BIPAC 7000

ADSL USB Modem

User's Manual

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Chapter 1
Introduction

1.1 Billion ADSL USB Modem Features

Billion ADSL USB Modem provides the following features:

- Bus-powered USB modem for broadband ADSL.
- Downstream data rate up to 8 Mbps and upstream up to 1 Mbps.
- No external power supply is required.
- Hot Plug and Play for Microsoft Windows 98 (SE), 2000, Me, and XP.
- Supports NDIS interface for RAS and Dial-Up Networking.
- Software upgradable.
- Supports multiple data encapsulation formats, including PPPoE, PPPoA, IPoA, and RFC1483 bridged or routed.
- Friendly GUI Configuration Program.

1.2 Package Contents

The product package comes with the following accessories:

1. One Billion BIPAC-7000 ADSL USB Modem
2. One installation CD with drivers and online manual
3. One RJ-11 ADSL telephone cable
4. One USB cable
5. One Quick Start Guide

1.3 The Front Panel LEDs

LED	Meaning
USB	When this LED is lit, it indicates that the USB port is connected to the PC and working properly.
DATA	When this LED is flashing constantly, it indicates the BIPAC-7000 is transmitting/receiving data.
ADSL	When lit, it indicates that the ADSL (Line) port is connected to the DSLAM and working properly.

1.4 Information from ISP

Before start installing this device, you have to check with your ISP on what kind of service (connection method) is provided such as PPPoE, PPPoA, RFC1483 bridged or routed, IPoA.

Gather the information as illustrated in the following table and keep it for reference.

PPPoE	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoA	VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
RFC1483 Bridged	VPI/VCI, VC-based/LLC-based multiplexing
RFC1483 Routed	VPI/VCI, VC-based/LLC-based multiplexing, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
IPoA	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).

Chapter 2
Installation

2.1 Installing Billion ADSL USB Modem

Please refer to the following instructions and figures:

1. Connect ADSL telephone cable to the LINE RJ-11 jack.
2. Connect the USB cable to the USB port and connect the other end to the PC.

2.2 Installing Billion ADSL USB Modem Drivers

2.2.1 For Windows:

Simply follow the instructions below which outline what you need to do. This section is described based on Windows XP/ 2000/Me/98 and the systems will automatically acknowledge the modem has been connected to your computer.

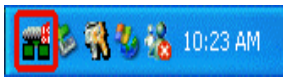
1. Insert the CD into your computer's CD Rom drive. This is the hi-speed modem installation CD, and to specify the driver directory such as F:\Driver\Windows\setup, than Click "Yes" to continue.

2. Please plug USB cable into ADSL USB Modem.

3. Then, click "OK".

4. After Billion ADSL USB Modem driver is successfully installed, you will see these 2 icons on your desktop.

5. The Status Task Bar will appear on the System Tray.

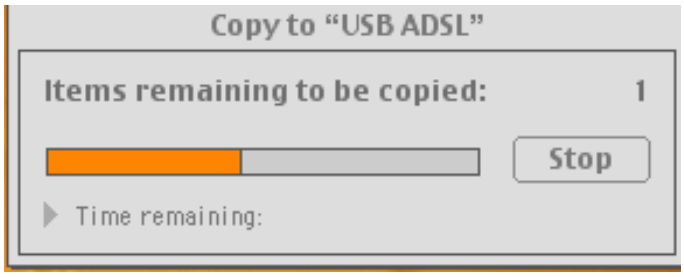


2.2.2 For Mac OS 9

If you connect the ADSL Modem/Router through USB port, for the first time the USB cable is connected to the PC, the host PC OS will automatically detect the device. Follow the steps to install the USB driver.

1. When PC tells you that the new device has been detected, insert the installation CD into the CD-ROM drive. Click the driver installer. The following directory will be created.

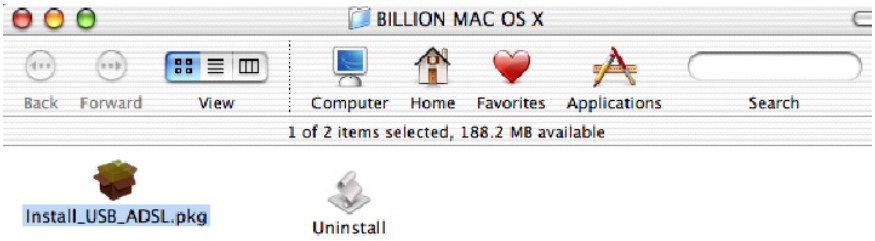
2. Click “Install”.



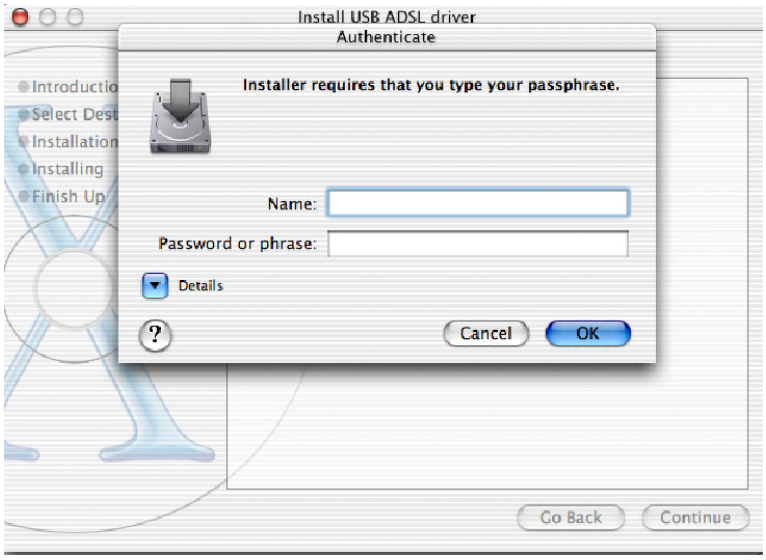
3. Click “Restart” to end the installtion.

