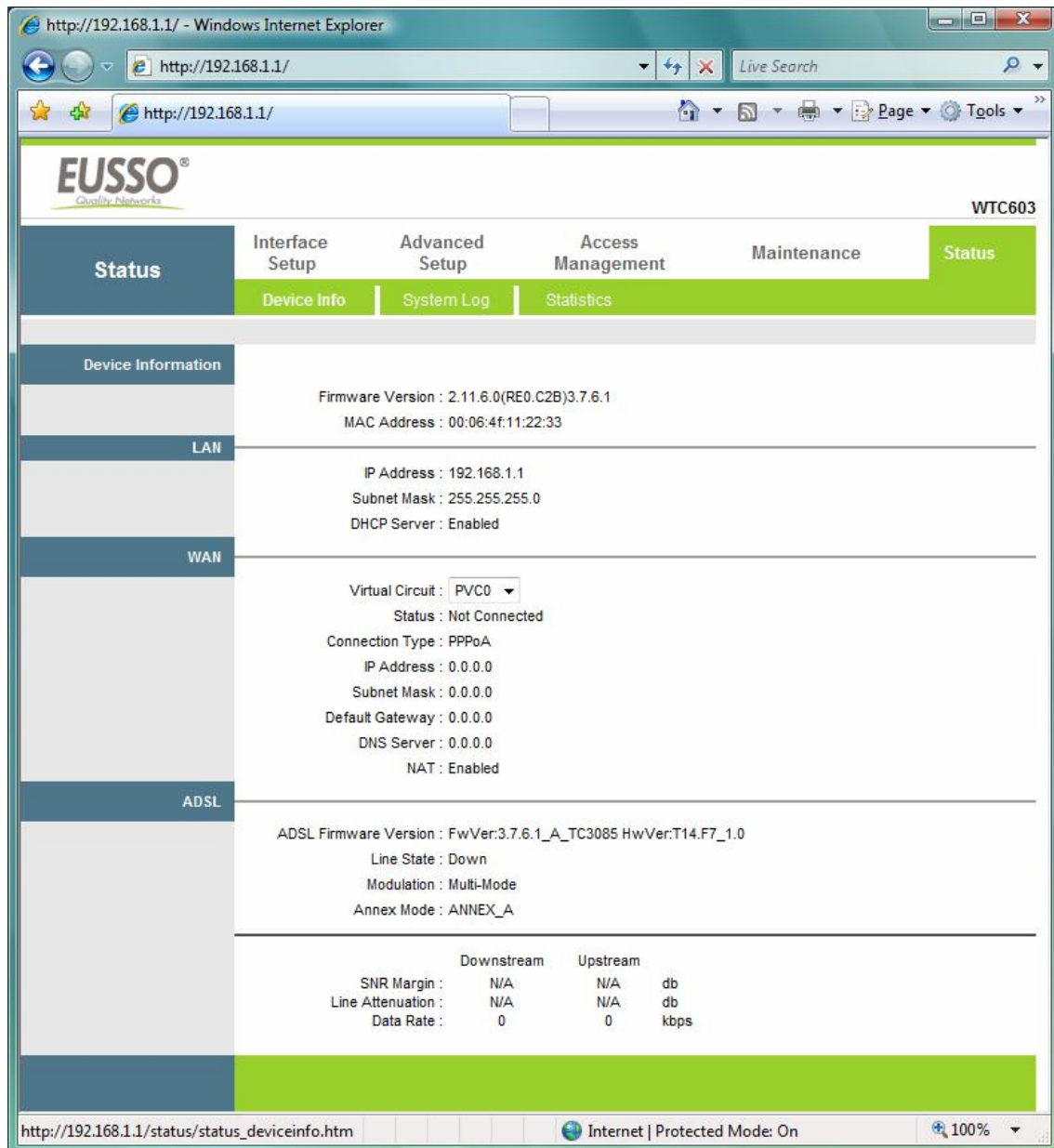
User Name and Password:

- The default login **User Name** of the administrator is **admin**, and the default **login password** is **admin**.



4.2 Navigating the Web Configurator

Steps to navigate the Web configuration from the Site Map are summarized as below.



Steps to navigate the Web configuration from the Site Map are summarized below.

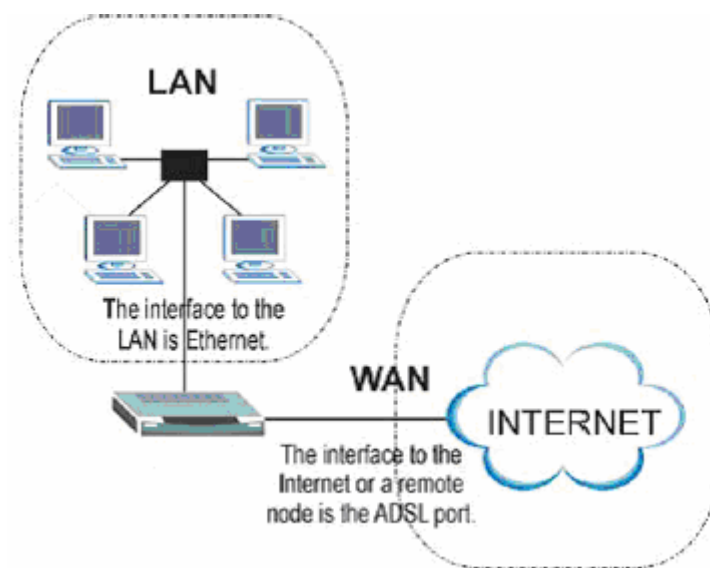
- Click on **Interface Setup** to configure Internet and LAN functions.
- Click on **Advanced Setup** to configure advanced features.
- Click on **Access Management** to manage Internet access options.
- Click on **Maintenance** to set a new password, to set the time zone, to upgrade or reload firmware and to run diagnostic tests on the router
- Click on **Status** to see router device information, system logs and performance statistics.

5. Interface Setup

The physical connections determine whether the router ports are local area network (LAN) ports or wide area network (WAN) ports. There are two kinds of IP networks. The local, private kind is the LAN network; the global, public kind is the WAN network. The following illustration shows the relationship between the router and the two different networks.

A LAN is a shared communication system to which many computers are attached. A LAN is generally limited to the immediate area, usually the same building or floor of a building.

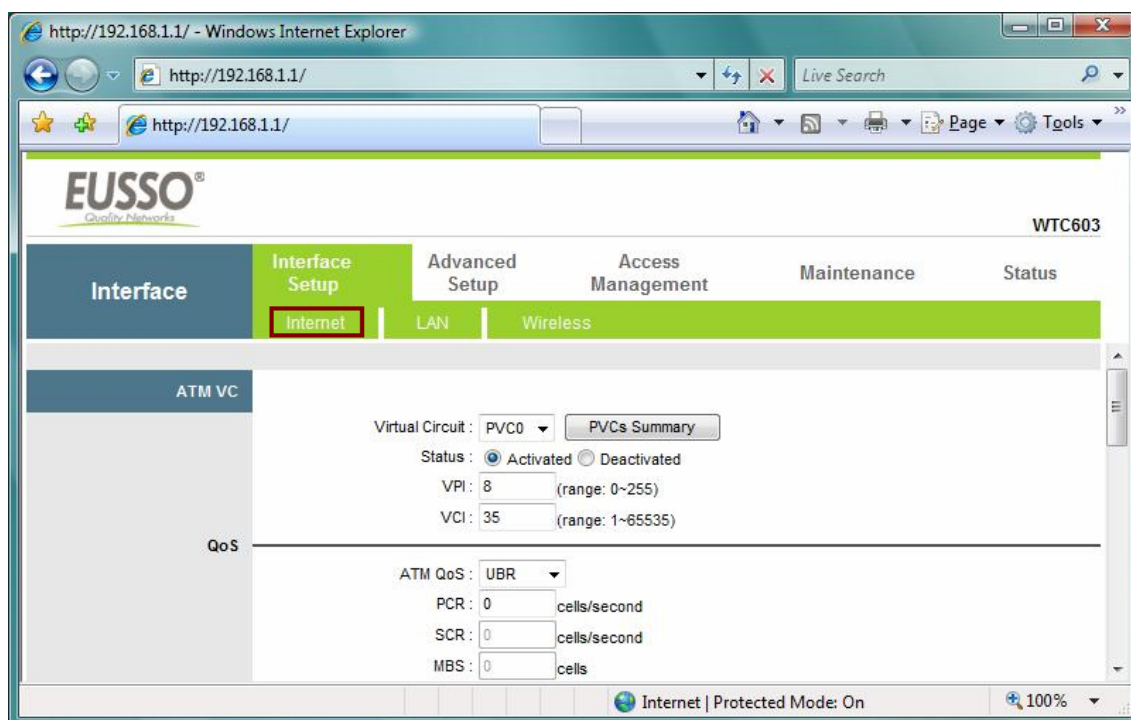
A WAN is an outside connection to another network or to the Internet.



Click an **Interface Setup** link to set ATM VC values, ISP Encapsulation, configure multi-connection settings, and LAN configuration.

5.1 Internet

The Internet screen allows you to set up how your router connects to the Internet. If you already ran the Quick Start wizard, the information you provided to the wizard should be entered into the fields already. After you finish the changes, click on the **SAVE** button to save your changes.



5.1.1 ATM VC & QoS

ATM settings are used to connect to your ISP. Your ISP provides VPI, VCI, settings to you. In this Device, you can totally setup 8 PVCs on different encapsulations if you apply 8 different virtual circuits from your ISP. You need to activate the VC to take effect. For PVCs management, you can use ATM QoS to setup each PVC traffic line's priority.

Virtual Circuit: Select the VC number you want to setup.

Status: Select **Activated** or **Deactivated** mode.

VPI: Virtual Path Identifier. The valid range for the VPI is 0 to 255.

VCI: Virtual Channel Identifier. The valid range for the VCI is 1 to 65635 (0 to 31 is reserved for local management of ATM traffic).

ATM QoS: Select the Quality of Service types for this Virtual Circuit. The ATM QoS types include CBR(Constant Bit Rate), VBR(Variable Bit Rate) and UBR (Unspecified Bit Rate). These QoS types are all controlled by the parameters specified below, including PCR, SCR, and MBS.

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

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

MBS: Maximum Burst Size (MBS) is the maximum number of cells that can be sent at the PCR.

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

CBR is for connections that support constant rates of data transfer. The only parameter you need to worry about in CBR is PCR.

UBR is for connections that have variable traffic. The only parameter you need to worry about in UBR is PCR.

rtVBR is for connections that, while having variable traffic, require precise timing between traffic source and destination. PCR, SCR and MBS must all be set for rtVBR.

nrtVBR is for connections that have variable traffic, do not require precise timing, but still require a set bandwidth availability. PCR, SCR and MBS must all be set for nrtVBR.

5.1.2 Encapsulation

Select the encapsulation protocol your ISP uses. The following section will vary depending on which encapsulation protocol you select.

(1) Dynamic IP Address

Select this option if your ISP provides you an IP address automatically. Please enter the Dynamic IP information accordingly.

The following table describes the labels in this screen.

LABEL	DESCRIPTION
Encapsulation	Select your encapsulation type from the dropdown list.
Bridge Interface	Select whether Bridge interface is Activated or Deactivated.
NAT	Select whether NAT is Enabled or Disabled.

Default Route	Select whether this PVC will be the default route for Internet data.
TCP MTU Option	Enter TCP MTU Value here
Dynamic Route	Select the RIP type and direction from the dropdown lists.
Multicast	Select the multicast protocol you wish to use from the dropdown list.

(2) Static IP Address

Select this option to set static IP information. You will need to enter in the encapsulation type (1483 Bridged IP LLC, 1483 Bridged IP VC-Mux, 1483 Routed IP LLC (IPoA), 1483 Routed IP VC-Mux), IP address, subnet mask, and gateway address provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which is 4 IP octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

The following table describes the labels in this screen.

LABEL	DESCRIPTION
Encapsulation	Select your encapsulation type from the dropdown list.
Static IP Address	Enter the static IP Address here.
IP Subnet Mask	Enter the IP Subnet Mask here.
Gateway	Enter the Gateway address here.
NAT	Select whether NAT is Enabled or Disabled.
Default Route	Select whether this PVC will be the default route for Internet data.
TCP MTU Option	Enter TCP MTU Value here
Dynamic Route	Select the RIP type and direction from the dropdown lists.
Multicast	Select the multicast protocol you wish to use from the dropdown list.

(3) PPPoA / PPPoE

Select this option if your ISP requires you to use a PPPoE connection. This option is typically used for DSL service. Select Dynamic PPPoE to obtain an IP address automatically for your PPPoE connection. Selection Static PPPoE to use static IP address for your PPPoE connection.

Please enter the information accordingly.

PPPoE/PPPoA	
Connection Setting	Servicename : <input type="text"/> Username : <input type="text" value="admin123456"/> Password : <input type="password" value="....."/> Encapsulation : <input type="text" value="PPPoE LLC"/> Half Bridge : <input type="radio"/> Activated <input checked="" type="radio"/> Deactivated
	Connection : <input checked="" type="radio"/> Always On (Recommended) <input type="radio"/> Connect On-Demand (Close if idle for <input type="text" value="0"/> minutes) <input type="radio"/> Connect Manually TCP MSS Option : TCP MSS(0:default) <input type="text" value="0"/> bytes
IP Address	Get IP Address : <input type="radio"/> Static <input checked="" type="radio"/> Dynamic Static IP Address : <input type="text" value="0.0.0.0"/> IP Subnet Mask : <input type="text" value="0.0.0.0"/> Gateway : <input type="text" value="0.0.0.0"/> NAT : <input type="text" value="Enable"/> Default Route : <input checked="" type="radio"/> Yes <input type="radio"/> No TCP MTU Option : TCP MTU(0:default) <input type="text" value="0"/> bytes Dynamic Route : <input type="text" value="RIP1"/> Direction <input type="text" value="Both"/> Multicast : <input type="text" value="Disabled"/> MAC Spoofing : <input type="radio"/> Enabled <input checked="" type="radio"/> Disabled <input type="text" value="00:00:00:00:00:00"/>

LABEL	DESCRIPTION
Servicename	Enter your Servicename for your PPPoE/PPPoA connection.
Username	Enter your username for your PPPoE/PPPoA connection.
Password	Enter your password for your PPPoE/PPPoA connection.
Encapsulation	Select your encapsulation type from the dropdown list.
Bridge Interface	Select whether the Interface will be Activated or Deactivated.
Connection	Select whether your connection is always on or if it connects on demand. If on demand, specify how many minutes the connection may be idle before it disconnects.
TCP MSS Option	Enter the TCP MSS you wish to use here.
Get IP Address	Choose whether the ROUTER obtains the IP address statically or dynamically.
Static IP Address	Enter the static IP address here. Only if you chose Static above.
IP Subnet Mask	Enter the IP subnet mask here. Only if you chose Static above.
Gateway	Enter the gateway here. Only if you chose Static above.

