D-Link®

Version 1.0 | 03/09/2016

User Manual

VDSL2/ADSL2+ Wireless N300 4 Port Router

DSL-224

Table of Contents

Safety Precaution

Follow the following instructions to prevent the device from risks and damage

- Use the power adapter in the package.
- An overburden power outlet or damaged lines and plugs may cause electric shock or fire accident. Check the power cords regularly. If you find any damage, replace it at once.
- Proper space left for heat dissipation is necessary to avoid overheating. The holes on the device are designed for heat dissipation to ensure running normally. Do not cover these heat dissipation holes.
- Do not put this device close to a heat source or high temperature place. Avoid the device direct exposing sunshine.
- Do not put this device close to over damp place. Do not spill any fluid on this device.
- Do not connect this device to PC or electronic product, unless our customer engineer or your broadband provider instructs you to do this, because any wrong connection may cause power or fire risk.
- Do not place this device on an unstable surface or support.

Introduction

The DSL-224 supports multiple line modes. With four 10/100 base-T Ethernet interfaces at the user end, the device provides high-speed VDSL2(ADSL/ADSL2+) broadband connection to the Internet or Intranet for high-end users like net bars and office users. The DSL-224 supports both DSL uplink access and Ethernet uplink access. It provides high performance access to the Internet with a downstream rate of 24 Mbps and an upstream rate of 1 Mbps. It complies with specifications of IEEE 802.11, 802.11b/g/n, WEP, WPA, and WPA2 security.

System Requirements

Network Requirement	Available uplink access (DSL uplink or Ethernet uplink)
Clients to be connected	Devices installed a wireless network adapter or 10 base T/100BaseT Ethernet adapter.
Web-based Configuration Utility Requirement	Computer with the following: Windows®, Macintosh, or Linux-based operating system An installed Ethernet adapter Browser Requirements: Microsoft Internet Explorer® v7, Mozilla® Firefox v9.0, Google® Chrome 16.0, or Safari® v4 or higher version. Windows® Users: Make sure you have the latest version of Java installed. Visit www.java.com to download the latest version.

Features

The device supports the following features:

- Various line modes
- Two uplink access: DSL and Ethernet uplink access
- External PPPoE dial-up access
- Internal PPPoE/PPPoA dial-up access
- 1483Bridged/1483Routed with dynamic IP or static IP
- Multiple PVCs (the number of PVCs support is eight)
- DHCP server/relay
- Static route
- Network Address Translation(NAT)
- DMZ
- Virtual Server
- Universal plug and play (UPnP)
- Dynamic Domain Name Server(DDNS)
- Network Time Protocol(NTP)
- Firmware upgrading through Web, TFTP, or FTP
- Resetting to the factory defaults through Reset button or Web
- Diagnostic test
- Web interface
- Telnet CLI
- IP/MAC/URL Filter
- Application layer service
- QoS
- Port binding
- Auto upgrade
- Digital Living Network Alliance (DLNA)
- Wireless network

Installation

This section will guide you through the installation process. Placement of the Router is very important. Do not place the Router in an enclosed area such as a closet, cabinet or in the attic or garage.

Before You Begin

Please read and make sure you understand all the prerequisites for proper installation of your new Router. Have all the necessary information and equipment on hand before beginning the installation.

Installation Notes

In order to establish a connection to the Internet it will be necessary to provide information to the Router that will be stored in its memory. For some users, only their account information (Username and Password) is required. For others, various parameters that control and define the Internet connection will be required. You can print out the two pages below and use the tables to list this information. This way you have a hard copy of all the information needed to setup the Router. If it is necessary to reconfigure the device, all the necessary information can be easily accessed. Be sure to keep this information safe and private.

Low Pass Filters
Since VDSL2(ADSL/ADSL2+) and telephone services share the same copper wiring to carry their respective signals, a filtering mechanism may be necessary to avoid mutual interference. A low pass filter device can be installed for each telephone that shares the line with the VDSL2(ADSL/ADSL2+) line. These filters are easy to install passive devices that connect to the VDSL2(ADSL/ADSL2+) device and/or telephone using a standard telephone cable. Ask your service provider for more information about the use of low pass filters with your installation.

Operating Systems
The DSL-224 uses an HTML-based web interface for setup and management. The web configuration manager may be accessed using any operating system capable of running web browser software, including Windows 98 SE, Windows ME, Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8, and Windows10.

Web Browser
Any common web browser can be used to configure the Router using the web configuration management software. The program is designed to work best with more recently released browsers such as Opera, Microsoft Internet Explorer® version 6.0, Netscape Navigator® version 6.2.3, or later

versions. The web browser must have JavaScript enabled. JavaScript is enabled by default on many browsers. Make sure JavaScript has not been disabled by other software (such as virus protection or web user security packages) that may be running on your computer.

Ethernet Port (NIC Adapter)
Any computer that uses the Router must be able to connect to it through the Ethernet port on the Router. This connection is an Ethernet connection and therefore requires that your computer be equipped with an Ethernet port as well. Most notebook computers are now sold with an Ethernet port already installed. Likewise, most fully assembled desktop computers come with an Ethernet NIC adapter as standard. If your computer does not have an Ethernet port, you must install an Ethernet NIC adapter before you can use the Router. If you need to install an adapter, follow the installation instructions that come with the Ethernet NIC adapter.

Additional Software
It may be necessary to install software on your computer that enables the computer to access the Internet. Additional software must be installed if you are using the device as a simple bridge. For a bridged connection, the information needed to make and maintain the Internet connection is stored on another computer or gateway device, not in the Router itself.

If your VDSL2(ADSL/ADSL2+) service is delivered through a PPPoE or PPPoA connection, the information needed to establish and maintain the Internet connection can be stored in the Router. In this case, it is not necessary to install software on your computer. It may however be necessary to change some settings in the device, including account information used to identify and verify the connection.

All connections to the Internet require a unique global IP address. For bridged connections, the global IP settings must reside in a TCP/IP enabled device on the LAN side of the bridge, such as a PC, a server, a gateway device, such as a router, or similar firewall hardware. The IP address can be assigned in a number of ways. Your network service provider will give you instructions about any additional connection software or NIC configuration that may be required.

Information you will need from your VDSL2(ADSL/ADSL2+) service provider

Username
This is the Username used to log on to your VDSL2(ADSL/ADSL2+) service provider's network. Your VDSL2(ADSL/ADSL2+) service provider uses this to identify your account.

Password
This is the Password used, in conjunction with the Username above, to log on to your VDSL2(ADSL/ADSL2+) service provider's network. This is used to verify the identity of your account.

WAN Setting / Connection Type
These settings describe the method your VDSL2(ADSL/ADSL2+) service provider uses to transport data between the Internet and your computer. Most users will use
the default settings. You may need to specify one of the following WAN Setting and Connection Type configurations (Connection Type settings listed in parenthesis):

- PPPoE/PPPoA (PPPoE LLC, PPPoA LLC or PPPoA VC-Mux)
- Bridge Mode (1483 Bridged IP LLC or 1483 Bridged IP VC Mux)
- IPoA/MER (Static IP Address) (Bridged IP LLC, 1483 Bridged IP VC Mux, 1483 Routed IP LLC, 1483 Routed IP VC-Mux or IPoA)
- MER (Dynamic IP Address) (1483 Bridged IP LLC or 1483 Bridged IP VC-Mux)

Modulation Type
VDSL2(ADSL/ADSL2+) uses various standardized modulation techniques to transmit data over the allotted signal frequencies. Some users may need to change the type of modulation used for their service. The default DSL modulation used for the Router automatically detects all types of VDSL2(ADSL/ADSL2+) modulation.

Security Protocol
This is the method your VDSL2(ADSL/ADSL2+) service provider will use to verify your Username and Password when you log on to their network. Your Router supports the PAP and CHAP protocols.

VPI
Most users will not be required to change this setting. The Virtual Path Identifier (VPI) is used in conjunction with the Virtual Channel Identifier (VCI) to identify the data path between your VDSL2(ADSL/ADSL2+) service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your VDSL2(ADSL/ADSL2+) service provider for the additional connections. This setting can
be changed in the WAN Settings window of the web management interface.
VCI
Most users will not be required to change this setting. The Virtual Channel Identifier (VCI) is used in conjunction with the VPI to identify the data path between your VDSL2(ADSL/ADSL2+) service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your VDSL2(ADSL/ADSL2+) service provider for the additional connections. This setting can be changed in the WAN
Setup window of the web management interface.

Information you will need about your DSL-224 Router

Username
This is the Username needed to access the Router's management interface. When you attempt to connect to the device through a web browser you will be prompted to enter this Username. The default Username for the Router is "admin."

Password
This is the Password you will be prompted to enter when you access the Router's management interface. The default Password is "admin." The user may change this.

LAN IP addresses for the DSL-224
This is the IP address you will enter into the Address field of your web browser to access the Router's configuration graphical user interface (GUI) using a web browser. The default IP address is **10.0.0.2**. This may be changed to suit any IP address scheme the user desires. This address will be the base IP address used for DHCP service on the LAN when DHCP is enabled.

LAN Subnet Mask for the DSL-224
This is the subnet mask used by the DSL-224 and will be used throughout your LAN. The default subnet mask is **255.255.255.0**.

Information you will need about your LAN or computer

Ethernet NIC
If your computer has an Ethernet NIC, you can connect the DSL-224 to the Ethernet port using an Ethernet cable.

DHCP Client status
Your DSL-224 VDSL2(ADSL/ADSL2+) Router is configured, by default, to be a DHCP server. This means that it can assign an IP address, subnet mask and a default gateway address to computers on your LAN. The default range of IP addresses the DSL-224 will assign are from 10.0.0.1 to 10.0.0.254. Your computer (or computers) needs to be configured to obtain an IP address automatically (that is, they need to be configured as DHCP clients.)

It is recommended that you backup or record this information here, or in some other secure place, in case you have to re-configure your VDSL2(ADSL/ADSL2+) connection in the future.

Once you have the above information, you are ready to setup and configure your DSL-224 VDSL2(ADSL/ADSL2+) Router.

Hardware Description and Installation

LED Indicators

Note:

The figures in this document are for reference only.

Figure 1 Front panel

The following table describes the LEDs of the device.

LED	Color	Status	Description
Power	Green	Off	The power is off.
		On	The initialization of the system is complete.
	Red	On	The device is initiating.
		Blinking	The firmware is upgrading.
LAN	Green	Off	The Ethernet interface is not properly connected.
		Blinking	The Ethernet interface is properly connected and data is being transmitted.
		On	The Ethernet interface is properly connected, but no data is being transmitted.
WLAN	Green	Blinking	The WLAN function is enabled and data is being transmitted over the WLAN.
		On	The WLAN function is enabled, but no data is being transmitted over the WLAN.
		Off	The WLAN function is disabled.
WPS	Green	Blinking	WPS is successfully triggered.
		Solid on for 5 seconds and then turns off	Connection is successfully established between the router and the client through WPS.

LED	Color	Status	Description
DSL	Green	Off	No signal is being detected.
		Blinking	The device is handshaking with the physical layer of the office end.
		On	A connection is set up with the physical layer of the office end.
Internet	Green	Off	The device is under the Bridge mode or powered off.
		Blinking	Internet data is being transmitted in the routing mode.
		On	The IP is connected.
	Red	On	The device is attempted to become IP connected, but failed.

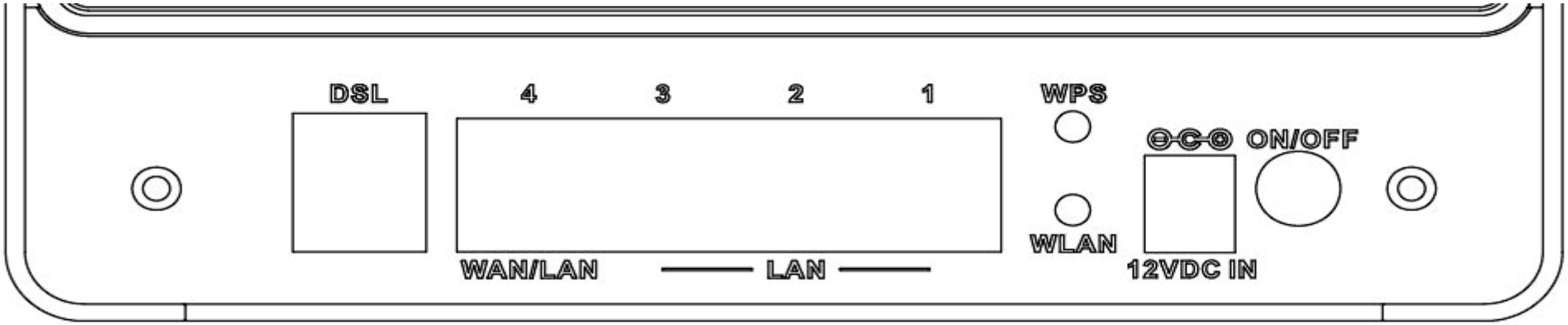


Figure 2 Rear panel

The following table describes the interfaces of the device.

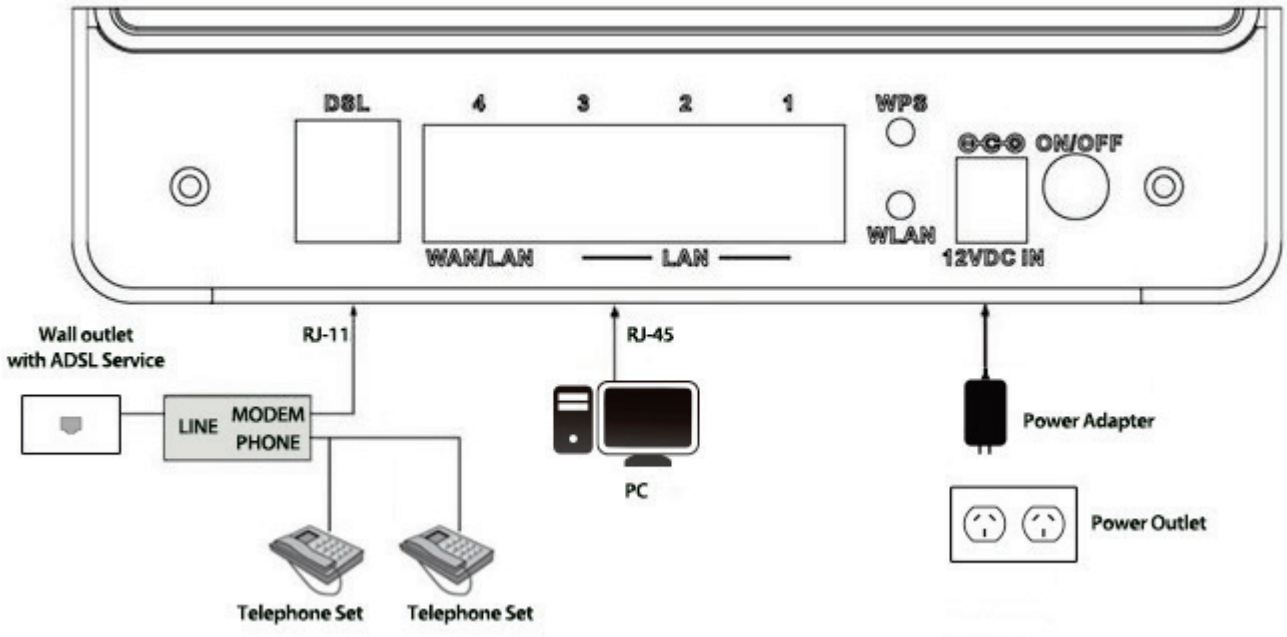
Interface/Button	Description
DSL	RJ-11 interface for connecting the host to the telephone jack on the wall or the **MODEM** interface of the splitter through a telephone line.
LAN4/3/2/1	For a PC or other Ethernet-abled device to join the LAN of 224 by being connected to this interface with RJ-45 cable.
WPS	Press the button to enable or disable WPS function.
WIRELESS ON/OFF	Press the button to enable or disable WLAN function.
ON/OFF	Power switch, which is used to power on or power off the device.
12V DC IN (power)	Interface for connecting the power adapter.
Reset (On the bottom side)	Press and hold the button for 15~20 seconds to restore the factory defaults.

Best Location for Wireless Operation

Many environmental factors may affect the effective wireless function of the DSL Router. If this is the first time that you set up a wireless network device, read the following information:
The access point can be placed on a shelf or desktop, ideally you should be able to see the LED indicators in the front, as you may need to view them for troubleshooting.
Designed to go up to 100 meters indoors and up to 300 meters outdoors, wireless LAN lets you access your network from anywhere you want. However, the numbers of walls, ceilings, or other objects that the wireless signals must pass through limit signal range. Typical ranges vary depending on types of materials and background RF noise in your home or business.

Connecting the Router

The following figure shows the connection of the Router, PC, and telephones.



Step 1 Connect the **DSL** port of the router and the Modem port of the splitter through a telephone cable; connect the phone to the phone port of the splitter through a telephone cable; and connect the Line port of the splitter to the uplink telephone jack on the wall.

The spliter has three ports:

- **LINE**: Connect to a wall phone jack (RJ-11 jack)
- **MODEM**: Connect to the Line interface of the router
- **PHONE**: Connect to a telephone set

Step 2 Connect the **LAN** port of the router to the network interface card (NIC) of the PC through an Ethernet cable (MDI/MDIX).

Step 3 Plug the power adapter to the wall outlet and then connect the other end of it to the **Power** (12V DC IN) port of the route.

TCP/IP Configuration On A PC

Each network interface on the PC should either be configured with a statically defined IP address and DNS address, or be instructed to automatically obtain an IP address using the network DHCP server. DSL router provides a DHCP server on its LAN and it is recommended to configure your LAN to automatically obtain its IP address and DNS server IP address.
The configuration principle is identical but should be carried out differently on each operating system.
The figure displays the **TCP/IP Properties** dialog box on Windows .

TCP/IP configuration steps for Windows are as follows:

Step 1 For Windows XP and 2000, choose **Start** > **Control Panel** > **Network Connections**.

For Windows 7, 8, 8.1 and 10, choose **Start > Control Panel > Network and Internet > Network and Sharing Centre**. On the left side choose Change adapter settings.

Step 2 For Windows XP and 2000, right-click the Ethernet connection icon and choose **Properties**.

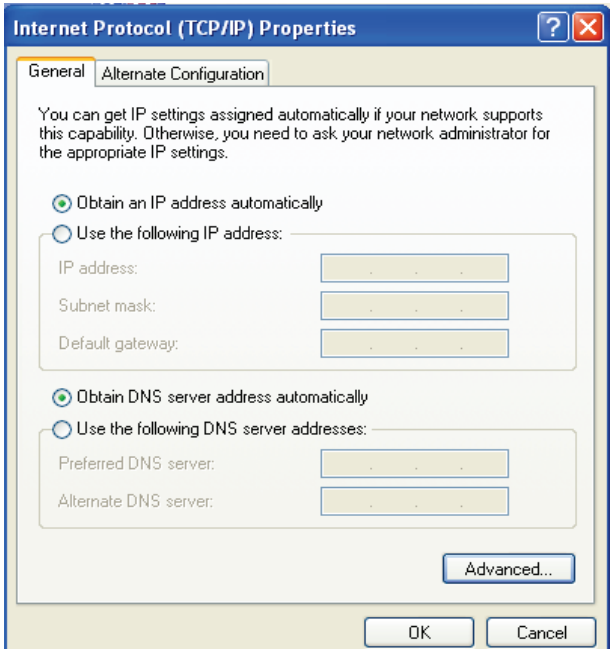
For Windows 7, 8, 8.1 and 10, right-click on the **Local Area Connection/Ethernet/LAN** which represents your network adapter and select the **Properties** button.

Step 3 On the General tab, select the Internet Protocol (TCP/IP) component and click Properties. The Internet Protocol (TCP/IP) Properties window appears.

Step 4 Select the **Obtain an IP address automatically** button.

Step 5 Select the **Obtain DNS server address automatically** button.

Click **OK** to save the settings.



Web Configuration

This chapter describes how to use Web-based management of the DSL router, which allows you to configure and control all of DSL router features and system parameters in a user-friendly GUI.

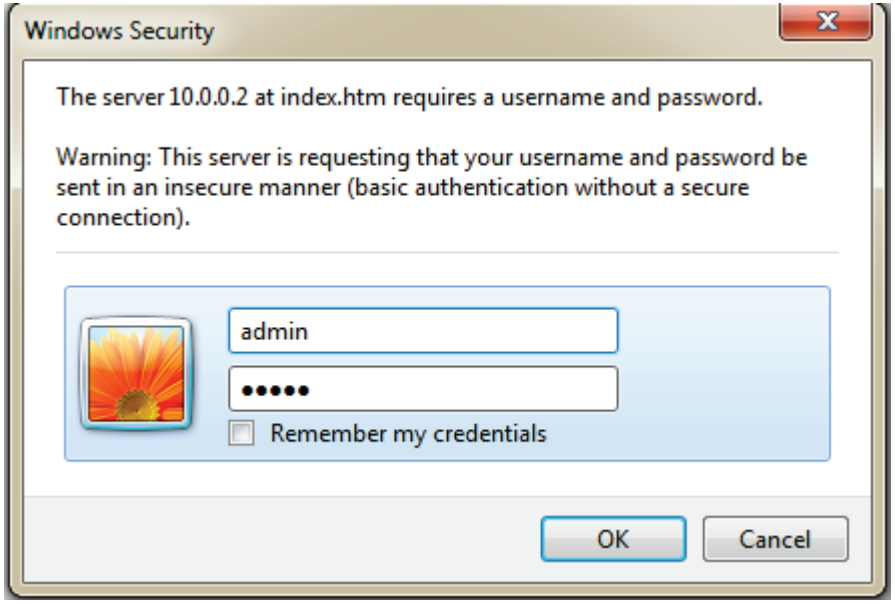
Accessing the Router

The following description is a detail “How-To” user guide and is prepared for first time users.

Step 1 Open the Internet Explorer (IE) browser, and then go to http://10.0.0.2/.

Step 2 The Login page is shown as the below appears . Enter the username and password. And then click **OK**.

- The default username and password are **admin** and **admin**.