2.2.3 For Mac OS X

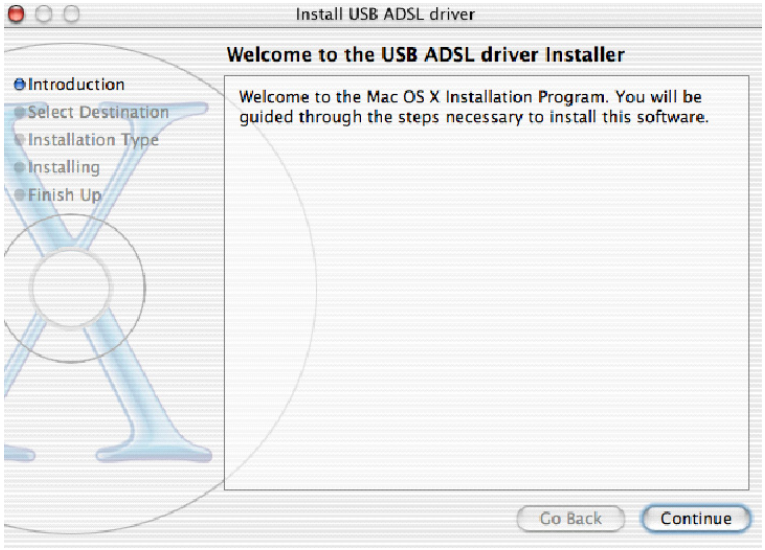
1. Insert the installation CD into the CD-ROM drive, click the driver installer.



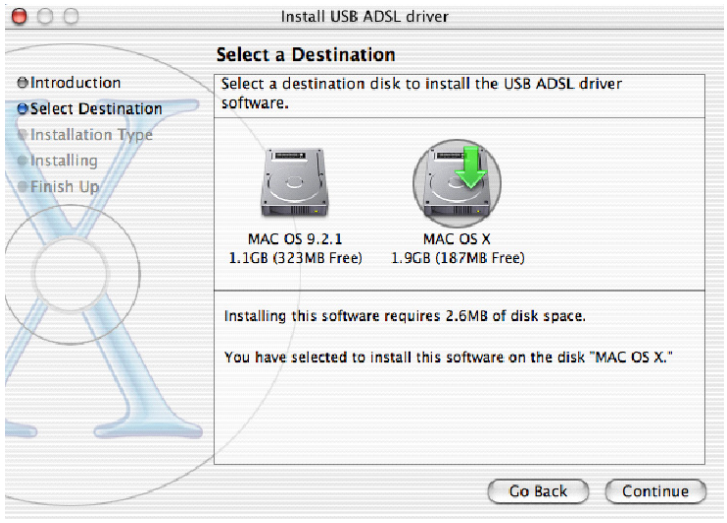
2. Input the user name and password of your Mac system.



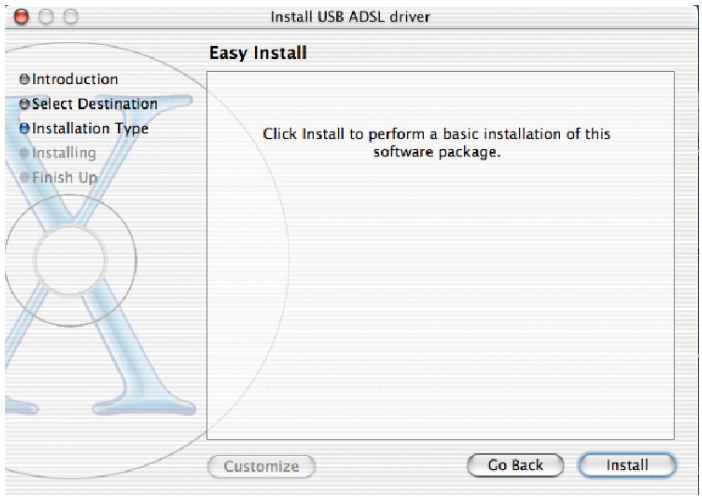
3. Click “Continue”.



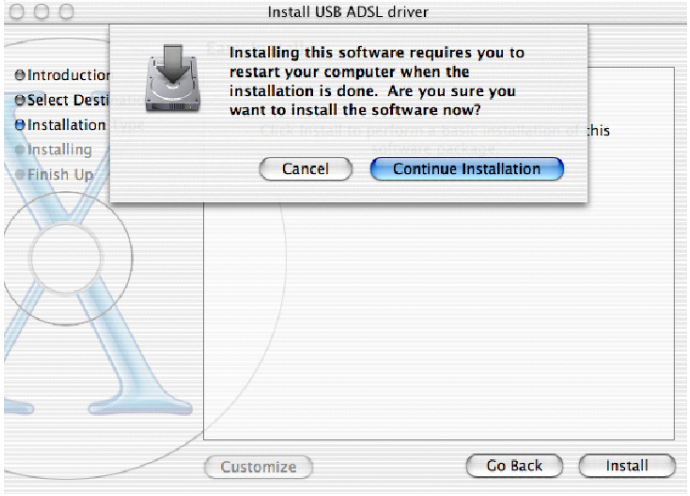
4. Select a destination to install the driver, choose Mac X.



