ZXV10 H100 Home Gateway
User Manual (Draft)

Confidential

ZTE CORPORATION

ZXV10 H100 Home Gateway
User Manual (Draft)

Manual Version
Product Version V1.0

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Preface

Manual Description

Thank you for choosing the wireless Local Area Network (LAN) product-ZXV10 H100 of ZTE Corporation.

The ZXV10 H100 home gateway is a modular access gateway in the center of a home network. It links multiple devices through Internet connections and provides users with safe communication, entertainment and storage functions.

How to Use This Manual

This manual describes in detail the installation and configuration methods of this product. Before installation or use of this product, please read this manual carefully to comprehensively understand the functions of this product.

Conventions

This manual contains the following conventions in symbols, keyboard operations, mouse operations and warning marks.

1. Symbols

   The information with an angular bracket stands for a key name, button name or the information that is input at the terminal by an operator. The information with a square bracket stands for the man-machine interface, menu bar, data table, and field name. A multi-level menu is separated with an arrow. For example, the multi-level menu [File→New→Folder] stands for the menu item [Folder] under the submenu [New] under the menu [File].

2. Keyboard operation convention

Format	Meaning
Characters in angle brackets	Key or button name. For example, <Enter>, <Tab>, <Backspace> and <a> mean carriage return, tab key, backspace key and letter "a" in lower case.
<key 1+ key 2>	Press several keys on the keyboard at the same time. For example, <Ctrl + Alt + A> means pressing “Ctrl”, “Alt”, and “A” at the same time.

Format	Meaning
<key, key 2>	Press the first key, and then release it and then press the second key.For example, <Alt, F> means pressing the “Alt” key, and then releasing it and then pressing the “F” key.

3. Mouse operation convention

Format	Meaning
Click	Press and release the left mouse button promptly
Double-click	Quickly press twice the left button of the mouse and then release it.
Right-click	Quickly press and release the right button of the mouse
Drag	Press and hold the left button of the mouse and move the mouse

4. Identifier

Four eye-catching symbols will appear in this manual to indicate the places worthy of special attentions during operation:

Attention , Caution , Warning , and Danger: alerting you to some important instructions.

Statement: The actual product may differ from what is described in this manual due to frequent update of ZTE products and fast development of technologies. Please contact the local ZTE office for the latest updating information of the product.

CAUTION: changes or modifications made in the radio phone, not expressly approved by ZTE, will void the user's authority to operate the equipment.

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1 Introduction of the Product

1.1 Introduction of the Product

Thank you for choosing the wireless Local Area Network (LAN) product-ZXV10 H100 of ZTE Corporation.

The ZXV10 H100 home gateway is a modular access gateway in the center of a home network. It links multiple devices through Internet connections and provides users with safe communication, entertainment and storage functions.

1.2 Packing List of the Product

The package of the H100 product should contain the following components:

- One H100 host
- One DC power transformer
- One RJ45 10/100BaseT Ethernet cross-connect connection line and one
- parallel connection line
- Two RJ11 telephone lines
- USB Slave connection line
- One Manual and Toolkit CD
- One user manual
- Guarantee card
- Certificate of quality

If any of the above components is missing or damaged, please contact your dealer. In case of replacement, please keep the package and existing components of the product well.

1.3 Features of the Product

- Interface Features

WAN side:

ADSL interface: Built-in splitter, compatible with ADSL/ADSL2/2+

LAN side:

Fast Ethernet port: four, RJ-45, 10/100Mbps, complies with the IEEE802.3 and IEEEE802.3u standards

WLAN interface: Complies with the IEEE 802.11g/b standard, built-in antenna

Blue Tooth interface: Supports Core V1.2, built-in antenna

POTS interface: RJ11, 2-port

USB interface: 1 master (V2.0) & 1 slave (V1.1)

Extended interface (optional):

Card Bus: One, supports the 16-bit PCMCIA and 32-bit CARDBUS cards

- Technical Features

  It implements two functions: data access and IP voice. The data exchange and forwarding functions of Layer 2 and Layer 3 are implemented for data access and the IP voice function is implemented according to different signaling protocols and related network devices. In addition to providing the above functions, the product gives much consideration to security, QOS and network management, such as multi-level authentication based on devices, users and services, encryption of data channels, implementation of QOS requirements matching the local devices and network according to services with different requirements, network management based on multiple management modes.

1.4 Appearance of the Product

The planform of the H100 is shown below:

The indicators on the front panel of the ZXV10 H100 are shown below:

The meanings of the indicators on the front panel of the ZXV10 H100 are show in the table below:

Indicators	Status	Description
Fault indicator.	On	Power-on self-test failure
	Flashing	To be determined
Run indicator	The green indicator is solid on	The device is powered on and the version is being loaded/upgraded
	Off	The device is powered off
	Flashing	The device runs normally
ADSL LINK indicator	The green indicator is solid on	The ADSL synchronization is normal and so is the link connection
	Off	The link is not set up yet
	Flashing	The link is being set up through hand-shake negotiation
WLAN indicator	The green indicator is solid on	Working (switched on with the WLAN button)
	Off	Stops working (switched off with the WLAN button)
	Flashing	Flashing according to the network traffic
Bluetooth indicator	The green indicator is solid on	Working (switched on with the Bluetooth button)
	Off	Stops working (switched off with the Bluetooth button)
	Flashing	Flashing according to the network traffic

The meanings of the indicators on the rear panel of the ZXV10 H100 are show in the table below:

The meanings of the indicators on the rear panel of the ZXV10 H100 are show in the

table below:

Indicators	Status	Description
LAN 1 2 3 4	The green indicator is solid on	The physical link connection is normal
	Off	The device is powered off/the network cable is unconnected
	Flashing	Flashing according to the network traffic

On the rear panel of the ZXV10 H100, are two RJ–45 LAN network interfaces, three RJ–11 interfaces, the reset button and the power supply slot. The details are shown in the table below:

Buttons	Description
Reset button	Default functions of the reset button
WLAN button	Switch on/off the Wi-Fi function
Bluetooth button	Switch on/off the Bluetooth function

1.5 System Requirements

Hardware Requirements

- You need an ADSL modem to access the services provided by the Internet Service Provider (ISP);
- One PC installed with a 10 Mbps,100 Mbps or 10/100 Mbps Ethernet card;
- If necessary, a Ethernet hub and Ethernet cables can be added to construct a small and medium Intranet;

Software Requirements

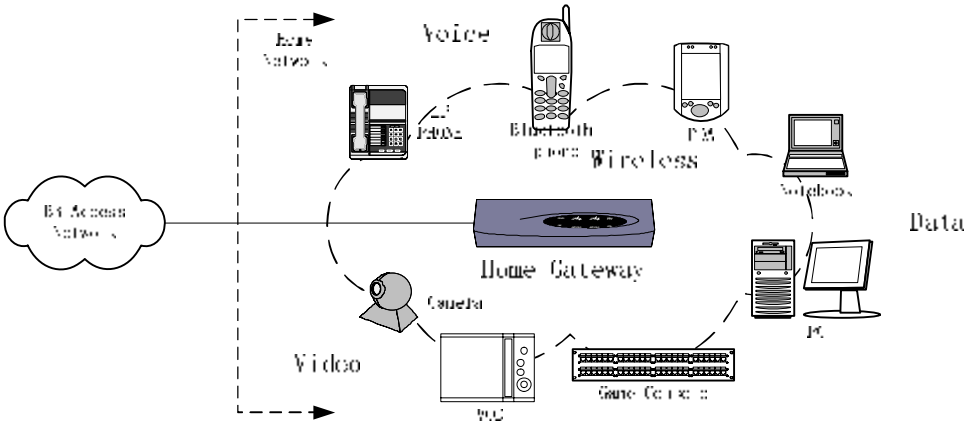
- Each computer accessed into the network should be installed with the network card driver and the TCP/IP protocol and have correct network settings;
- The H100 has a fixed IP address, or a dynamic IP address allocated from the DHCP server, or an IP address allocated in the PPPOE dial-up. You also need to set the gateway server address and the DNS server address provided by your ISP;
- The Windows 98/Me/2000/NT/Xp or Linux operating system should run normally;
- One PC of the LAN should be installed with the WEB explorer (Microsoft

Internet Explorer 5.0 or later, or Netscape Communicator 4.0 or later) should be installed in.

2 System Connections

2.1 System Application Environment

The main application environment of the ZXV10 H100 home gateway is shown below:



2.2 Connecting the LAN Network Interface

You can connect the H100 to your computer, Ethernet hub or switch. Use one cross-over or straight-through Ethernet cable to connect the LAN network interface of the H100 to the network adapter of your PC or other network devices. You can also use a WLAN wireless RF signal line to connect the H100 to your computer, but the antenna on the rear panel of the H100 should be put in an ideal direction.

- Connecting your local network through Ethernet cables

  Four LAN network interfaces of the H100 can auto-negotiate the connection speed of the 10 Mbps/100 Mbps Ethernet and the half-duplex/full-duplex transmission mode. Use a cross-over or straight-through Ethernet cable co connect any LAN network interface of the H100 to your PC. You cascade the LAN network interfaces of the H100, connect them to the Ethernet hub or the Ethernet switch and then connect your PC or other network devices to the hub or the Ethernet switch.

- Connecting your local network through WLAN

  You need to install a wireless network card on your PC in the local network for

access to the network through wireless signals and adjust the antenna on the rear panel of the H100 to the ideal direction to get the effective coverage. You had better put the H100 in the center of your radio network. Generally, the higher your antenna is, the better the performance is. Ensure that the H100 is in the most ideal position in the whole office or home.

- Connecting your local network through USB cables
- Connecting your local network through bluetooth

Warning:

Be sure not to insert the telephone line into any RJ – 45 network interface; otherwise the H100 will be damaged. Use Ethernet cables with RJ – 45 connectors in compliance with the CE standard.

