personal computing products

CX82320

ADSL USB Endpoint

Windows Driver

User Guide (Preliminary)

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Doc. No. 100430A
January 21, 2002

CONEXANT™

Revision Record

Revision	Date	Comments
A	9/9/2002	Initial release.

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Contents

1 Introduction

1.1 Overview

The Conexant CX82320 ADLS USB Endpoint combines an “always-on” high speed Asymmetric Digital Subscriber Line (ADSL) connection to the telephone line, and a Universal Serial Bus (USB) connection to a computer into a single cost-effective solution. The CX82320 ADSL USB Endpoint solution hardware connects to the computer via USB interface. The ADSL USB Endpoint supports T1.413-1998, G.dmt (G.992.1) and G.lite (G.992.2) ADSL and is designed to operate in LAN and WAN modes. The firmware running on the CX8320 is loaded from a computer through the USB connection. Conexant supplies the software drivers for three kind of operation systems- Mac OS X/9.0, Windows 98/2000/XP, and Red Hat 7.1/7.2 Linux.

In addition, the Conexant firmware includes the WindRiver Wind Web Server to support the feature of embedded graphics configuration for Conexant CX82320 products. Through the USB connection, end-user can know the current configuration on the system.

1.2 Scope

This document provides the descriptions of the procedure to install and uninstall the Windows USB driver for the CX82320 ADSL USB Endpoint and the usages of the Web configuration pages.

Given the EEPROM has stored the USB device, configuration, interface, and endpoint descriptors, the Conexanat propreitary DOS-based EEPROM Programming Utility does not introduce in this document.

1.3 Audience

This document is prepared for use by Conexant customers purchasing CX82320 products.

1.4 Document Structure

Chapter 1, Introduction*,* introduces the Conexant CX82320 Product, defines the scope of the document, and provides a brief overview of the functions of Windows driver.

Chapter 2, Software Installation and Configuratio*n,* describes how to install, and uninstall the Conexant Windows driver.

Chapter 3, Provide the descriptions and usages for CX82320 ADSL USB Endpoint's Web configuration pages.

1.5 System Requirements

- Lab computer

– Pentium II 233 MHz processor or better

–32 MB or greater of free system RAM

– Windows 98, Windows ME, Windows 2000, or Windows XP

–USB port

- Target system

–CX82320 ADSL USB Reference Board

1.6 Reference Documents

Description	Document No./ Drawing No.
ADSL USB EEPROM Programmer	

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2 Installation and Setup

2.1 Installation

2.1.1 Installing the ADSL USB Endpoint

The ADSL USB Reference Board can be connected to any available USB port connector on the MACHINE. There are no option switches for the user to set. Once the board is connected to the USB port and the driver software has been installed, connect the DSL line input to the DSL RJ11 jack on the card. Some designs may have a second RJ11 for connecting an ordinary telephone handset directly to the USB card.

2.1.2 Installing the Windows Driver

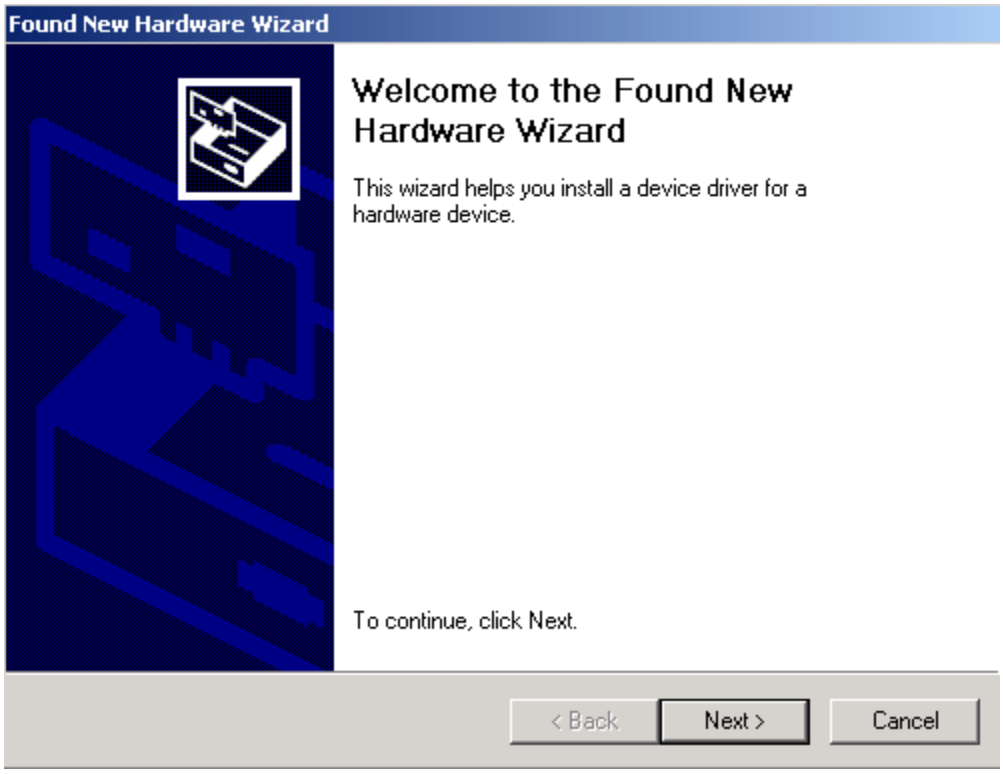
The ADSL USB Endpoint software can be installed when using the .inf files for Windows plug-n-play.

The following examples are shown for a Windows 2000 operating system. Installations in other Windows environments are similar.

2.1.2.1 INF Installation of the Windows Driver

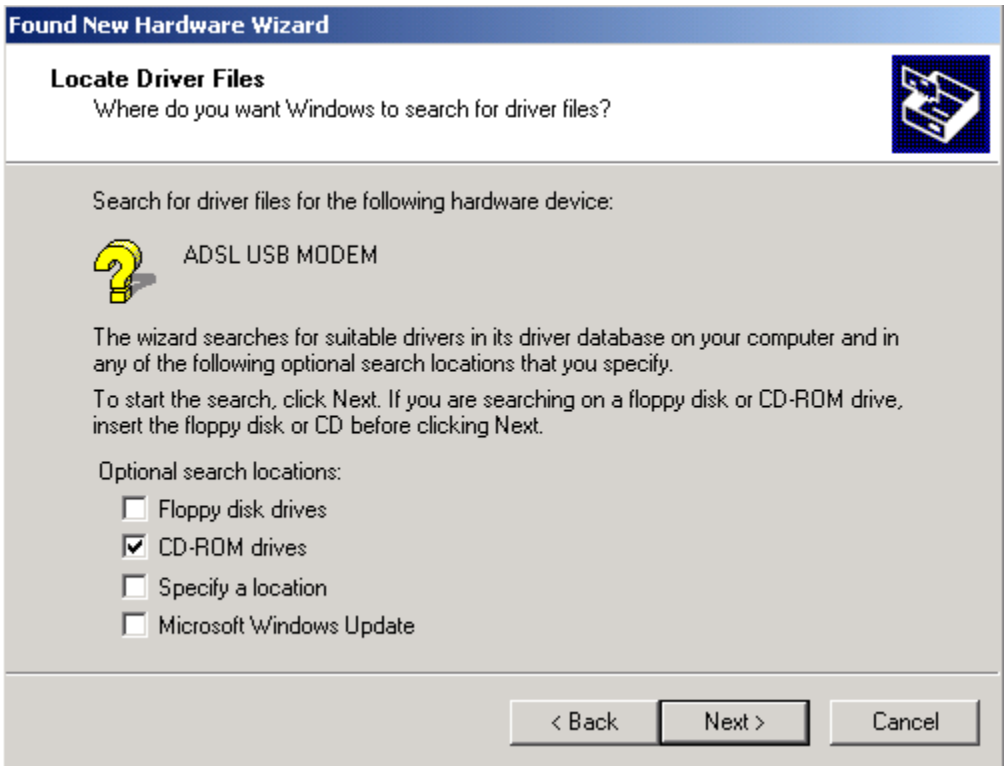
1. With the computer running at the desktop, connect the ADSL-USB Reference Board to the USB cable connected to the computer. The Windows operating system will detect the new hardware.

2. When prompted with the **Found New Hardware Wizard**, select **Next** to continue.

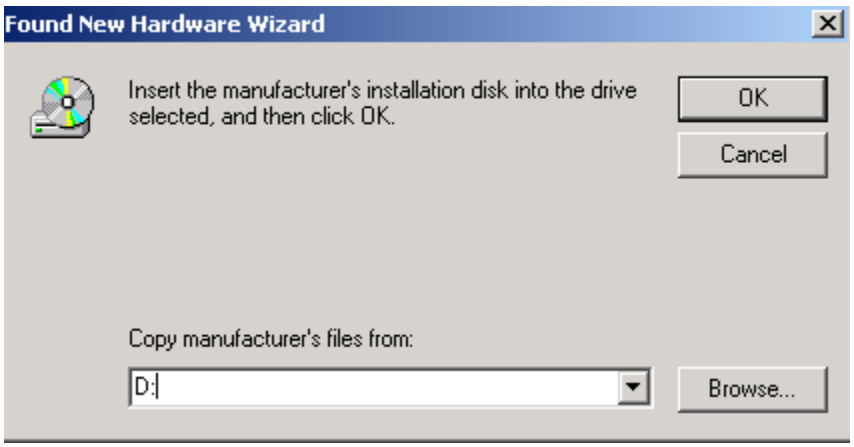


3. The **Found New Hardware Wizard** will prompt for the device drivers. Select the **Search for a suitable driver for my device** option.

4. Insert the CD with the device drivers and select the **CD-ROM Drives** option.

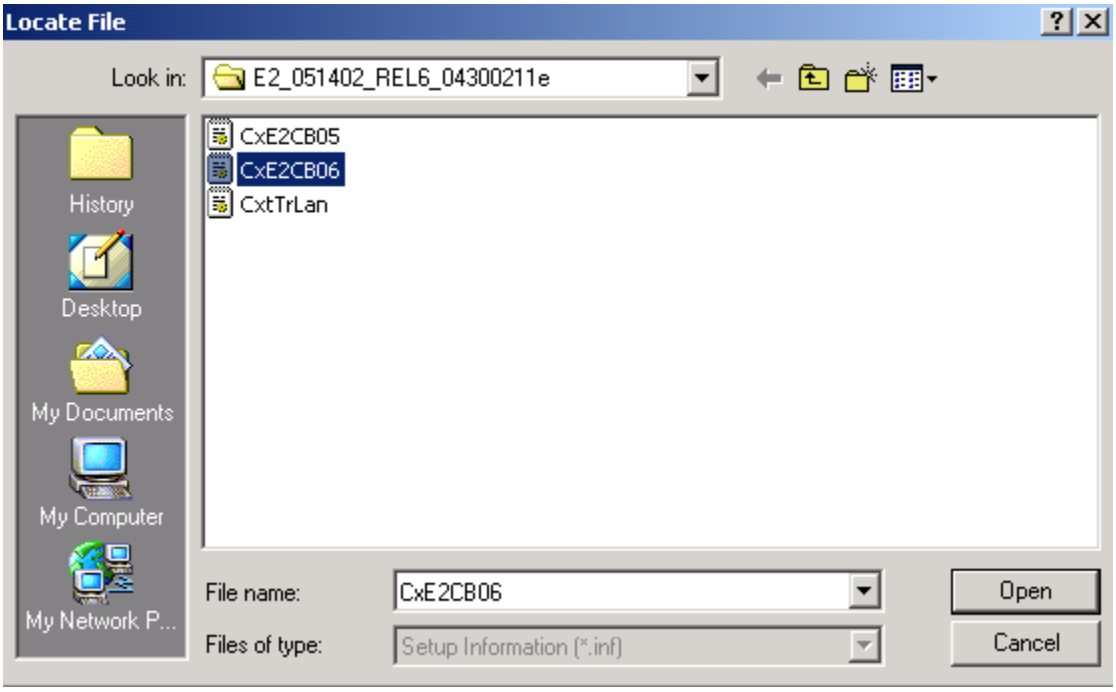


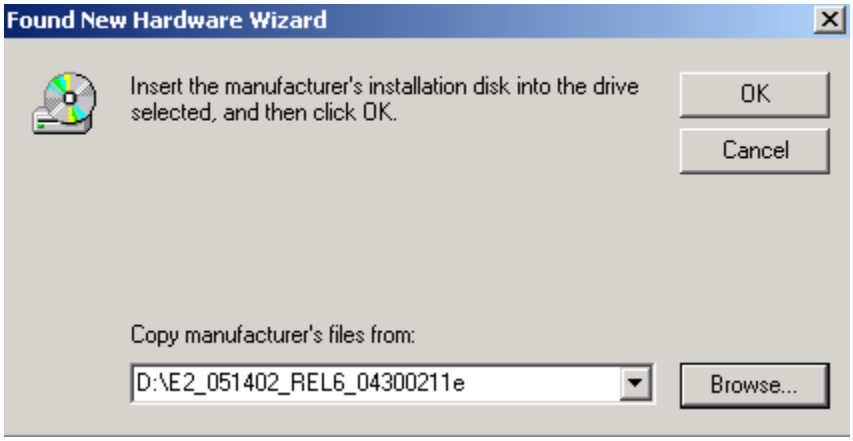
5. If Windows does not find the drivers automatically, a Wizard prompt will appear.