5. Click “Continue”.



6. Click “Continue Installation” to end the installation.



2.2.4 For Linux Redhat 7.1/7.2/8.0/9.0:

1. Install the driver

(Redhat 7.1)

#rpm –ivh BIPAC-7000-REDHAT-7.1.i386.rpm

(Redhat 7.2)

#rpm –ivh BIPAC-7000-REDHAT-7.2.i386.rpm

(Redhat 8.0)

#rpm –ivh BIPAC-7000-REDHAT-8.0.i386.rpm

(Redhat 9.0)

#rpm –ivh BIPAC-7000-REDHAT-9.0.i386.rpm

2. Launch the driver

#cd /usr/local/e2

#insmod e2.o

#ifconfig hsb0 up(Note: run this command after the READY LED blinks)

#dhcpcd hsb0 (Note: run this command after the READY LED blinks)

3. Uninstall the driver

#rpm –e USBENDPOINT

After your installation, please edit this file **/etc/rc.d/rc.local** to append four commands.

cd /usr/local/e2

insmod e2.o

ifconfig hsb0 up

./dhcpcd hsb0

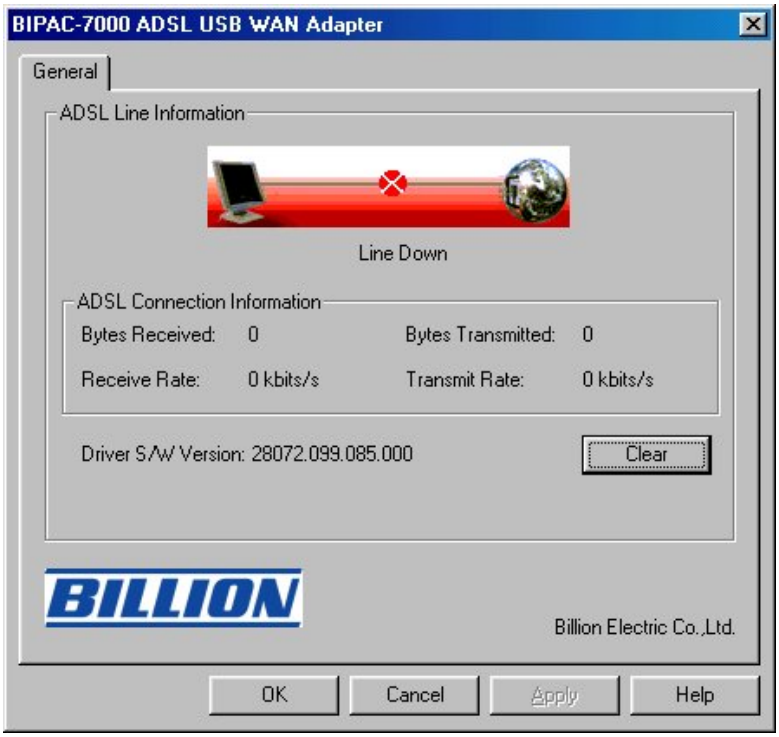
Then PC will get an IP address after reboot from ADSL USB device automatically.

Chapter 3
Configuration (For Windows)

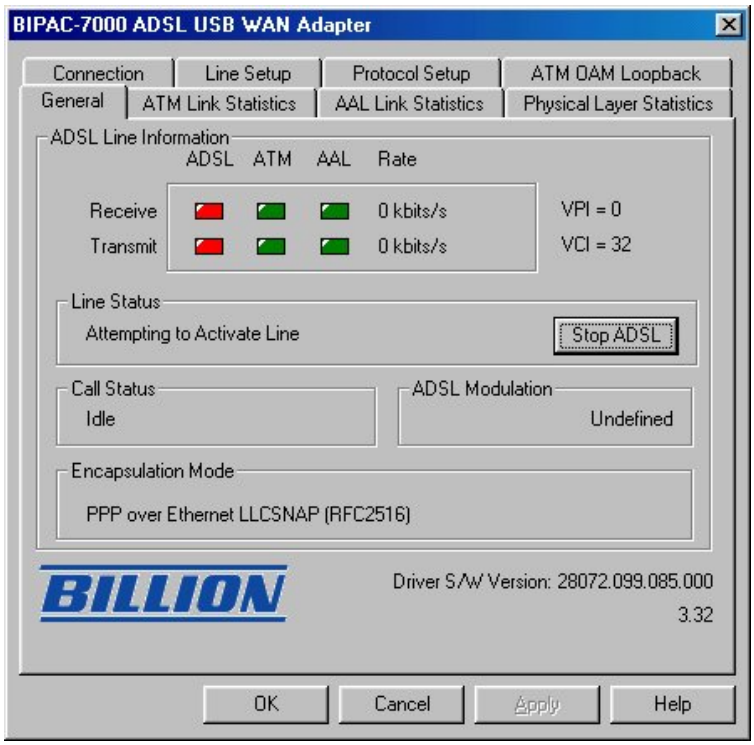
3.1 Billion ADSL USB Modem Configuration

Follow the instructions below to configure your Billion ADSL USB Modem first.

1. Click **Billion ADSL USB Modem** icon in the Control Panel or **ADSL Configuration** icon on the desktop. The status of ADSL connection will be displayed.