2.3 Connecting the WAN (ADSL) Network Interface

2.4 Connecting the Telephone Set

2.5 Connecting the Power Transformer

Use the power transformer to connect the power to the H100 and ensure that the running indicator on the front panel of the H100 is on.

Warning:

Please use the power transformer provided by us; otherwise the device might be damaged.

3 Client Settings

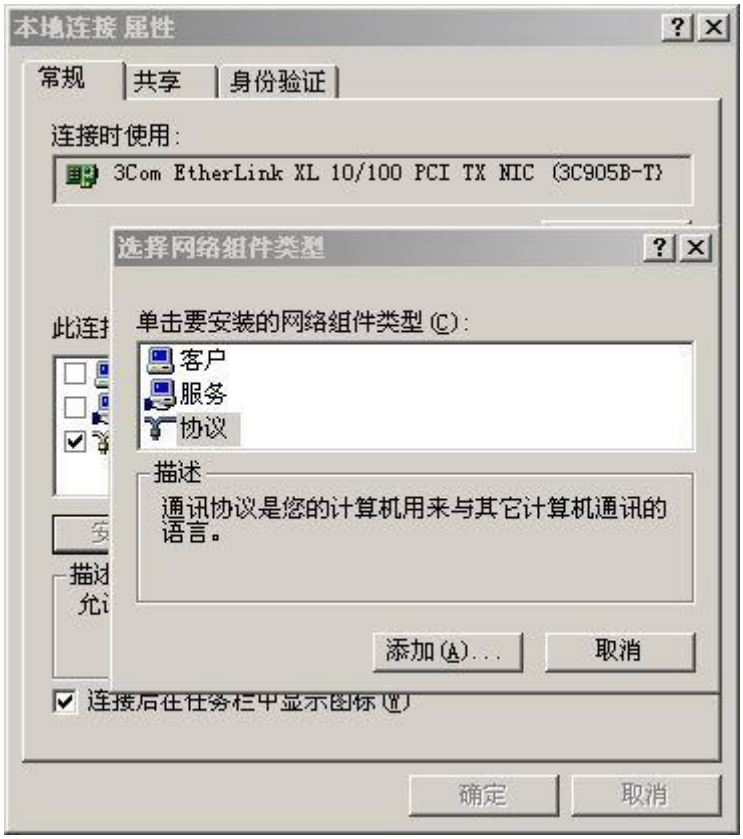
3.1 TCP/IP Installation

If your client PC is not installed with the TCP/IP protocol, please refer to the following settings:

Click the <Start> button, select [Settings] and then click the [Network and Dial-up Connections] icon;

Double click the [Local Connections] icon and then click the <Properties> button in the [Local Connections] tab;

Click the <Install…> button and then double click the [Protocols] icon;



Select [Internet Protocol (TCP/IP)] and then click the <OK> button to finish the protocol installation.

3.2 TCP/IP Configuration

For access to the Internet through the H100, you must configure the PC in the LAN to be in the same subnet segment with the H100. The default network settings of the H100 are: the IP address of 192.168.1.1 and the subnet mask of 255.255.255.0.

Attention:

The settings are subject to your network requirements. Be sure to install the above configurations for the first access to the WEB configuration page of the H100.

If your computer is not configured with TCP/IP, set the IP address of the connected client host to 192.168.1.x (x is within the range of 2 – 254), as shown below. You can either set the client IP address to be automatically allocated from the DHCP server, or manually configure it.

3.3 Configuration Inspection

After the above preparations, switch on the H100, and you will see that the power indicator is on. At the same time, the H100 executes the device start-up process and detects the connected devices. You can see from the indicators which devices have been connected to the H100 successfully. The indicators of the network interfaces connecting to successfully connected devices will be solid on.

You may also use the PING command to check the network connection status of the PC and the H100. For example, the steps for connection through the Ethernet interface in [Local Connections] in the Windows 2000 operating system are as follows:

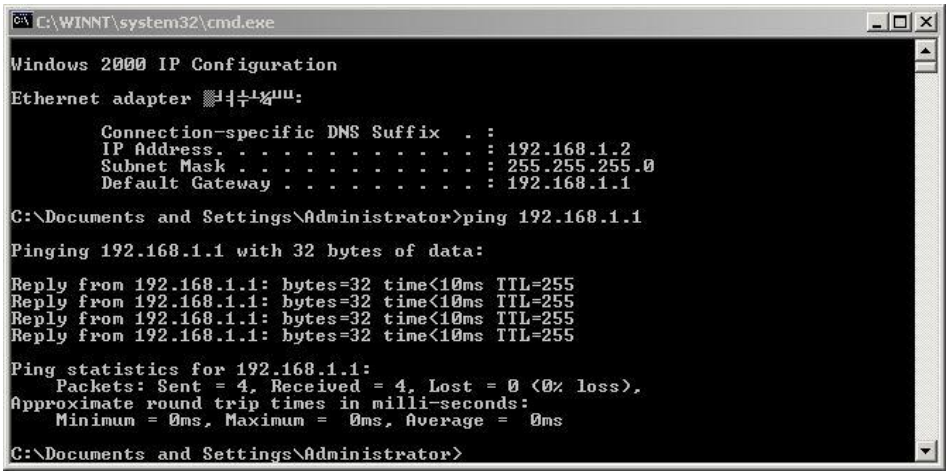
- Click the [Start→Run] menu;
- Type in “CMD” in the dialog box popped up and then enter;

- Type in “ping 192.168.1.1” at the cursor position in the interface popped up and then enter. If the following information occurs:

  Pinging 192.168.2.1 with 32 bytes of data:

  Reply from 192.168.2.1: bytes=32 time=2ms TTL=64

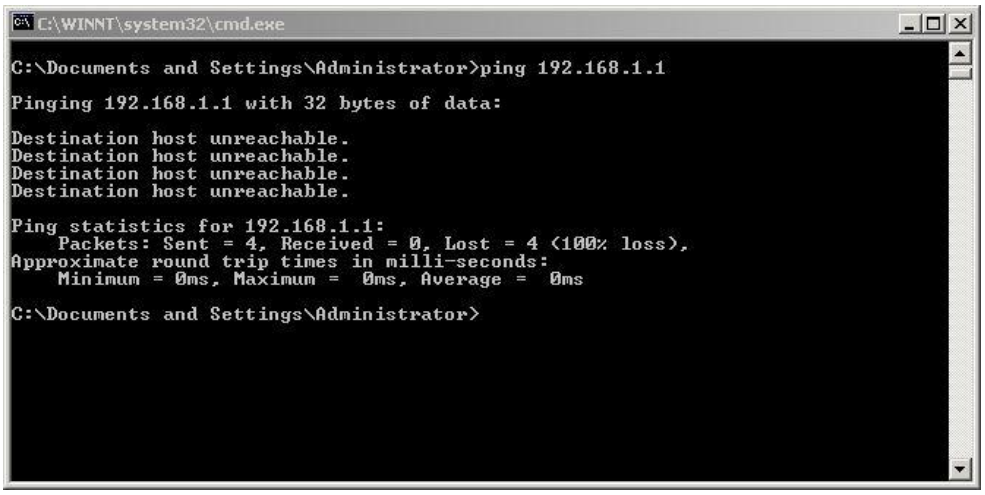
  the computer has been successfully connected to the H100;



- If the following information occurs:

  Pinging 192.168.2.1 with 32 bytes of data:

  Request timed out.



- An error occurs in the installation. Please check the following items in turn:

  Whether the Ethernet cable between the H100 and your PC is correctly connected.

  Whether the network adapter driver on your PC is correctly installed.

  Whether the indicators of the LAN interface in the H100 and the network card in your PC are both on.

  Whether the TCP/IP protocol is correctly configured in your PC.

  If the IP address of the H100 is 192.168.1.1, the IP address of your PC must be within the range of 192.168.1.2 - 192.168.1.254, the subnet mask 255.255.255.0 and the default gateway 192.168.1.1.

If you can ping through the H100 successfully, you are well prepared to access the Internet.

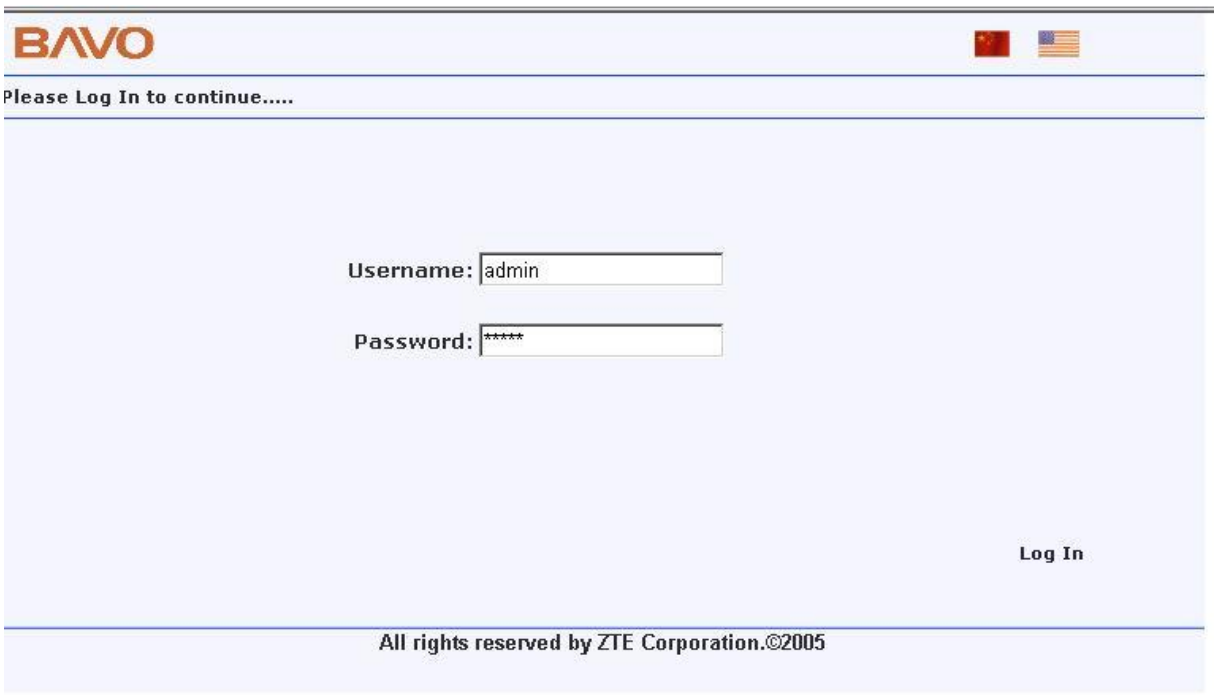
4 WEB Configuration

The H100 provide configuration tools based on the WEB interface to facilitate configuration and management through the WEB explorer. For ease of operation, you can use one cross-over or straight-through Ethernet cable to connect a PC to the Ethernet interface of the H100 in the first configuration of the H100. Refer to the section of Configuration Inspection in the above chapter to check whether the TCP/IP protocol of the PC is set correctly or not, whether any running firewall or security software needs to be stopped or not and whether the proxy server setting of the explorer needs to be prohibited or not.