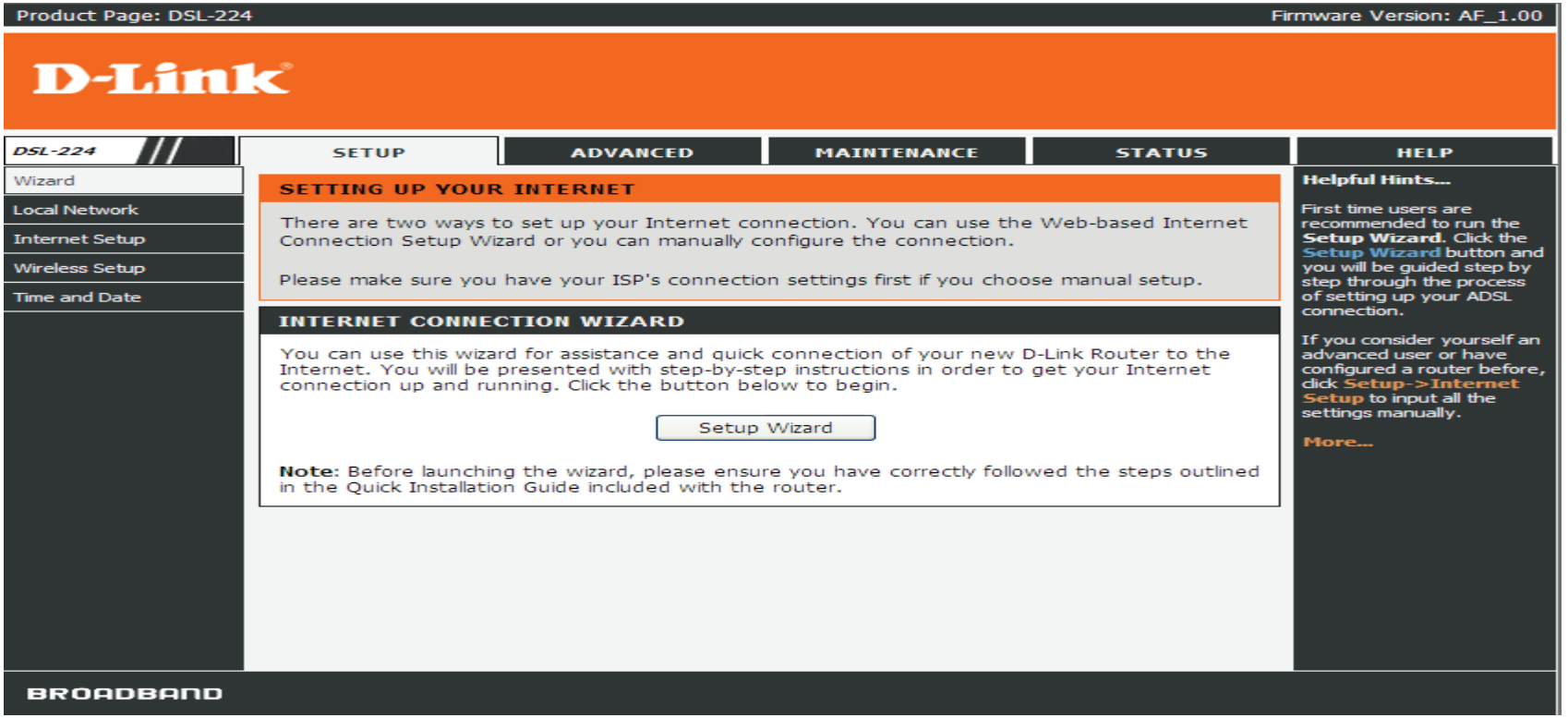


SETUP

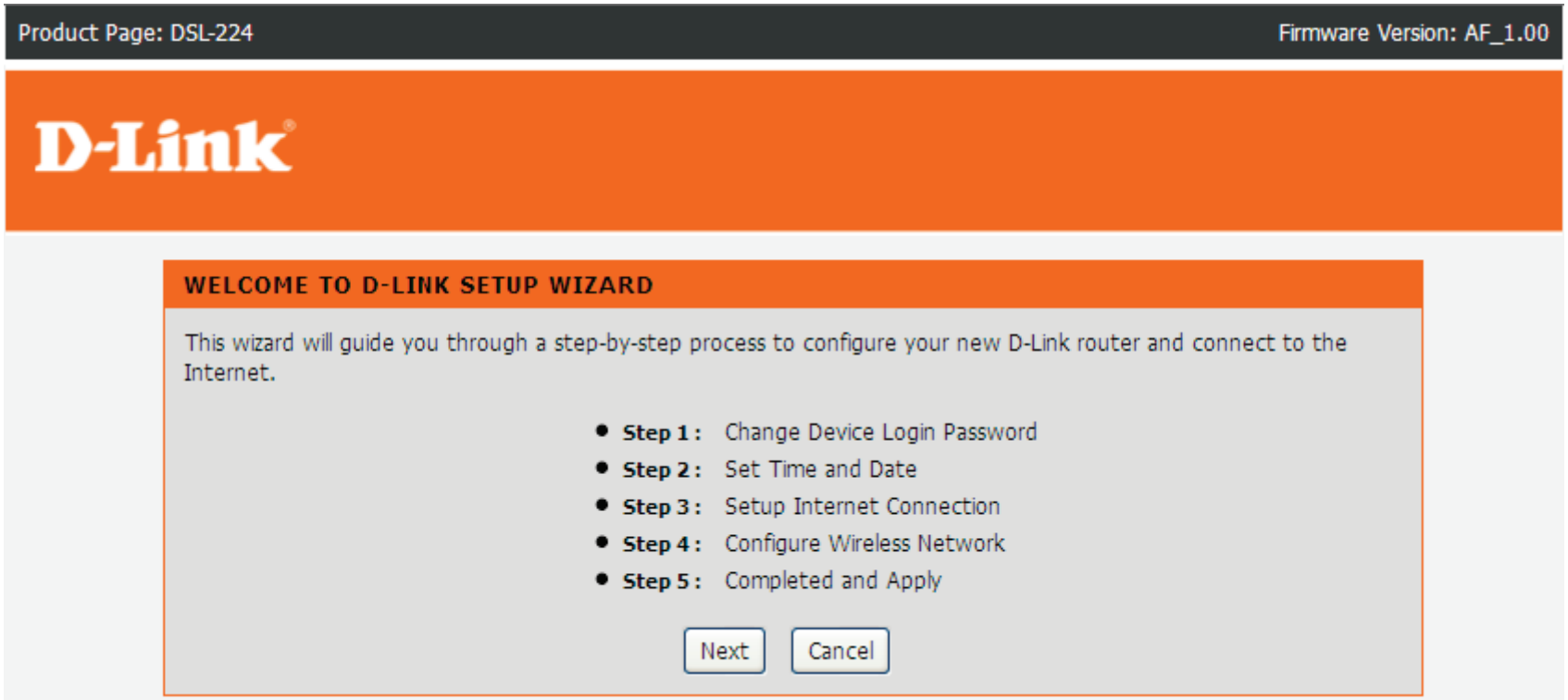
Wizard

Wizard enables fast and accurate configuration of Internet connection and other important parameters. The following sections describe these various configuration parameters.
When subscribing to a broadband service, you should be aware of the method, by which you are connected to the Internet. The connection type of your physical WAN device can be Ethernet, DSL, or both. Technical information about the properties of your Internet connection is provided by your Internet service provider (ISP). For example, your ISP should inform you whether you are connected to the Internet using a static or dynamic IP address, or the protocol, such as PPPoA or PPPoE, that you use to communicate over the Internet.

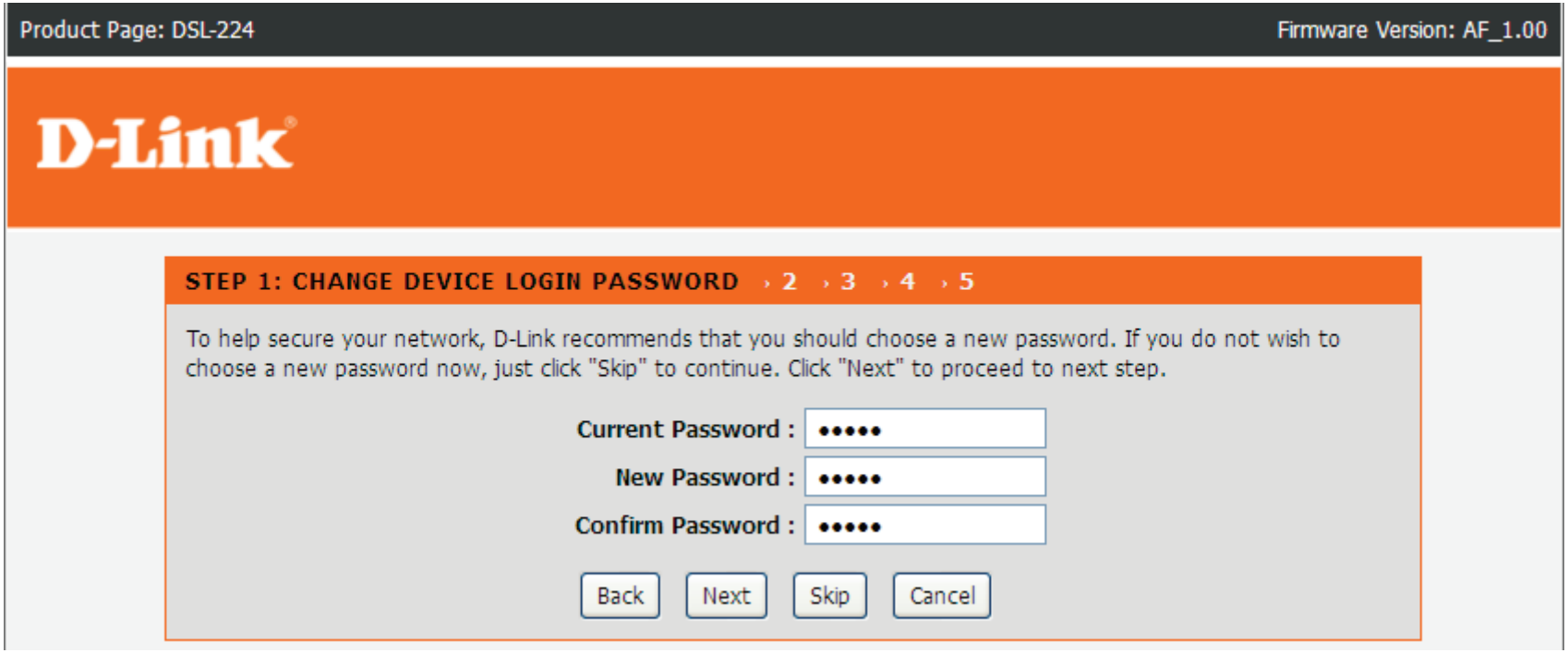
Choose **SETUP** > **Wizard**. The page is shown as the figure appears below.



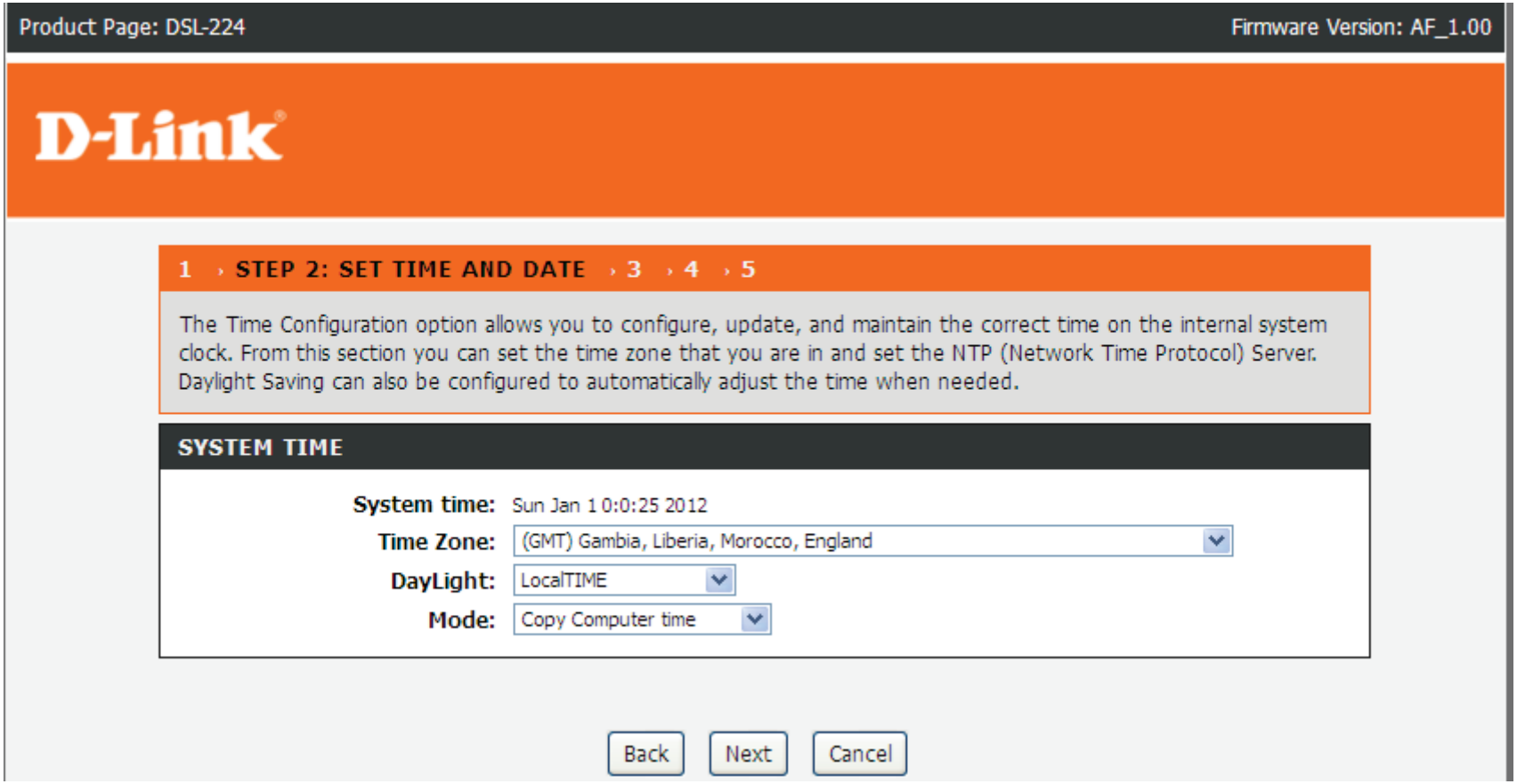
Click **Setup Wizard**. The page is shown as the figure appears as below. There are 5 steps to configure the device. Click **Next** to continue.



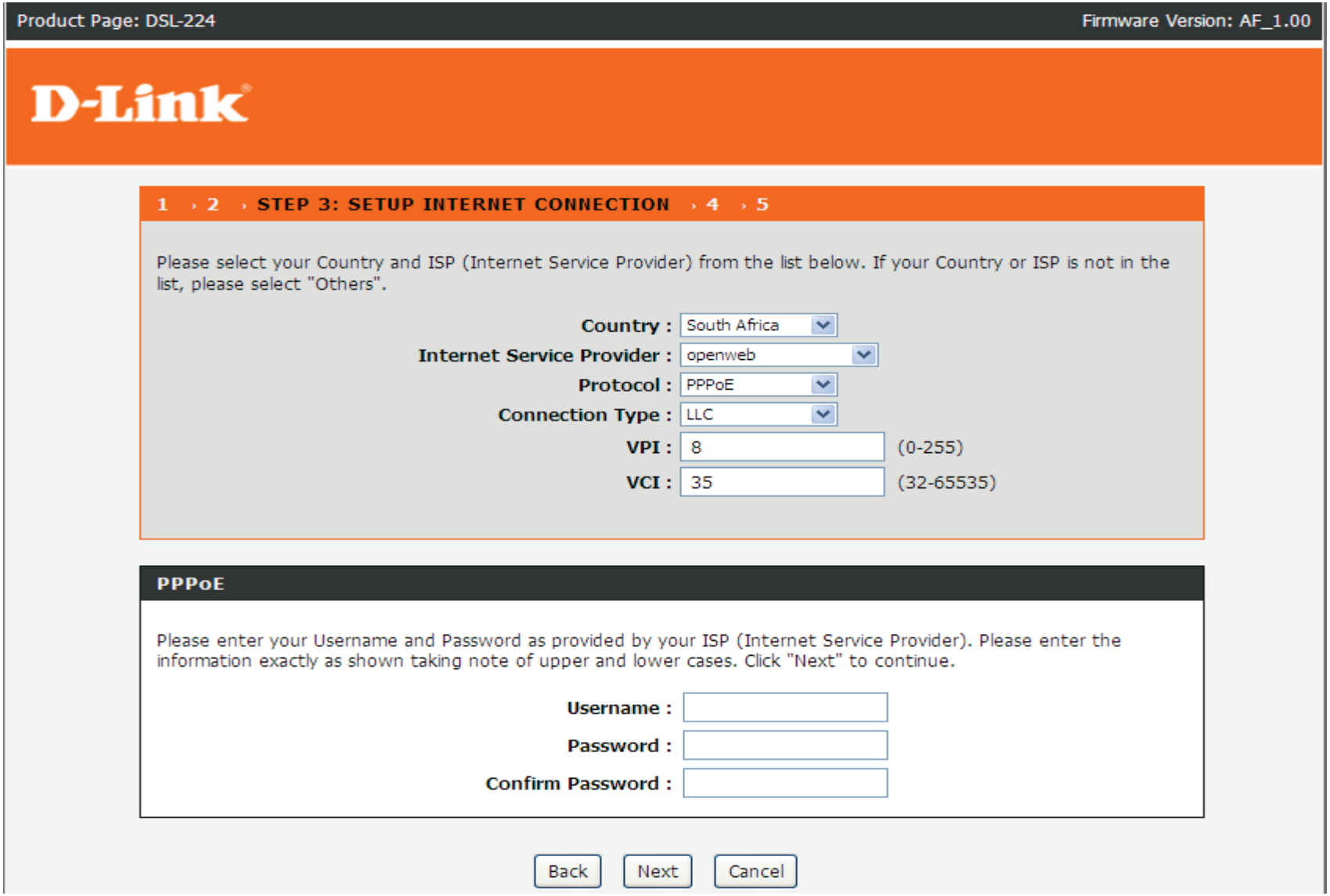
Step 1 Change device login password, input the current password and new password, and then click **Next**. If you do not change the Login password, click **Skip** to continue or click **Cancel** to return to the home page.



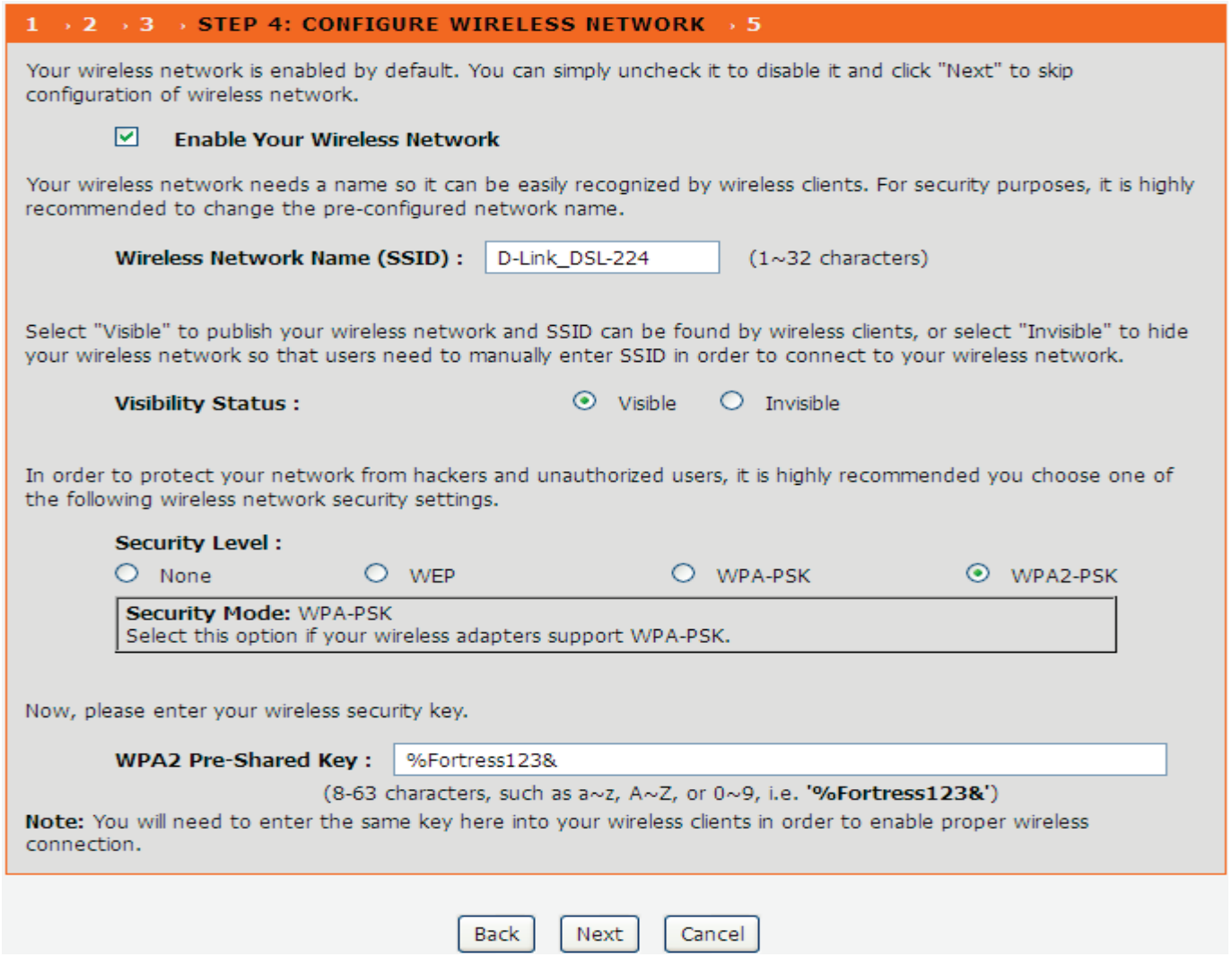
Step 2 Please set the time and date, and then click **Next**.



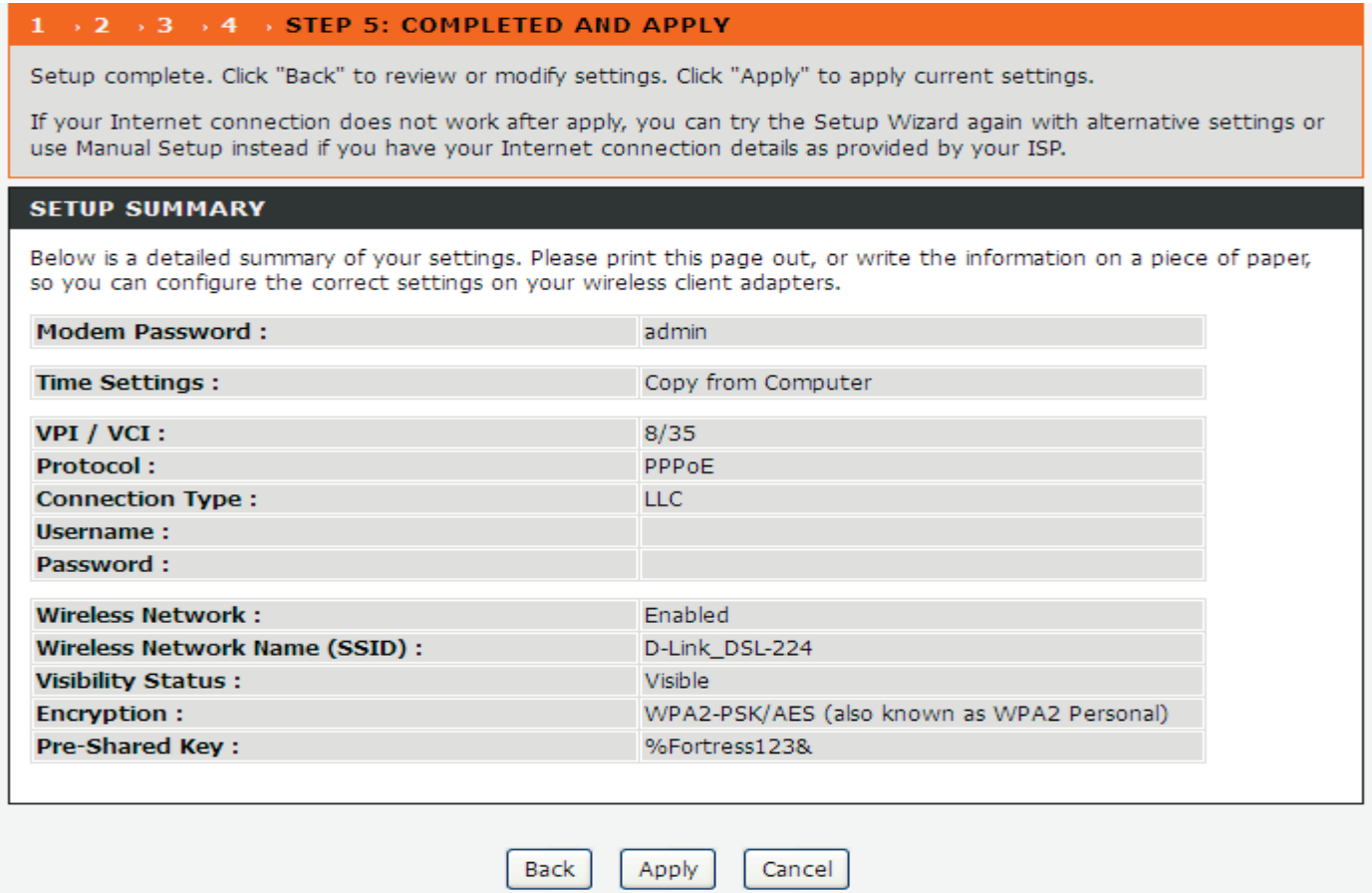
Step 3 Set internet connection, it will show as the below appears.