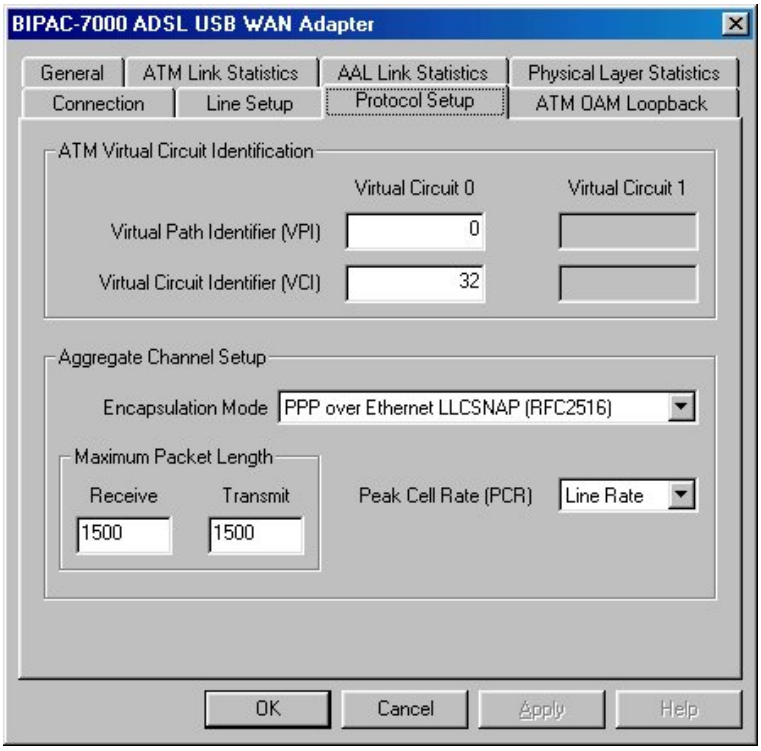


2. Press **[Alt]+[P]** on keyboard, the following widow will appear.



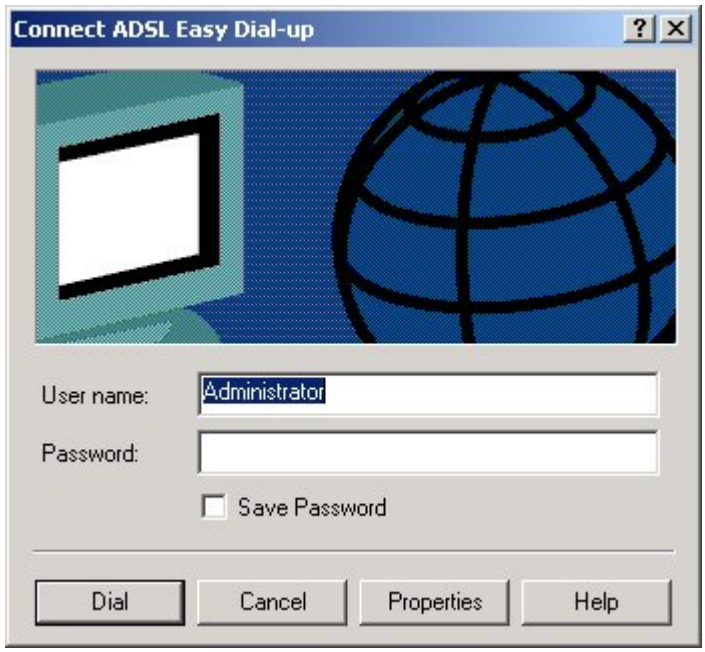
3. Select the **Protocol Setup** tag, please set the value of "VPI", "VCI" and "Encapsulation Mode". Then, click "OK".

（Note：Be sure to use the correct VPI and VCI numbers supplied by your telephone company.）



3.2 ADSL USB WAN Adapter Configuration

1. After clicking on the **ADSL Easy Dialup** icon on the desktop, the following window will appear. Enter the "Username" and "Password" provided by your ISP. Let the Phone number field be blank.



2. Click **Connect** and get ready to surf the Internet!

Chapter 4
Configuration(For Mac & Linux)

4.1 Configuring the Network Properties

The ADSL USB Modem can be configured with your web browser, the default IP address of the ADSL USB Modem is 192.168.1.254 and subnet mask is 255.255.255.0.

The ADSL USB Modem uses "Emulate USB port to Ethernet" technology to emulate the USB port to Ethernet port, the terminology "LAN" described in the paragraph below is equal to "USB".

Any TCP/IP capable workstation can be used to communicate with or through the ADSL Modem/Router. To configure other types of workstations, please consult the manufacturer's documentation.

4.2 Factory Default Settings

Before you configure this device, you need to know the following default settings.

1. **Web Configurator**

	User Name	Password
Administrator	admin	password

2. **Device IP Network settings in LAN site**
   IP Address: 192.168.1.254
   Subnet Mask: 255.255.255.0
3. **ISP setting in WAN site**
   Virtual Circuit 0: 1483 Bridged IP LLC

4.3 Information from ISP

Before start configuring this device, you have to check what kind of service is provided by your ISP, including the following:

1. PPPoE VC-Mux
2. PPPoE LLC
3. PPPoE None
4. PPPoA VC-Mux
5. PPPoA LLC
6. 1483 Bridged IP VC-Mux
7. 1483 Bridged IP LLC
8. 1483 Routed IP VC-Mux
9. 1483 Routed IP LLC
10. Classical IP over ATM
11. Native ATM

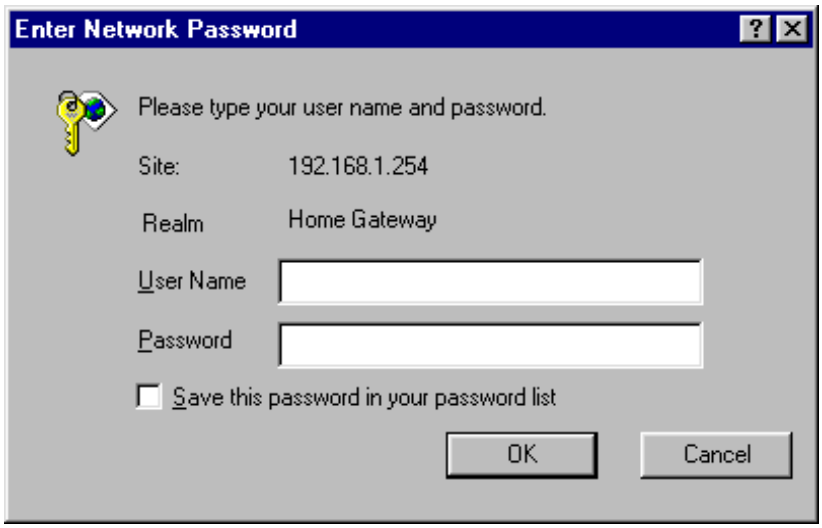
Gather the information as illustrated in the following table and keep it for reference.

PPPoE VC-Mux	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoE LLC	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoE None	VPI/VCI, Service Name, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
PPPoA VC-Mux	VPI/VCI, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).