NAT	Select whether NAT is Enabled or Disabled.
Default Route	Select whether this PVC will be the default route for Internet data.
TCP MTU Option	Enter TCP MTU Value here.
Dynamic Route	Select the RIP type and direction from the dropdown lists.
Multicast	Select the multicast protocol you wish to use from the dropdown list.
MAC Spoofing	Enable the function and enter the MAC Spoofing value.

Connection Setting: For PPPoE/PPPoA connection, you can select Always on or Connect on-demand. Connect on demand is dependent on the traffic. If there is no traffic (or Idle) for a pre-specified period of time, the connection will tear down automatically. And once there is traffic send or receive, the connection will be automatically on.

IP Address: For PPPoE/PPPoA connection, you need to specify the public IP address for this ADSL Router. The IP address can be either dynamically (via DHCP) or given IP address provide by your ISP. For Static IP, you need to specify the IP address, Subnet Mask and Gateway IP address.

NAT: Select this option to Activate/Deactivated the NAT (Network Address Translation) function for this VC. The NAT function can be activated or deactivated per PVC basis.

[Dynamic Route]

RIP (Routing Information Protocol): Select this option to specify the RIP version, including **RIP1**, **RIP2-B** and **RIP2-M**. RIP2-B & RIP2-M are both sent in RIP-2 format, the difference is that RIP2-M using Multicast and RIP2-B using Broadcast format.

RIP Direction: Select this option to specify the RIP direction. **None** is for disabling the RIP function. **Both** means the ADSL Router will periodically send routing information and accept routing information then incorporate into routing table. **IN only** means the ADSL router will only accept but will not send RIP packet. **OUT only** means the ADSL router will only sent but will not accept RIP packet.

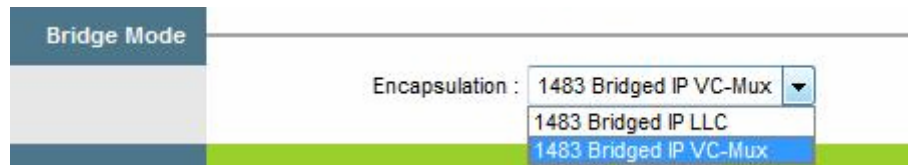
[Multicast]

IGMP (Internet Group Multicast Protocol): It is a session-layer protocol used to establish membership in a multicast group. The ADSL supports both IGMP version **IGMP-v1** & **IGMP-v2**. Select **None** to disable it.

Your ISP should provide the above information. Note that you must enter the user name exactly as your ISP assigned it. If the assigned name is in the form of **user@domain** where domain identifies a service name, enter it exactly as given.

(4) Bridge Mode

The modem can be configured to act as a bridging device between your LAN and your ISP. Bridges are devices that enable 2 or more networks to communicate as if they are 2 segments of the same physical LAN. Please set the Connection type.

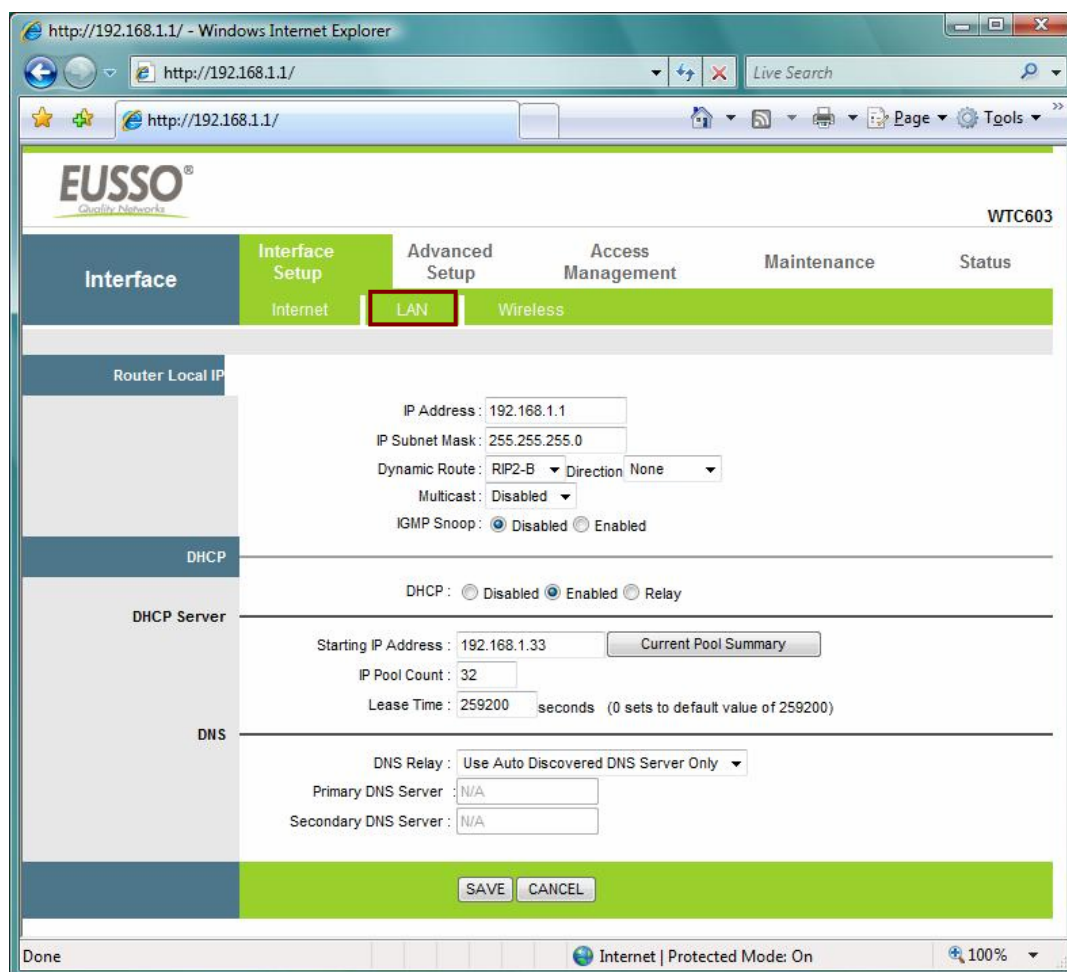


The following table describes the labels in this screen.

LABEL	DESCRIPTION
Encapsulation	Select your encapsulation type from the dropdown list.

5.2 LAN

There are the IP settings of the LAN Interface for the device. These settings may be referred to as Private settings. You may change the LAN IP address if needed. The LAN IP address is provided to your internal network and cannot be seen on the Internet.



5.2.1 Router Local IP

IP Address: Enter the IP address of your ADSL router in dotted decimal notation, for example, 192.168.1.1 (default setting).

IP Subnet Mask: Your ADSL router will automatically calculate the subnet mask based on the IP address that you assign. Unless you are implementing sub netting, use the subnet mask computed by the ADSL router.

Dynamic Route: Select the Dynamic Route from **RIP1**, **RIP2-B**, and **RIP2-M**. Please refer to [Internet→ Dynamic](#) Route. The only difference is the interface.

Multicast: Select the multicast protocol you wish to use from the dropdown list.

IGMP Snoop: You can disabled and enabled IGMP Snoop function.

5.2.2 Explaining RIP Setup

Routing Information Protocol (RIP) allows a router to exchange routing information with other routers. The RIP Direction field controls how RIP packets are allowed to enter and leave the router. Selecting **Both** means the router will broadcast its routing table and incorporate the RIP information that it receives. Selecting **In Only** means the router will only accept RIP packets received, not send RIP packets. Selecting **Out Only** means the router will only send RIP packets, not accept any RIP packets received. Selecting **None** means the router will not send any RIP packets nor will it accept any RIP packets received.

The Dynamic Route field controls the format and the broadcasting method of RIP packets that the router sends. It recognizes both formats when receiving packets.

RIP-1 is universally supported, but **RIP-2** carries more information. **RIP-1** is adequate for most networks. Only consider **RIP-2** if your network has unusual topology.

Both **RIP-2B** and **RIP-2M** sends the routing data in **RIP-2** format. **RIP-2B** uses subnet broadcasting while **RIP-2M** uses multicasting.

Direction: Select the RIP direction from **None**, **Both**, **In Only** and **Out Only**.

Multicast: IGMP (Internet Group Multicast Protocol) is a session-layer protocol used to establish membership in a multicast group. The ADSL router supports both **IGMP-v1** and **IGMP-v2**. Select **None** to disable it. Please refer to [Internet→ Multicast](#). The only difference is the interface.

5.2.3 DHCP Server

The DHCP Server gives out IP addresses when a device is booting up and request an IP to be logged on to the network. It must be set as a DHCP client to obtain the IP address automatically. By default, the DHCP Server is enabled. The DHCP address pool contains the

range of the IP address that will automatically be assigned to the client on the network.

DHCP

DHCP : ☐ Disabled ☒ Enabled ☐ Relay

Starting IP Address : 192.168.1.33 Current Pool Summary

IP Pool Count : 32

Lease Time : 259200 seconds (0 sets to default value of 259200)

DNS

DNS Relay : Use Auto Discovered DNS Server Only

Primary DNS Server : Use Auto Discovered DNS Server Only

Secondary DNS Server : N/A

LABEL	DESCRIPTION
Starting IP Address	Enter the starting IP address you wish to use as the DHCP server's IP assignment.
IP Pool Count	Enter the maximum user pool size you wish to allow.
Lease Time	Enter the amount of time you wish to lease out a given IP address.
DNS Relay	Select the DNS relay option you wish to use from the dropdown list.
Primary DNS Server	Enter the primary DNS server IP address you wish to use. For user discovered DNS only.
Secondary DNS Server	Enter the secondary DNS server IP address you wish to use. For user discovered DNS only.

5.2.4 DHCP Relay

A DHCP relay is a computer that forwards DHCP data between computers that request IP addresses and the DHCP server that assigns the addresses. Each of the device's interfaces can be configured as a DHCP relay. If it is enable, the DHCP requests from local PCs will forward to the DHCP server runs on WAN side. To have this function working properly, please run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.

DHCP

DHCP : ☐ Disabled ☐ Enabled ☒ Relay

DHCP Relay

DHCP Server IP for Relay Agent : 0.0.0.0

DHCP Server IP for relay agent: The DHCP server IP Address runs on WAN side.

5.2.5 DNS Relay

The DNS Configuration allows the user to set the configuration of DNS.

The screenshot shows a web-based configuration interface for DHCP. On the left, a sidebar contains 'DHCP' and 'DHCP Server' links. The main area is titled 'DHCP' and has three radio buttons: 'Disabled', 'Enabled' (selected), and 'Relay'. Below this, the 'DHCP Server' section includes fields for 'Starting IP Address' (192.168.1.33), 'IP Pool Count' (32), and 'Lease Time' (259200 seconds). A 'Current Pool Summary' button is also present. The 'DNS' section is highlighted with a red box and contains a 'DNS Relay' dropdown menu (set to 'Use Auto Discovered DNS Server Only'), a 'Primary DNS Server' field (set to 'Use Auto Discovered DNS Server Only'), and a 'Secondary DNS Server' field (set to 'N/A').

DNS Rely Selection: If user wants to disable this feature, he just needs to set both Primary & Secondary DNS to 0.0.0.0. Using DNS relay, users can setup DNS server IP to 192.168.1.1 on their computer. If not, device will perform as NO DNS relay.

If you don't want to use the DNS Relay option, set the DNS relay to **"Use User Discovered DNS Server Only"** and set both Primary and Secondary DNS Servers to **"0.0.0.0"**.

5.3 Wireless

http://192.168.1.1/ - Windows Internet Explorer

http://192.168.1.1/

EUSSO®
Quality Networks

WTC603

Interface | Interface Setup | Advanced Setup | Access Management | Maintenance | Status

Internet | LAN | **Wireless**

Access Point Settings

Access Point : ☒ Activated ☐ Deactivated

Channel : ALBANIA Auto Current Channel : 1

Beacon Interval : 100 (range: 20~1000)

RTS/CTS Threshold : 2347 (range: 1500~2347)

Fragmentation Threshold : 2346 (range: 256~2346, even numbers only)

DTIM : 1 (range: 1~255)

802.11 b/g : 802.11b+g

Multiple SSIDs Settings

SSID Index : 1

SSID : Default_WLAN

Broadcast SSID : ☒ Yes ☐ No

Authentication Type : Disabled

WDS Settings

WDS Mode : Disabled

Mac Address #1 : 00:00:00:00:00:00

Mac Address #2 : 00:00:00:00:00:00

Mac Address #3 : 00:00:00:00:00:00

Mac Address #4 : 00:00:00:00:00:00

Wireless MAC Address Filter

Active : ☐ Activated ☒ Deactivated

Action : Allow Association the follow Wireless LAN station(s) association.

Mac Address #1 : 00:00:00:00:00:00

Mac Address #2 : 00:00:00:00:00:00

Mac Address #3 : 00:00:00:00:00:00

Mac Address #4 : 00:00:00:00:00:00

Mac Address #5 : 00:00:00:00:00:00

Mac Address #6 : 00:00:00:00:00:00

Mac Address #7 : 00:00:00:00:00:00

Mac Address #8 : 00:00:00:00:00:00

Done Internet | Protected Mode: On 100%

5.3.1 Access Point Settings

Access Point: Select this section for Activated or Deactivated AP function.

Channel: Select the local channel from the drop down list.

Beacon Interval: The Beacon Interval value indicates the frequency interval of the beacon. Enter a value between 20 and 1000. A beacon is a packet broadcast by the Router to synchronize the wireless network.

RTS/CTS Threshold: The RTS (Request To Send) threshold (number of bytes) for enabling RTS/CTS handshake. Data with its frame size larger than this value will perform the RTS/CTS handshake. Set this attribute to be larger than the **maximum MSDU** (MAC Service Data Unit) size **Turns Off** the RTS/CTS handshake. Set this attribute to **Zero Turns On** the RTS/CTS handshake. Enter a value between 0 and 2432.

Fragment Threshold: The threshold (number of bytes) for the fragmentation boundary for directed messages. It is the maximum data fragment size that can be sent. Enter a value between 256 and 2432.

DTIM: This value is between 1 and 255, indicates the interval of the Delivery Traffic Indication Message (DTIM).

802.11 b/g: Select the wireless mode in the section.

5.3.2 Multiple SSIDs Settings

SSID: The SSID is a unique name to identify the ADSL Router in the Wireless LAN. Wireless Clients associating to the ADSL Router must have the same SSID. The default SSID name is **Default_WLAN**.

Broadcast SSID: Select **No** to hide the SSID such that a station can not obtain the SSID through passive scanning. Select **Yes** to make the SSID visible so a station can obtain in the SSID through Passive scanning.

Authentication Type: Select wireless authentication type to configure wireless AP. There are 4 types – WEP-64Bits, WEP-128Bits, WPA-PSK, WPA2-PSK.

[Authentication Type]

WEP (Wired Equivalent Privacy) encrypts data frames before transmitting over the wireless network. Select **Disable** to allow all wireless computers to communicate with the access points without any data encryption. Select **64-bit WEP** or **128-bit WEP** to use data encryption.