This manual introduces how to configure the H100 with the Internet Explorer 6.0 in the Windows 2000 Professional operating system.

4.1 Main Logon Interface

Open the explorer, input **http://192.168.1.1** (the default IP address of the LAN side interface of the H100 is 192.168.1.1) in the Address URL Editor and then enter. The logon interface shown below appears. Type in the password to enter the H100 configuration interface (the default WEB logon user name and password are **admin and admin**):



4.2 Basic Configuration

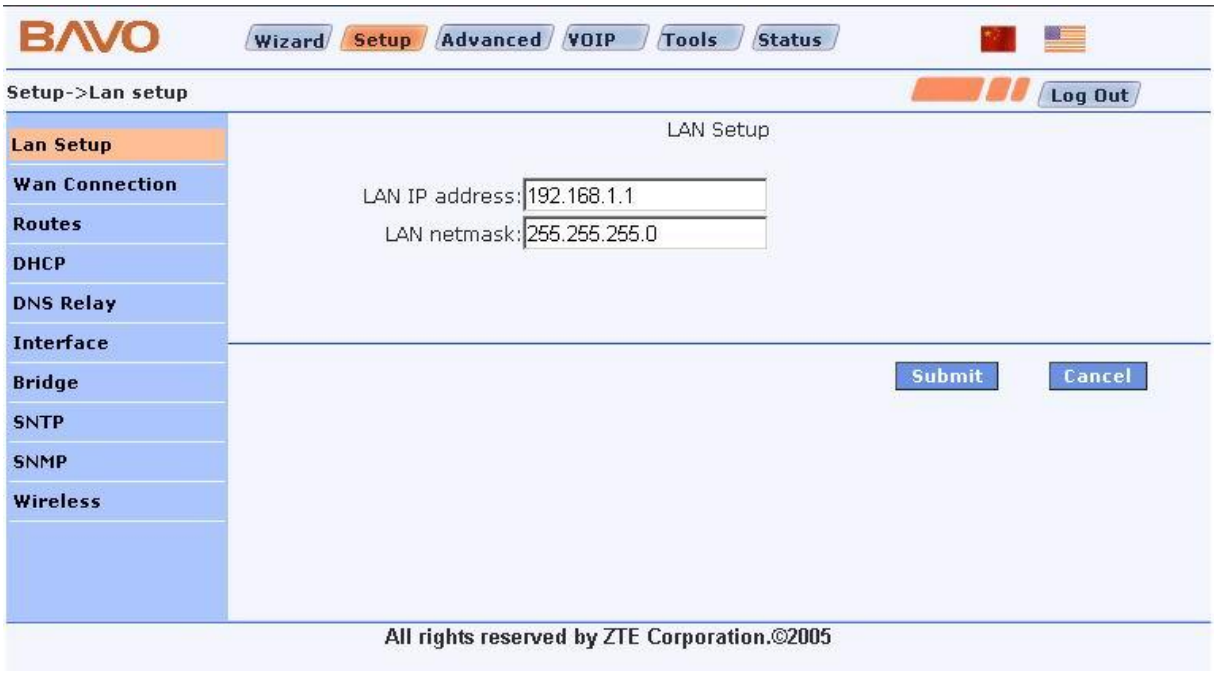
Click the <Setup> button in the WEB interface to enter the basic configuration of the H100. In the basic configuration, you can configure the parameters such as ***LAN interface parameter, ADSL WAN connection parameter, static route and RIP dynamic route protocol, DHCP Server and DHCP Relay, DNS Relay, Bridge connection, STP (Spanning Tree Protocol), SNTP (Simple Network Time Protocol), SNMP (Simple Network Management Protocol) and WLAN (IEEE802.11b/g) parameter***.

4.2.1 LAN Interface Information

Click the **LAN Setup** link in the left of the interface to enter the [**LAN Setup**] interface, where you can configure the IP address of the Ethernet interface of the H100.

LAN IP address: IP address of Ethernet interface eth0

LAN netmask: Subnet mask of Ethernet interface eth0



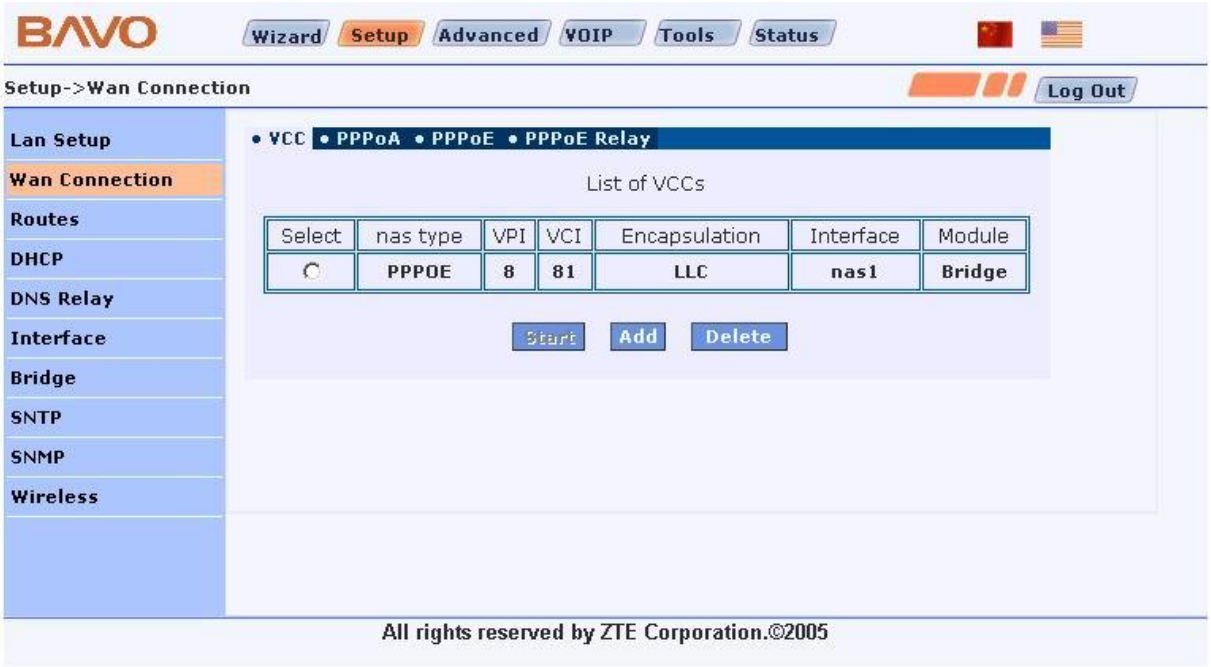
4.2.2 ADSL WAN Connection

Click the **WAN Connection** link in the left of the interface to enter the [**WAN Connection**] interface, where you can set ADSL-based access modes, such as Bridge, PPPoE, PPPoA and IPoA.

Attention:

For the PPPoE, PPPoA and IPoA connection modes, the Network Address Translation (NAT) function is activated in the H100 by default.

The first [**WAN Connection**] interface shows the list of configured VCCs (Virtual Channel Connection) in the H100. You may use the <Start/Stop>, <Add> and <Delete> buttons to start/stop, add or delete an ADSL link.