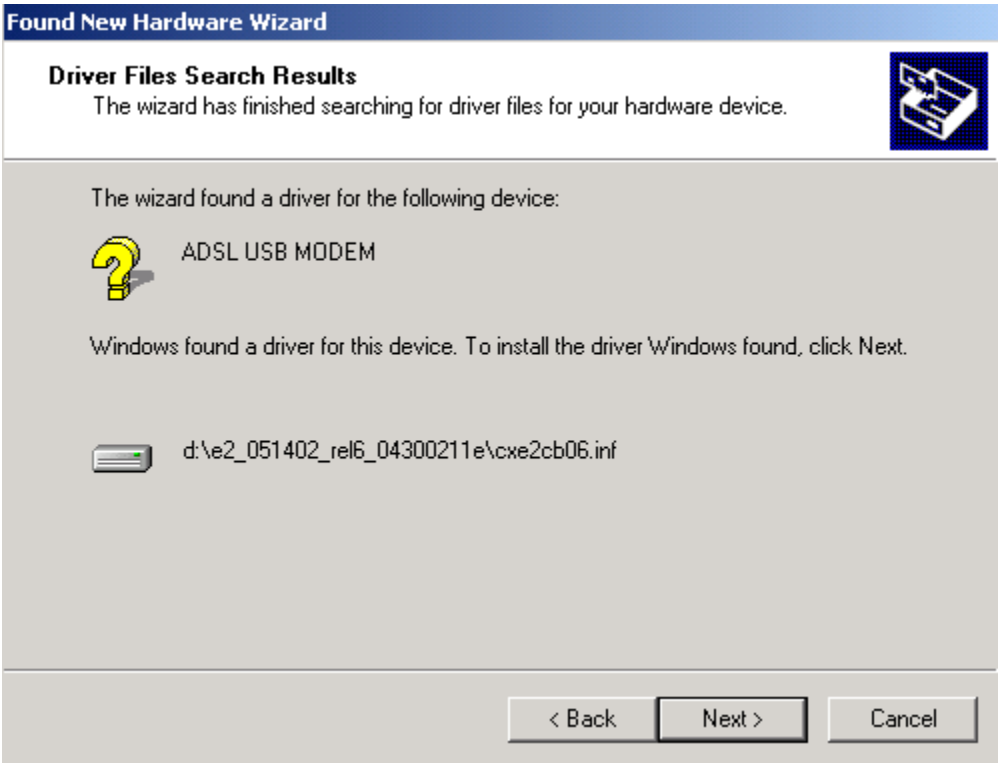
6. Browse to the CD and select the appropriate driver. Click **Open.**

Note: Choose **CxE2CB06.inf** for CX82320 ADSL USB Endpoint; choose CxE2CB05.inf for CX82110 ADSL products

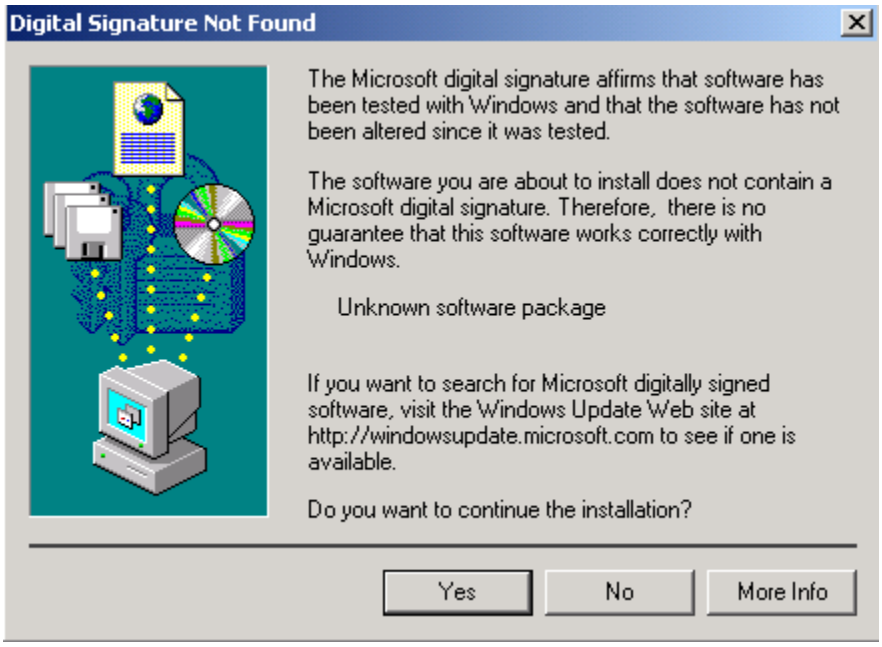


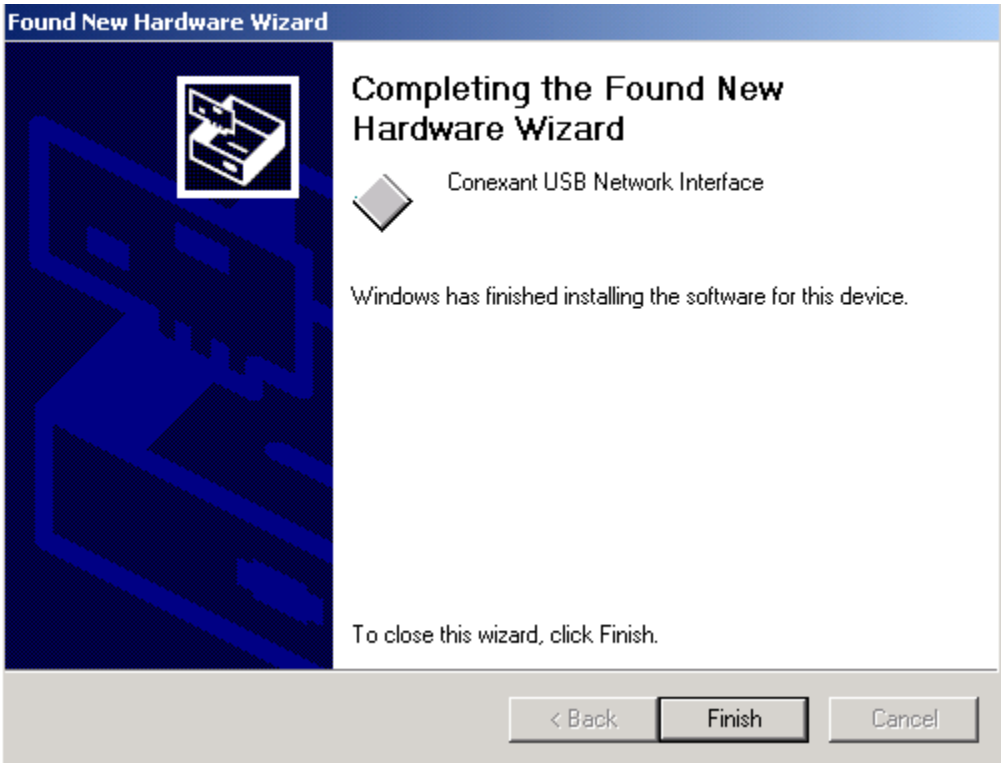


7. When the appropriate driver is found, select **OK** to continue.



8. If a **Digital Signature Not Found** screen is displayed, select **Yes** to continue.

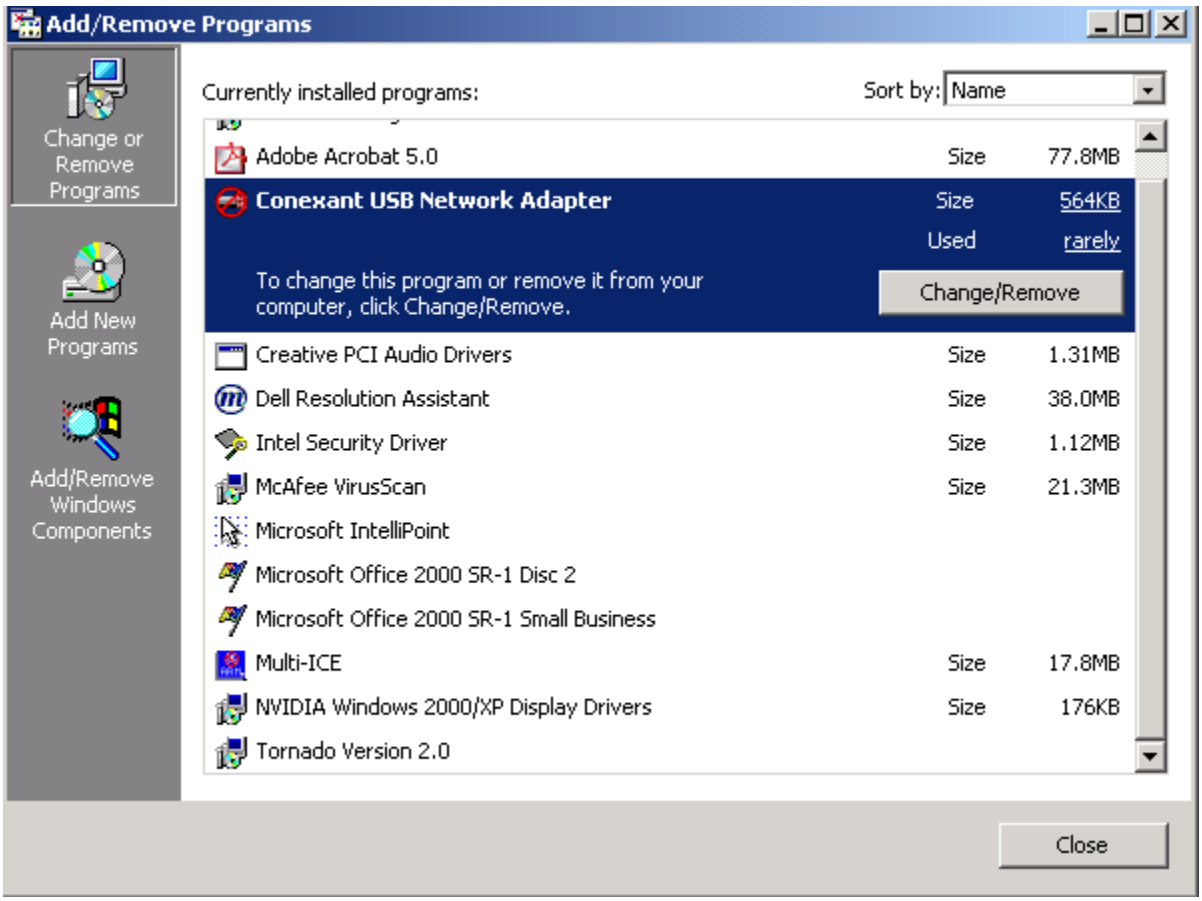




9. When the installation is complete, use the **Network Neighborhood** (for Windows 9x) or **My Network Places** properties to configure the network settings as defined by the local service provider.

2.1.3 Uninstalling the Windows Driver

The Windows **Add/Remove Programs** function found on the **Windows Control Panel** should be used to initiate the uninstall process for INF installations.



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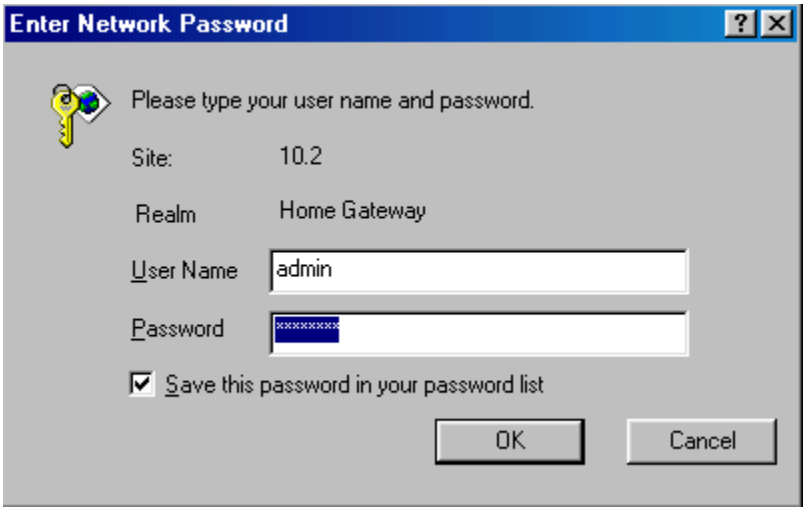
3 Web page configurations

3.1 Login

1. Launch the Web browser.
2. Enter the USB port default IP address http://10.0.0.2.
3. Entry of the username and password will be prompted. Enter the default **login User Name** and **Password**.

- The default login **User Name** of the administrator is **admin**, and the default login **Password** is **epicrouter**.
- The default login **User Name** for the non-administrator is **user**, and the default login **Password** is **password.**

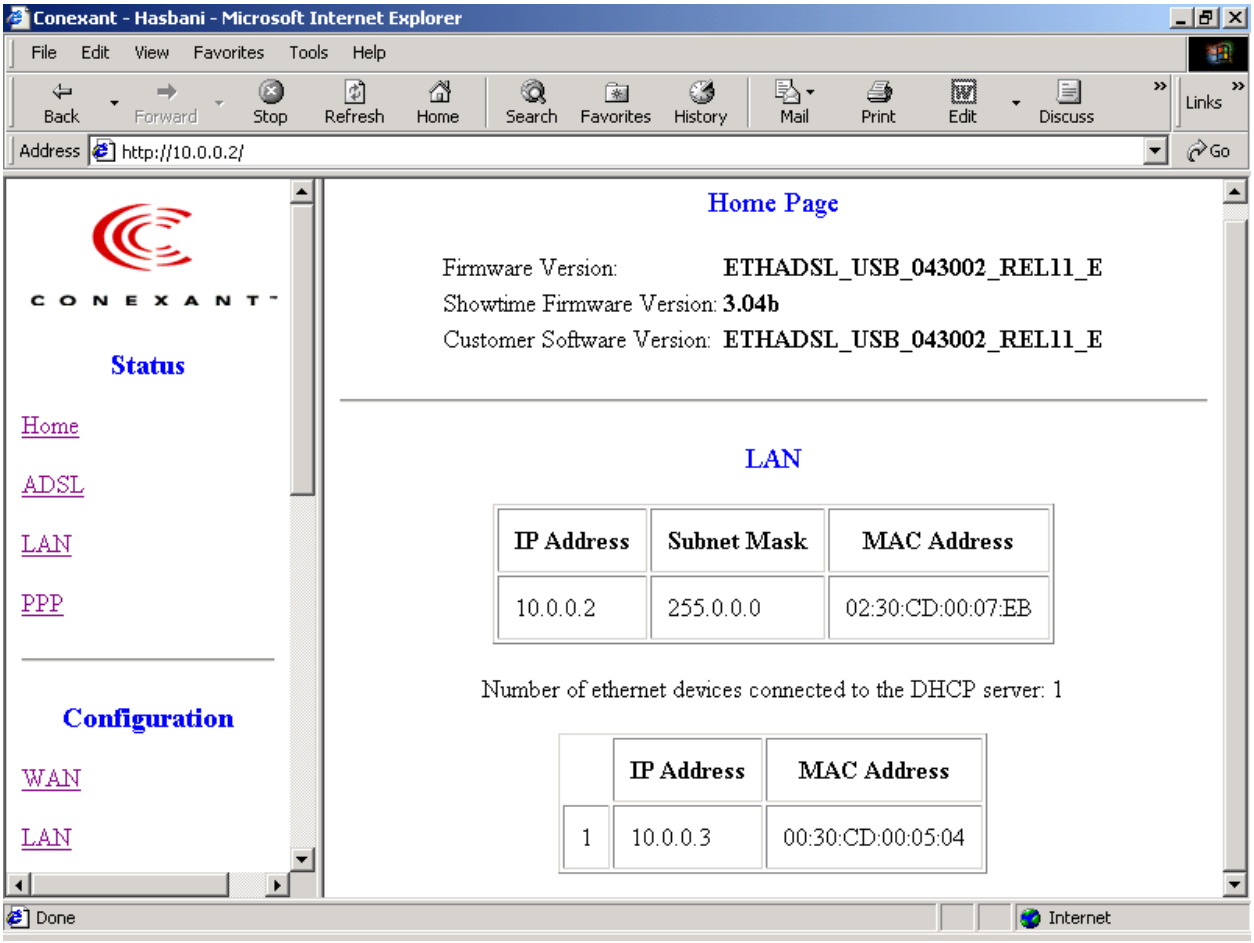


3.2 Status Pages

The links under the **Status** column are associated to the pages that represent the status of system and interfaces.

3.2.1 Home Page

The **Home** page shows the firmware versions and WAN and LAN interface status.



Firmware Version: This field displays the Conexant firmware (vxworks.z) version number.

Showtime Firmware Version: This field displays the Conexant ADSL data pump firmware version number.

Customer Software Version: This field displays the customer's own firmware version number and it is based on revision.txt.

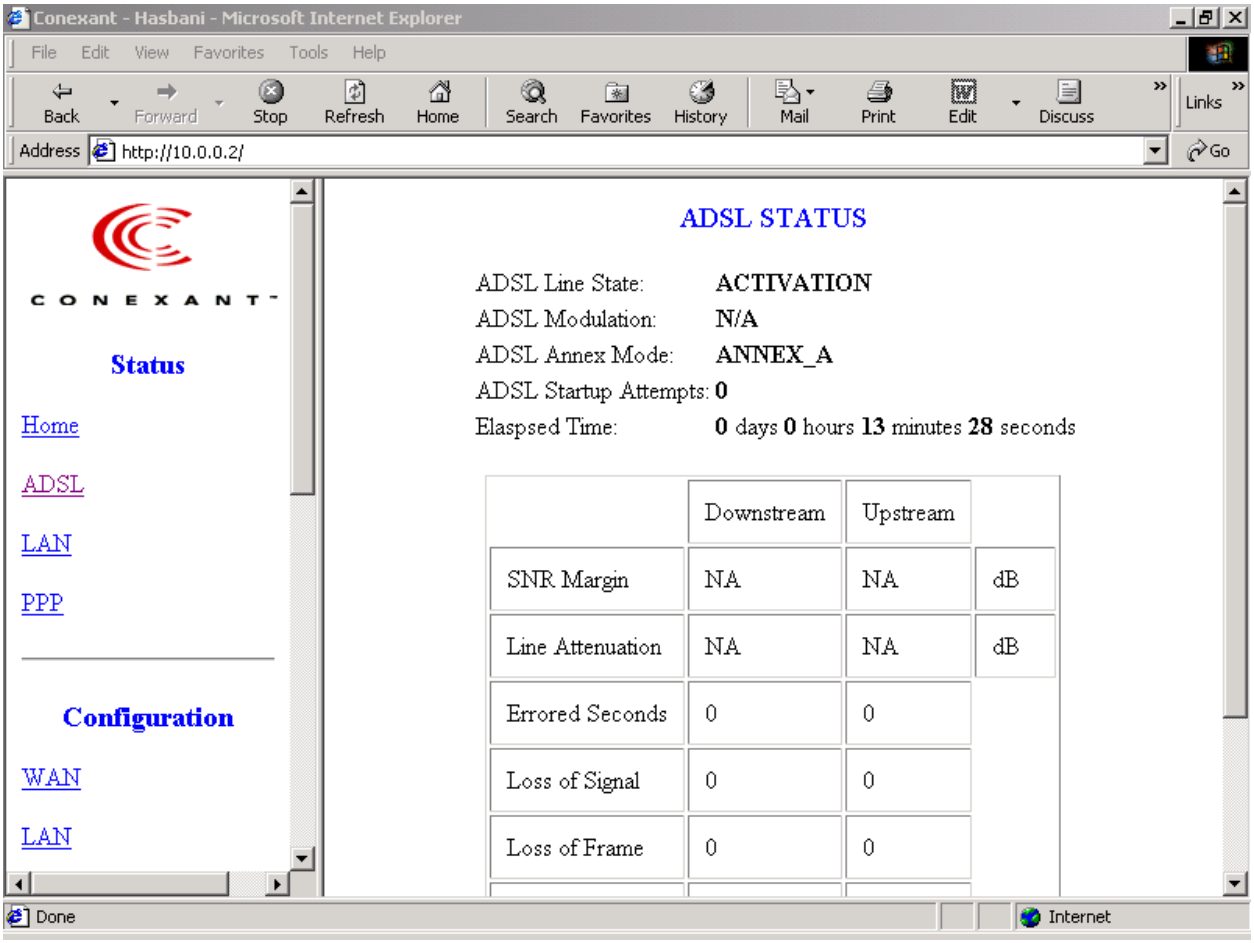
WAN: These fields display the IP address, Subnet Mask and MAC address for the WAN (ADSL) interface.

LAN: These fields display the IP address, Subnet Mask and MAC address for the LAN interface.

Number of Ethernet Devices Connected to the DHCP Server: These fields display the DHCP client table with the assigned IP addresses and MAC addresses.

3.2.2 ADSL Status Page

The **ADSL Status** page shows the ADSL physical layer status.



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

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

ADSL Annex Mode: This field displays the ADSL annex modes for Annex A or Annex B.

ADSL Startup Attempts: This field displays the ADSL connection attempts after loss of showtime.

Elapsed Time: This field displays the time of the modem has been in operation.

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 modem and the reference signal power level transmitted from the Central Office DSLAM.

Errored Seconds: The error during Showtime, whenever, a given sec contains CRC error, that second will be declared error second.

Loss of Signal: This field displays the count of event of ADSL signal loss.

Loss of Frame: This field displays the count of event of ADSL frame loss.

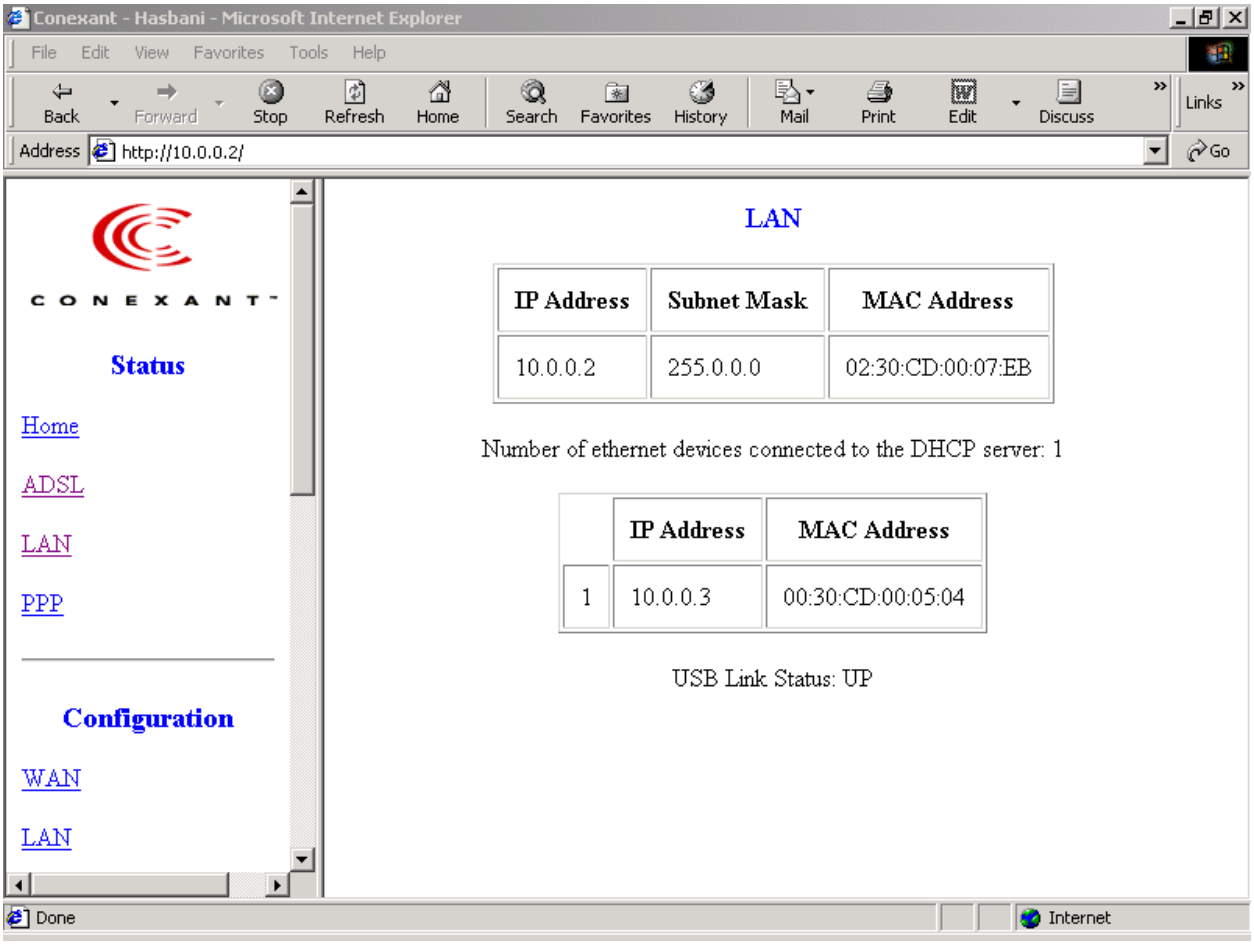
CRC Errors: This field displays the number of transmit data frames containing CRC errors.

Data Rate: This field displays the ADSL data rate.

Latency: This field displays the latency modes for fast or interleave.

3.2.3 LAN Page

The **LAN** page shows the information and status of LAN port, DHCP client table, and USB link.



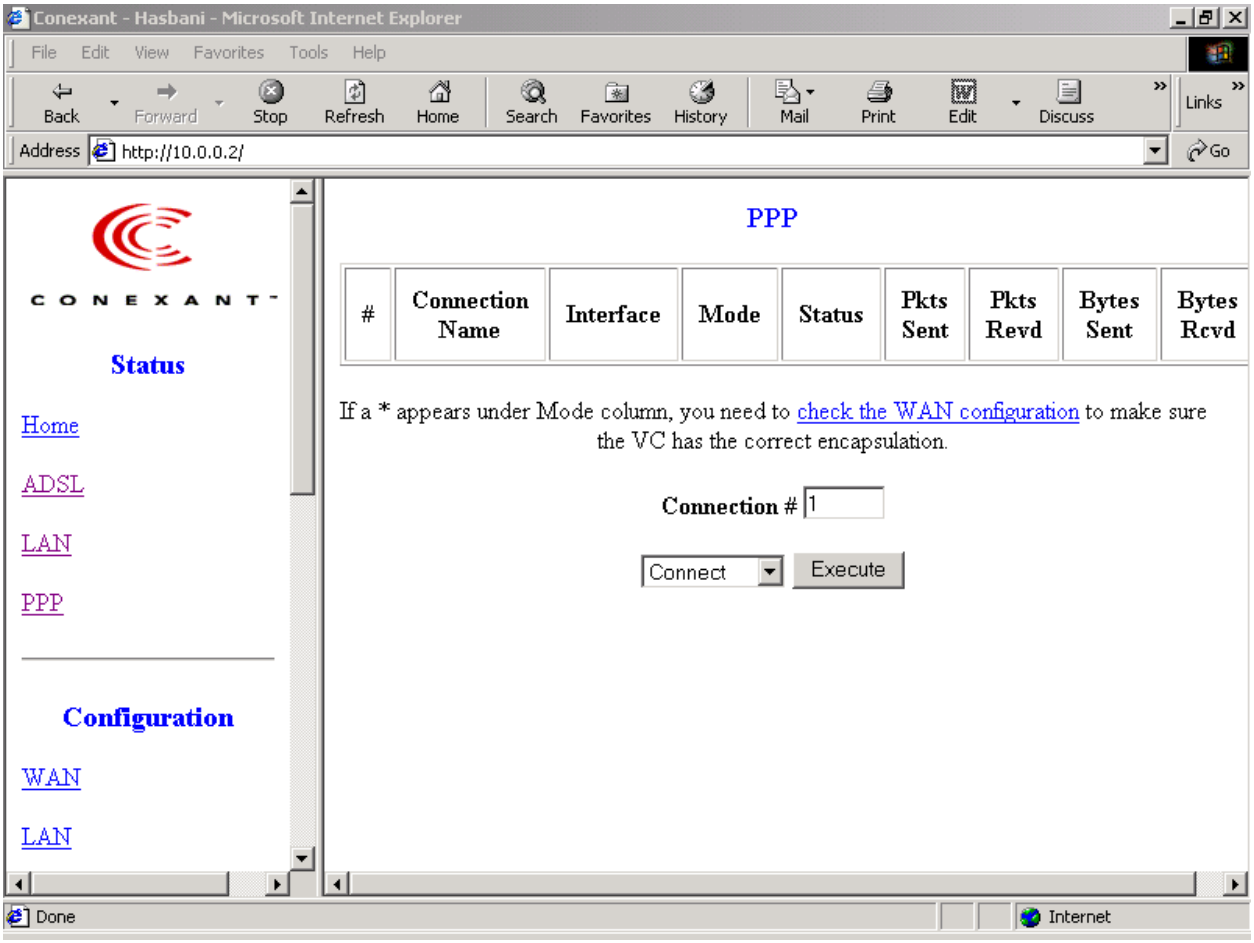
LAN: These fields display the IP address, Subnet Mask and MAC address for the LAN interface.

Number of Ethernet Devices Connected to the DHCP Server: These fields display the DHCP client table with the assigned IP addresses and MAC addresses.

USB Link Status: This field displays the link up or down for the USB.

3.2.4 PPP Page

The **PPP Status** page shows the status of PPP for each PPP interface.



PPP: These fields display the Connection Name (user defined), Interface (PVC), Mode (PPPoE or PPPoA), Status (Connected or Not Connected), Packets Sent, Packets Received, Bytes Sent and Byte Received.

Connect and Disconnect: This field allows the user to manually connect/disconnect the PPP connection for each PPP interface. In another word, each PPP session can be connected and disconnected individually.

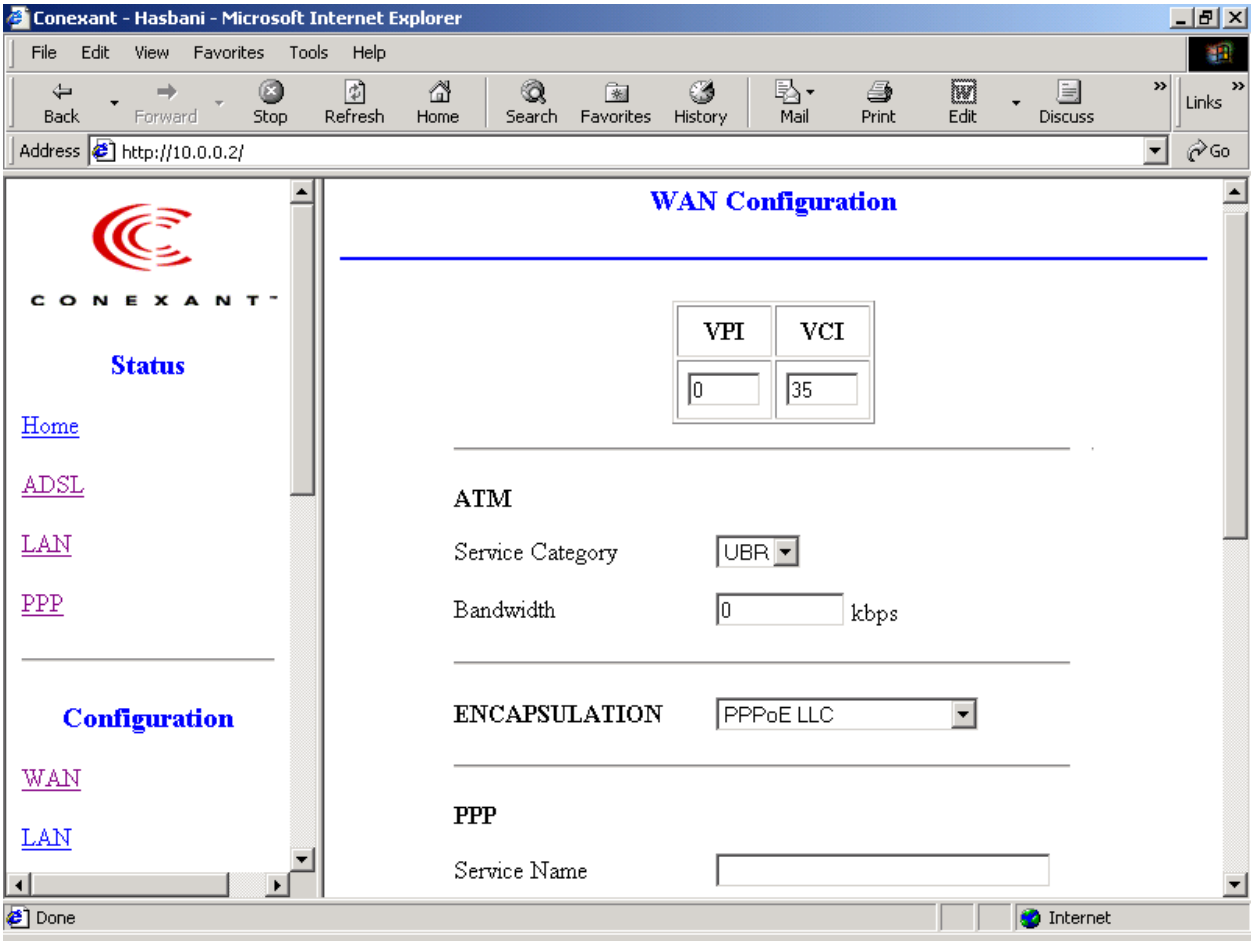
3.3 Configuration Pages

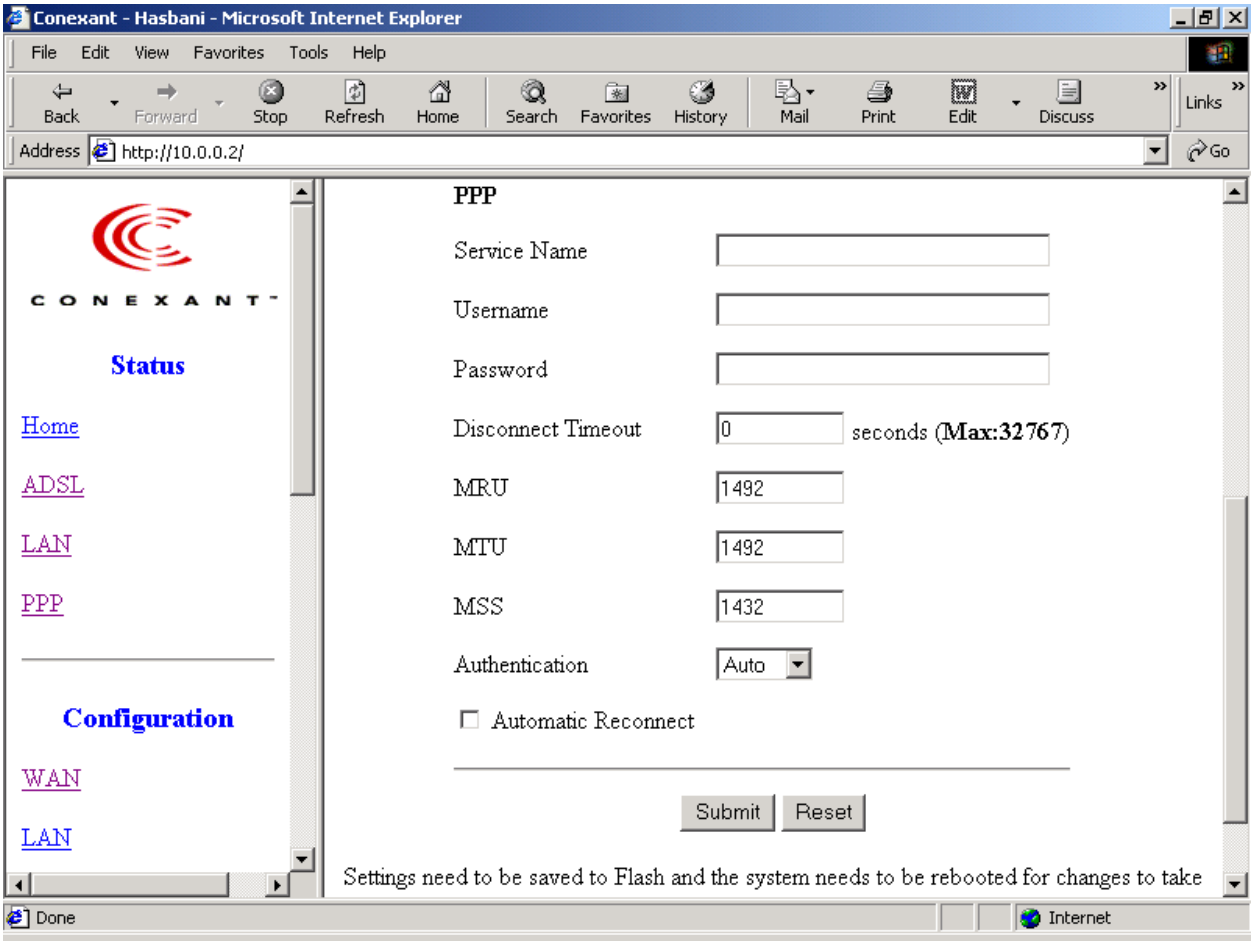
The links under **Configuration** column are associated to the pages that represent the configurations of system and interfaces.

*Note: When the configurations are changed, please go to the **Save Settings** page to save the new setting and reboot the board.*

3.3.1 WAN Configuration

The **WAN** configuration page allows the user to set the configuration for the WAN/ADSL ports.





3.3.1.1 ATM

Service Category: UBR and CBR are supported from the ATM.

Bandwidth: Bandwidth setting takes effect only when the CBR is selected. The maximum available bandwidth is from the upstream data rate of ADSL status page (see Section 3.2.2, ADSL).

3.3.1.2 Encapsulation

Select one of the encapsulation modes- Classical IP over ATM, PPPoE LLC/VC-Mux, and PPPoE None for the WAN connection.

3.3.1.3 PPP Configuration

Service Name: The service name of PPP is required by some ISPs. If the ISP does not provide the Service Name, please leave it blank.

Disconnect Timeout: The Disconnect Timeout allows the user to set the specific period of time to disconnect from the ISP. The default is 0, which means never disconnect from the ISP.

MRU: Maximum Receive Unit indicates the peer of PPP connection the maximum size of the PPP information field this device can be received. The default value is 1492 and is used in the beginning of the PPP negotiation. In the normal negotiation, the peer will accept this MRU and will not send packet with information field larger than this value.

MTU: Maximum Transmission Unit indicates the network stack of any packet is larger than this value will be fragmented before the transmission. During the PPP negotiation, the peer of the PPP connection will indicates its MRU and will be accepted. The actual MTU of the PPP connection will be set to the smaller one of MTU and the peer's MRU. The default is value 1492.

MSS: Maximum Segment Size is the largest size of data that TCP will send in a single IP packet. When a connection is established between a LAN client and a host in the WAN side, the LAN client and the WAN host will indicate their MSS during the TCP connection handshake. The default value is 1432.

Automatic Reconnect: When it is checked, it will maintain the PPP connection all the time. If the ISP shut down the PPP connection, it will automatically reconnect PPP session.

Authentication: When **AUTO** option is chosen, the PAP mode will run first then CHAP.

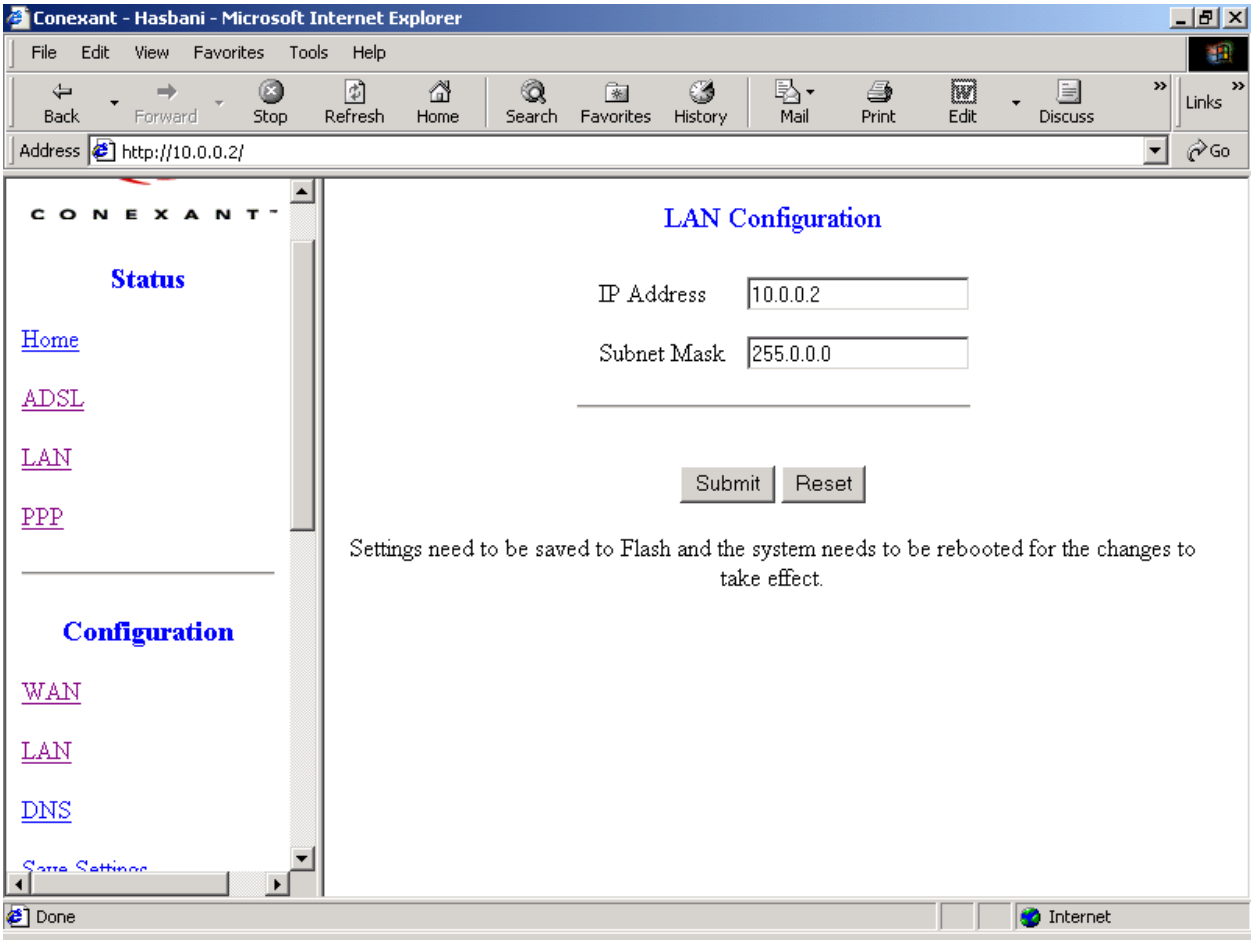
Host name: Required by some ISPs. If the ISP does not provide the Host name, please leave it blank.

Q1: If the PPP is disconnected after the **Disconnect Timeout** and how can I reconnect it?

A: You have to go to the **PPP Status** under **Admin Privileged** column, choose the **Connect** option, and then click **Execute** to restart a new PPP secession.

3.3.2 LAN Configuration

The **LAN** configuration page allows the user to set the configuration for the LAN port.

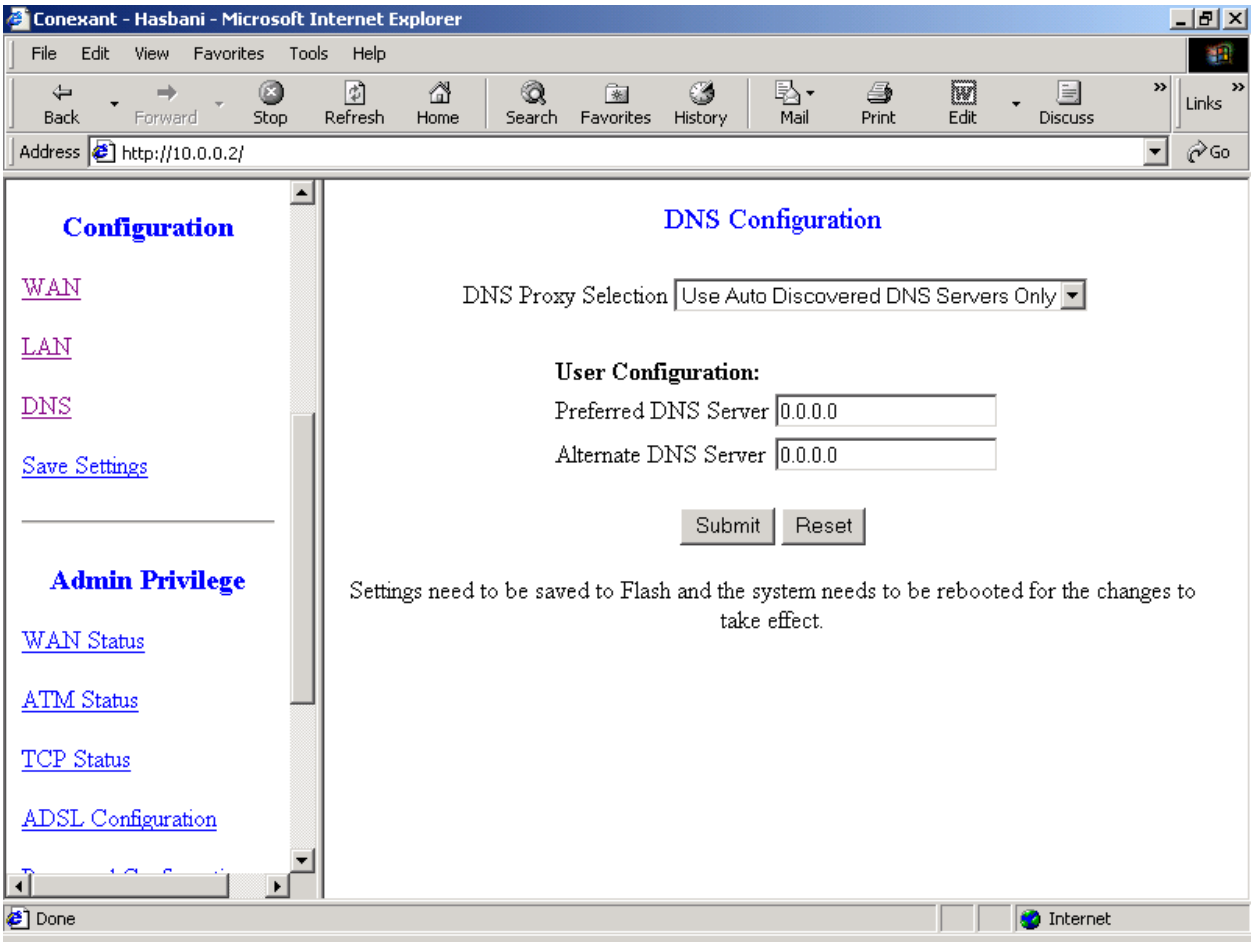


LAN IP Address & Subnet Mask: The default is 10.0.0.2 and 255.0.0.0. User can change it to other private IP address, such as 192.168.1.2, and 255.255.255.0.

3.3.3 DNS Configuration

The **DNS Configuration** page allows the user to set the configuration of DNS proxy.

The Conexant firmware supports the DNS proxy function. For the DHCP requests from local machine, the DHCP server will set the LAN port IP as the default DNS server. Thus, all DNS query messages will come into LAN port first. The DNS proxy on the ADSL USB endpoint recorded the available DNS servers, and forward DNS query messages to one of DNS server.



Disable DNS Proxy: The LAN port does not process the DNS query message. For the DHCP requests from local machine, the DHCP server will set the user-configured preferred DNS sever or alternate DNS server whichever is available as the DNS server. Then all DNS query messages will be directly sent to the DNS servers.

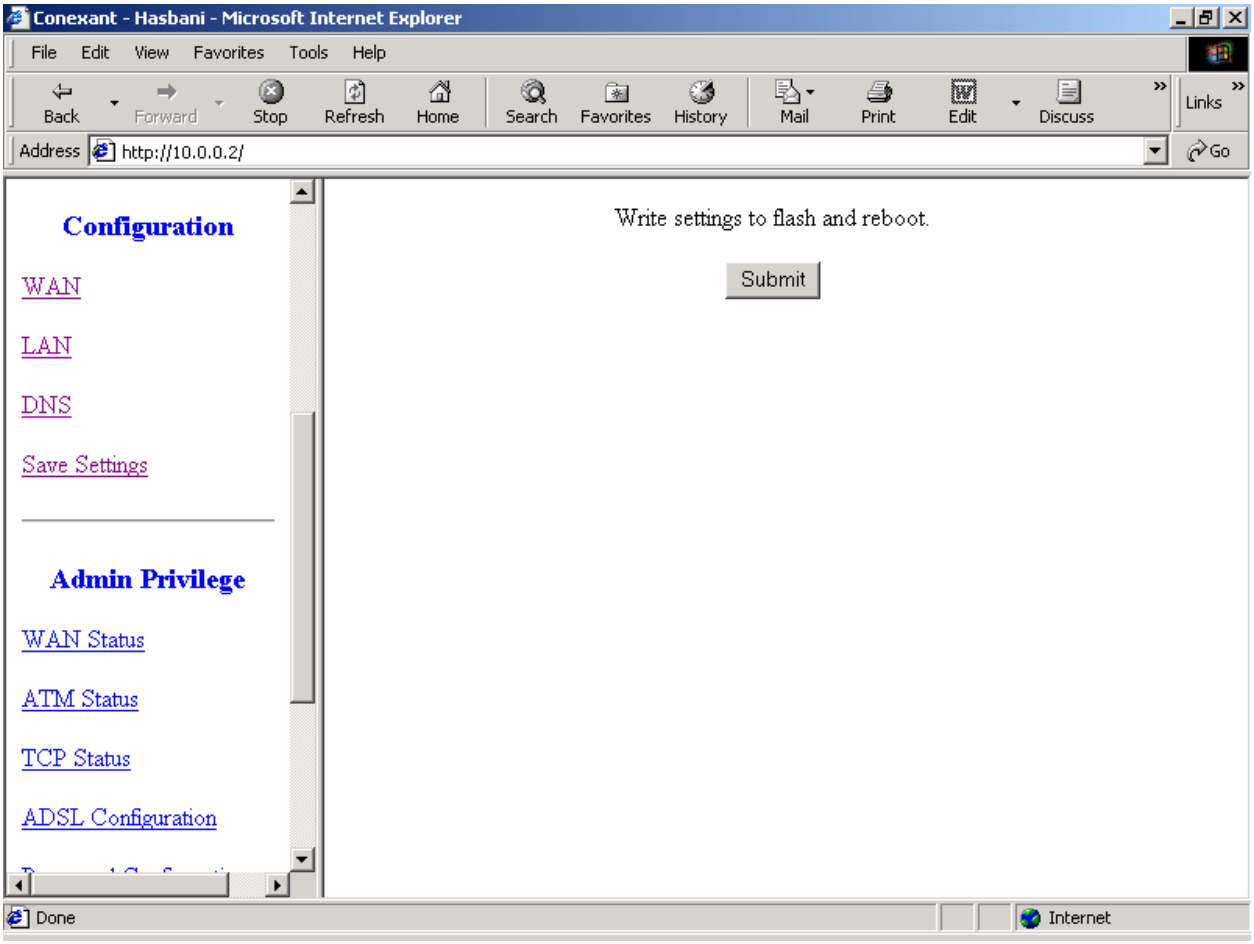
Use Auto Discovered DNS Servers Only: The DNS proxy will store the DNS server IP addresses obtained from PPP into the table. And all DNS query messages will be sent to one of the dynamically obtained DNS servers.

Use User Configured DNS Servers Only: The DNS proxy will use the user-configured preferred DNS server and alternate DNS server. And all DNS query message will be sent to one of DNS servers. Enter the DNS IP in the Preferred DNS Server and Alternate DNS Server fields.

Auto Discovery + User Configured: The DNS proxy's table has all the IP addresses of dynamically obtained and user configured DNS servers.

3.3.4 Save Settings

The **Save Settings** page allows the user to save the new configuration to the flash and reboot the system.



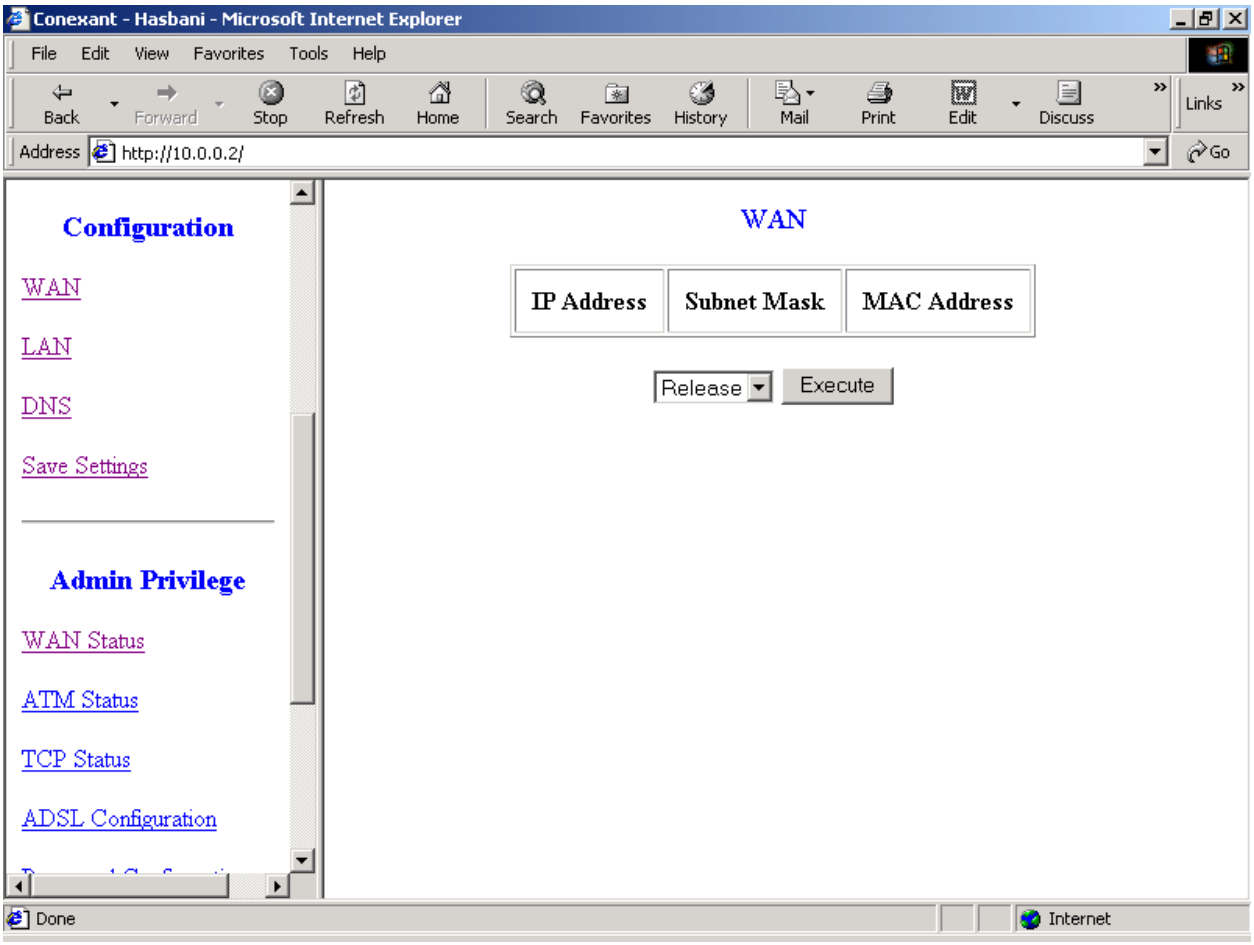
When the configurations are changes via the Web pages, the new settings need to be saved into the flash, so it is necessary to go to this Save Settings page to save and reboot the system for the changes to be taken effect.

3.4 Admin Privilege

The links under **Admin Privilege** are only to be accessed and configured, when it is login with administrator login name and password.

3.4.1 WAN Status

The **WAN Status** page shows the information and status of WAN Connection.

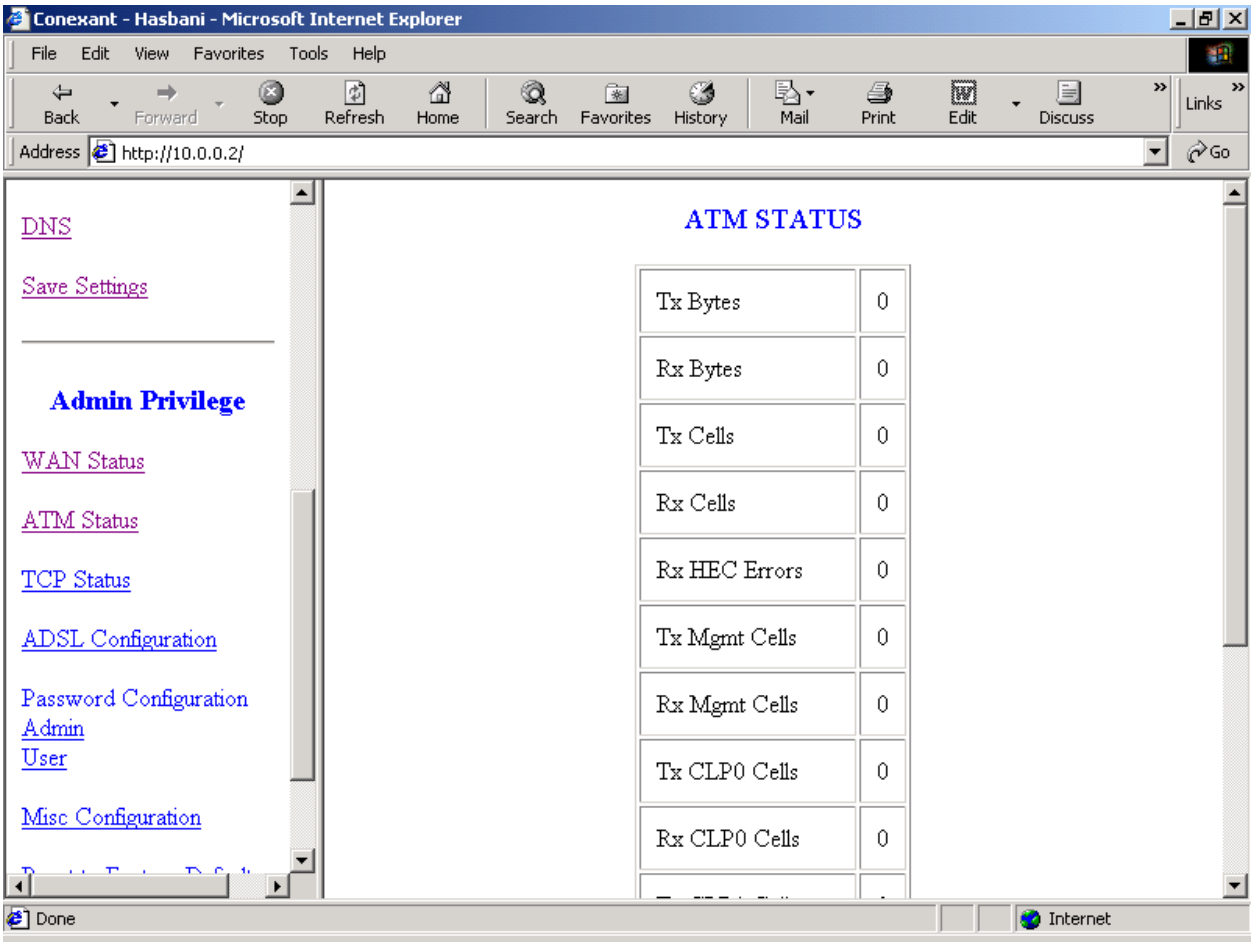


WAN: These fields display the IP address, Subnet Mask and MAC address for the WAN (ADSL) interface.

DHCP Release and Renew: This field allows the user to release and renew the WAN IP address in the WAN DHCP Client Enabled (dynamic) mode.

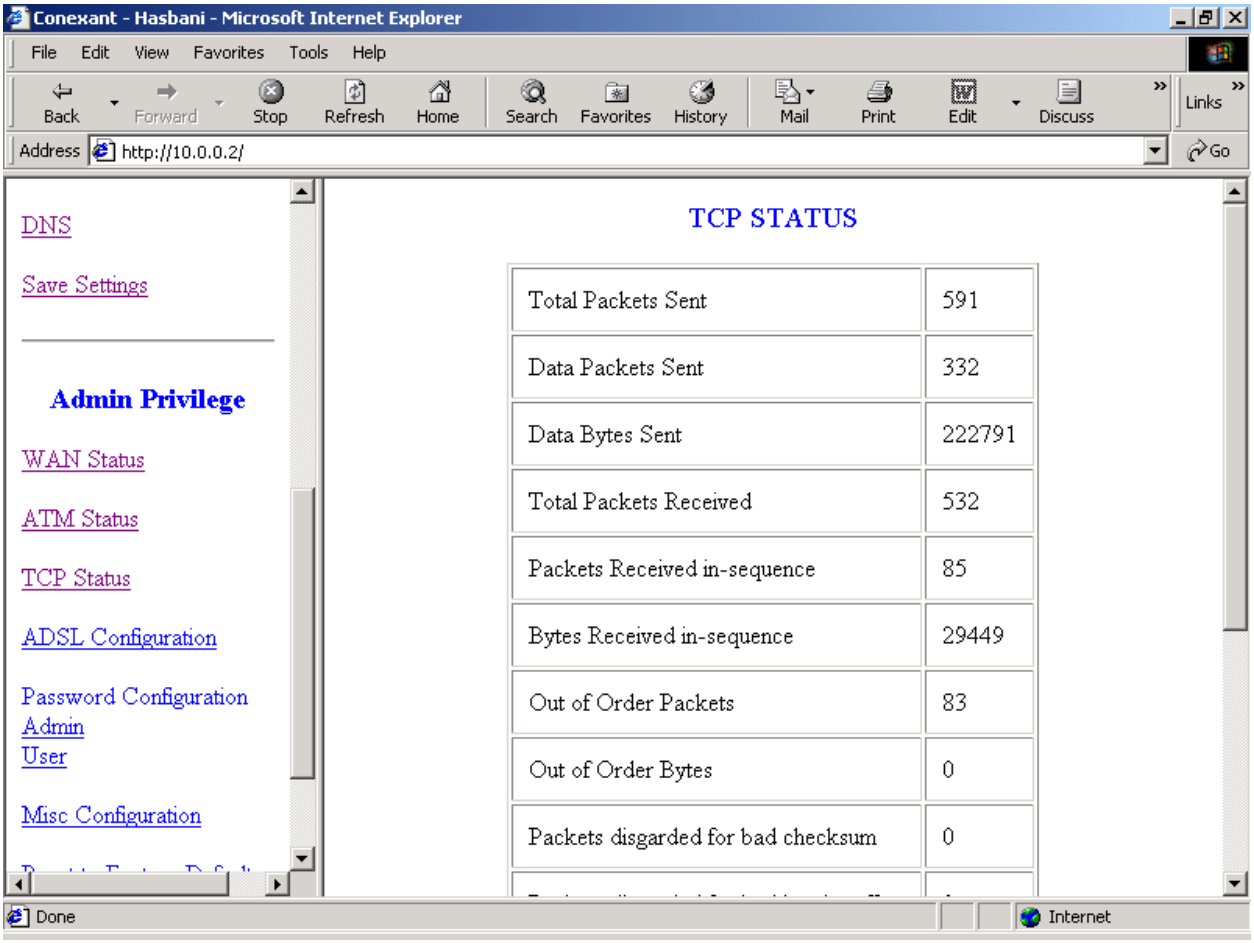
3.4.2 ATM Status

The **ATM Status** page shows all the statistics information of ATM cells.



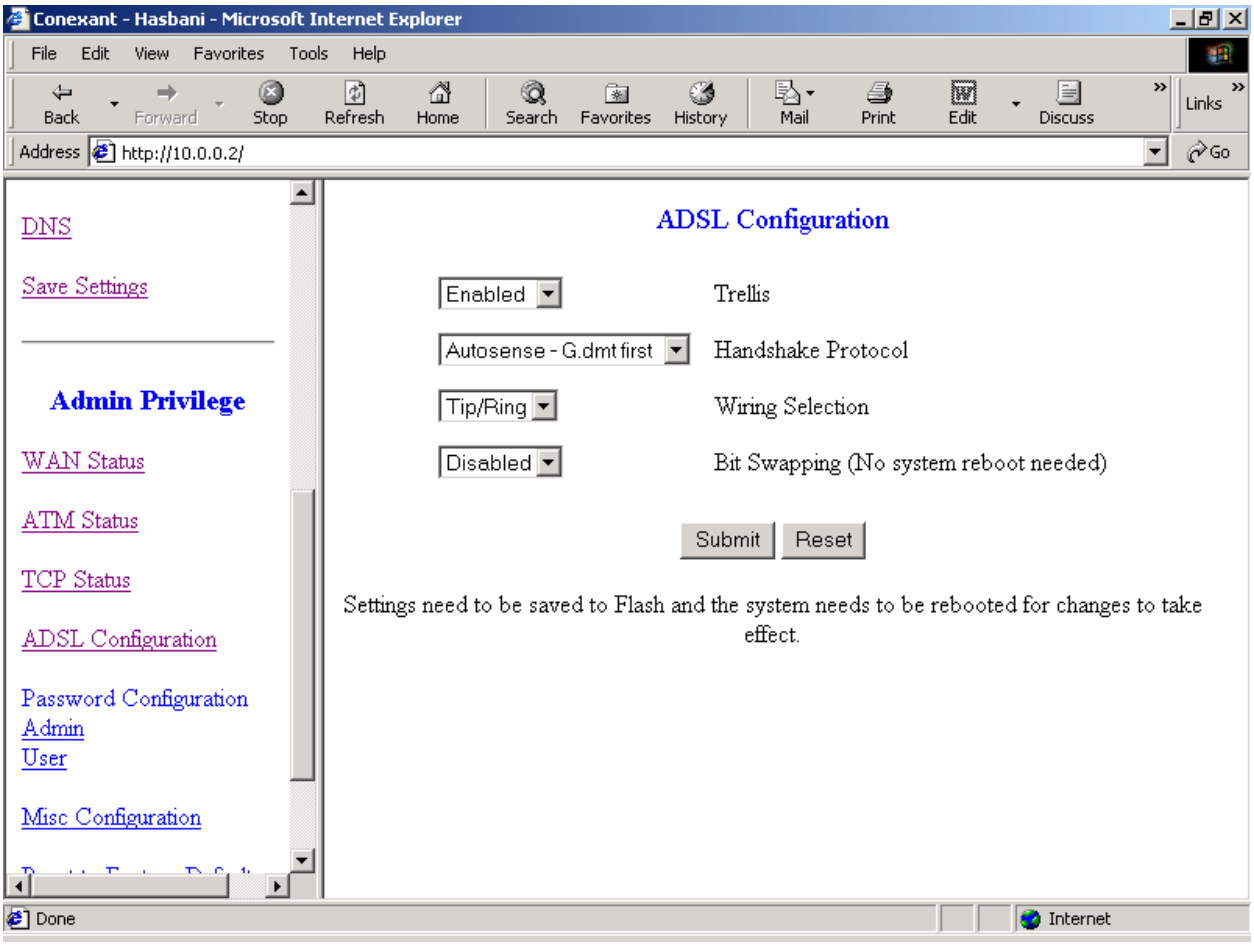
3.4.3 TCP Status

The **TCP Status** page shows the statistics for all TCP connections.



3.4.4 ADSL Configuration

The **ADSL Configuration** page allows the user to set the configuration for ADSL protocols.



Trellis: This field allows the user to enable or disable the Trellis Code. By default, it is always enabled.

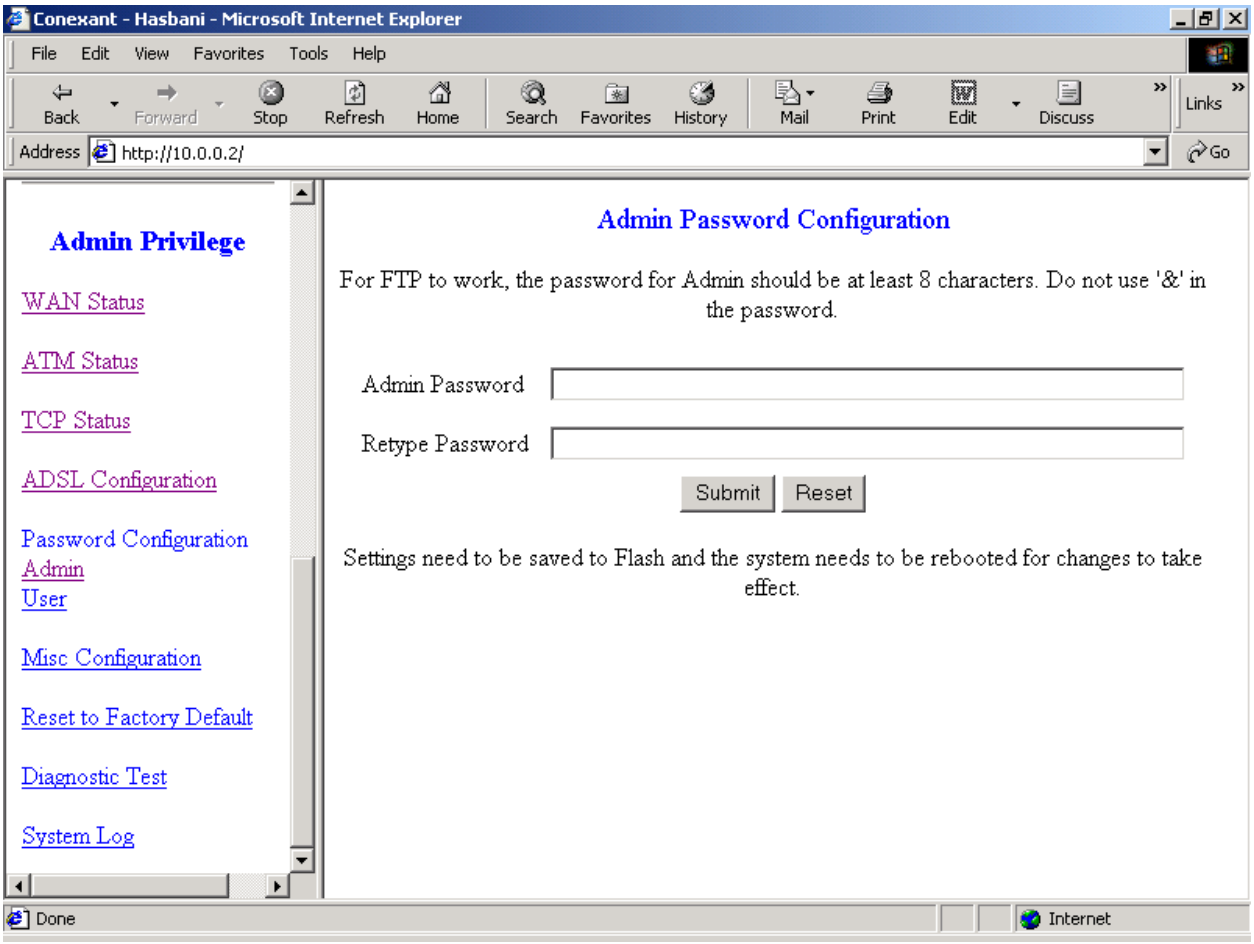
Handshake Protocol: This field allows the user to select the ADSL handshake protocol.

Wiring Selection: This field allows the user to enter the wiring selection for the RJ-11. Tip/Rip is the default for the board without the inner/outer pair relay

Bit Swapping: This field allows the user to enable or disable the upstream bit swapping.

3.4.5 Admin

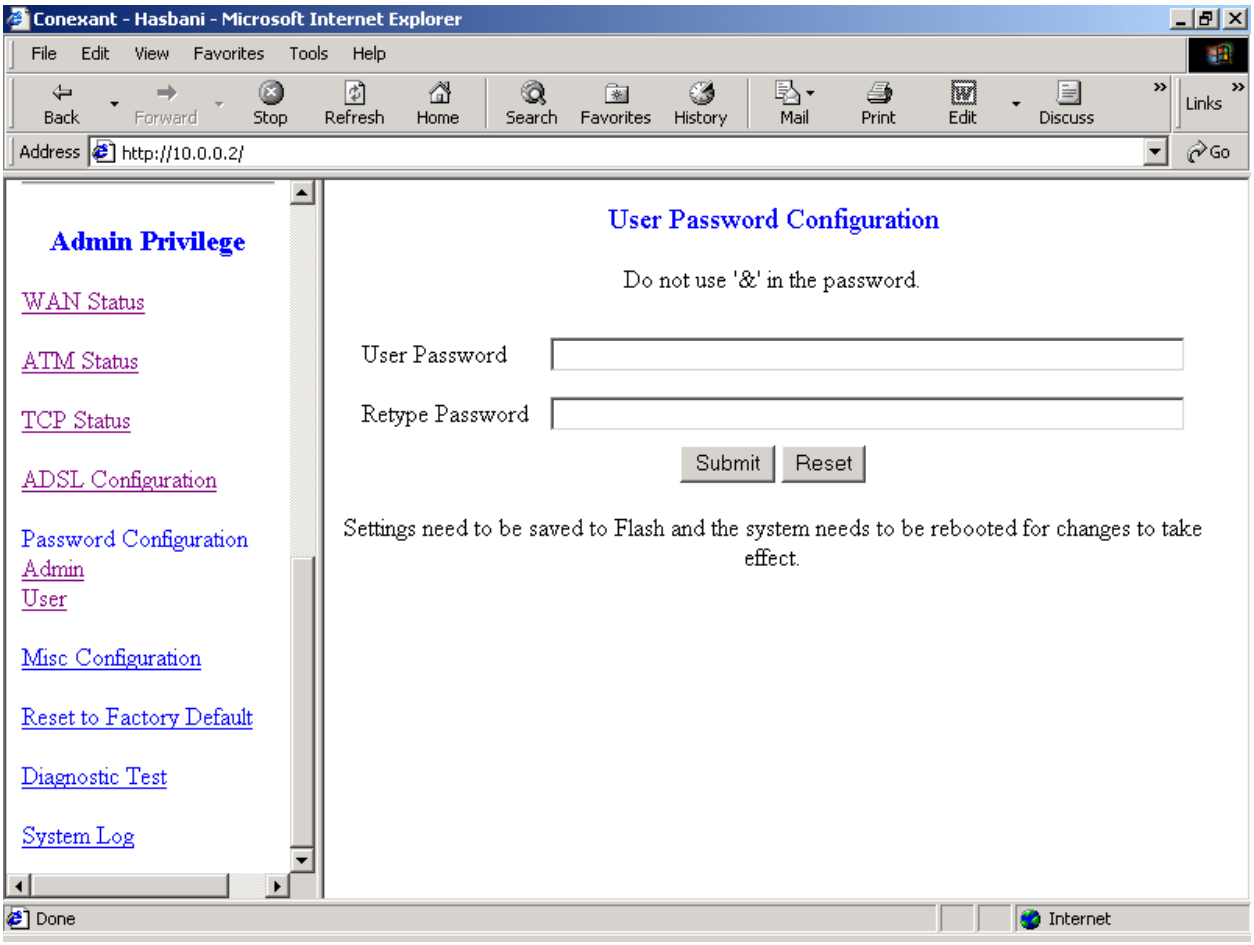
The **Admin Password Configuration** page allows the user to set the password for administrator.



The Admin password is same pas the FTP password, so it must has at least 8-characters for the FTP to work.

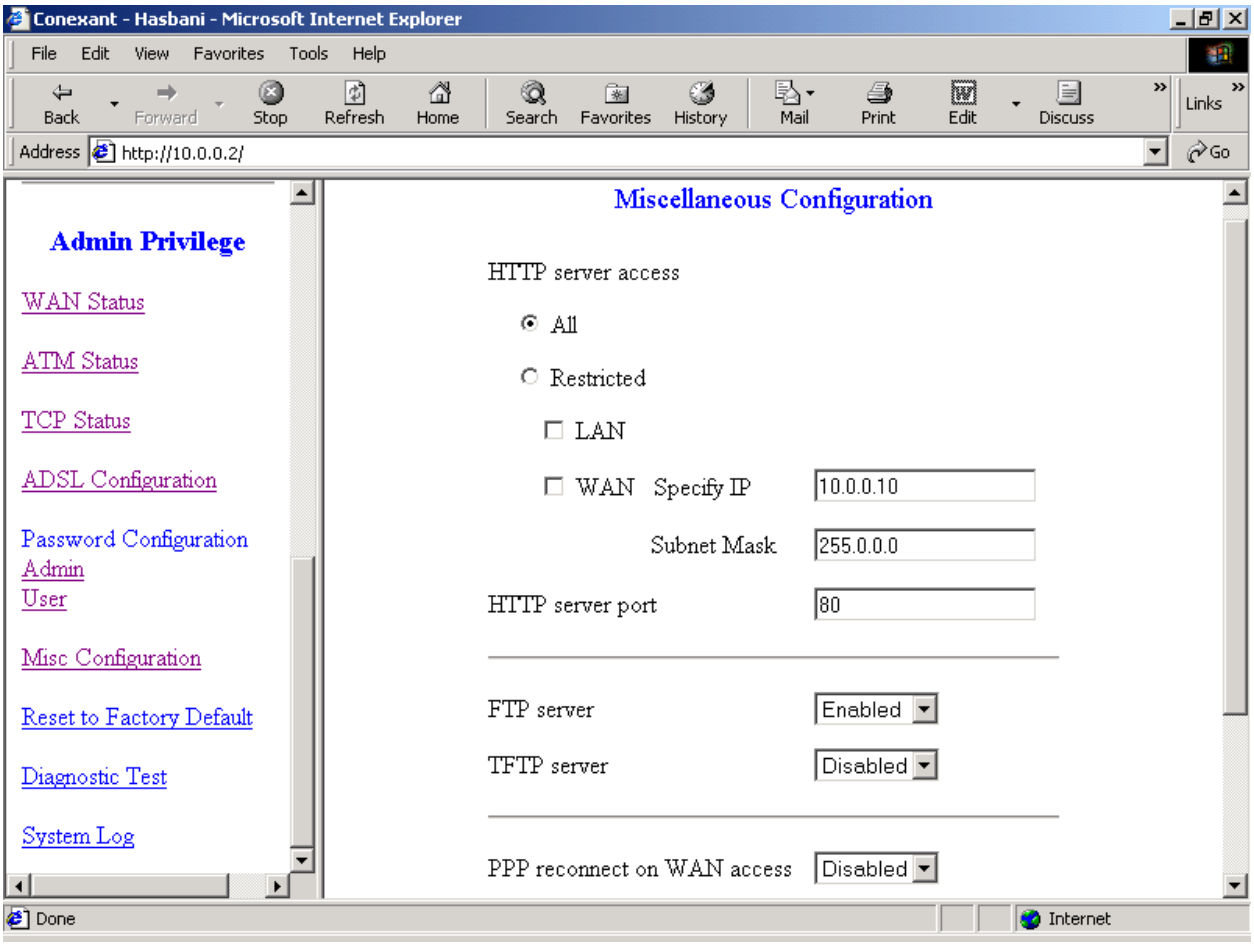
3.4.6 User

The **User Password Configuration** page allows the user to set the password for the user.



3.4.7 Miscellaneous Configuration

The **Miscellaneous Configuration** allows the user to set all the miscellaneous configurations.



HTTP Server Access: This field allows the user to configure the Web pages can be accessed from.

All: When this field is checked, it allows both WAN and LAN access to the Web pages.

Restricted LAN: This field allows the Web pages access from LAN side.

Restricted WAN Specified IP & Subnet Mask: This field allows the Web access from WAN side with a specify IP and subnet mask.

HTTP Server Port: This field allows the user to specify the port of the Web access. . For example, when it is changed to 1001, the HTTP server address for the LAN side is http://10.0.0.2:1001.

FTP server: This field allows the user to enable or disable the FTP connection.

PPP connect on WAN access: If it is enabled, the PPP session will be automatically established when there is a packet wants to go out the WAN.

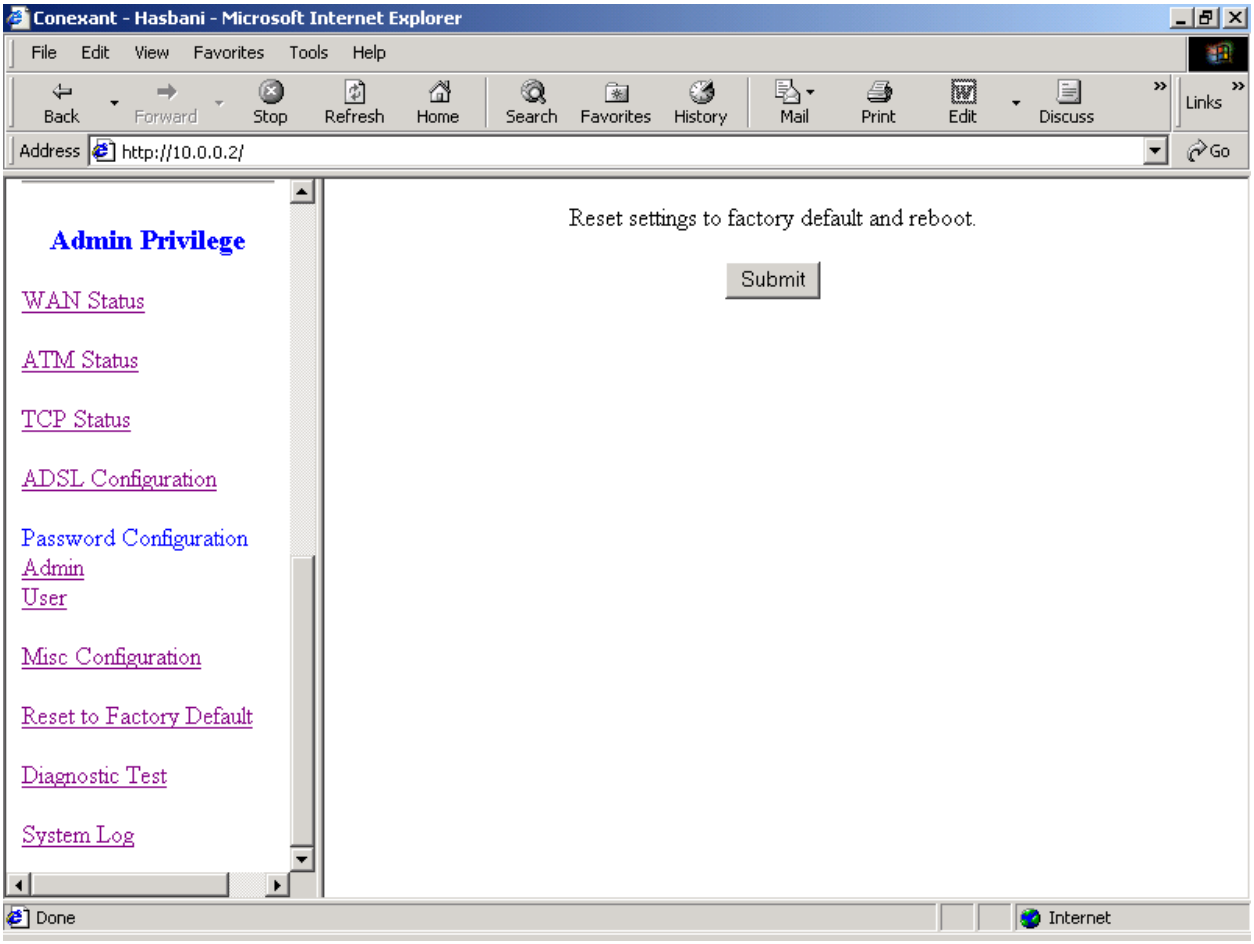
Q: What is the difference between PPP connect on WAN access and the Automatic Reconnect?

A: Some ISPs terminated the PPP session due to the inactivity.

For the **PPP connect on WAN access**, the PPP will be automatically reconnected when an URL is entered in the browser (packet interested in going out the WAN). For the **Automatic Reconnect,** it will reconnect the PPP session whenever it is terminated by ISP.

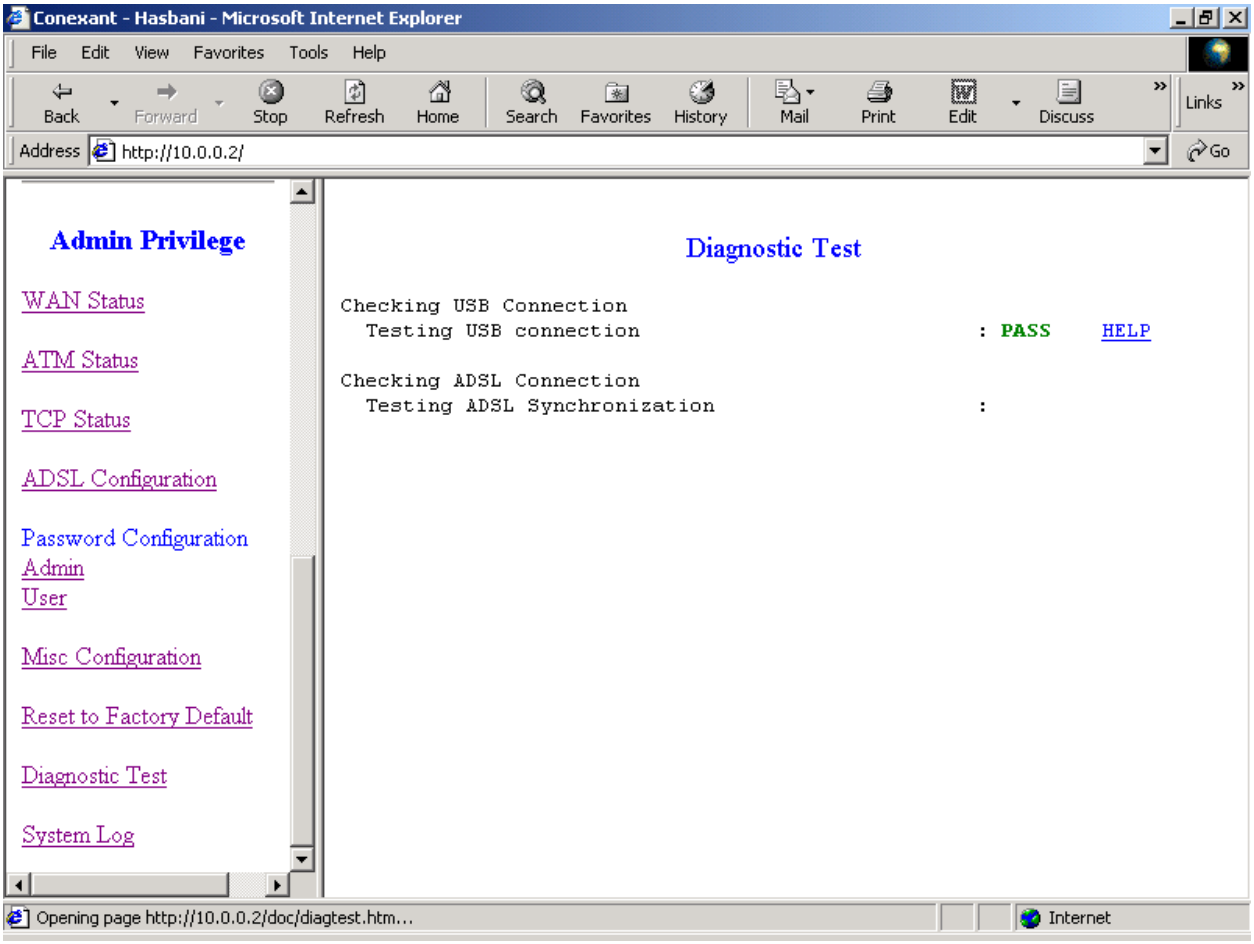
3.4.8 Reset to Factory Default

The **Reset to Factory Default** page allows the user to reset the modem to original factory default configuration (factory.reg).



3.4.9 Diagnostic Test

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



Testing USB Connection: This test checks the USB interface connection.

Testing ADSL Synchronization: This test checks the ADSL showtime. If this test returns FAIL, all other tests will be skipped.

Test ATM OAM Segment Loop Back: This test sends ATM OAM F5 Segment loop back request cells to the CO. This test will pass if response cell is received. Since some service providers might not support this test, it could still work even if this test fails. If this test fails consistently and the ADSL modem seems not working, make sure the VPI and VCI are configured correctly.

Test ATM OAM End-to-End Loop Back: This test sends ATM OAM F5 End to End loop back request cells to the CO. This test will pass if response cell is received. Since some r service providers might not support this test, it could still work even if this test fails. If this test return FAIL consistently and the ADSL modem seems not working, make sure the VPI and VCI are configured correctly.

Test Ethernet Connect to ATM: This test checks the ATM AAL5 module is loaded correctly.

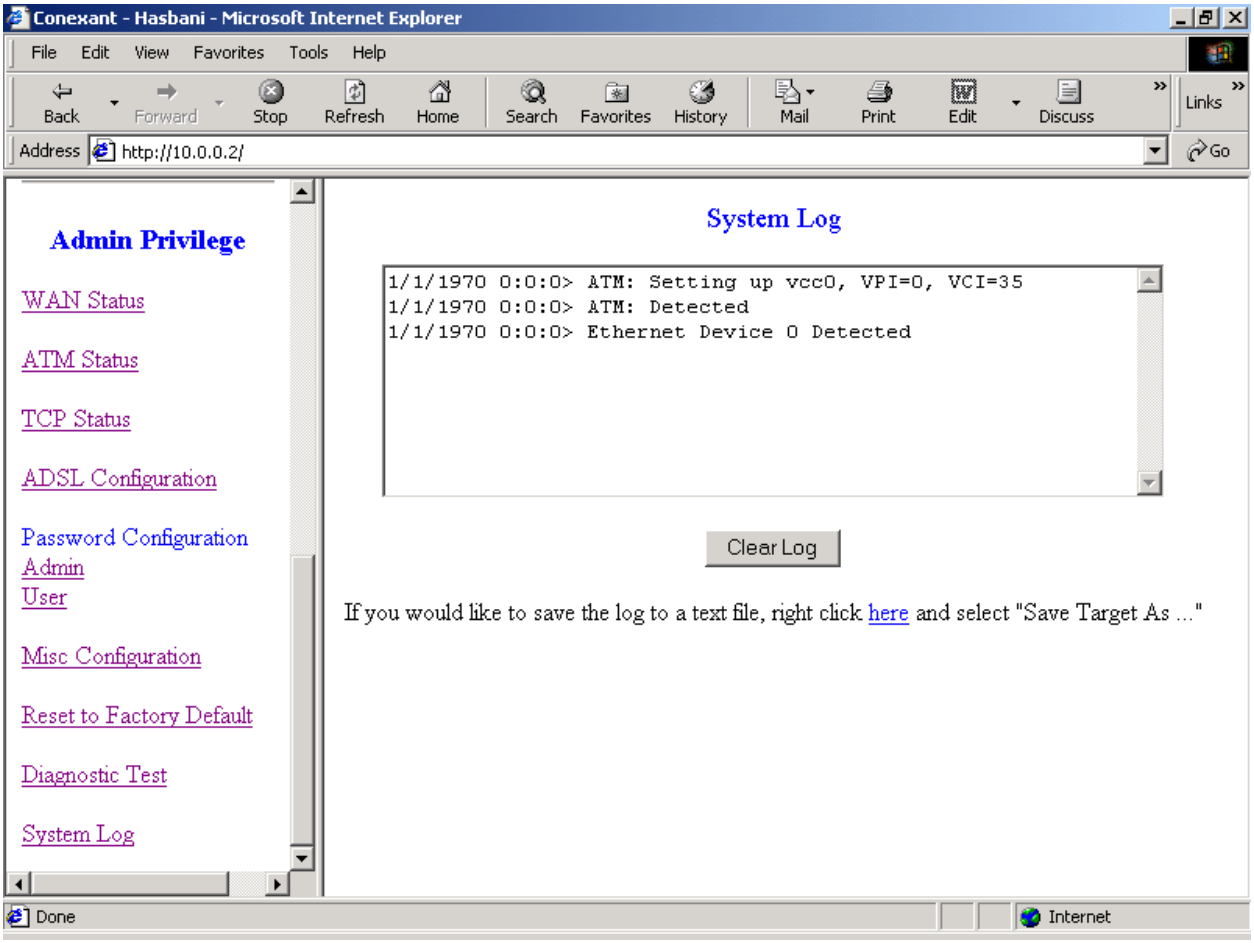
Ping Primary DNS: This test checks the primary DNS can be reached through ping request.

Query DNS for www.conexant.com: This test checks the host name can be resolved to IP address though domain name servers

Ping www.conexant.com: This test checks the specified host can be reached through ping request.

3.4.10 System Log

The **System Log** page shows the events triggered by the system.



Clear Log: This field allows the user to clear the current contents of the System Log.

Save Log: This field allows the user to save the current contents of the System Log by right click HERE and select “Save Target As” to save it into a text file.

The **System Log** records:

- DSL Layer
  - DSL Link detected
  - DSL Link connected
  - DSL Link disconnected
- ATM Layer
  - ATM detected
  - ATM connected
  - ATM disconnected
  - ATM setting up VPI/VCI
- PPP Layer
  - PPP authenticated
  - PPP invalid user name or password
  - PPP unable to connect with PPP server
- IP Layer
  - IP protocol up
  - PPP IP address
  - PPP Gateway IP address PPP DNS Primary IP address
  - PPP DSN Secondary IP address

This page is intentionally blank.

FCC Statement

This device complies with part 15 pg 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.

Caution: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications, However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception. Which can be determined by turning the equipment off and on, the user in encouraged to try to correct the interference by one or more of the following measures:

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

NOTES

LAST PAGE – SALES OFFICES
(Added to the PDF file during document release)