Key#1~Key#4 The WEP keys are used to encrypt data. Both the ADSL Router and the wireless clients must use the same WEP key for data transmission. If you chose **64-bit WEP**, then enter any **10** hexadecimal digits ("0-9", "A-F") preceded by 0x for each key (1-4). If you choose **128-bit WEP**, then enter **26** hexadecimal digits ("0-9", "A-F") preceded by 0x for each key (1-4). The values must be set up exactly the same on the Access Points as they are on the wireless client stations. The same value must be assigned to Key 1 on both access point (your ADSL Router) and the client adapters, the same value must be assigned to Key 2 on both access point and the client stations and so on, for all four WEP keys.

WPA-PSK Wi-Fi Protected Access, pre-shared key. Encrypts data frames before transmitting over the wireless network.

Pre-shared Key is used to encrypt data. Both the ADSL Router and the wireless clients must use the same WPA-PSK Key for data transmission.

5.3.3 WDS Settings

A Wireless Distribution System is a system that enables the interconnection of access points wirelessly. It allows a wireless network to be expanded using multiple access points without the need for a wired backbone to link them.

WDS is another way for AP router to join an existing Wi-Fi network. The WDS feature is normally used in large, open areas where pulling a wire is restricted or not cost effective and in residential circumstances. User can use this feature to build up a large wireless network in a large space like airports, hotels and schools...etc. This feature is also useful when users want to bridge networks between buildings where it is impossible to deploy network cable connections between these buildings.

WDS Mode: (1) **Restricted** – WDS peers must be registered with AP router (by MAC addresses). (2) **Bridge** – AP router will function as a wireless bridge, merely forwarding traffic between access points, and will not respond to wireless requests. The WDS peers must be manually stated and wireless stations will not be able to connect to AP router. (3) **Repeater** – AP router will act as a repeater, interconnecting between access points. WDS peers can be determined by the user (“Restricted” mode) or auto-detected (“Lazy” mode) (4) **Lazy**– Automatic detection of WDS peers: when a LAN user searches for a network, AP router will attempt to connect to WDS devices in its vicinity.

MAC address #1~#4: Specify the destination MAC address device. The MAC addresses filter tunneling lets you select exactly which stations should have access to your network.

5.3.4 Wireless MAC Address Filter

You can allow or deny a list of MAC addresses associated with the wireless stations access to the ADSL Router.

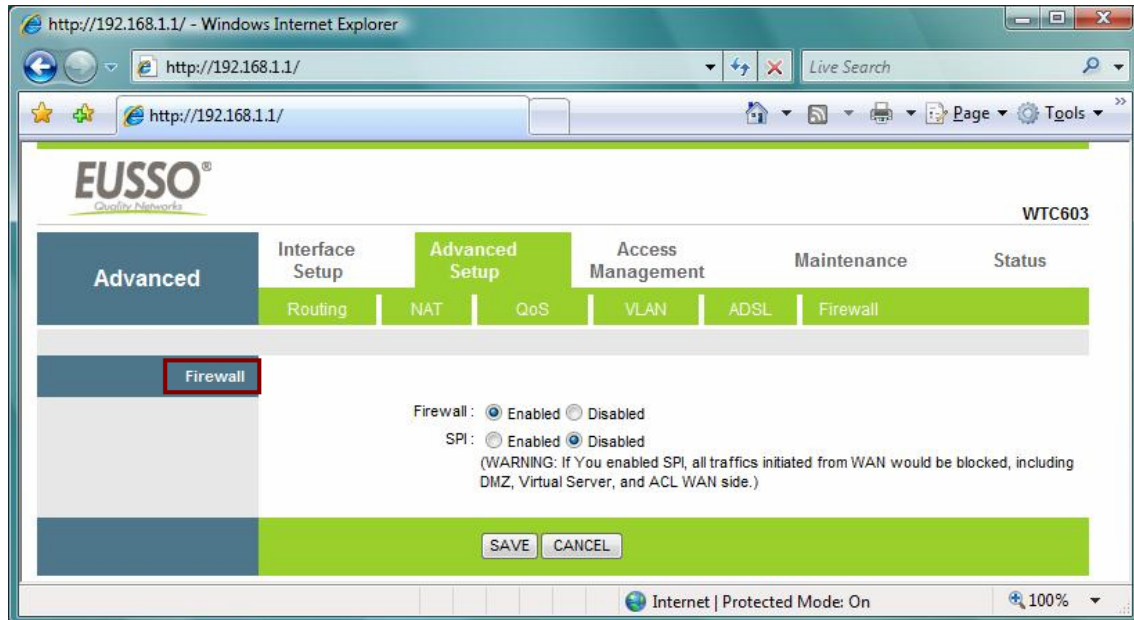
Active: Select this section to activated or deactivated Wireless MAC address filter.

Action: Select **Deny Association** to block access to the router, MAC addresses not listed will be allowed to access the router. Select **Allow Association** to permit access to the router, MAC addresses not listed will be denied access to the router.

6 Advanced Setup

6.1 Firewall

User can enable or disable firewall feature of the ADSL router in the page.

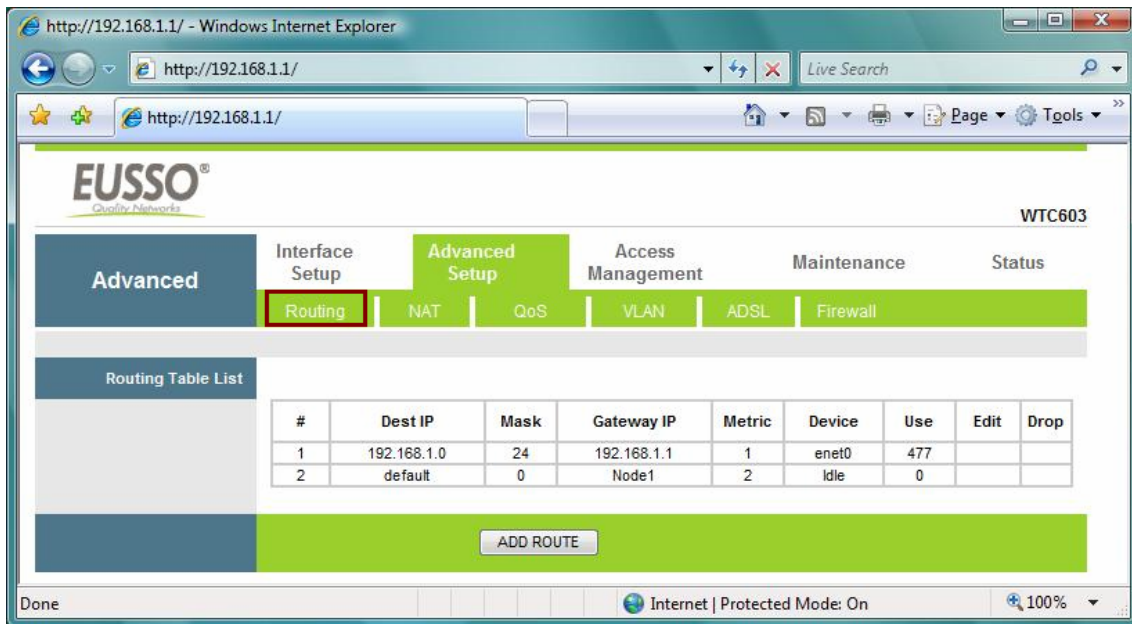


Firewall: Select this option can automatically detect and block Denial of Service (DoS) attacks, such as Ping of Death, SYN Flood, Port Scan and Land Attack.

SPI: Select this option to Enabled or Disabled the SPI feature. **(NOTE: If you enable SPI, all traffics initiate from WAN would be blocked, including DMZ, Virtual Server, and ACL WAN side)**

6.2 Routing

This table lists IP address of Internet destinations commonly accessed by your network. When a computer requests to send data to a listed destination, the device uses the Gateway IP to identify the first Internet router it should contact to route the data most efficiently. Select this option will list the routing table information. You can press **ADD ROUTE** to edit the static route. (As below screen)



[Static Route]

Select this option to set Static Routing information.

Static Route

Destination IP Address : 0.0.0.0

IP Subnet Mask : 0.0.0.0

Gateway IP Address : ☒ 0.0.0.0 ☐ PVC0

Metric : 0

Announced in RIP : Yes

Destination IP Address: This parameter specifies the IP network address of the final destination of packets routed by this rule.

IP Subnet Mask: Enter the subnet mask for this destination.

Gateway IP Address: Enter the IP address of the gateway. A **gateway** does the actual forwarding of the packets. Enter the gateway's IP address in the field or select which PVC you wish to act as a gateway.

The gateway is an immediate neighbor of your ADSL Router that will forward the packet to the destination. On the LAN, the gateway must be a router on the same segment as your Router; over Internet (WAN), the gateway must be the IP address of one of the remote nodes.

Metric: Metric represents the "cost" of transmission for routing purposes. IP Routing uses hop count as the measurement of cost, with a minimum of 1 for directly connected networks. Enter a number that approximates the cost for this link. The number need not to be precise, but it must be between 1 and 15. In practice, 2 or 3 is usually a good number.

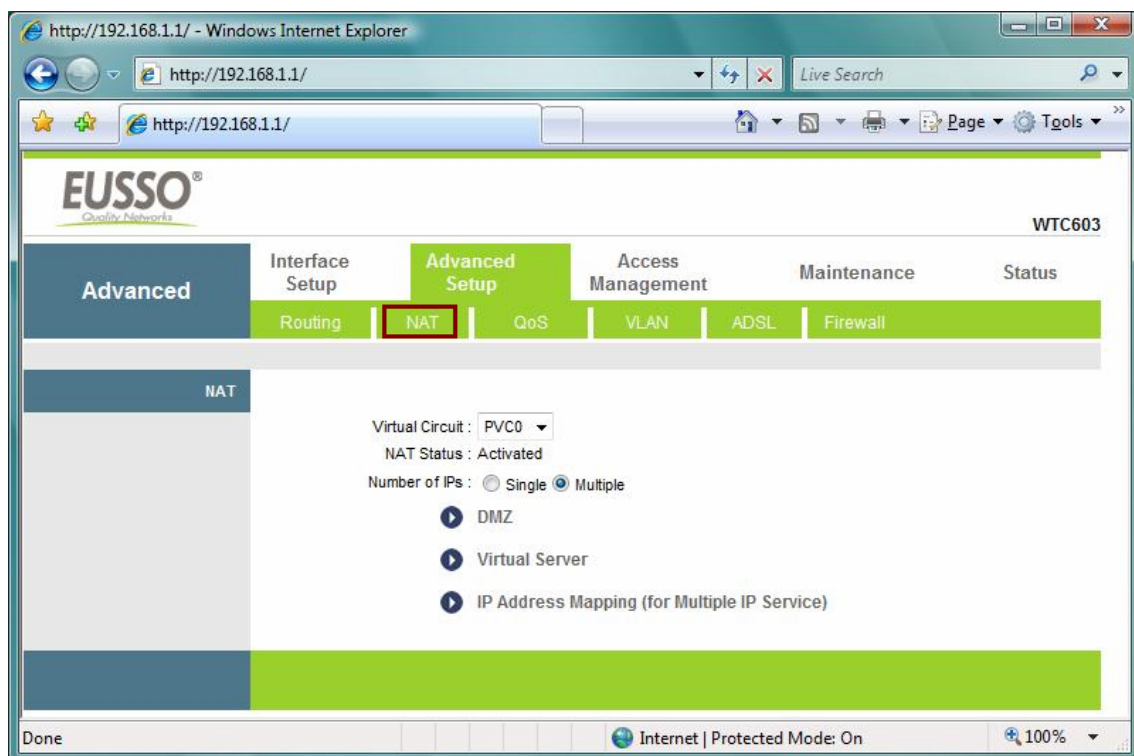
Announced in RIP: This parameter determines if the ADSL router includes the router to this

remote node in its RIP broadcasts. If you choose **Yes**, the router in this remote node will be propagated to other hosts through RIP broadcasts. If you choose **No**, this route is kept private and is not included in the RIP broadcasts.

When you are done making changes, click on **SAVE** to save your changes, **DELETE** to delete the rule with the parameters you set, **BACK** to return to the previous screen or **CANCEL** to exit without saving.

6.3 NAT

Network Address Translation (NAT) is a method for disguising the private IP addresses you use on your LAN as the public IP address you use on the Internet. You define NAT rules that specify exactly how and when to translate between public and private IP addresses. Simply select this option to setup the NAT function for your ADSL router.



Virtual Circuit (VC): The Virtual Circuit (VC) properties of the ATM VC interface identify a unique path that your ADSL/Ethernet router uses to communicate via the ATM-based network with the telephone company central office equipment.

NAT Status: This field shows the current status of the NAT function for the current VC.

Number of IPs: This field is to specify how many IPs are provided by your ISP for current VC. It can be single IP or multiple IPs.

Note: For VCs with single IP, they share the same DMZ & Virtual servers; for VCs with multiple IPs, each VC can set DMZ and Virtual servers. Furthermore, for VCs with multiple IPs, they can

define the Address Mapping rules; for VCs with single IP, since they have only one IP, there is no need to individually define the Address Mapping rule.

6.3.1 What NAT Does

NAT changes the source IP address in a packet received from a subscriber (the inside local address) to another (the inside global address) before forwarding the packet to the WAN side. When the response comes back, NAT translates the destination address (the inside global address) back to the inside local address before forwarding it to the original inside host. Note that the IP address (either local or global) of an outside host is never changed.

The global IP addresses for the inside hosts can be either static or dynamically assigned by the ISP. You may also designate servers, such as a Web server and a telnet server, on your local network and make them accessible to the outside world. With no servers defined, your ROUTER filters out all incoming inquiries, thus preventing intruders from probing your network. For more information on IP address translation, refer to RFC 1631, The IP Network Address Translator (NAT).

Inside/outside indicates where a host is located relative to the ROUTER. The computers hosts of your LAN are inside, while the Web servers on the Internet are outside.

Global/local indicates the IP address of a host in a packet as the packet traverses a router. The local address refers to the IP address of a host when the packet is in the local network, while the global address refers to the IP address of the host when the same packet is traveling in the WAN side.

Note that inside/outside refers to the location of a host, while global/local refers to the IP address of a host used in a packet. Thus, an inside local address (ILA) is the IP address of an inside host of a packet when the packet is still in the local network, while an inside global address (IGA) is the IP address of the same inside host when the packet is on the WAN side.

The following table summarizes this information.