Step 4 Configure wireless network



Step 5 Completed and apply



Local Network

You can configure the LAN IP address according to the actual application. The preset IP address is 10.0.0.2. You can use the default settings and DHCP service to manage the IP settings for the private network. The IP address of the device is the base address used for DHCP. To use the device for DHCP on your LAN, the IP address pool used for DHCP must be compatible with the IP address of the device. The IP address available in the DHCP IP address pool changes automatically if you change the IP address of the device.
You can also enable the secondary LAN IP address. The two LAN IP addresses must be in different network segment.

LAN Interface

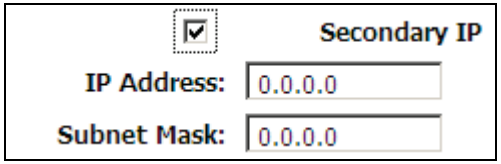
Choose **SETUP** > **Local Network**> **LAN Interface**. The page is shown as the figure appears on the right. In this page, you can set the LAN IP address, working mode, and MAC address control.

Step 1 In the **IP Address** textbox, enter the IP address of LAN interface. The default IP address is **10.0.0.2**. The Router IP address is the URL address for logging in the Web configuration page.

Step 2 Enter the subnet mask of LAN interface. If the Router IP address is **10.0.0.2**, the range of subnet mask is set to **255.255.255.0**.

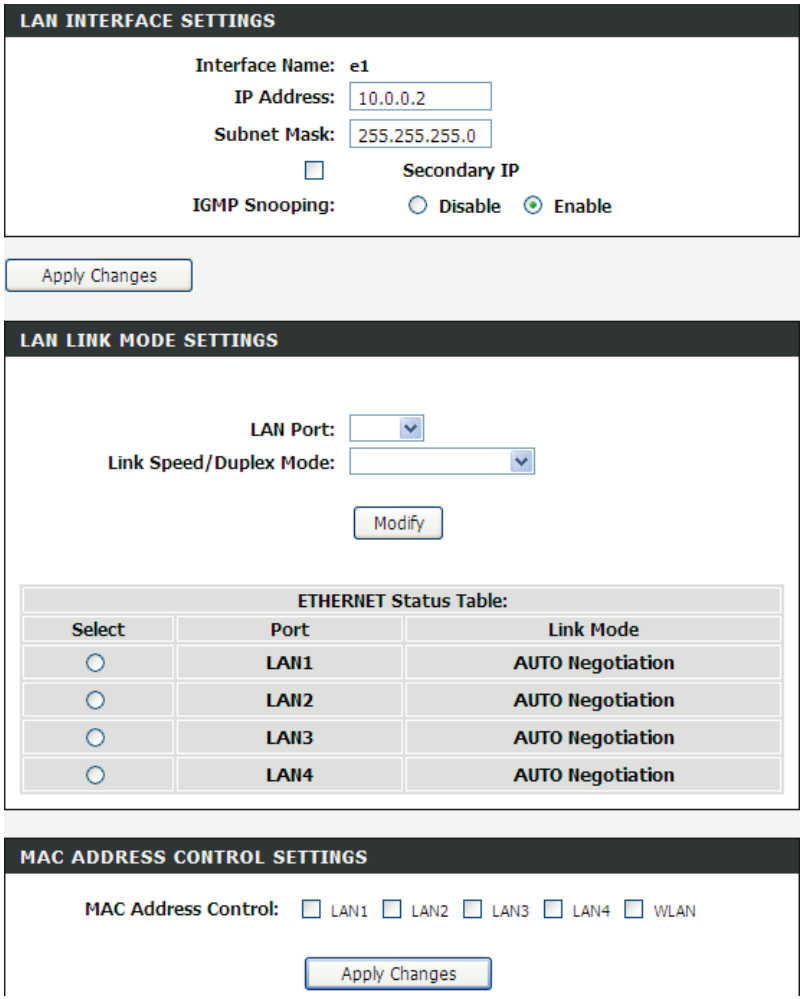
Step 3 Select Secondary IP. Input a secondary IP address and subnet mask.

Secondary IP enables the secondary LAN IP address for your router. It will be used when your primary router IP address is in the same network segment with other LANs. The Secondary router IP address must be in the different network segment from the primary one.



Step 4 Set IGMP Snooping. You can keep the default settings.

Step 5 Set the LAN Link Mode for each LAN port. It is recommended to keep it as defaults.

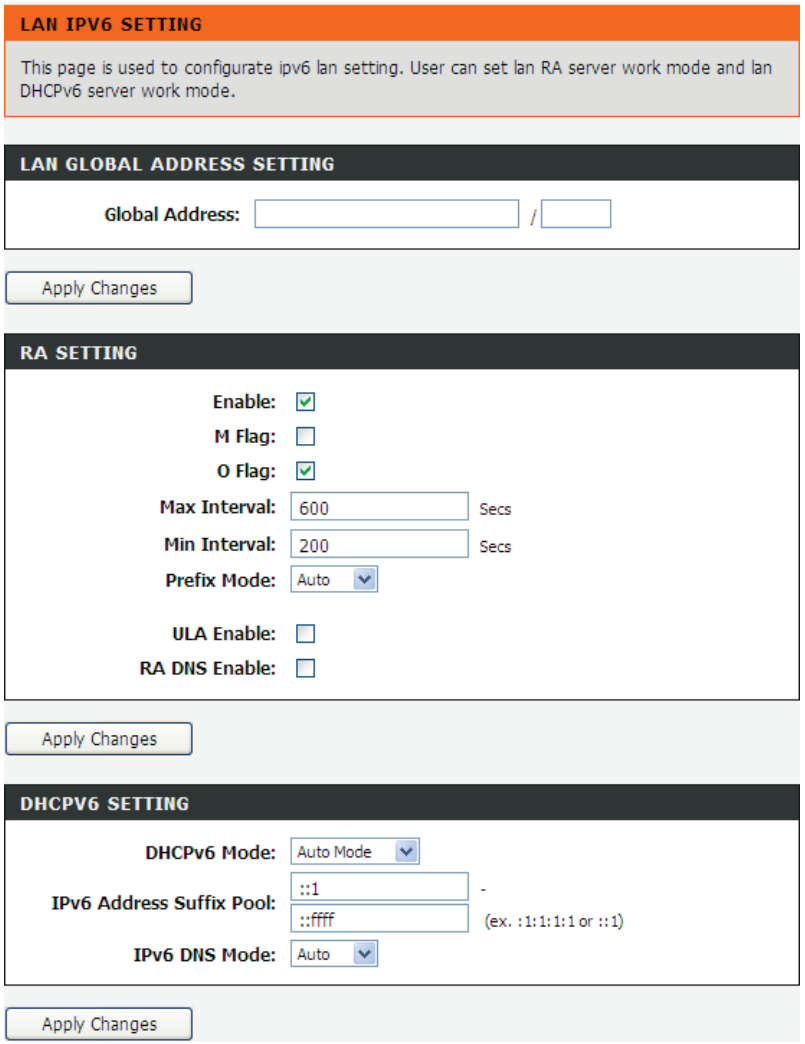


LAN IPv6 Interface

Choose **SETUP** > **Local Network** > **LAN IPv6 Interface**. The page shown in the right figure appears. This page allows you to configure IPv6 LAN. User can set LAN RA server work mode and LAN DHCPv6 server work mode.

The following table describes the parameters of this page.

Field	Description
Global Address	Specify the LAN global ipv6 address. It can be assigned by ISP.
Enable	Enable or disable the Router Advertisement feature.
M Flag	Enable or disable the "Managed address configuration" flag in RA packet.
O Flag	Enable or disable the "Other configuration" flag in RA packet.
Prefix Mode	Specify the RA feature prefix mode: "Auto": the RA prefix will use WAN dhcp-pd prefix; "Manual": user will specify the prefix address, length, preferred time and valid time.
DHCPv6 Mode	Specify the dhcpv6 server mode: "None": close dhcpv6 server; "Manual": dhcpv6 server is opened and user specifies the dhcpv6 server address pool and other parameters. "Auto": dhcpv6 server is opened and it use WAN dhcp-pd prefix to generate address pool.



DHCP Server

Choose **SETUP** > **Local Network** > **DHCP Server**. This page allows you to configure the DHCP server.
There are 3 types of DHCP Modes: **DHCP Server**, **DHCP Relay**, and **None**.

To configure the DHCP Server, do as follow:

– DHCP Server

DHCP Server: If you are using 224 as a DHCP server, select **DHCP Server**. The 224 will assign IP address to the hosts connected to the 224.

Step 1 Select **DHCP Server** from the DHCP Mode.

Step 2 Select interfaces using the DHCP Mode set in **Step 1**.

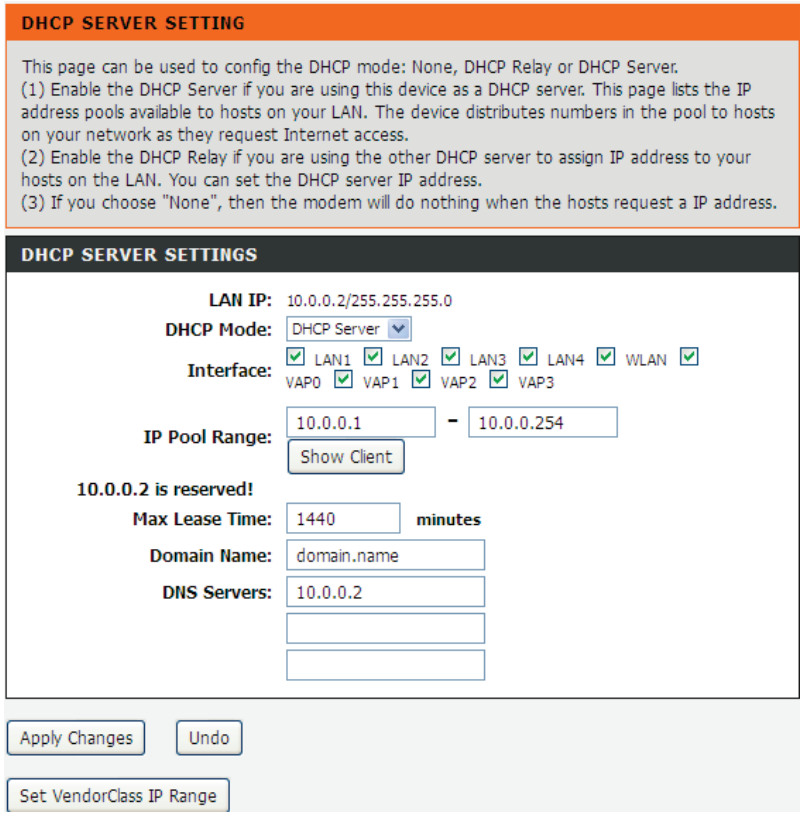
Step 3 Set the **IP pool range**. It specifies the first IP address in the IP address pool. The router assigns IP address that base on the IP pool range to the host. You can keep it as defaults.

Step 4 Set the **default gateway**. You can keep it as defaults: **10.0.0.2**.

Step 5 Set the **Max lease time**. The lease time determines the period that the host retains the assigned IP addresses before the IP addresses change.

Step 6 Set the Domain Name and DNS Servers. You can keep it as defaults.

Step 7 After setting, click **Apply Changes** to save the settings.



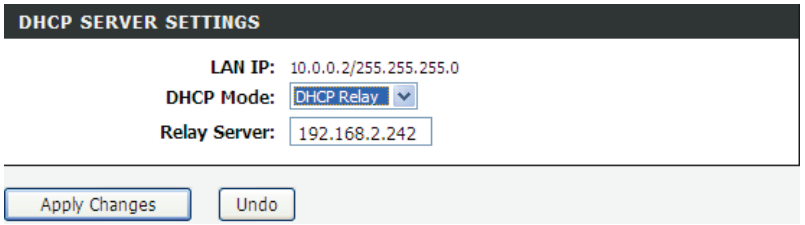
– DHCP Relay

DHCP Relay: If you are using the other DHCP server to assign IP address to your hosts on the LAN, enable the **DHCP Relay**. You can set the DHCP server IP address. The DHCP Relay enables the message to transmit between clients in different network segment.

Step 1 Select **DHCP Relay** from the DHCP Mode.

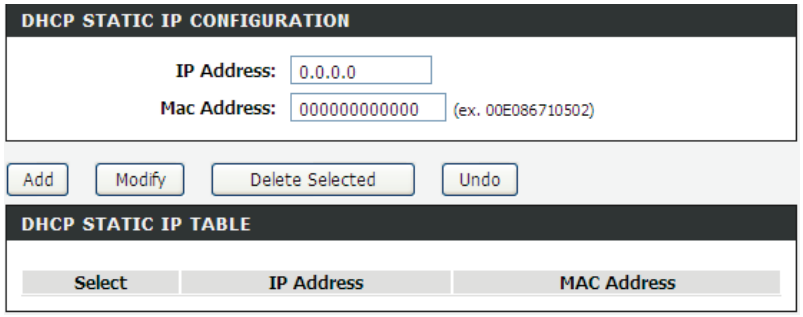
Step 2 Set the **Relay Server**. You can keep it as defaults.

Step 3 After setting, click **Apply Changes** to save the settings.



DHCP Reserved

Choose SETUP > Local Network > DHCP Reserved. The page shown in the right figure appears. This page allows you to reserve IP address for PC specified in this page.

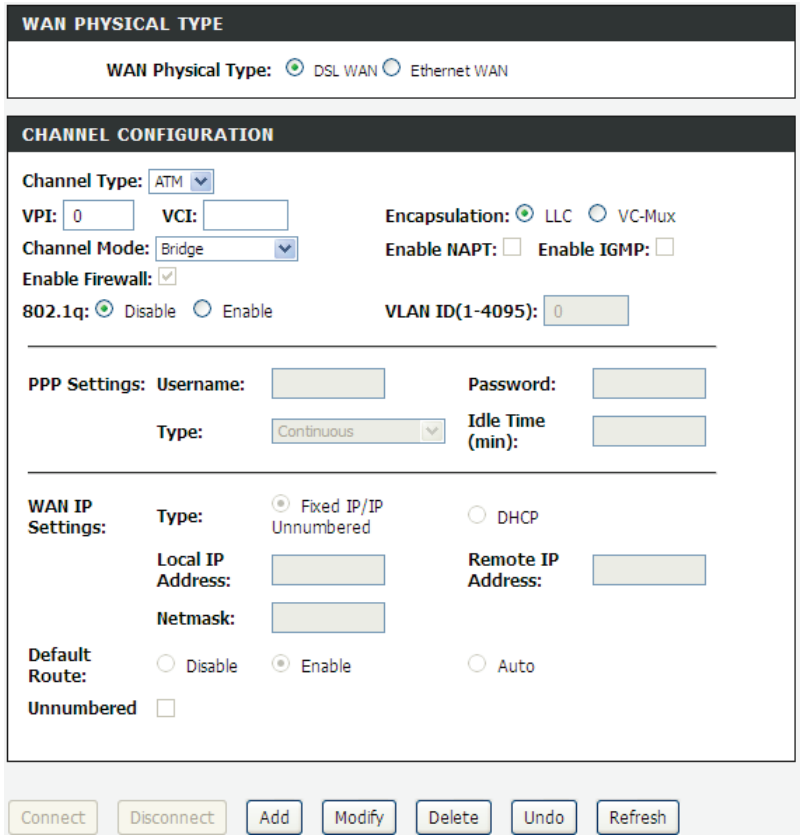


Internet Setup

Channel Config

Choose **SETUP** > **Internet Setup** > **Channel Config**. The page is shown as the figure appears on the right. In this page, you can add or configure WAN interface of your router.

To access the internet, at least one PVC in PPPoE or 1483 MER mode is required to add.



- Adding a PVC in **PPPoE** mode, do as follow:

Step 1 Choose the channel type **ATM** or **PTM**

Step 2 Input VPI/VCP value and select Encapsulation mode provided by your ISP. The VPI/VCP value of the new PVC must be different from the PVCs which exist in **Current ATM VC Table**.

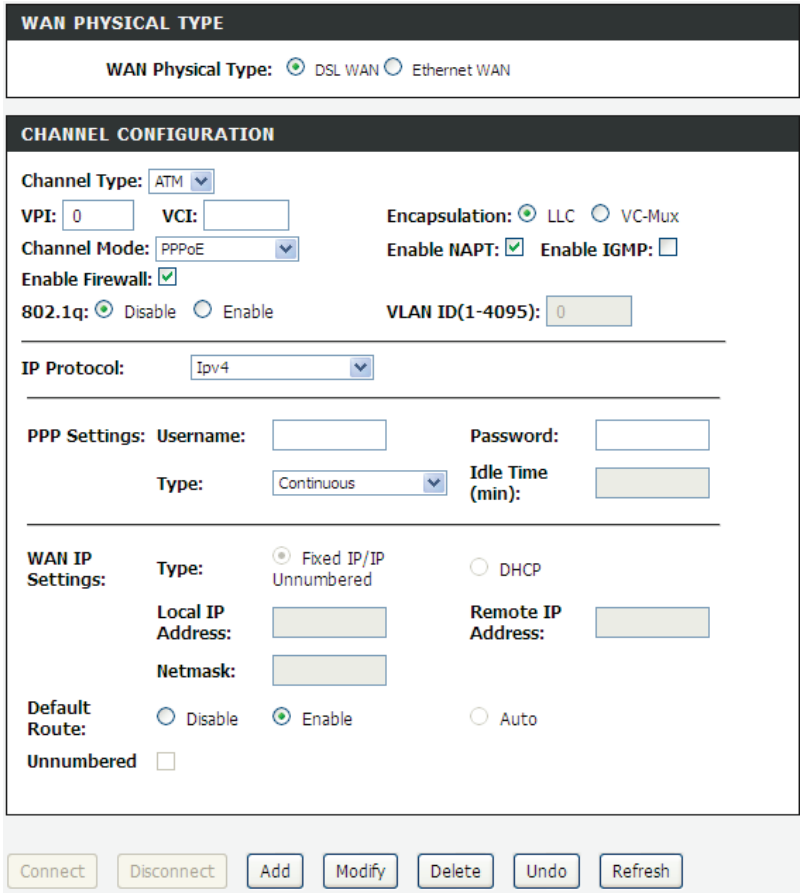
Step 3 Set the channel mode to **PPPoE**.

Step 4 Enter the **User name** and **password** of PPPoE account provided by your ISP.

Step 5 Choose a connection type from the Type drop-down list. There are 3 connection types available: **Continuous**, **Connect On Demand**, **Manual**.

- Continuous: The system automatically keeps dialing for WAN connection once the connection is off-line.
- Connect On Demand: The system automatically dials for WAN connection once network access request is detected. If no request is sent from the LAN within the IdleTime, the system automatically disconnect from the internet. You can set the Idle Time as you need.
- Manual: Manually dial to connect the WAN once powering on the Router.

Step 6 After setting, click **Add** to add the new PVC in PPPoE mode in Current ATM VC Table.



- Adding a PVC in **DHCP** mode, do as follow:

Step 1 Set the Default Route Selection to **Auto**.

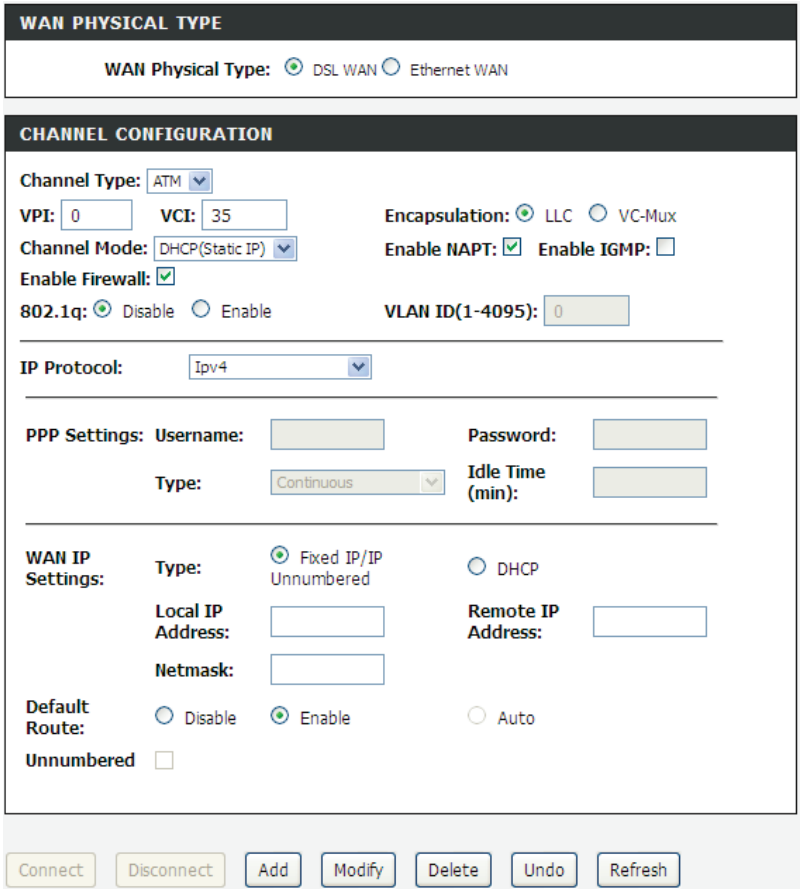
Step 2 Input VPI/VCP value and select Encapsulation mode provided by your ISP. The VPI/VCP value of the new PVC must be different from the PVCs which exist in Current ATM VC Table.

Step 3 Set the channel mode to **1483 MER**.

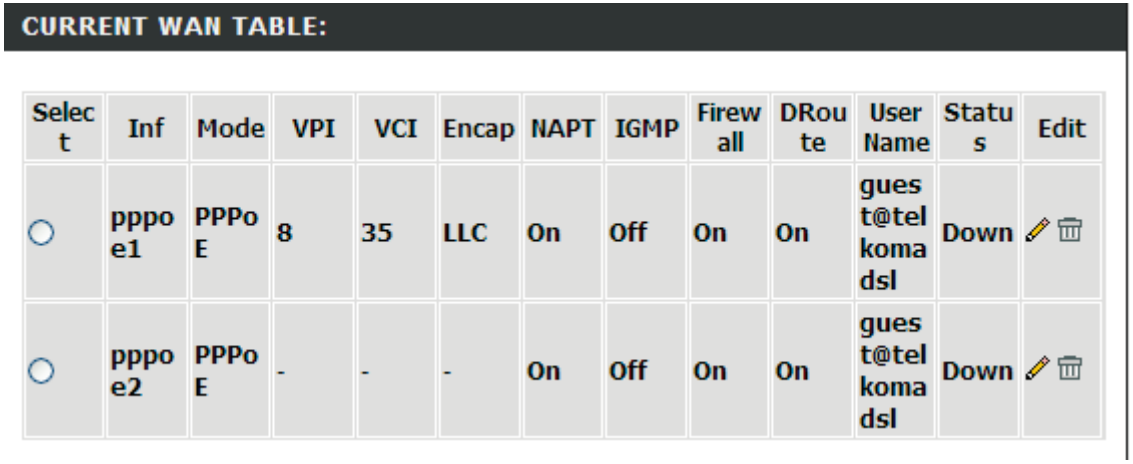
Step 4 According to the internet service provided by your ISP, choose the WAN connection type. For static IP user, choose **Fixed IP**. For dynamic IP user, choose **DHCP**.