Click the <***ADD***> button to switch to the WAN connection configuration interface. The following parameters are the ATM-related configuration parameters of a WAN connection:

VPI The Virtual Path Identifier is in an 8-bit area of the ATM cell head, indicating the routed virtual path of the cell. Value range: 0-255

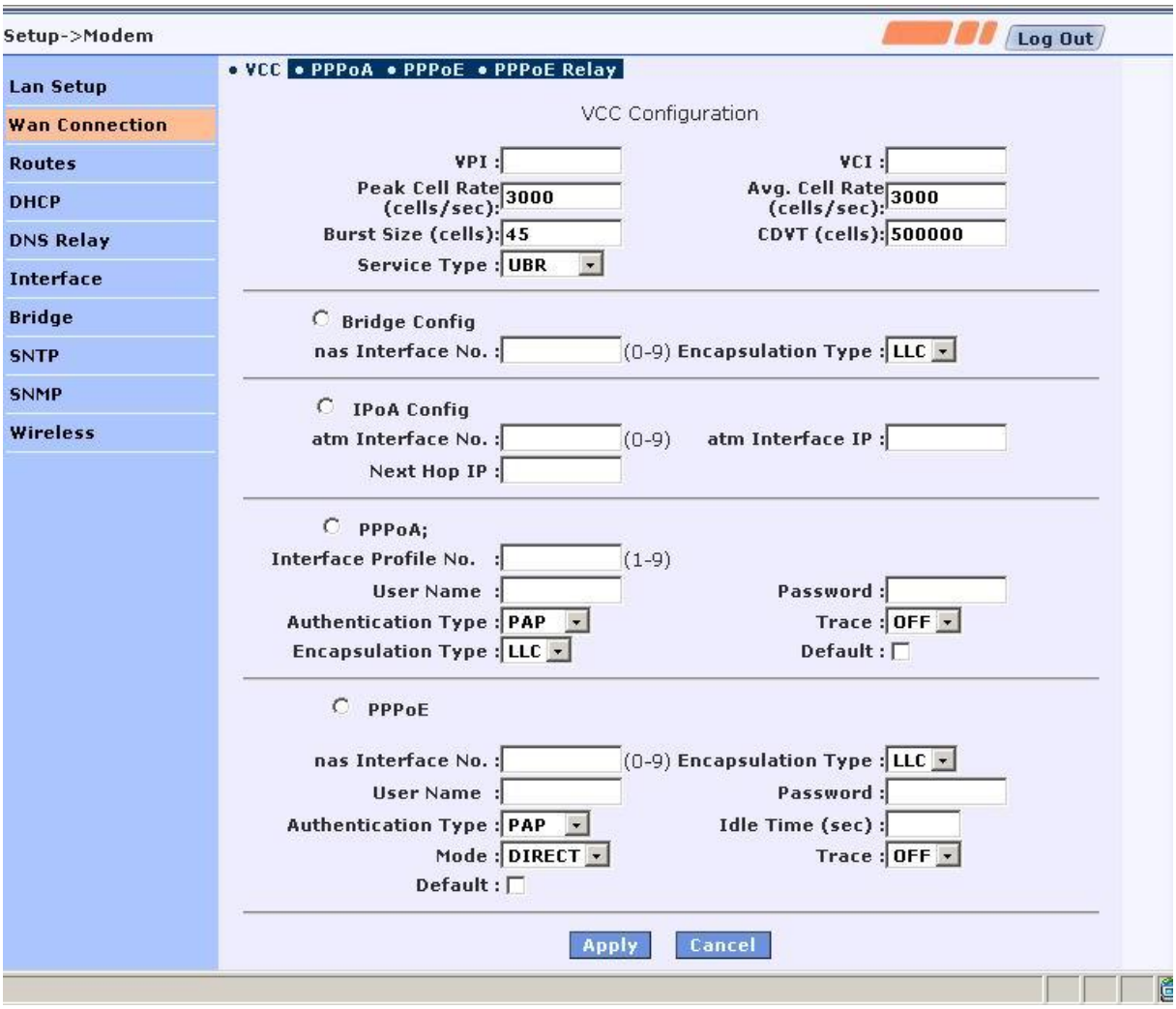
VCI The Virtual Channel Identifier is the unique digital label in a 16-bit area of the ATM cell head, indicating the virtual channel ID. Value range: 0–255

Peak Cell Rate: Number of cells per second

Average Cell Rate

Service Type QOS type provided by the specific channel

CDVT Cell delay variation threshold.



4.2.2.1 Bridge (Pure Bridge) Connection

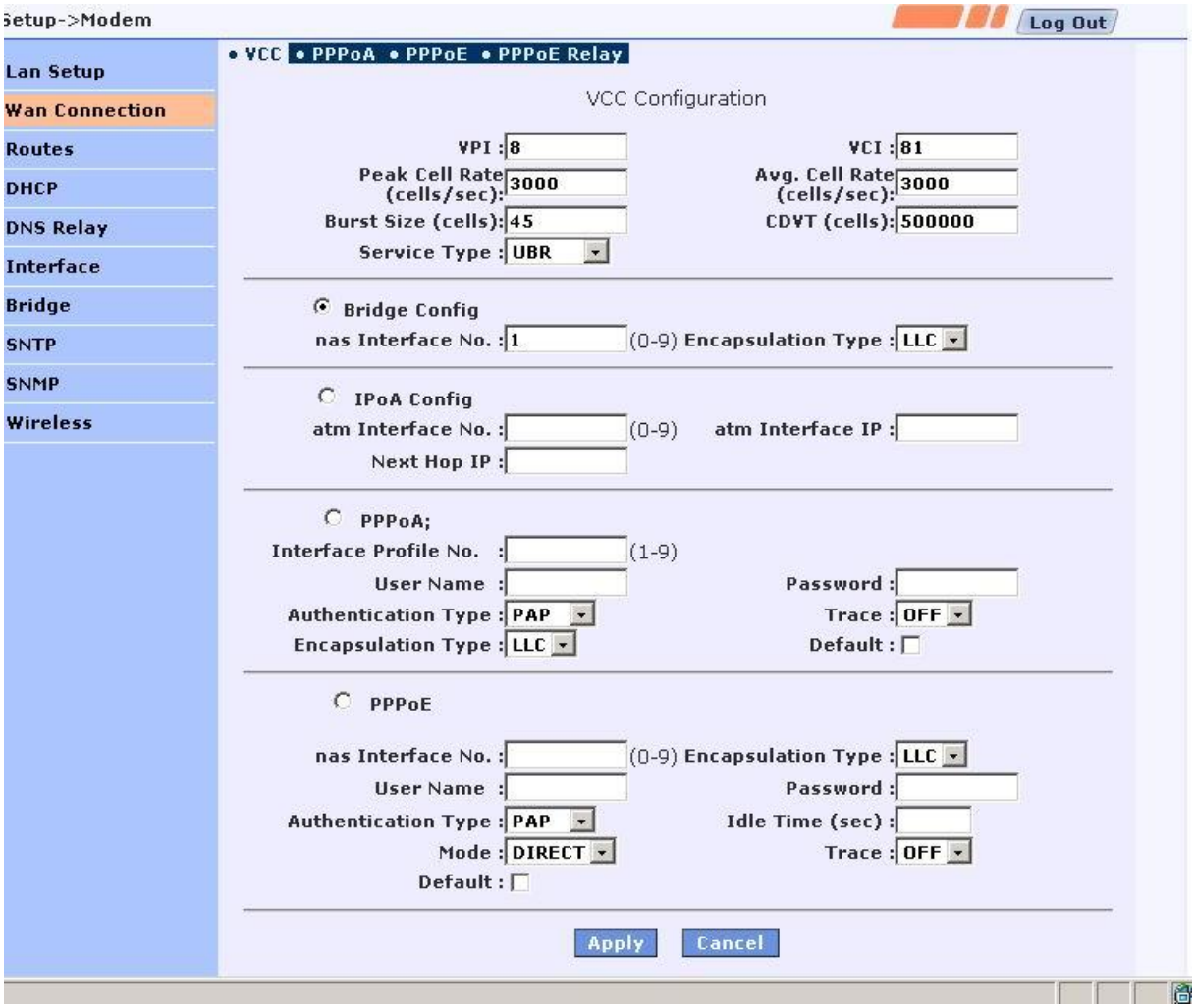
Upon configuration of the ATM-related parameters, select the button in front of **Bridge Config** to configure the related parameters of a Bridge (pure bridge) connection.

NAS Interface No. Bridge connection interface No.. The configured No. follows the character string "nas" when an interface is created, for example nas0, nas1.

Encapsulation Type Value range: LLC/VCC.

Upon configuration of the above parameters, click the <**Apply**> button to create a 2684Bridged encapsulated nas interface. If you need to set up a Bridge (pure bridge) connection, the nas interface will act as an interface of the bridge connection and form a bridge group with another LAN side interface (generally eth0). Refer to the Bridge interface for the operation of adding to the bridge group. If you need to set up a MER (MAC Encapsulated Routing) connection, you must configure the IP address of this

nas interface in the interface.



4.2.2.2 PPPoE Connection

If you want to implement the PPPoE dial-up connection through the H100, a PPPoE connection must be set up. Upon configuration of the ATM-related parameters, select the button in front of **PPPoE** to configure the related parameters of the PPPoE connection.

Nas Interface No. Generated 2684 bridge interface No., value range: 0-9.

Encapsulation Type Packet encapsulation type, value range: LLC/VC.

Username&Password PPPoE user name and password to be authenticated.

Authentication type Authentication protocol type, value range: PAP/CHAP.