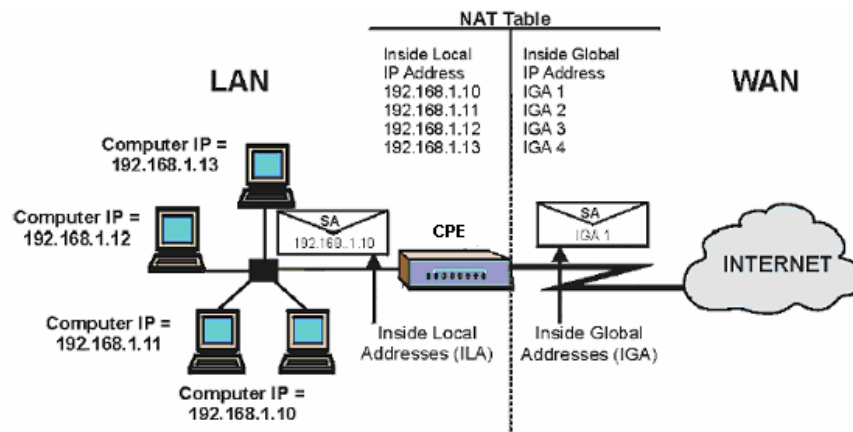
ITEM	DESCRIPTION
Inside	This refers to the host on the LAN.
Outside	This refers to the host on the WAN.
Local	This refers to the packet address (source or destination) as the packet travels on the LAN.
Global	This refers to the packet address (source or destination) as the packet travels on the WAN.

6.3.2 How NAT Works

Each packet has two addresses – a source address and a destination address. For outgoing packets, the ILA is the source address on the LAN, and the IGA is the source address on the

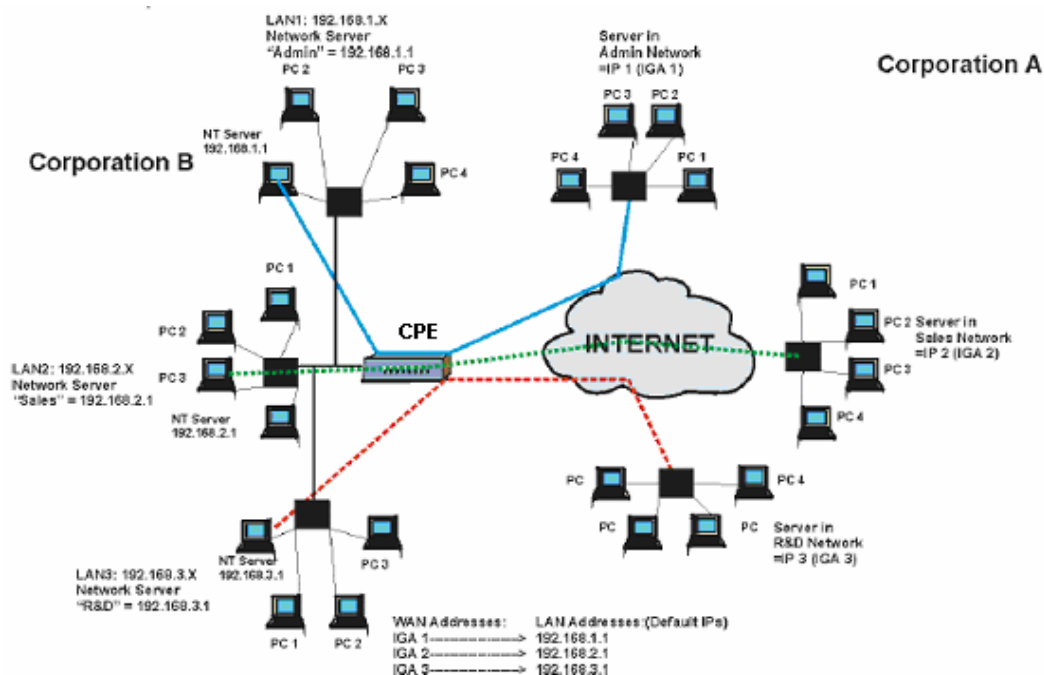
WAN. For incoming packets, the ILA is the destination address on the LAN, and the IGA is the destination address on the WAN. NAT maps private (local) IP addresses to globally unique ones required for communication with hosts on other networks. It replaces the original IP source address (and TCP or UDP source port numbers for Many-to-One and Many-to-Many Overload NAT mapping) in each packet and then forwards it to the Internet. The ROUTER keeps track of the original addresses and port numbers so incoming reply packets can have their original values restored.

The following figure illustrates this.



6.3.3 NAT Application

The following figure illustrates a possible NAT application, where three inside LANs (logical LANs using IP Alias) behind the router can communicate with three distinct WAN networks. More examples follow at the end of this chapter.



6.3.4 NAT Mapping Types

NAT supports five types of IP/port mapping. They are:

- a. **One-to-One:** In One-to-One mode, the TC3162 EVM maps one local IP address to one global IP address.
- b. **Many-to-One:** In Many-to-One mode, the TC3162 EVM maps multiple local IP addresses to one global IP address.
- c. **Many-to-Many Overload:** In Many-to-Many Overload mode, the TC3162 EVM maps multiple local IP addresses to shared global IP addresses.
- d. **Many-to-Many No Overload:** In Many-to-Many No Overload mode, the TC3162 EVM maps each local IP address to a unique global IP address.
- e. **Server:** This type allows you to specify inside servers of different services behind the NAT to be accessible to the outside world.

The following table summarizes these types.

TYPE	IP MAPPING
One-to-One	ILA1 IGA1
Many-to-One (SUA/PAT)	ILA1 IGA1 ILA2 IGA1 ...
Many-to-Many Overload	ILA1 IGA1 ILA2 IGA2 ILA3 IGA1 ILA4 IGA2 ...
Many-to-Many No Overload	ILA1 IGA1 ILA2 IGA2 ILA3 IGA3 ...
Server	Server 1 IP IGA1 Server 2 IP IGA1 Server 3 IP IGA1

6.3.5 DMZ

A **DMZ** (de-militarized zone) is a host between a private local network and the outside public network. It prevents outside users from getting direct access to a server that has company data. Users of the public network outside the company can access only the DMZ host.

DMZ: Toggle the DMZ function Enabled or Disabled.

DMZ Host IP Address: Enter the specified IP Address for DMZ host on the LAN side

When you are done making changes, click on **SAVE** to save your changes or on **BACK** to return to the previous screen.

The screenshot shows a web interface for configuring a network device. At the top, there are tabs: 'Advanced' (selected), 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', and 'Status'. Under 'Advanced Setup', there are sub-tabs: 'Routing', 'NAT' (selected), 'QoS', 'VLAN', 'ADSL', and 'Firewall'. On the left side, there is a 'DMZ' tab. The main content area shows 'DMZ setting for : PVC0 - Multiple IP Account'. Below this, there is a 'DMZ' section with two radio buttons: 'Enabled' and 'Disabled' (selected). At the bottom, there is a 'DMZ Host IP Address' field with the value '0.0.0.0'.

6.3.6 Virtual Server

The Virtual Server is the server or server(s) behind NAT (on the LAN), for example, Web server or FTP server, that you can make visible to the outside world even though NAT makes your whole inside network appear as a single machine to the outside world.

Rule Index: The Virtual server rule index for this VC. You can specify up to 10 rules. All the VCs with single IP will use the same Virtual Server rules.

Start & End port number: Enter the specific Start and End Port number you want to forward. If it is one port only, you can enter the End port number the same as Start port number. For example, set the FTP Virtual server, you can set the start and end port number to 21.

Local IP Address: Enter the IP Address for the Virtual Server in LAN side.

Virtual Server Listing: This is a listing of all virtual servers your have set.

When you are done making changes, click on **SAVE** to save your changes, **DELETE** to delete the rule with the parameters you set, **BACK** to return to the previous screen or **CANCEL** to exit without saving.

Advanced

Interface Setup

Advanced Setup

Access Management

Maintenance

Status

Routing

NAT

QoS

VLAN

ADSL

Firewall

Virtual Server

Virtual Server for : PVC0 - Multiple IP Account

Rule Index : 1

Application : -

Protocol : ALL

Start Port Number : 0

End Port Number : 0

Local IP Address : 0.0.0.0

Virtual Server Listing

Rule	Application	Protocol	Start Port	End Port	Local IP Address
1	-	-	0	0	0.0.0.0
2	-	-	0	0	0.0.0.0
3	-	-	0	0	0.0.0.0
4	-	-	0	0	0.0.0.0
5	-	-	0	0	0.0.0.0
6	-	-	0	0	0.0.0.0
7	-	-	0	0	0.0.0.0
8	-	-	0	0	0.0.0.0
9	-	-	0	0	0.0.0.0
10	-	-	0	0	0.0.0.0
11	-	-	0	0	0.0.0.0
12	-	-	0	0	0.0.0.0
13	-	-	0	0	0.0.0.0
14	-	-	0	0	0.0.0.0
15	-	-	0	0	0.0.0.0
16	-	-	0	0	0.0.0.0

6.3.7 IP Address Mapping

The IP Address Mapping is for those VCs that with multiple IPs. The IP Address Mapping rule is per-VC based. (only for Multiple IPs' VCs).

Rule Index: The Virtual server rule index for this VC. You can specify up to 10 rules. All the VCs with single IP will use the same Virtual Server rules.

Rule Type: There are 4 types of [One-to-One](#), [Many-to-One](#), [Many-to-Many Overload](#), and [Many-to Many No-Overload](#).

Local Start & End IP: Enter the local IP address you plan to map to. Local Start IP is the starting local IP address & Local End IP is the ending local IP address. If the rule is for all local IPs, then the Start IP is 0.0.0.0 and the End IP is 255.255.255.255.

Public Start & End IP: Enter the Public IP Address you want to do NAT. Public Start IP is the starting Public IP Address and Public End IP is the ending Public IP Address. If you have a Dynamic IP, enter 0.0.0.0 as the Public Start IP.

When you are done making changes, click on **SAVE** to save your changes, **DELETE** to delete the rule with the parameters you set, **BACK** to return to the previous screen or **CANCEL** to exit without saving.

Advanced

Interface Setup

Advanced Setup

Access Management

Maintenance

Status

Routing

NAT

QoS

VLAN

ADSL

Firewall

IP Address Mapping

Address Mapping Rule : PVC0

Rule Index : 1

Rule Type : One-to-One

Local Start IP : 0.0.0.0

Local End IP : N/A

Public Start IP : 0.0.0.0 (0.0.0.0 for modem's WAN IP)

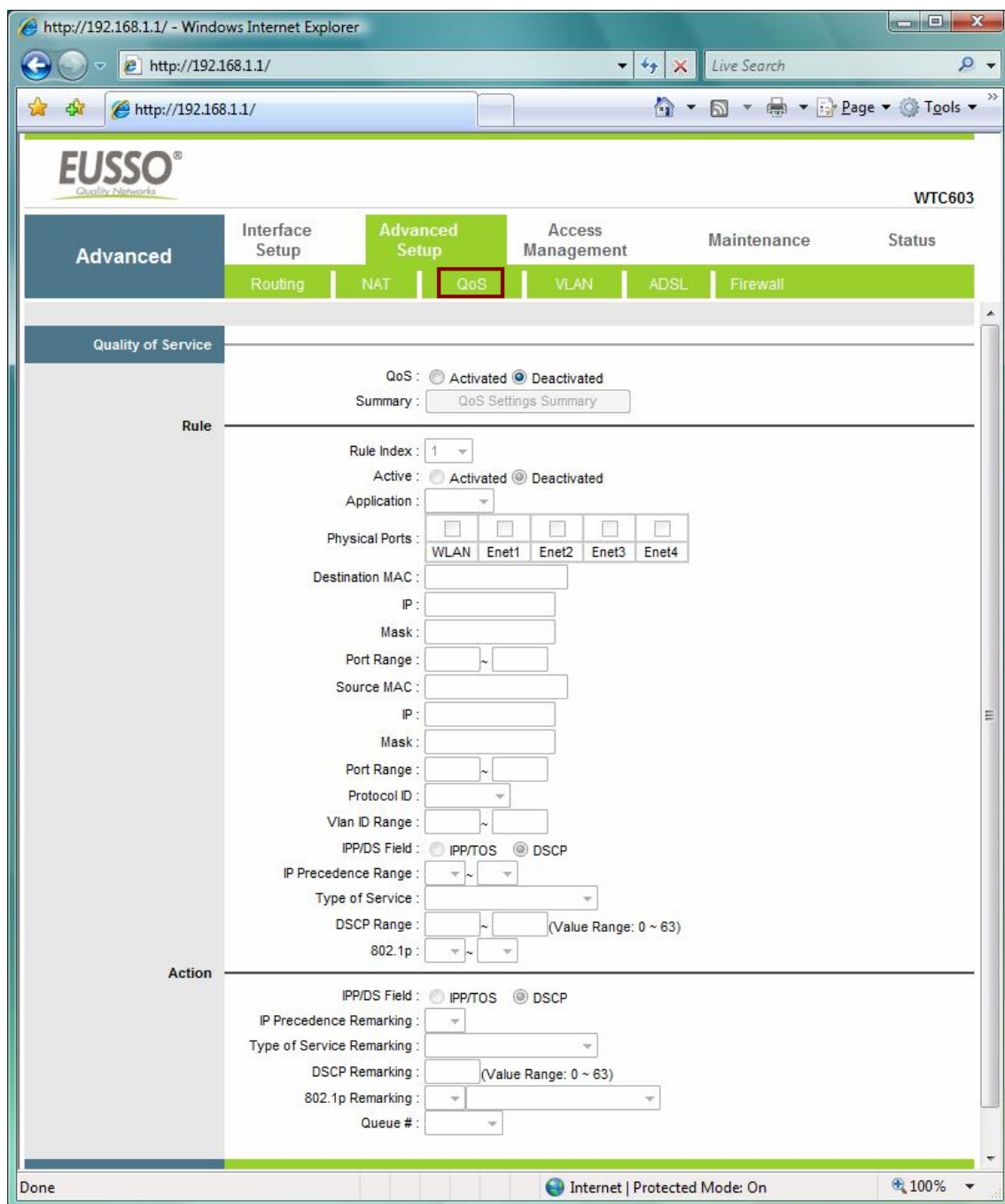
Public End IP : N/A

Address Mapping List

Rule	Type	Local Start IP	Local End IP	Public Start IP	Public End IP
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-

6.4 QoS

QoS (Quality of Service). This option will provide better service of selected network traffic over various technologies. Deploying QoS management to guarantee that all application receive the service levels required and sufficient bandwidth to meet performance expectations is indeed one important aspect of modem enterprise network.