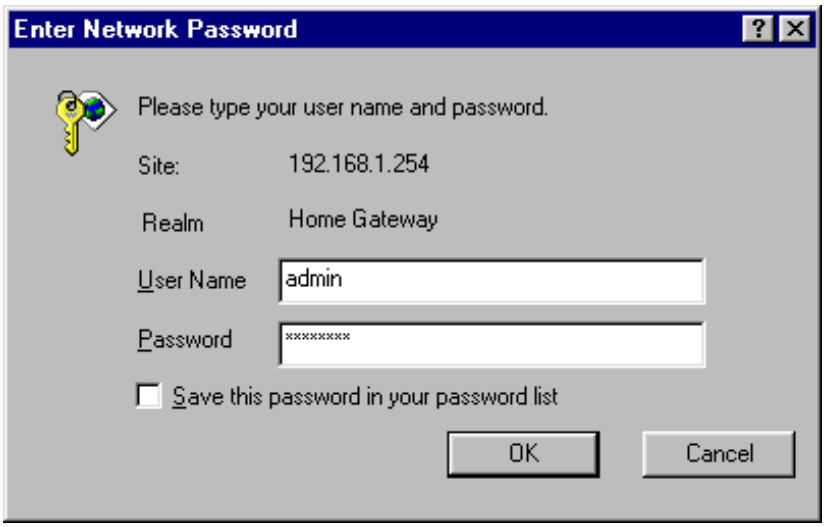
PPPoA LLC	VPI/VCI, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned from ISP or be set fixed).
1483 Bridged IP LLC	VPI/VCI
1483 Bridged IP VC-Mux	VPI/VCI
1483 Routed IP LLC	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
1483 Routed IP VC-Mux	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).
Classical IP over ATM	VPI/VCI, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address).

4.4 Configuring with Web Browser

The ADSL USB Modem can be configured with your Web browser. Open the web browser, enter the local port IP address of the ADSL Router, which default at **192.168.1.254**, and click "**Go**" to get the login page.



The default user name and password are **admin** and **password.**



Then, click **"OK"** to log in. You can modify the passwords for security and management purpose.

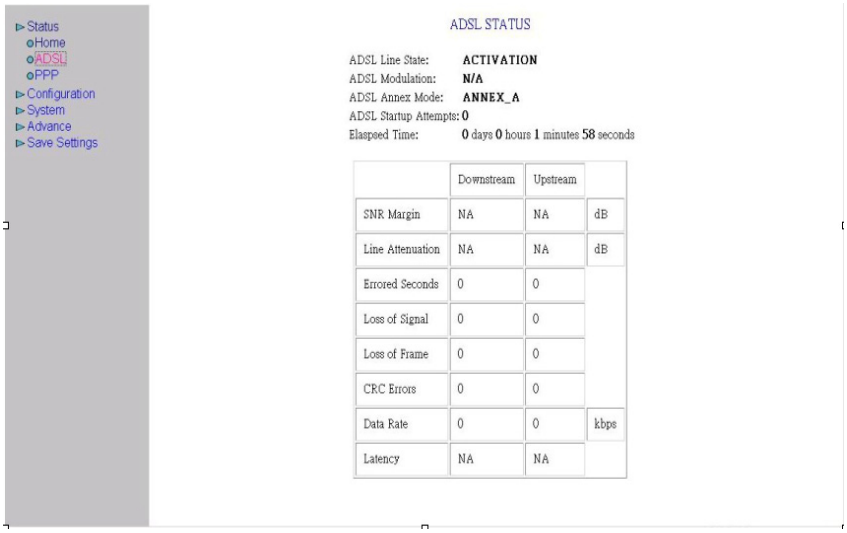
At the configuration homepage, the left navigation pane where bookmarks are provided links you directly to the desired setup page. Click on the desired item to expand the page in the main navigation pane.

4.4.1 Status – Home Page

This screen contains information of the software version of your device and some settings, such as IP Address, Subnet Mask, and MAC Address of the WAN and LAN connections.

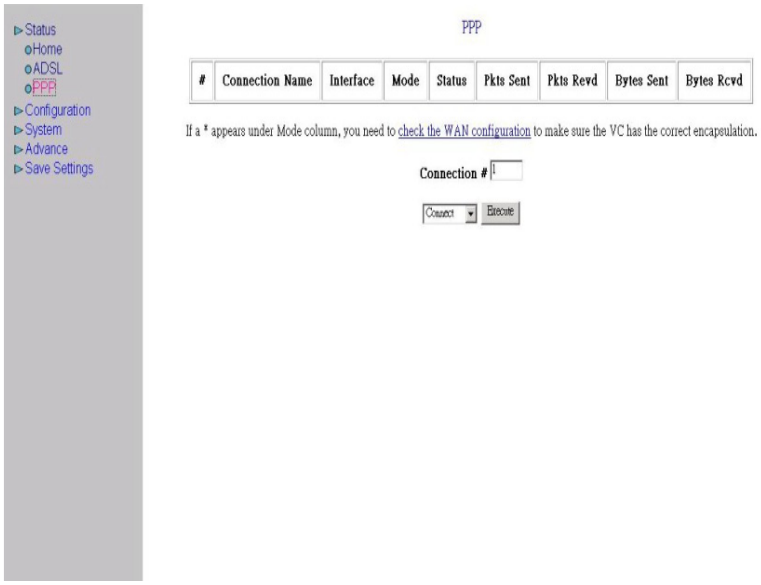
4.4.2 Status – ADSL Status

Displays the status of your ADSL connection. It will refresh every two seconds.



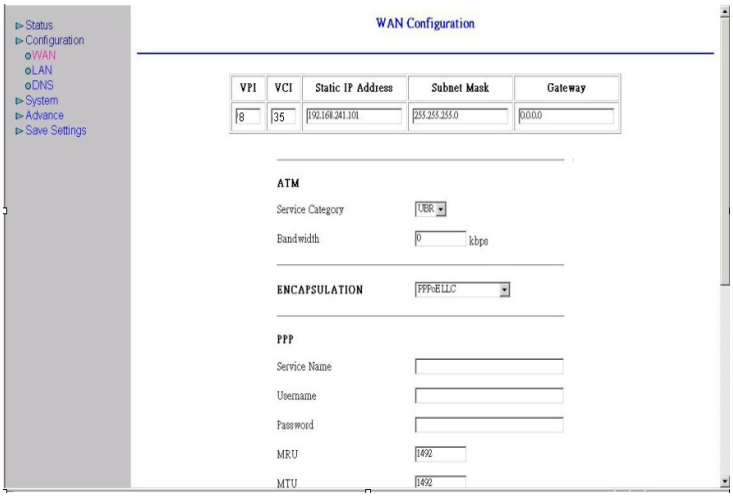
4.4.3 Status – PPP

Displays the status PPP for each PPP interface.



4.4.4 Configuration – WAN Configuration

The screens below contain settings for the WAN interface toward Internet.



VPI: Consult the telephone company to get the Virtual Path Identifier (VPI) number. The default value is 8.

VCI: Consult the telephone company to get the Virtual Channel Identifier (VCI) number. The default value is 35.

Static IP Address: Enter the information provided by your ISP.

Subnet Mask: Enter the information provided by your ISP.

Default Gateway: Enter the gateway address provided by your ISP.

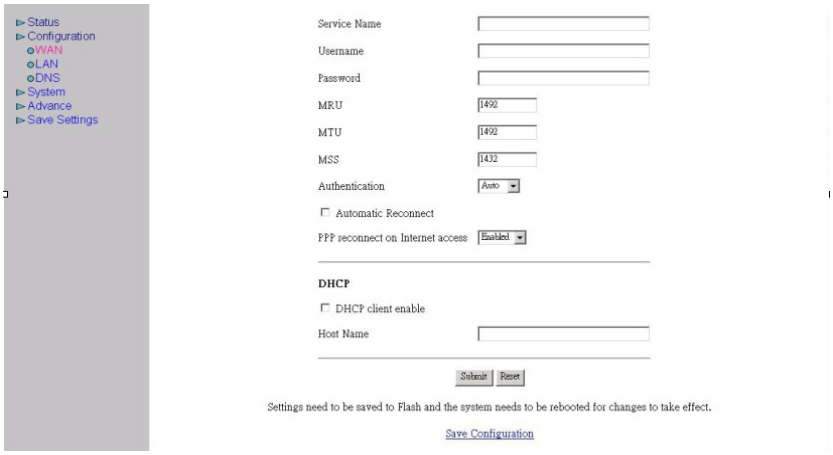
ATM

Service Category: Select **UBR** or **CBR**.

Bandwidth: Enter the bandwidth.

ENCAPSULATION

There are eleven ways ─ PPPoE VC-Mux, PPPoE LLC, PPPoE None, PPPoA VC-Mux, PPPoA LLC, 1483 Bridged IP VC-Mux, 1483 Bridged IP LLC, 1483 Routed IP VC-Mux, 1483 Routed IP LLC, Classical IP over ATM, Native ATM ─ for the device to have a public IP address and then to access Internet. You have to check with your ISP about which way is adopted.



PPP

If your encapsulation is set to be PPPoE or PPPoA, the following fields must be entered.

Service Name: This item is for identification purpose. If it is required, your ISP will provide you the information. Maximum input is **31** alphanumeric characters.

Username: Enter the username provided by your ISP.

Password: Enter the password provided by your ISP.

Authentication: Default at “Auto”.

Automatic Reconnect: Check to enable this device to automatically re-establish the PPPoE session when disconnected by ISP.

PPP connect on WAN access: Check to enable this device to automatically re-establish the PPPoE session whenever there is WAN access traffic, e.g. Internet access.

DHCP

DHCP client enable: Check to enable the DHCP client function if you want the device to get an IP address automatically from your ISP.

Host Name: Enter the name of your work group.

All settings need to be saved and the device needs to be rebooted before the changes to take effect.

4.4.5 Configuration – LAN Configuration

This screen contains settings for USB interface attached to the USB port.

IP Address: Default at **192.168.1.254.**

This is the device IP address in LAN site. If you plan to change it to another IP address to a different range of IP subnet. Please make sure your PC is also located at the same IP subnet. Otherwise, you may not be able to access the ADSL Router.

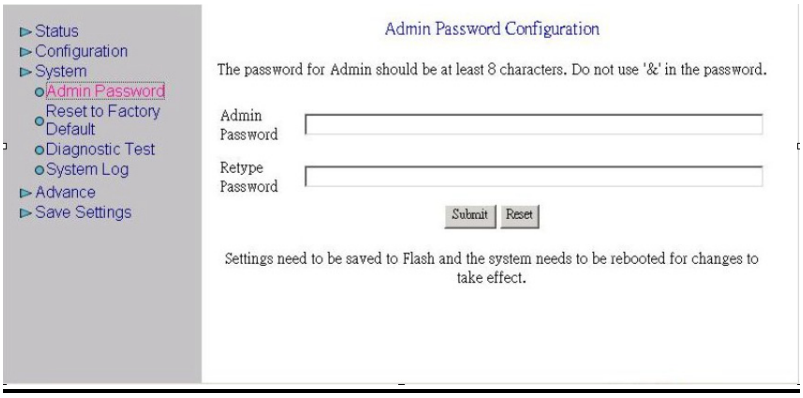
Subnet Mask: Default at **255.255.255.0.**

4.4.6 Configuration – DNS Configuration

A Domain Name System (DNS) contains a mapping table for domain name and IP address. In the Internet, every host has a unique and friendly name such as www.yahoo.com and IP address. The IP address is so hard to remember that you may just enter the friendly name www.yahoo.com and then the DNS will convert it to its equivalent IP address.

You can obtain Domain Name System (DNS) IP address automatically if ISP provides it when you logon. Or your ISP may provide you with an IP address of DNS. If this is the case, you must enter the DNS IP address.

4.4.7 System – Password Configuration

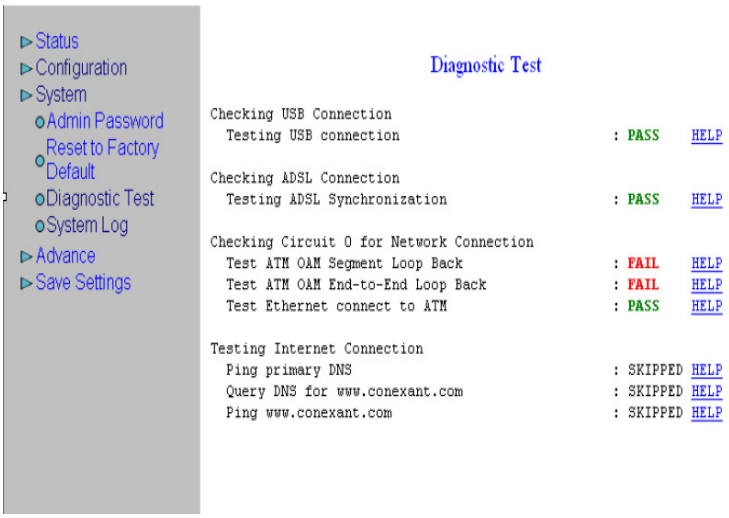


In factory setting, the default password for administrator is password, and that for user is also password. You can change the default password to ensure that someone cannot adjust your settings without your permission. Every time you change your password, please record the password and keep it at a safe place.

Please note that the minimum input for password is **8** alphanumeric characters long. Since it is **case sensitive**, be sure that you remember whether a letter is in upper or lower case and make sure that your Caps Lock is off. Moreover, please do not use the sign “&” in the passwords.

4.4.8 System – Diagnostic Test

As soon as you enter the test program, all tests will run automatically to diagnose the connection status of the device.



Checking LAN Connection

Testing Ethernet LAN connection

This test passes if the Ethernet LAN interface is working properly.

Checking ADSL Connection

Testing ADSL Synchronization

This test checks your DSL modem to see if it can successfully negotiate and establish a DSL connection with your service provider's central office equipments. The test returns PASS if a DSL connection is established.

If this test returns FAIL, please try the test again a few minutes after this test is completed. Since your DSL modem need a couple of seconds to a few minutes to establish the DSL connection depending on your phone line quality. If this test returns FAIL, make sure your phone line is connected to your DSL modem securely, and also check with your service provider to see if your service is activated.

If this test returns FAIL, all other tests will be skipped.

Checking Circuit 0 for Network Connection

Test ATM OAM Segment Loop Back

This test sends ATM OAM F5 Segment loop back request cells to the central office equipments through your DSL connection. This test will pass if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test fails consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns FAIL if the DSL synchronization test failed.

Test ATM OAM End-to-End Loop Back

This test sends ATM OAM F5 End-to-End loop back request cells to the central office equipments through your DSL connection. This test returns PASS if response cell is received. Since your service provider might not support this test, your DSL modem could still work even if this test fails.

If this test return FAIL consistently and your DSL modem seems not working, check to make sure the VPI and VCI are configured correctly.

This test returns SKIPPED if the DSL synchronization test failed.

Test Ethernet connect to ATM

This test returns PASS if the ATM AAL5 module is loaded correctly in your DSL modem. If this test returns FAIL, an internal error has occurred.

This test returns SKIPPED if the DSL synchronization does not return PASS.

Test PPPoE connection

This test returns PASS if your login name and password have passed authentication with your service provider.

If this test returns FAIL, run this test again a few minutes after this test is completed, especially if your PPP connection has just been improperly disconnected. If this test consistently fails, first make sure your login name and password are correct. Remember that login name and password are case sensitive.

This test returns SKIPPED if "PPPPOE connect to Ethernet" test does not return PASS and your DSL modem is configured as PPPOE encapsulation.

This test also returns SKIPPED if "Ethernet connect to AAL5" test does not return PASS and your DSL modem is configured as PPPOA encapsulation.

Test PPP Layer connection

This test returns PASS if your DSL modem has been assigned a valid IP address by

your service provider through DHCP or your DSL modem is assigned a valid IP address statically.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and DHCP client is turned on in your DSL modem, check with your service provider. If this test returns FAIL consistently and your DSL modem is statically assigned an IP address, make sure the IP address is the correct one assigned by your service provider.

This test returns SKIPPED if “Ethernet connect to AAL5” test does not return PASS.

Test IP connect to PPP

This test returns PASS if your DSL modem has been assigned a valid IP address by your service provider through DHCP or your DSL modem is assigned a valid IP address statically.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and DHCP client is turned on in your DSL modem, check with your service provider. If this test returns FAIL consistently and your DSL modem is statically assigned an IP address, make sure the IP address is the correct one assigned by your service provider.

This test returns SKIPPED if “Ethernet connect to AAL5” test does not return PASS.

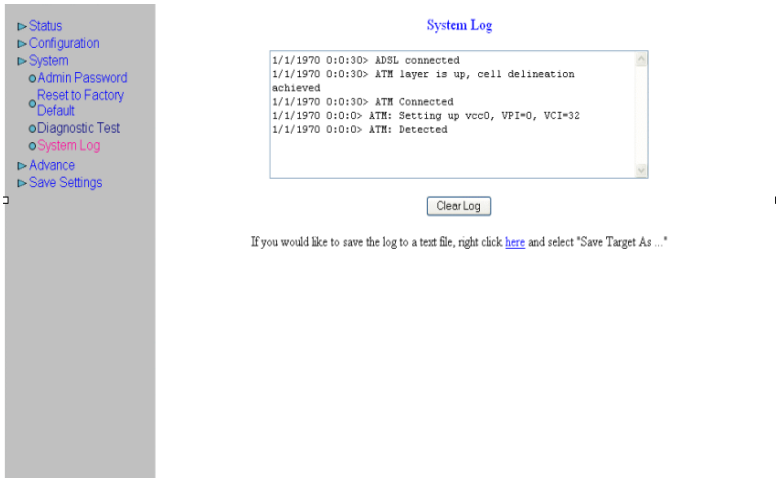
Test IP connect to Ethernet

This test returns PASS if the gateway can be reached through ping request. The gateway is assigned by your service provider, or obtained from your service provider by PPP negotiation or DHCP negotiation.

If this test returns FAIL, run this test again a few minutes after this test is completed. If this test returns FAIL consistently and your DSL modem seems not working, check to make sure your statically assigned IP address is configured correctly or DHCP client is turned on with the current VC.

This test returns SKIPPED if "IP connect to PPP" or "IP connect to Ethernet" test does not return PASS.

4.4.9 System – System Log



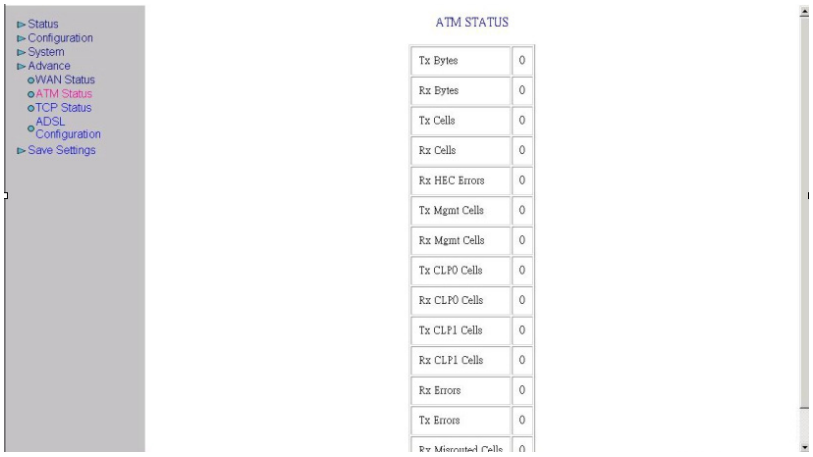
Display the system logs cumulated till the present time. You can trace the historical information through this function. It refreshes every five seconds.

4.4.10 Advance – WAN Status

Each VC setting you enabled in the ***WAN Configuration*** section except that uses the PPP encapsulation will be displayed in this table.

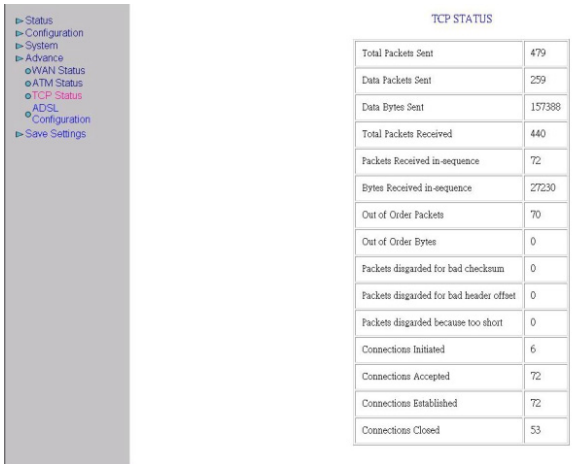
4.4.11 Advance – ATM Status

Display the status of ATM.

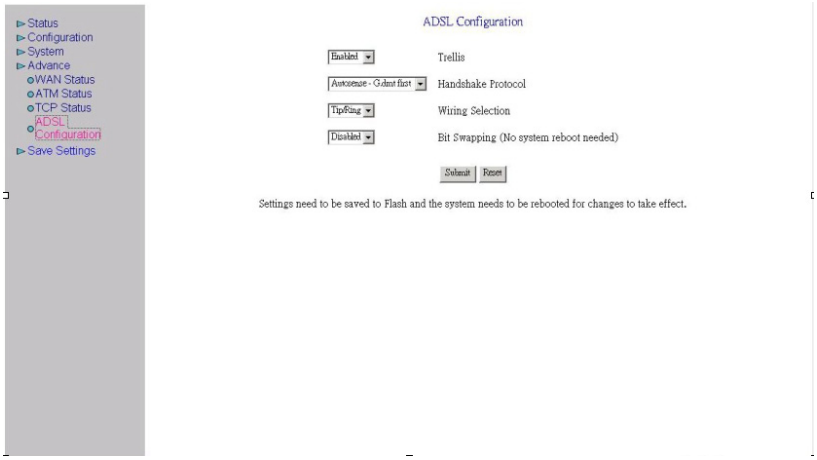


4.4.12 Advance – TCP Status

Display the status of TCP. This screen will automatically refresh every two seconds.



4.4.13 Advance – ADSL Configuration



Trellis: Default at **Enabled**.

Handshake Protocol: Default at **Autosense – G.dmt first**. You can also choose other

protocols, such as **Autosense – T1.413 first**, **G.dmt/G.lite**, **T1.413**, **G.dmt**, **G.lite**.

Wiring Selection: Default at **Tip/Ring**. Select **Auto** or **A/A1** if necessary.

4.4.14 Save Settings

Click the **Submit** button to write settings to flash. Then, the system will reboot for changes to take effect.

APPENDIX A
Product Support

Most problems can be solved by referring to the **Troubleshooting** section of this manual. If you cannot resolve the problem with the **Troubleshooting** chapter, please contact the dealer where you purchased this product.

Contact Billion

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