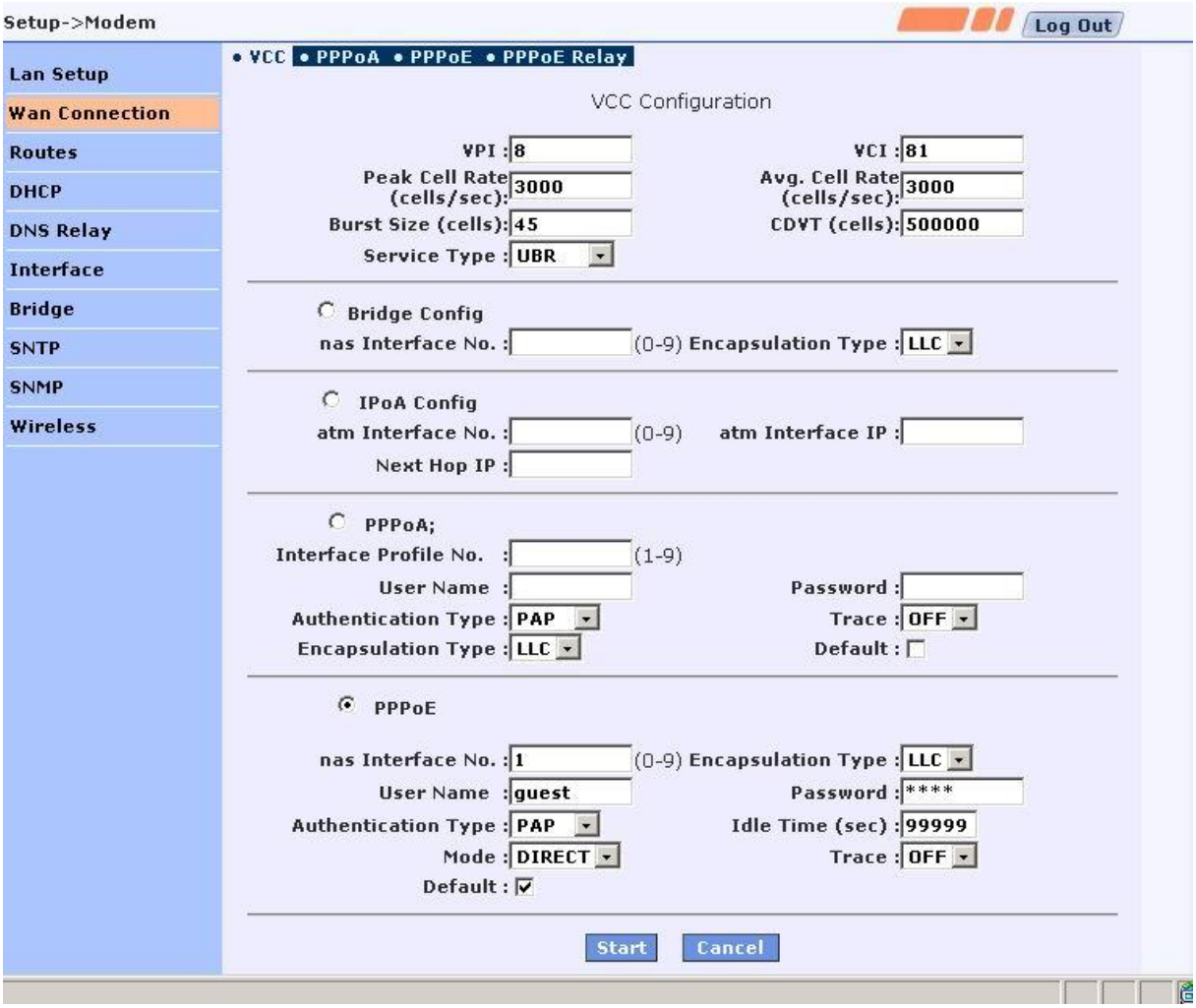
Idle Time The PPPOE connection should be disconnected after

becoming idle for a period of time. The idle connection indicates that no packet is received/sent.

Mode Vale range: DIRECT/AUTO. Selection of DIRECT indicates that the PPPOE connection is always on line. Selection of AUTO indicates that the functions of idle timeout and auto-redial triggered by traffic are activated.

Trace Whether the information controlling the session negotiation should be displayed at the console, value range: ON/OFF.

Default: Select whether a default route is generated.



The PPPOE Session List shows the designated PPPOE sessions that have been created.

Click the <***Stop***> button to stop and delete a PPPOE session.

Click the <***Delete***> button to remove the session from the configuration file and stop it.

4.2.2.3 PPPoA Connection

If you want to implement the PPPoA dial-up connection through the H100, a PPPoA connection must be set up. Upon configuration of the ATM-related parameters, select the button in front of **PPPoA** to configure the related parameters of the PPPoA connection. PPPOA (PPP over ATM) is a method for using the PPP protocol on the ATM network described in RFC 2364.

Interface Profile No. Value range: 0-9.

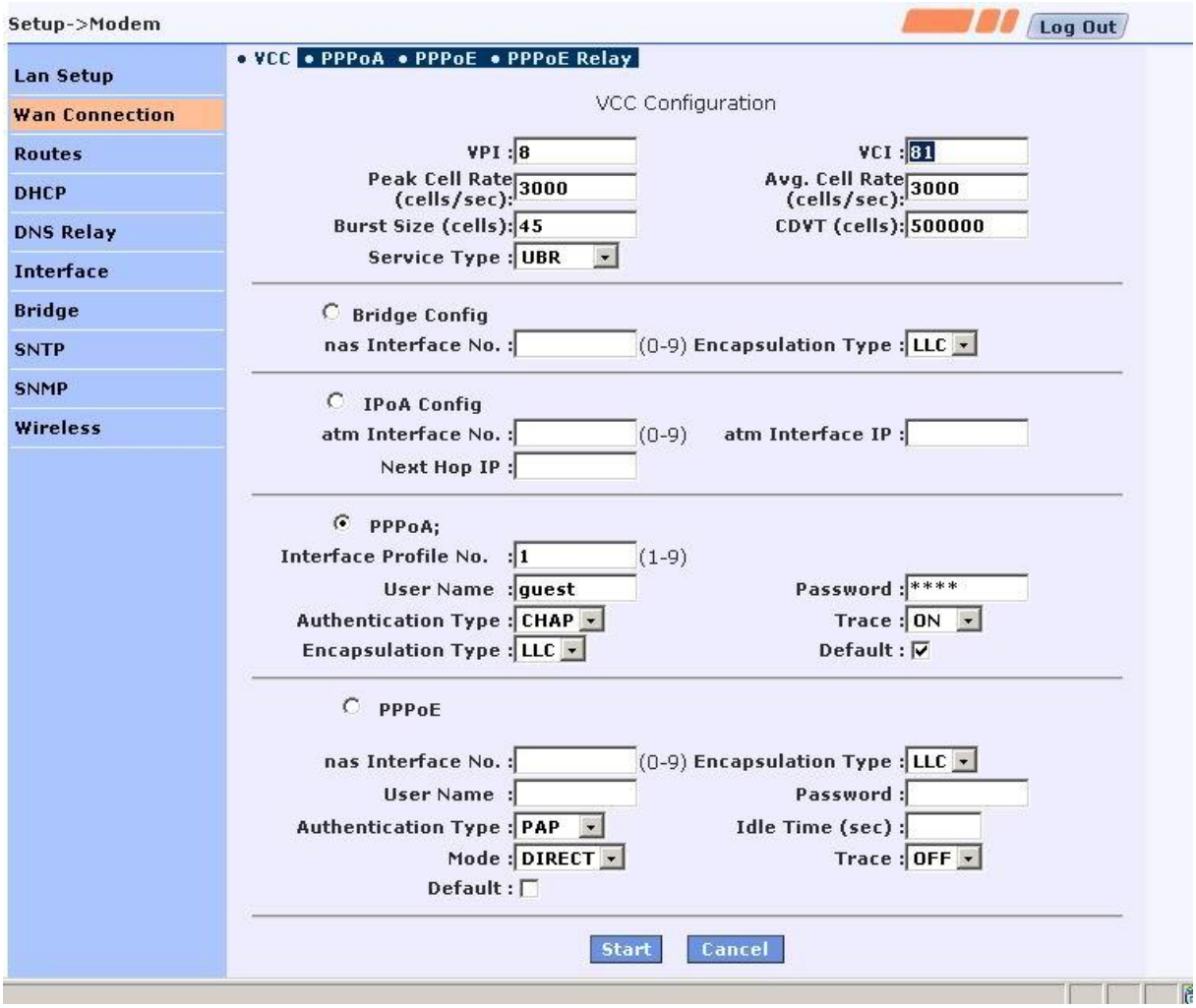
Username& Password The user name and password to be authenticated.

Authentication type The authentication protocol type, vale range: PAP/CHAP.

Trace Whether the information controlling the session negotiation should be displayed at the console, value range: ON/OFF.

Encapsulation type Packet encapsulation type, value range: LLC/VC.

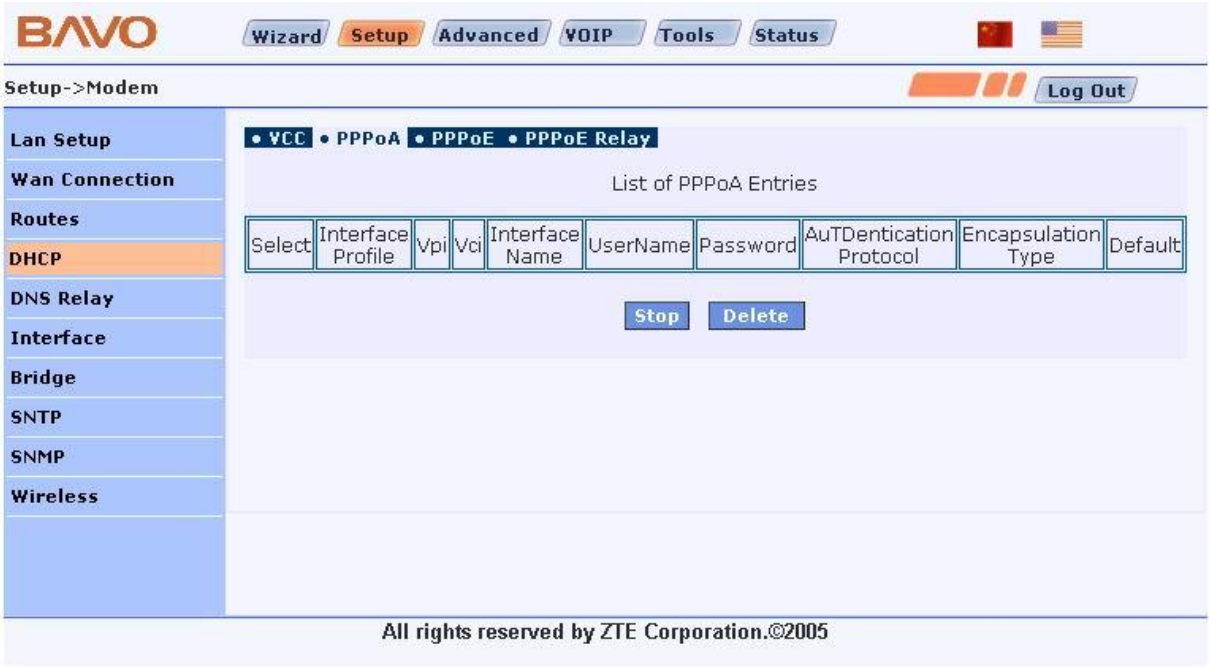
Default: Select whether a default route is generated.