6.5 VLAN

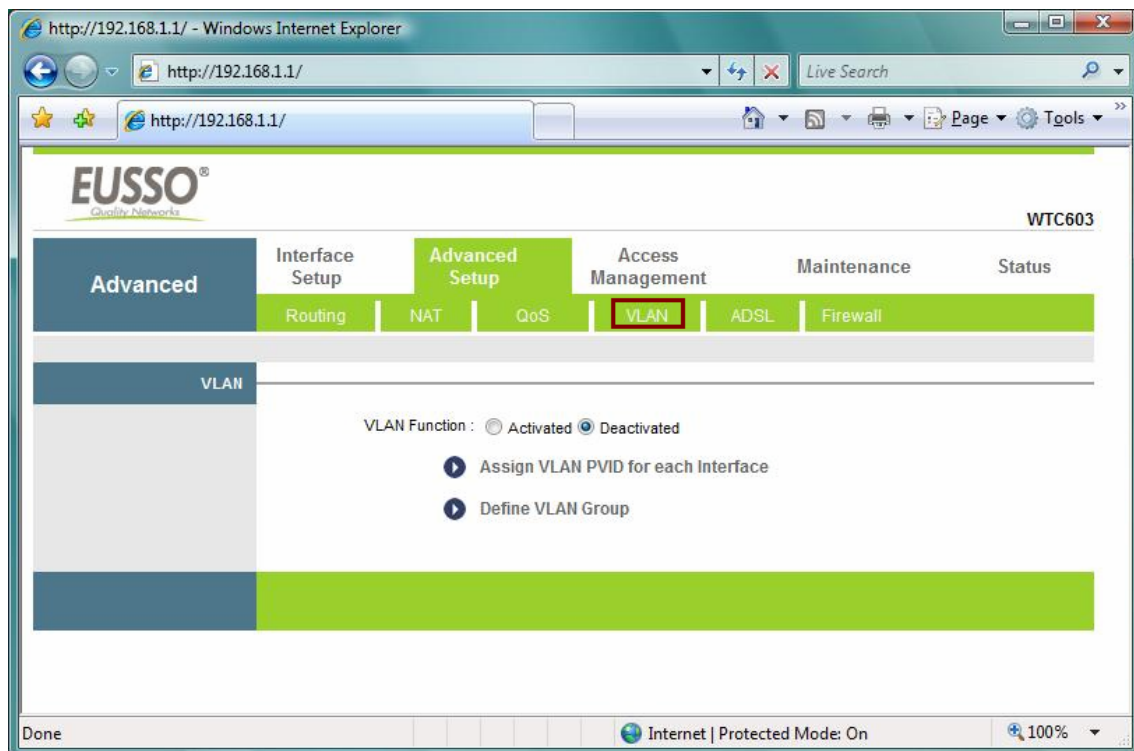
Virtual LAN (VLAN) is a group of devices on one or more LANs that are configured so that they can communicate as if they were attached to the same wire, when in fact they are located on a number of different LAN segments. Because VLANs are based on logical instead of physical connections, it is very flexible for user/host management, bandwidth allocation and resource optimization.

(1) Port-Based VLAN: each physical switch port is configured with an access list specifying

membership in a set of VLANs.

- (2) ATM VLAN-using LAN Emulation(LANE) protocol to map Ethernet packets into ATM cells and deliver them to their destination by converting an Ethernet MAC address into an ATM address.

The key for the IEEE 802.1Q to perform the above functions is in its tags. 802.1Q-compliant switch ports can be configured to transmit tagged or untagged frames. A tag field containing VLAN (and/or 802.1p priority) information can be inserted into an Ethernet frame. If a port has an 802.1Q-compliant device attached (such as another switch), these tagged frames can carry VLAN membership information between switches, thus letting a VLAN span multiple switches. However, it is important to ensure ports with non-802.1Q-compliant devices attached are configured to transmit untagged frames. Many NICs for PCs and printers are not 802.1Q-compliant. If they received a tagged frame, they will not understand the VLAN tag and will drop the frame. Also, the maximum legal Ethernet frame size for tagged frames was increased in 802.1Q (and its companion, 802.3ac) from 1518 to 1522 bytes. This could cause network interface cards and older switches to drop tagged frames as “oversized”



➔ **Assign VLAN PVID for each interface:** You can assign ATM VC, Ethernet (LAN) port, and Wireless LAN port's PVID in this section.

➔ **Define VLAN Group:** Based on each VLAN group, you can configure each group's VLAN setting. You can configure up to 8 VLAN settings.

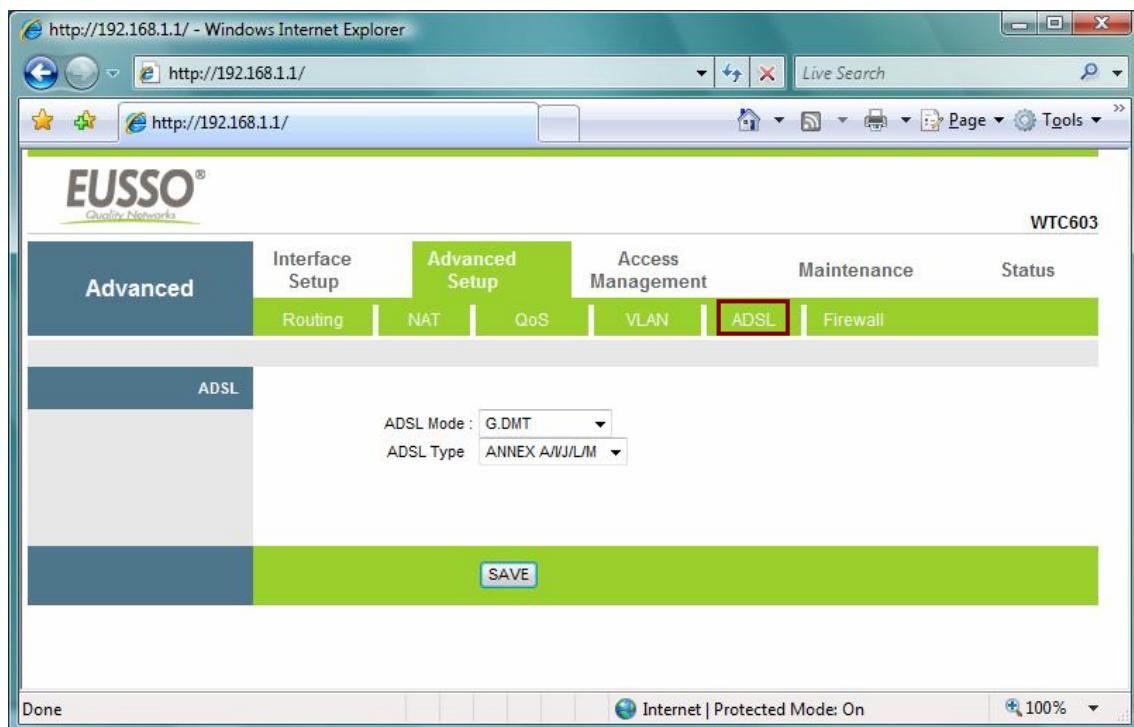
6.6 ADSL

Select this option to set ADSL Mode and ADSL Type information.

ADSL Mode: Select which mode your ADSL connection uses from the dropdown list. The option has Auto Sync-up, ADSL2+, ADSL2, G.DMT, T1.413, G.LITE

ADSL Type: Select the ADSL type you use from the dropdown list. ANNEX A, ANNEX I, ANNEX A/L, ANNEX M, ANNEX A/I/J/L/M

When you are done making changes, click on **SAVE** to save your changes.



7. Access Management

7.1 ACL

Go to **Access Management** → **ACL** to enable remote management. Access Control Listing (ACL) is a management tool that acts as a filter for incoming or outgoing packets, based on application. You may use telnet or Web to remotely manage the ADSL Router. User just needs to enable Telnet or Web and give it an IP address that wants to access the ADSL Router. The default IP 0.0.0.0 allows any client to use this service to remotely manage the ADSL Router.

The screenshot shows the EUSSO WTC603 web interface. The top navigation bar includes 'Access Management', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', and 'Status'. The 'Access Management' section is expanded, showing 'ACL', 'Filter', 'SNMP', 'UPnP', 'DDNS', and 'CWMP'. The 'ACL' sub-section is selected. The main content area is divided into three sections: 'Access Control Setup', 'Access Control Editing', and 'Access Control Listing'. The 'Access Control Setup' section shows 'ACL : ☐ Activated ☒ Deactivated'. The 'Access Control Editing' section shows 'ACL Rule Index : 1', 'Active : ☐ Yes ☒ No', 'Secure IP Address : 0.0.0.0 ~ 0.0.0.0 (0.0.0.0 ~ 0.0.0.0 means all IPs)', 'Application : Web', and 'Interface : Both'. The 'Access Control Listing' section shows a table with columns 'Index', 'Active', 'Secure IP Address', 'Application', and 'Interface'. At the bottom, there are 'SAVE', 'DELETE', and 'CANCEL' buttons.

ACL: There has **Activated** & **Deactivated** option. The default setting is **Deactivated** which means all IP can access via router. If you choose **Activated**, you only can access via router by listed IP addresses.

ACL Rule Index: Index number from 1 and up to 16.

Active: Once you choose **Yes** then you can access the IP via router.

Application: Each of these labels denotes a service that you may use to remotely manage the Router. Choices are **Web**, **FTP**, **Telnet**, **SNMP**, **Ping**, **ALL**.

Interface: Select the access interface. Choices are **WAN**, **LAN** and **Both**.

For Example:

How to set your ACL?

1. You must choose **Activated** to enable your ACL function.
2. Select the ACL Rule Index number (up to 16 number)
3. You can set the specific **Secure IP address** or set **0.0.0.0** for all IPs.
4. Choose the **Application** which you want to access for this ACL Rule index.
5. Select the **Interface** you want to access from.
6. After all settings are ready, click **SAVE** and continue next ACL Rule Index setting.

The screenshot shows the 'Access Control Setup' interface. It has three main sections: 'Access Control Setup', 'Access Control Editing', and 'Access Control Listing'.

Access Control Setup: ACL is set to **Activated** (radio button selected).

Access Control Editing: ACL Rule Index is set to **6**. Active is set to **No** (radio button selected). Secure IP Address is set to **0.0.0.0 ~ 0.0.0.0** (0.0.0.0 ~ 0.0.0.0 means all IPs). Application is set to **ALL**. Interface is set to **LAN**.

Access Control Listing: A table showing existing ACL rules.

Index	Active	Secure IP Address	Application	Interface
1	Yes	0.0.0.0-0.0.0.0	Web	LAN
2	Yes	0.0.0.0-0.0.0.0	Telnet	LAN
3	No	0.0.0.0-0.0.0.0	FTP	Both
4	No	0.0.0.0-0.0.0.0	SNMP	Both
5	No	0.0.0.0-0.0.0.0	Ping	LAN
6	No	0.0.0.0-0.0.0.0	ALL	LAN

[Note]

1. You must set one ACL index to access your router via LAN interface. If you don't, your router cannot access other listed IP Address. (Refer to Index 1).
2. Remember! Once you active your ACL function, you only can access via router by listed Secure IP Address.

7.2 Filter

The Router provides extensive firewall protection by restricting connection parameters to limit the risk of intrusion and defending against a wide array of common hacker attackers. Go to **Access Management → Filter** to set different IP filter rules of a given protocol (TCP, UDP, or ICMP) and a specific direction (incoming, outgoing, or both) to filter the packets.

IP Filter is a more complex filtering tool, based more on IP and custom rules. Each of the indices can hold six rules, and each interface can have four associated indices, allowing 24 rules per interface. If all six rules in an index are Next rules, the data will be sent to the next index for filtering.

http://192.168.1.1/ - Windows Internet Explorer

http://192.168.1.1/

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Gigaset Networks

WTC603

Access Management | Interface Setup | Advanced Setup | Access Management | Maintenance | Status

ACL | **Filter** | SNMP | UPnP | DDNS | CWMP

Filter

Filter Type

Filter Type Selection : IP / MAC Filter

IP / MAC Filter Set Editing

IP / MAC Filter Set Index : 1

Interface : PVC0

Direction : Both

IP / MAC Filter Rule Editing

IP / MAC Filter Rule Index : 1

Rule Type : IP

Active : ☐ Yes ☒ No

Source IP Address : (0.0.0.0 means Don't care)

Subnet Mask : (0 means Don't care)

Port Number : 0 (0 means Don't care)

Destination IP Address : (0.0.0.0 means Don't care)

Subnet Mask : (0 means Don't care)

Port Number : 0 (0 means Don't care)

Protocol : TCP

Rule Unmatched : Forward

IP / MAC Filter Listing

#	Active	Src Address/Mask	Dest IP/Mask	Src Port	Dest Port	Protocol	Unmatched
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-

SAVE DELETE CANCEL

Internet | Protected Mode: On 100%

Filter Type: You can select **IP/MAC Filter**, **Application**, and **URL Filter** type.

IP/MAC Filter Set Index: The IP/MAC Filter Set Index from 1 to 12 and each index can set up to 6 IP Filter.

Interface: Choices from **PVC0** to **PVC7** and **LAN**.

Direction: Choices are **Both**, **Incoming** and **Outgoing**. Select which direction of data flow you wish to apply the filters to. **Note** that **Incoming** and **Outgoing** are from the point of view of your router, relative to the interface you select. **For WAN**, data coming from outside your system is considered Incoming and data leaving your system is Outgoing. **For LAN**, data leaving your system is considered Incoming and data entering your system is Outgoing.

IP/MAC Filter rule Index: The IP/MAC Filter rule Index from 1 to 6.

IP/MAC Filter Rule Editing: Select the IP/MAC Filter Rule Index you wish to modify.

Active: Toggle this rule index on or off with Yes or No, respectively.

Source IP Address: Enter the source IP address you wish to deny access to your system.

Subnet Mask: Enter the subnet mask of the source IP address.

Port Number: Enter the port number of the source IP address. Note that 0 means all that ports are allowed.

Destination IP Address: Enter the destination IP address that you wish to deny access to your system.

Subnet Mask: Enter the subnet mask of the destination IP address

Port Number: Enter the port number of the destination IP address. Note that 0 means that all ports are allowed

Protocol: Select the protocol to filter. Choices are TCP, UDP, and ICMP.

Rule Unmatched: Choices are **Forward** and **Next**. Select what happens to the data in question if the rule you are currently editing is unmatched. Next means that the data is then compared to the next IP filter rule. Forward means that the data will be allowed into your system. Note that a Forward rule should be the last rule, as no data will be compared to rules after a Forward rule.

IP/MAC Filter Set Index: Select the IP/MAC filter set you wish to view.

For Example

Please follow below steps to set your IP Filter:

1. **IP/MAC Filter Set Editing:** Choose your **IP/MAC Filter Set Index**, Interface and Direction options. **Remember, Interface and Direction functions are affected with IP/MAC Filter Set Index.** EX: if your 1st index set of IP filter set PVC0 as Interface and Outgoing as Direction, so the list of 1st IP Filter will be PVC0 and Outgoing as their settings.
2. **IP/MAC Filter Rule Editing:** Select the **IP/MAC Filter Rule Index** (up to 6 numbers for each set index) and choose **Active** option. As below example, **Source IP Address** is 192.168.1.4, **Subnet Mask** is 255.255.255.255, **Destination IP Address & Subnet Mask** is 0.0.0.0, **Port Number** is 80. And, **Protocol** sets TCP. From this setting, it filters 192.168.1.14, so it cannot access the web. **Notice**, each IP Filter Set Index can has up to 6 filters IP. At “**Rule Unmatched**” option, you must choose **NEXT** until the last filter IP choose **Forward**.
3. After every setting is done, click **SAVE** to continue next IP Filter Editing.