Step 5 If the Type is set to Fixed IP, enter the Local IP Address, Remote IP Address, and Netmask provided by your ISP.

Step 6 After setting, click **Add** to add the new PVC in PPPoE mode in Current ATM VC Table.

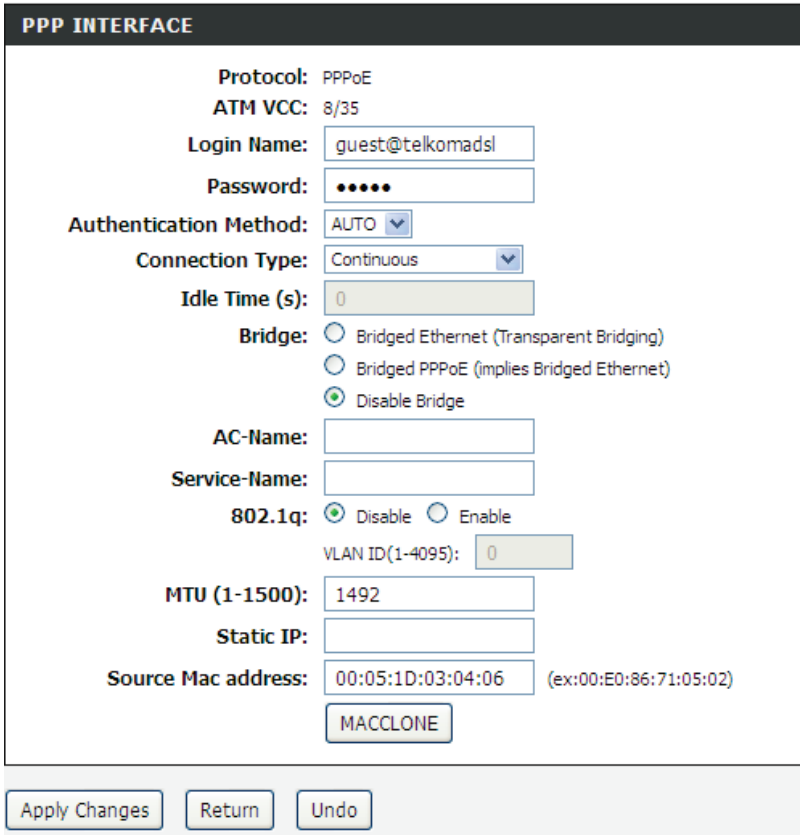


After adding a PPPoE PVC to the table, click ✎ in the **PPPoE** mode, the page shown in the below figure appears. In this page, you can modify parameters of this PPPoE PVC.



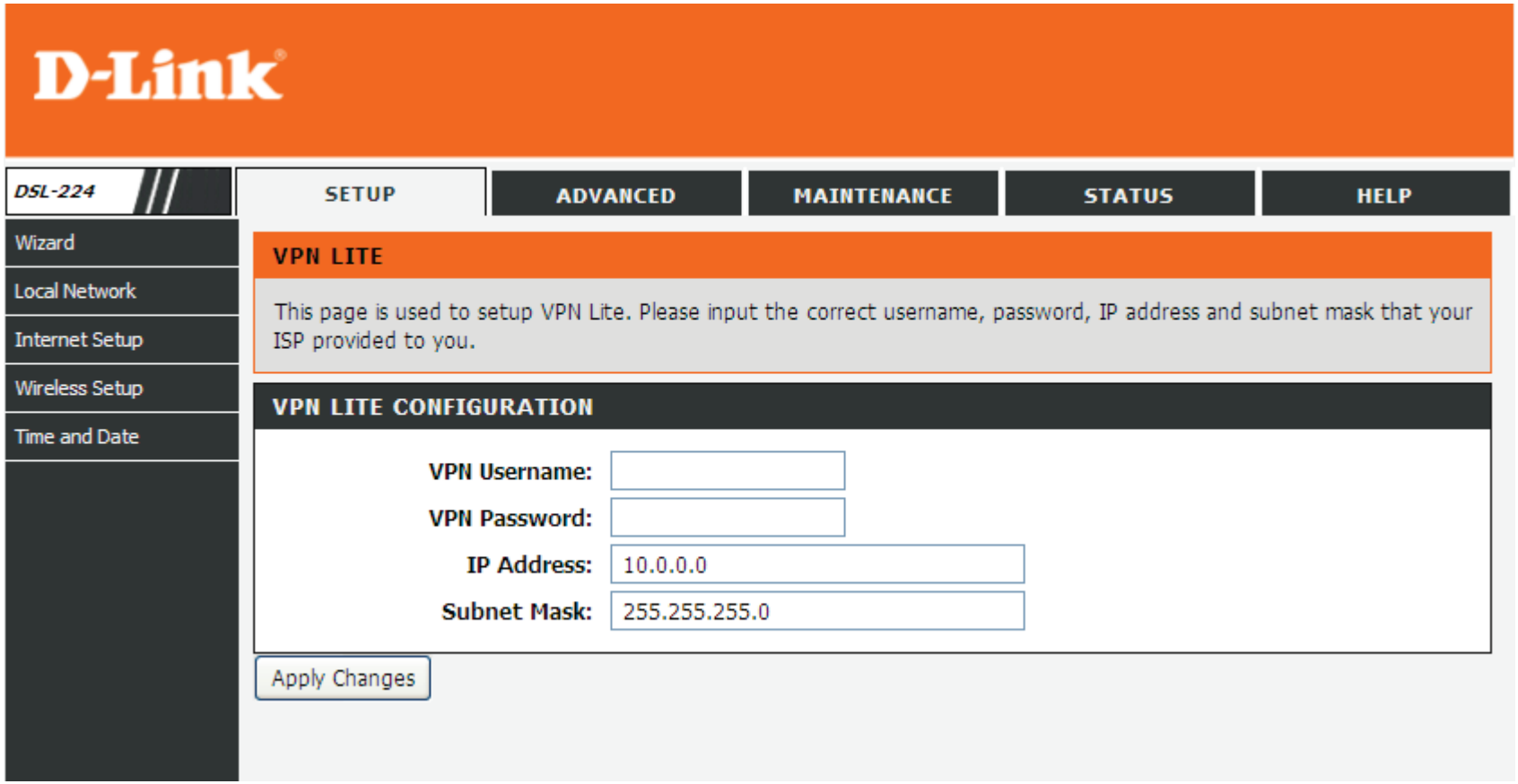
The following table describes the parameters and buttons of this page:

Field	Description
Protocol	It displays the protocol type used for this WAN connection.
ATM VCC	The ATM virtual circuit connection assigned for this PPP interface (VPI/VCI).
Login Name	The user name provided by your ISP.
Password	The password provided by your ISP.
Authentication Method	You can choose **AUTO**, **CHAP**, or **PAP**.
Connection Type	You can choose **Continuous**, **Connect on Demand**, or **Manual**.
Idle Time (s)	If choose **Connect on Demand**, you need to enter the idle timeout time. Within the preset minutes, if the router does not detect the flow of the user continuously, the router automatically disconnects the PPPoE connection.
Bridge	You can select **Bridged Ethernet**, **Bridged PPPoE**, or **Disable Bridge**.
AC-Name	The accessed equipment type.
Service-Name	The service name.
802.1q	You can select **Disable** or **Enable**. After enable it, you need to enter the VLAN ID. The value ranges from 1 to 4095.
MTU	Maximum Transmission Unit. Sometimes you must modify this function to access network successfully.
Static IP	If this function is disabled, the modem obtains an IP address assigned by an uplink equipment such as BAS, through PPPoE dial-up. If this function is enabled, the modem uses this IP address as the WAN IP address.
Source Mac address	The MAC address you want to clone.
MACCLONE	Click it to enable the MAC Clone function with the MAC address that is configured.



VPN LITE

Choose **SETUP > Internet Setup > VPN Lite**. The page is shown in the below figure. This page is used to setup VPN Lite. Please input the correct username, password, IP address and subnet mask that your ISP provided to you.

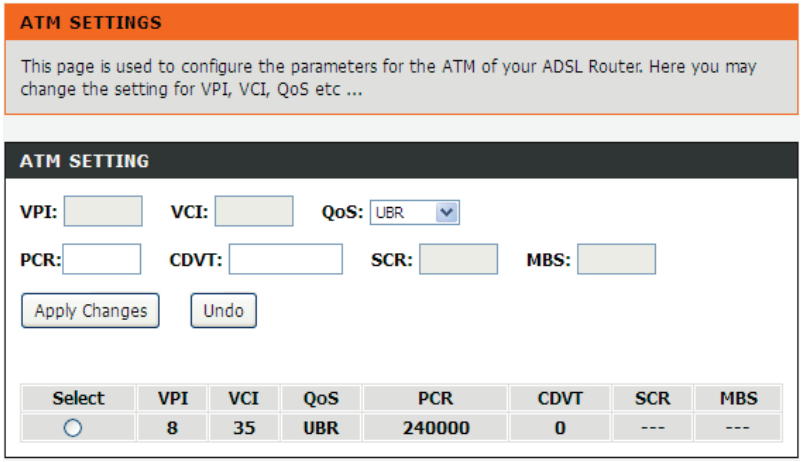


ATM Settings

Choose **SETUP** > **Internet Setup** > **ATM Settings**. The page is shown as the figure appears on the right. In this page, you can configure the parameters of the ATM, including QoS, PCR, CDVT, SCR, and MBS. After setting, click **Apply Changes** to save the settings.

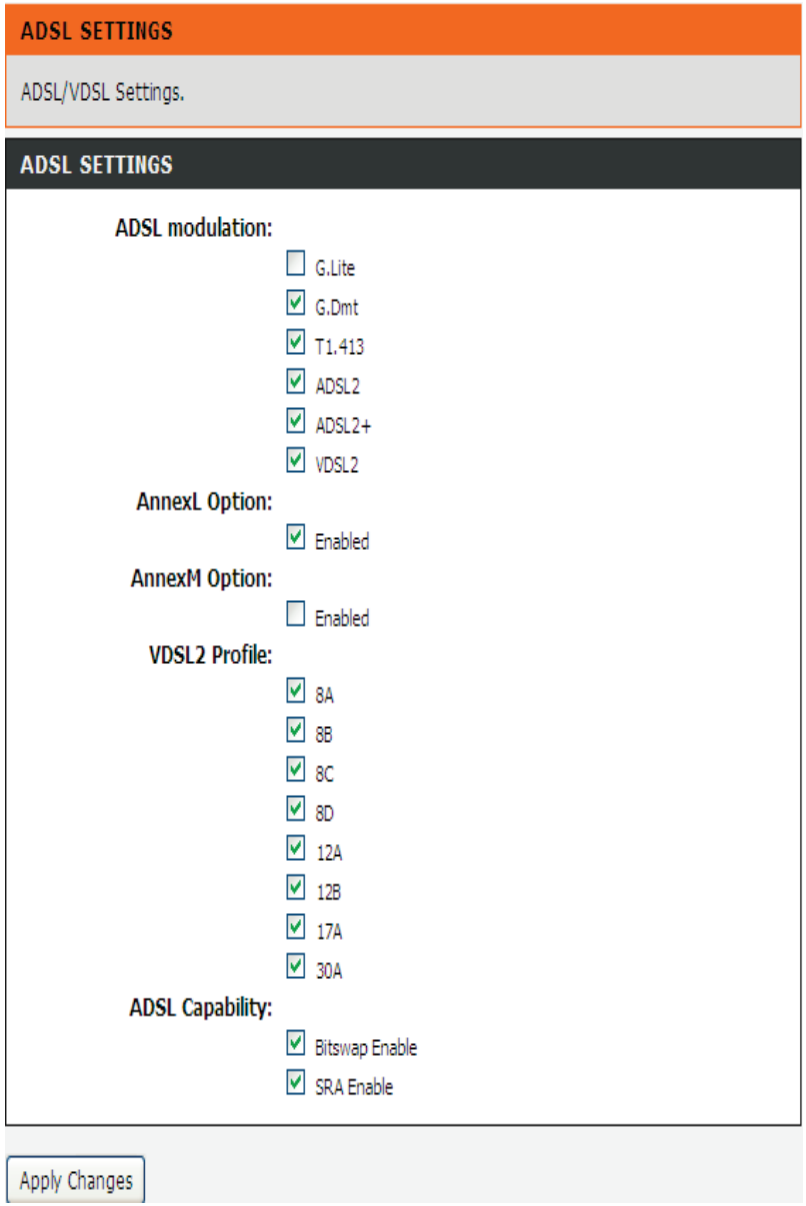
The following table describes the parameters of this page:

Field	Description
VPI/VCI	Input the VPI/VCI value provided by your ISP.
QoS	The QoS category of the PVC. You can choose **UBR**, **CBR**, **rt-VBR**, or **nrt-VBR**.
PCR	Peak cell rate (PCR) is the maximum rate at which cells can be transmitted along a connection in the ATM network. Its value ranges from 1 to 65535.
CDVT	Cell delay variation tolerance (CDVT) is the amount of delay permitted between ATM cells (in microseconds). Its value ranges from 0 to 4294967295.
SCR	Sustain cell rate (SCR) is the maximum rate that traffic can pass over a PVC without the risk of cell loss. Its value ranges from 0 to 65535.
MBS	Maximum burst size (MBS) is the maximum number of cells that can be transmitted at the PCR. Its value ranges from 0 to 65535.



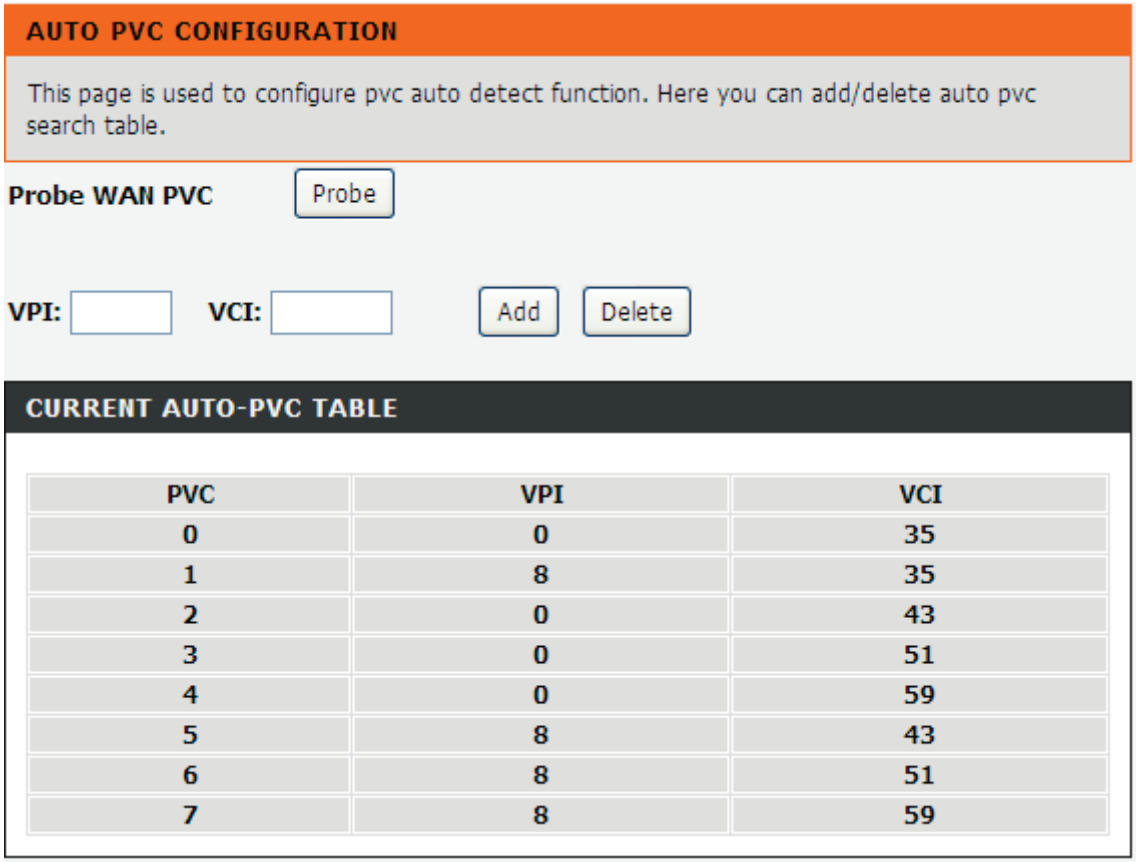
ADSL Settings

Choose **SETUP** > **Internet Setup** > **ADSL Settings**. The page shown in the right figure appears. In this page, you can select the DSL modulation. Mostly, you need to remain this factory default settings. The router supports these modulations: **G.Lite**, **G.Dmt**, **T1.413**, **ADSL2**, **ADSL2+**, and **VDSL2**. The router negotiates the modulation modes with the DSLAM.



PVC Auto Search

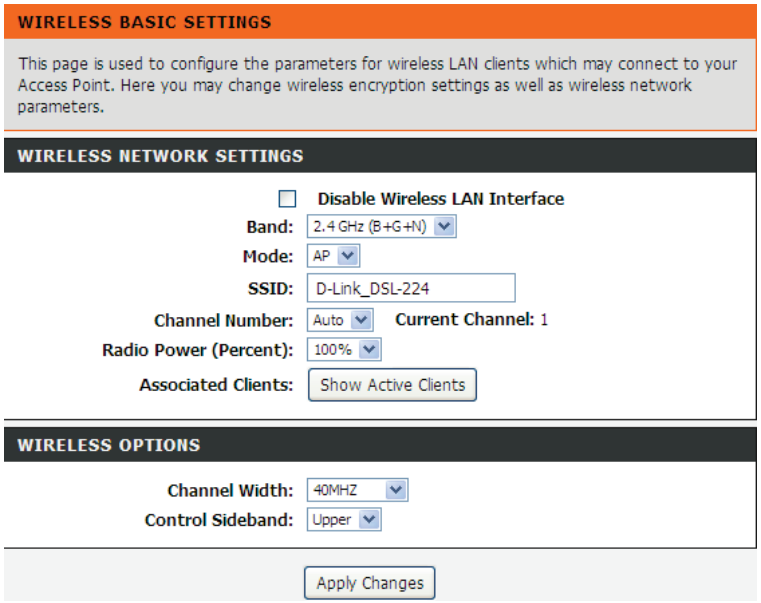
Choose **SETUP** > **Internet Setup** > **PVC Auto Search**. The page shown in the right figure appears. This page is used to configure PVC auto detect function, you can add or delete auto-pvc.



Wireless Setup

Wireless Basics

Choose **SETUP** > **Wireless Setup**> **Wireless Basics**. The page is shown as the figure appears on the right. In this page, you can configure the wireless settings for your router.



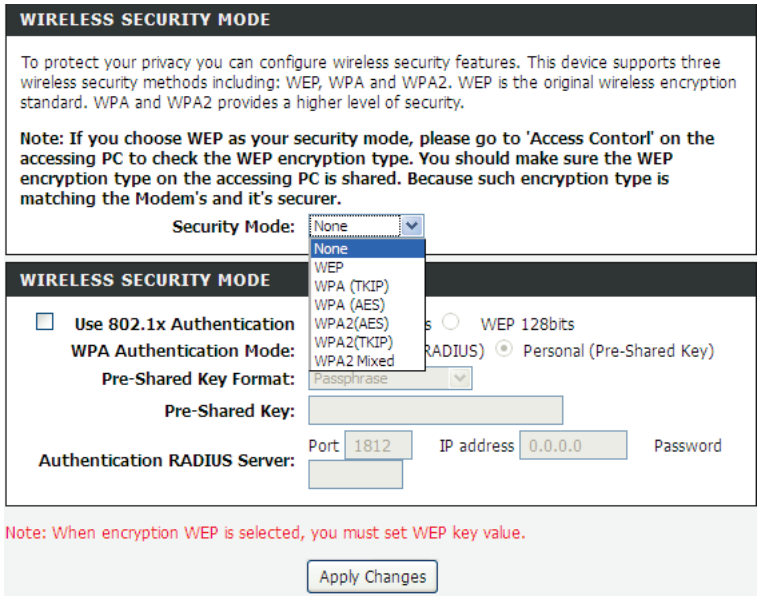
The following table describes the parameters of this page:

Field	Description
Band	Choose the adapted band of the modem from the drop-down list. 2.4 GHz (B+G+N) 2.4 GHz (B) 2.4 GHz (G) 2.4 GHz (B+G) 2.4 GHz (N) 2.4 GHz (G+N) 2.4 GHz (B+G+N)
Mode	Set the working mode of the device. The mode may vary from software to software. By default, the network mode of the modem is **AP**.
SSID	Set a name for the wireless network of your device. Wireless stations associating to the modem must have the same SSID.
Channel Number	A channel is the radio frequency used by 802.11b/g/n wireless devices. You may have a choice of channels (for your region) and you should use a different channel from an adjacent AP to reduce the interference. Interference and degrading performance occurs when radio signal from different APs overlap. Choose a channel from the drop-down list box.
Radio Power	Choose the transmission power of the radio signal. It is recommended to leave the default setting. The default setting is **100%**.

Show Active Clients	Click it to view the information of the wireless clients that are connected to the modem.
Channel Width	You can select **20MHZ**, **40MHZ or 20/40MHZ**.
Control Sideband	Only when choose **40MHZ** for Channel Width, you can set this parameter. You can choose **Upper** or **Lower** from the drop-down list.
Apply Changes	Click it to apply the settings temporarily. If you want to save the settings of this page permanently, click **Save** in the lower left corner.

Wireless Security

Choose **SETUP** > **Wireless Setup**> **Wireless Security**. The page is shown as the figure appears on the right. In this page, you can configure the security for your wireless network.



The following table describes the parameters of this page:

Field	Description
Encryption	Configure the wireless encryption mode. You can choose **None**, **WEP**, **WPA (TKIP)**, **WPA (AES)**, **WPA2 (AES)**, **WPA2 (TKIP)**, or **WPA2 Mixed**. ● Wired equivalent privacy (**WEP**) encrypts data frames before transmitting over the wireless network. ● Wi-Fi protected access (**WPA**) is a subset of the IEEE802.11i security specification draft. ● **WPA2 Mixed** is the collection of WPA and WPA2 encryption modes. The wireless client establishes a connection with the modem through WPA or WPA2.
Set WEP Key	It is available when you set the encryption mode to **WEP**. Click it, the **Wireless WEP Key Setup** page appears.
WPA Authentication	● Select **Personal (Pre-Shared Key)**, enter the

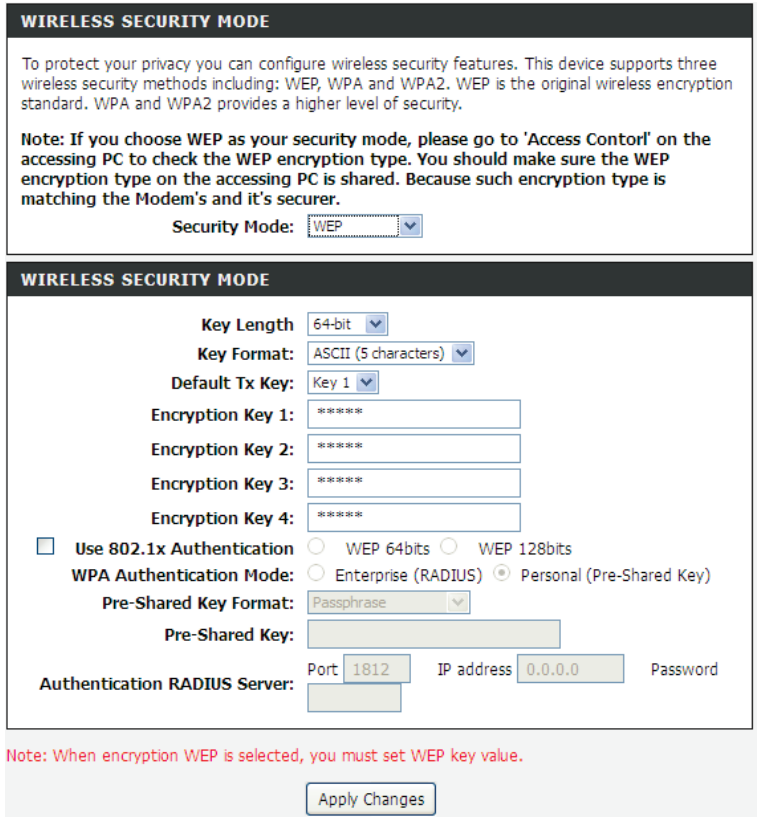
Mode	pre-shared key in the **Pre-Shared Key** field. ● Select **Enterprise (RADIUS)**, enter the port, IP address, and password of the Radius server. You need to enter the username and password provided by the Radius server when the wireless client connects the modem.