The PPPOA Session List shows the designated PPPOE sessions that have been created.

Click the <***Stop***> button to stop and delete a PPPOA session.

Click the <***Delete***> button to remove the session from the configuration file and stop it.



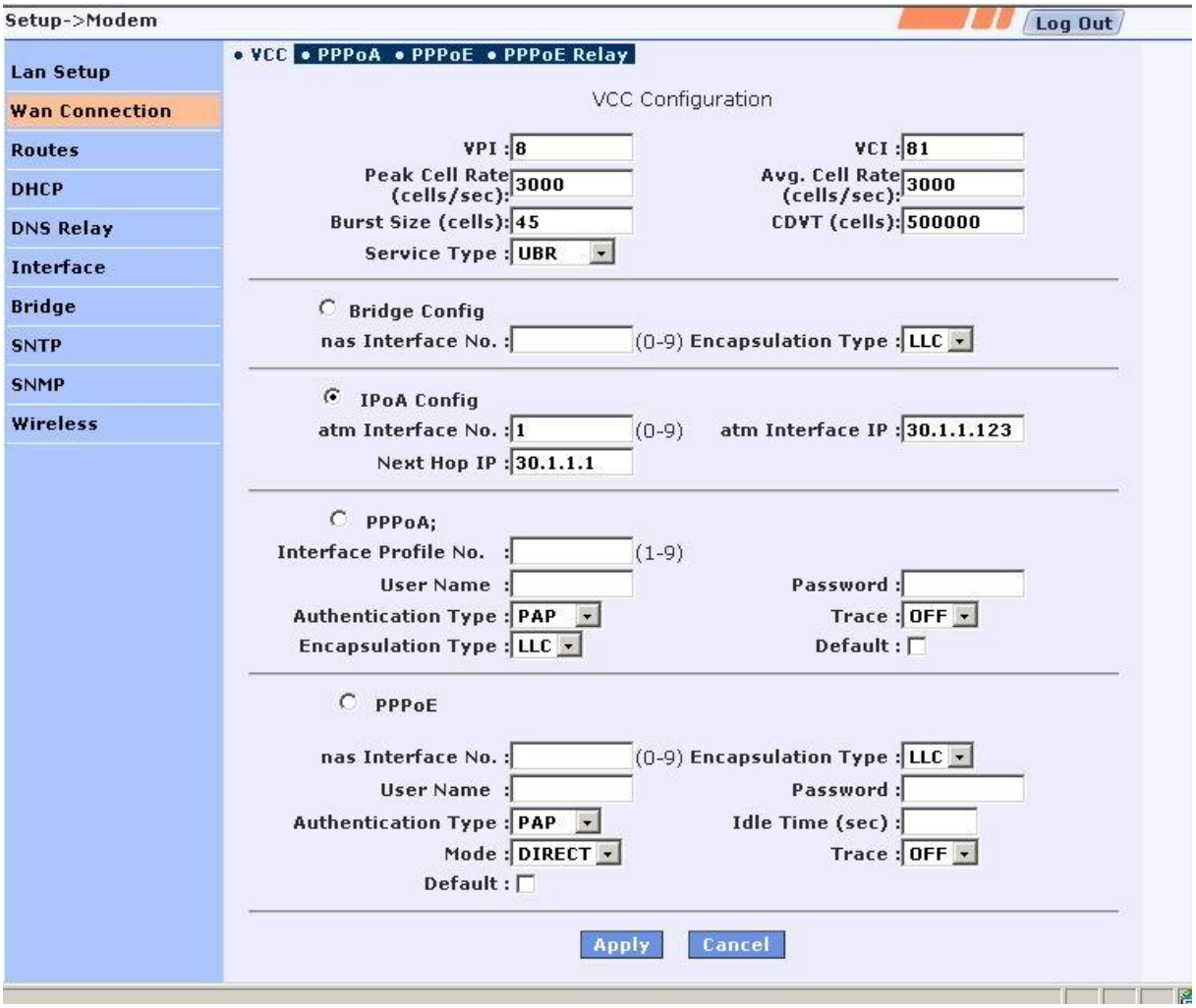
4.2.2.4 IPoA Connection

If your ISP provides the access mode of the IPoA-based static connection, you can select the IPoA access mode. Upon configuration of the ATM-related parameters, select the button in front of **IPoA** to configure the related parameters of the IPoA connection.

ATM Interface No. The configured No. follows the character string "ATM" when an ATM interface is created, for example atm0, value range: 0.

ATM Interface IP WAN side IP address, the IP address of the ATM interface.

Next Hop IP The IP address of the gateway connecting to the WAN interface.



4.2.3 Static Route

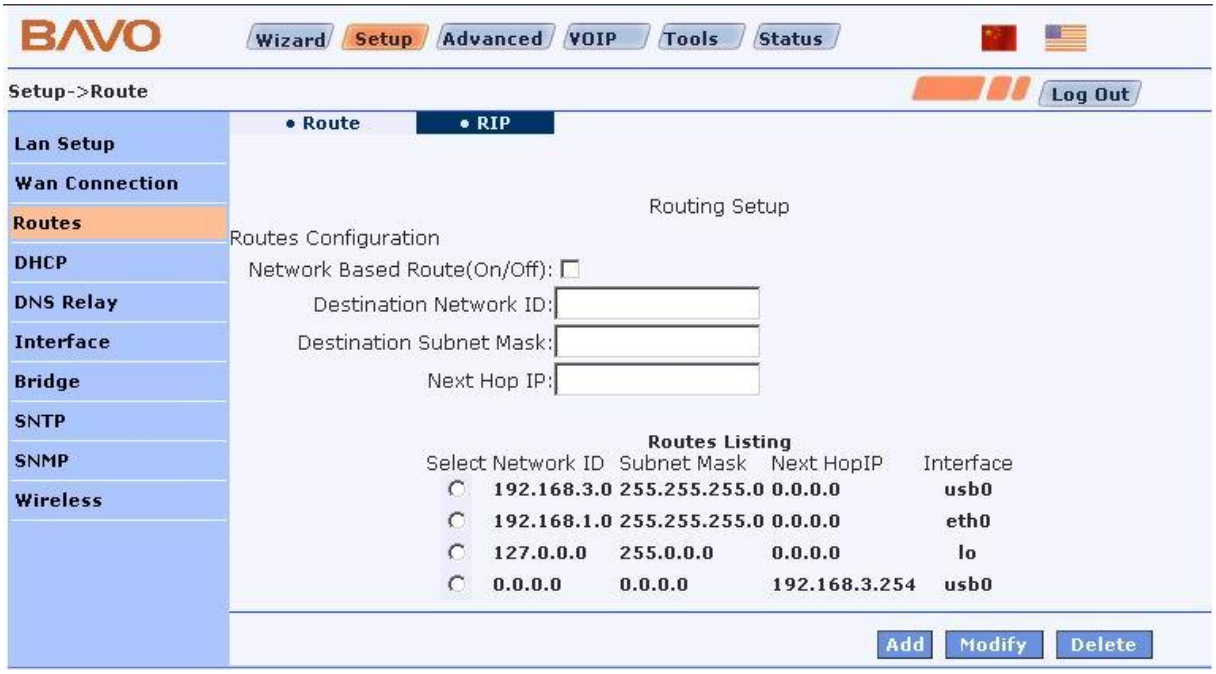
Click the **Routes** link in the left of the interface to enter the route configuration interface of the H100. In the [Route] tab, you can configure and view the static route information of the H100. The main interface shows the static route list of the H100. You can configure a new route, modify or delete the existing routes. The [RIP] tab in the interface is used to configure the dynamic route protocol RIP of the H100.

If you need to add a new route, designate the destination network ID, subnet mask, next hop IP and click the <***Add***> button. Once a route is added, the route list will be refreshed. To add a host-based route, input the destination network ID and the next hop IP address. In this case, the [Destination Subnet Mask] option is invalid.

If you need to add a network-based route, please check the [***Network Based Route***] checkbox to enable the [Destination Subnet Mask] box and input a proper value.

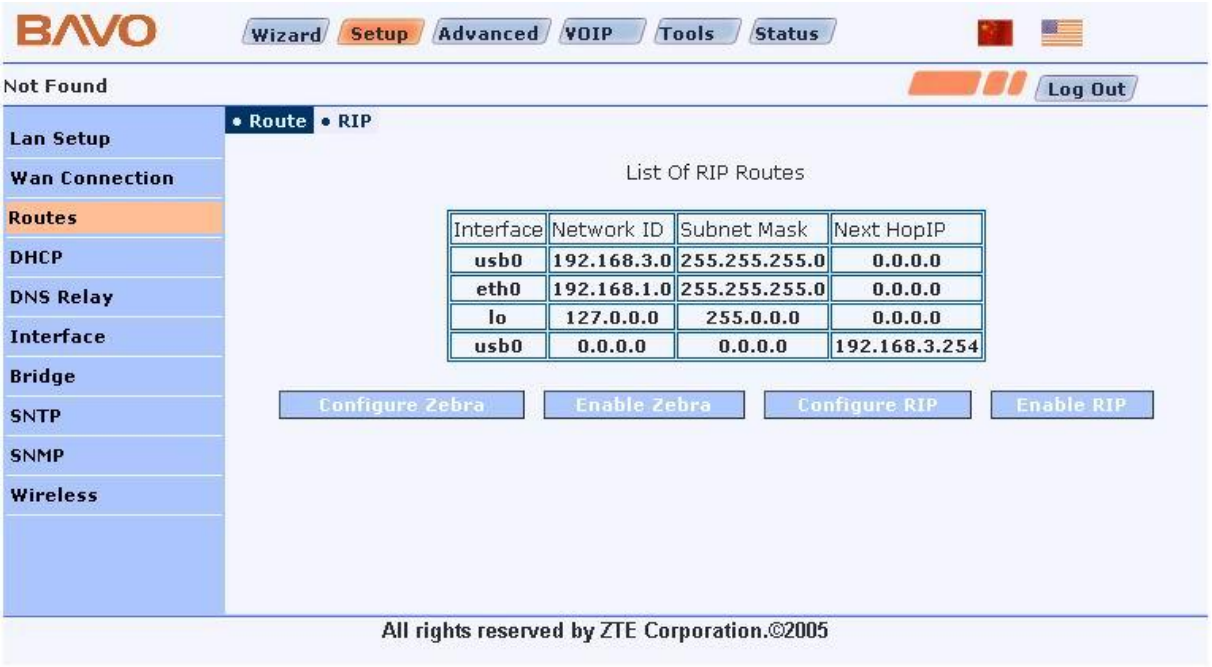
If you need to modify an existing route, select it in the route list. Its configuration is shown in the set box. Modify the next hop IP address and click the <***Modify***> button.

If you need to delete an existing route, select it and click the <***Delete***> button. After that, the route list is refreshed.



4.2.4 RIP Dynamic Route

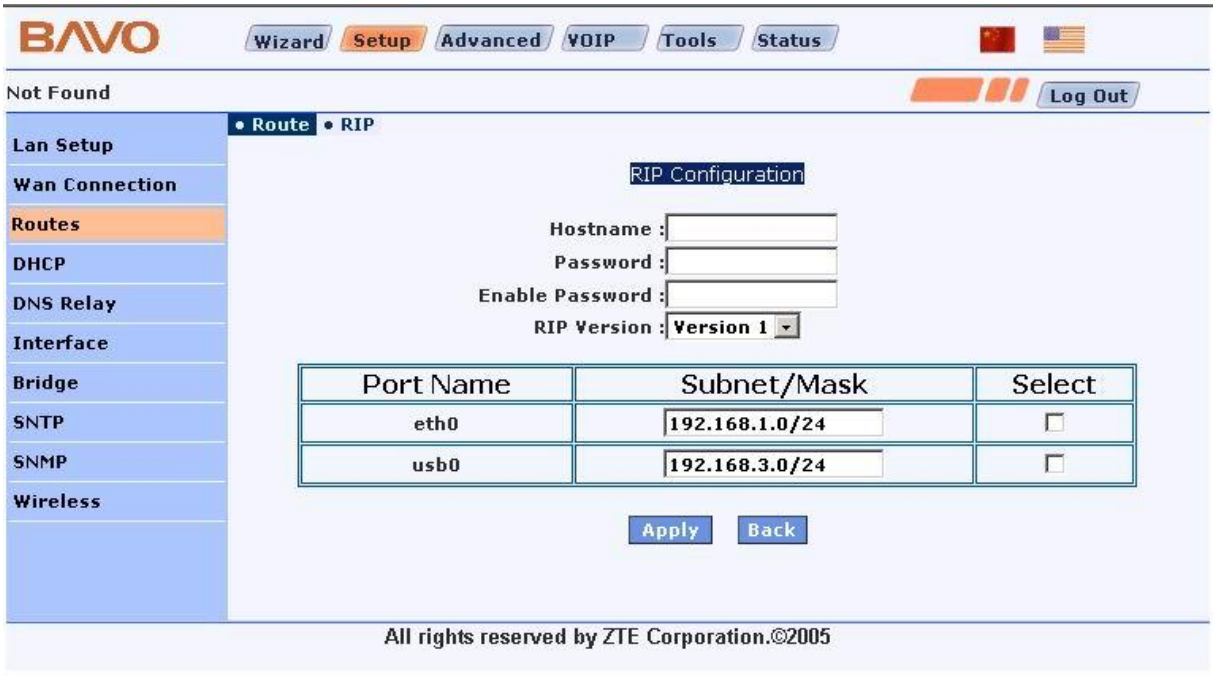
Click the [RIP] tab in the main route configuration interface to enter the configuration interface of the dynamic route protocol RIP, as shown below. The main RIP configuration interface shows the route table information of the system.



To activate the RIP function on the H100, you need to configure Zebra and RIP with the <Configure Zebra> and <Configure RIP> buttons, and then activate the RIP function with the <Enable Zebra> and <Enable RIP> buttons.

In the Zebra configuration interface shown below, you can configure Hostname, Password, Enable Password and interface IP address.

In the RIP configuration interface shown below, you can configure Hostname, Password, Enable Password and RIP Version (RIP version No.) and the interface where the RIP is activated.



4.2.5 DHCP Server

The **DHCP Server List Interface** shows the configuration parameters of the current DHCP server. The DHCP server configuration interface will show up when you click the <***Add***> or <***Modify***> button. In this interface, you can set the configurations of the DHCP server.

In this interface, you can also ***Enable*** or ***Disable*** the DHCP server. The content displayed on the button changes according to the running status of the DHCP server. "***Enable***" is displayed in the disabled status and "***Disable***" is displayed in the enabled status.

To modify the existing server configurations, select the server, click the <***Modify***> button and then complete the modification in the DHCP server configuration interface. When the related interface is disabled, you can perform the ***Modify*** and ***Delete*** operations on the existing server configurations.

In the **DHCP Server Configuration Interface,** you can set the configurations of the DHCP server.

Interface The interface for starting the DHCP server.

Starting IP Address The starting address from the IP address pool allocated by the DHCP server.

End IP Address The end address from the IP address pool allocated by the DHCP server.

Subnet The subnet that the IP belongs to.

Gateway The gateway IP address needed for communication of the DHCP client on the network.

Netmask The subnet mask value.

Primary DNS The main DNS address, the DNS server IP address allocated to the user to resolve all DNS requests.

Lease Time (In Days) Lease time (unit: day), the period for the DHCP server to lease IP addresses, range: 1 - 10 days.

4.2.6 DHCP Relay

The **DHCP Relay Configuration Interface** shows the status of the DHCP Relay module and the related configuration parameters.

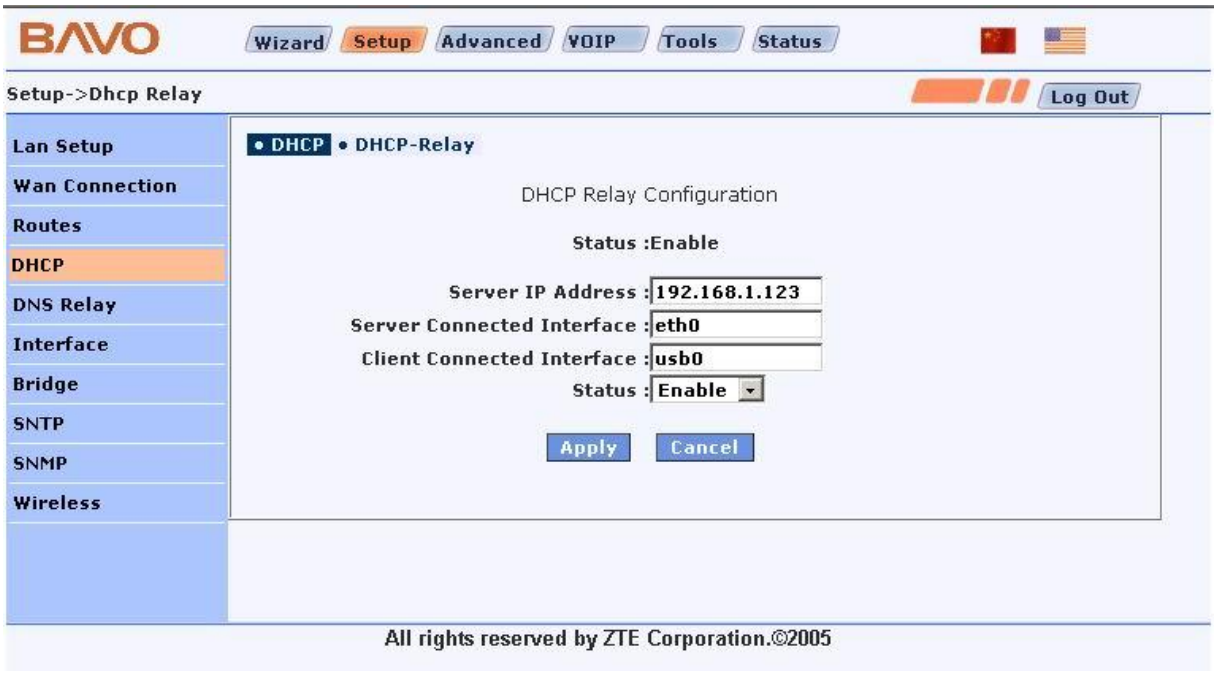
Status The current status of the DHCP Relay module.

Server IP Address The IP address of the DHCP server.

Server Connected Interface The interface of the H100 connecting to the DHCP server, whose name should be a valid character string.

Client Connected Interface The interface of the H100 connecting to the DHCP client, whose name should be a valid character string.