Filter

Filter Type

IP / MAC Filter Set Editing

IP / MAC Filter Rule Editing

IP / MAC Filter Listing

Filter Type Selection : IP / MAC Filter

IP / MAC Filter Set Index : 1

Interface : PVC0

Direction : Outgoing

IP / MAC Filter Rule Index : 1

Rule Type : IP

Active : ☐ Yes ☒ No

Source IP Address : 0.0.0.0 (0.0.0.0 means Don't care)

Subnet Mask : 0.0.0.0

Port Number : 0 (0 means Don't care)

Destination IP Address : 0.0.0.0 (0.0.0.0 means Don't care)

Subnet Mask : 0.0.0.0

Port Number : 80 (0 means Don't care)

Protocol : TCP

Rule Unmatched : Next

IP / MAC Filter Set Index		Interface	Direction		Outgoing		
#	Active	Src Address/Mask	Dest IP/Mask	Src Port	Dest Port	Protocol	Unmatched
1	No	0.0.0.0/ 0.0.0.0	0.0.0.0/ 0.0.0.0	0	80	TCP	Next
2	-	-	-	-	-	-	-

7.3 SNMP

The **Simple Network Management Protocol (SNMP)** is used for exchanging information between network devices. It enables a host computer to access configuration, performance, and other system data that resides in a database on the modem. The host computer is called a *management station* and the modem is called an *SNMP agent*. The data that can be accessed via SNMP is stored in a *Management Information Database (MIB)* on the modem.

http://192.168.1.1/ - Windows Internet Explorer

http://192.168.1.1/

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Quality Networks

WTC603

Access Management | Interface Setup | Advanced Setup | **Access Management** | Maintenance | Status

ACL | Filter | **SNMP** | UPnP | DDNS | CWMP

SNMP

Get Community : public

Set Community : public

SAVE

Done | Internet | Protected Mode: On | 100%

Get Community: Select to set the password for incoming Get- and GetNext request from management station.

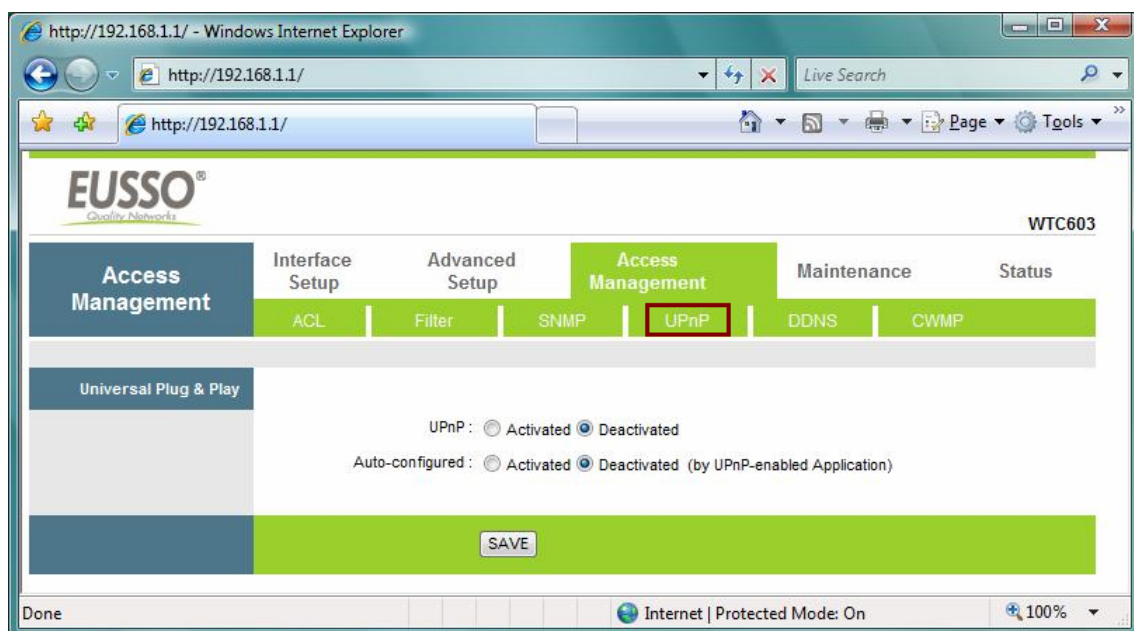
Set Community: Select to set the password for incoming Set request from management station. The default password is '**public**'. When you are done making changes, click on **SAVE** to save your changes.

7.4 UPnP

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

How do I know if I'm using UPnP?

UPnP hardware is identified as an icon in the Network Connections folder (in Windows XP & Windows ME). Each UPnP-compatible device that is installed on your network will appear as a separate icon.



UPnP (Universal Plug and Play): You can choose “**Activated**” or “**Deactivated**” option from this session.

Auto-Configured (by UPnP Application): UPnP network devices can automatically configure network addressing, announce their presence in the network to other UPnP devices and enable exchange of simple product and service descriptions. Choose “**Activated**” option to allow UPnP-enabled applications to automatically configure the ADSL Router so that they can

communicate through the ADSL Router, for example by using NAT traversal, UPnP applications automatically reserve a NAT forwarding port in order to communicate with another UPnP enabled device; this eliminates the need to manually configure port forwarding for the UPP enabled application. If you don't want to make configuration changes through UPnP, just choose “**Deactivated**”.

SAVE: Click **SAVE** to save the setting to the ADSL Router.

7.5 DDNS

The **Dynamic Domain Name System** allows you to update your current dynamic IP address with one or many dynamic DNS services so that anyone can contact you (in NetMeeting, CU-SeeMe, etc.). You can also access your FTP server or Web site on your own computer using a DNS-like address (for instance myhost.dhs.org, where my host is a name of your choice) that will never change instead of using an IP address that changes each time you reconnect. Your friends or relatives will always be able to call you even if they don't know your IP address. First of all, you need to have registered a dynamic DNS account with www.dyndns.org. This is for people with a dynamic IP from their ISP or DHCP server that would still like to have a DNS name. The Dynamic DNS service provider will give you a password or key.

The screenshot shows a web browser window displaying the EUSO router's configuration page. The address bar shows 'http://192.168.1.1/'. The page has a green header with the EUSO logo and the text 'Quality Networks'. A navigation bar at the top includes 'Access Management', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', and 'Status'. Under 'Access Management', there are sub-menus: 'ACL', 'Filter', 'SNMP', 'UPnP', 'DDNS' (highlighted with a red box), and 'CWMP'. The 'Dynamic DNS' section is active, showing a 'Dynamic DNS' toggle set to 'Deactivated'. Below this are fields for 'Service Provider' (set to 'www.dyndns.org'), 'My Host Name', 'E-mail Address', 'Username', 'Password', and 'Wildcard support' (set to 'No'). A 'SAVE' button is located at the bottom of the form.

Dynamic DNS: Choose the option for **Activated** or **Deactivated** DDNS.

Service Provider: The default Dynamic DNS service provider is www.dyndns.org.

My Host Name: Type the domain name assigned to your ADSL by your Dynamic DNS provider.

E-mail Address: Type your e-mail address.

Username: Type your user name.

Password: Type the password assigned to you.

Wildcard support: Select **Yes** or **No** to turn on DYNDNS Wildcard.

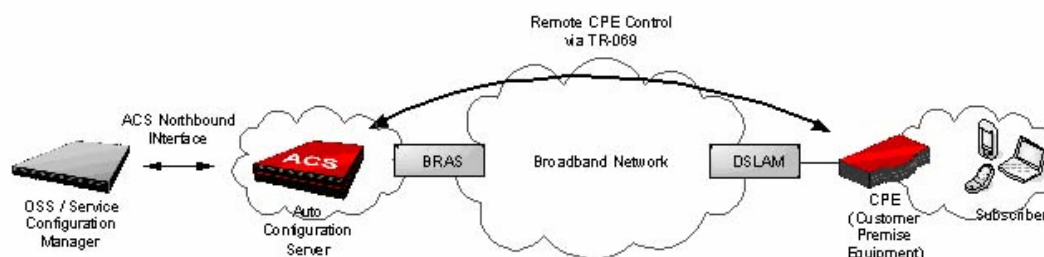
DYNDNS Wildcard --> Enabling the wildcard feature for your host causes *.yourhost.dyndns.org to be aliased to the same IP address as yourhost.dyndns.org. This feature is useful if you want to be able to use, for example, www.yourhost.dyndns.org and still reach your hostname.

SAVE: Click **SAVE** to save your changes.

Note that you must enter the user name exactly as your ISP assigned it. If the assigned name is in the form of **user@domain** where domain identifies a service name, enter it exactly as given. When you are done making changes, click on SAVE to save your changes.

7.6 CWMP

TR-069 is a **CPE WAN Management Protocol (CWMP)**. As a bidirectional SOAP/HTTP based protocol it provides the communication between **CPE** and **Auto Configuration Servers (ACS)**. It includes both a safe auto configuration and the control of other CPE management functions within an integrated framework. In the course of the boom of the broadband market, the number of different Internet access possibilities grew as well (e.g. modems, routers, gateways, Set-top box, paddles, VoIP-phones). At the same time the configuration of this equipment became more complicated -- too complicated for the end-users. For this reason the TR-069 standard was developed. It provides the possibility of auto configuration of these access types. The technical specifications are managed and published by the DSL Forum. Using TR-069 the terminals can get in contact with the **Auto Configuration Servers (ACS)** and establish the configuration automatically. Accordingly other service functions can be provided. TR-069 is the current standard for activation of terminals in the range of DSL broadband market.



http://192.168.1.1/ - Windows Internet Explorer

http://192.168.1.1/ Live Search

http://192.168.1.1/

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WTC603

Access Management	Interface Setup	Advanced Setup	Access Management	Maintenance	Status
	ACL	Filter	SNMP	UPnP	DDNS
					CWMP

CWMP Setup

CWMP : ☐ Activated ☒ Deactivated

Login ACS

URL :

User Name :

Password :

Connection Request

Path :

Port :

UserName :

Password :

Periodic Inform

Periodic Inform : ☐ Activated ☒ Deactivated

Interval :

Done Internet | Protected Mode: On 100%

8. Maintenance

8.1 Administration

There is only one account that can access Web-Management interface-**Administration**. Admin has read/write access privilege. In this web page, you can set new password for admin.

The screenshot shows a Windows Internet Explorer browser window displaying the EUSSO Web-Management interface. The address bar shows the URL <http://192.168.1.1/>. The interface has a top navigation bar with the EUSSO logo and the text "Quality Networks". Below this, there are several tabs: "Maintenance", "Interface Setup", "Advanced Setup", "Access Management", "Maintenance", and "Status". The "Maintenance" tab is selected, and within it, the "Administration" sub-tab is highlighted. The main content area shows the "Administrator" section with the following fields: "Username : admin", "New Password :", and "Confirm Password :". There are "SAVE" and "CANCEL" buttons at the bottom of the form. The status bar at the bottom of the browser window shows "Internet | Protected Mode: On" and "100%".

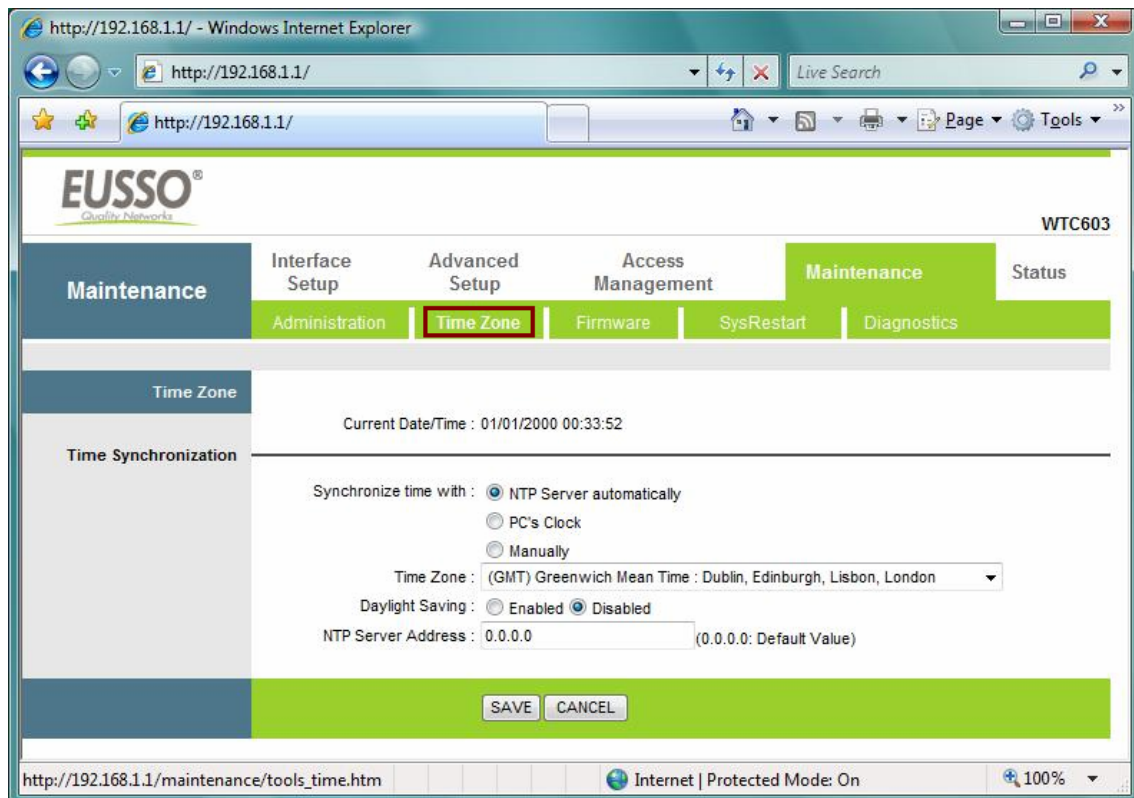
New Password: Type the new password in this field.

Confirm Password: Type the new password again in this field.

Note: If you ever forget the password to log in, you may press the **RESET** button up to 6 second to restore the factory default settings. The Factory Default Settings for User Name & Password are **admin** & **admin**.

8.2 Time Zone

The system time is the time used by the device for scheduling services. You can manually set the time or connect to a NTP (Network Time Protocol) server. If an NTP server is set, you will only need to set the time zone. If you manually set the time, you may also set Daylight Saving dates and the system time will automatically adjust on those dates.



Current Date/Time: This field displays an updated Date and Time when you reenter this menu.

[Time Synchronization]

Synchronize time with: You can choose *“NTP Server automatically”*, *“PC’s Clock”*, or *“Manually”* to coordinate the time.

Time Zone: Choose the Time Zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).

Daylight Saving: Choose *“Enabled”* or *“Disabled”* to use daylight savings time.

NTP Server Address: Type the IP address or domain name of your timeserver. Check with your ISP/network administrator if you are unsure of this information.