After setting, click **Apply Changes** to save the settings.

Note:If the encryption is set to be WEP**, the WPS function will be disabled.**

The following describes the parameters of this page:

Field	Description
Key Length	Choose the WEP key length. You can Choose **64-bit** or **128-bit**.
Key Format	● If you choose **64-bit**, you can choose ASCII (5 characters) or Hex (10 characters). ● If you choose **128-bit**, you can choose ASCII (13 characters) or Hex (26 characters).
Default Tx Key	Choose the index of WEP Key. You can choose **Key 1**, **Key 2**, **Key 3**, or **Key 4**.
Encryption Key 1 to 4	The Encryption keys are used to encrypt the data. Both the modem and wireless stations must use the same encryption key for data transmission. ● If you choose **64-bit** and **ASCII (5 characters)**, enter any 5 ASCII characters. ● If you choose **64-bit** and **Hex (10 characters)**, enter any 10 hexadecimal characters. ● If you choose **128-bit** and **ASCII (13 characters)**, enter any 13 ASCII characters. ● If you choose **128-bit** and **Hex (26 characters)**, enter any 26 hexadecimal characters.
Apply Changes	Click it to apply the settings temporarily. If you want to save the settings of this page permanently, click **Save** in the lower left corner.



Choose **SETUP** > **Wireless Setup**> **Wireless Security**. The page shown as the figure appears on the right. The page shows how to set WPS.
There are 3 methods to realize wireless connection through WPS.

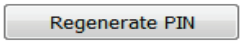
- PBC

Click the **Start PBC** button in this page. And then click WPS button on the client to be connected within 2 minutes. The connection will be established.

- Based on the PIN of 224.

1) Do not select **Disable WPS**.
2) Click **Start PIN** button beside **Pin Configuration**.
3) Input the Device PIN (a random code displayed in this page) in the WPS application interface of the client to be connected. And then click **PIN** on the client.
4) After setting, click **Apply Changes**.

Note:

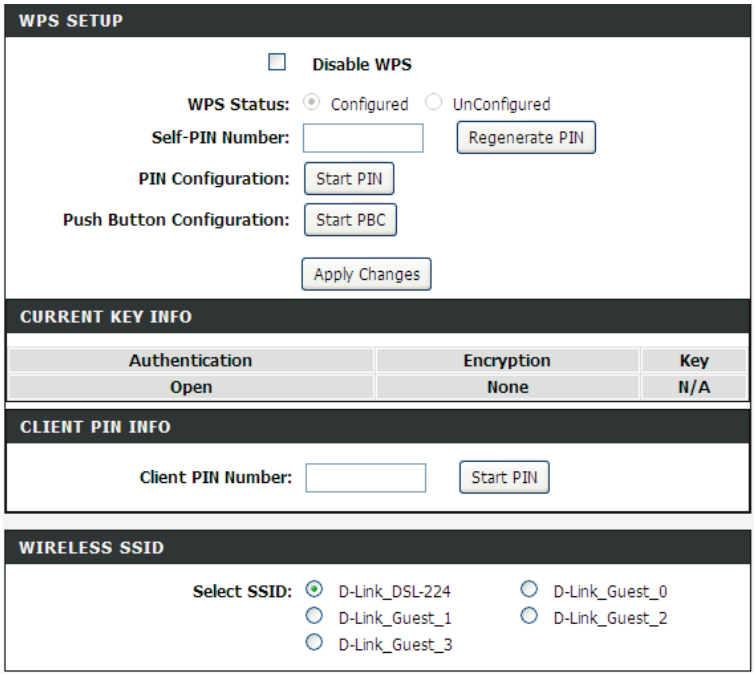
If you want to change the PIN, click **Regenerate PIN** 

button in this page.

The wireless SSID must select **d-link.**

- Based on the PIN of the client to be connected.

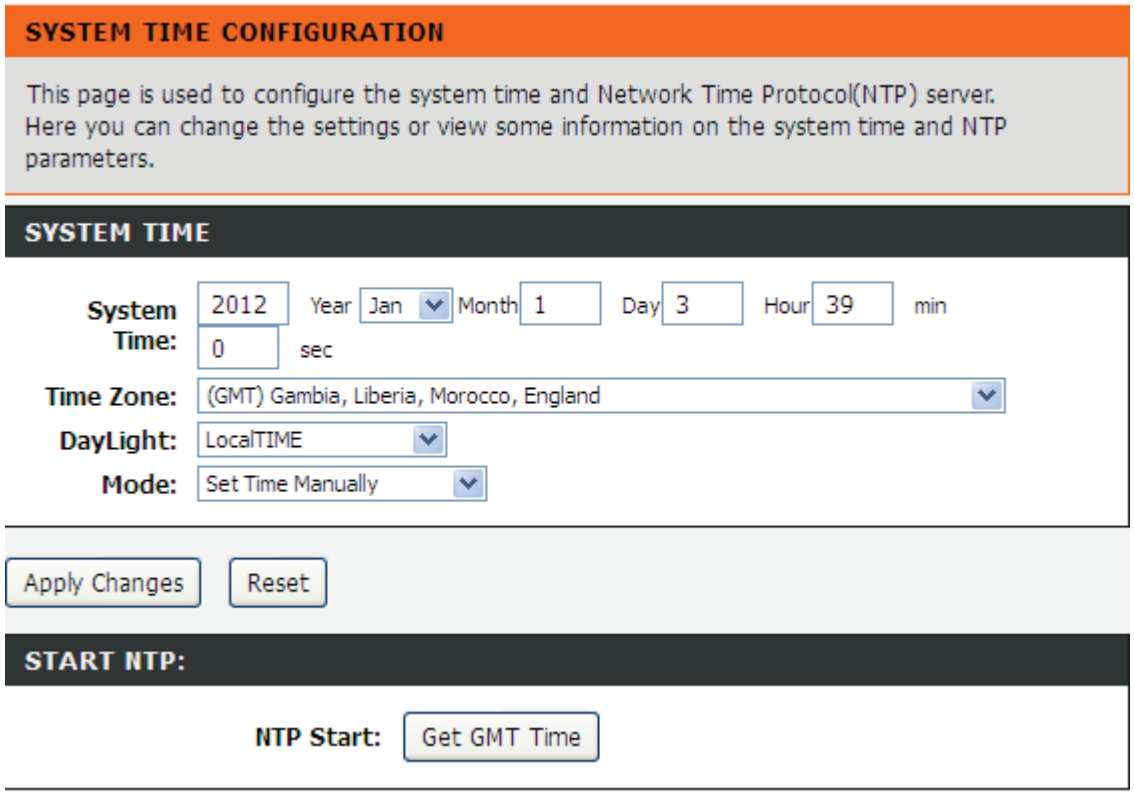
1) Do not select **Disable WPS**.
2) Find the PIN of the client to be connected. Input this PIN in the **Client PIN Number** in this page. And then click **Start PIN** button below.



Time and Date

Choose **SETUP** > **Time and Date**. The page is shown as the figure appears on the below.

In the **Time and Date** page, you can configure, update, and maintain the correct time on the internal system clock. You can set the time zone that you are in and the network time protocol (NTP) server. You can also configure daylight saving to automatically adjust the time when needed.
Click **Apply Changes** to save the settings.



ADVANCED

This section includes advanced features used for network management, security and administrative tools to manage the device. You can view status and other information that are used to examine performance and troubleshoot.

Advanced Wireless

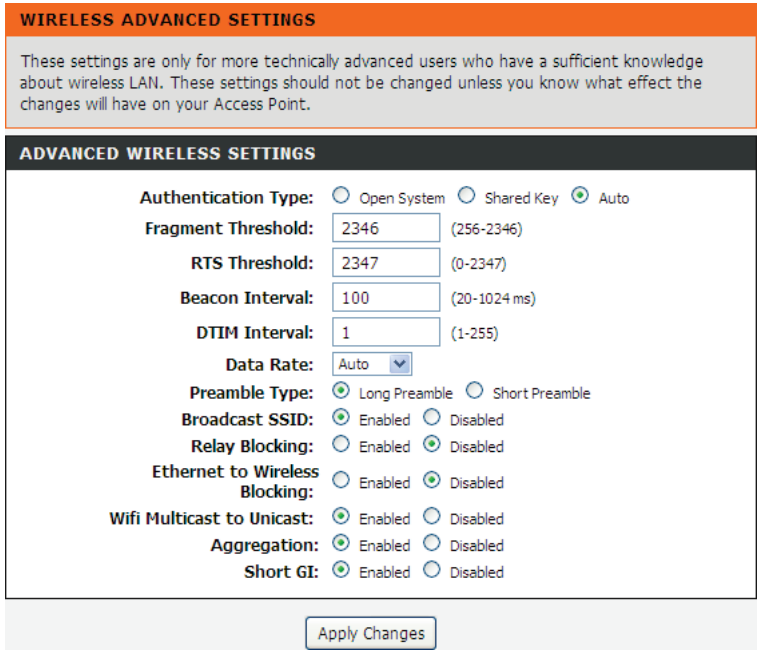
This function is used to modify the standard 802.11 wireless radio settings. It is recommended not to change the default settings, because incorrect settings may impair the performance of your wireless radio. The default settings provide the best wireless radio performance in most environments.

Wireless Advanced

Choose **ADVANCED** >**Advanced Wireless** >**Wireless Advanced**. The page shown as the figure appears on the right. In this page, you can configure the wireless advanced parameters. It is recommended to use the default parameters.

The following table describes parameters in this page:

Field	Description
Authentication Type	It is recommended to keep it as defaults.
Fragmentation Threshold	Set the threshold of fragmentation length. If the length of a packet is greater than the value, the packet is automatically fragmented into several packets. Because too many packets lead to low performance of the wireless network, the value of **Fragmentation Threshold** cannot be too small. The default value is 2346.
RTS Threshold	Set the CTS/RTS threshold. If the length of a packet is greater than the value, the router sends an RTS frame to the destination station to negotiate. After receiving the RTS frame, the wireless station responds with a Clear to Send (CTS) frame to the router, indicating that they can communicate with each other. The default value is 2346.
Data Rate	Choose the transmission rate of the wireless data from the dropdown list.
Preamble Type	● **Long Preamble**: It means this card always use long preamble. ● **Short Preamble**: It means this card can support short

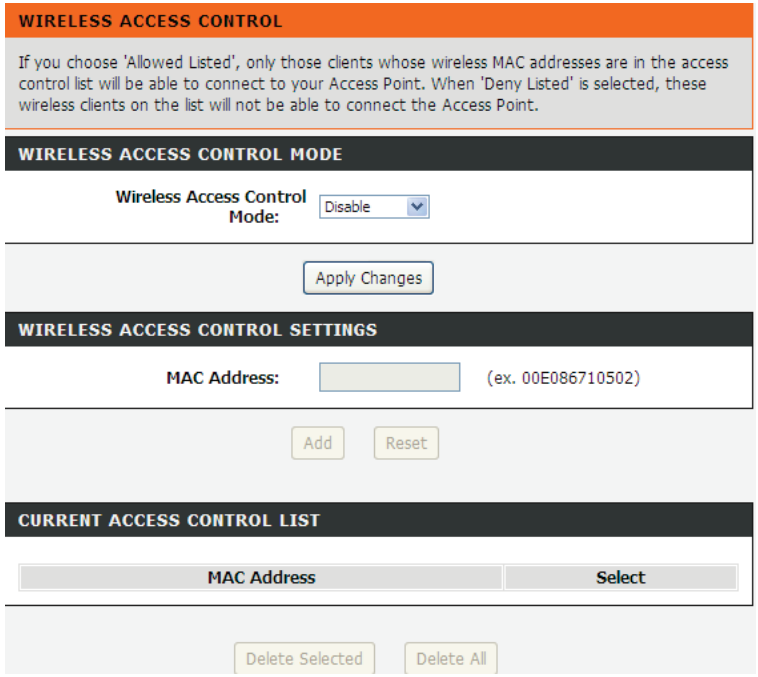


	preamble capability.
Broadcast SSID	Select whether the modem broadcasts SSID or not. You can select **Enable** or **Disable**. ● Select **Enable,** the SSID can be detected. ● Select **Disable** to hide SSID, the wireless clients cannot find the SSID. You need to enter the SSID and password of the wireless network manually.
Relay Blocking	Wireless isolation. Select **Enable**, the wireless clients that are connected to the modem cannot intercommunication.
Ethernet to Wireless Blocking	Whether the wireless network can communicate with the Ethernet network or not.
Wifi Multicast to Unicast	Enable it to using unicast to transmit multicast packet

After setting, click **Apply Changes** to save the settings.

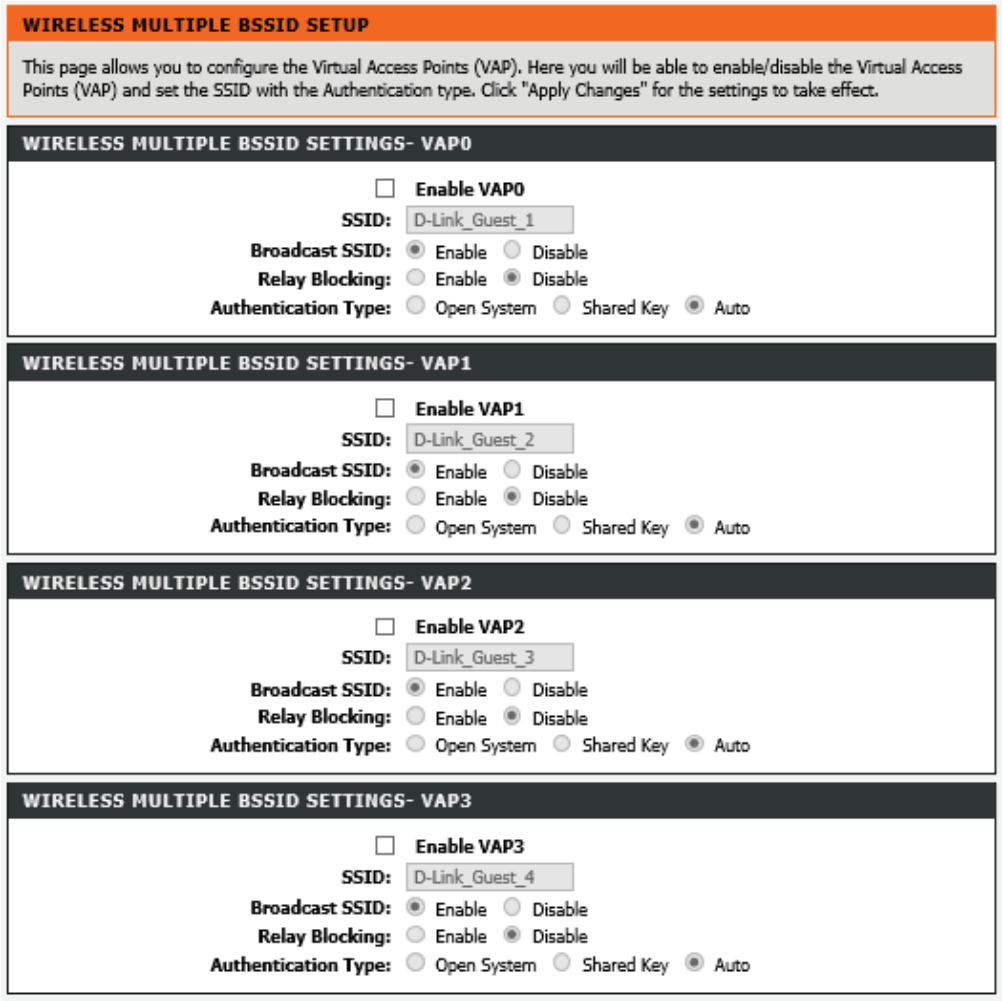
Access Control

Choose **ADVANCED** >**Advanced Wireless** > **Access Control**. The page shown as the figure appears on the right. If you choose **Allowed Listed**, only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When **Deny Listed** is selected, these wireless clients on the list will not be able to connect the Access Point.



MBSSID

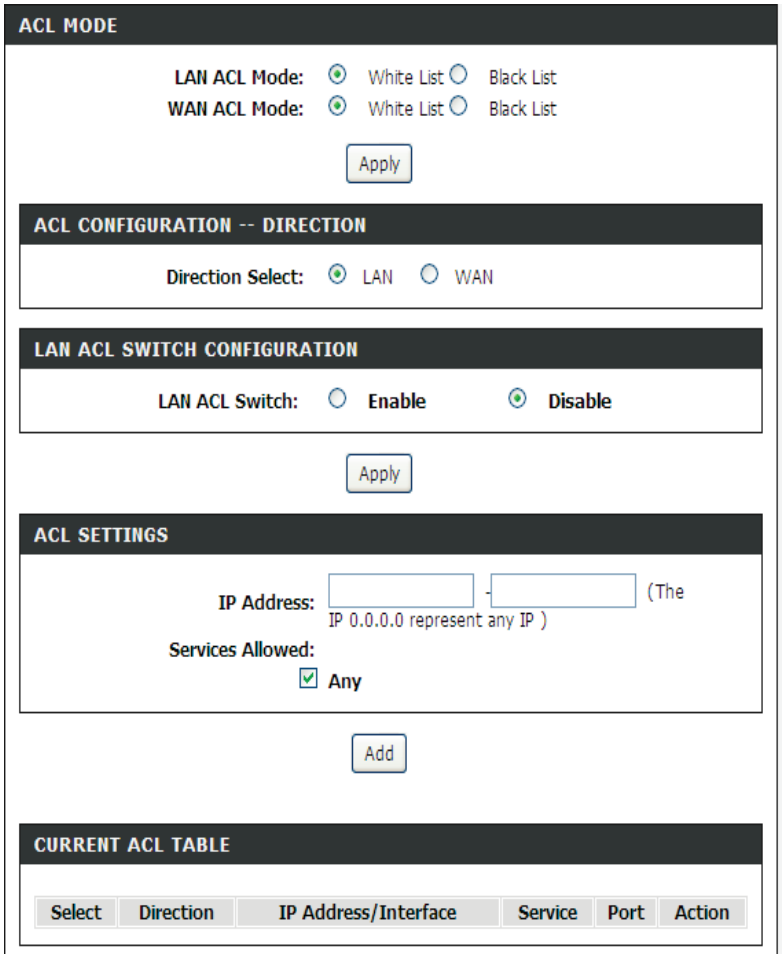
- Choose **ADVANCED** >**Advanced Wireless** > **MBSSID**.
- This page allows you to configure the Virtual Access Points (VAP). Here you will be able to enable/disable the Virtual Access Points (VAP) and set the SSID with the Authentication type. Click “Apply Changes” for the settings to take effect.



Access Control List

Access Control List

Choose **ADVANCED** >**Access Control List**. The page shown as the figure appears on the right. In this page, you can permit the data packets from LAN or WAN to access the router in IPv4 protocol. You can configure the IP address for Access Control List (ACL). If ACL is enabled, only the effective IP address in the ACL can access the router.



Note:

If you select **Enable** in LAN ACL Switch, ensure that your host IP address is in ACL list before it takes effect.

The following table describes the parameters and buttons of this page:

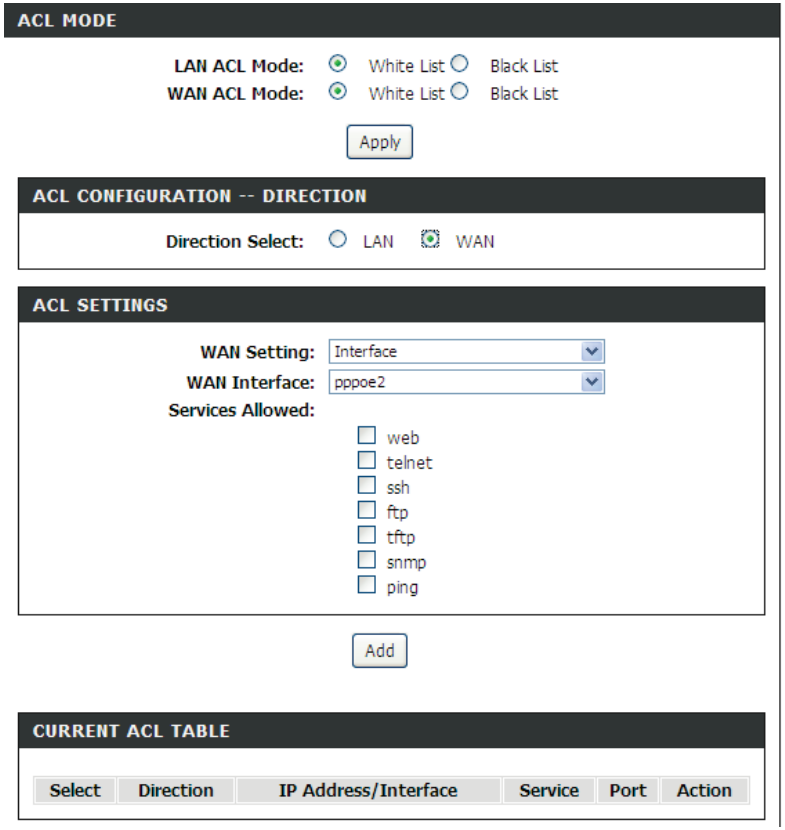
Field	Description
ACL Mode	● White List: permit certain types of data packets from your local network or Internet network to the Gateway. ● Black List: block certain types of data packets from your local network or Internet network to the Gateway.
Direction Select	Select the router interface. You can select **LAN** or **WAN**. In this example, **LAN** is selected.
LAN ACL Switch	Select it to enable or disable ACL function.
IP Address	Enter the IP address of the specified interface. Only the IP address that is in the same network segment with the IP address of the specified interface can access the router.
Services Allowed	You can choose the following services from LAN: **Web**, **Telnet**, **SSH**, **FTP**, **TFTP**, **SNMP**, or **PING**. You can select **Any** to choose all the services.
Add	After setting the parameters, click it to add an entry to the **Current ACL Table**.

Reset	Click it to refresh this page.

Set direction of the data packets to **WAN**, the page shown in the right figure appears.

The following table describes the parameters and buttons of this page:

Field	Description
Direction Select	Select the router interface. You can select **LAN** or **WAN**. In this example, **WAN** is selected.
WAN Setting	You can choose **Interface** or **IP Address**.
WAN Interface	Choose the interface that permits data packets from WAN to access the router.
Services Allowed	You can choose the following services from WAN: **Web**, **Telnet**, **SSH**, **FTP**, **TFTP**, **SNMP** or **PING**.
Add	After setting the parameters, click it to add an entry to the **Current ACL Table**.
Reset	Click it to refresh this page.



Access Control List IPv6

Choose **ADVANCED** > **Access Control List** > **Access Control List IPv6**. In this page, you can permit the data packets from LAN or WAN to access the router in IPv6 protocol. You can configure the IP address for Access Control List (ACL). If ACL is enabled, only the effective IP address in the ACL can access the router.

For the parameters description in this page, you can refer to the description of **Access Control List**.

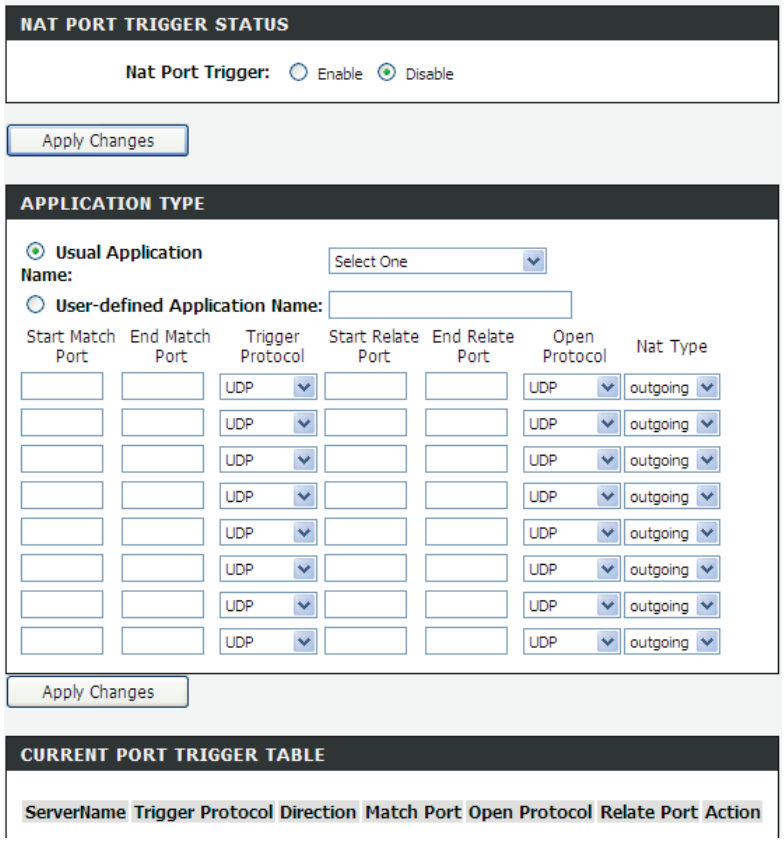
Port Triggering

Choose **ADVANCED** > **Port Triggering**. The page shown as the figure appears on the right.

Click the **Usual Application Name** drop-down menu to choose the application you want to setup for port triggering. When you have chosen an application the default Trigger settings will populate the table below.

If the application you want to setup isn't listed, click the **User-defined Application Name** radio button and type in a name for the trigger in the Custom application field. Configure the **Start Match Port**, **End Match Port**, **Trigger Protocol**, **Start Relate Port**, **End Relate Port, Open Protocol** and **Nat type** settings for the port trigger you want to configure.

When you have finished, click the **Apply changes** button.

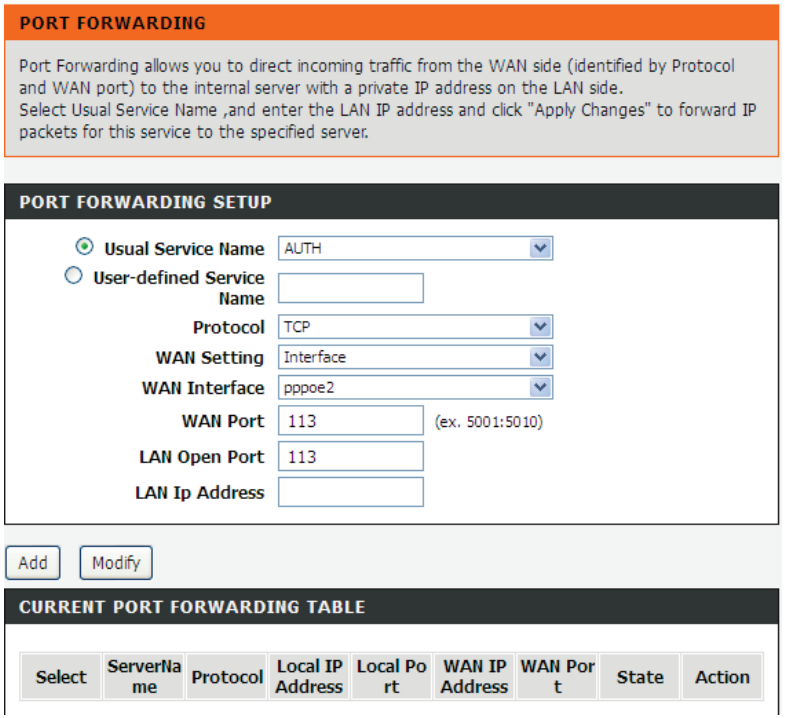


Port Forwarding

Choose **ADVANCED** > **Port Forwarding**. The page shown as the figure appears on the right.

Port Forwarding allows you to direct incoming traffic from the WAN side (identified by Protocol and WAN port) to the internal server with a private IP address on the LAN side.

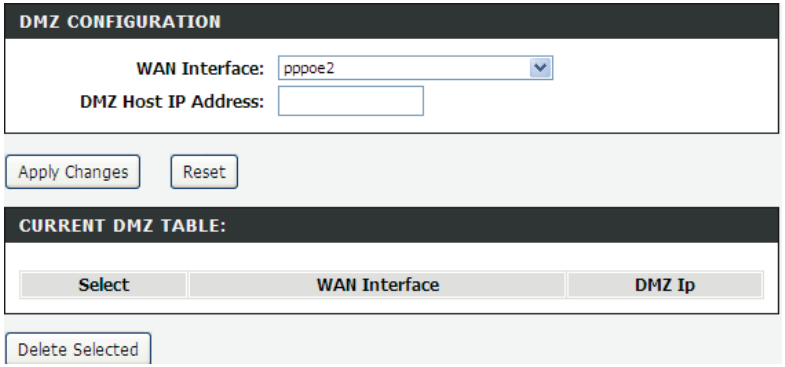
Select Usual Service Name, and enter the LAN IP address and click **Apply Changes** to forward IP packets for this service to the specified server.



DMZ

Choose **ADVANCED** > **DMZ** to go to the right page. The page shown as the figure appears on the right.

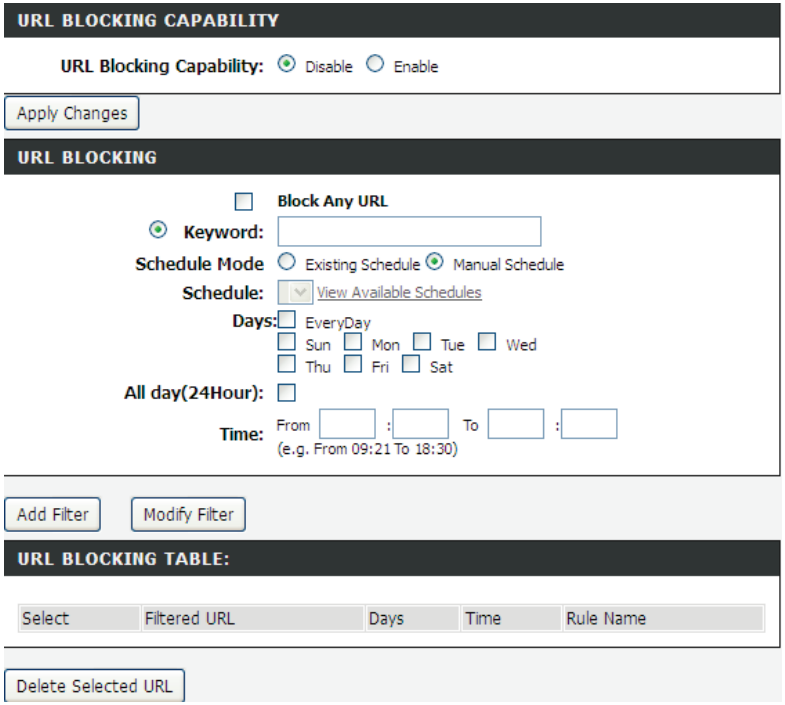
Since some applications are not compatible with NAT, the device supports the use of a DMZ IP address for a single host on the LAN. This IP address is not protected by NAT and it is visible to agents on the Internet with the correct type of software. Note that any client PC in the DMZ is exposed to various types of security risks. If you use the DMZ, take measures (such as client-based virus protection) to protect the remaining client PCs on your LAN from possible contamination through DMZ.



Parent Control

URL Block

Choose **ADVANCED** > **Parent Control** > **URL Block**. The page is shown as the figure appears on the right. This page is used to configure the blocked URL in specified time. Here you can add/delete filtered URL Firstly. You should enable URL Blocking Capability.



Note:

To use this feature, the time of router must be correct. Please set the system time in **SETUP** > **Time and Date**.

To set URL Block, do as follow:

Step 1 Set the URL to be blocked.

- To block all websites, select **Block Any URL**.
- To block a certain website, select **Keyword**, and then input the URL address or keyword of the URL.

Step 2 Set the Schedule Mode.

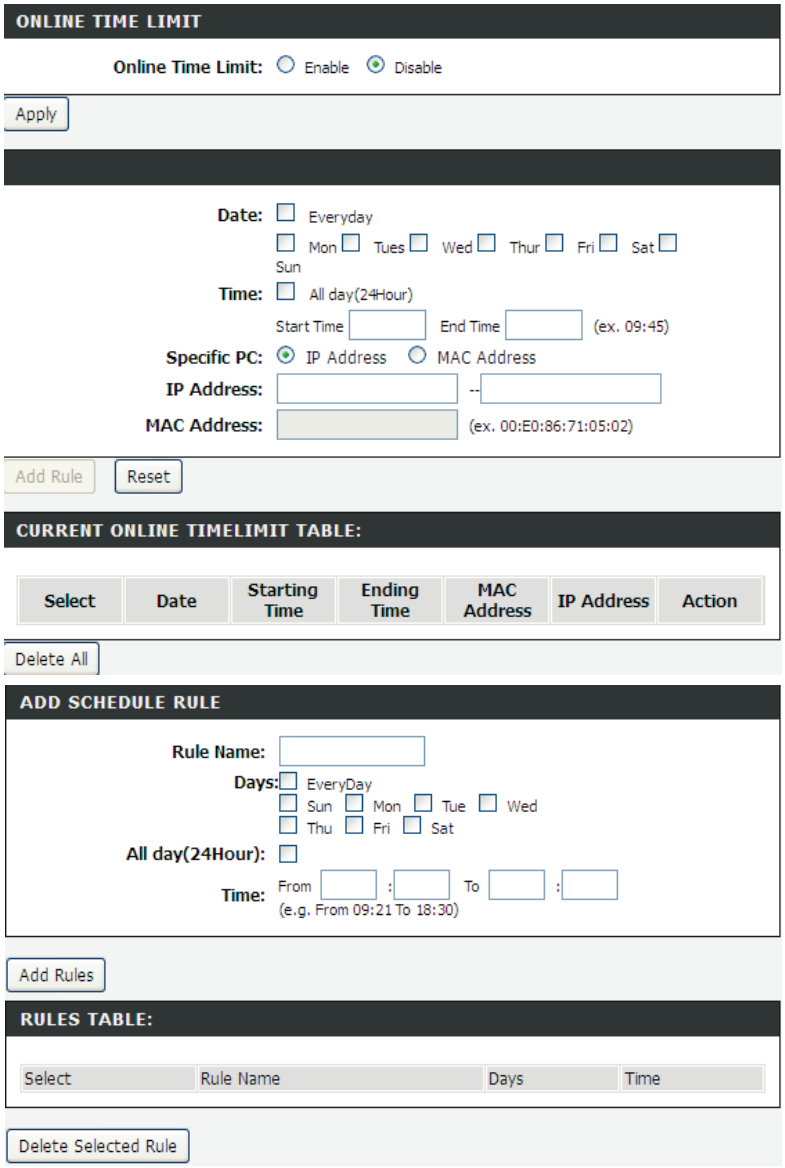
- Existing Schedule: You can use the schedules already set.
- Manual Schedule: Manually set a time. The URL will be blocked during this time.

Step 3 After setting, click **Add Filter** to save an URL filter in **URL Blocking Table**.

Online Time Limit

Choose ADVANCED **>** Parent Control **> Online Time Limit**

. The page is shown as the figure appears on the right.



Note:

To use this feature, the time of router must be correct. Please set the system time in **SETUP** > **Time and Date**.

Schedules

Choose **ADVANCED** > **Parent Control** > **Schedules**. The page is shown as the figure appears on the right. It allows you to create scheduling rules to be applied for URL block.

Note:

To use this feature, the time of router must be correct. Please set the system time in **SETUP** > **Time and Date**.

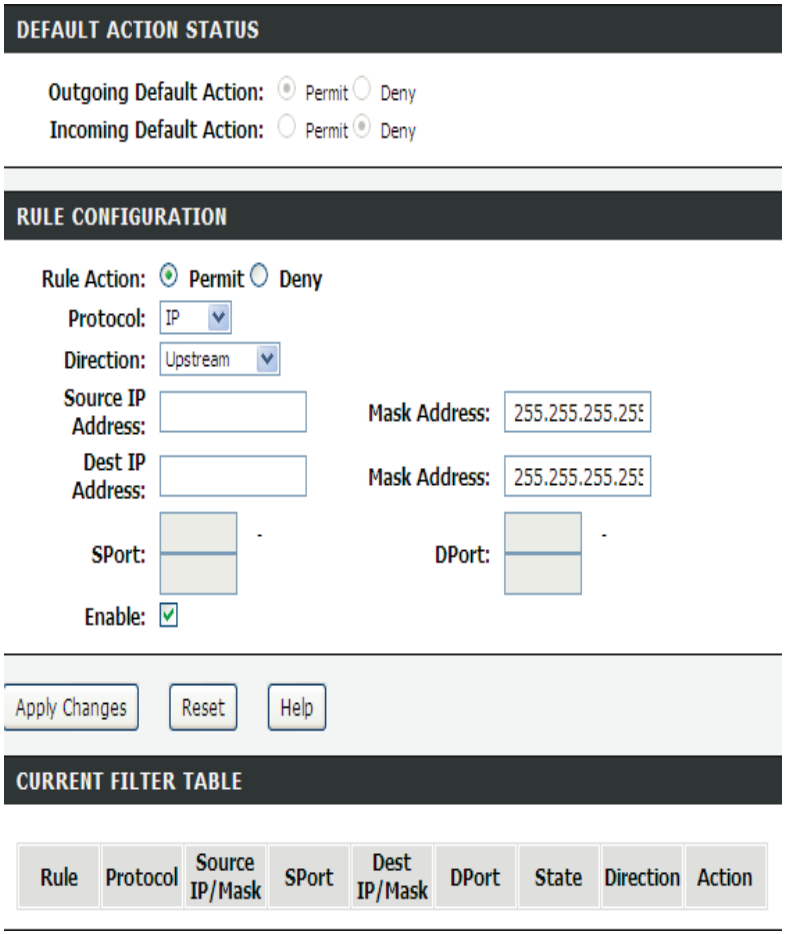
Filtering Options

IP/Port Filter

Choose **ADVANCED** > **Filter Options** > **IP/Port Filter** to go to the right page. The page shown as the figure appears on the right. The IP/Port Filter in this page is based on IPv4 protocol.

Entries in the table are used to restrict certain types of data packets through the gateway. These filters are helpful in securing or restricting your local network.

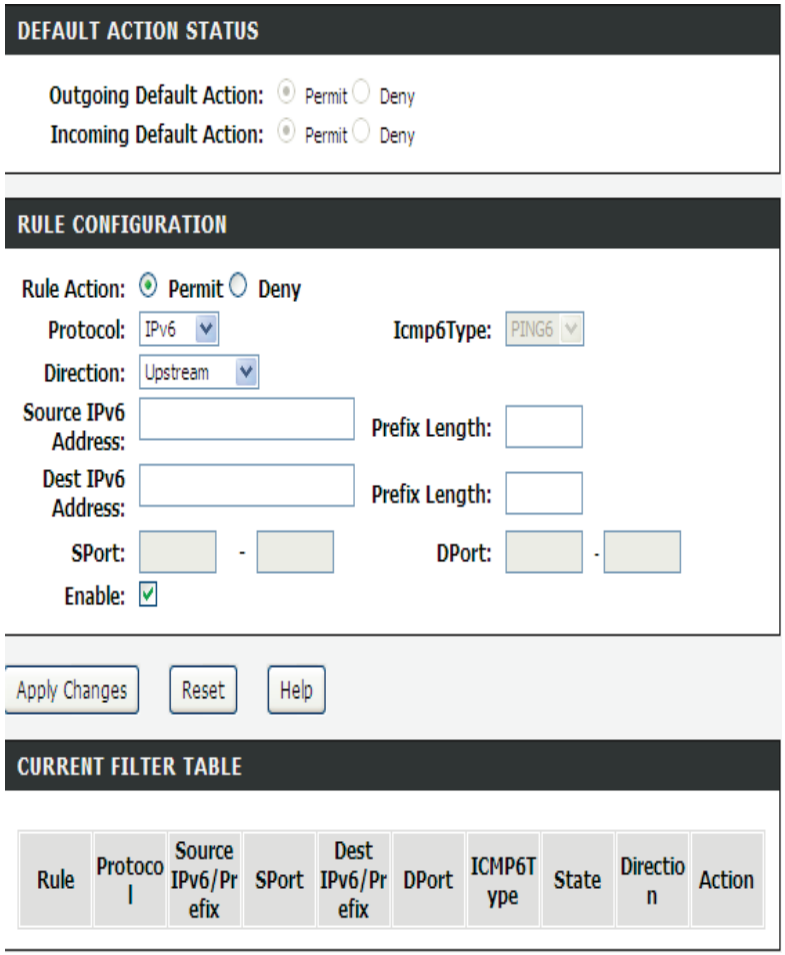
For example, select protocol as **IP**, rule action as **Deny**, direction as **Downstream** and fill the **Source IP/Dest IP**, which means downstream IP packets matching the source IP address and the destination IP address cannot enter the internal network.



IPv6/Port Filter

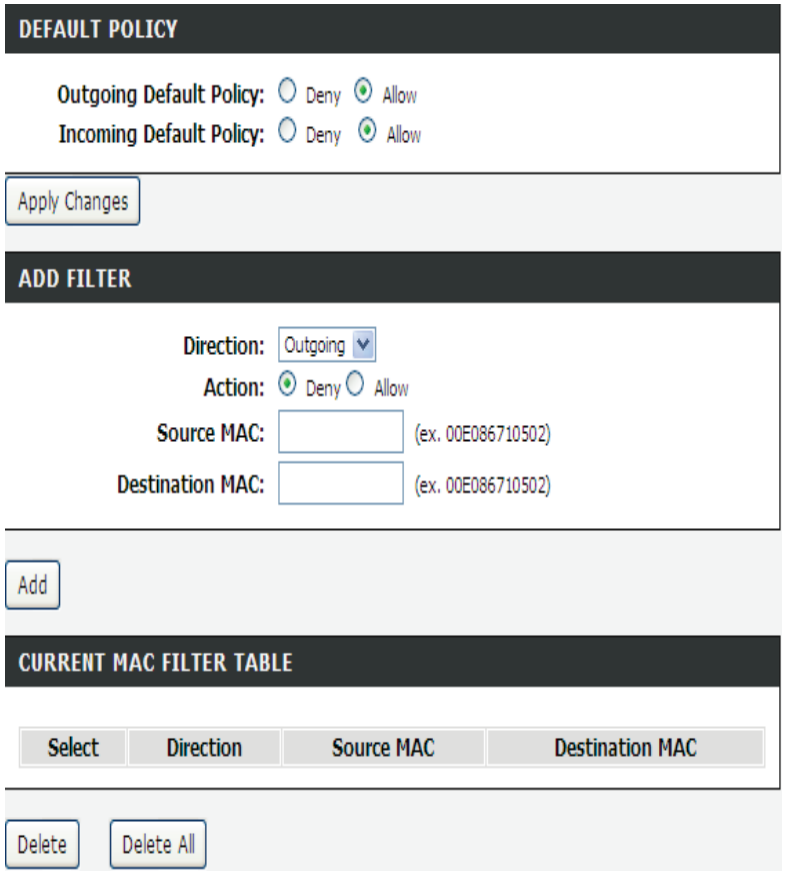
Choose **ADVANCED** > **Filter Options** > **IPv6/Port Filter** to go to the right page. The page shown as the figure appears on the right. The IP/Port Filter in this page is based on IPv6 protocol.

For the parameter descriptions in this page, please refer to ADVANCED > **Filter Options** > **IP/Port Filter**.



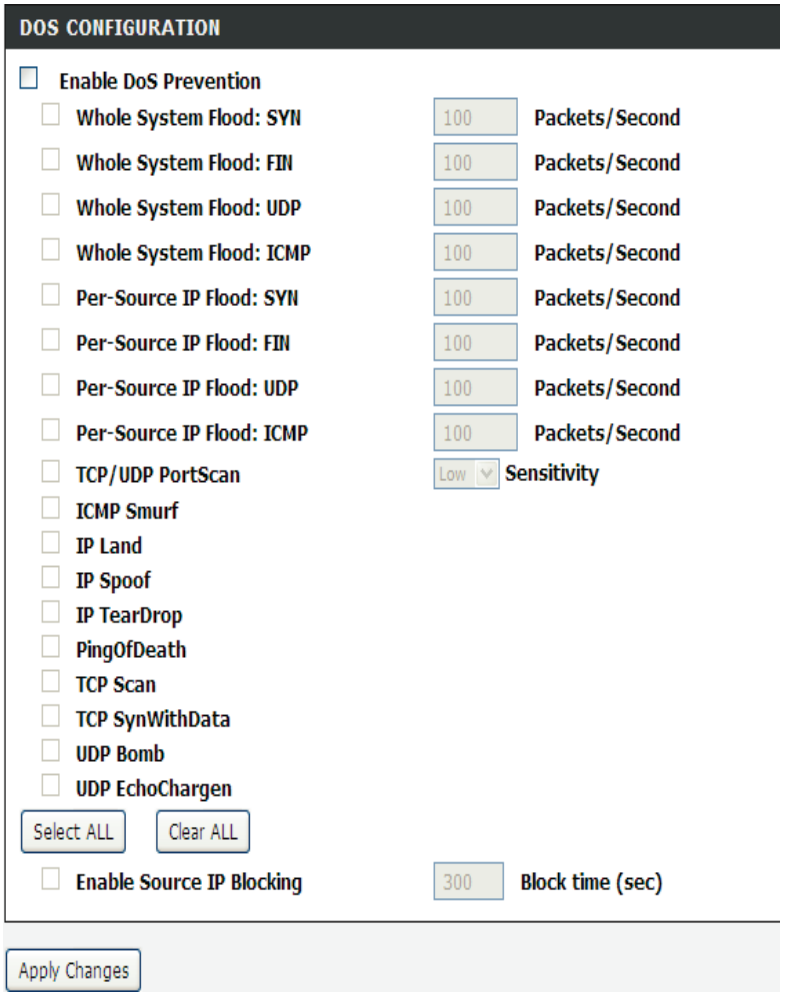
MAC Filter

Choose **ADVANCED** > **Filter Options** > **MAC Filter** to go to the right page. Entries in the table are used to restrict certain types of data packets from your local network to Internet through the gateway. These filters are helpful in securing or restricting your local network.



DoS Settings

Choose **ADVANCED** > **DoS Settings**. A "denial-of-service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service。

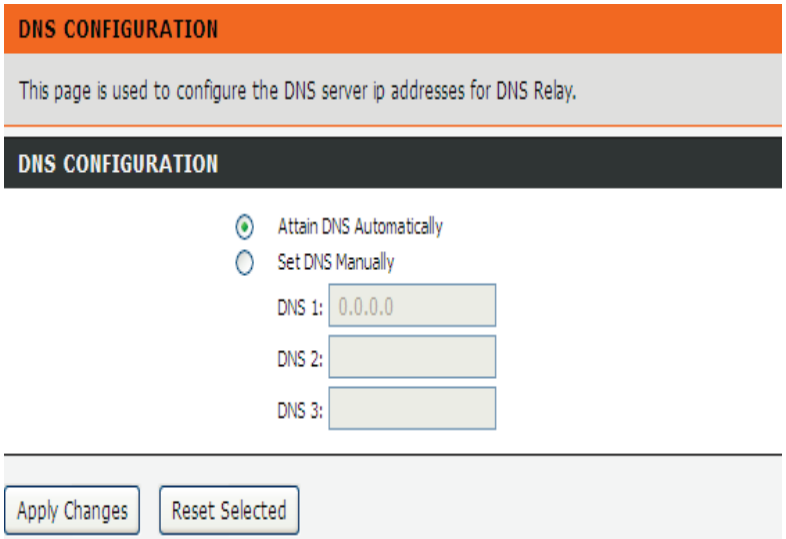


DNS

DNS

Domain Name System (DNS) is an Internet service that translates the domain name into IP address. Because the domain name is alphabetic, it is easier to remember. The Internet, however, is based on IP addresses. Every time you use a domain name, DNS translates the name into the corresponding IP address. For example, the domain name www.example.com might be translated to 198.105.232.4. The DNS has its own network. If one DNS server does not know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned.

Choose **ADVANCED** > **DNS** > **DNS**. The page shown in the figure appears on the right. The DNS in this page is based on IPv4 protocol.



The following table describes the parameters and buttons of this page:

Field	Description
Attain DNS Automatically	Select it, the router accepts the first received DNS assignment from one of the PPPoA, PPPoE or MER enabled PVC(s) during the connection establishment.
Set DNS Manually	Select it, enter the IP addresses of the primary and secondary DNS server.

IPv6 DNS

Choose **ADVANCED** > **DNS** > **IPv6 DNS**. The DNS in this page is based on IPv6 protocol. For the parameter description in this page, please refer to **ADVANCED** > **DNS** > **DNS**.

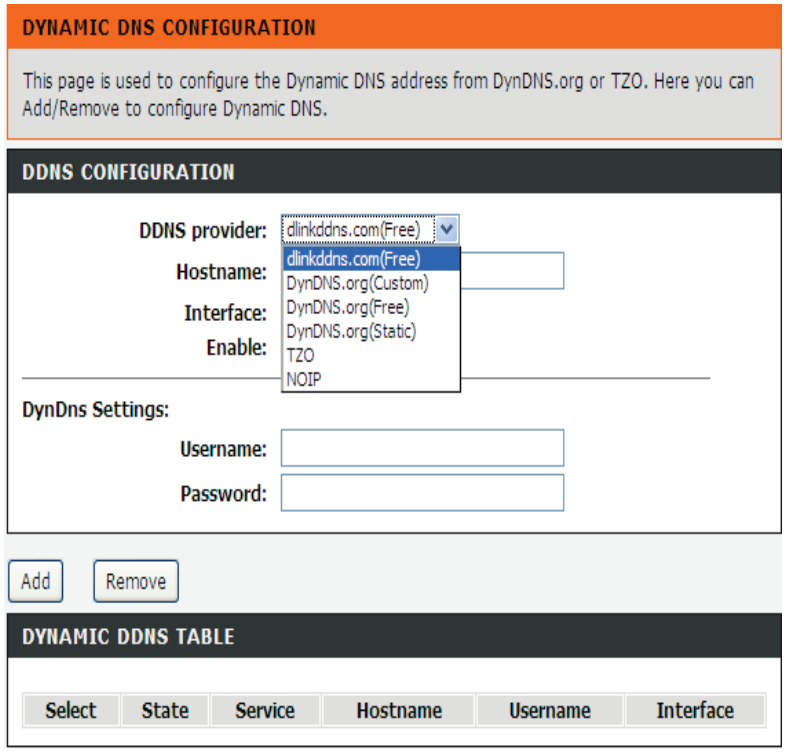
Dynamic DNS

The device supports dynamic domain name service (DDNS). The dynamic DNS service allows a dynamic public IP address to be associated with a static host name in any of the many domains, and allows access to a specified host from various locations on the Internet. Click a hyperlinked URL in the form of hostname.dyndns.org and allow remote access to a host. Many ISPs assign public IP addresses using DHCP, so locating a specific host on the LAN using the standard DNS is difficult.

Choose **ADVANCED** > **Dynamic DNS**. The page is shown as the page appears on the right.

The following table describes the parameters of this page:

Field	Description
DDNS provider	Select one of the DDNS registration organizations from the down-list drop.
Host Name	The DDNS identifier.
Interface	The WAN interface of the router.
Enable	Enable or disable DDNS function.
Username	The name provided by DDNS provider.
Password	The password provided by DDNS provider.
Email	The email provided by DDNS provider.
Key	The key provided by DDNS provider.



Network Tools

Port Mapping

Choose **ADVANCED** > **Network Tools**> **Port Mapping**, the page shown in the figure appears on the right. In this page, you can bind the WAN interface and the LAN interface to the same group.

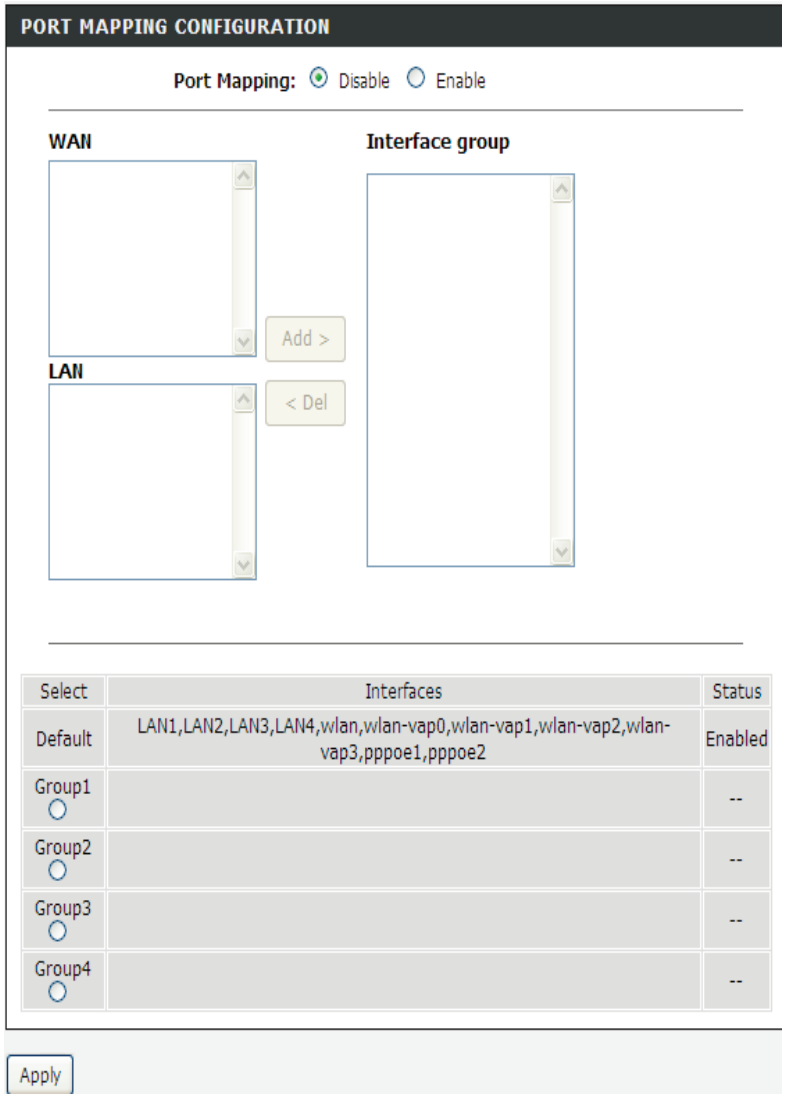
The procedure for manipulating a mapping group is as follows:

Step 1 Select **Enable** to enable this function.

Step 2 Select a group from the table.

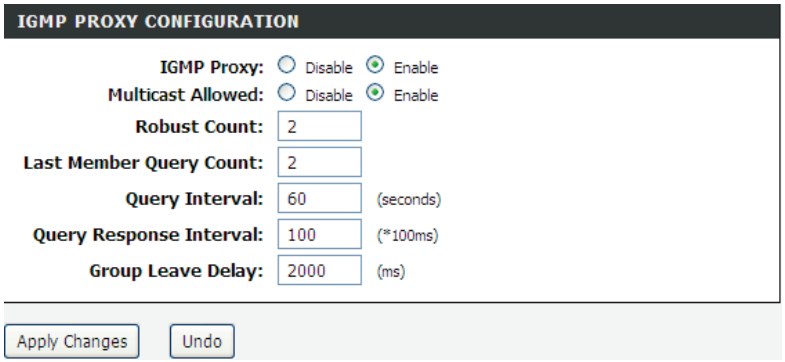
Step 3 Select interfaces from the WAN and LAN interface list and add them to the grouped interface list using the arrow buttons to manipulate the required mapping of the ports.

Click **Apply** to save the changes.



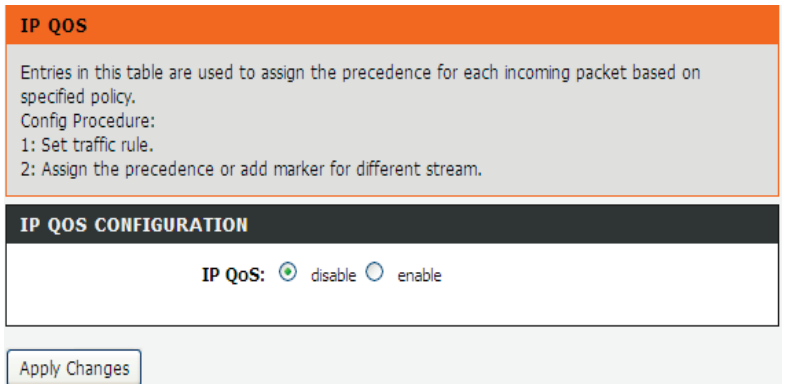
IGMP Proxy

Choose **ADVANCED** > **Network Tools**> **IGMP Proxy**, the page shown in the figure appears on the right. IGMP proxy enables the system to issue IGMP host messages on behalf of hosts that the system discovered through standard IGMP interfaces. The system acts as a proxy for its hosts after you enable it.



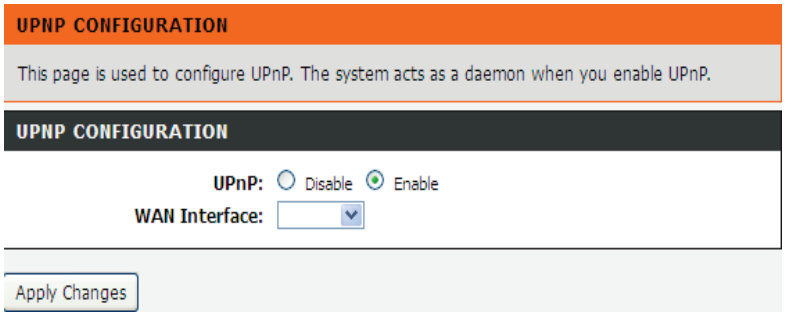
IP QoS

Choose **ADVANCED** > **Network Tools**> **IP QoS**. Entries in the **QoS Rule List** are used to assign the precedence for each incoming packet based on physical LAN port, TCP/UDP port number, source IP address, destination IP address and other information.



UPnP

Choose **ADVANCED** > **Network Tools** > **UPnP**. The page shown in the figure appears on the right. This page is used to configure UPnP. The system acts as a daemon after you enable it.

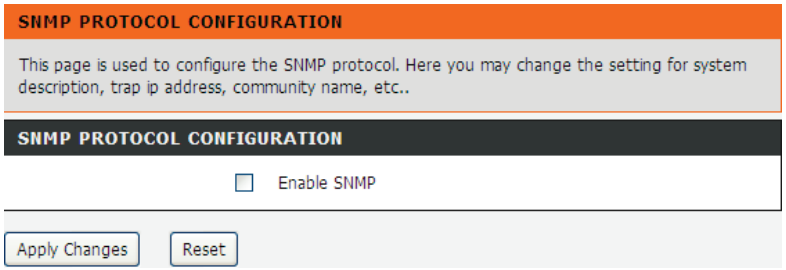


SNMP

Choose **ADVANCED** > **Network Tools** > **SNMP**. The page shown in the figure appears on the right. You can configure the SNMP parameters.

The following table describes the parameters of this page:

Field	Description
Enable SNMP	Select it to enable SNMP function. You need to enable SNMP, and then you can configure the parameters of this page.
Trap IP Address	Enter the trap IP address. The trap information is sent to the corresponding host.
Community Name (Read-only)	The network administrators must use this password to read the information of this router.
Community Name (Read-Write)	The network administrators must use this password to configure the information of the router.

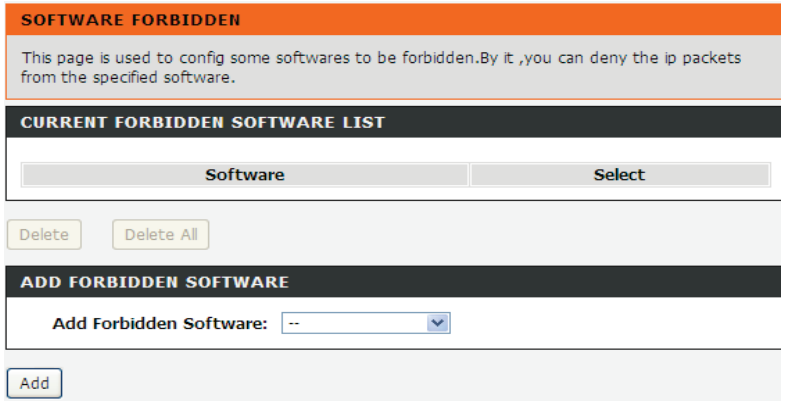


Software Forbidden

Choose **ADVANCED** > **Network Tools** > **Software Forbidden**. The page shown in the figure appears on the right. This interface realizes application control. Select an application from the drop-down list to prohibit the application from accessing network resources.

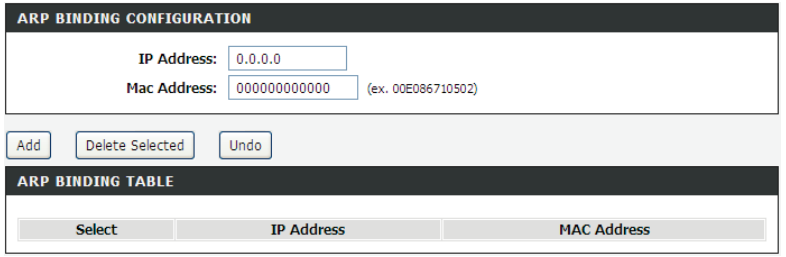
The following table describes the parameters and buttons of this page:

Field	Description
Current Forbidden Software List	A list of currently forbidden applications for accessing the network.
Add Forbidden Software	Select an application to be forbidden from accessing the network.



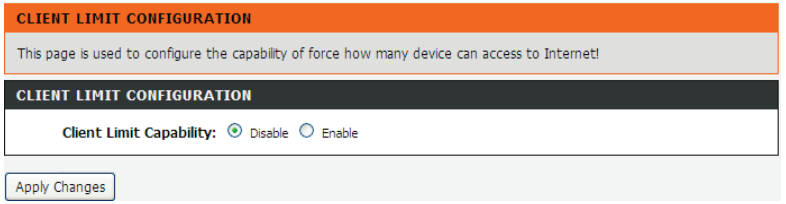
ARP Binding

Choose **ADVANCED** > **Network Tools** > **ARP Binding**. The page shown in the figure appears on the right. This page lists the permanent ARP entry table. You can bind IP with corresponding MAC to avoid ARP spoof.



Client Limit

Choose **ADVANCED** > **Network Tools** > **Client Limit**. The page shown in the figure appears on the right. This page is used to configure the capability of forcing how many devices can access to the Internet.



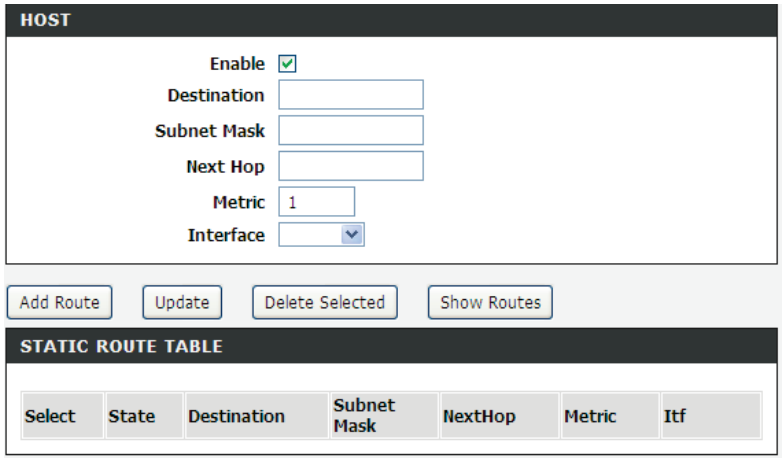
Routing

Static Route

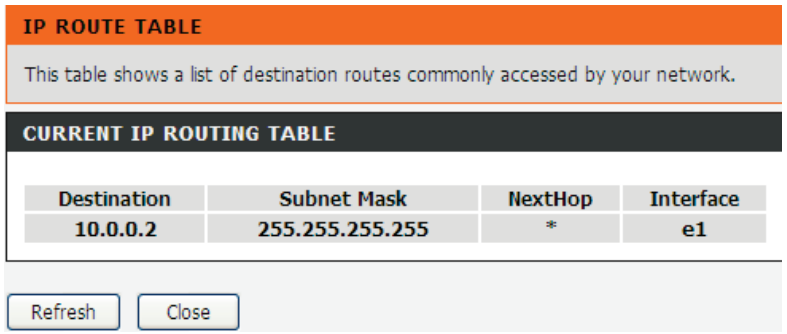
Choose **ADVANCED** > **Routing** > **Static Route**. The page shown in the figure appears on the right. This page is used to configure the routing information. You can add or delete IP routes.

The following table describes the parameters and buttons of this page:

Field	Description
Enable	Select it to use static IP routes.
Destination	Enter the IP address of the destination device.
Subnet Mask	Enter the subnet mask of the destination device.
Next Hop	Enter the IP address of the next hop in the IP route to the destination device.
Metric	The metric cost for the destination.
Interface	The interface for the specified route.
Static Route Table	A list of the previously configured static IP routes.



Click **Show Routes**, the page shown in the right figure appears. The table shows a list of destination routes commonly accessed by your network.



IPv6 Static Route

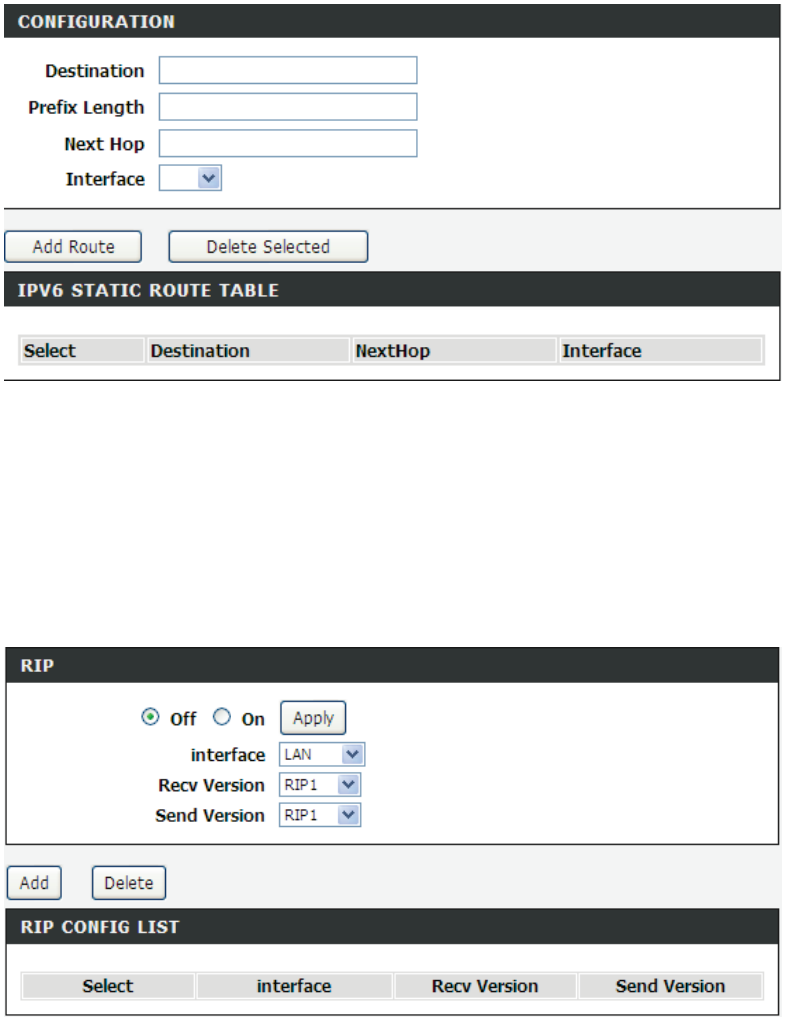
Choose **ADVANCED** > **Routing** > **IPv6 Static Route**. The page shown in the figure appears on the right. This page is used to configure the routing information. You can add or delete IP routes.

RIP

Choose **ADVANCED** > **Routing** > **RIP**. The page shown in the figure appears on the right. If you are using this device as a RIP-enabled router to communicate with others using Routing Information Protocol (RIP), enable RIP. This page is used to select the interfaces on your devices that use RIP, and the version of the protocol used.

The following table describes the parameters and buttons of this page:

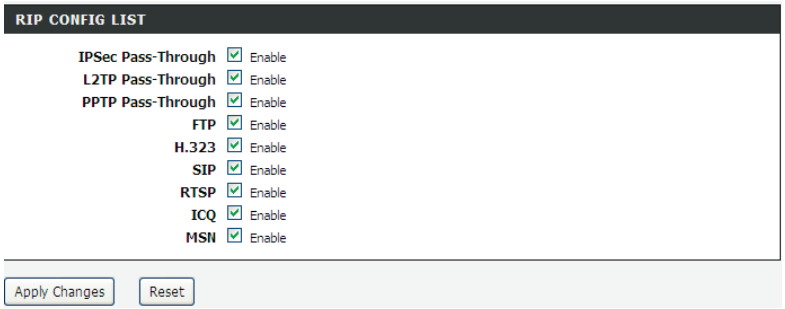
Field	Description
Off/On	Select **Enable**, the router communicates with other RIP-enabled devices.
Interface	Choose the router interface that uses RIP.
Recv Version	Choose the interface version that receives RIP messages. You can choose **RIP1**, **RIP2**, or **Both**. ● Choose **RIP1** indicates the router receives RIP v1 messages. ● Choose **RIP2** indicates the router receives RIP v2 messages. ● Choose **Both** indicates the router receives RIP v1 and RIP v2 messages.
Send Version	The working mode for sending RIP messages. You can choose **RIP1** or **RIP2**. ● Choose **RIP1** indicates the router broadcasts RIP1 messages only. ● Choose **RIP2** indicates the router multicasts RIP2 messages only.
Add	Click it to add the RIP interface to the **Rip Config List**.
Delete	Select a row in the **Rip Config List** and click it to delete the row.



NAT

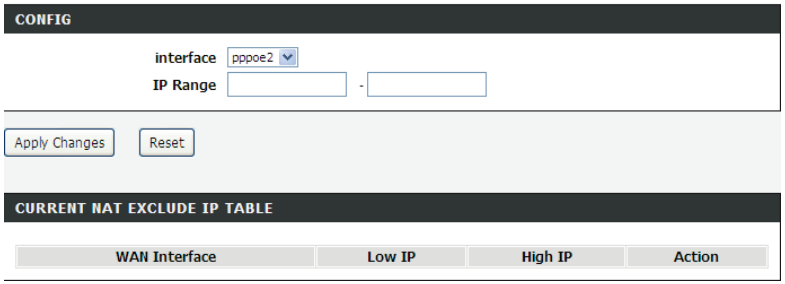
NAT ALG

Choose **ADVANCED** > **NAT** > **NAT ALG**. The page shown in the figure appears on the right. Choose the NAT ALG and Pass-Through options, and then click **Apply Changes**.



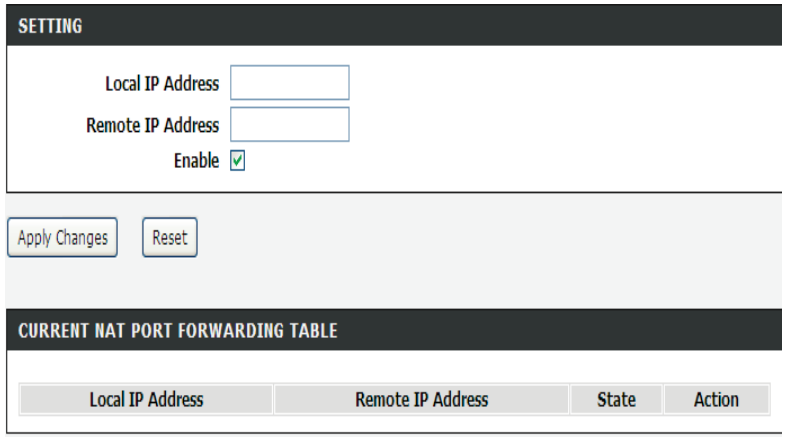
NAT Exclude IP

Choose **ADVANCED** > **NAT** > **NAT Exclude IP**. The page shown in the figure appears on the right. In the page, you can configure some source IP addresses which use the purge route mode when accessing internet through the specified interface.



NAT Forwarding

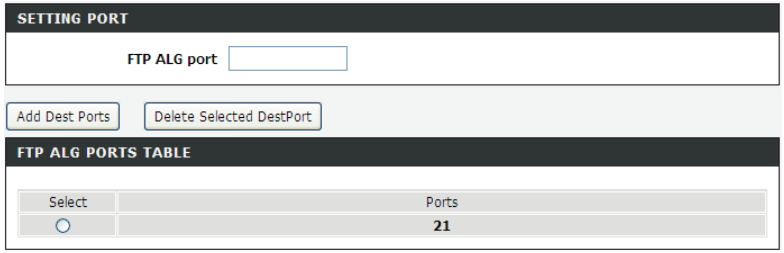
Choose **ADVANCED** > **NAT** > **NAT Forwarding.** The page shown in the figure appears on the right. Under 1483MER or 1483Routed mode, if NAPT (Network Address Port Translation) is enabled, the **Local IP Address** is configured as 10.0.0.1 and the **Remote IP Address** is configured as 202.32.0.2, the PC with the LAN IP10.0.0.1 will use 202.32.0.2 when it is connected to the Internet via the router without NAPT control.
The following table describes the parameters and buttons of this page:



Field	Description
Local IP Address	Input a local IP address.
Remote IP Address	Input a remote IP address
Enable	Enable the current configured rule.

FTP ALG Configuration

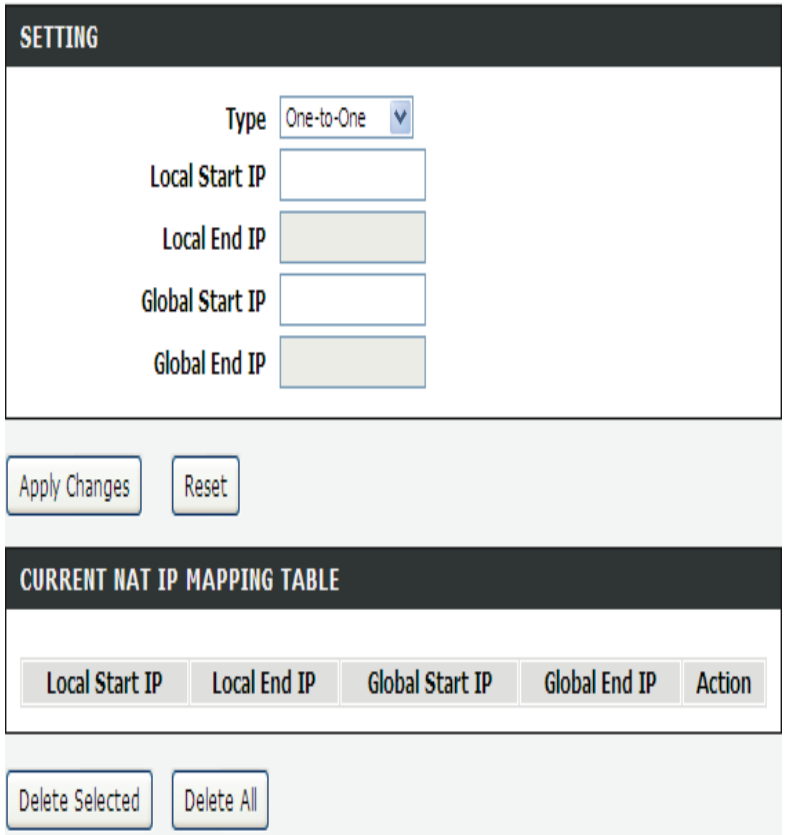
Choose **ADVANCED** > **NAT** > **FTP ALG Configuration.** The page shown in the figure appears on the right. Under 1483MER or 1483Routed mode, if NAPT (Network Address Port Translation) is enabled, the **Local IP Address** is configured as 10.0.0.1 and the **Remote IP Address** is configured as 202.32.0.2, the PC with the LAN IP10.0.0.1 will use 202.32.0.2 when it is connected to the Internet via the router without NAPT control.



NAT IP Mapping

NAT is short for Network Address Translation. The Network Address Translation Settings window allows you to share one WAN IP address for multiple computers on your LAN.

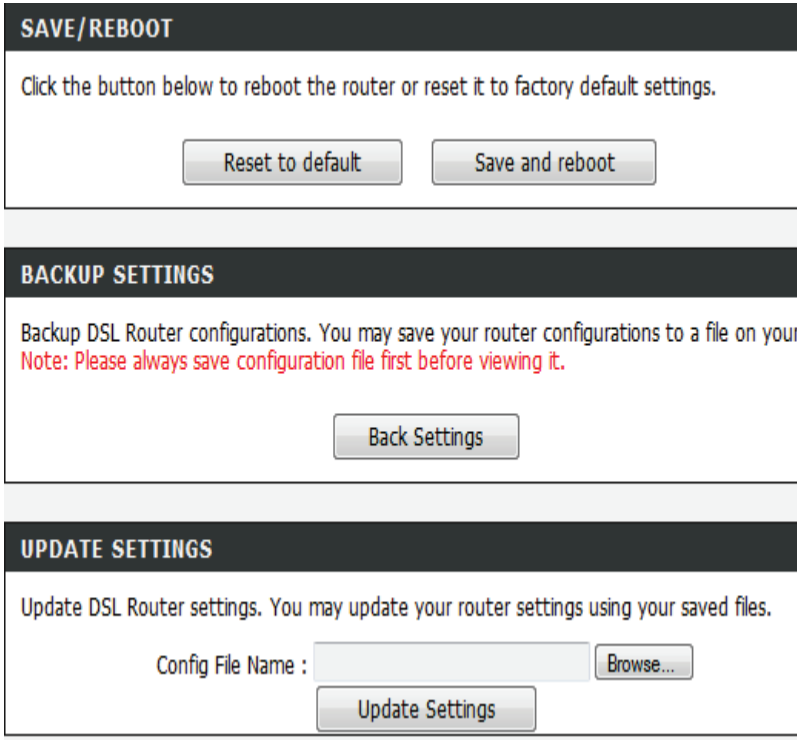
Choose **ADVANCED** > **NAT** > **NAT IP Mapping**. The page shown in the figure appears on the right. Entries in this table allow you to configure one IP pool for specified source IP address from LAN, so one packet whose source IP is in range of the specified address will select one IP address from the pool for NAT.



MAINTENANCE

System

Choose **MAINTENANCE** > **System**. The page shown in the figure appears on the right. In this page, you can reset your router, backup settings, and update the settings of the router.



Firmware Update

Choose **MAINTENANCE** > **Firmware Update**. The page shown in the figure appears on the right. In this page, you can upgrade the firmware of your router. To update your router, do as follow:

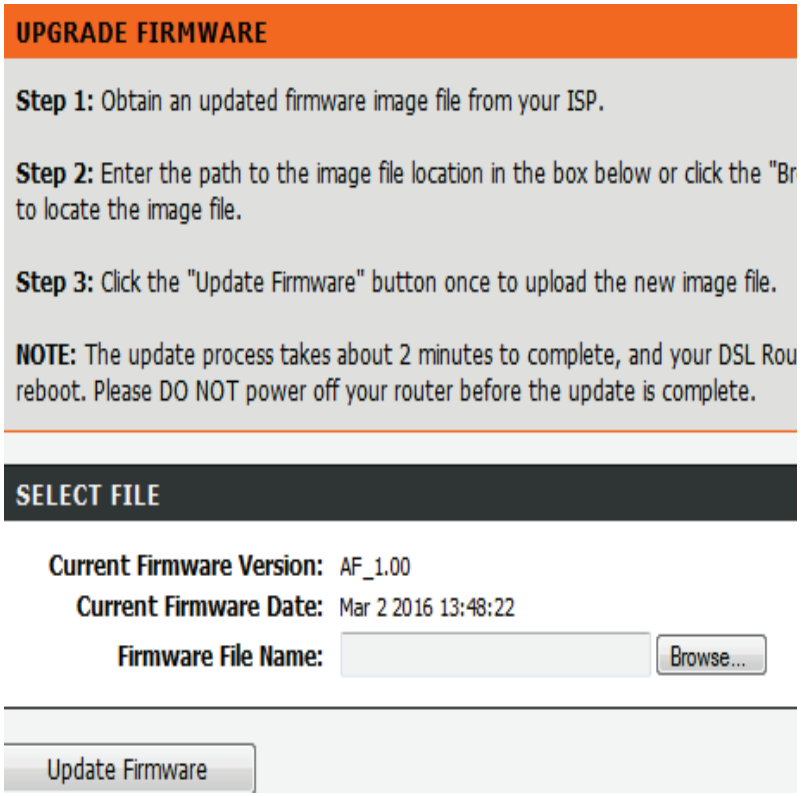
Step 1 Obtain an updated firmware image file from your ISP.

Step 2 Enter the path of the image file located in the box or click the **Browse** button to locate the image file.

Step 3 Click the **Update Firmware** button once the new image file is uploaded.

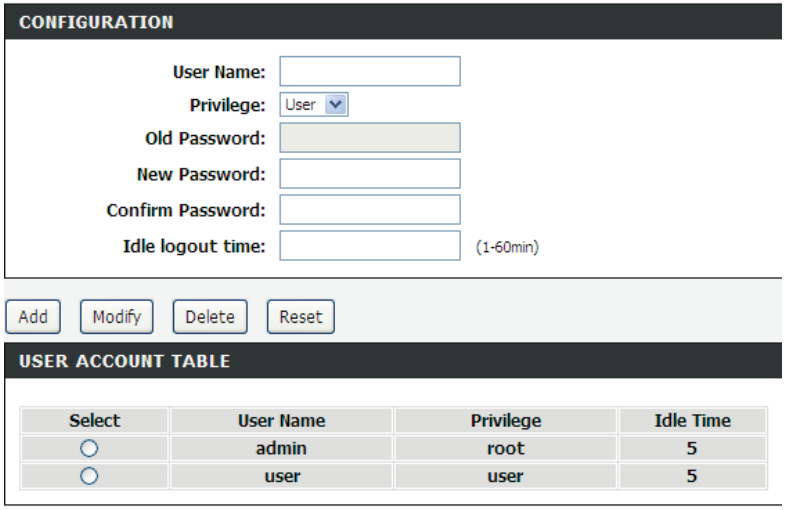
CAUTION:

The update process takes about 2 minutes to complete, and your DSL Router will reboot. Please DO NOT power off your router before the update is complete.



Password

Choose **MAINTENANCE** > **Password**. The page shown in the figure appears on the right. In this page, you can change the username, password, and idle logout time.

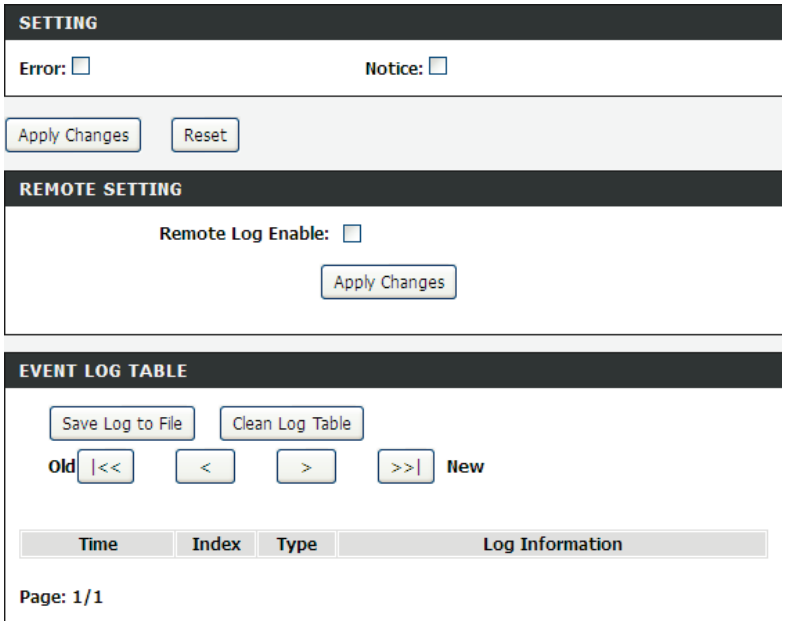


Diagnostics

Choose **MAINTENANCE** > **Diagnostics**. The Diagnostics section is used to diagnose the basic running and connection status of the router, including the diagnostics of the **Ping**, **Ping6**, **Traceroute**, **ADSL**, and **Diag Test**.

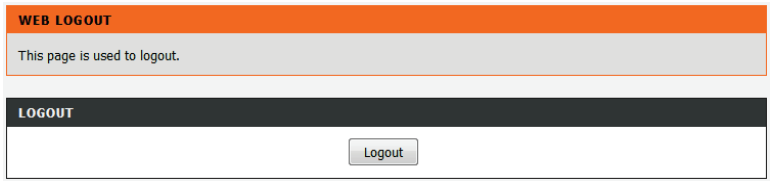
System Log

Choose **MAINTENANCE** > **System Log**. The page shown in the figure appears on the right. This page is used to display the system event log table. By checking **Error** or **Notice** (or both) will set the log flag. By clicking **>>|**, it will display the newest log information below.



Logout

Choose **MAINTENANCE** > **Logout**. The page is shown as the figure appears on the right. In this page, you can log out of the configuration page.



Troubleshooting

This chapter provides solutions to problems that might occur during the installation and operation of the DSL-224. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. How do I configure my DSL-224 Router without the CD-ROM?

Step 1 Connect your PC to the Router using an Ethernet cable.
Step 2 Open a web browser and enter the address http://10.0.0.2
Step 3 The default username is 'admin' and the default password is 'admin'.
Step 4 If you have changed the password and cannot remember it, you will need to reset the Router to the factory default setting (see question 2), which will set the password back to 'admin'.

2. How do I reset my Router to the factory default settings?

Step 1 Ensure the Router is powered on.
Step 2 Press and hold the reset button on the back of the device for approximately 15~20 seconds.
Step 3 This process should take around 1 to 2 minutes.

Note:
Resetting the Router to the factory default settings will erase the current configuration settings.

3. What can I do if my Router is not working correctly?

There are a few quick steps you can take to try and resolve any issues:
Step 1 Follow the directions in Question 2 to reset the Router.
Step 2 Check that all the cables are firmly connected at both ends.
Step 3 Check the LEDs on the front of the Router. The Power indicator should be on, the Status indicator should flash, and the DSL and LAN

indicators should be on as well.

Step 4 Please ensure that the settings in the Web-based configuration manager, e.g. ISP username and password, are the same as the settings that have been provided by your ISP.

4. Why can't I get an Internet connection?

For VDSL2(ADSL/ADSL2+) ISP users, please contact your ISP to make sure the service has been enabled/connected by your ISP and that your ISP username and password are correct.

5. What can I do if my Router can't be detected by running the installation CD?

Step 1 Ensure the Router is powered on.
Step 2 Check that all the cables are firmly connected at both ends and all LEDs are working correctly.
Step 3 Ensure only one network interface card on your PC is activated.
Step 4 Click on **Start** > **Control Panel** > **Security Center** to disable the firewall.

Note:

There is a potential security issue if the firewall is disabled on your PC. Please remember to turn it back on once you have finished the whole installation procedure. This will enable you to surf the Internet without any problems.

Networking Basics

Check Your IP Address

After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

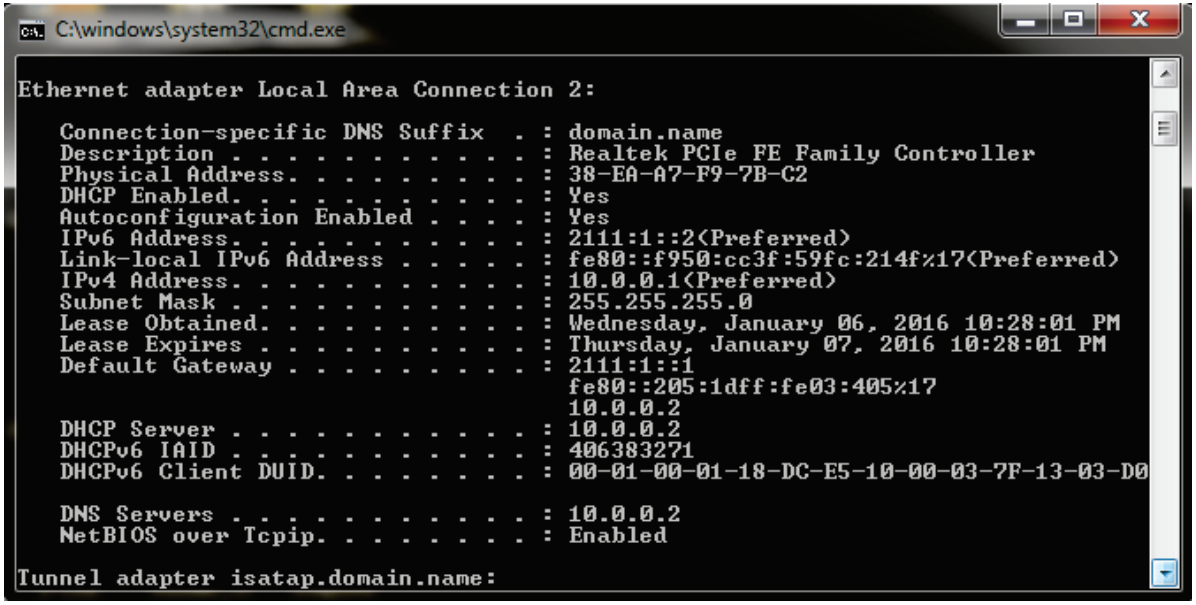
Click on **Start** > **Run**. In the run box type ***cmd*** and click on the **OK** button.

At the prompt, type ***ipconfig*** and press **Enter**.

This will display the IP address, subnet mask and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.

If you are connecting to a wireless network at a hotspot (e.g. hotel, coffee shop, airport), please contact an employee or administrator to verify their wireless network settings.



Statically Assigning an IP Address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

Step 1

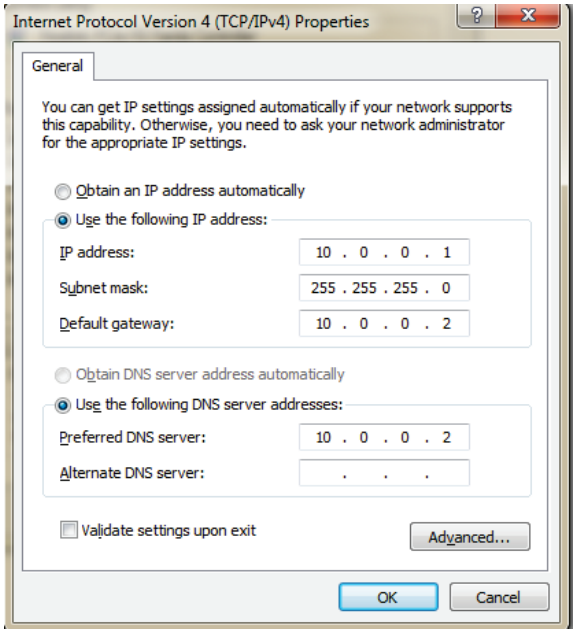
For Windows XP and 2000, Go to **Start > Control Panel, choose Network Connections.**
For Windows 7, 8, 8.1 and 10, Go to **Start > Control Panel > Network and Internet > Network and Sharing Centre,** On the left side choose Change adapter settings.

Step 2

For Windows XP an 2000, right-click on the **Local Area Connection** which represents your network adapter and select the **Properties** button.
For Windows 7, 8, 8.1 and 10, right-click on the **Local Area Connection/Ethernet/LAN** which represents your network adapter and select the **Properties** button.

Step 3

Highlight **Internet Protocol (TCP/IP)** and click on the **Properties** button.



Step 4

Click on the **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.
Example: If the router's LAN IP address is 10.0.0.2, make your IP address 10.0.0.X where X is a number between 1 and 254. Make sure that the number you choose is not in use on the network. Set the Default Gateway to be the same as the LAN IP address of your router (10.0.0.2).

Set the Primary DNS to be the same as the LAN IP address of your router (10.0.0.2). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5

Click on the **OK** button twice to save your settings.

Technical Specifications

VDSL2(ADSL/ADSL2+)Standards

ITU G.993.1
ITU G.993.2
ANSI T1.413-1998 Issue 2
ITU G.992.2
ITU G.992.1
ITU G.992.1 Annex A
ITU G.992.1 Annex B
ITU G.992.5
ITU G.992.5 Annex M

Protocols

- IEEE 802.1d Spanning Tree
- TCP/UDP
- ARP
- RARP
- ICMP
- RFC1058 RIP v1
- RFC1213 SNMP v1 & v2c
- RFC1334 PAP
- RFC1389 RIP v2
- RFC1577 Classical IP over ATM
- RFC1483/2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5 (AAL5)
- RFC1661 Point to Point Protocol
- RFC1994 CHAP
- RFC2131 DHCP Client / DHCP Server
- RFC2364 PPP over ATM
- RFC2516 PPP over Ethernet

Data Transfer Rate

- G.dmt full rate downstream: up to 8 Mbps / upstream: up to 1 Mbps
- G.lite: VDSL2(ADSL/ADSL2+) downstream up to 1.5 Mbps / upstream up to 512Kbps
- G.dmt.bis full rate downstream: up to 12 Mbps / upstream: up to 12 Mbps
- VDSL2(ADSL/ADSL2+) full rate downstream: up to 24 Mbps / upstream: up to 1 Mbps

Media Interface

VDSL2(ADSL/ADSL2+) interface: RJ-11 connector for connection to 24/26 AWG twisted pair telephone line
LAN interface: RJ-45 port for 10/100BASE-T Ethernet connection

Packing List

1 x DSL-224
1 x External splitter
1 x Power adapter
1 x Telephone cables (RJ-11)
1 x Ethernet cable (RJ-45)
1 x Quick installation guide
1 x Warranty guide
1 x CD