Status Status selection to designate the status of the DHCP Relay function



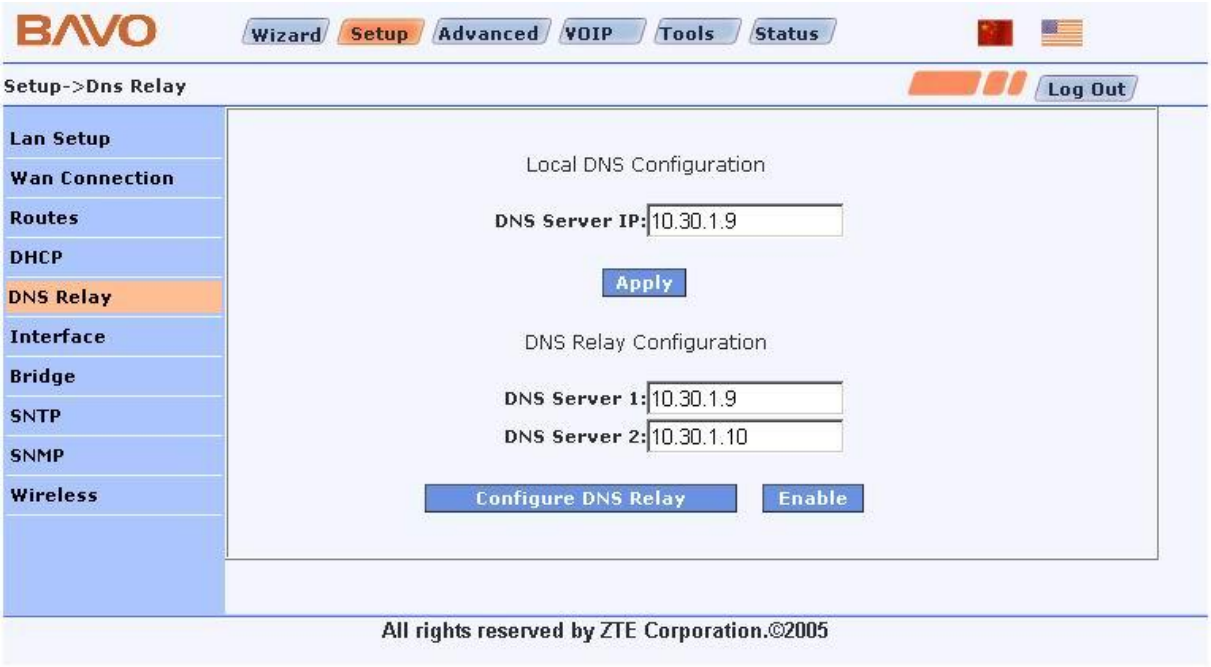
4.2.7 DNS Relay

DNS Relay Configuration Interface:

DNS Server IP The DNS server IP address at the LAN side set in [Local DNS Configuration] option. Upon configuration, you should click the <***Apply***> button.

DNS Server 1 and DNS Server 2 When the DNS relay function is configured, the IP addresses of the DNS servers should be filled in the [DNS Server 1] and [DNS Server 2] boxes. Click the <***Configure DNS Relay***> button to complete the setting.

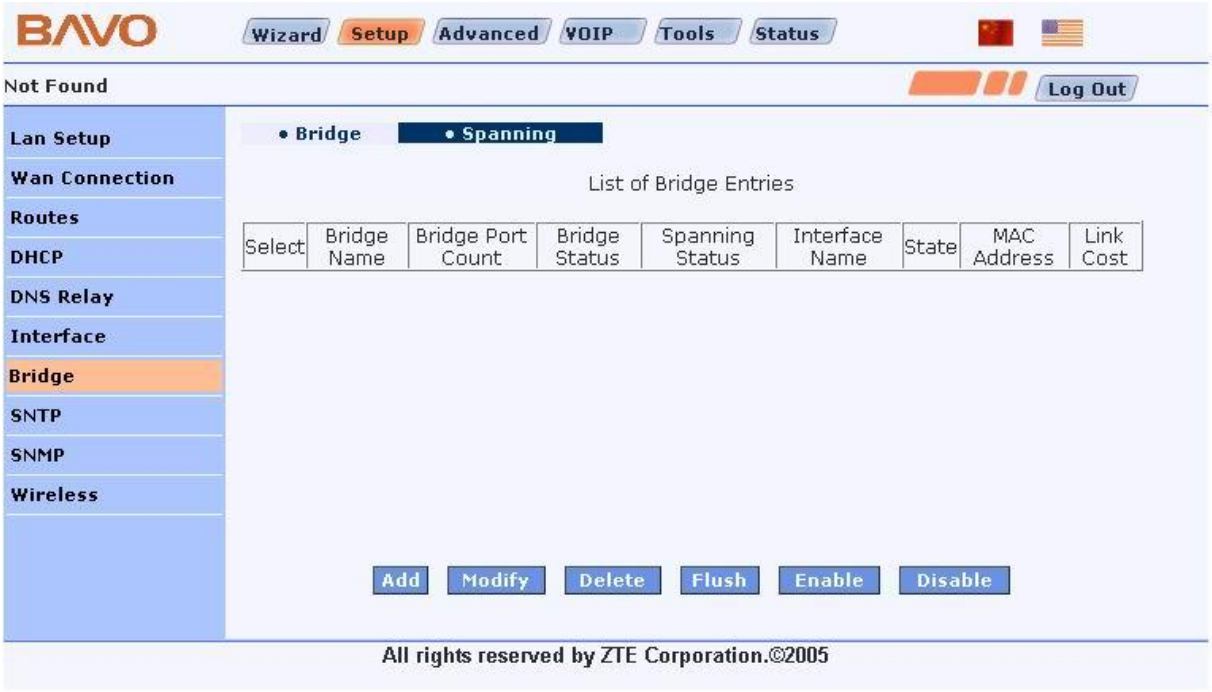
DNS Relay To enable the DNS relay function, click the <***Enable***> button. Upon enabling of the DNS relay function, the content displayed on the button changes to ***Disable***.



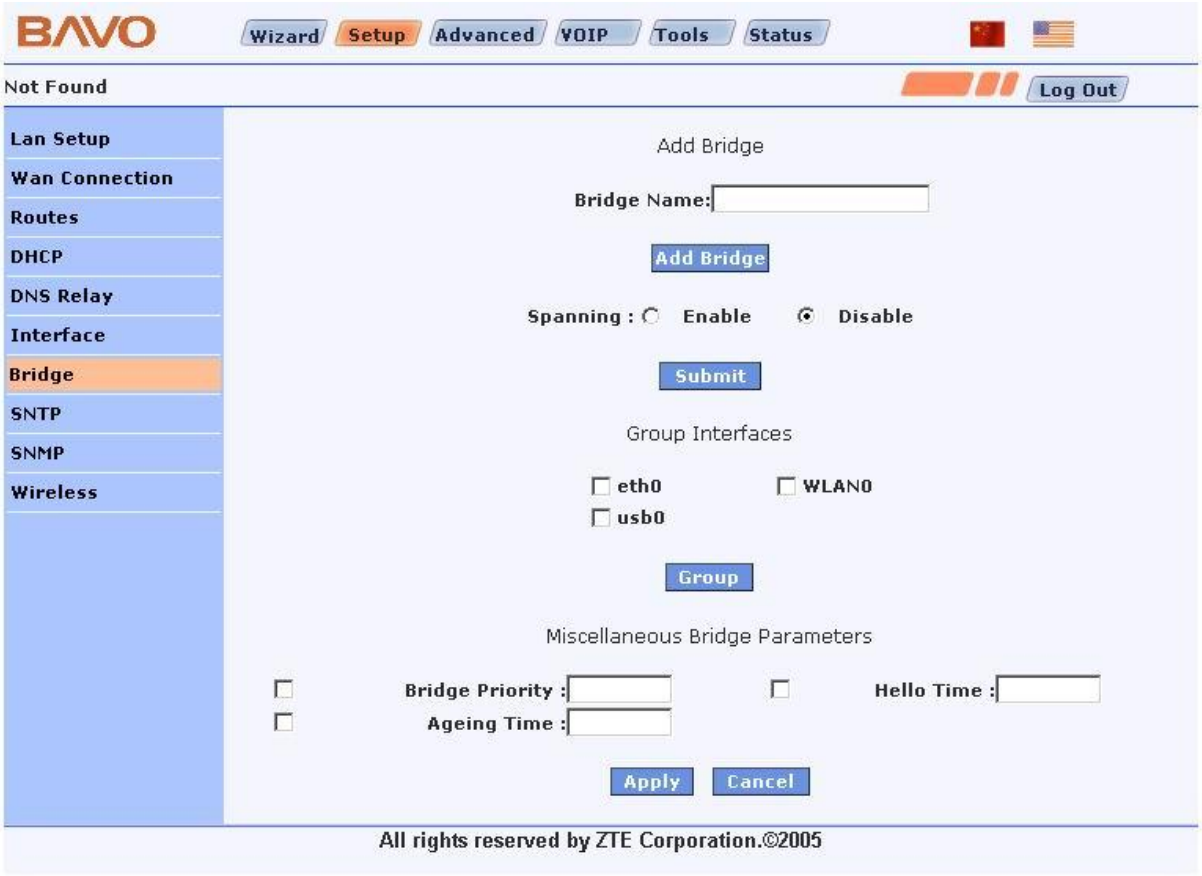
4.2.8 Bridge Connection

Click the **Bridge** link in the left of the interface to enter the H100 bridge configuration interface. In this interface, you can create a network bridge interface and configure its properties and the related properties of the STP protocol.

The main bridge configuration interface shows the list of the existing bridge interfaces. Select a bridge interface and click the <Modify/Delete/Enable/Disable> button to modify, delete, enable or disable it.



Click the <Add> button to enter the interface for creating a network bridge interface, as shown below. In this interface, you can designate the name of the bridge interface to be created (Bridge Name), add the LAN side interface to the bridge group as a bridge interface, or configure whether to enable the STP protocol or not (STP is enabled if Spanning is Enable; it is disabled if Spanning is disabled).You can also configure the parameters of the network bridge, such as Bridge Prioriry, Hello Time and Ageing Time.



Click the [Spanning] tab in the bridge configuration interface to enter the STP parameter configuration interface, as shown below. In this interface, you can configure the Link Cost property of the member ports in the network bridge.