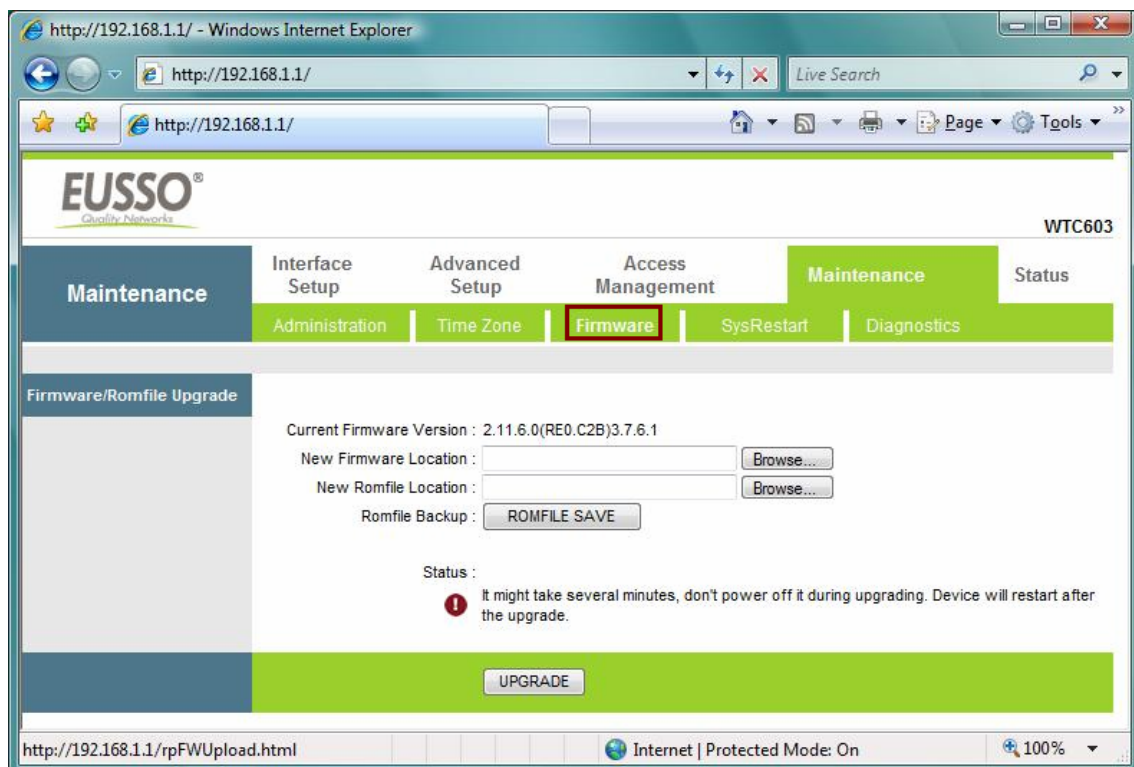
A **Network Time Protocol (NTP)** server can automatically set the router time for you. If you use an NTP server, you will only need to select your time zone. If you manually set the time, you can enable Daylight Saving. The router will automatically adjust when Daylight Saving goes into effect.

When you are done making changes, click on **SAVE** to save your changes or on **CANCEL** to exit without saving.

8.3 Firmware

You can upgrade the **firmware and Romfile** of the router in this page. Make sure the firmware you want to use is on the local hard drive of the computer. Click on **Browse** to browse the local hard drive and locate the firmware to be used for the update. Then press **UPGRADE** to upload new Firmware. **It might take several minutes, don't power off it during upgrading. Device will restart after the upgrade!!**

After a success upload, the system automatically restarts. Please wait for the device to finish restarting. This should take about 2 minutes or more. You need to log in again if you want to access the device.



Current Firmware Ver.: This field displays the current firmware version.

New Firmware Location: Type or browse in the location of the file you want to upload in this field.

New Romfile Location: Type or browse the location of the Romfile you want to upload in this field.

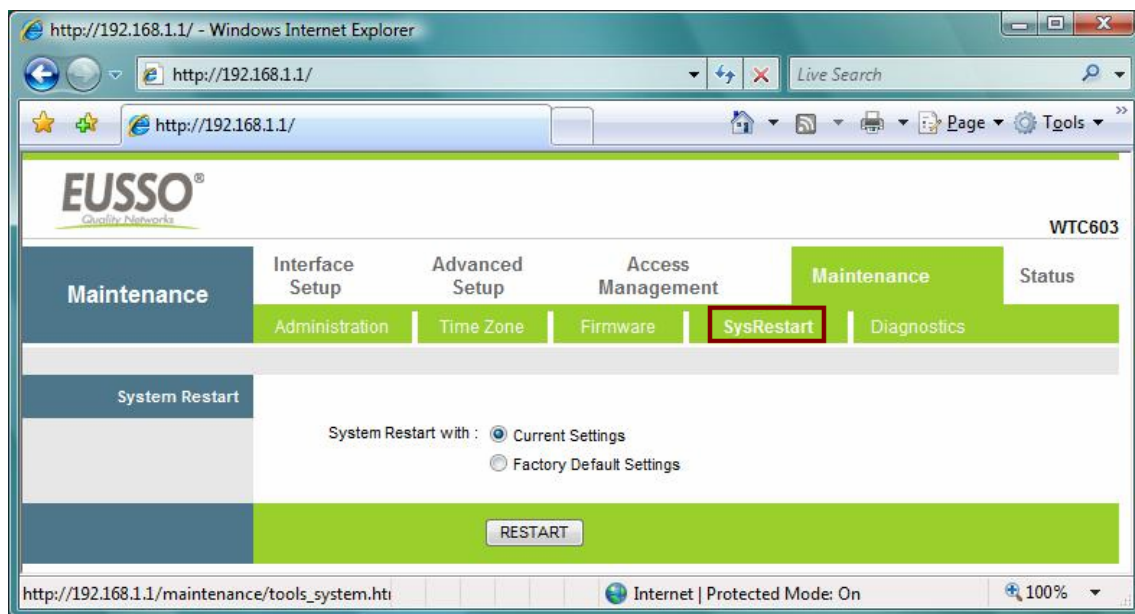
Romfile Backup: This function is for saving the firmware configuration file. After you configure all settings for ADSL Router, you can click "**ROMFILE SAVE**" button to save the configured file.

UPGRADE: Click **UPGRADE** to begin the upload process.

8.4 System Restart

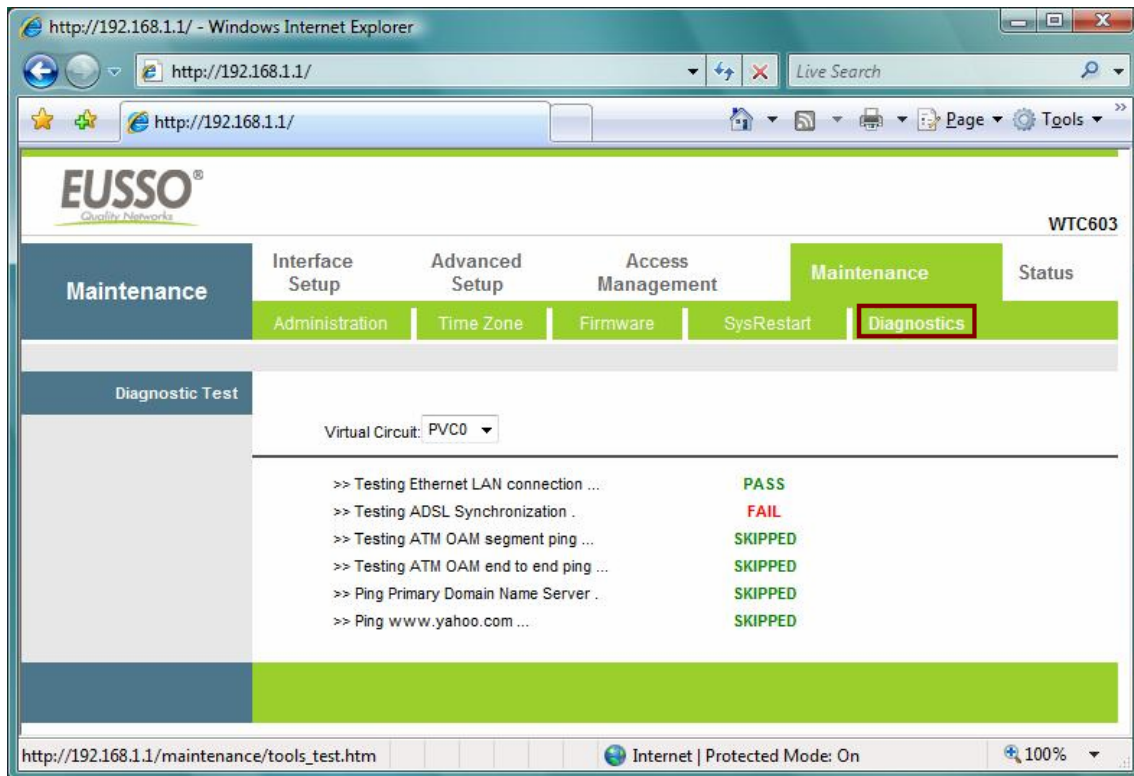
The SysRestart screen allows you to restart your router with either its current settings still in place or the factory default settings.

If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select **Factory Default Settings** to reset to factory default settings. Otherwise, you can select **Current Settings**. You may also reset your router to factory settings by holding the **DEFAULT** button on the back panel of your router in for 10-12 second while the router is turned on.



8.5 Diagnostic

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



Select which PVC you wish to test from the dropdown list. The router will automatically run diagnostic tests on that circuit. A green **PASS** means that the given test was passed, a red **FAIL** means that the test was failed and a green **SKIPPED** means that the test was skipped.

Note: 1) User **ONLY** can view **PVC0**'s Diagnostic Test connection.

2) "**Testing ADSL Synchronization**" might take 30 sec to execute the Diagnostic Test.

9. Status

9.1 Device Info

The **Device Info** screen is a tool that you use to monitor your ADSL Router. It shows the Firmware Version, WAN, LAN, and MAC address information. Note that these fields are read-only and are not meant for diagnostic purposes. Except the Virtual Circuit, click the drop-down list and select the name of the Virtual Circuit on which the system status is to be shown.

The screenshot shows the EUSO router's status page in a Windows Internet Explorer browser. The address bar shows <http://192.168.1.1/>. The page has a green header with the EUSO logo and the text "Quality Networks". The main navigation bar includes "Status", "Interface Setup", "Advanced Setup", "Access Management", "Maintenance", and "Status". The "Status" tab is selected, and the "Device Info" sub-tab is highlighted. The page displays the following information:

Device Information	WTC603																
Firmware Version : 2.11.6.0(RE0.C2B)3.7.6.1 MAC Address : 00:06:4f:11:22:33																	
LAN	IP Address : 192.168.1.1 Subnet Mask : 255.255.255.0 DHCP Server : Enabled																
WAN	Virtual Circuit : PVC0 Status : Not Connected Connection Type : PPPoA IP Address : 0.0.0.0 Subnet Mask : 0.0.0.0 Default Gateway : 0.0.0.0 DNS Server : 0.0.0.0 NAT : Enabled																
ADSL	ADSL Firmware Version : FwVer:3.7.6.1_A_TC3085 HwVer:T14.F7_1.0 Line State : Down Modulation : Multi-Mode Annex Mode : ANNEX_A																
	<table border="1"><thead><tr><th></th><th>Downstream</th><th>Upstream</th><th></th></tr></thead><tbody><tr><td>SNR Margin :</td><td>N/A</td><td>N/A</td><td>db</td></tr><tr><td>Line Attenuation :</td><td>N/A</td><td>N/A</td><td>db</td></tr><tr><td>Data Rate :</td><td>0</td><td>0</td><td>kbps</td></tr></tbody></table>		Downstream	Upstream		SNR Margin :	N/A	N/A	db	Line Attenuation :	N/A	N/A	db	Data Rate :	0	0	kbps
	Downstream	Upstream															
SNR Margin :	N/A	N/A	db														
Line Attenuation :	N/A	N/A	db														
Data Rate :	0	0	kbps														

The status bar at the bottom shows the URL http://192.168.1.1/status/status_deviceinfo.htm, the Internet connection status, and the Protected Mode: On setting.

[Device Information]

Firmware Version: This field displays current firmware version.

MAC Address: The MAC (Media Access Control) or Ethernet address unique to your modem.

[LAN]

IP Address: The LAN port IP address

Subnet Mask: The LAN port IP subnet mask.

DHCP Server: The status of **DHCP** Server (Enabled or Disabled)

[WAN]

Virtual Circuit: Click the drop-down list and select the name of the Virtual Circuit on which the system status is to be shown.

Status: Connected or Not Connected

Connection Type: The WAN Connection Type.

IP Address: The WAN port IP address

Subnet Address: The WAN port IP subnet mask.

Default Gateway: The IP address of the default gateway, if applicable.

DNS Server: The IP address of the DNS Server

[ADSL]

ADSL Firmware Version: This field displays current ADSL firmware version.

Line States: This field displays the ADSL connection process and status.

Modulation: This field displays the ADSL modulation status for G.dmt or T1.413.

Annex Mode: This field displays the ADSL annex modes for Annex A or Annex B. **Downstream and Upstream:** Status of SNR Margin, Line Attenuation and Data Rate

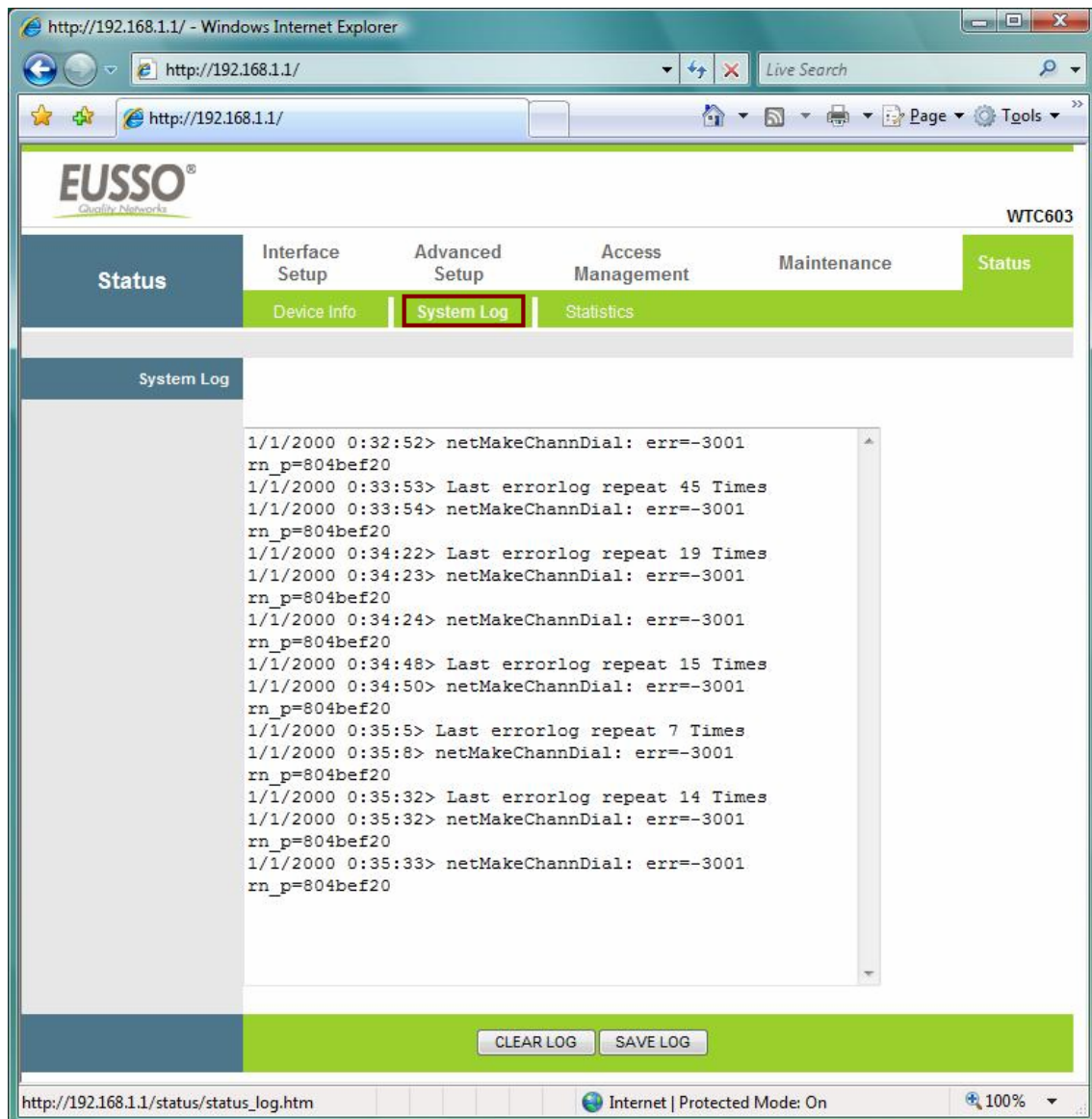
SNR Margin: Amount of increased noise that can be tolerated while maintaining the designed BER (bit error rate). The SNR Margin is set by Central Office DSLAM. If the SNR Margin is increased, bit error rate performance will improve, but the data rate will decrease. Conversely, if the SNR Margin is decreased, bit error rate performance will decrease, but the data rate will increase.

Line Attenuation: Attenuation is the decrease in magnitude of the ADSL line signal between the transmitter (Central Office DSLAM) and the receiver (Client ADSL Modem), measured in dB. It is measured by calculating the difference in dB between the signal power level received at the Client ADSL Router and the reference signal power level transmitted from the Central Office DSLAM.

Data Rate: This field displays the ADSL data rate.

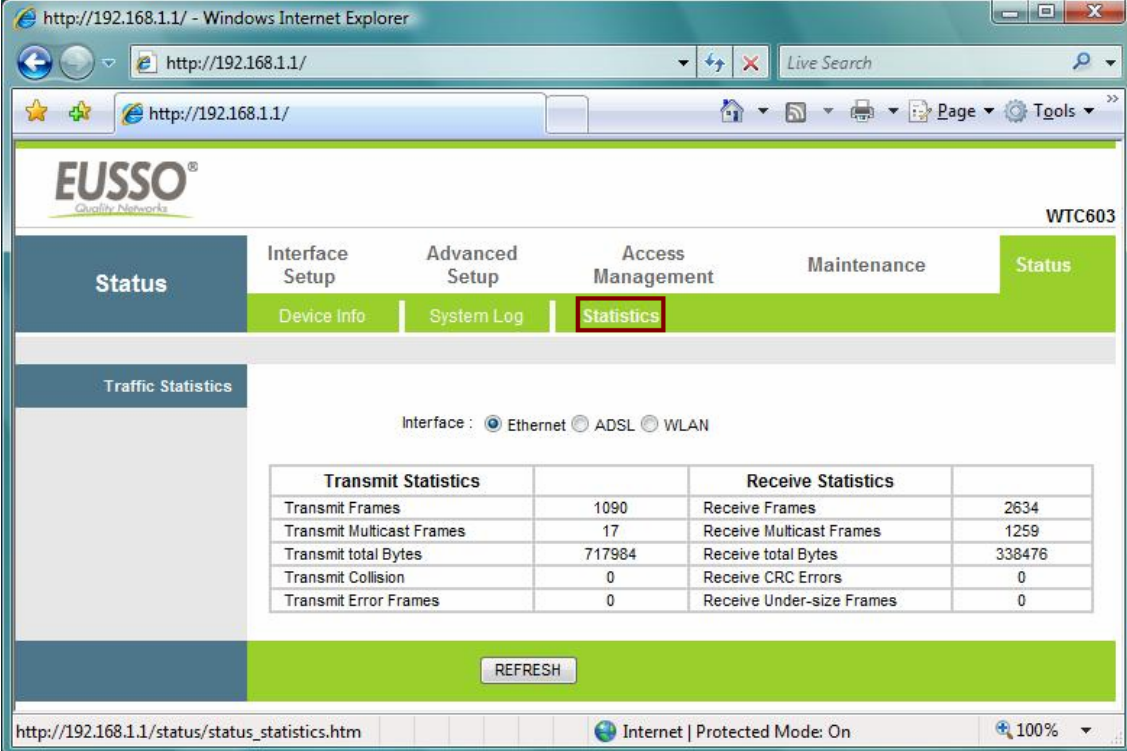
9.2 System Log

The **System Log** displays data generated or acquired by routine system communication with other devices, such as the results of negotiations with the ISP's computers for DNS and gateway IP addresses. The device keeps a running log of events and activities occurring on the Router. You can click **Save Log** to display a Windows File Download dialog box that enables opening or saving the contents of the log to your PC. To remove all entries from the list, click **Clear Log**. New entries will begin accumulating. If the device is rebooted, the logs are automatically cleared.



9.3 Statistics

The ADSL Router keeps **statistic** of traffic that passes through it. You are able to view the amount of packets that passes through the Router on both the WAN port & the LAN port. The traffic counter will reset if the device is rebooted. You can select **Ethernet/ADSL/WLAN** to view the statistics report of LAN/WAN.

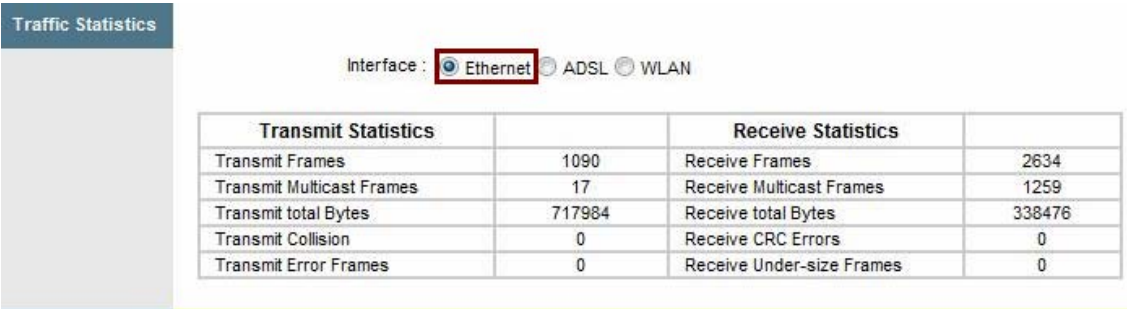


The screenshot shows the EUSSO router's web interface in a Windows Internet Explorer browser window. The address bar shows <http://192.168.1.1/>. The page title is "EUSSO® Quality Networks" and the model number "WTC603" is displayed in the top right corner. The navigation menu includes "Status", "Interface Setup", "Advanced Setup", "Access Management", "Maintenance", and "Status". The "Statistics" tab is highlighted in the "Access Management" section. The "Traffic Statistics" section is visible, showing the "Interface" selection (Ethernet, ADSL, WLAN) and a table of statistics. The "REFRESH" button is located at the bottom of the statistics section.

Transmit Statistics		Receive Statistics	
Transmit Frames	1090	Receive Frames	2634
Transmit Multicast Frames	17	Receive Multicast Frames	1259
Transmit total Bytes	717984	Receive total Bytes	338476
Transmit Collision	0	Receive CRC Errors	0
Transmit Error Frames	0	Receive Under-size Frames	0

[Ethernet]

The Ethernet screen gives you information on how much data your router has transmitted and received across the Ethernet connection. Click on REFRESH to update the screen.



The screenshot shows the EUSSO router's web interface, specifically the "Ethernet" statistics page. The "Interface" selection is set to "Ethernet". The "Traffic Statistics" section is visible, showing the "Interface" selection (Ethernet, ADSL, WLAN) and a table of statistics. The "REFRESH" button is located at the bottom of the statistics section.

Transmit Statistics		Receive Statistics	
Transmit Frames	1090	Receive Frames	2634
Transmit Multicast Frames	17	Receive Multicast Frames	1259
Transmit total Bytes	717984	Receive total Bytes	338476
Transmit Collision	0	Receive CRC Errors	0
Transmit Error Frames	0	Receive Under-size Frames	0

[ADSL]

The ADSL screen gives you information about how much data your router has transmitted or received across the ADSL connection. Click on REFRESH to update the screen.

Traffic Statistics			
Interface : <input type="radio"/> Ethernet <input checked="" type="radio"/> ADSL <input type="radio"/> WLAN			
Transmit Statistics		Receive Statistics	
Transmit total PDUs	0	Receive total PDUs	0
Transmit total Error Counts	0	Receive total Error Counts	0

[WLAN]

The WLAN screen gives you information about how much data your router has transmitted or received across the ADSL connection. Click on REFRESH to update the screen.

Traffic Statistics			
Interface : <input type="radio"/> Ethernet <input type="radio"/> ADSL <input checked="" type="radio"/> WLAN			
Transmit Statistics		Receive Statistics	
Tx Frames Count	1280	Rx Frames Count	24270
Tx Errors Count	302	Rx Errors Count	318909
Tx Drops Count	302	Rx Drops Count	318909

10. Troubleshooting

If the router is not function properly, first check this session for simple troubleshooting before contacting your Internet service provider (ISP) for support.

10.1 Using LEDs to Diagnose Problems

The **LEDs** are useful aides for finding possible problem causes.

10.1.1 Power LED

The **PWR LED** on the front panel does not light up.

STEPS	CORRECTIVE ACTION
1	Make sure that the power adaptor is connected to the router and plugged in to an appropriate power source. Use only the supplied power adaptor.
2	Check that the router and the power source are both turned on and the router is receiving sufficient power.
3	Turn the router off and on.
4	If the error persists, you may have a hardware problem. In this case, you should contact your vendor.

10.1.2 LAN LED

The **LAN LED** on the front panel does not light up.

STEPS	CORRECTIVE ACTION
1	Check the Ethernet cable connections between your router and the computer or hub.
2	Check for faulty Ethernet cables.
3	Make sure your computer's Ethernet card is working properly.
4	If these steps fail to correct the problem, contact your local distributor for assistance.

10.1.3 ADSL LED

The **ADSL LED** on the front panel does not light up.

STEPS	CORRECTIVE ACTION
1	Check the telephone wire and connections between the router ADSL port and the wall jack.
2	Make sure that the telephone company has checked your phone line and set it up for ADSL service.
3	Reset your ADSL line to reinitialize your link to the DSLAM.
4	If these steps fail to correct the problem, contact your local distributor for assistance.

10.2 Problems with the Web Interface

I cannot access the web Interface.

STEPS	CORRECTIVE ACTION
1	Make sure you are using the correct IP address of the router. Check the IP address of the router.
2	Make sure that there is not a console session running.
3	Check that you have enabled web service access. If you have configured a secured client IP address, your computer's IP address must match it. Refer to the chapter on remote management for details.
4	For WAN access, you must configure remote management to allow server access from the WAN (or all).
5	Your computer's and the router's IP addresses must be on the same subnet for LAN access.
6	If you changed the router's LAN IP address, then enter the new one as the URL.
7	Remove any filters in LAN or WAN that block web service.

The web Interface does not display properly.

STEPS	CORRECTIVE ACTION
1	Make sure you are using Internet Explorer 5.0 and later versions.
2	Delete the temporary web files and log in again. In Internet Explorer, click Tools, Internet Options and then click the Delete Files ... button. When a Delete Files window displays, select Delete all offline content and click OK . (Steps may vary depending on the version of your Internet browser.)

10.3 Problems with the Login Username and Password

I forgot my login username and/or password.

STEPS	CORRECTIVE ACTION
1	If you have changed the password and have now forgotten it, you will need to upload the default configuration file. This will erase all custom configurations and restore all of the factory defaults including the password.
2	Press the DEFAULT button for five seconds, and then release it. When the ADSL LED begins to blink, the defaults have been restored and the router restarts.
3	The default username is " admin ". The default password is " admin ". The Password and Username fields are case-sensitive. Make sure that you enter the correct password and username using the proper casing.

4	It is highly recommended to change the default username and password. Make sure you store the username and password in a safe place.
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10.4 Problems with LAN Interface

I cannot access the router from the LAN or ping any computer on the LAN.

STEPS	CORRECTIVE ACTION
1	Check the Ethernet LEDs on the front panel. A LAN LED should be on for a port that has a PC connected. If it is off, check the cables between your router and the PC. Make sure you have uninstalled any software firewall for troubleshooting.
2	Make sure that the IP address and the subnet mask is consistent between the router and the workstation.

10.5 Problems with WAN Interface

Initialization of the ADSL connection failed.

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

I cannot get a WAN IP address from the ISP.

STEPS	CORRECTIVE ACTION
1	Ensure that all other devices connected to the same telephone line as your router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by the qualified and licensed electrician), and ensure that all line filters are correctly installed and right way around.
2	Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including causing frequent disconnects.

Frequent loss of ADSL line sync (disconnects).

STEPS	CORRECTIVE ACTION
1	The ISP provides the WAN IP address after authenticating you. Authentication may be through the user name and password, the MAC address or the host name.

2	The username and password apply to PPPoE and PPoA encapsulation only. Make sure that you have entered the correct Service Type , User Name and Password (be sure to use the correct casing).
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10.6 Problems with the Internet Access

I cannot access the Internet.

STEPS	CORRECTIVE ACTION
1	Make sure the router is turned on and connected to the network.
2	If the ADSL LED is off, refer to <i>Section 11.1.3 (Page 71)</i> .
3	Verify your WAN settings.
4	Make sure you entered the correct user name and password.
5	For wireless stations, check that both the router and wireless station(s) are using the same ESSID, channel and WEP keys (if WEP encryption is activated).

Internet connection disconnects.

STEPS	CORRECTIVE ACTION
1	Check the schedule rules.
2	If you use PPPoA or PPPoE encapsulation, check the idle time-out setting.
3	Contact your ISP.

If you have any troubles to configure or setup this ADSL Ethernet Router, please feel free to contact us.

Before contacting us, make sure collect following information. Submit complete detailed information of your problem will help us to provide you accurate answers.

Model Name:

Serial Number:

PC Settings:

Other: