PLANET
Networking & Communication

User's Manual

Wired / 802.11n Wireless VDSL 2 Router

- VC-230
- VC-230N

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Federal Communication Commission Interference Statement

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

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution:

To assure continued compliance, (example-use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the Following two conditions:

(1) This device may not cause harmful interference

(2) This Device must accept any interference received, including interference that may cause undesired operation.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reason/remark
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz	Military Radiolocation use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy	None	If used outside of own premises, general authorization is required
Luxembourg	None	General authorization required for network and service supply(not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation	None	Only for indoor applications

WEEE regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste; WEEE should be collected separately.

Revision

User's Manual for Wired / Wireless VDSL 2 Router

Model: VC-230 / VC-230N

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Chapter 1.Product Introduction

1.1 Package Contents

Thank you for choosing PLANET VC-230 series. Before installing the router, please verify the contents inside the package box.

VC-230 / VC-230N Unit

Quick Installation Guide

CD-ROM

(User Manual included)

Power Adapter

12V/1A DC output

100~240V AC input

Ethernet Cable

RJ-45 / CAT5E 1 meter UTP

Phone Cable

5dBi Antenna x 2

(VC-230N only)

If there is any item missing or damaged, please contact the seller immediately.

1.2 Product Description

High Performance Ethernet over VDSL

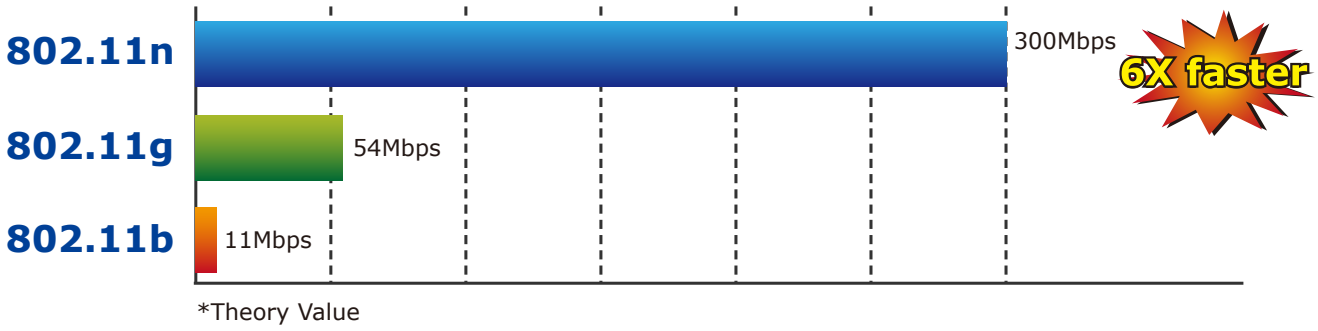
PLANET 802.11n Wireless VDSL2 Router, VC-230N, applies 2T2R MIMO antenna technology and provides office and residential users with the ideal solution for sharing a high-speed VDSL2 broadband connection and four-10/100Mbps Fast Ethernet backbone. The VC-230N is developed with three core networking technologies: IEEE 802.11b/g/n, Ethernet and VDSL2 (Very High Speed Digital Subscriber Line 2). Via VDSL 2 technology, the VC-230N offers very high performance access to Internet, up to **100Mbps** for both downstream and upstream data transmission. VDSL2 absolutely offers the fastest data transmission speed over existing copper telephone lines without the need for rewiring.

Delivering High-Demand Service Connectivity for ISP / Triple Play Devices

The VC-230N provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/100Mbps symmetric data transmission, the VC-230N enables many multi-media services to work on local Internet, such as **VOD (Video on Demand)**, Voice over IP, **Video phone**, **IPTV**, Internet caching server, **distance education**, and so on.

High-Speed 802.11n Wireless

The VC-230N complies with ITU-T G993.2 standard and provides two modes for network applications -- **Bridge** and **Router**. With built-in IEEE 802.11b/g and 802.11n wireless network capability, the VC-230N allows any computer and wireless-enabled network device to connect to it without additional cabling. 802.11n wireless capability brings users the highest speed of wireless experience ever; the data transmission rate can be as high as **300Mbps.** The radio coverage is also doubled to offer high speed wireless connection even in widely spacious offices or houses.



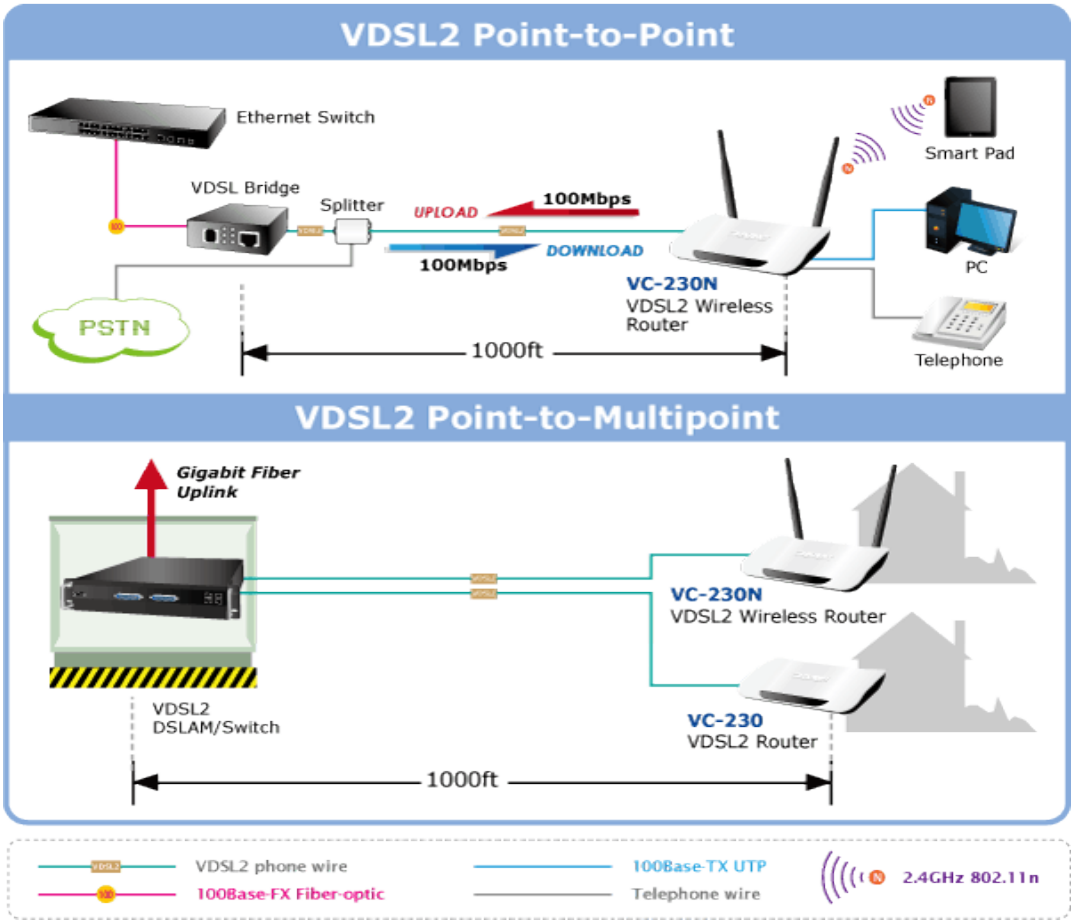
Secure Wireless Access Control

To secure wireless communication, the VC-230N supports most up-to-date encryptions including WEP, WPA-PSK and WPA2-PSK. Moreover, the VC-230N supports WPS configuration with PBC/PIN type for users to easily connect to a secured wireless network.

Multiple Functions for Broadband Communication

There are two selectable VDSL2 operating modes of VC-230N: **CO** and **CPE**, which can be adjusted by Web UI. Users can set up **Point-to-Point** application by connecting two VC-230Ns, in which one in CO mode and

the other in CPE mode, to transmit data in high speed between two networks over existing copper telephone lines.



Providing Superior Function

The VC-230N provides user-friendly management interface to be managed easily through standard web browsers. For networking management features, the VC-230N not only provides basic router functions such as DHCP server, virtual server, DMZ, QoS, and UPnP, but also provides full firewall functions including Network Address Translation (NAT), IP/Port/MAC Filtering and Content Filtering. Furthermore, the VC-230N serves as an Internet firewall to protect your network from being accessed by unauthorized users.

1.3 Product Features

- **Internet Access Features**
  - **Shared Internet Access:** All users on the LAN can access the Internet through the VC-230N using only one single external IP address. The local (invalid) IP addresses are hidden from external sources. This process is called NAT (Network Address Translation).
  - **Built-in VDSL2 Modem:** The VC-230N provides VDSL2 modem and supports all common VDSL2 connections.
  - **Multiple WAN Connection:** Upon the Internet (WAN port) connection, the VC-230N supports Dynamic IP address (IP address is allocated upon connection), fixed IP address, PPPoE, PPTP and L2TP.
  - **CO and CPE Support:** The VC-230N provides the Peer-to-Peer connection. Users can select the CO and CPE mode manually.
  - **Bridge and Router Application:** The VC-230N supports two application modes: bridging and routing modes. Currently, the default mode is routing mode. Note: routing mode and bridging mode cannot be used simultaneously.

- **Advanced Internet Functions**
  - **Virtual Servers:** This feature allows Internet users to access Internet servers on your LAN. The setup is quick and easy.
  - **Firewall:** The VC-230N supports simple firewall with NAT technology.
  - **Universal Plug and Play (UPnP):** UPnP allows automatic discovery and configuration of the Broadband Router. UPnP is supported by Windows ME, XP, or later.
  - **Selectable VDSL2 Profiles:** The VC-230N supports common VDSL2 profiles (30a, 17a, 12a, 12b, 8a, 8b, 8c, 8d) for users choice. Users can select different VDSL2 profiles based on their needs.
  - **User Friendly Interface:** The VC-230N can be managed and controlled through Web UI.
  - **DMZ Support:** The VC-230N can translate public IP addresses into private IP address to allow unlimited 2-way communication with the servers or individual users on the Internet. It provides the most flexibility to run programs smoothly for programs that might be restricted in NAT environment.
  - **RIP1/2 Routing:** It supports RIPv1/2 routing protocol for routing capability.
  - **VPN Pass-through Support:** PCs with VPN (Virtual Private Networking) software are transparently supported - no configuration is required.

- **LAN Features**
  - **4-Port Switch:** The VC-230N incorporates a 4-Port 10/100Base-TX switching hub, making it easy to create or extend your LAN.
  - **DHCP Server Support:** **D**ynamic **H**ost **C**onfiguration **P**rotocol provides a dynamic IP address to PCs and other devices upon request. The VC-230N can act as a DHCP Server for devices on your local LAN.

- **Wireless Features**
  - **Supports IEEE 802.11b, g and 802.11n Wireless Stations:** The 802.11n standard provides backward compatibility with the 802.11b and 802.11g standard, so 802.11b,

802.11g, and 802.11n can be used simultaneously. IEEE 802.11n wireless technology is capable of up to 300Mbps data rate.

- **Two External Antennas with MIMO Technology:** The VC-230N provides farther coverage, less dead spaces and higher throughput with 2T2R MIMO technology.
- **WPS Push Button Control:** The VC-230N supports WPS (Wi-Fi Protected Setup) for users to easily connect to wireless network without configuring the security.
- **WEP Support:** WEP (Wired Equivalent Privacy) is included. Key sizes of 64 bit and 128 bit are supported.
- **WPA-PSK Support:** WPA-PSK_TKIP and WAP-PSK_AES encryption are supported.
- **Wireless MAC Access Control:** The Wireless Access Control feature can check the MAC address (hardware address) of wireless stations to ensure that only trusted wireless stations can access your LAN.

1.4 Product Specifications

Model		VC-230	VC-230N
Product Description		4-Port Ethernet over VDSL2 Router	300Mbps 802.11n wireless VDSL2 Router
Hardware Specifications			
Interface	**LAN**	4 x 10/100Base-TX, Auto-Negotiation, Auto MDI/MDI-X RJ45 port	
	VDSL2 WAN	1 x RJ-11	
	PHONE	1 x RJ-11, and built-in splitter for POTS connection	
	Wireless	--	2x 5dBi detachable antenna
LED Indicators		PWR, DSL, LAN1-4	PWR, DSL, LAN1-4, WLAN, WPS, Security
Button		1 x RESET button	1 x RESET button 1 x WPS button
Material		Plastic	
Dimensions (W x D x H)		186 x 143 x 35 mm	
Power		12V DC, 1A	
Router Features			
Internet Connection Type		Shares data and Internet access for users, supporting the following internet accesses: ■ PPPoE ■ Dynamic IP ■ Static IP ■ PPTP ■ L2TP	
Max. Session		15000	
VDSL2 Functionality		CO / CPE mode selection Selectable fast and interleaved mode Selectable VDSL2 Profiles Bandwidth Limitation support	
Protocol / Feature		Router, Bridge and WISP mode WDS and WPS DMZ and Virtual Server 802.1D QoS DHCP Server / Client IGMP Proxy and DNS Proxy UPnP and DDNS	
Routing Protocol		Static Routing RIPv1/2	
VPN		VPN Pass-through	
Security		Built-in NAT Firewall MAC / IP/ Port Filtering Content Filtering SPI Firewall support	

System Management	Web-based (HTTP) configuration SNTP time synchronize System Log supports Remote Log Password protection for system management	
Wireless Interface Specifications		
Wireless Standard	--	IEEE 802.11b, g and 802.11n
Frequency Band	--	2.4 to 2.4835GHz (Industrial Scientific Medical Band)
Modulation Type	--	DBPSK, DQPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM)
Data Transmission Rates	--	**802.11n(40MHz)**: 270/243/216/162/108/81/54/27Mbps 135/121.5/108/81/54/40.5/27/13.5Mbps (Dynamic)
		802.11n(20MHz): 130/117/104/78/52/39/26/13Mbps 65/58.5/52/39/26/19.5/13/6.5Mbps (Dynamic)
		802.11g: 54/48/36/24/18/12/9/6Mbps (Dynamic)
		802.11b: 11/5.5/2/1Mbps (Dynamic)
Channel	--	Maximum 14 Channels, depending on regulatory authorities
Antenna Connector	--	2 x 5dBi detachable Antenna
Wireless Data Encryption	--	64/128-bit WEP, WPA-PSK, WPA2-PSK, 802.1x encryption, and WPS PBC
Standards Conformance		
Standard	VDSL2-DMT Compliant with VDSL2 ITU-T G.993.2 (8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a) G.997 / G.998 Band Plan support Supports up to 100Mbps / 100Mbps for Upstream / Downstream Complaint with IEEE802.3 / 802.3u U0 Band Support (25KHz to 276KHz) Packet Transfer Mode Ethernet in the First Mile(PTM-EFM)	
Environment Specifications		
Temperature / Humidity	Operating: 0~50 degrees C, 5%~ 90% (non-condensing), Storage: -20~70 degrees C, 0~95% (non-condensing)	
Certification	FCC, CE	

Chapter 2. Hardware Installation

This chapter offers information about installing your router. If you are not familiar with the hardware or software parameters presented here, please consult your service provider for the values needed.

2.1 Hardware Description

2.1.1 Front Panel of VC-230

The front panel provides a simple interface monitoring of the router. Figure 2-1 shows the front panel of VC-230.

Figure 2-1 VC-230 Front Panel

2.1.2 LED Indications of VC-230

The LEDs on the top panel indicate the instant status of system power, WAN data activity and port links, and help monitor and troubleshoot when needed. Figure 2-1 and Table 2-1 show the LED indications of the VC-230.

Front Panel LED Definition

LED	State	Description
PWR	ON	When the router is powered on, and in ready state.
	OFF	When the router is powered off.
DSL	Flashing	Router is trying to establish a VDSL2 connection to VDSL2 device or telecom's network.
	ON	The VDSL2 is connected successfully.
LAN1-4	Flashing	Data is being transmitted or received via the corresponding LAN port.
	ON	The port is up.

Table 2-1 The LED indication of VC-230

2.1.3 Rear Panel of VC-230

The rear panel provides the physical connectors connected to the power adapter and any other network device. Figure 2-2 shows the rear panel of the VC-230.

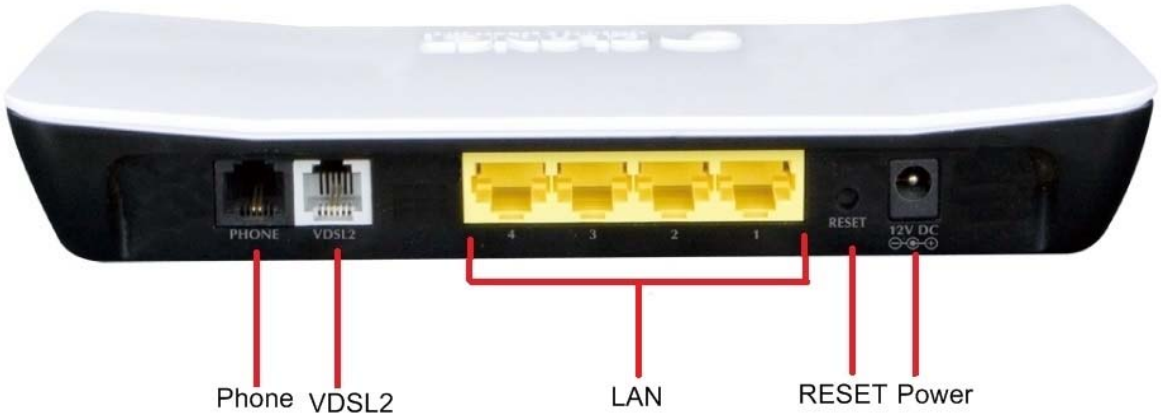


Figure 2-2 VC-230 Rear Panel

Rear Panel Port and Button Definition

Connector	Description
POWER	Power connector with 12V DC 1 A
RESET	Press more than 3 seconds for reset to factory default setting.
LAN (1-4)	Router is successfully connected to a device through the corresponding port (1, 2, 3, or 4). If the LED light of LNK/ACT is flashing, the Router is actively sending or receiving data over that port.
PHONE	Built-in splitter for POTS connection.
VDSL2	The RJ-11 connector allows data communication between the router and the VDSL2 network through a twisted-pair phone wire

2.1.4 Front Panel of VC-230N

The front panel provides a simple interface monitoring of the router. Figure 2-3 shows the front panel of the VC-230N.

Figure 2-3 VC-230N Front Panel

2.1.5 LED Indications of VC-230N

The LEDs on the top panel indicate the instant status of system power, wireless data activity, WPS, and port links, and help monitor and troubleshoot when needed. Figure 2-3 and Table 2-2 show the LED indications of the VC-230N.

LED	State	Description
PWR	ON	When the router is powered on, and in ready state.
	OFF	When the router is powered off.
WPS	ON	WPS client registration is successful.
	Flashing	WPS client registration window is currently open.
	OFF	WPS is not available, or WPS is not enabled or initialized.
WLAN	ON	WLAN radio is on.
	Flashing	Data is being transmitted through WLAN.
	OFF	WLAN radio is off.
Security	ON	Enable WLAN encryption
	OFF	Disable WLAN encryption
DSL	Flashing	Router is trying to establish a VDSL2 connection to VDSL2 device or telecom's network.
	ON	The VDSL2 is connected successfully.
LAN1-4	Flashing	Data is being transmitted or received via the corresponding LAN port.
	ON	The port is up.

Table 2-2 The LED indication of VC-230N

2.1.6 Rear Panel of VC-230N

The rear panel provides the physical connectors connected to the power adapter and any other network device. Figure 2-4 shows the rear panel of the VC-230N.

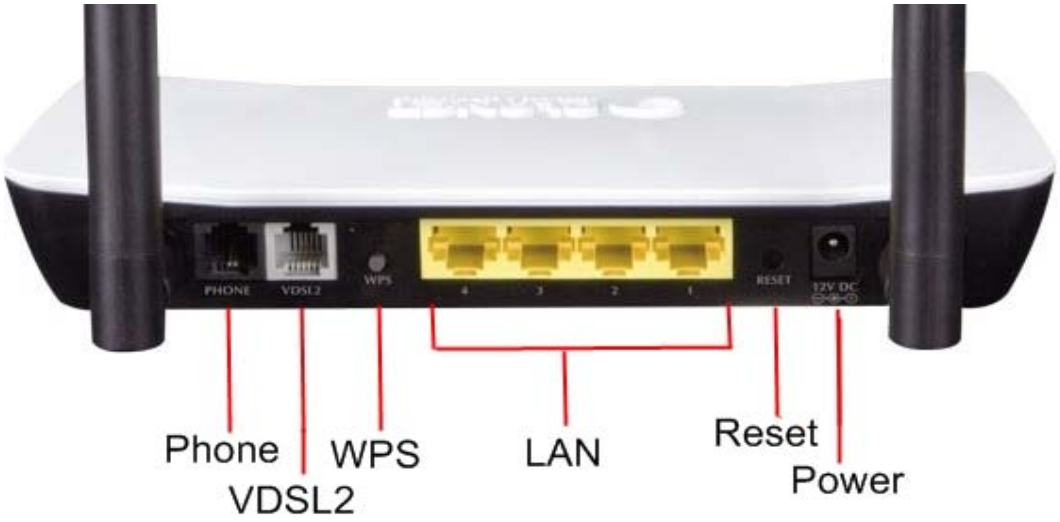


Figure 2-4 VC-230N Rear Panel

Rear Panel Port and Button Definition

Connector	Description
POWER	Power connector with 12V DC 1 A
RESET	Press more than 3 seconds for reset to factory default setting.
LAN (1-4)	Router is successfully connected to a device through the corresponding port (1, 2, 3, or 4). If the LED light of LNK/ACT is flashing, the Router is actively sending or receiving data over that port.
WPS	WPS on or off switch.
PHONE	Built-in splitter for POTS connection.
VDSL2	The RJ-11 connector allows data communication between the router and the VDSL2 network through a twisted-pair phone wire

Chapter 3. Connecting to the Router

3.1 System Requirements

- Broadband Internet Access Service (Cable/xDSL/Ethernet connection)
- One Cable/xDSL Modem that has an RJ-45 connector (not necessary if the Router is connected directly to the Ethernet.)
- PCs with a working Ethernet Adapter and an Ethernet cable with RJ-45 connectors
- PC of subscribers running Windows 98/ME, NT4.0, 2000/XP, Windows Vista / Win 7, MAC OS 9 or later, Linux, UNIX or other platform compatible with **TCP/IP** protocols
- The above PC is installed with Web browser

Note

1. The Router in the following instructions is named as PLANET VC-230 / VC-230N
2. It is recommended to use Internet Explore 7.0 or above to access the Router.

3.2 Installing the Router

Please connect the device to you computer as follow:

- Connect your telephone to the “Phone” Port via RJ-11 telephone line.
- Use another telephone cable to connect “VDSL” port of the router. And connect the other side to your CO side devices, such as VDSL 2 DSLAM, VDSL 2 Switch, or another VDSL2 ROUTER with CO mode.
- Use Ethernet cable to connect “LAN” port of the modem and “LAN” port of your computer.
- Connect Power Adapter to VC-230/VC-230N. Figure3-1, Figure3-2 show the power adapter connection diagram.

Figure 3-1: VC-230 Power Adapter Connection Diagram

Figure 3-2: VC-230N Power Adapter Connection Diagram

- Locate the VC-230N in an optimum place and adjust the antenna for the best coverage. Figure 3-3 shows the antenna connection diagram. (VC-230N only)

Figure 3-3: VC-230N Antenna Adjustment Diagram

- Follow Figure 3-4, Figure 3-5 to connect the network devices.

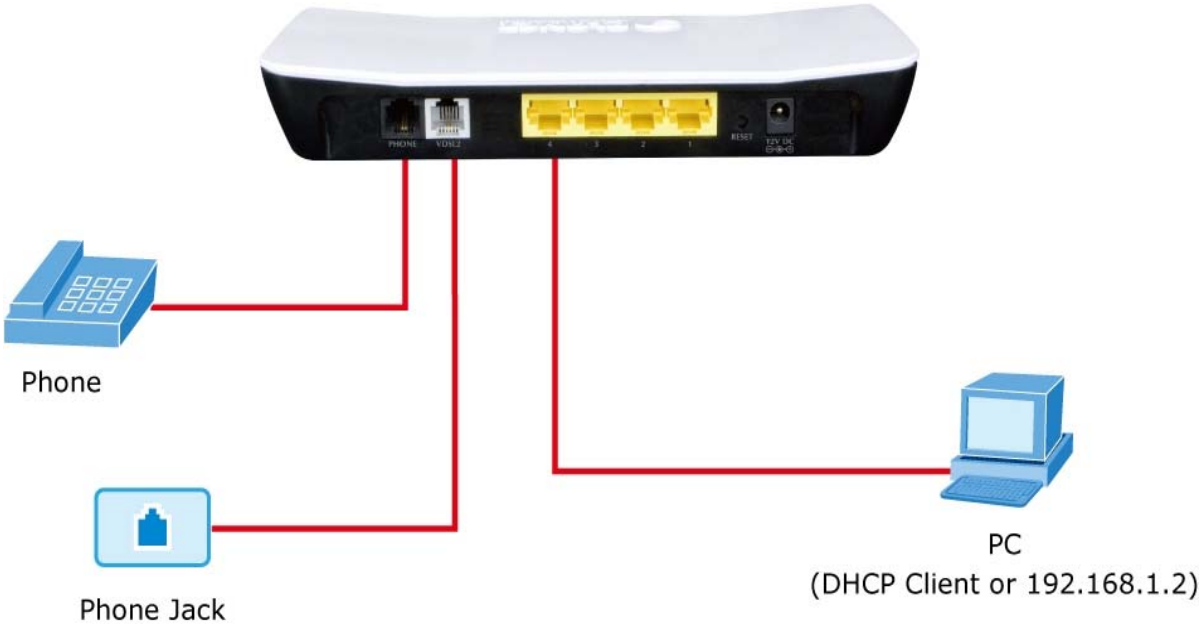


Figure 3-4: VC-230 Connection Diagram

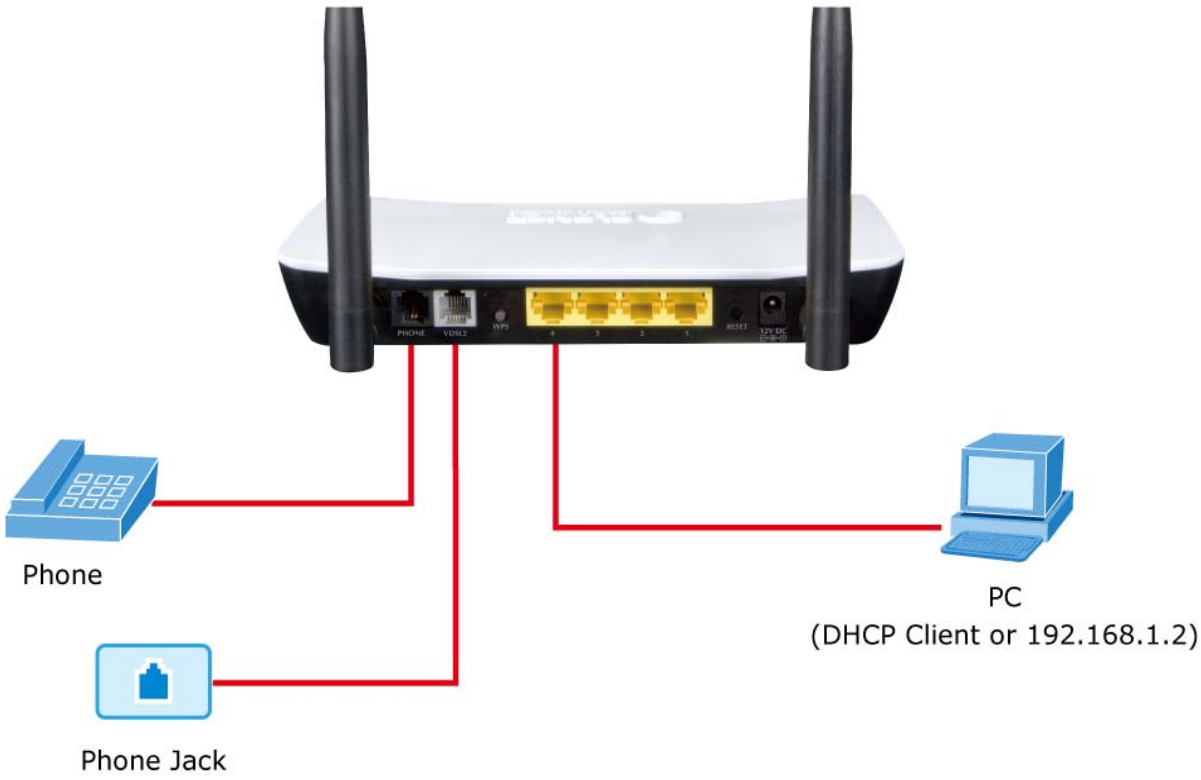


Figure 3-5: VC-230N Connection Diagram

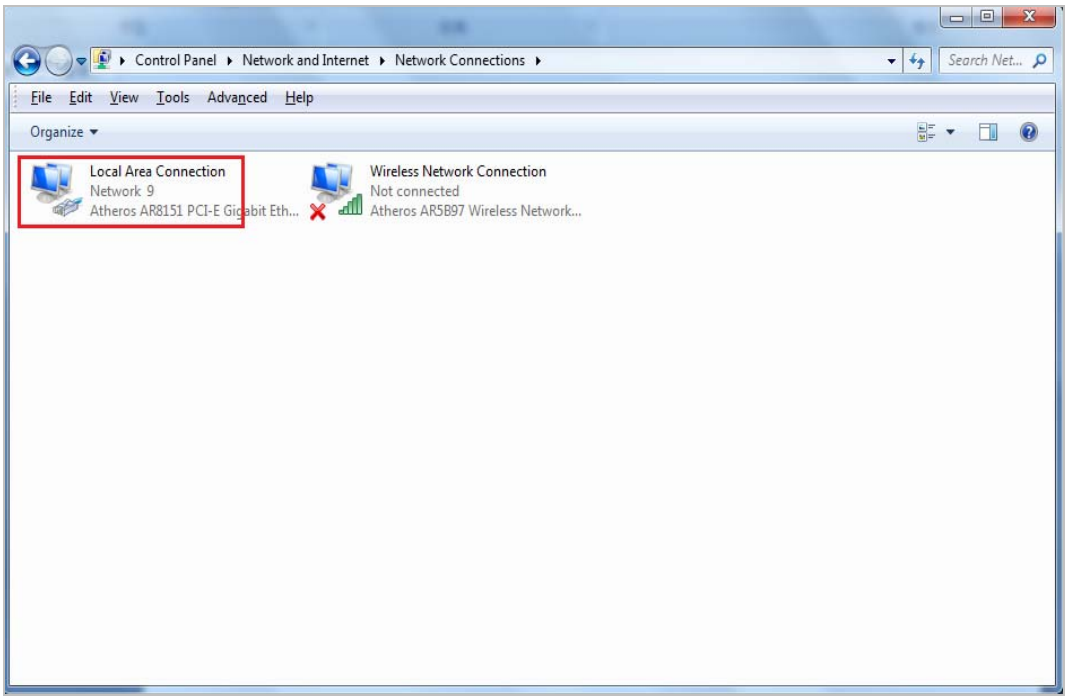
Chapter 4. Installation Guide

4.1 Configuring the Network Properties

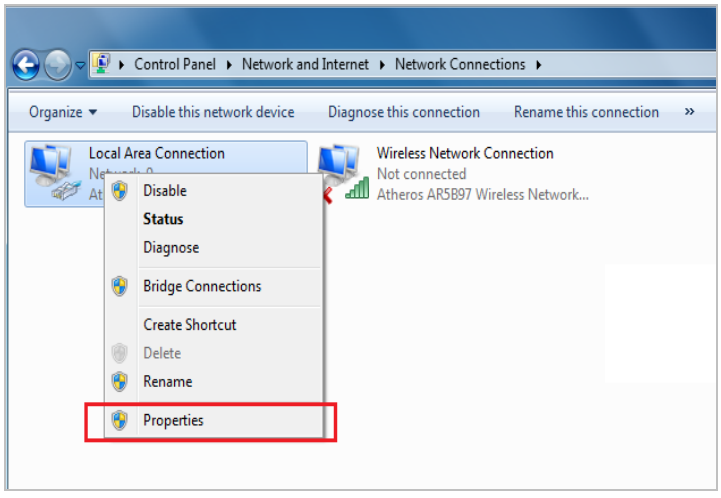
Configuring PC in Windows 7

1. Go to **Start / Control Panel / Network and Internet / Network and Sharing Center**. Click **Change adapter settings** on the left banner.

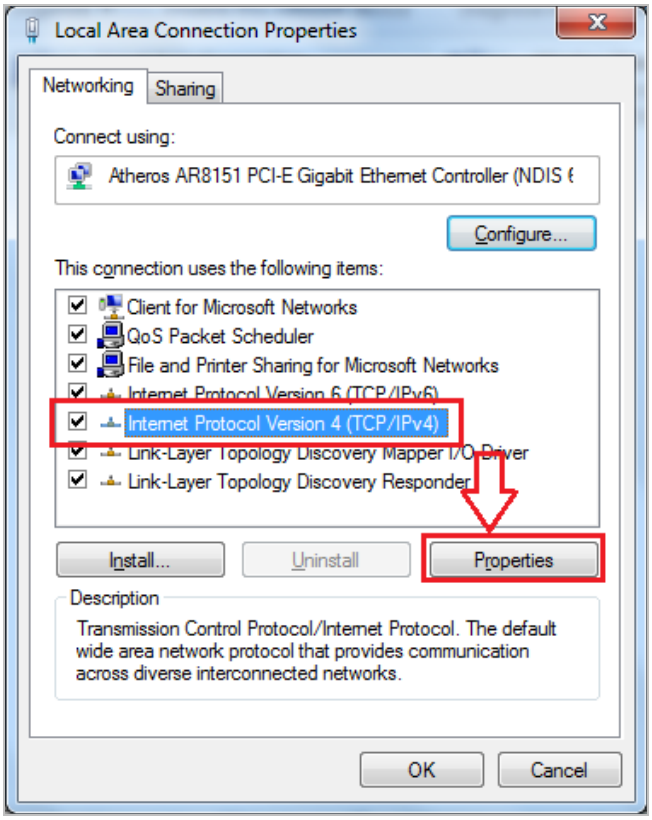
2. Double-click **Local Area Connection**.



3. In the **Local Area Connection Status** window, click **Properties**.

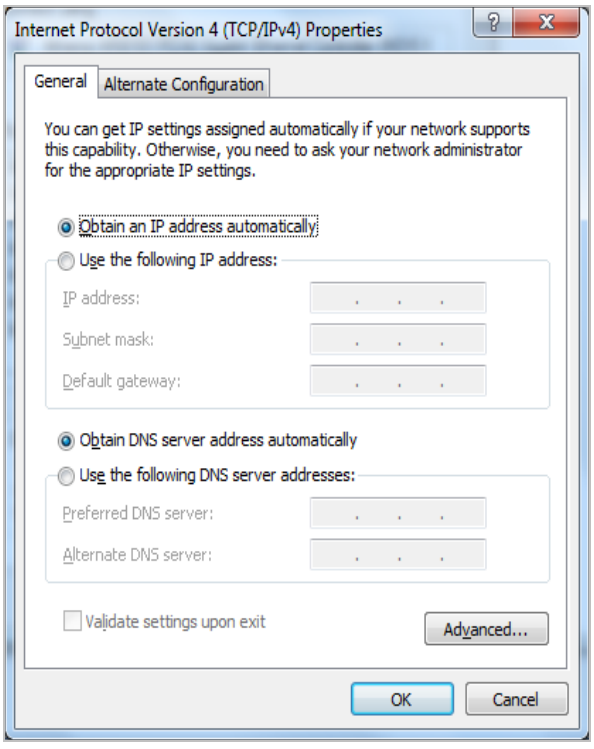


4. Select **Internet Protocol Version 4 (TCP/IPv4)** and **click Properties**.



5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** button.

6. Click **OK** to finish the configuration.

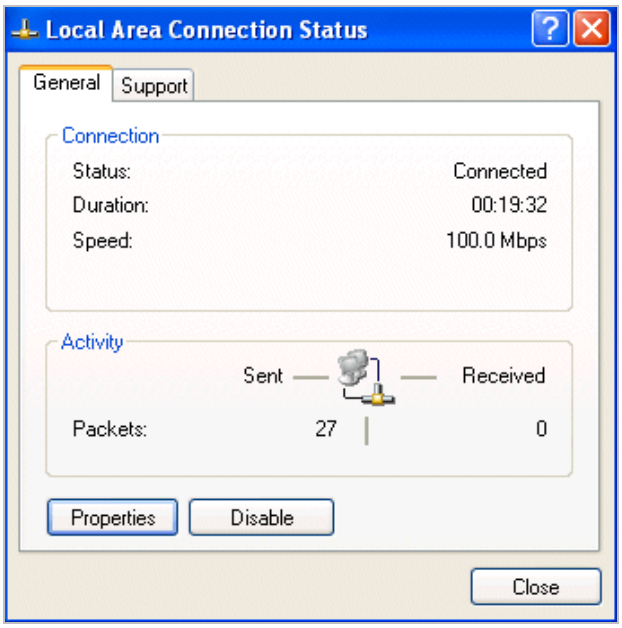


Configuring PC in Windows XP

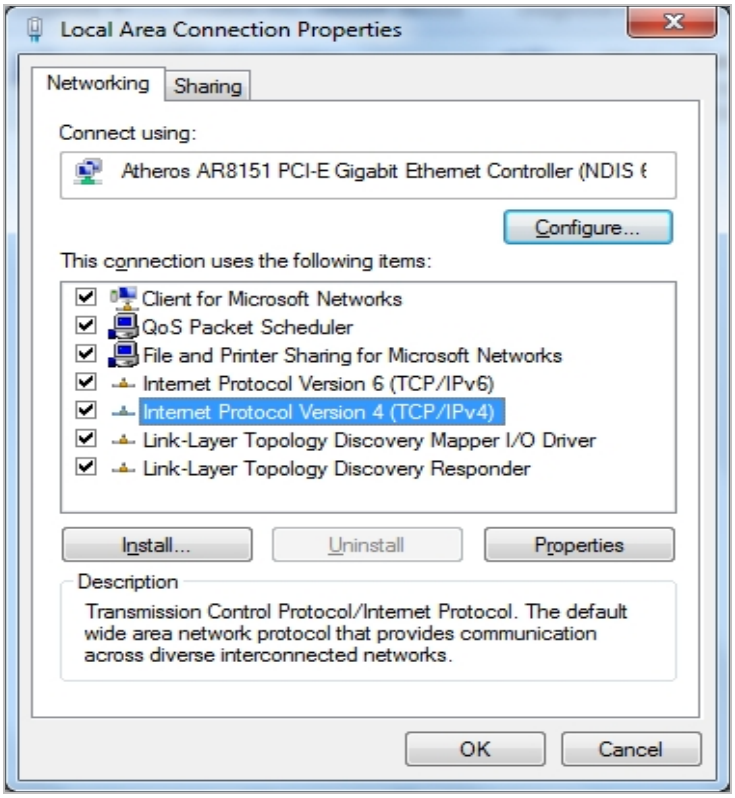
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**

2. Double-click **Local Area Connection**.

3. In the **Local Area Connection Status** window, click **Properties**.

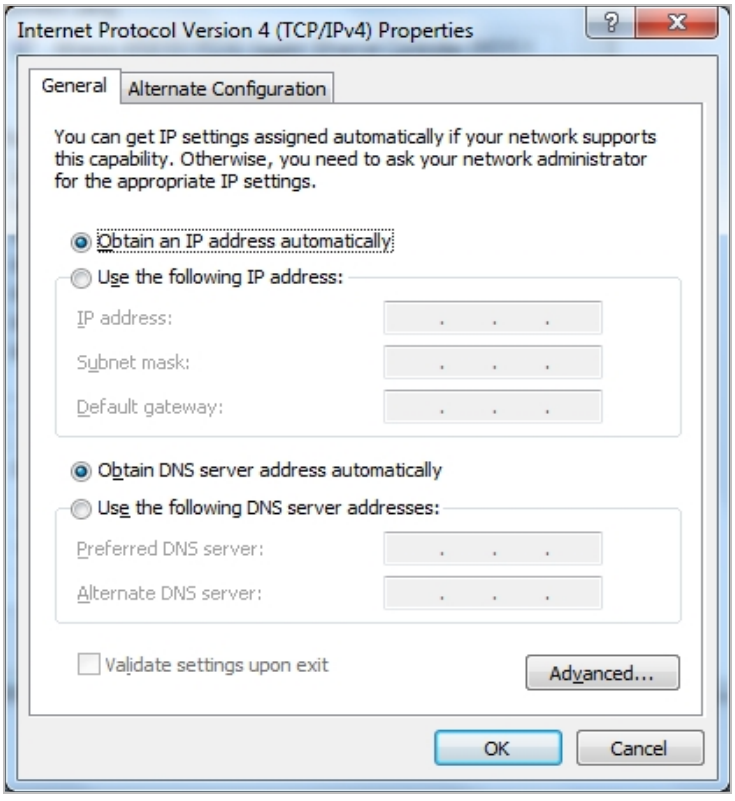


4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** button.

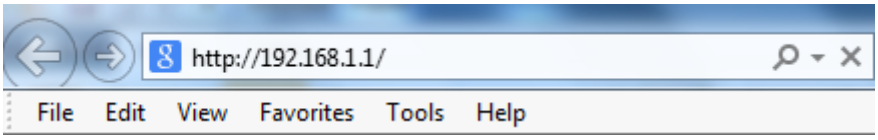
6. Click **OK** to finish the configuration.



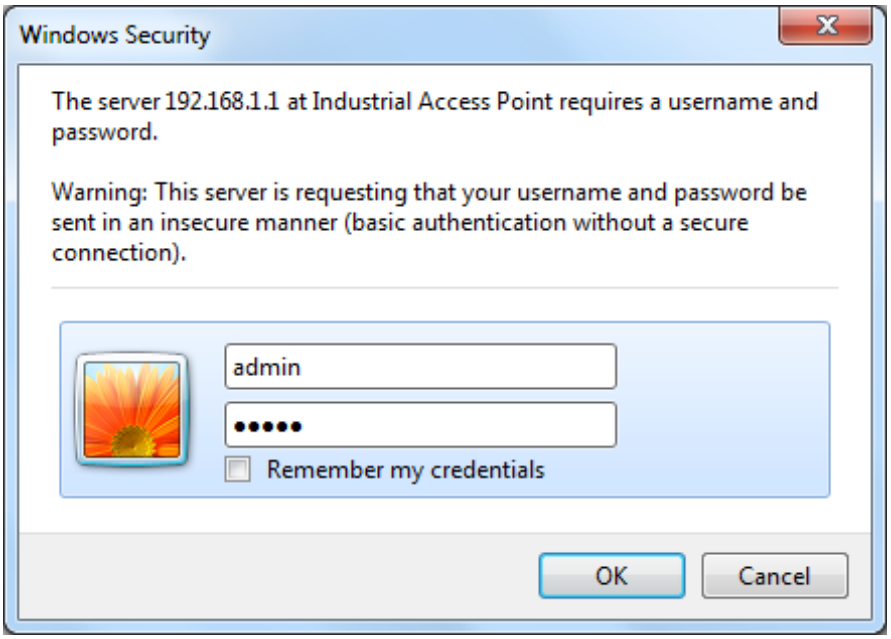
4.2 Configuring with Web Browser

It would be better to change the administrator password to safeguard the security of your network. To configure the router, open your browser, type **"http: //192.168.1.1"** into the address bar and click **"Go"** to get to the login page.

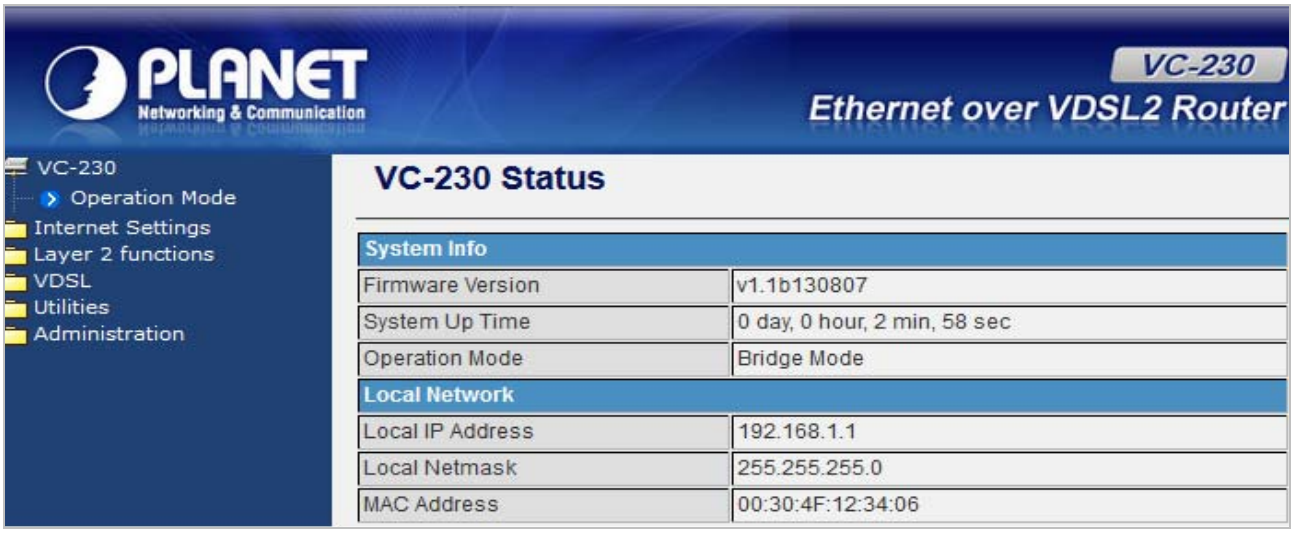
Save this address in your Favorites for future reference.



At the User Name and Password prompt, type your proper user name and password to login. The default user name / password are **"admin / admin"**. You can change these later if you wish. Click **"OK"**.



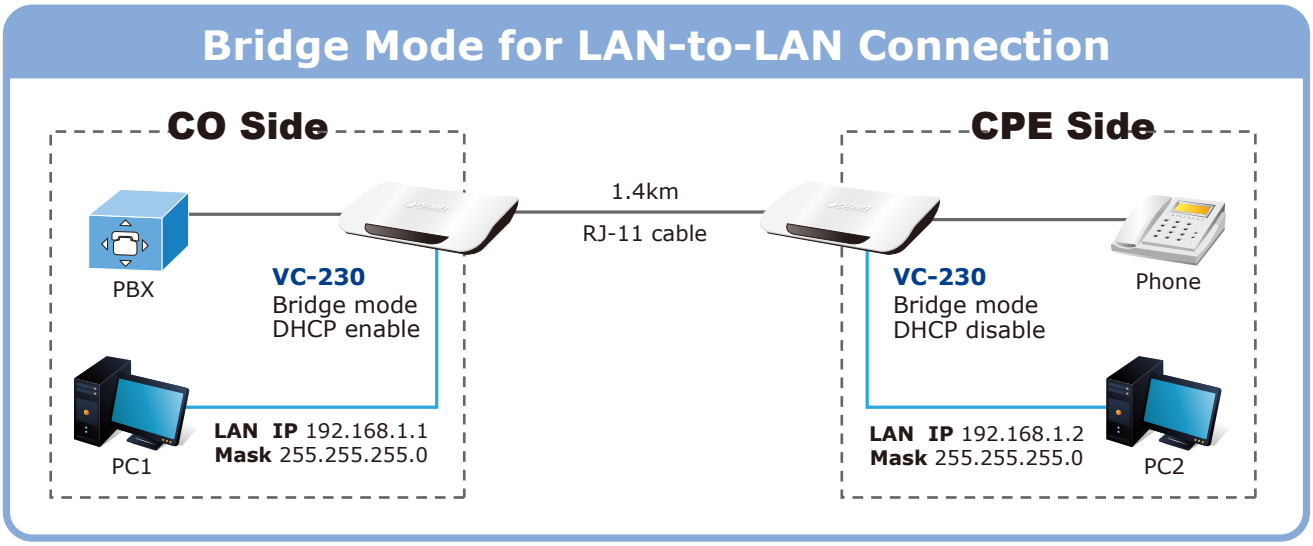
If the user name and password are correct, you will login VDSL2 ROUTER successfully and see the status page. Now you can configure the VDSL2 ROUTER for your needs.



4.3 Applications

The VDSL2 ROUTER supports two modes; users can select Router or Bridge mode for your applications. Please check below examples for more details.

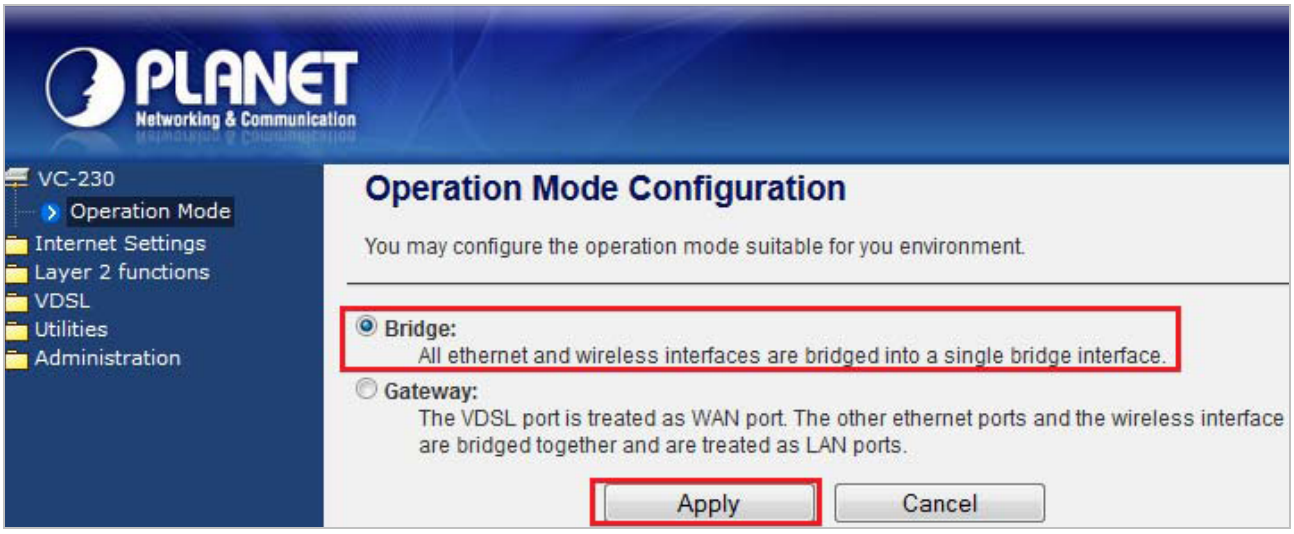
4.3.1 Bridge Mode for LAN-to-LAN connection



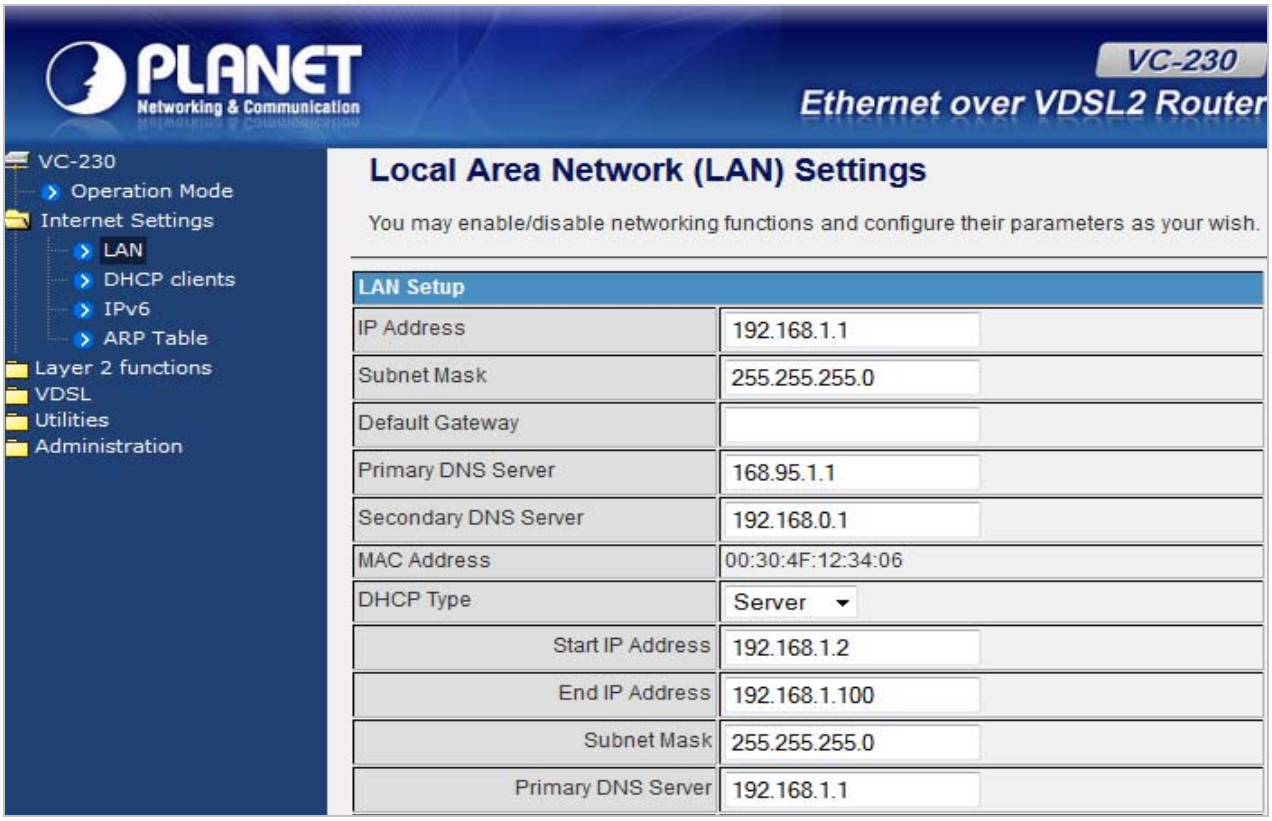
Web UI Configuration

For VDSL2 ROUTER CO Side

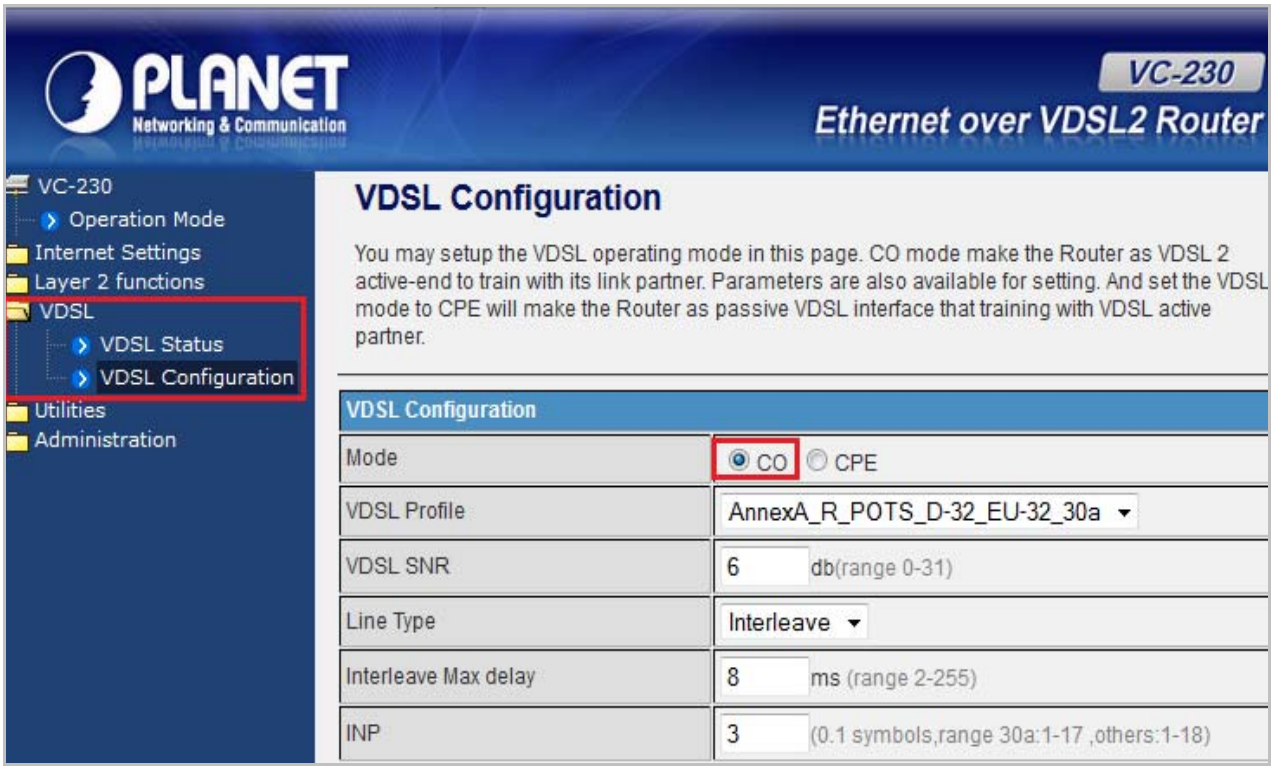
Step 1: Select the Bridge mode.



Step 2: Set up your LAN IP; for example, we use 192.168.1.1 / 255.255.255.0 and enable DHCP server for VDSL2 ROUTER CO side.

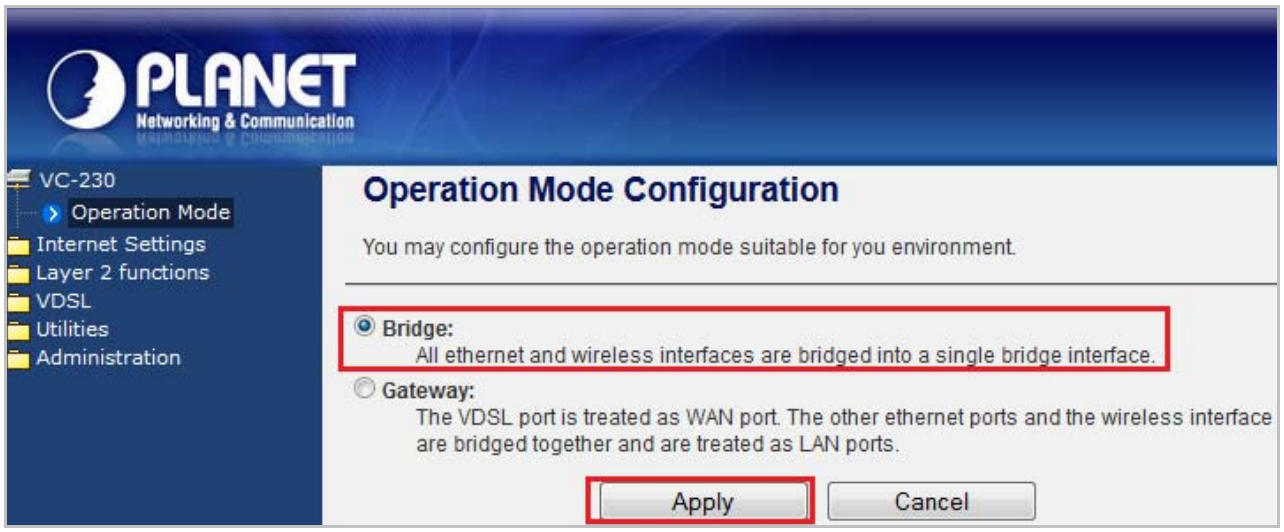


Step 3: Modify your VDSL mode. Select the CO mode.

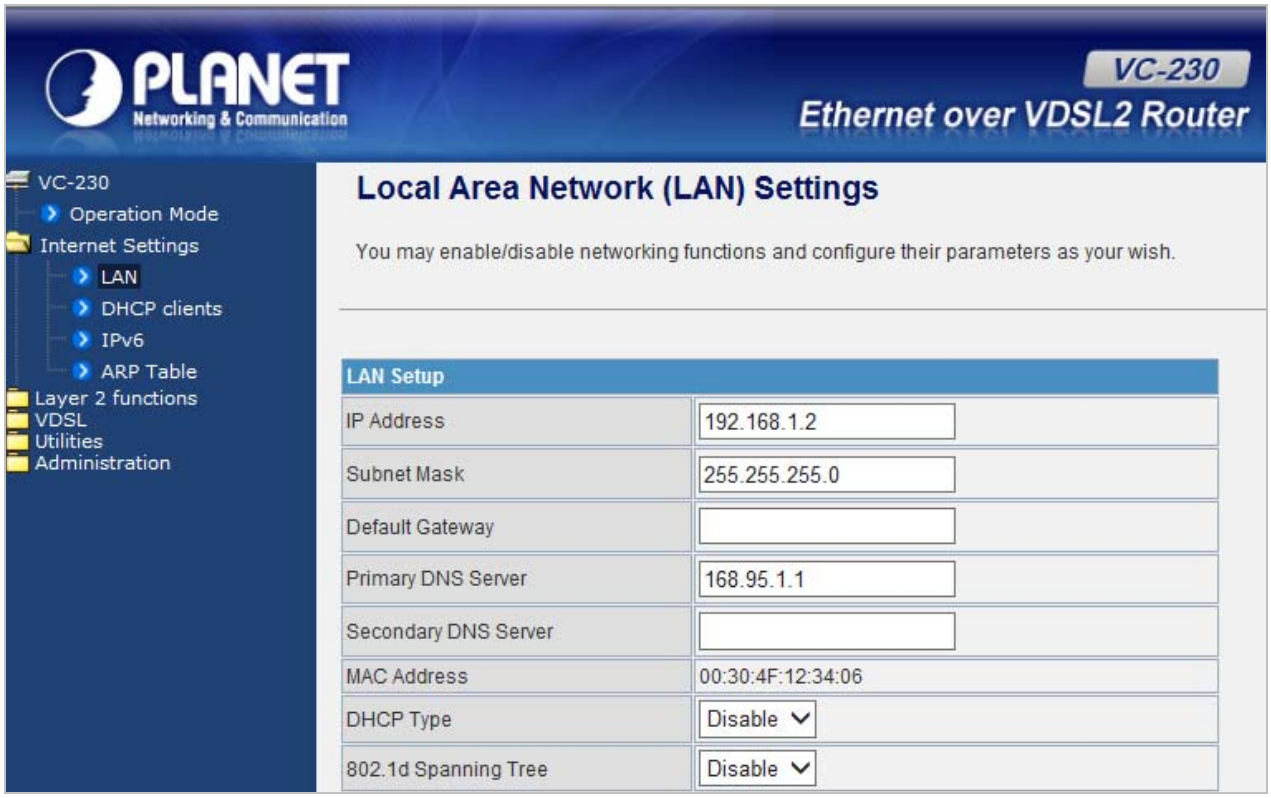


For VDSL2 ROUTER CPE Side

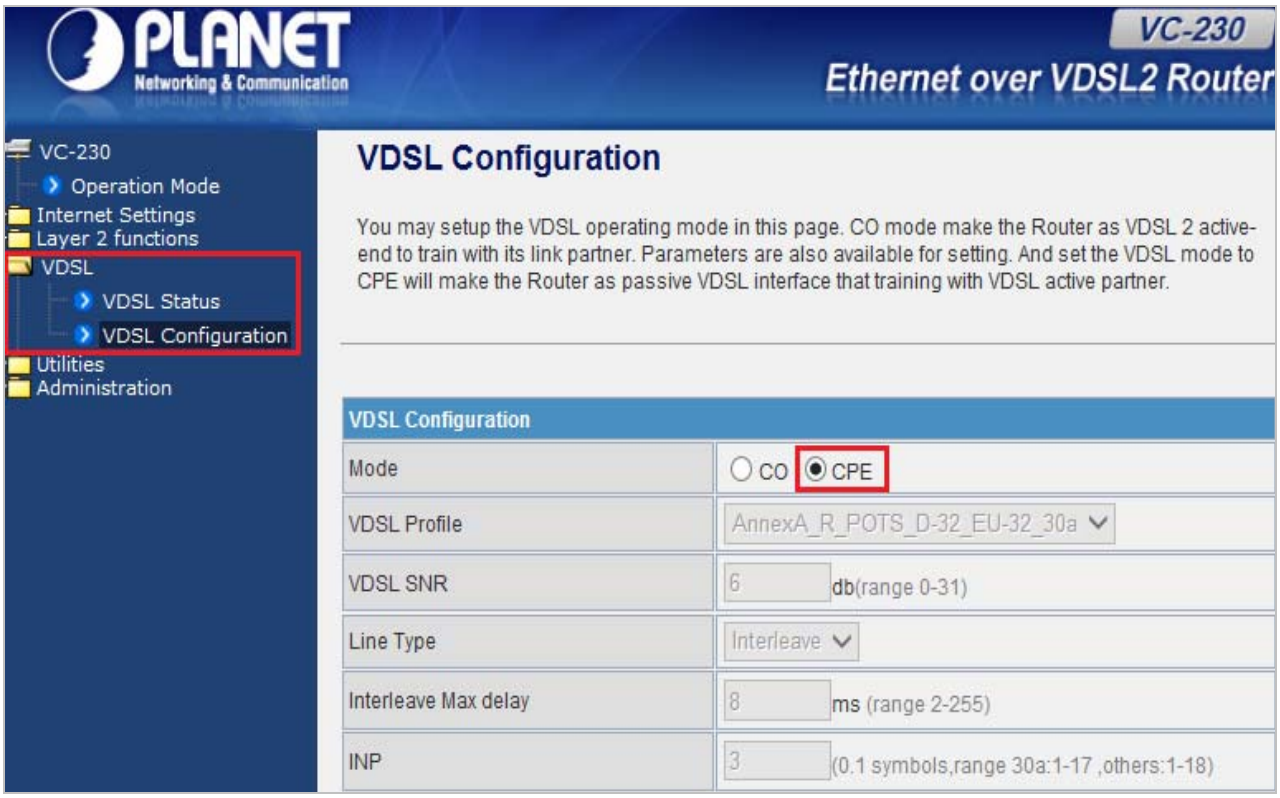
Step 1: Select the Bridge mode.



Step 2: Set up your LAN IP; for example, we use the 192.168.1.2 / 255.255.255.0 and disable DHCP server for VDSL2 ROUTER CPE side.

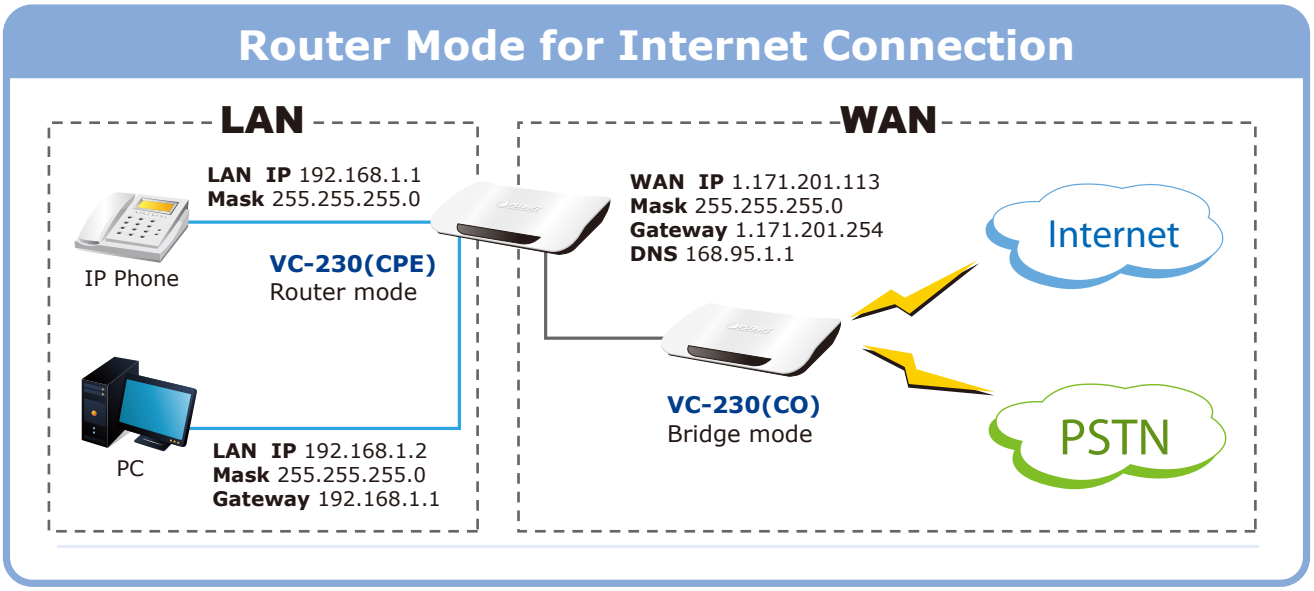


Step 3: Modify your VDSL mode to CPE mode.



After setting, the DSL line will try to establish the connection between the two VDSL2 ROUTERS. You can check the DSL LEDs. When the LED stops flashing and is steady, the VDSL2 ROUTER will establish a connection and the PC1 and PC2 can access to each other.

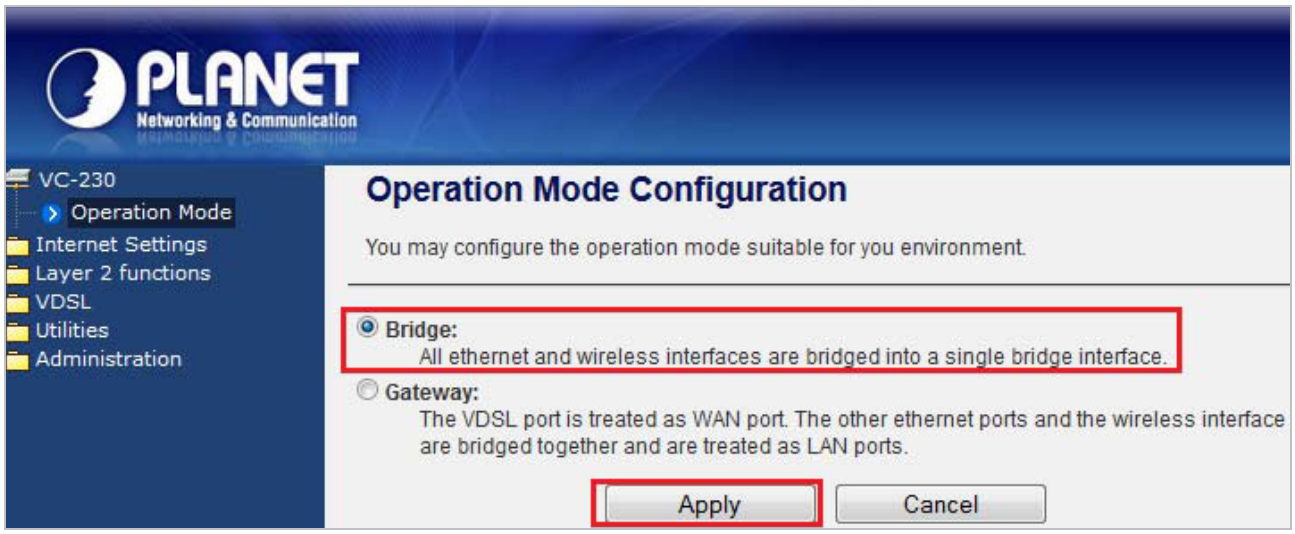
4.3.2 Router Mode for Internet Connection



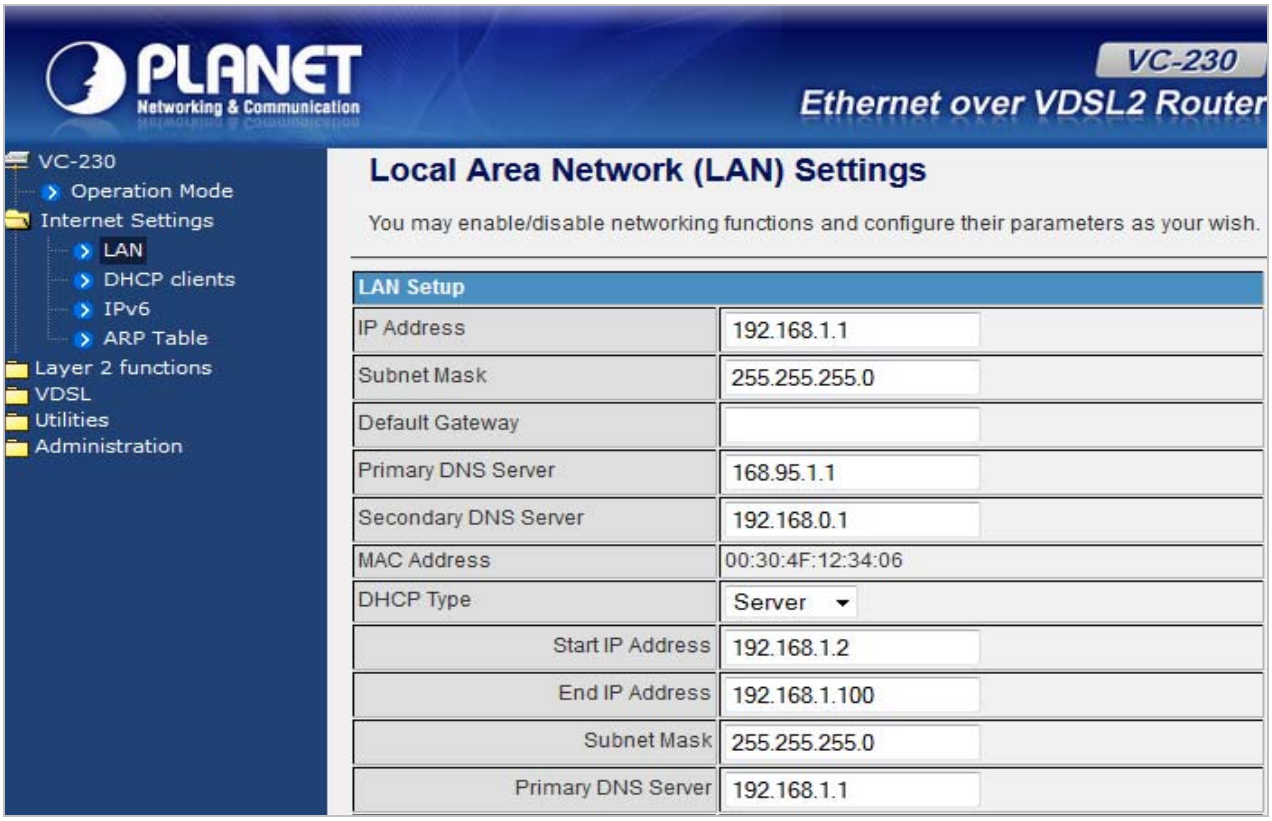
Web UI Configuration

For VDSL2 ROUTER CO Side

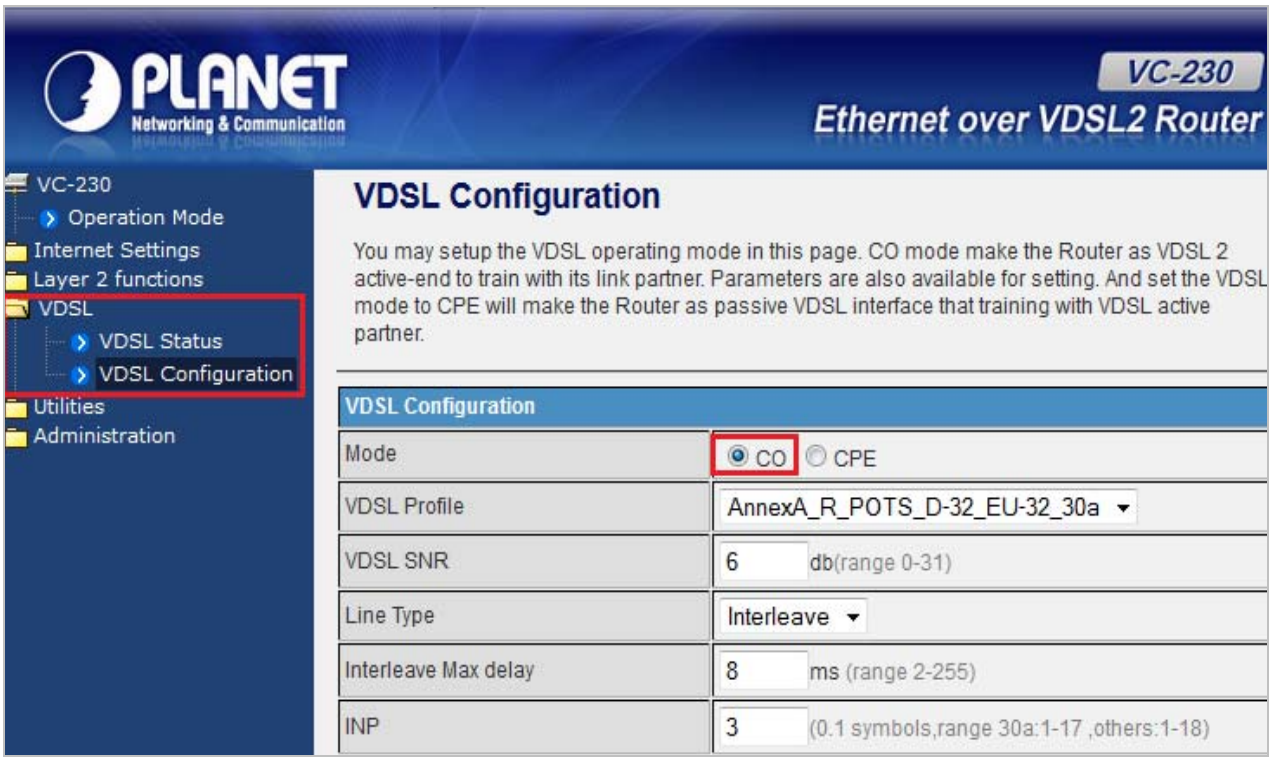
Step 1: Select the Bridge mode.



Step 2: Set up your LAN IP; for example, we use the 192.168.1.1 / 255.255.255.0 for VDSL2 ROUTER CO side.

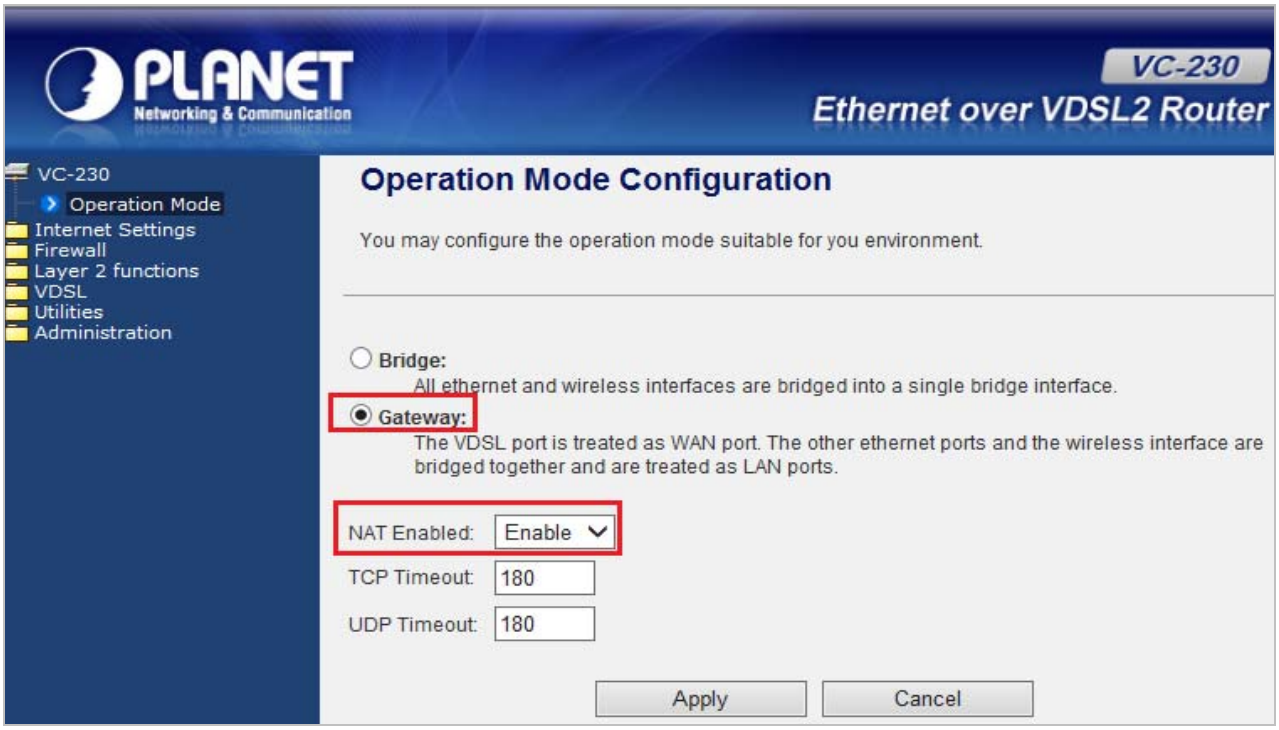


Step 3: Modify your VDSL mode; default is CPE mode. Select the VDSL CO mode.

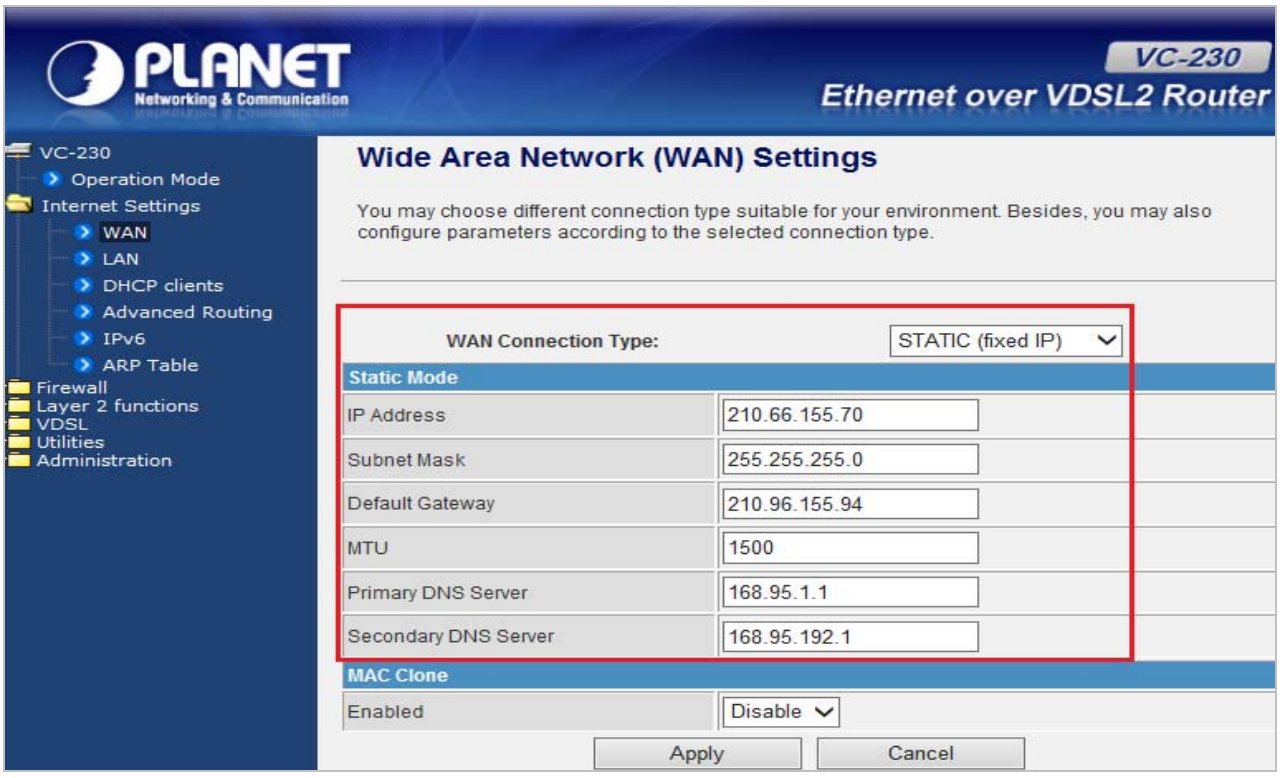


For VDSL2 ROUTER CPE Side

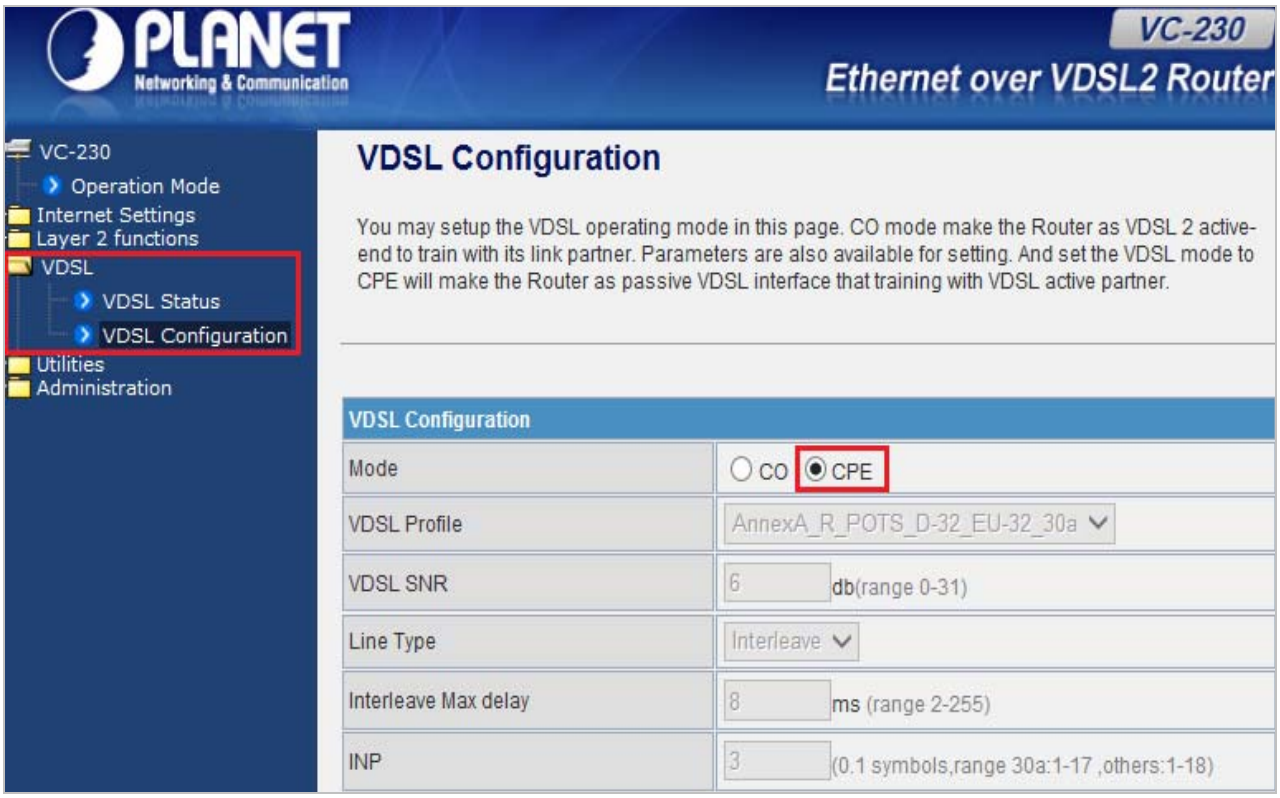
Step 1: Select the Router mode and enable the NAT.



Step 2: Configure your WAN settings, type your WAN IP, Mask, Gateway and DNS.

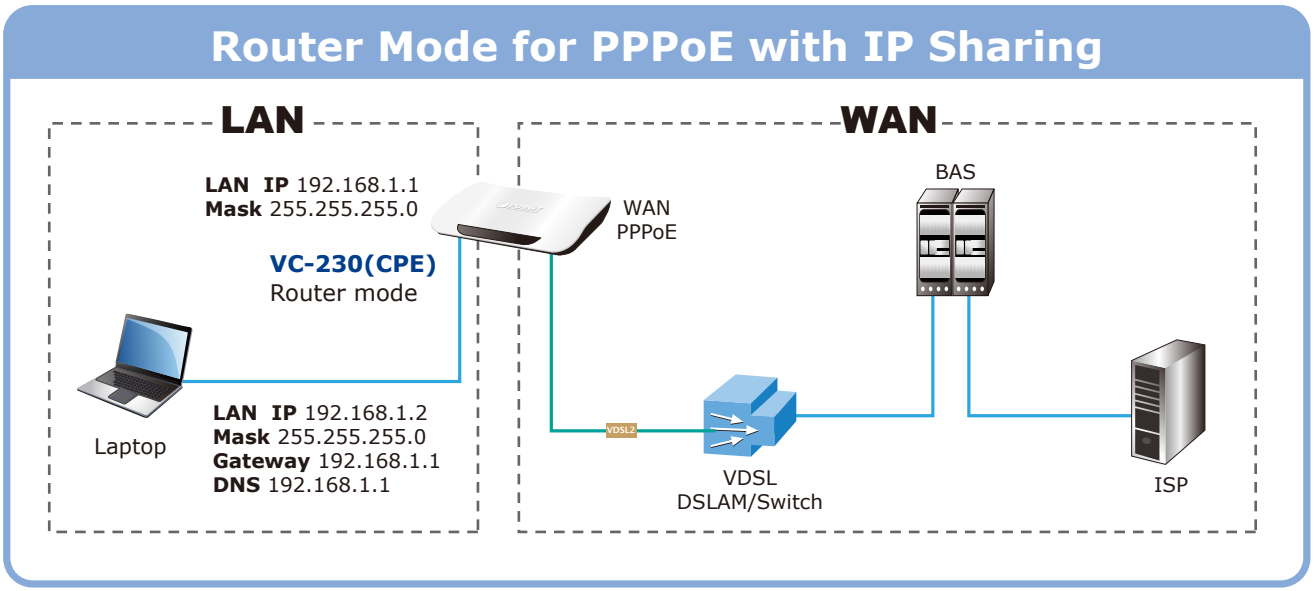


Step 3: Modify your VDSL mode; default is CPE mode.



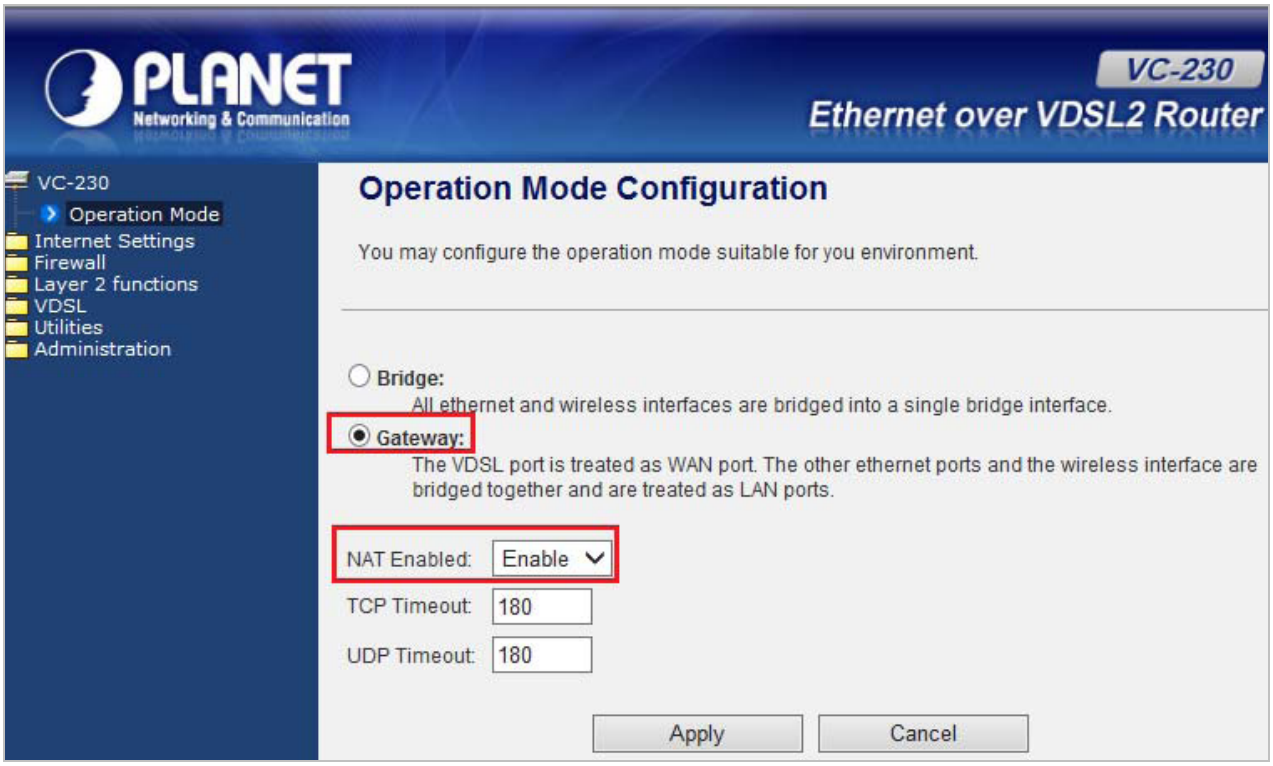
After setting, the DSL line will try to establish the connection between the two VDSL2 ROUTERS. You can check the DSL LED. When the LED stops flashing and is steady, the VDSL2 ROUTER will establish a connection and the PC can access to Internet through VDSL connection.

4.3.3 Router Mode for PPPoE with IP Sharing

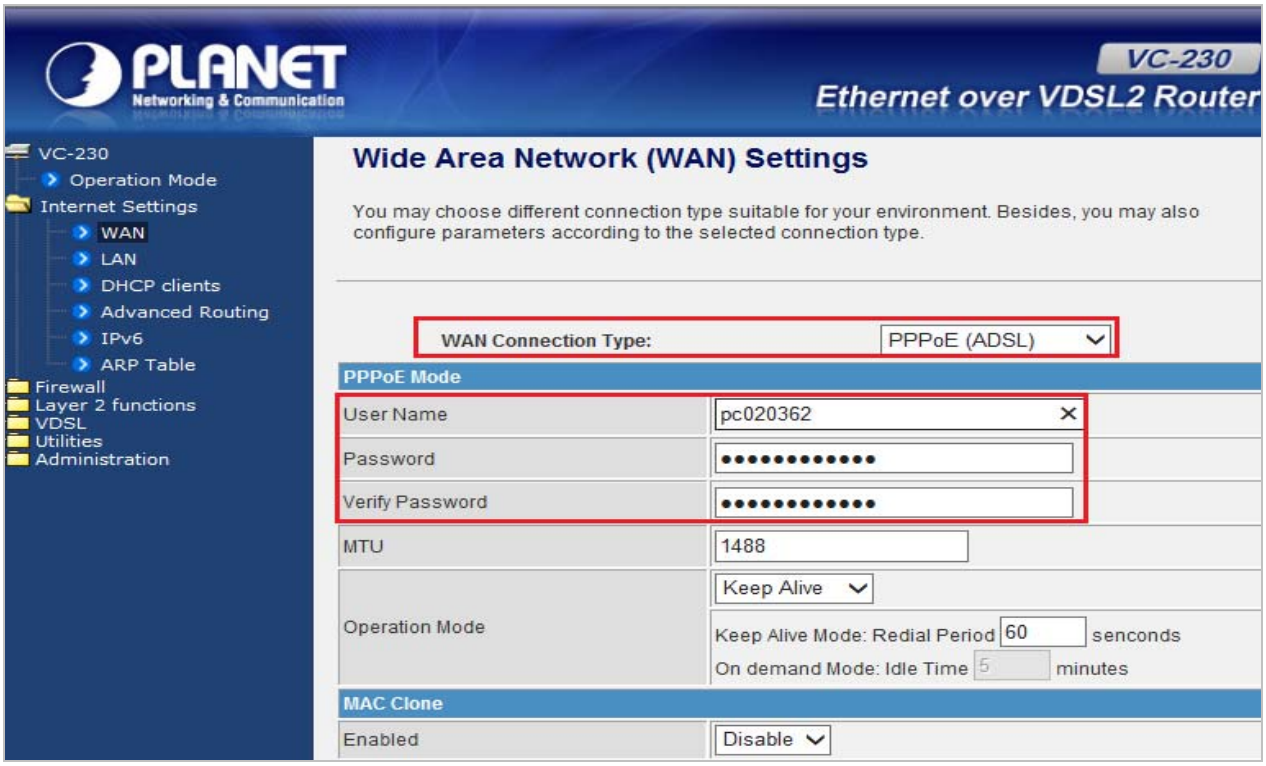


Web UI Configuration

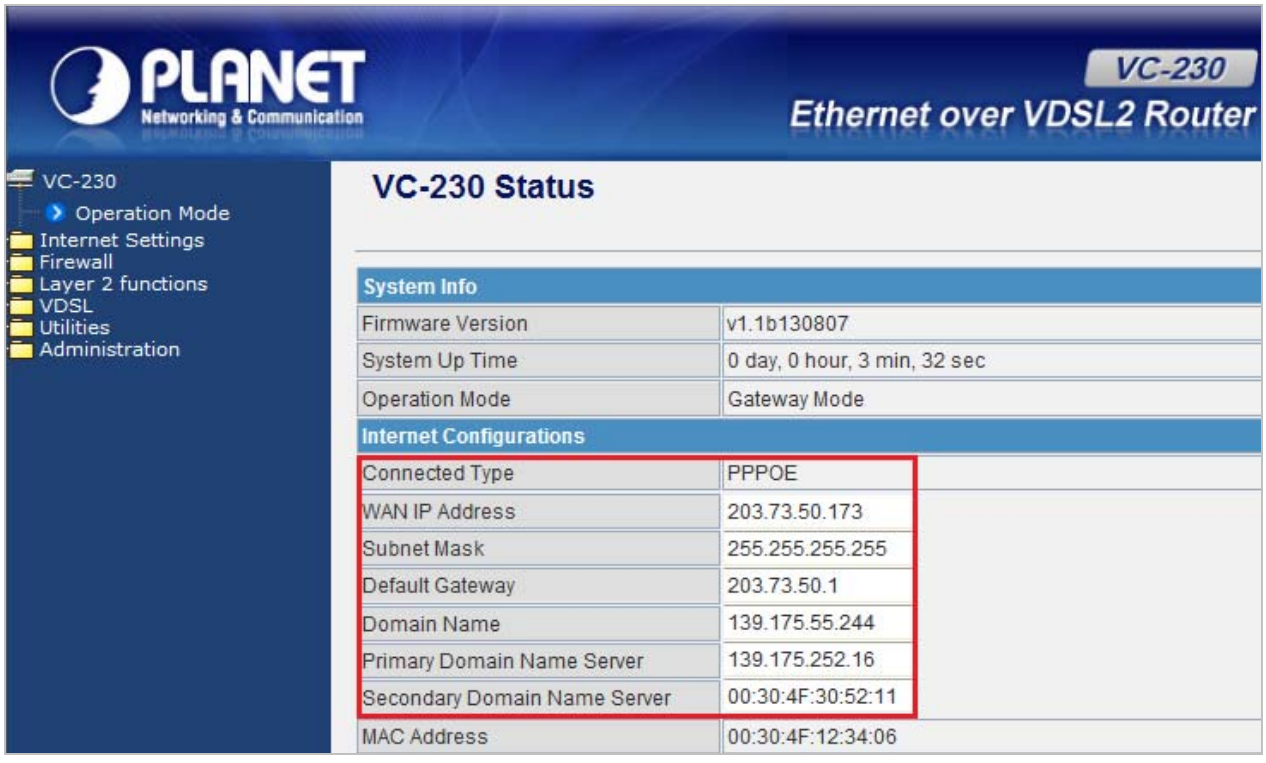
Step 1: Select the Router mode and enable the NAT.



Step 2: Configure your WAN settings, select the PPPoE connection type and enter your PPPoE user name and password.



Step 3: When the PPPoE connection is OK, the PC will access to Internet through PPPoE connection.



Chapter 5. System Settings

Determine your Connection Settings

Before you configure the router, you need to know the connection information supplied by your Internet service provider.

Connecting the VDSL 2 Router to your Network

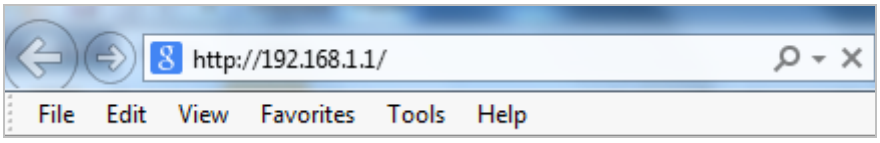
Unlike a simple hub or switch, the setup of the VDSL Router consists of more than simply plugging everything together. Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign them.

Generally there are several different operating modes for your applications. And you can know which mode is necessary for your system from ISP. These modes are router, bridge, and PPPoE+NAT.

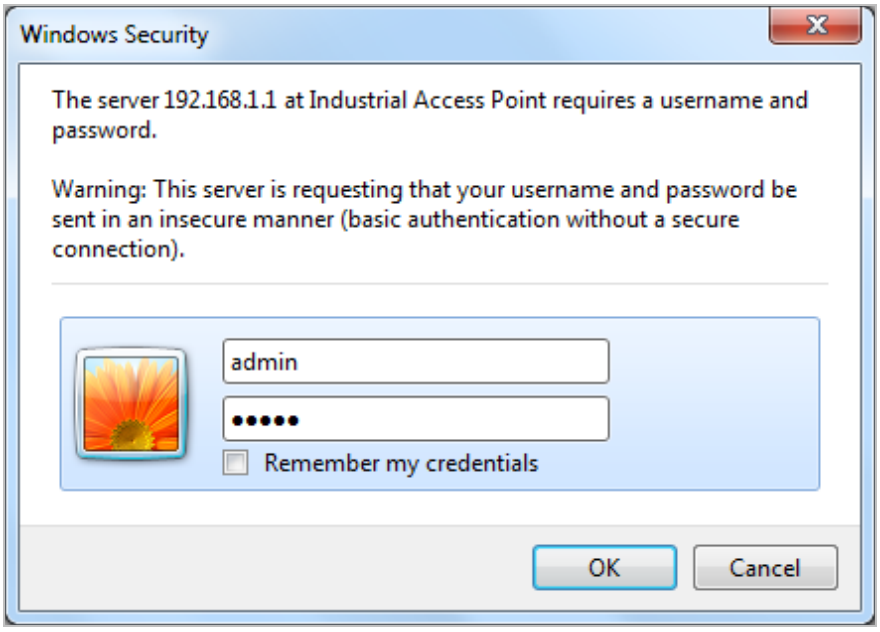
Configuring with Web Browser

It is advisable to change the administrator password to safeguard the security of your network. To configure the router, open your browser, type **"http: //192.168.1.1"** into the address bar and click **"Go"** to get to the login page.

Save this address in your Favorites for future reference.



At the User Name prompt, type **"admin"**, and the Password prompt, type **"admin"**. You can change these later if you wish. Click **"OK"** to login the router and you can start to configure it now.


Windows Security
The server 192.168.1.1 at Industrial Access Point requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
admin
Remember my credentials
OK
Cancel

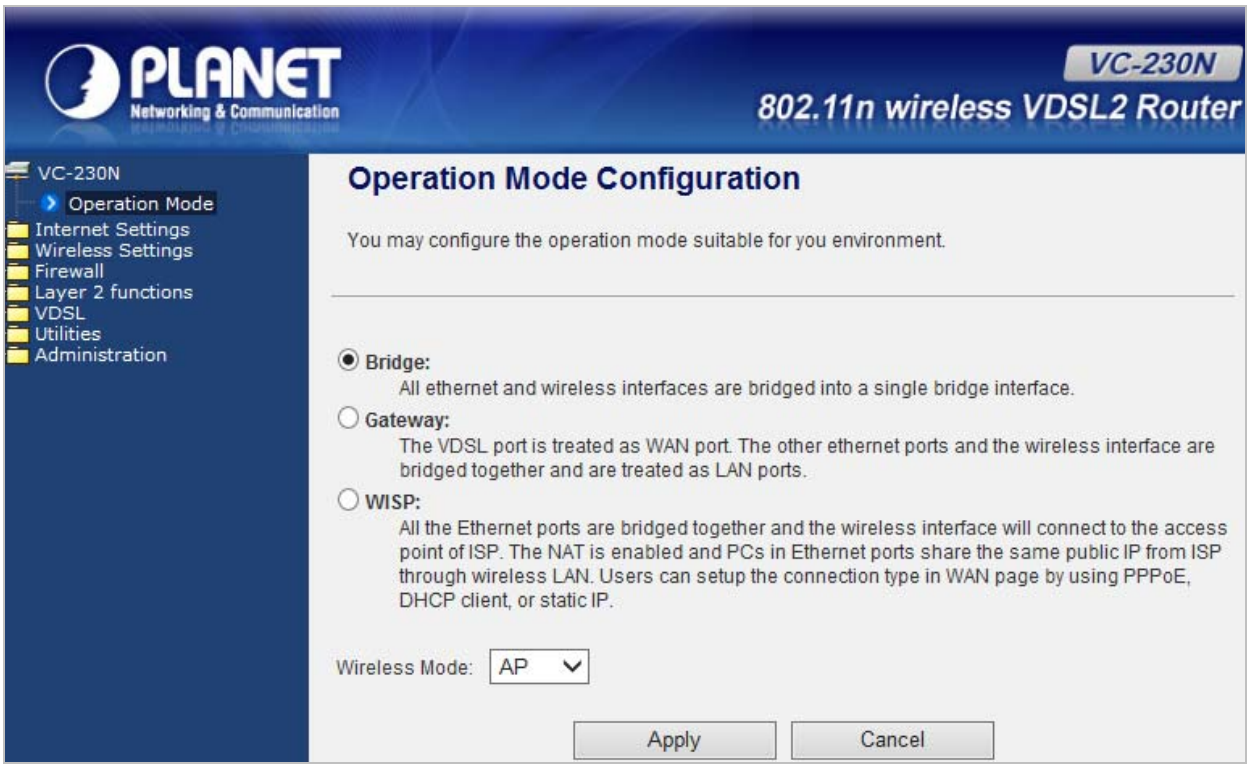
5.1 Operation Mode

The VC-230 supports two operation modes – Bridge and Gateway; the VC-230N supports three operation modes – Bridge, Gateway and WISP. Currently, the default setting is Gateway mode.

Please note that Bridge mode and Gateway mode cannot be used simultaneously.
For **Bridge mode**, all interfaces are bridged into a single bridge interface.
For **Gateway mode**, the VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

For **WISP Mode**, all the Ethernet ports (including VDSL2) are bridged together and the wireless interface of this router will come to WAN port for connecting to an ISP's Access Point as Internet connection. The NAT is enabled and PCs in Ethernet ports share the same IP to ISP through wireless LAN. The connection type can be set up on WAN page by using PPPoE, DHCP client, PPTP/L2TP client or static IP.

If you select **Bridge mode** and **WAN configuration** in Internet Settings that are not available, firewall functions on the left page are not available, either.

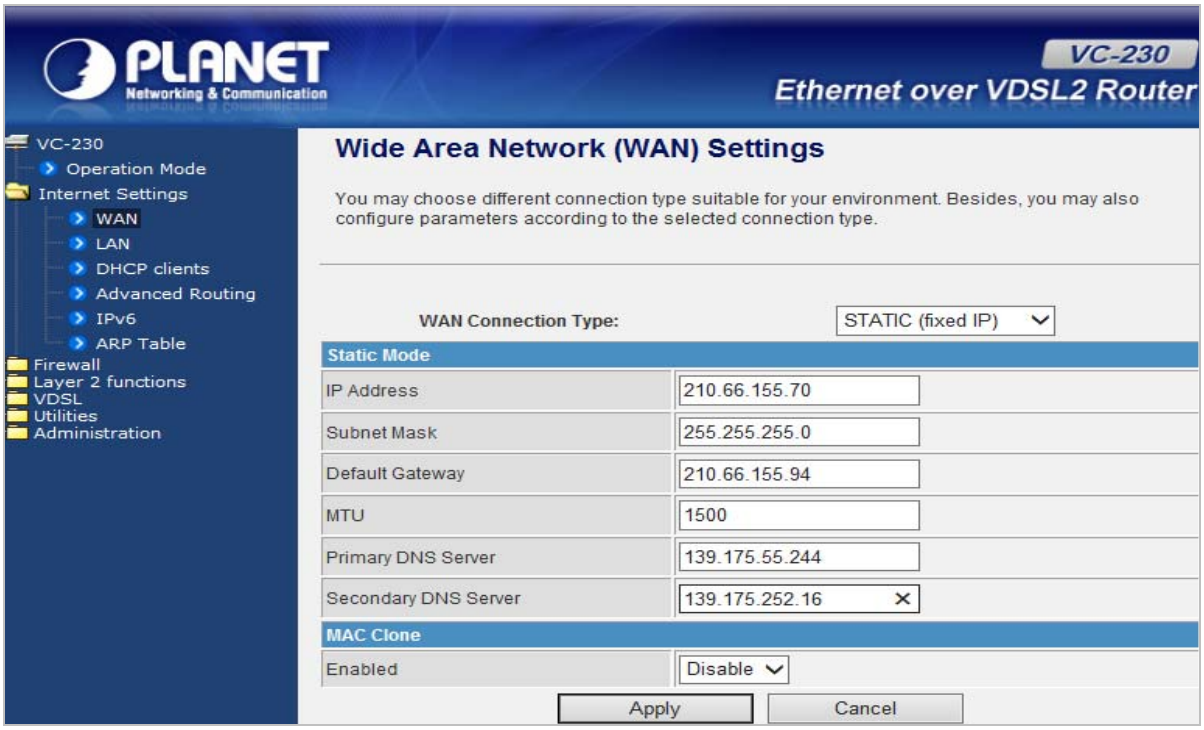


After finishing the settings, click **Apply** to save the settings and enable the new configuration to take effect. Click **Cancel** to close without saving.

5.2 Internet Settings

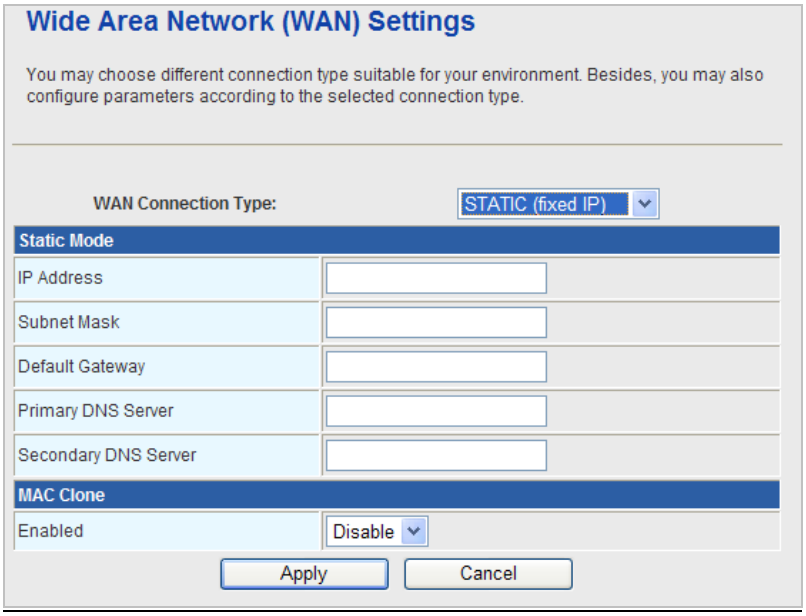
5.2.1 WAN

The WAN Settings screen allows you to specify the type of Internet connection. The WAN settings offer the following selections for the router's WAN port, STATIC (fixed IP), DHCP (Auto config), PPPoE, L2TP, and PPTP.



➢ STATIC (FIXED IP)

Select **STATIC (fixed IP)** in the **WAN Connection Type** drop-down list and the following page appears:

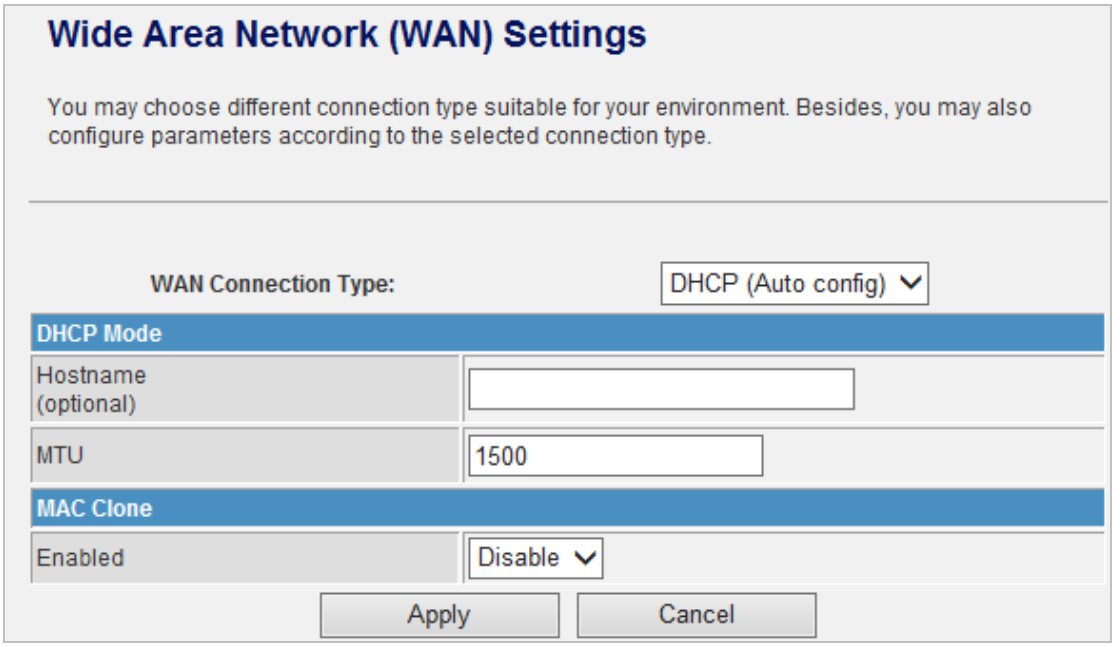


The page includes the following fields:

Object	Description
IP Address	Enter the IP address in dotted-decimal notation provided by your ISP.
Subnet Mask	Enter the subnet Mask in dotted-decimal notation provided by your ISP, usually is 255.255.255.0
Default Gateway	Enter the gateway IP address in dotted-decimal notation provided by your ISP.
Primary/Secondary DNS	Enter one or two DNS addresses in dotted-decimal notation provided by your ISP.
MAC Clone	Enable or disable MAC clone.

➢ DHCP (AUTO CONFIG)

Select **DHCP (Auto config)** in the **WAN Connection Type** drop-down list and the following page appears. If the WAN connection type is set to **DHCP**, the device automatically obtains the IP address, gateway and DNS address from the DHCP server on WAN interface.

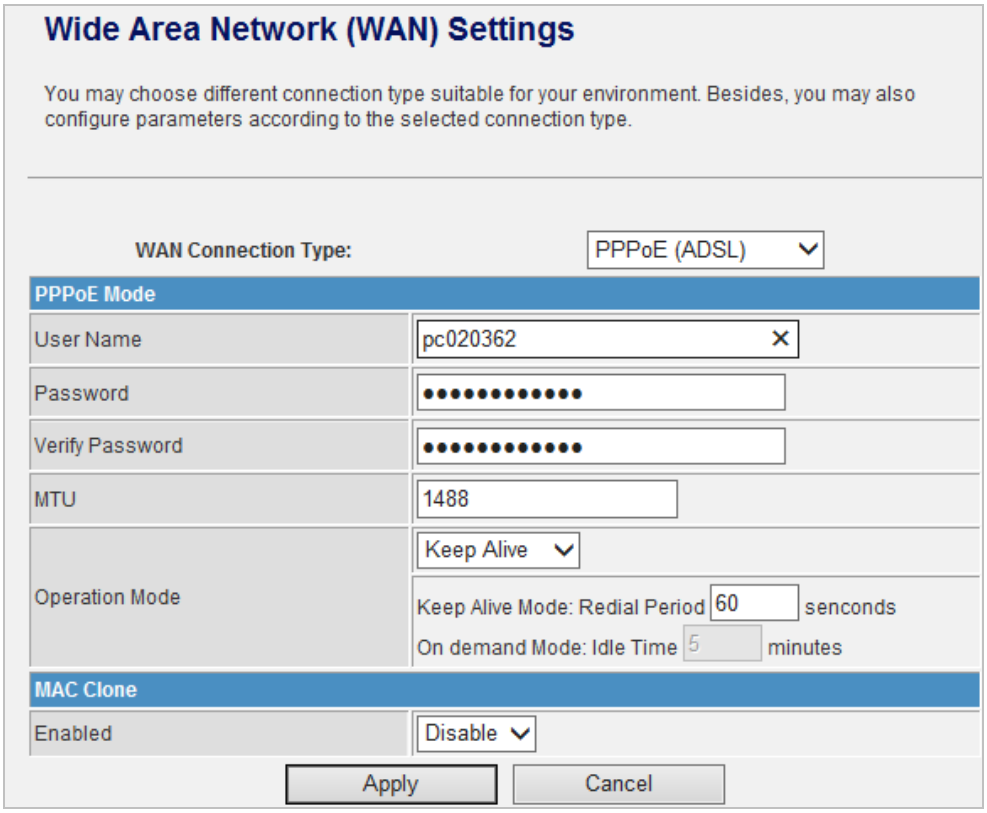


The page includes the following fields:

Object	Description
Host Name	This option specifies the Host Name of the Router.
MAC Clone	Enable or disable MAC clone.

➢ PPPOE

Select **PPPoE (ADSL)** in the **WAN Connection Type** drop-down list and the following page appears. If the WAN connection type is set to **PPPoE**, you can configure the following parameters to PPPoE dial up.



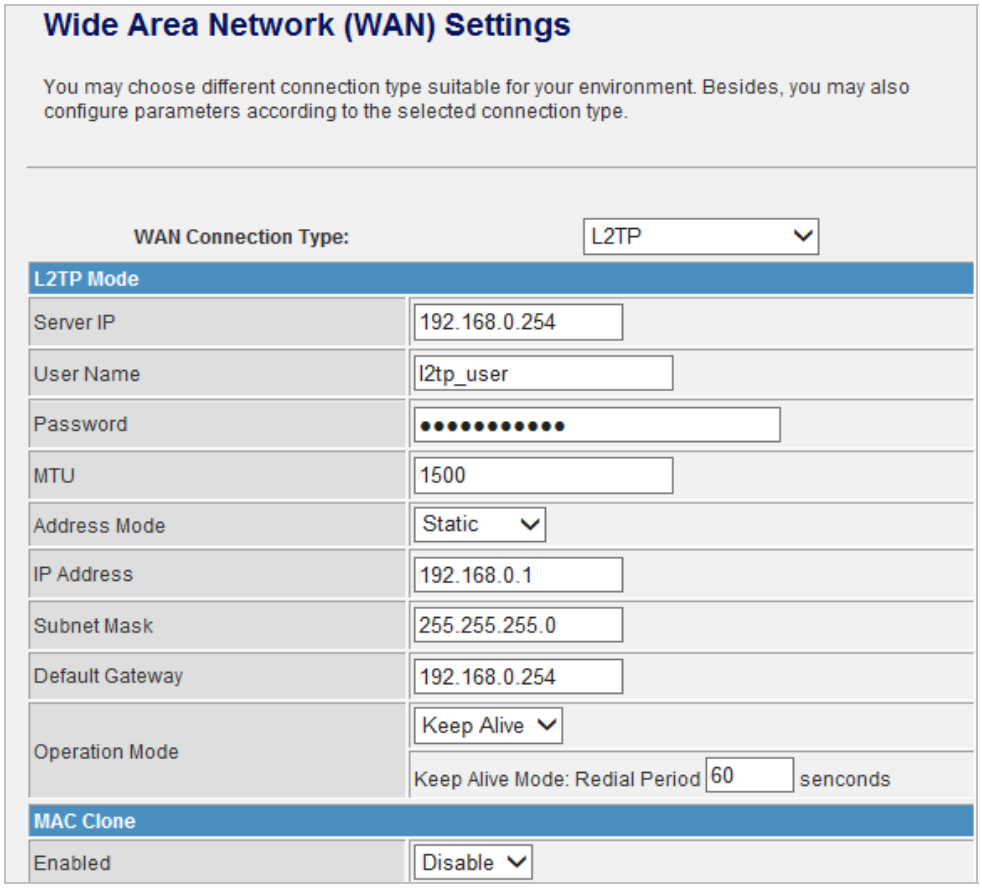
The page includes the following fields:

Object	Description
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Verify Password	Fill in the password again for verification.
Operation Mode	■ **Keep Alive:** Keep the PPPoE connection all the time. Please also configure the Redial Period field. ■ **On Demand:** Please configure the Idle Time field. When time is up, the PPPoE connection will disconnect. The connection will re-connect when any outgoing packet arise. ■ **Manual:** Close all function.
MAC Clone	Enable or disable MAC clone.

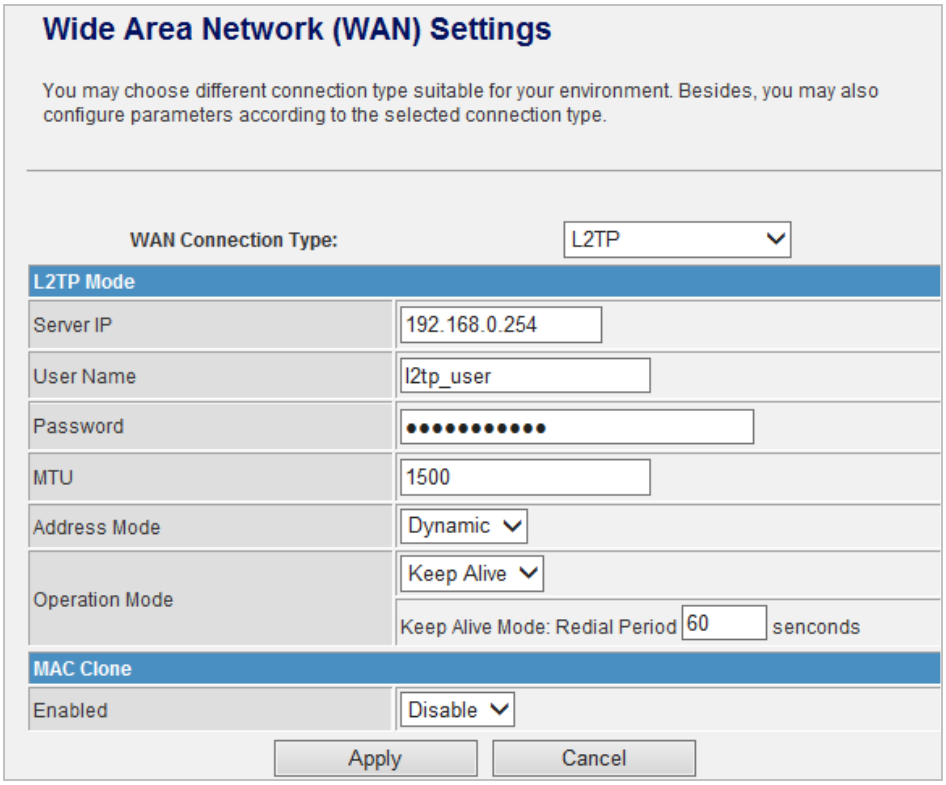
➢ L2TP

Select **L2TP** in the **WAN Connection Type** drop-down list and the following page appears. There are two address modes: **Static** and **Dynamic**.

1. If you select **Static** in the **Address Mode** field, the page shown in the following figure appears:



2. If you select **Dynamic** in the **Address Mode** field, the page shown in the following figure appears:

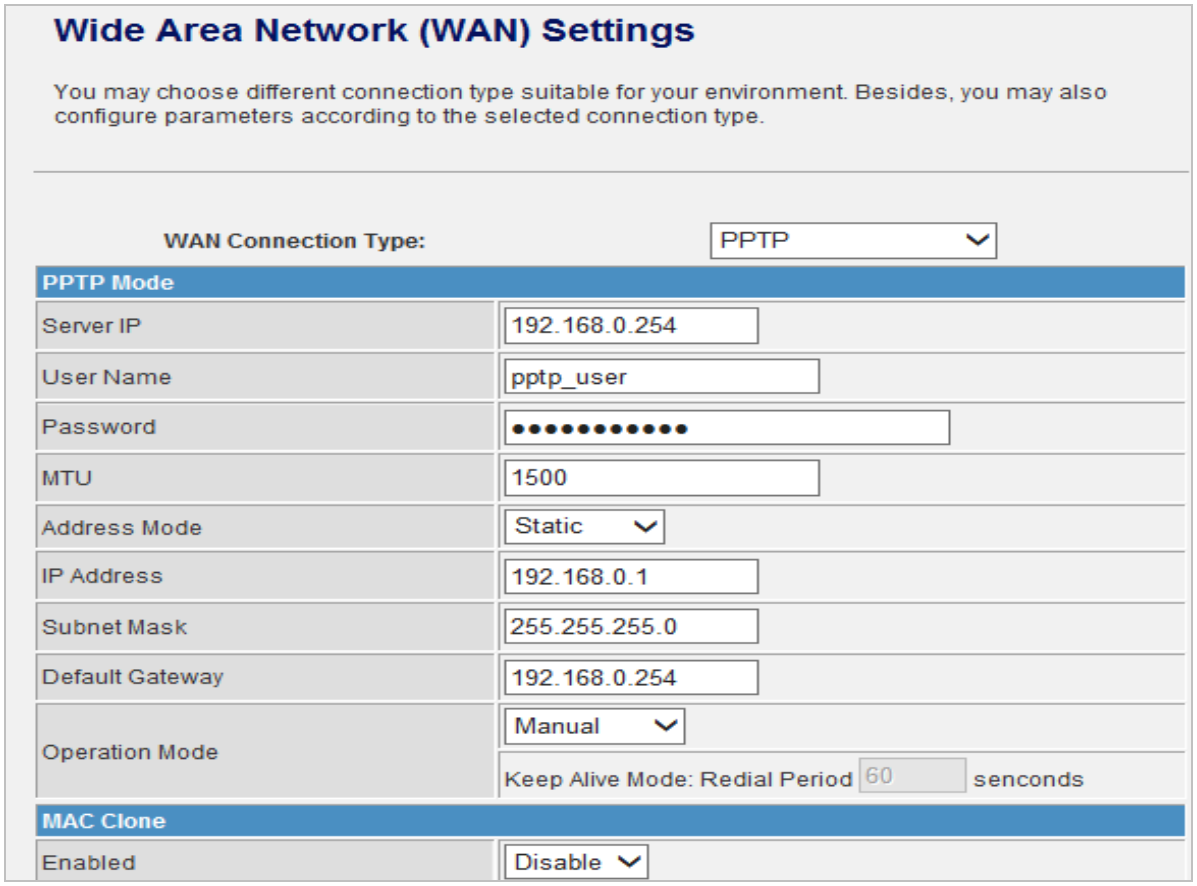


The page includes the following fields:

Object	Description
Server IP	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded L2TP client supported by this router to make a VPN connection. If you select the L2TP support on WAN interface, fill in the IP address for it.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
MTU	The Maximum Transmission Unit default setting is 1500.
Address Mode	■ **Static:** To configure the IP address information by manually, please fill in the related setting at below. ■ **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.
IP Address	Fill in the IP address for WAN interface.
Subnet Mask	Fill in the subnet mask for WAN interface.
Default Gateway	Fill in the default gateway for WAN interface out going data packets.
Operation Mode	■ **Keep Alive:** Keep the L2TP connection all the time. Please also configure the Redial Period field. ■ **Manual:** All functions are disabling.
MAC Clone	Enable or disable MAC clone.

➢ PPTP

Select **PPTP** in the **WAN Connection Type** drop-down list and the following page appears. There are two address modes: **Static** and **Dynamic**.



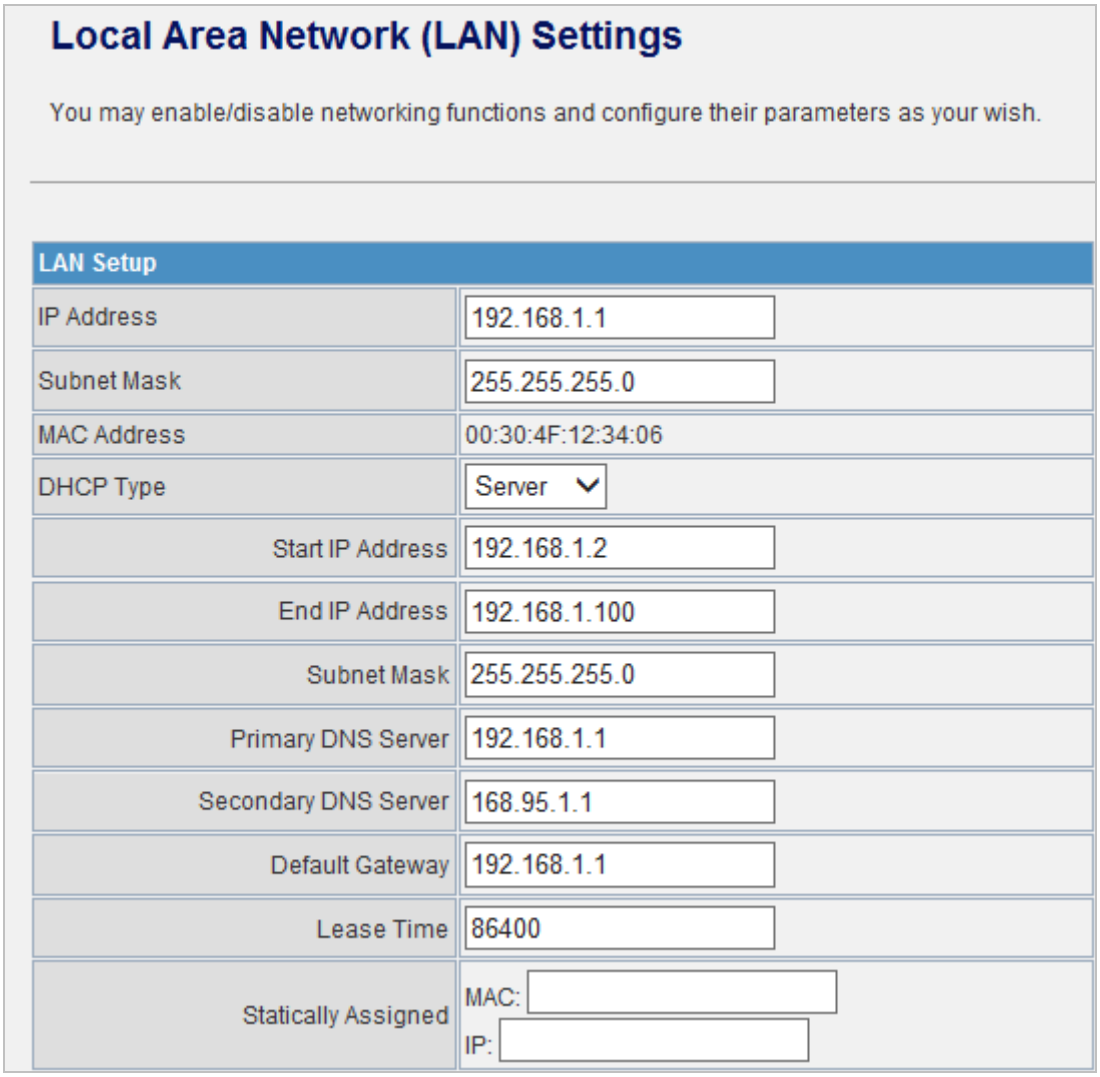
The page includes the following fields:

Object	Description
Server IP	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded PPTP client supported by this router to make a VPN connection. If you select the PPTP support on WAN interface, fill in the IP address for it.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
MTU	The Maximum Transmission Unit default setting is 1500.
Address Mode	**Static:** To configure the IP address information by manually, please fill in the related setting at below. **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.

IP Address	Fill in the IP address for WAN interface.
Subnet Mask	Fill in the subnet mask for WAN interface.
Default Gateway	Fill in the default gateway for WAN interface out going data packets.
Operation Mode	**Keep Alive:** Keep the PPTP connection all the time. Please also configure the Redial Period field. **Manual:** No function is enabling.
MAC Clone	Enable or disable MAC clone.

5.2.2 LAN

This page allows you to enable or disable networking functions and configure their parameters according to your practice.



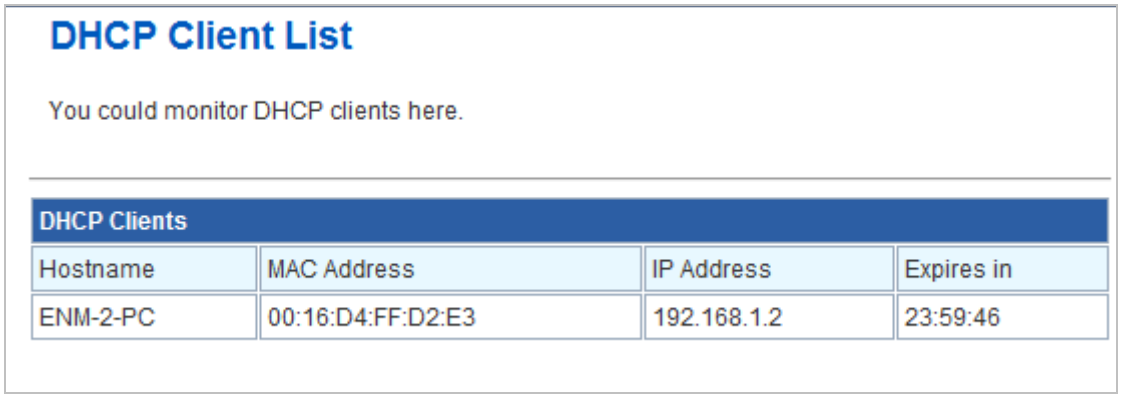
The page includes the following fields:

Object	Description
MAC Address	The physical address of the Router, as seen from the LAN. The value can't be changed.
IP Address	Enter the IP address of your Router or reset it in dotted-decimal notation (factory default: 192.168.1.1).
Subnet Mask	An address code that determines the size of the network. Normally use 255.255.255.0 as the subnet mask.
MAC Address	MAC address of LAN port (Read-only).

DHCP Type	■ **Disable:** Disable DHCP server on LAN side. ■ **Server:** Enable DHCP server on LAN side.
Start IP Address	Fill in the start IP address to allocate a range of IP addresses; client with DHCP function set will be assigned an IP address from the range.
End IP Address	Fill in the end IP address to allocate a range of IP addresses; client with DHCP function set will be assigned an IP address from the range.
Subnet Mask	The subnet mask of dynamic IP.
Primary DNS Server	The primary DNS server address.
Secondary DNS Server	The secondary DNS server address.
Default Gateway	Fill in the default gateway for LAN interfaces out going data packets.
Lease Time	Fill in the lease time of DHCP server function.
Statically Assigned	Assign IP to the assigned MAC address. Enter the assigned MAC address and IP in the corresponding fields.
802.1d Spanning Tree	Select enable or disable the IEEE 802.1d Spanning Tree function from pull-down menu.
LLTD	Select enable or disable the Link Layer Topology Discover function from pull-down menu.
IGMP Proxy	Select enable or disable the IGMP proxy function from pull-down menu.
UPNP	Select enable or disable the UPnP protocol from pull-down menu.
Router Advertisement	You can select Enable or Disable.
PPPoE Relay	You can select Enable or Disable.
DNS Proxy	Select enable or disable the DNS Proxy function from pull-down menu.

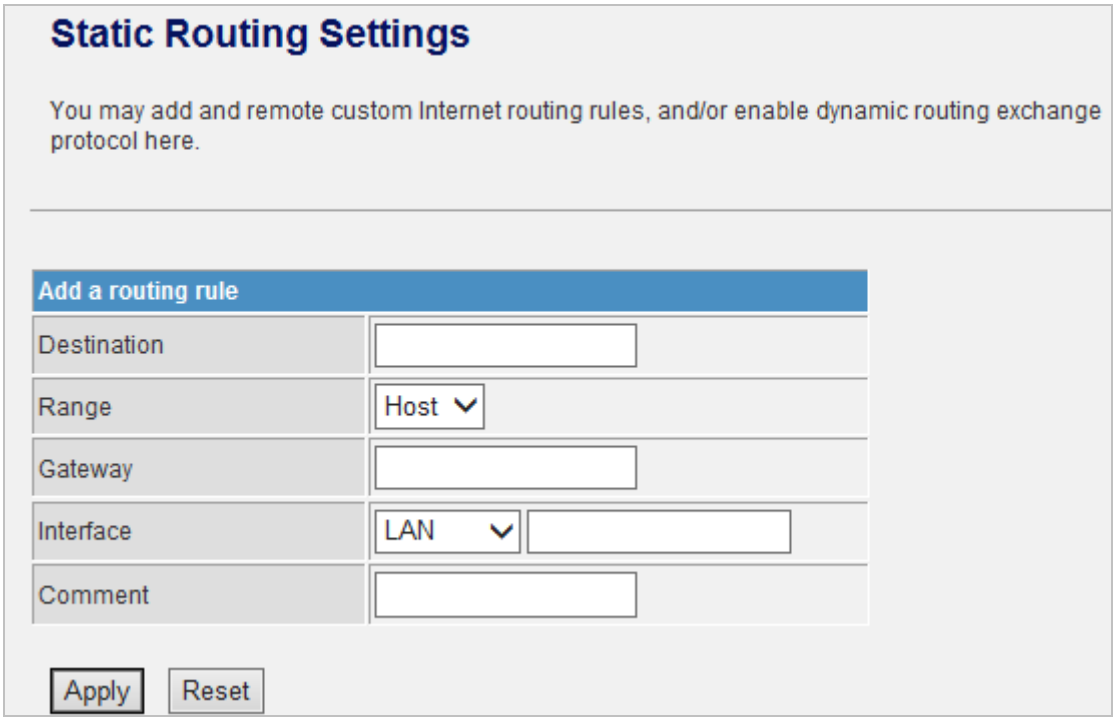
5.2.3 DHCP clients

You can view the information about DHCP clients on the page.



5.2.4 Advanced Routing

You can add or delete routing rules, and enable or disable dynamic routing protocol on the page.



The page includes the following fields:

Object	Description
Destination	Enter the legal destination IP address.
Range	Destination IP address is a host address or the network address.
Gateway	Enter the specific gateway.
Interface	The interface for this route. You can select LAN, WAN and Custom.
Comment	Add the description of this route.

Current Routing Table in the System

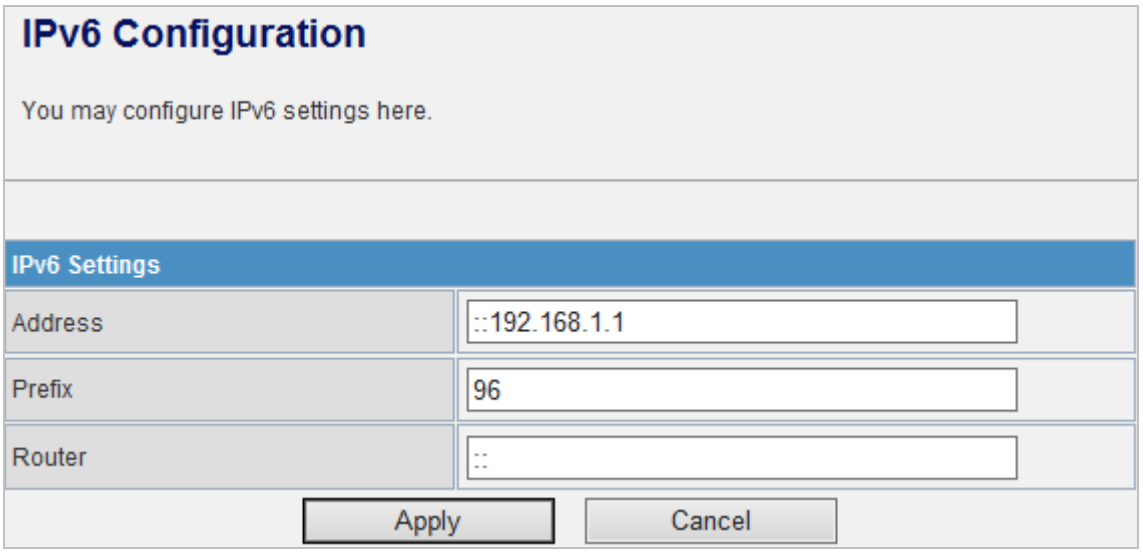
You can delete or reset the routing rules.

Dynamic Routing Settings

You can enable or disable the **RIP**.
After finishing the settings above, click **Apply** to enable the new routing rule to take effect. Otherwise, click **Reset** to cancel the new routing rule.

5.2.5 IPv6

You may set up rules to provide Quality of Service (QoS) guarantee for some specific applications. On the page, you can enable or disable Quality of Service.

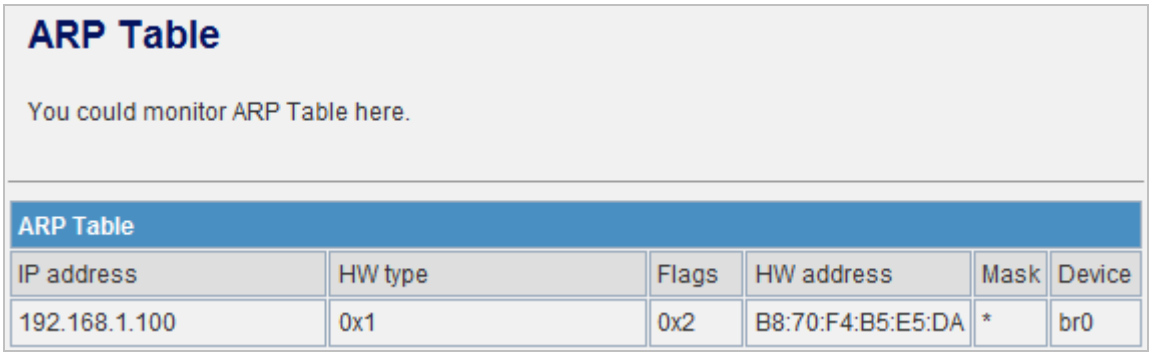


The page includes the following fields:

Object	Description
Address	You can set up IPV6 address here.
Prefix	You can set up the IPv6 Prefix here.
Router	You can set up the IPv6 router here.

5.2.6 ARP Table

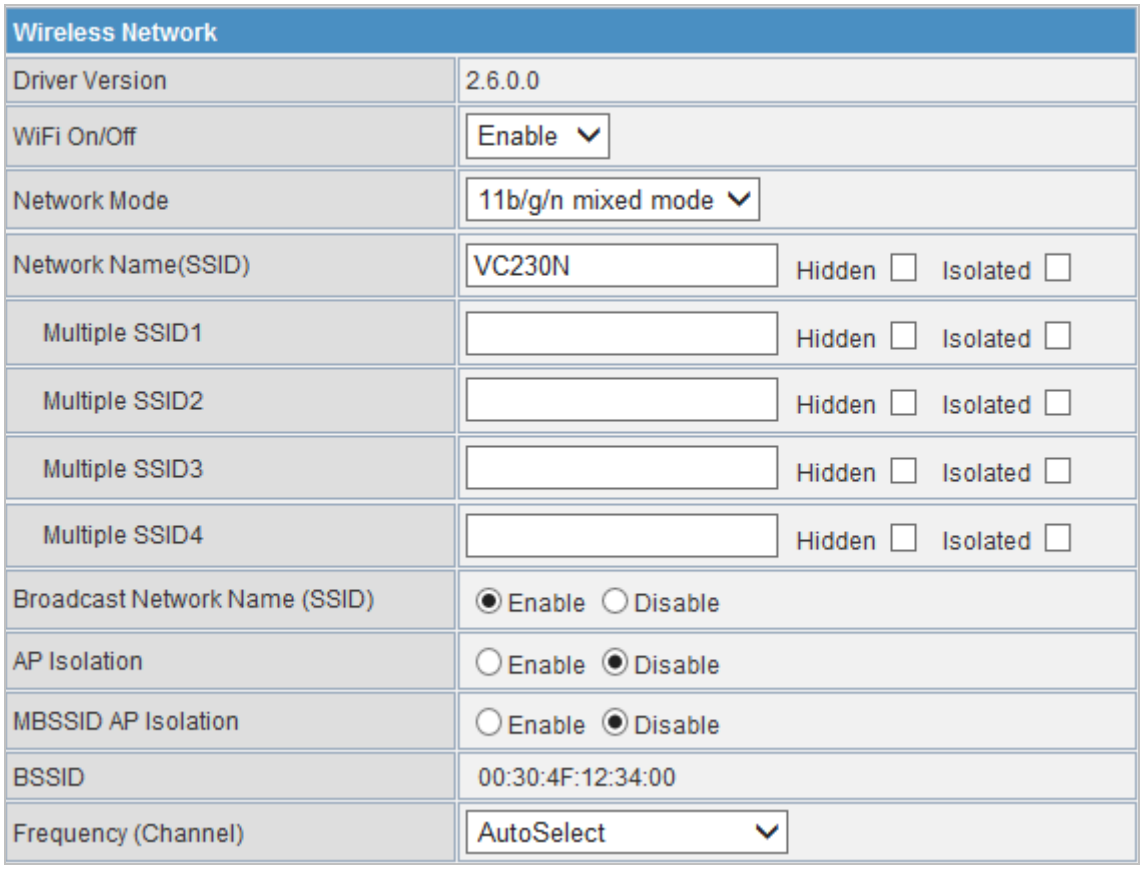
You can view the information about ARP Table on the page.



5.3 Wireless Setting (For VC-230N only)

5.3.1 Basic

You can configure the minimum number of wireless settings for communication, such as network name (SSID) and channel.



The page includes the following fields:

Object	Description
Driver Version	Show the driver version.
WiFi On/Off	Enable or disable the wireless LAN.
Network Mode	This field determines the wireless mode which the Router works on.
Network Name (SSID)	Enter a value of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. Considering your wireless network security, the default SSID is set to be default. This value is case-sensitive. For example, *PLANET* is NOT the same as planet.
Multiple SSID 1/2/3/4	There are 4 multiple SSIDs. Enter their descriptive names that you want to use.

Broadcast Network Name (SSID)	Select **Enable** to allow the SSID broadcast on the network, so that the STA can find it. Otherwise, the STA cannot find it.
AP Isolation	**Enable** or **disable** AP Isolation. When many clients connect to the same access point, they can access each other. If you want to disable the access between clients which connect the same access point, you can enable this function.
MBSSID AP Isolation	Enable or disable MBSSID AP Isolation.
BSSID	Basic Service Set Identifier. This is the assigned MAC address of the station in the access point. This unique identifier is in Hex format and can only be edited when Multi BSSID is enabled in the previous screen.
Frequency (Channel)	A channel is the radio frequency used by wireless device. Channels available depend on your geographical area. 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. The Interference and degrading performance occurs when radio signals from different APs overlap.

HT Physical Mode

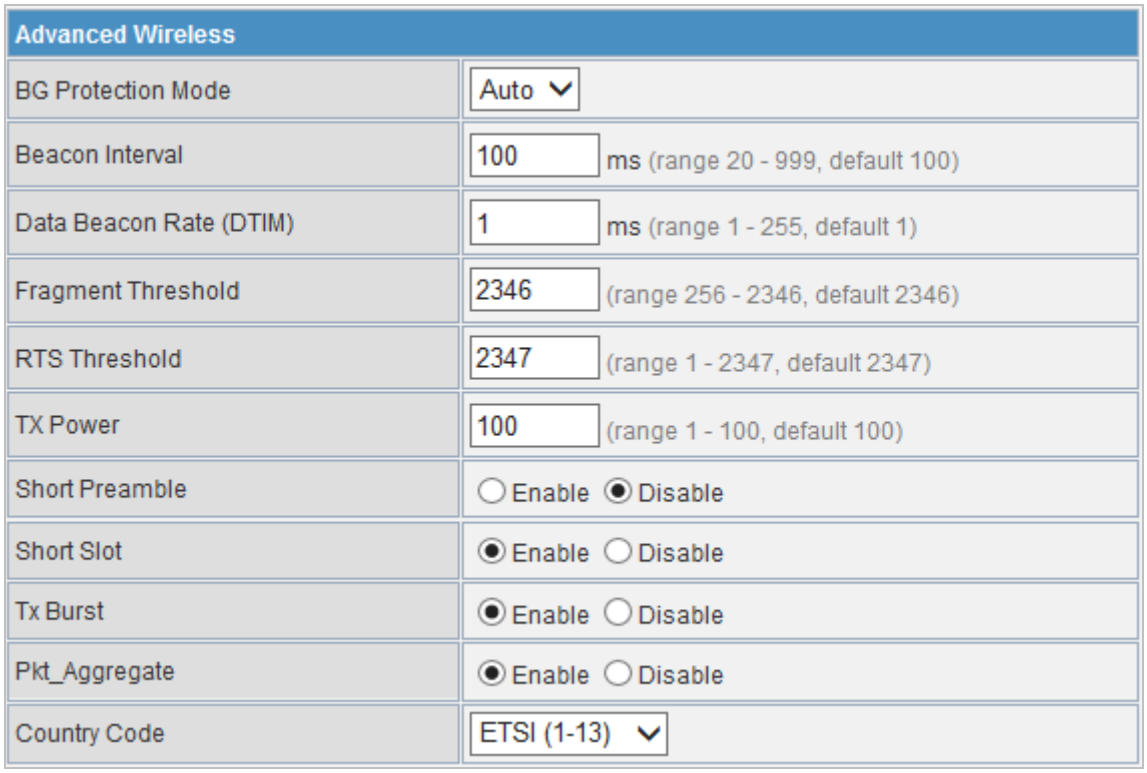
HT Physical Mode	
Operating Mode	(•) Mixed Mode ( ) Green Field
Channel BandWidth	( ) 20 (•) 20/40
Guard Interval	( ) Long (•) Auto
MCS	Auto
Reverse Direction Grant (RDG)	( ) Disable (•) Enable
Space Time Block Coding (STBC)	( ) Disable (•) Enable
Aggregation MSDU (A-MSDU)	(•) Disable ( ) Enable
Auto Block ACK	( ) Disable (•) Enable
Decline BA Request	(•) Disable ( ) Enable
HT Disallow TKIP	( ) Disable (•) Enable
Other	
HT TxStream	2
HT RxStream	2

The page includes the following fields:

Object	Description
Operation Mode	Select Mixed Mode or Green Field.
Channel Bandwidth	Select 20 or 20/40.
Guard Interval	Select 20 or 20/40.
MCS	Select the proper value from 0 to 32. Auto is the default value.
Reverse Direction Grant (RDG)	The purpose of the 802.11n RD protocol is to more efficiently transfer data between two 802.11 devices during a TXOP by eliminating the need for either device to initiate a new data transfer. Select Disable or Enable.
Space Time Block Coding (STBC)	Space time block coding is a technique used in wireless communications to transmit multiple copies of a data stream across a number of antennas and to exploit the various received versions of the data to improve the reliability of data-transfer. Select Disable or Enable.
Aggregation MSDU (A-MSDU)	A-MSDU aggregation, which allows several MAC-level service data units (MSDUs) to be aggregated into a single MPDU. Select Disable or Enable.
Auto Block ACK	Not to respond to each sent data (ACK), but to block unit (Block). Select Disable or Enable.
Decline BA Request	To decline the Block ACK request by the other devices. Select Disable or Enable.
HT Disallow TKIP	Using TKIP, the operation will be in 802.11g. Select Disable or Enable.
HT TxStream	Select 1 or 2.
HT RxStream	Select 1 or 2.

5.3.2 Advanced

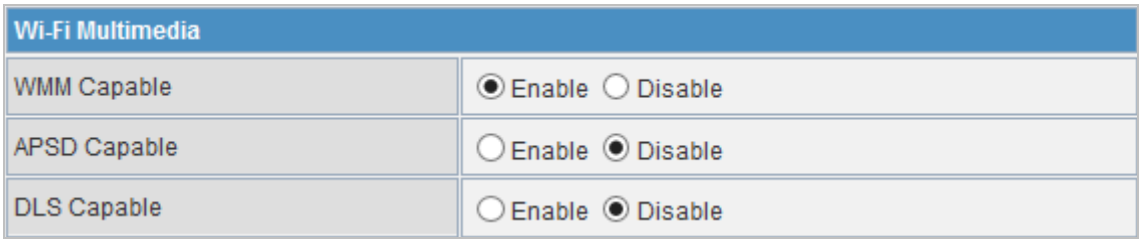
This page includes more detailed settings for the AP. **Advanced Wireless Settings** page includes items that are not available on the **Basic Wireless Settings** page, such as basic data rates, beacon interval, and data beacon rate.



The page includes the following fields:

Object	Description
BG Protection Mode	It provides 3 options, including Auto, On, and Off. The default BG protection mode is **Auto**.
Beacon Interval	The interval time range is between 20ms and 999ms for each beacon transmission. The default value is 100ms.
Date Beacon Rate (DTM)	The DTM range is between 1 ms and 255 ms. The default value is 1ms.
Fragment Threshold	This is the maximum data fragment size (between 256 bytes and 2346 bytes) that can be sent in the wireless network before the router fragments the packet into smaller data frames. The default value is 2346.
RTS Threshold	**Request to send** (**RTS**) is designed to prevent collisions due to hidden node. A RTS defines the biggest size data frame you can send before a RTS handshake invoked. The RTS threshold value is between 1 and

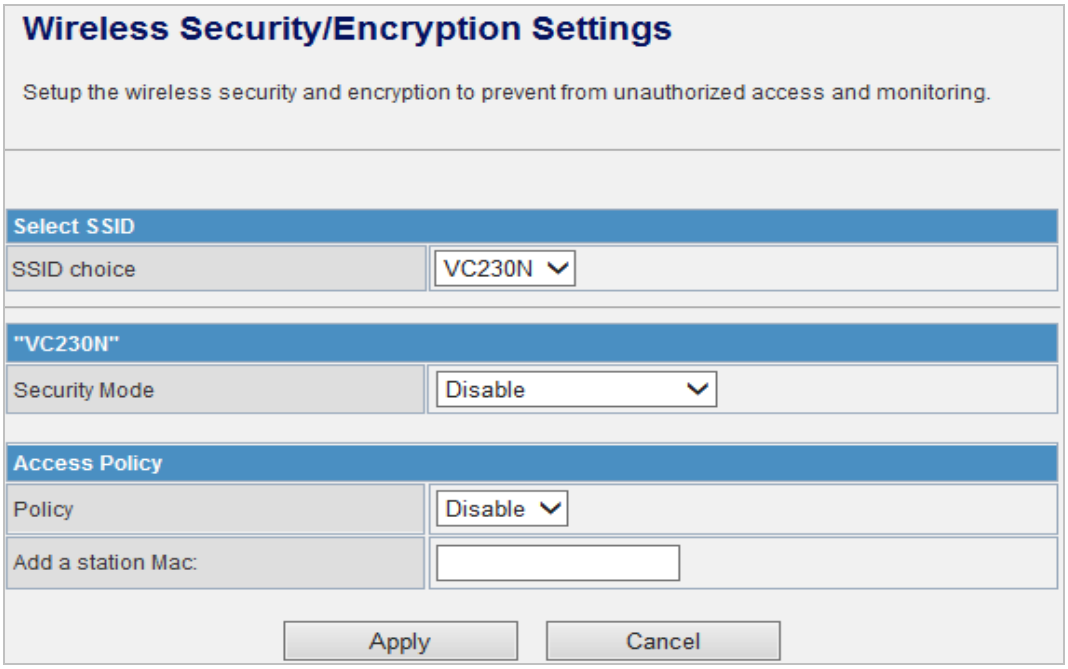
	2347. The default value is 2347.
Tx Power	The Tx Power range is between 1 and 100. The default value is 100.
Short Preamble	Short preambles work with every wireless type other than older types with limited transmission rates in the 1 to 2 Mbps range. Select Disable or Enable.
Short Slot	Short slot time reduces the slot time from 20 microseconds to 9 microseconds, thereby increasing throughput. Select Disable or Enable.
Tx Burst	TX burst is a feature for wireless device speed up the connection in the same environment as it is without. Select Disable or Enable.
Pkt_Aggregate	Select Disable or Enable.
Country Code	Select the region which area you are. It provides three regions in the drop-down list.



Object	Description
WMM Capable	WiFi Multimedia (WMM) refers to Qos over WiFi. It is suitable for simple applications that require QoS, such as Voice over IP (VoIP) Enable or disable WMM.
APSD Capable	Automatic power save delivery (APSD) is an efficient power management method. Enable or disable APSD.
DLS Capable	Direct-Link Setup (DLS) are able to automatically create a secure, direct link between them after accessing the Wi-Fi network, removing the need to transmit data through the access point. Enable or disable DLS.

5.3.3 Security

Choose **Wireless Settings>Security** and the following page appears. It allows you to modify the settings to prevent the unauthorized accesses.

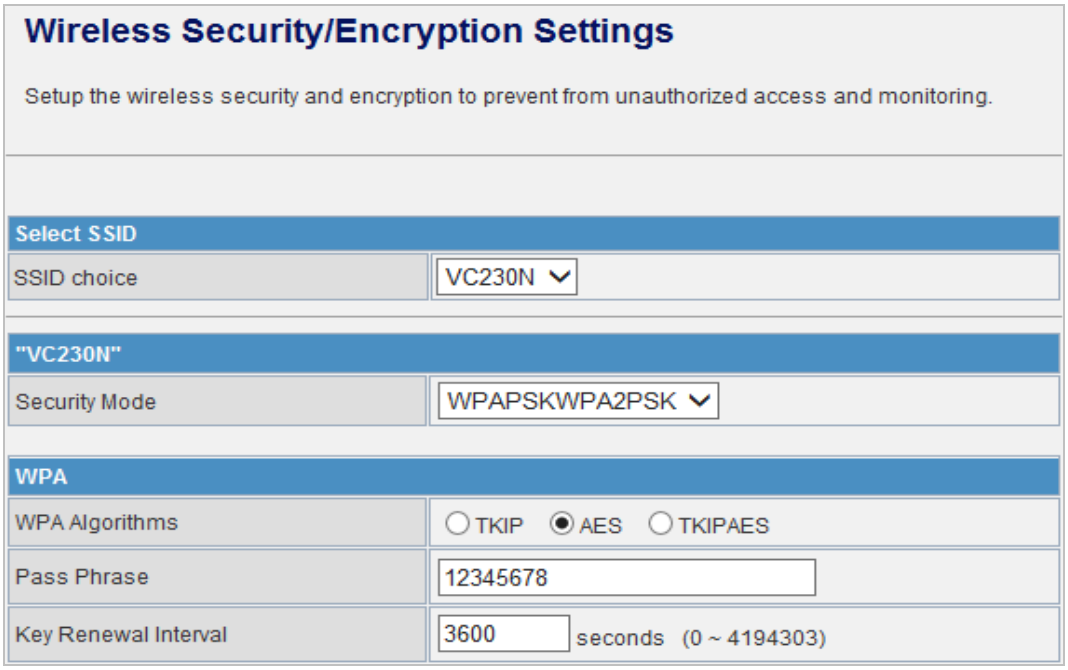


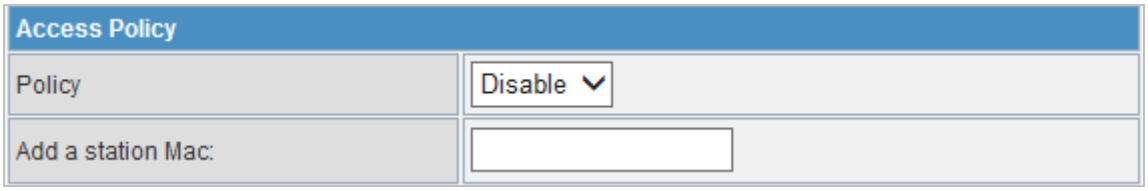
The page includes the following fields:

Object	Description
SSID choice	Select SSID in the drop-down list**.**
Security Mode	There are 5 options, including **Disable, OPENWEP, WPA-PSK, WPA2-PSK, and WPAPSKWPA2PSK**.

[EXAMPLE]

Take WPAPSKWPA2PSK for example. Select WPAPSKWPA2PSK in the **Security Mode** down-list. The page shown in the following page appears:





Access Policy

Object	Description
Policy	There are three options, including Disable, Allow, and Reject. Select Allow, only the clients whose MAC address is listed can access the router. Select Reject, the clients whose MAC address is listed are denied to access the router.
Add a station MAC	If you want to add a station MAC, enter the MAC address of the wireless station that are allowed or denied access to your router in this address field.

5.3.4 WDS

WDS (Wireless Distribution System) allows access points to communicate with one another wirelessly in a standardized way. It can also simplify the network infrastructure by reducing the amount of cabling required. Basically the access points will act as a client and an access point at the same time.

WDS is incompatible with WPA. Both features cannot be used at the same time. A WDS link is bi-directional, so the AP must know the MAC address of the other AP, and the other AP must have a WDS link back to the AP.

Dynamically assigned and rotated encryption key are not supported in a WDS connection. This means that WPA and other dynamic key assignment technologies may not be used. Only Static WEP keys may be used in a WDS connection, including any STAs that are associated with a WDS repeating AP.

Enter the MAC address of the other APs that you want to link to and click enable. Supports up to 4 point to multipoint WDS links, check Enable WDS and then enable on the MAC addresses.

WDS Mode: There are four options, including **Disable**, **Lazy Mode**, **Bridge Mode**, and **Repeater Mode**.

Disable

Select Disable to disable the WDS mode.

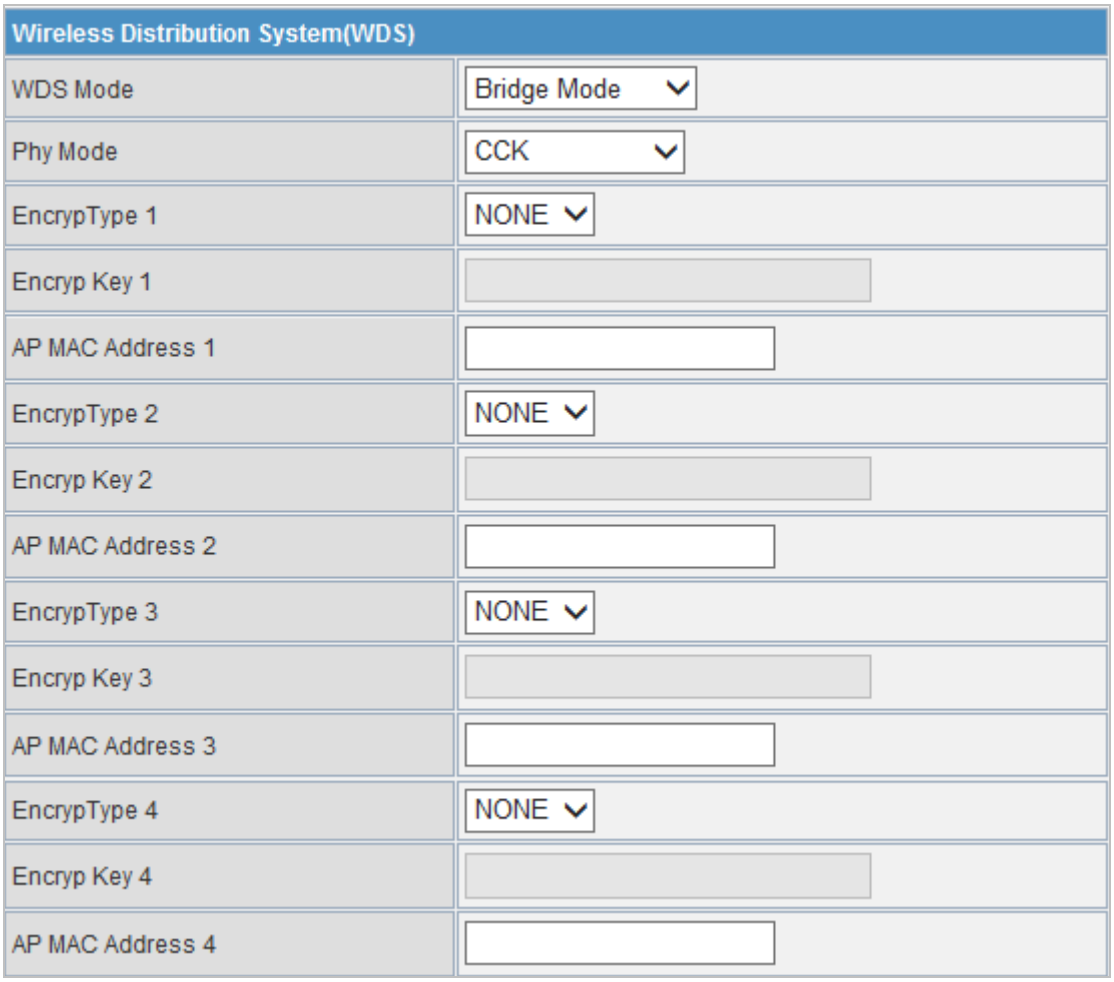
Lazy Mode

Wireless Distribution System(WDS)	
WDS Mode	Lazy Mode
Phy Mode	CCK
EncrypType 1	NONE
Encryp Key 1	
EncrypType 2	NONE
Encryp Key 2	
EncrypType 3	NONE
Encryp Key 3	
EncrypType 4	NONE
Encryp Key 4	

The page includes the following fields:

Object	Description
Lazy Mode	The VC-230N WDS Lazy mode is allowed the other VC-230N WDS bridge / repeater mode link automatically.
Phy Mode	It provides 4 options, including **CCK**, **OFDM**, **HTMIX**, and **GREENFIELD**.
Encryp Type	It provides 4 options, including **None, WEP, TKIP,** and **AES**.

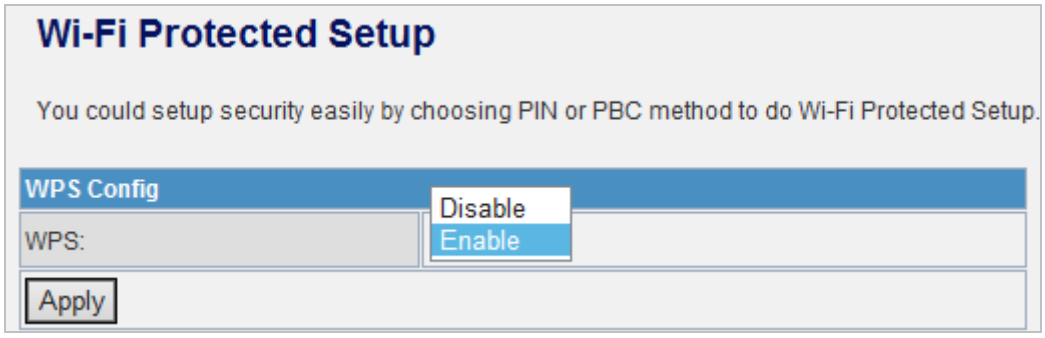
Bridge Mode/ Repeater Mode



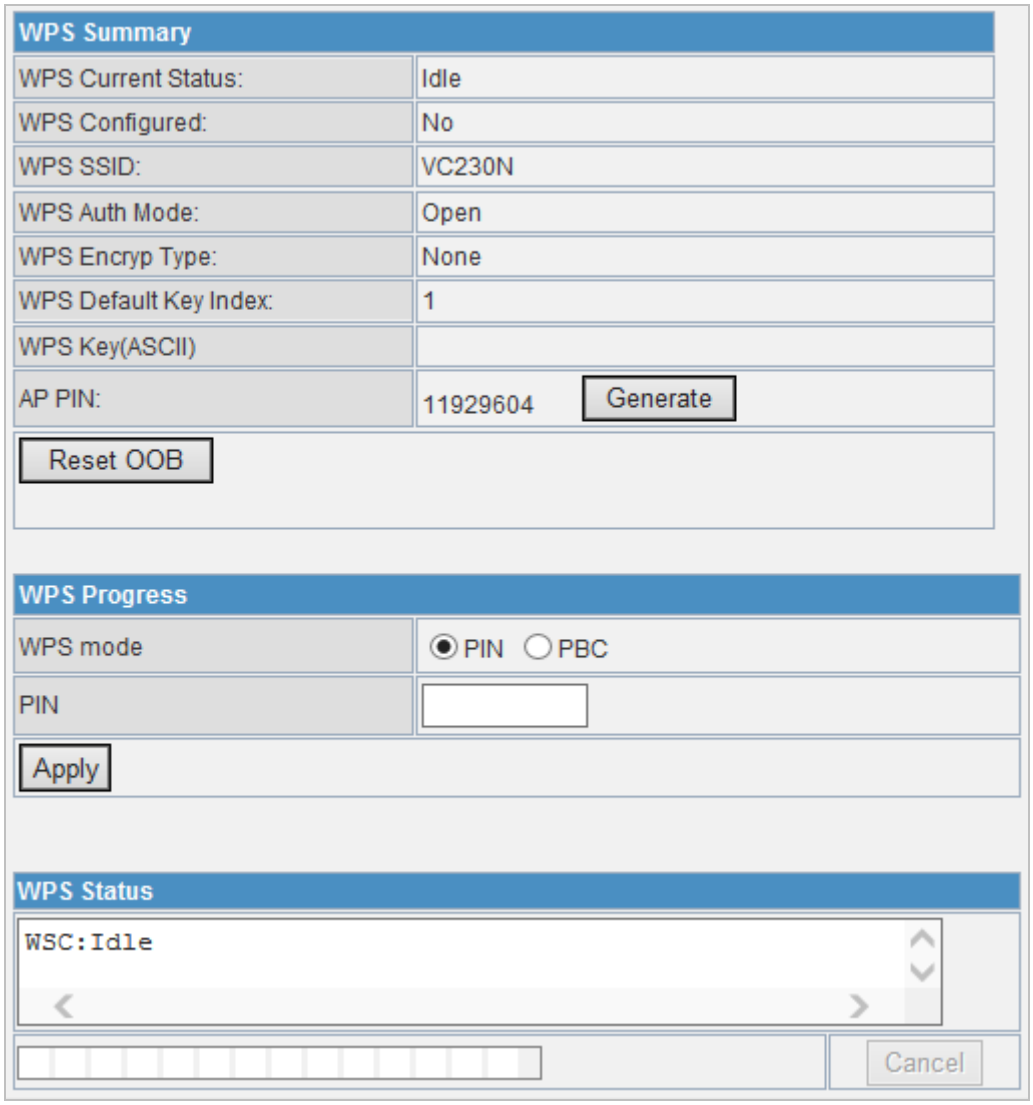
Object	Description
WDS Mode	Select Bridge Mode or Repeater Mode.
Phy Mode	It provides 4 options, including CCK, OFDM, HTMIX, and GREENFIELD.
Encryp Type	It provides 4 options, including None, WEP, TKIP, and AES.
AP MAC Address	It provides 4 AP MAC Address. Enter the MAC address of the other APs.

5.3.5 WPS

You can enable or disable the WPS function on this page.



Select **Enable** in the WPS drop-down list. Click **Apply** and the following page appear.



WPS Summary

It displays the WPS information, such as WPS Current Status, WPS Configured, and WPS SSID.

Object	Description
Reset OOB	Reset to out of box (OoB) configuration

WPS Progress

There are two ways for you to enable WPS function: PIN or PBC. You can use a push button configuration (PBC) on the Wi-Fi router. If there is no button, enter 4 digit PIN code. Each STA supporting WPS comes with a hard-coded PIN code.

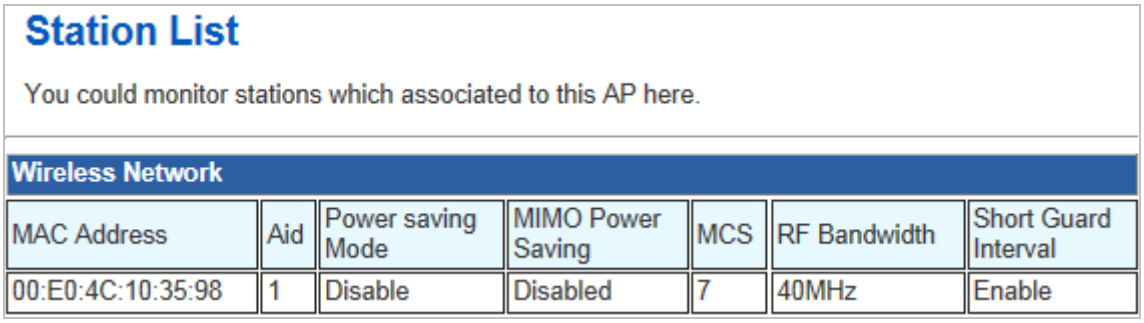
Object	Description
PIN	If you select PIN mode, you need to enter the PIN number in the field.

WPS Status

It displays the information about WPS status.

5.3.6 Station List

Through this page, you can easily identify the connected wireless stations. It automatically observes the ID of connected wireless station (if specified), MAC address, and current status.



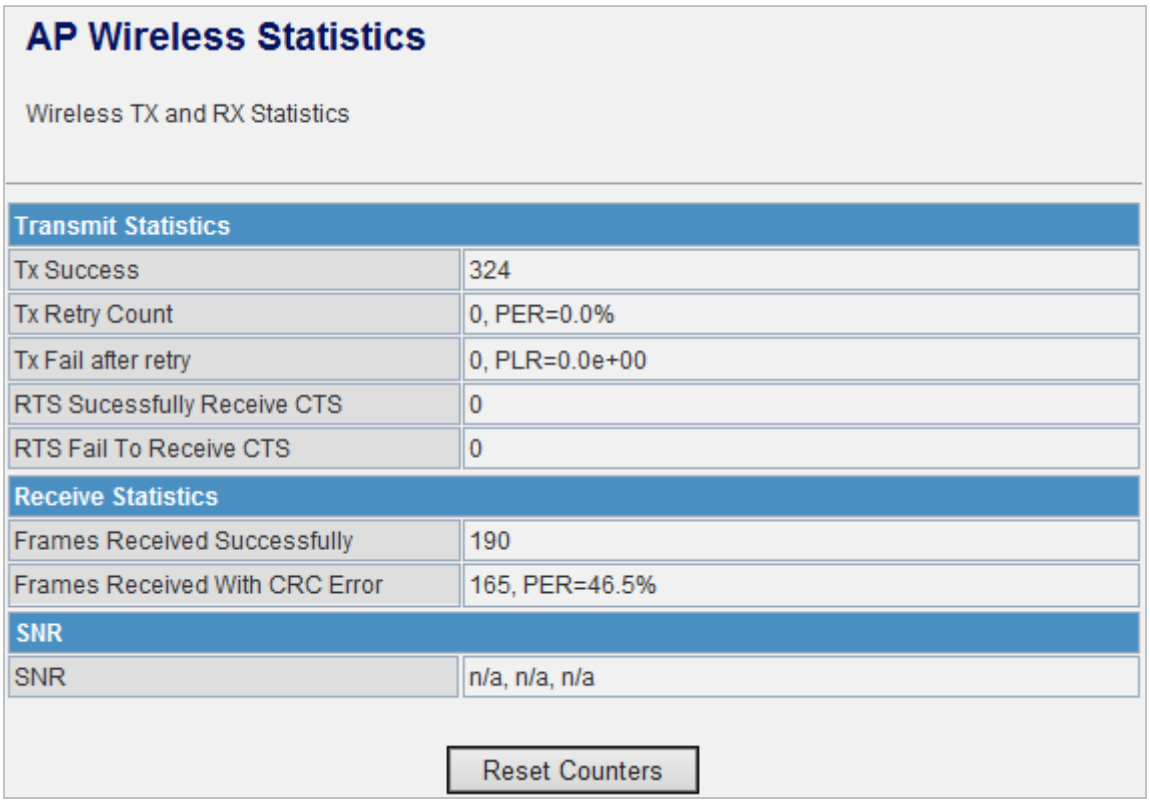
Station List

You could monitor stations which associated to this AP here.

Wireless Network						
MAC Address	Aid	Power saving Mode	MIMO Power Saving	MCS	RF Bandwidth	Short Guard Interval
00:E0:4C:10:35:98	1	Disable	Disabled	7	40MHz	Enable

5.3.7 Statistics

This page will show you the connected TX, RX statistics.



AP Wireless Statistics

Wireless TX and RX Statistics

Transmit Statistics	
Tx Success	324
Tx Retry Count	0, PER=0.0%
Tx Fail after retry	0, PLR=0.0e+00
RTS Sucessfully Receive CTS	0
RTS Fail To Receive CTS	0
Receive Statistics	
Frames Received Successfully	190
Frames Received With CRC Error	165, PER=46.5%
SNR	
SNR	n/a, n/a, n/a

Reset Counters

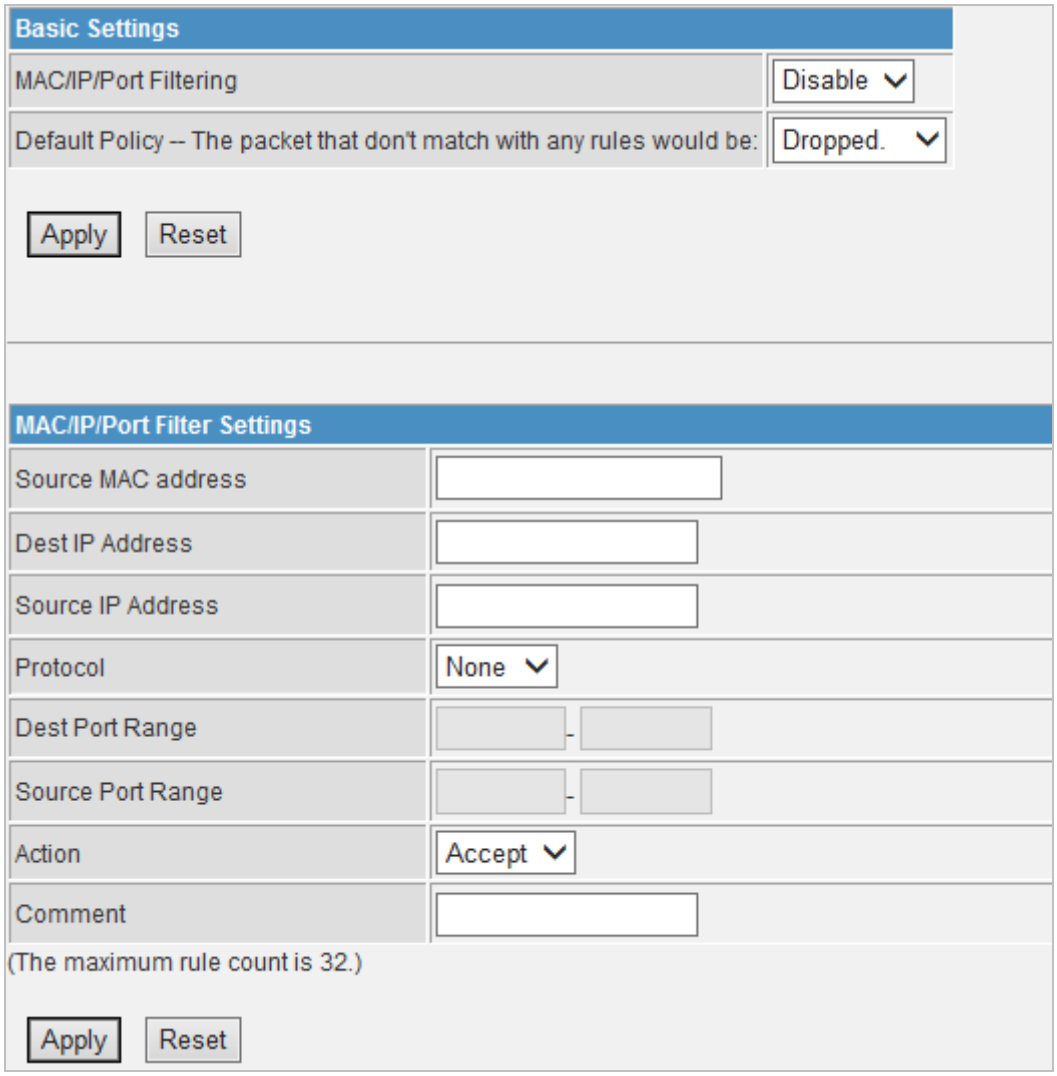
5.4 Firewall

The VDSL Router provides the fully firewall functions, such as MAC/IP/Port Filtering, Port Forwarding, DMZ, SPI Firewall and Content Filtering. It serves as an Internet firewall to protect your network from being accessed by outside users.

5.4.1 MAC/IP/Port Filtering

Use the MAC/IP/Port filters to deny / allow particular LAN IP addresses from accessing the Internet. You can deny / allow specific port numbers or all ports for a specific IP address.

You may set up firewall rules to protect your network from malicious activity on the Internet. It is also convenient for you to delete these settings.



Basic Settings

Object	Description
MAC/IP/Port Filtering	Enable or disable the MAC/IP/Port filtering function.
Default Policy	The Packet that does not match any rules would be dropped or accepted.

MAC/IP/Port Filter Settings

Object	Description
Source MAC address	Enter the MAC address that matches the source address of the packet (optional).
Dest IP Address	Enter the IP address that matches the destination address of the packet (optional).
Source IP Address	Enter the IP address that matches the source address of the packet (optional).
Protocol	There are 4 options, including none, TCP, UDP and ICMP.
Destination Port Range	After setting a valid protocol, you may enter the UPD or TCP destination port range.
Source Port Range	After setting a valid protocol, you may enter the UPD or TCP source port range.
Action	Select **Drop** or **Accept** in the drop down list.
Comment	Add description for this rule.

The maximum rule number you can add is 32.

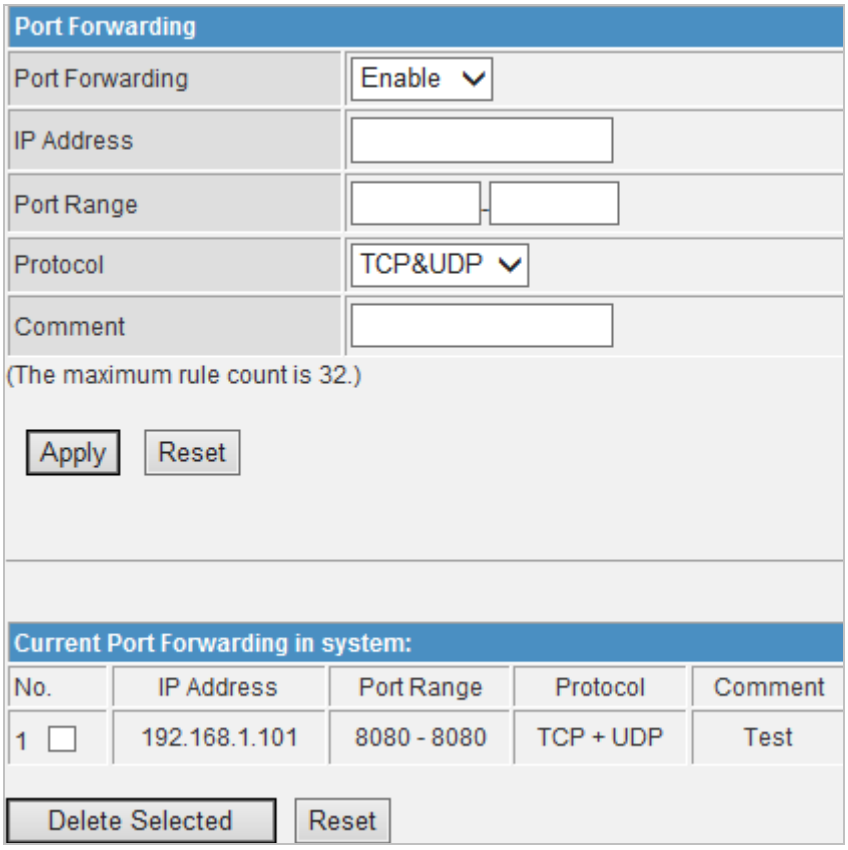
Current MAC/IP/Port filtering rules in system:									
No.	Source MAC address	Dest IP Address	Source IP Address	Protocol	Dest Port Range	Source Port Range	Action	Comment	Pkt Cnt
Others would be dropped									-

Current MAC/IP/Port Filtering Rules in System

If you want to delete some rules in the table above, select the rules, and then click **Delete Selected**. Otherwise, click **Reset**.

5.4.2 Port Forwarding (Virtual Server)

This page allows you to configure to re-direct a particular range of service port numbers from the Internet network to a particular LAN IP address, and set virtual server to provide services on the Internet.

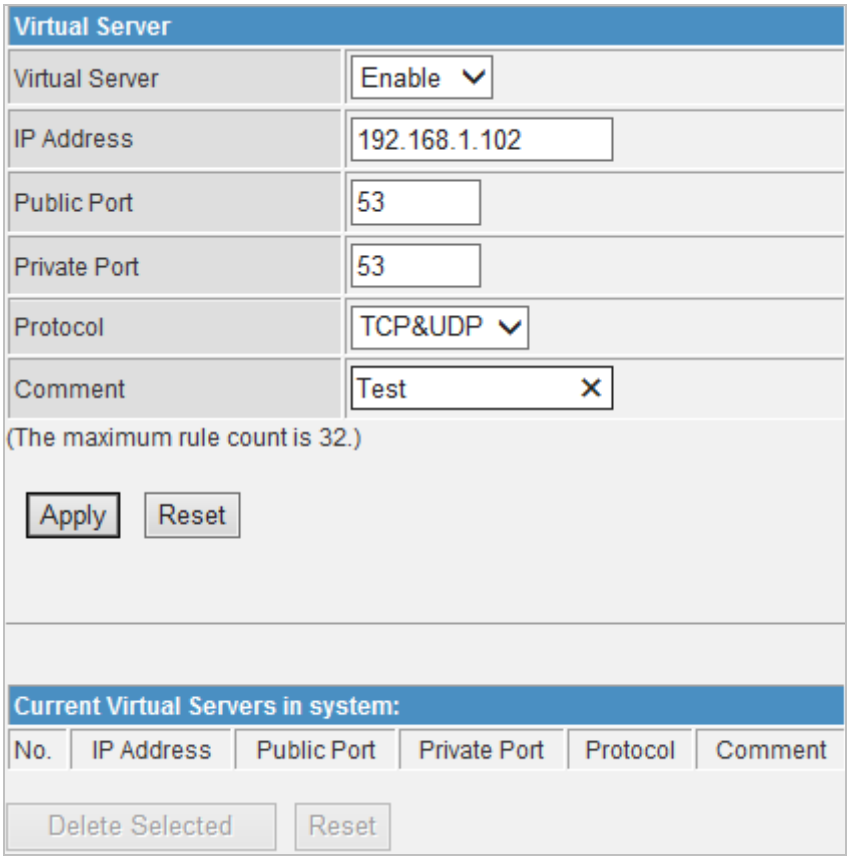


Port Forwarding Settings

Object	Description
Virtual Server Settings	Enable or disable this function. After selecting **Enable**, you can set the following parameters.
IP Address	Enter the virtual server IP address in internal network.
Port Range:	You can setup your port range for your WAN side.
Protocol	There are 3 options, including none, TCP&UDP, TCP and UDP.
Comment	Add description for this rule.

Note

The maximum rule number you can add is 32.



Virtual Server Settings

Object	Description
Virtual Server Settings	Enable or disable this function. After selecting **Enable**, you can set the following parameters.
IP Address	Enter the virtual server IP address in internal network.
Public Port	Enter the WAN service port.
Private Port	Enter the LAN service port.
Protocol	There are 3 options, including none, TCP&UDP, TCP and UDP.
Comment	Add description for this rule.

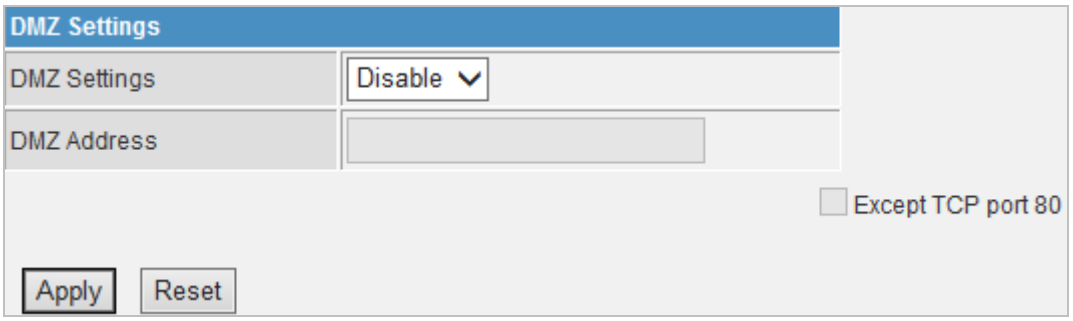
Note

The maximum rule number you can add is 32.

5.4.3 DMZ

DMZ (De-militarized Zone) allows a single computer on your LAN to expose ALL of its ports to the Internet. Enter the IP address of that computer as a DMZ (De-militarized Zone) host with unrestricted Internet access. When doing this, the DMZ host is no longer behind the firewall.

This page allows you to set a De-militarized Zone (DMZ) to separate internal network and Internet.

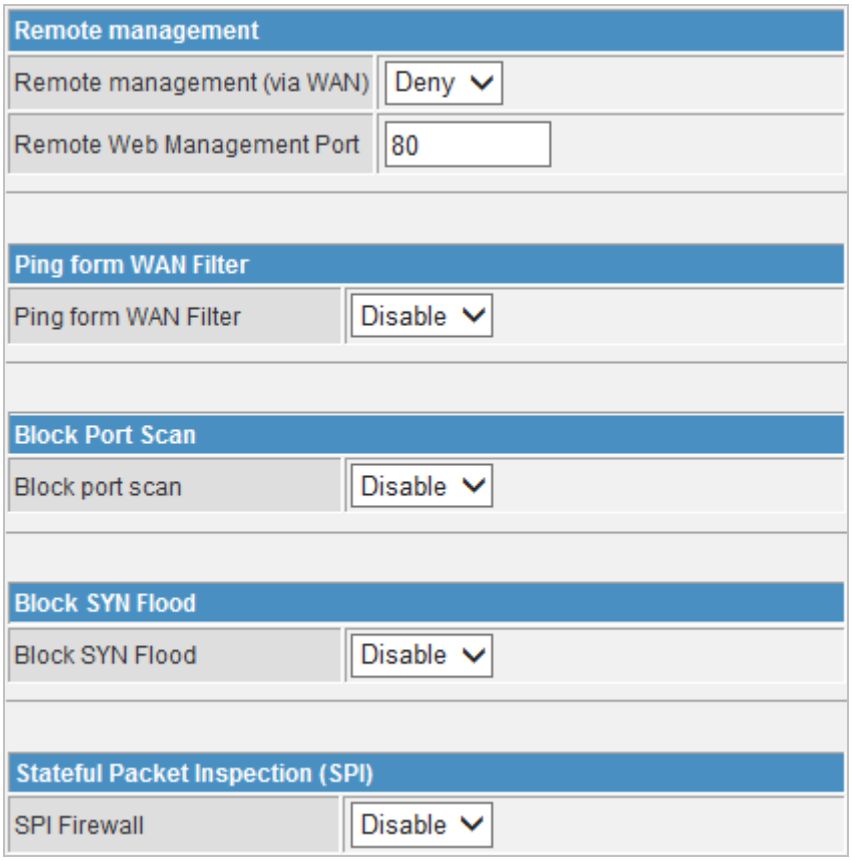


DMZ Settings: Enable or disable this function. After selecting Enable, you can set the DMZ IP address.

DMZ IP Address: Enter the DMZ host IP address.

5.4.4 System Security Settings

Choose **Firewall > System Security** and the following page appears. This page allows you to configure the system firewall to protect Router from attacking.



Remote Management

Object	Description
Remote management (via WAN)	Deny or allow remote management through web.
Remote Web management Port	The default remote management port is 80. You can change the remote management port for your needs. e.g. 8080.

Ping from WAN Filter

Object	Description
Ping from WAN Filter	You may select enable or disable to determine whether to filter the ping package which comes from the external network.

Block Port Scan

Object	Description
Block Port Scan	You may select enable or disable to determine whether to block the scanning which comes from the external network.

Block SYN Flood

Object	Description
Block SYN Flood	You may select enable or disable to determine whether to block the SYN Flood attacks come from the external network.

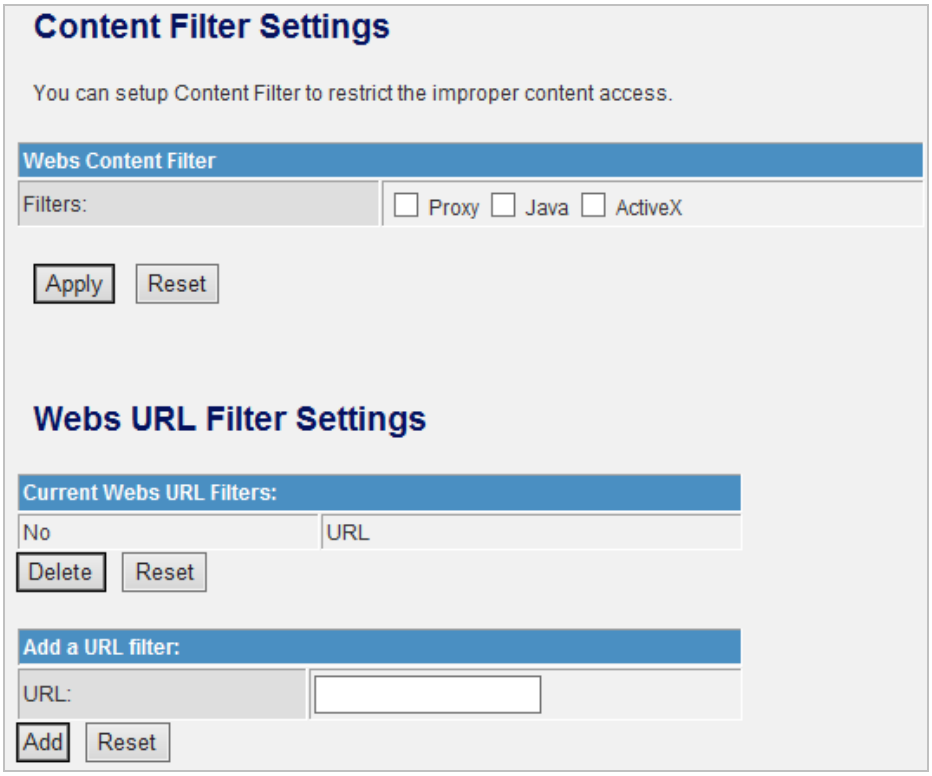
Stateful Packet Inspection (SPI)

Object	Description
SPI Firewall	You may disable or enable the SPI firewall.

5.4.5 Content Filtering

This page is used to configure the Blocked FQDN (Such as tw.yahoo.com) and filtered keyword. Here you can add / delete FQDN and filtered keyword.

Choose **Firewall > Content Filtering** and the following page appears. You can set content filter to restrict the improper content access.



Webs Content Filters

Object	Description
Webs Content Filters	If you want to block some applications as Proxy, Java and ActiveX of web pages please select the check box and click “Apply”.

Current Webs URL Filters

Object	Description
Current Webs URL Filters	If you want to delete some filters in the table above, select the rules, and then click **Delete**. Otherwise, click **Reset**.

Add a URL filter

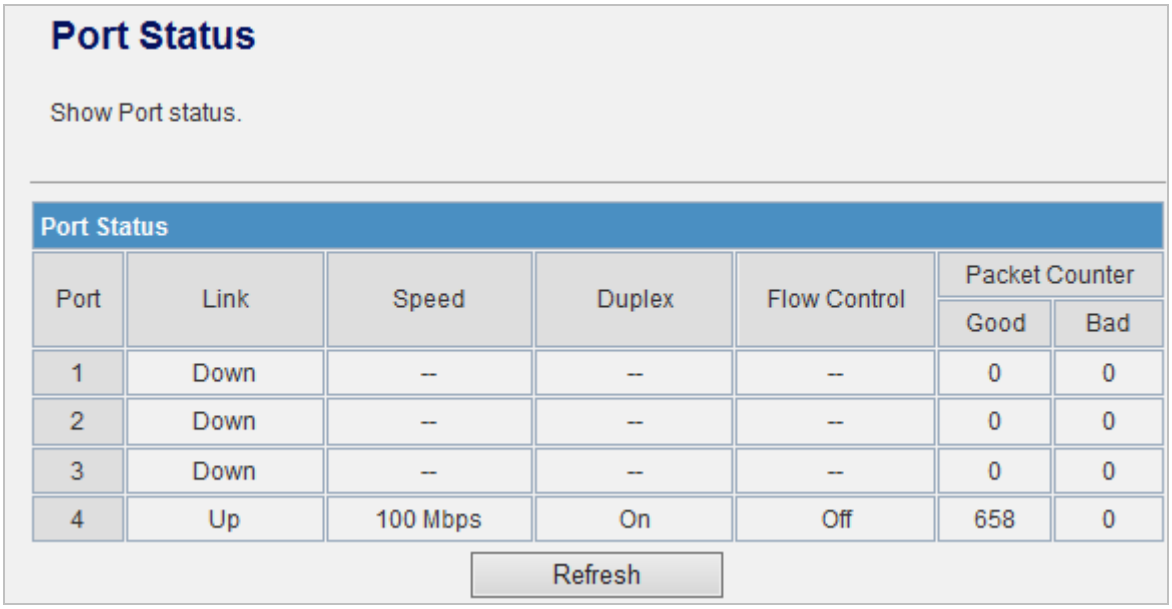
Object	Description
Add a URL filter	Enter the FQDN and click “Add” to apply this URL filter rule. Click **Add** to add a URL filter. Otherwise, click **Reset** to cancel the URL filter.

5.5 Layer 2 functions

A single layer-2 network may be partitioned to create multiple distinct broadcast domains. Such a domain is referred to as a Virtual LAN or VLAN. Network administrators set up VLANs to provide the segmentation services traditionally provided by routers in LAN configuration. This page allows you to set the VLAN.

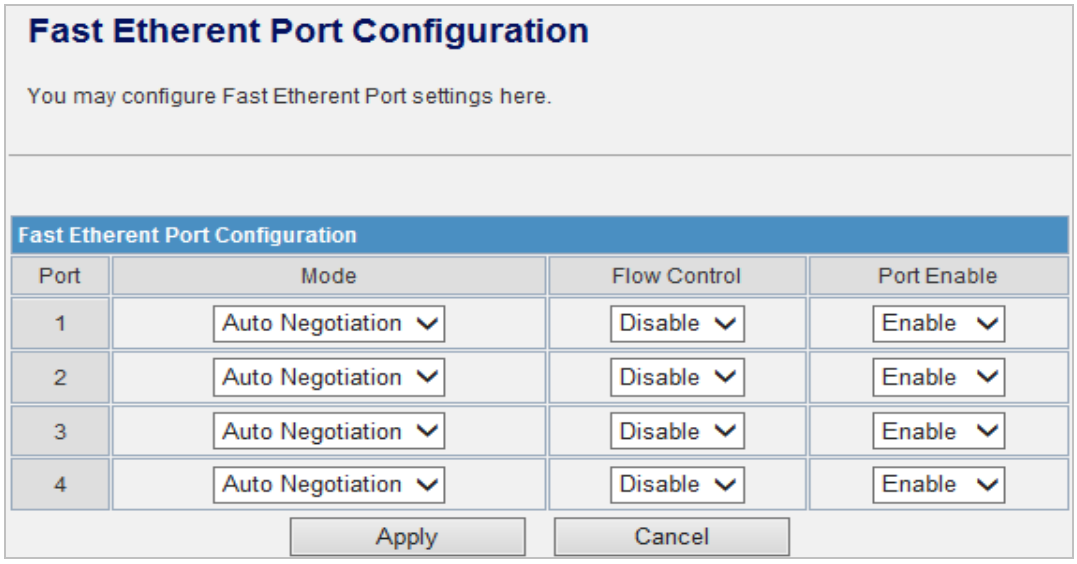
5.5.1 Port Status

Choose **Layer 2 Function** > **Port Status** and the following page appears. This page displays each port's Speed, Duplex mode, Flow Control status.



5.5.2 Port Setting

This page allows you to select a different Mode, Flow Control or Port Enable.

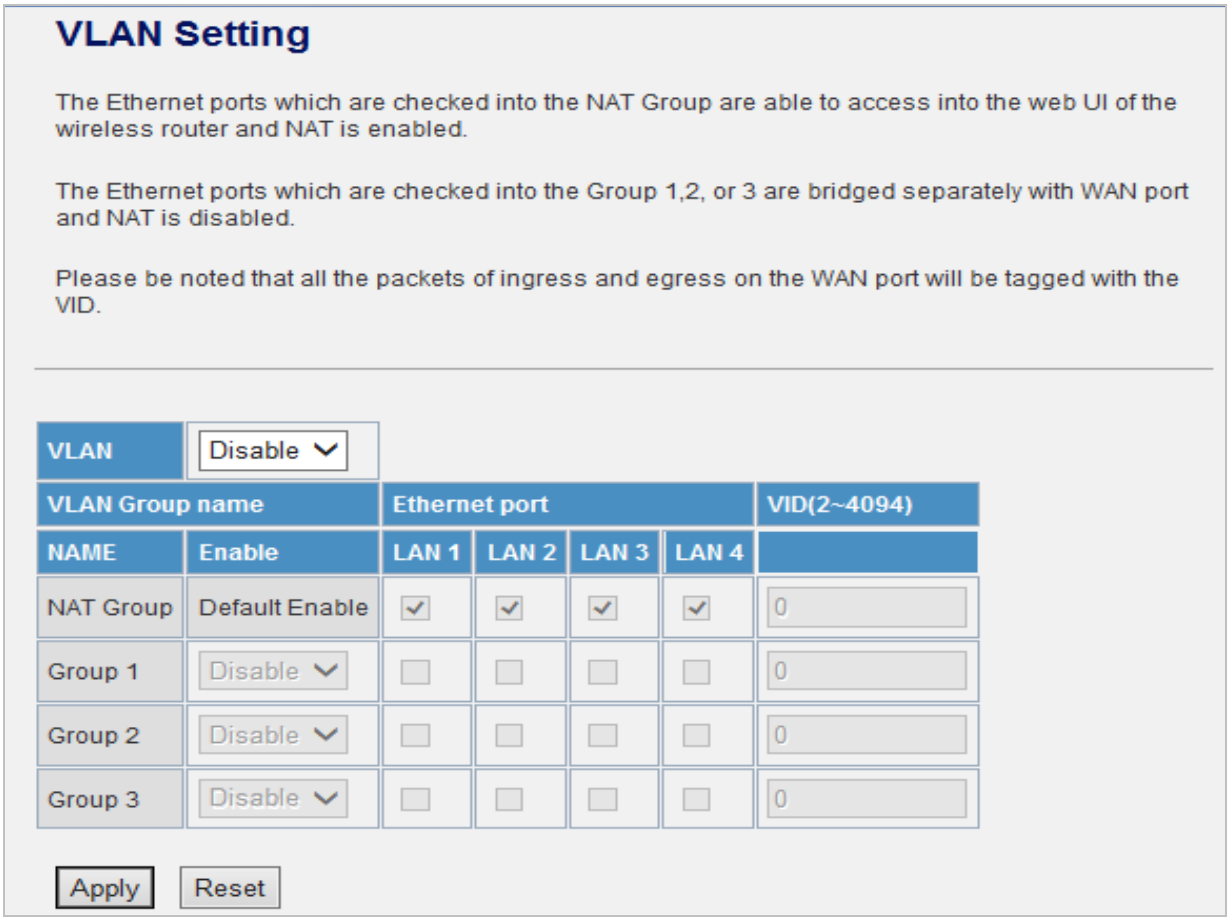


The page includes the following fields:

Object	Description
Port	This is the LAN port number for this row.
Mode	You can choose 5 modes. ■ **Auto Negotiation** ■ **100 Full** ■ **100 Half** ■ **10 Full** ■ **10 Half** Please select the check box and click "**Apply**".
Flow Control	You can choose Enable or Disable.
Port Enable	You can choose Enable or Disable.

5.5.3 VLAN Setting

You can enable or disable the VLAN setting. There are four groups that can be set. The first one is NAT group and the others are bridged with WAN port.



VLAN Mode Setting

- **Mode:** You can enable or disable the VLAN here.

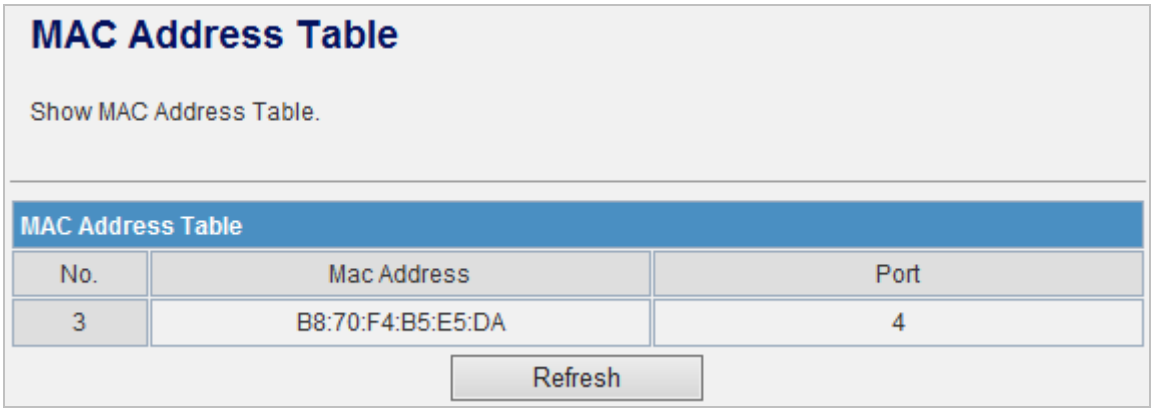
VLAN Member Configuration

Object	Description
VLAN Group:	You can select enable or disable.
VID:	Set the VID here for each Virtual LAN.
LAN1~4:	It means the LAN port on the router.
PVID:	You can set the PVID for each port here.

Click **Apply** to enable the configuration to take effect. Click **Cancel** to cancel the new configuration.

5.5.4 MAC Address Table

This page shows MAC Address Table.



Click **Refresh** button to renew the list above immediately.

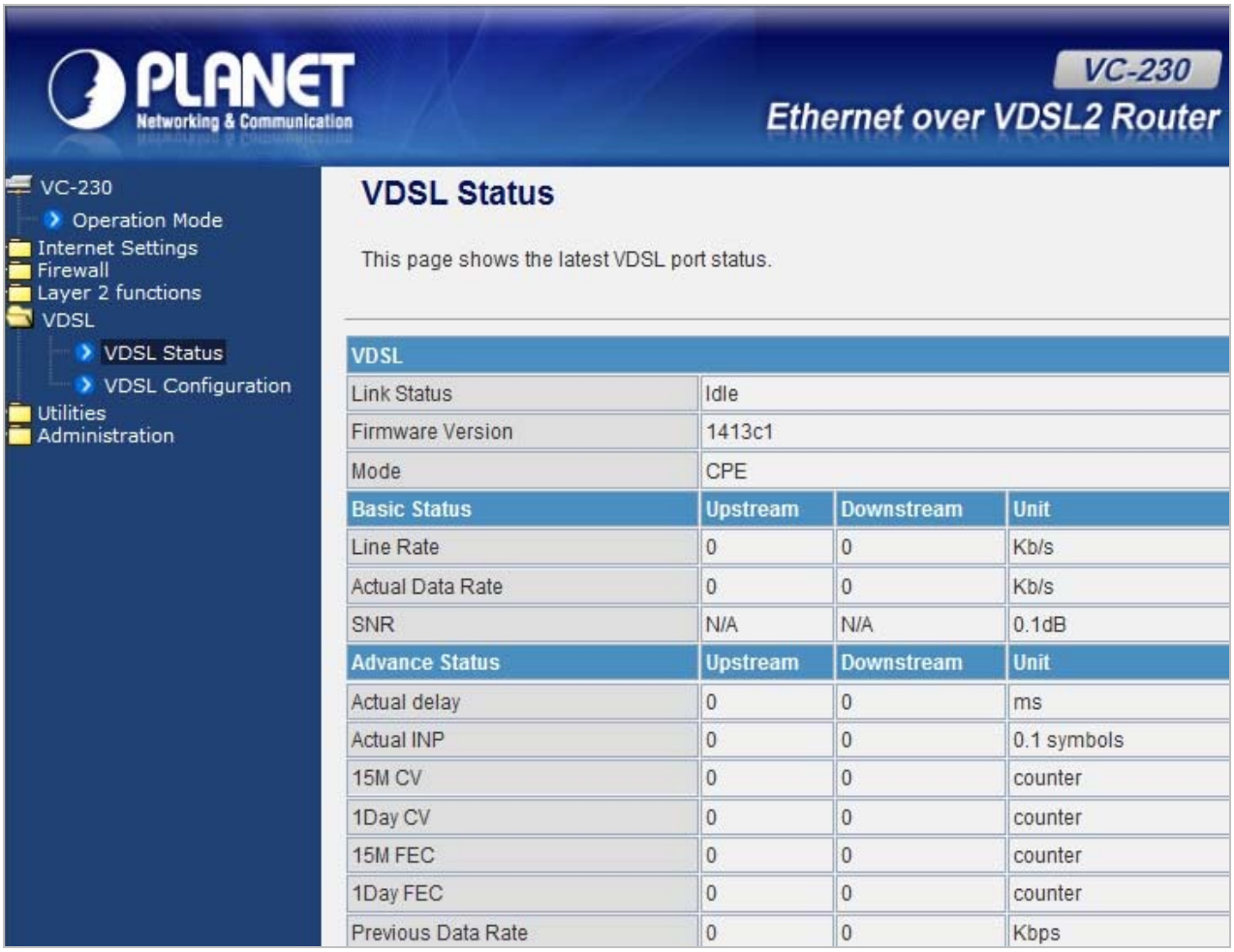
5.6 VDSL

VDSL2 (**V**ery **H**igh-Bit-Rate **D**igital Subscriber **L**ine 2), G.993.2 is the newest and most advanced standard of xDSL broadband wire line communications. Designed to support the wide deployment of Triple Play services such as voice, data, high definition television (HDTV) and interactive gaming, VDSL2 enable operators and carrier to gradually, flexibly, and cost efficiently upgrade exiting xDSL-infrastructure.

PLANET VDSL Router can provide very high performance access to Internet, both downstream and upstream up to 100Mbps. The VDSL Router complies with ITU-T G993.2 standard, and supports two selectable operating modes of VDSL2, CO and CPE mode. The CO or CPE mode can be adjusted by WEB UI and users can connect two VC-230 / VC-230N for Point-to-Point Application, data transmission between two networks over existing copper telephone lines.

5.6.1 VDSL Status

Users can check the VDSL Line status on this page; it includes Line status, Date Rate, SNR, Delay and Impulse Noise Protection.



VDSL			
Link Status	Idle		
Firmware Version	1413c1		
Mode	CPE		
Basic Status	**Upstream**	**Downstream**	**Unit**
Line Rate	0	0	Kb/s
Actual Data Rate	0	0	Kb/s
SNR	N/A	N/A	0.1dB
Advance Status	**Upstream**	**Downstream**	**Unit**
Actual delay	0	0	ms
Actual INP	0	0	0.1 symbols
15M CV	0	0	counter
1Day CV	0	0	counter
15M FEC	0	0	counter
1Day FEC	0	0	counter
Previous Data Rate	0	0	Kbps

5.6.2 VDSL Configuration

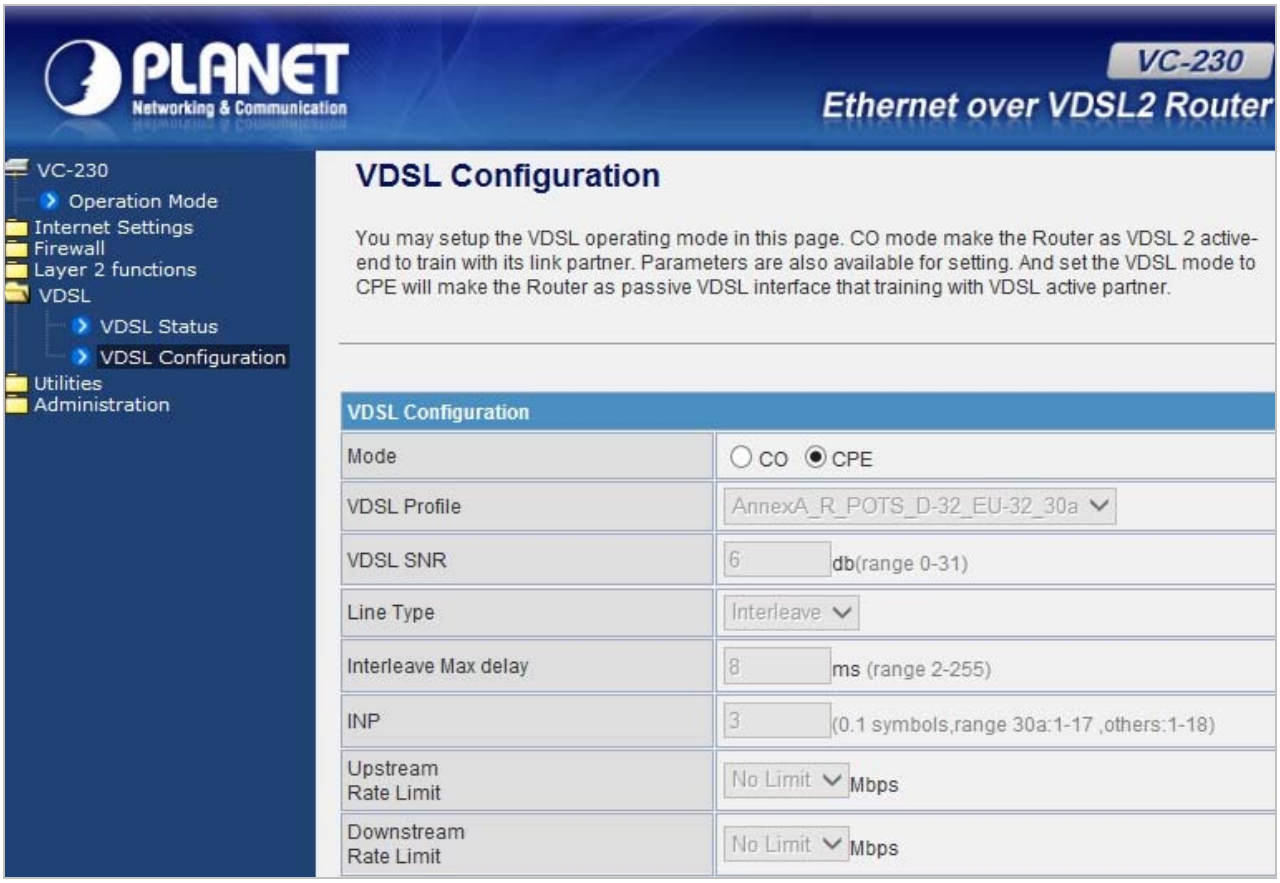
The VDSL Router provides two VDSL operation modes for applications. Users can select the CO and CPE mode manually.

For CPE mode, the router works as a VDSL client device, the VDSL connection is based on the CO side; users don't need to configure any VDSL settings in this mode.

For CO mode, the router works as a VDSL CO device such as VDSL DSLAM or Switch, you can configure the VDSL basic parameters for your VDSL connection.

CPE Mode

The VDSL Router **default is CPE mode**, in this mode, all VDSL parameters will be blocked and users don't need to configure it. Just connect to CO device for VDSL connection.

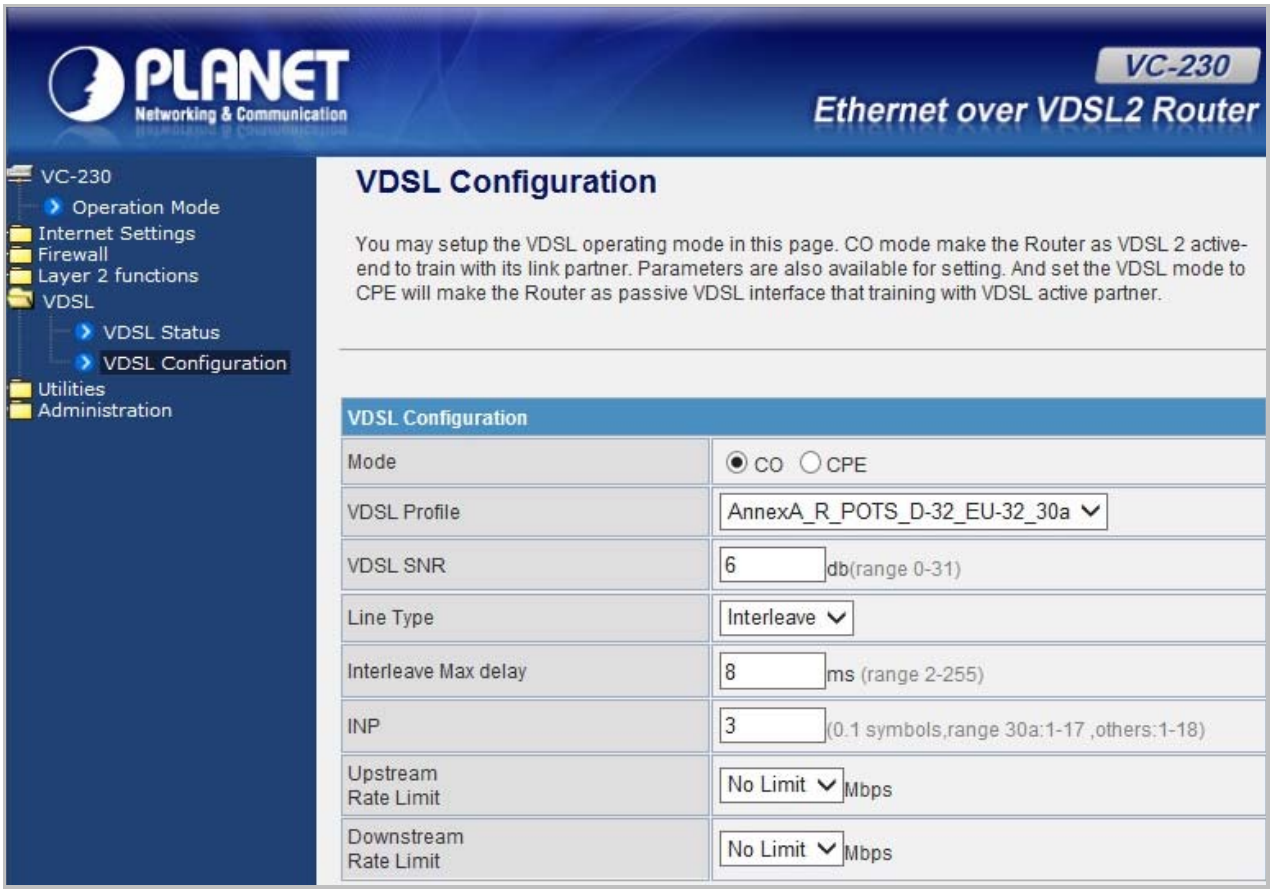


CO Mode

If you want to configure the VDSL Router as a CO device for Peer-to-Peer connection, please select CO mode and you can select proper settings for your VDSL connection.

Default CO parameters:

- **VDSL Profile: AnnexA_R_POTS_D-32_EU-32_30a**
- **VDSL SNR: 6 dB**
- **Line Type: Interleave**
- **Interleave Max. Delay: 8 ms**
- **INP : 3**
- **Upstream / Downstream Rate Limit: No Limit**



The page includes the following fields:

Object	Description
VDSL Profile	The VDSL2 router provides most common VDSL2 profiles for user; it supports the 30a, 17a, 12a, 12b, 8a, 8b, 8c and 8d. You can select the proper profile for your real environment. Different profiles provide different connection status of data rate and distance; please refer to Appendix A for more information. Click on the drop-down list and select the VDSL band plan to be used. The VDSL2 Managed Switch supports below profiles. 1. AnnexA_R_POTS_D-64_EU-64_30a 2. AnnexA_R_POTS_D-32_EU-32_30a 3. AnnexA_R_POTS_D-64_EU-64_17a 4. AnnexA_R_POTS_D-32_EU-32_17a 5. AnnexA_R_POTS_D-32_EU-32_12a 6. AnnexA_R_POTS_D-32_EU-32_12b 7. AnnexA_R_POTS_D-32_EU-32_8a 8. AnnexA_R_POTS_D-32_EU-32_8b 9. AnnexA_R_POTS_D-32_EU-32_8c 10. AnnexA_R_POTS_D-32_EU-32_8d 11. AnnexB_997_997E17-M2x-A 12. AnnexB_997_997E30-M2x-NUS0 13. AnnexB_998_998E17-M2x-NUS0 14. AnnexB_998_998E30-M2x-NUS0 15. AnnexC_POTS_25-138_b 16. AnnexC_POTS_25-276_b 17. AnnexC_TCM-ISDN
VDSL SNR	The line quality is determined by using the **SNR (Signal to Noise Ratio)** and applies to VDSL line connections only. SNR is the ratio of the amplitude of the actual signal to the amplitude of noise signals at a given point in time. The higher the SNR is, the better the line quality. Please manually adapt SNR margin according to line quality and distance to get better performance or replace the line with new one. Click on the drop-down list and select the SNR to be used. Configures SNR margin of Downstream or Upstream. SNR margin value: **6 dB** to **24 dB** Default value: **6 dB**
Line Type (MaxDelay)	The VDSL line type can be configured by selecting **maximum Interleave delay** of Downstream or Upstream direction. Basically, there are three types ■ **No limit** ■ **Fast mode**

	■ **Interleave** The interleave process is use to correct data error before modulation digital signal into analog signal. Interleave prevents error by enhanced correction but may slow down transmit rate because packets are gathered. **Interleaved mode** provides impulse noises protection for any impulse noise with a duration less than 250 us. By configuring interleave maximum-delay, it can prevent transmission delay caused of waiting data gathered. To skip Interleave process, select "**No delay**" to operate with Fast mode. **Fast mode** guarantees a minimum end to end latency less than 1 ms. Click on the drop-down list and select the Line Type to be used. Configures interleave-delay with specifying Downstream or Upstream. The unit is msec. The range between **0ms** to **63ms** Default value: **8ms**
INP 30a	Configure INP with specifying Upstream or Downstream to set minimum protection values of port provision. Click on the drop-down list and select the **INP (Impulse Noise Protection)** to be used. The range between 1 (or 0.5 for no 30a case) to 16 symbol or **No Protection** Default value: **2 symbol**
Upstream Rate Limit	Configure the transmit rate of Maximum Upstream. The value of outbound traffic limitation in Mbps, from the VDSL2 CO to the CPE. Default is **No Limit.** The range between 1Mbps to 100Mbps.
Downstream Rate Limit	Configure the transmit rate of Maximum Downstream. The value of inbound traffic limitation in Mbps, from the VDSL2 CPE to the CO. Default is **No Limit.** The range between 1Mbps to 100Mbps.

Note

1. The default profile of VDSL port is "**30a**"
2. If the SNR margin is configured too big, the transmit rate will slow down, whereas communications is stable.
3. If the "MaxDelay" is configured to "**No Delay**" (Fast mode), error correction will not be done well, whereas transmit data rate becomes faster.

Option Band:

AnnexA: use 6 to 32 tone in annex A environment in the direction of upstream.

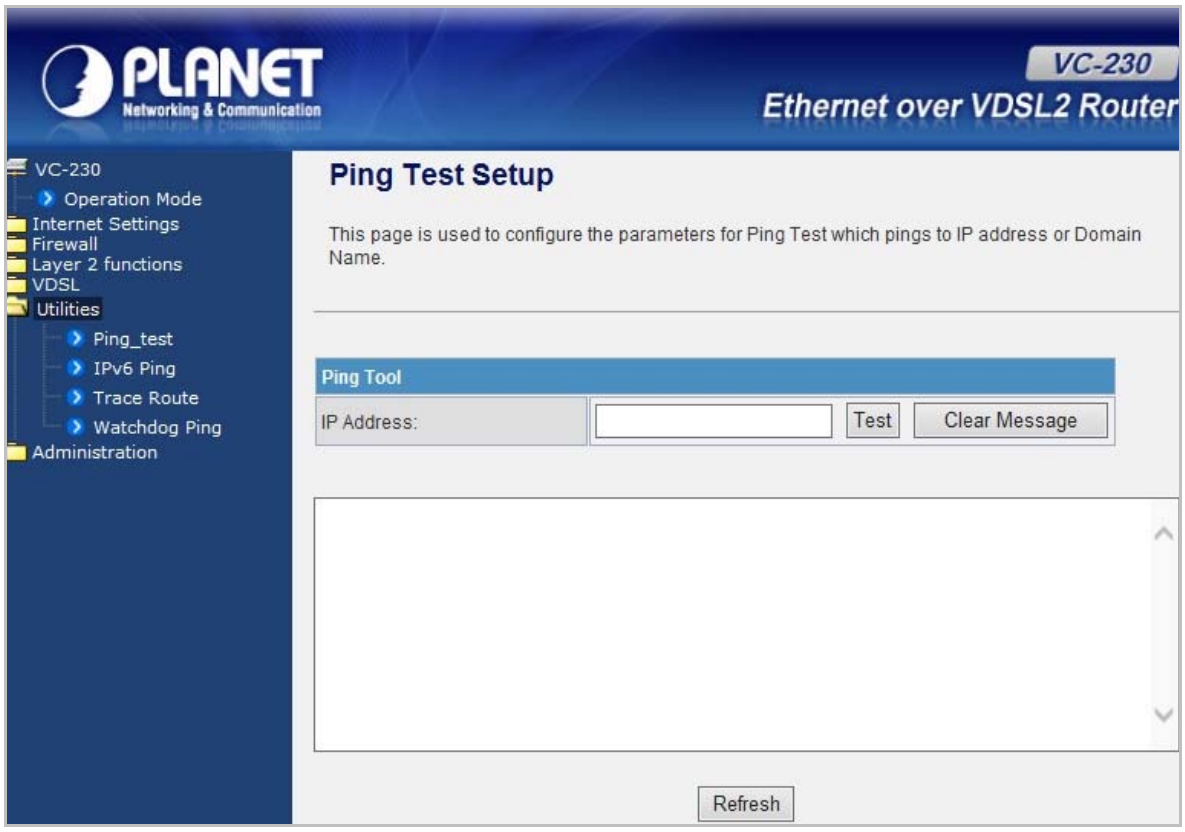
AnnexB: use 32 to 64 tone in annex B environment in the direction of upstream.

5.7 Utilities

The VC-230 / VC-230N provides four functions for users to use.

5.7.1 Ping Test Setup

This page is used to configure the parameters for Ping Test which pings to IP address or Domain Name.

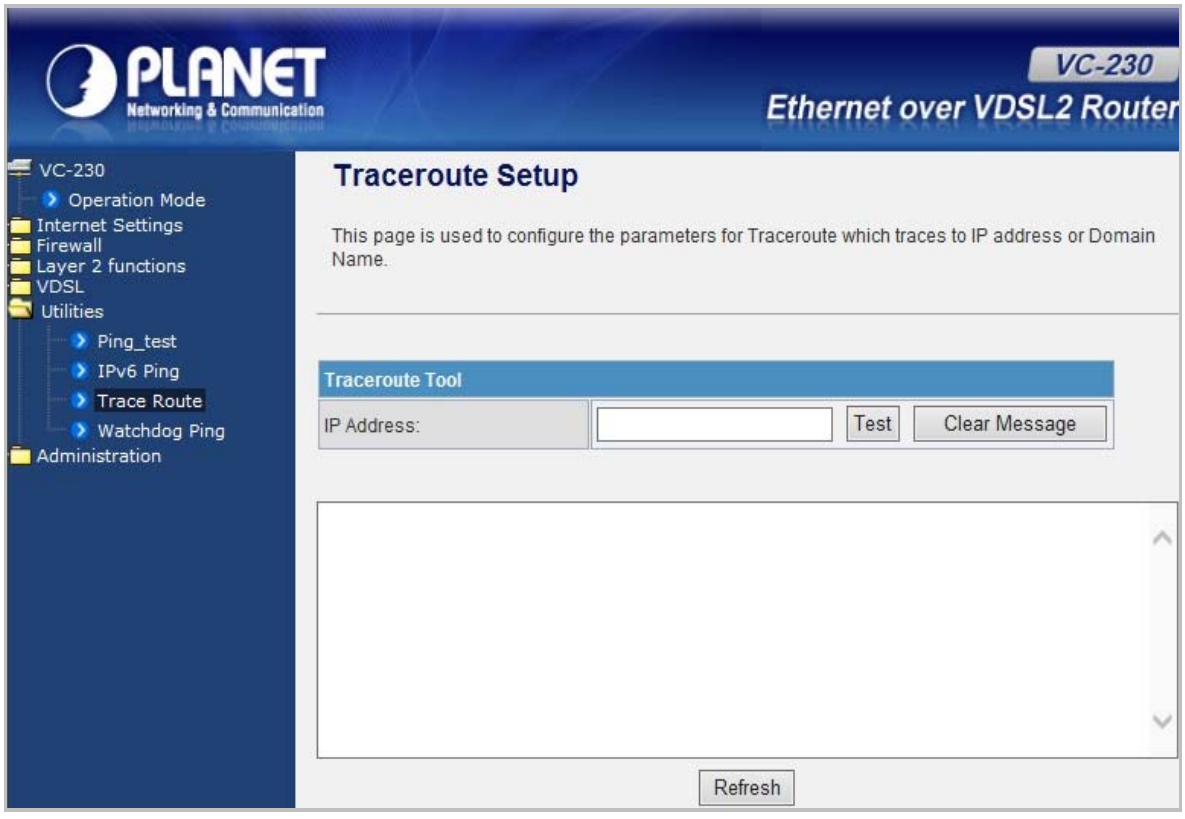


5.7.2 IPv6 Ping Test

This page is used to configure the parameters for IPv6 Ping Test which pings to IPv6 address or Domain Name.

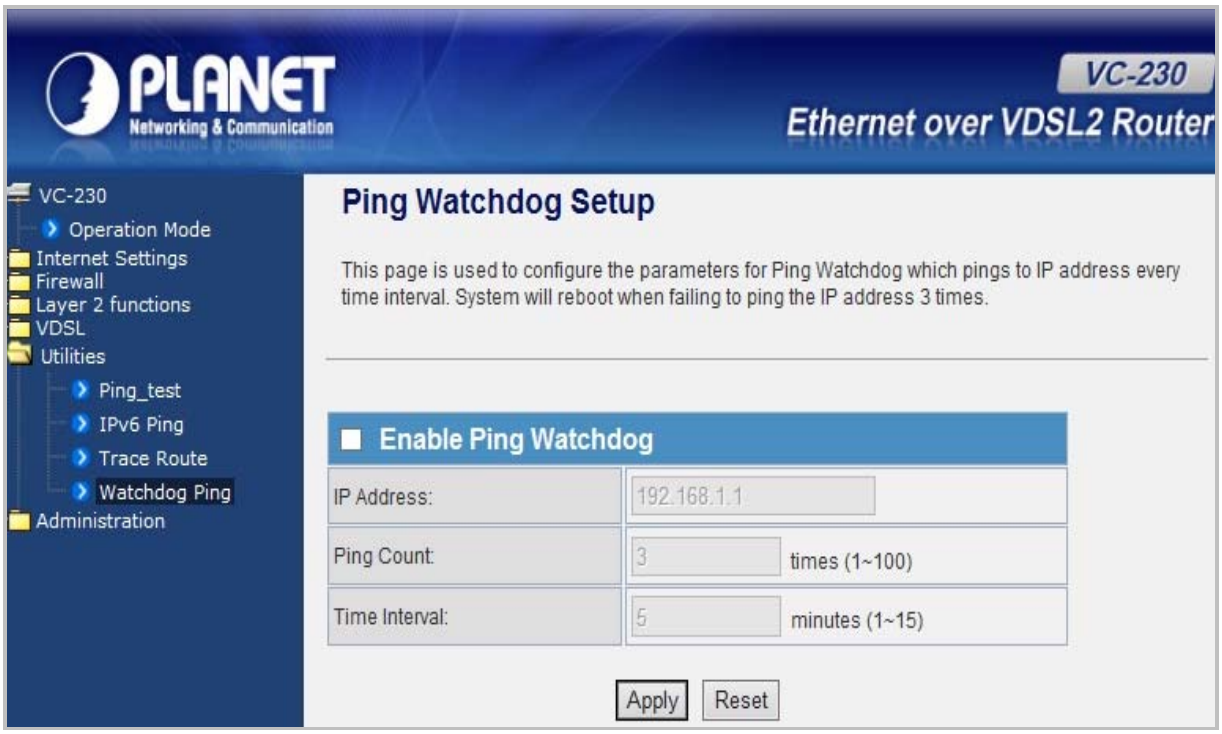
5.7.3 Trace Route

This page is used to configure the Traceroute which traces to IP address or Domain Name.



5.7.4 Watch Dog Ping

On this page you can enable Ping Watchdog. And configure the parameters for Ping Watchdog which pings to IP address every time interval. System will reboot when failing to ping the IP address 3 times.



The page includes the following fields:

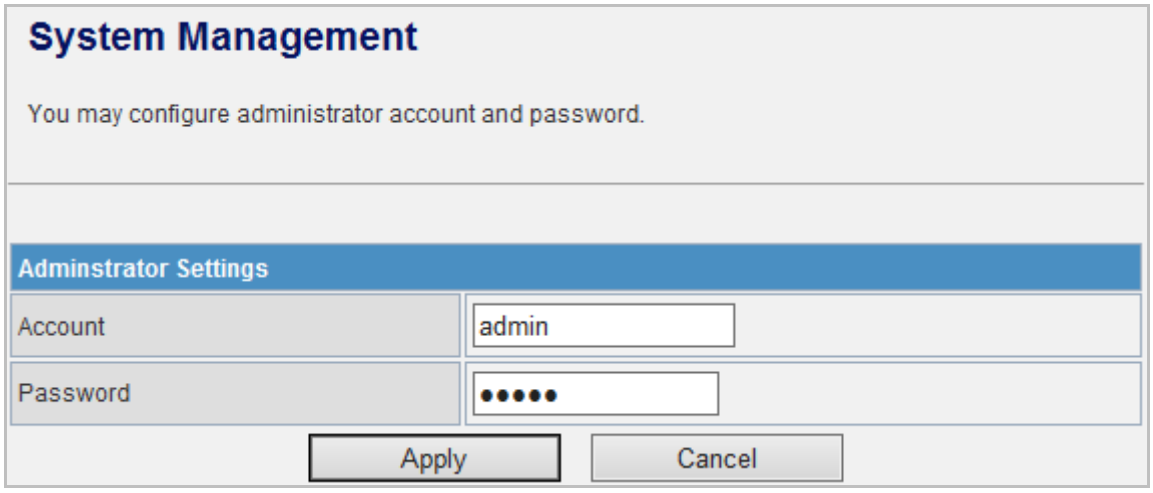
Object	Description
Ping Count	Set times from 1 to 100.
Time Interval	Set minutes from 1 to 15.

5.8 Administration

You can configure admin management in this part. It includes Management, Update Firmware, Setting Management, Reboot, Status, Statistics and System Log.

5.8.1 Management

Choose **Administration > Management,** and the following page appears. You may configure administrator account and password on the page.



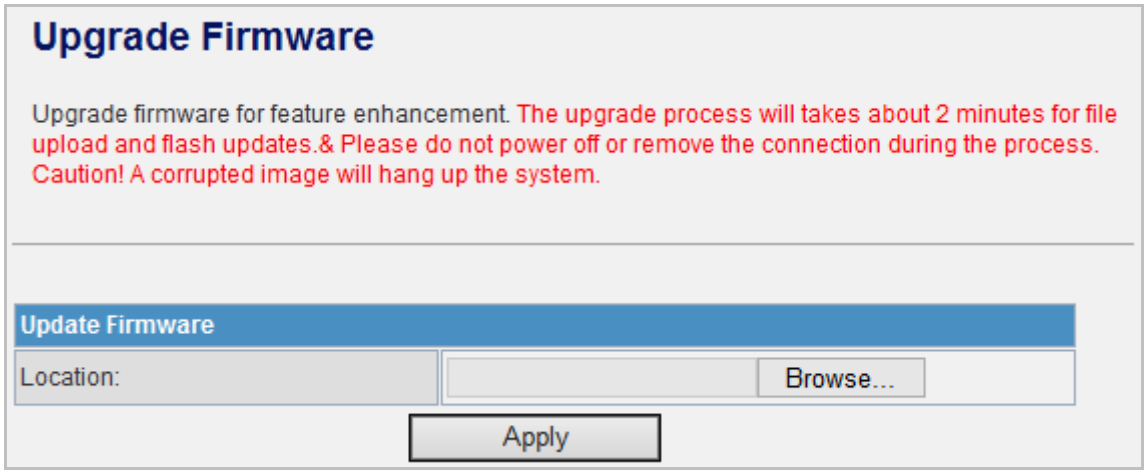
Administrator Settings

Object	Description
Account	Enter the user name of the administrator in the field.
Password	Enter the user name of the administrator in the field.

5.8.2 Uploading Firmware

Choose **Administration > Upload Firmware** and the following page appears. On this page, you may upgrade the correct new version firmware to obtain new functionality. It takes about 2 minutes to upload and upgrade the flash.

If the firmware is uploaded in an improper way, the system would core dump.

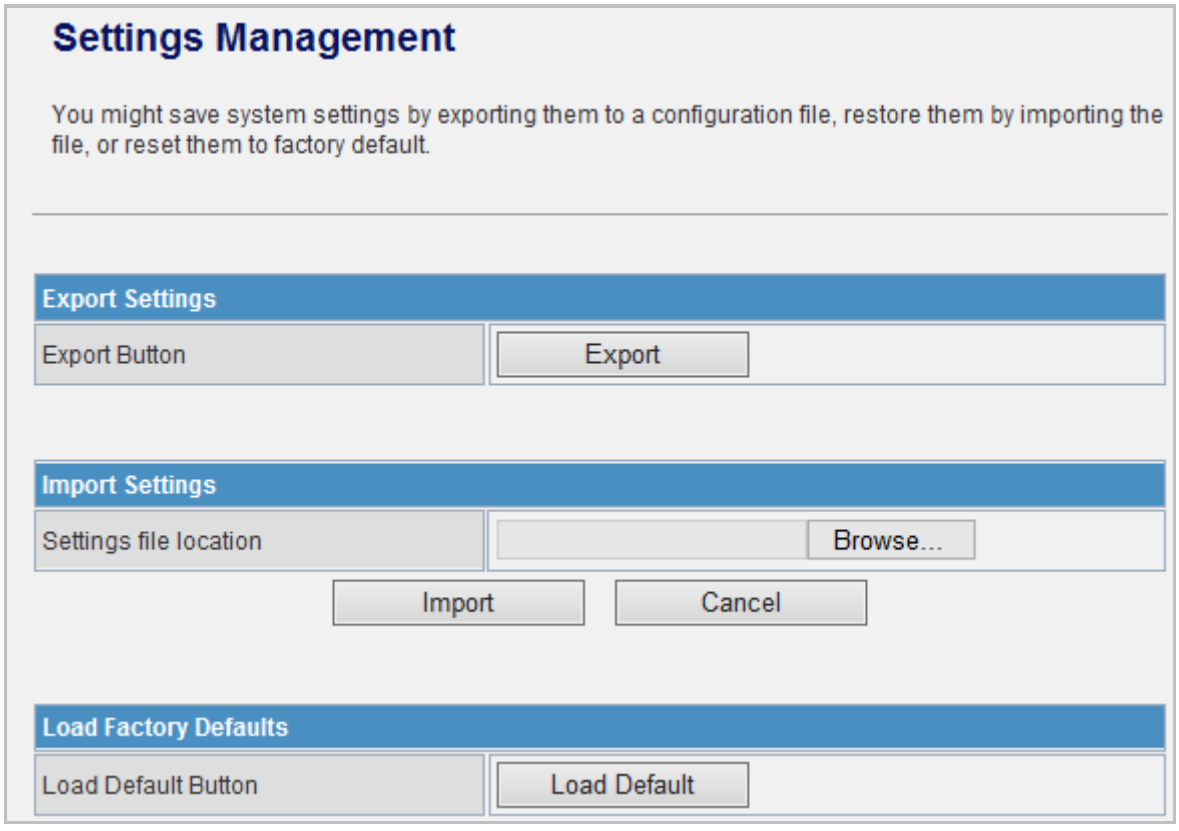


Updating Firmware

Object	Description
Location	Click **Browse** to select the firmware file, and click **Apply** to upgrade the firmware.

5.8.3 Setting Management

Choose **Administration > Settings Management** and the following page appears. You may save system settings by exporting them to a configuration file, restore them by importing the file, or reset them to the factory default.



Exporting Settings

Object	Description
Export Button	Click the **Export** to export the settings

Importing Settings

Object	Description
Import Settings	Click **Browse** to select the configuration file, and then click
Import	Upload the configuration file. Click **Cancel** to cancel the uploading operation.

Loading Factory Defaults

Object	Description
Load Default	Click **Load Default** to make Router return to the default settings.

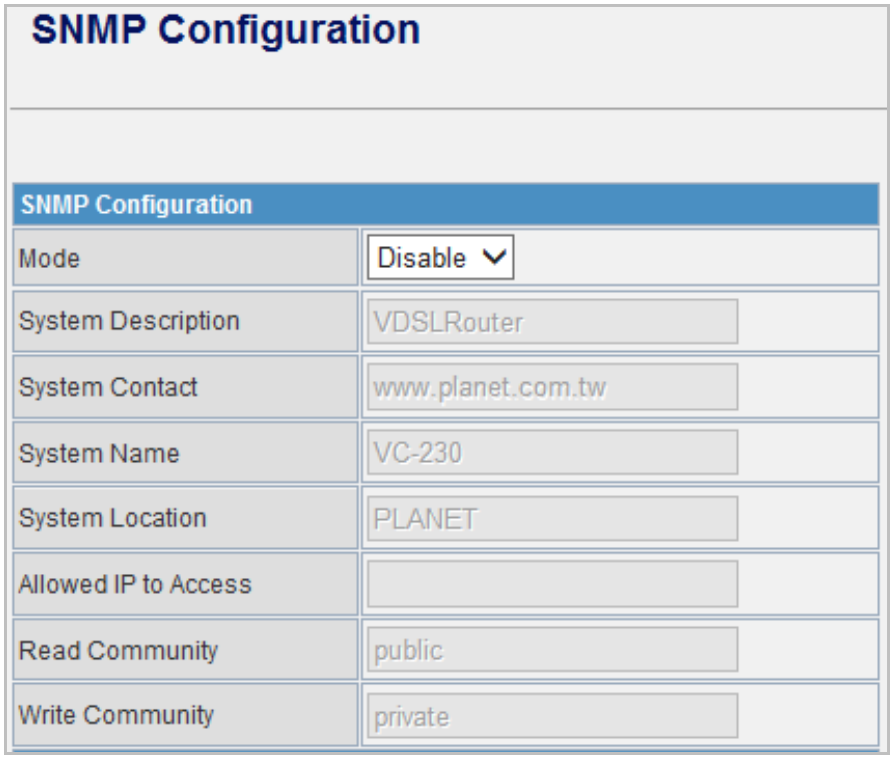
5.8.4 SNMP Configuration

Simple Network Management Protocol (SNMP) is a popular protocol for network management. It is widely used in local area networks (LAN) for collecting information, and managing and monitoring, network devices, such as servers, printers, hubs, switches, and routers from a management host.

Managed devices that support SNMP including software are referred to as an SNMP agent, which usually interacts with third-party SNMP management software to enable the sharing of network status information between monitored devices and applications and the SNMP management system.

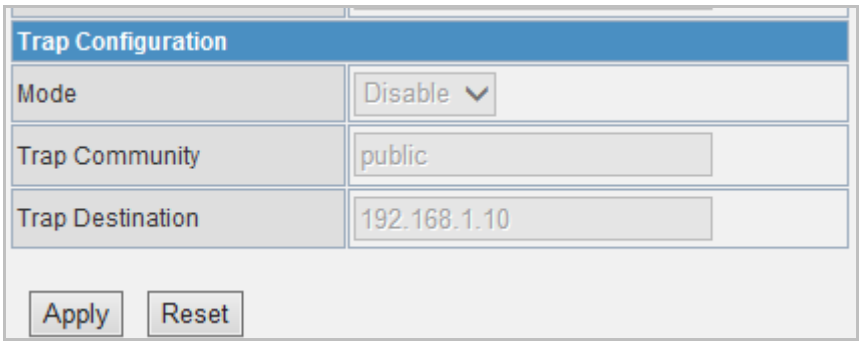
A defined collection of variables (managed objects) are maintained by the SNMP agent and used to manage the device. These objects are defined in a **Management Information Base (MIB)**, which provides a standard presentation of the information controlled by the on-board SNMP agent. SNMP defines both the format of the MIB specifications and the protocol used to access this information over the network.

Choose **Administration > SNMP configuration** and the following page appears. You may enable SNMP Configuration and Trap Configuration settings.



The page includes the following fields:

Object	Description
Mode	Indicates the SNMP mode operation. Possible modes are: • **Enabled**: Enable SNMP mode operation. • **Disabled**: Disable SNMP mode operation.
System Contact:	Set the name to access the router. Usually set the administrator's name.
System Name:	Set the router's name, such as "**VC-230**".
System Location:	Set the router's network location.
Read Community:	Indicates the community read access string to permit reading this router's SNMP information. The default is **Public**.
Write Community:	Indicates the community write access string to permit reading and re-writing this router's SNMP information. The default is **Private**.



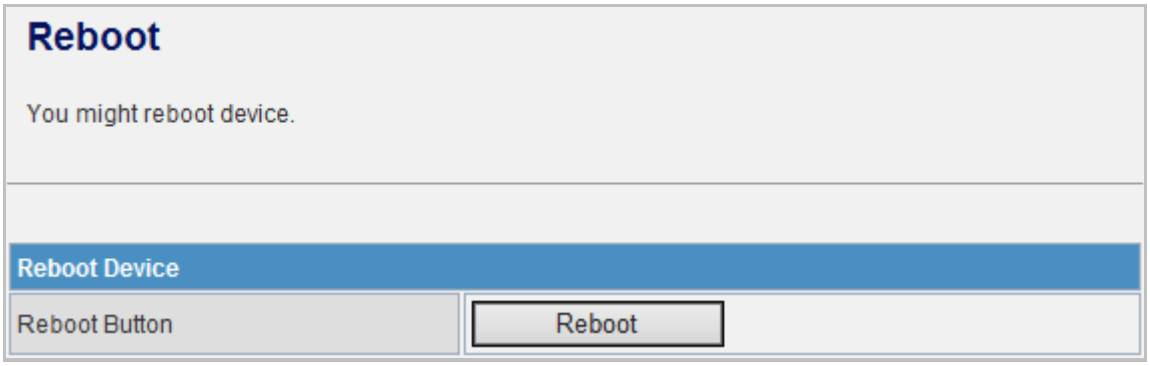
Trap Configuration

Object	Description
Mode :	Indicates the SNMP trap mode operation. Possible modes are: **Enabled**: Enable SNMP trap mode operation. **Disabled**: Disable SNMP trap mode operation.
Trap Community:	Enter the community string for the trap station.
Trap Destination :	Enter the IP address of the trap manager.

Click **Apply** to enable the configuration to take effect. Click **Reset** button to reset the whole configuration to default.

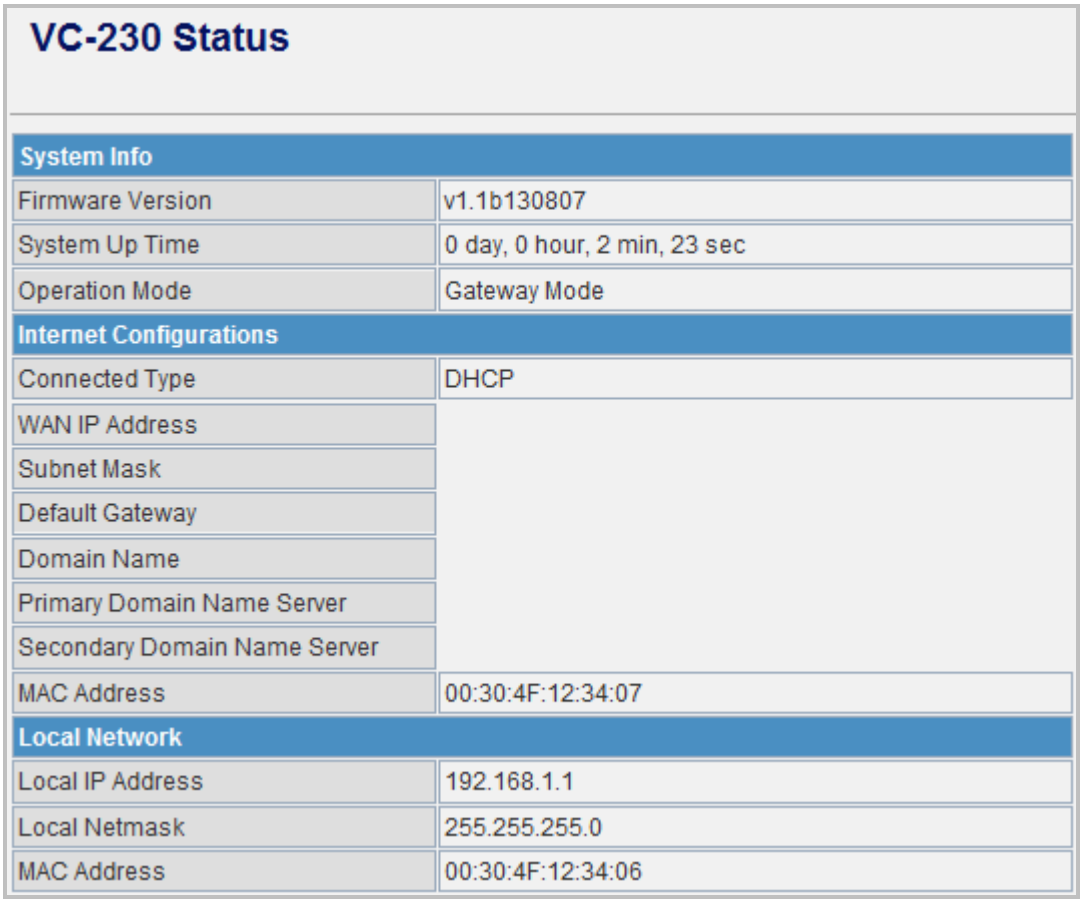
5.8.5 Reboot

The **Reboot** screen allows you to restart your router with its current settings. Click the “Reboot” button and the device will restart.



5.8.6 Status

Choose **Administration > Status** and the following page appears. It displays the information about Router status, including system information, Internet configurations, and local network.

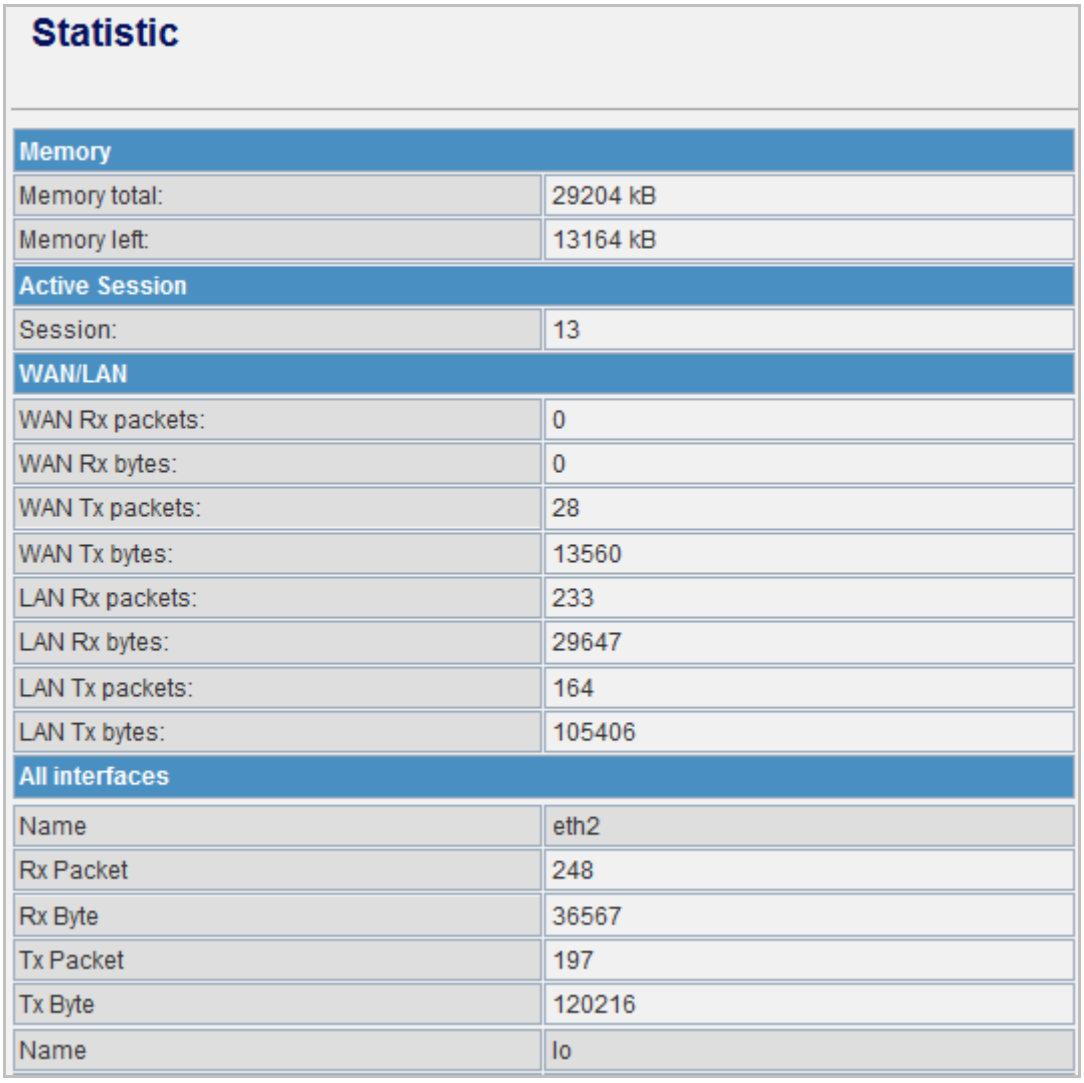


VC-230 Status

System Info	
Firmware Version	v1.1b130807
System Up Time	0 day, 0 hour, 2 min, 23 sec
Operation Mode	Gateway Mode
Internet Configurations	
Connected Type	DHCP
WAN IP Address	
Subnet Mask	
Default Gateway	
Domain Name	
Primary Domain Name Server	
Secondary Domain Name Server	
MAC Address	00:30:4F:12:34:07
Local Network	
Local IP Address	192.168.1.1
Local Netmask	255.255.255.0
MAC Address	00:30:4F:12:34:06

5.8.7 Statistics

You can see the Statistic information on this screen. It includes the Traffic for all interfaces.

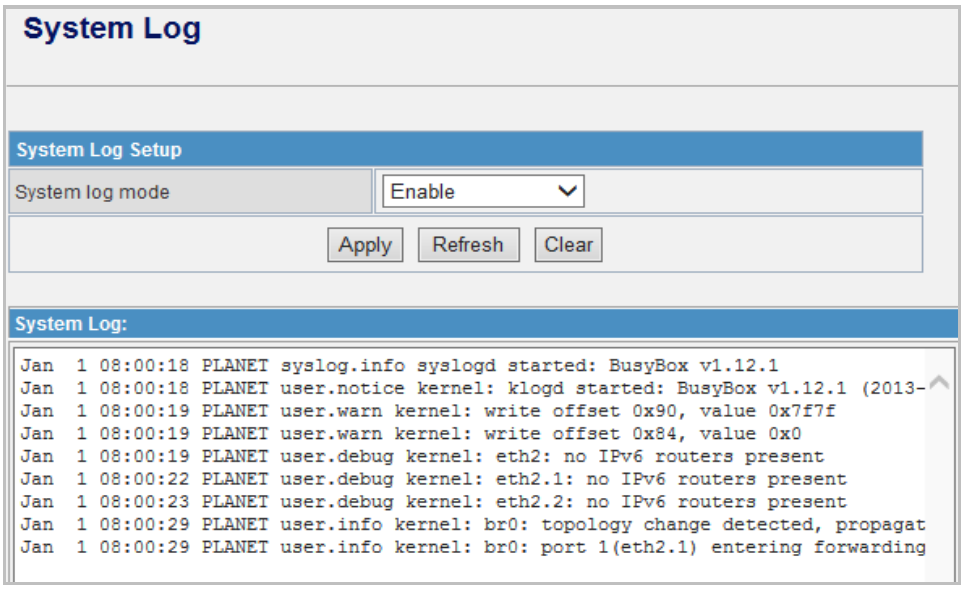


Statistic

Memory	
Memory total:	29204 kB
Memory left:	13164 kB
Active Session	
Session:	13
WAN/LAN	
WAN Rx packets:	0
WAN Rx bytes:	0
WAN Tx packets:	28
WAN Tx bytes:	13560
LAN Rx packets:	233
LAN Rx bytes:	29647
LAN Tx packets:	164
LAN Tx bytes:	105406
All interfaces	
Name	eth2
Rx Packet	248
Rx Byte	36567
Tx Packet	197
Tx Byte	120216
Name	lo

5.8.8 System Log

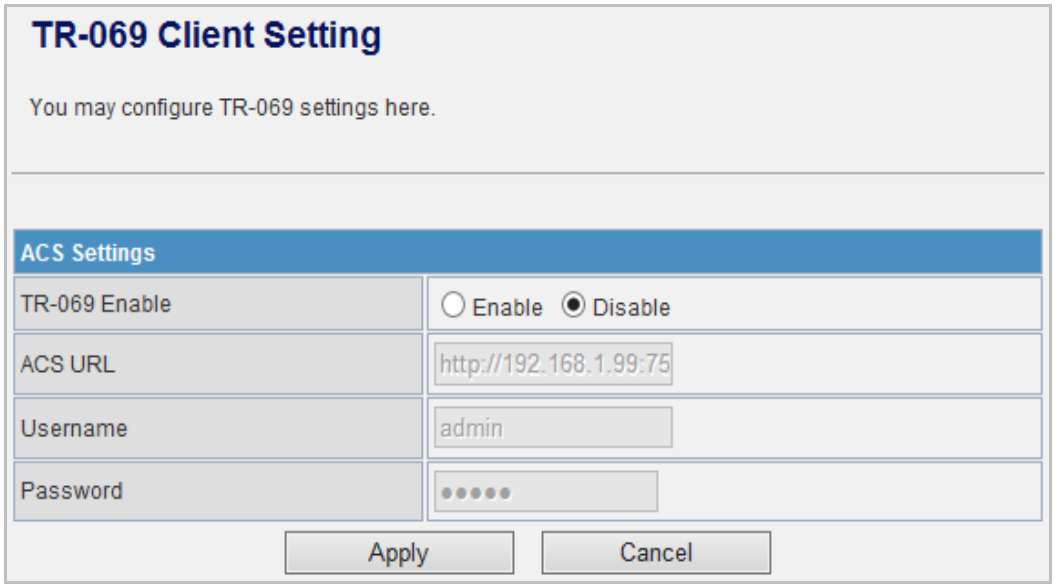
The system log dialog allows you to view the system log and click the “Refresh” button to refresh the system event logs. Choose **Administration > System Log** and the following page appears. You are allowed to view and disable / enable the system log on this page.



Click **Refresh** to refresh the log. Click **Clear** to clear the log.

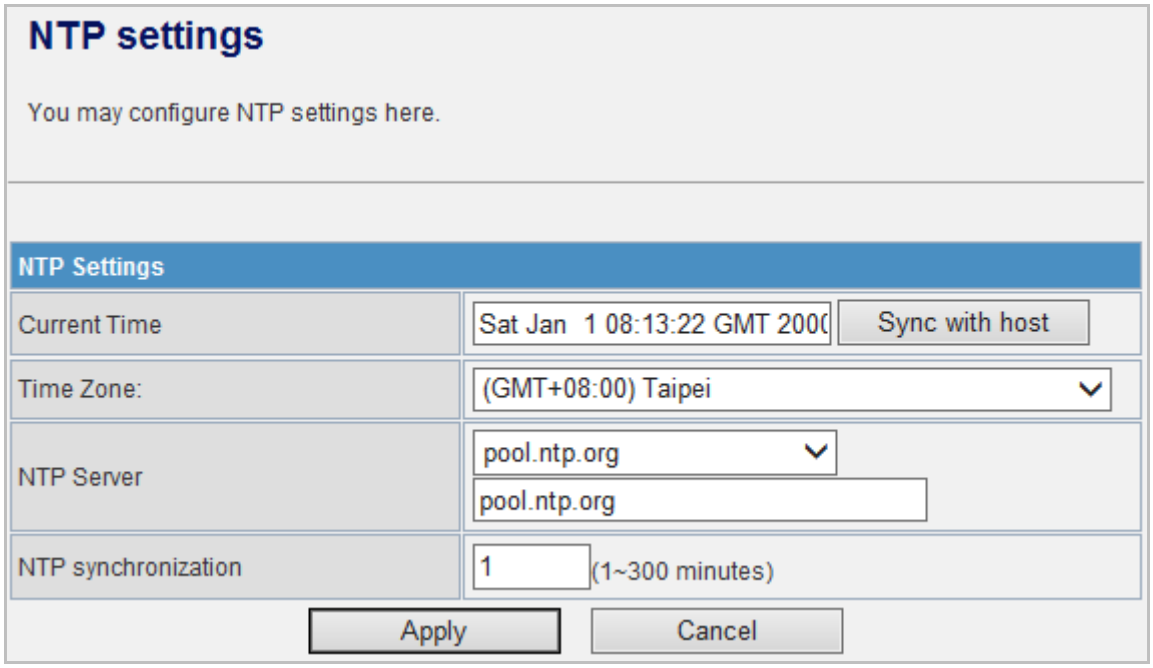
5.8.9 TR-069 Client

Choose **Administration > TR-069 Client** and the following page appears. You are allowed to disable or enable the function on this page.



5.8.10 NTP

Choose **Administration > NTP** and the following page appears. You may configure NTP settings on this page.



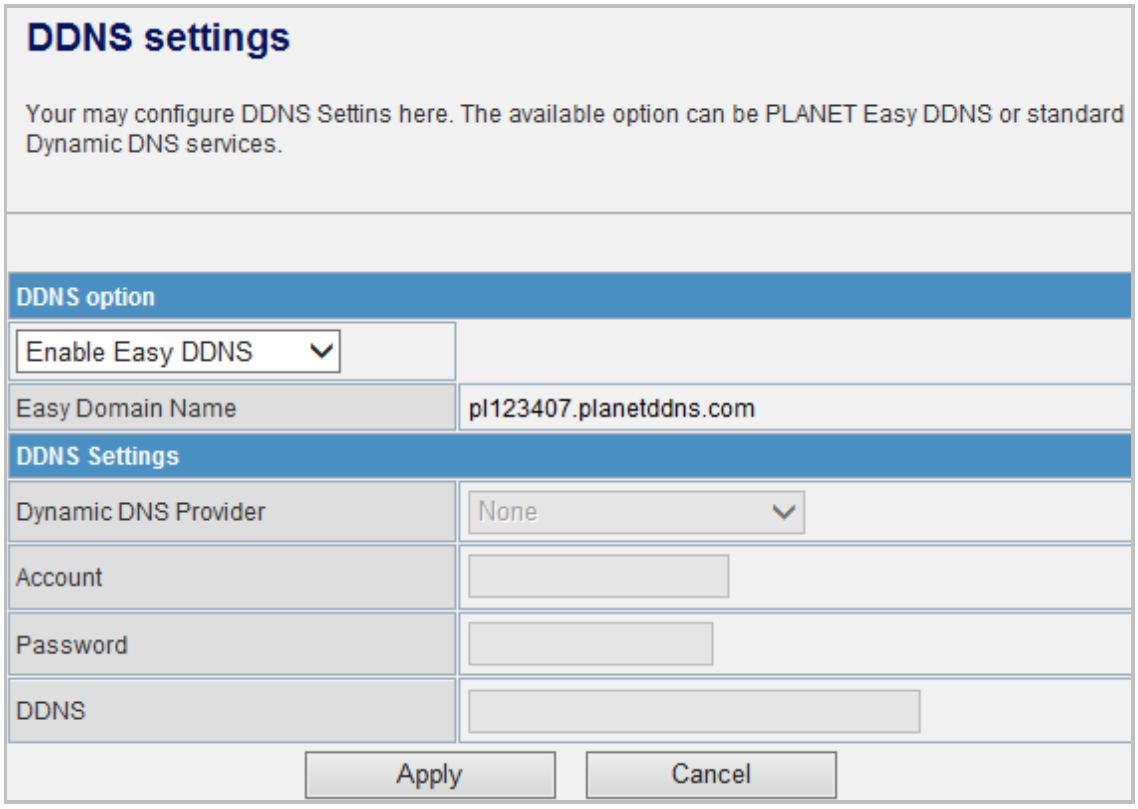
NTP Settings

Object	Description
Current Time	Display the current date and time. Click **Sync with host**, the current time is synchronized by your PC which is connected to Router.
Time Zone	Select the proper time zone in the drop-down list.
NTP Server	Enter the IP address or domain name of NTP server.
NTP synchronization	Enter the time interval for synchronization. From 1 to 300 minutes.

5.8.11 DDNS

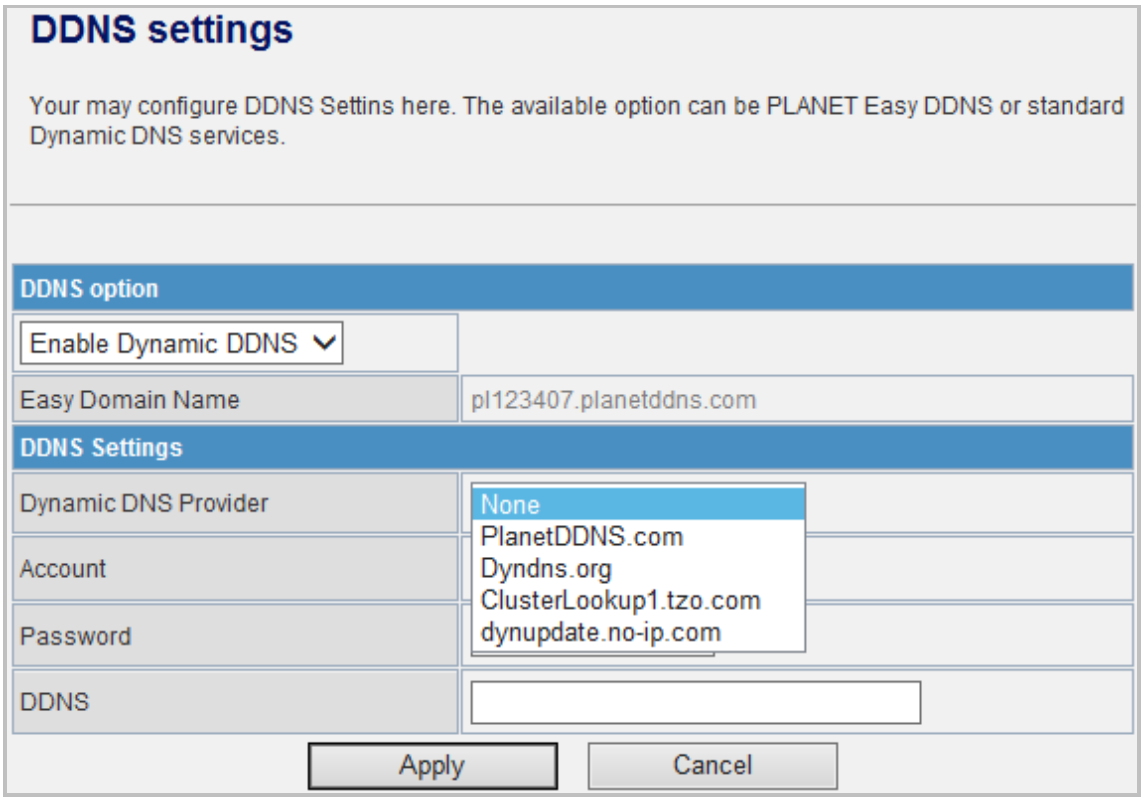
The Wireless Router offers the **DDNS** (Dynamic Domain Name System) feature, which allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (named by yourself) and a dynamic IP address, and then your friends can connect to your server by entering your domain name no matter what your IP address is. Before using this feature, you need to sign up for DDNS service providers such as PLANET DDNS or dynamic DNS. The Dynamic DNS client service provider will give you a password or key.

Choose **Administration > DDNS** and the following page appears. You can choose Disable, Enable Easy DDNS and Dynamic DDNS settings on this page.



Easy DDNS

Planet Easy DDNS is a way help to get your Domain Name with just one click. Once you enabled the Easy DDNS, your Planet Network Device will use the format PLxxxxxx where xxxxxx is the last 6 characters of your MAC address that can be found on the web page or bottom label of the device. (For example, 00-30-4F-12-34-07, it will be converted into PL123407.planetddns.com)

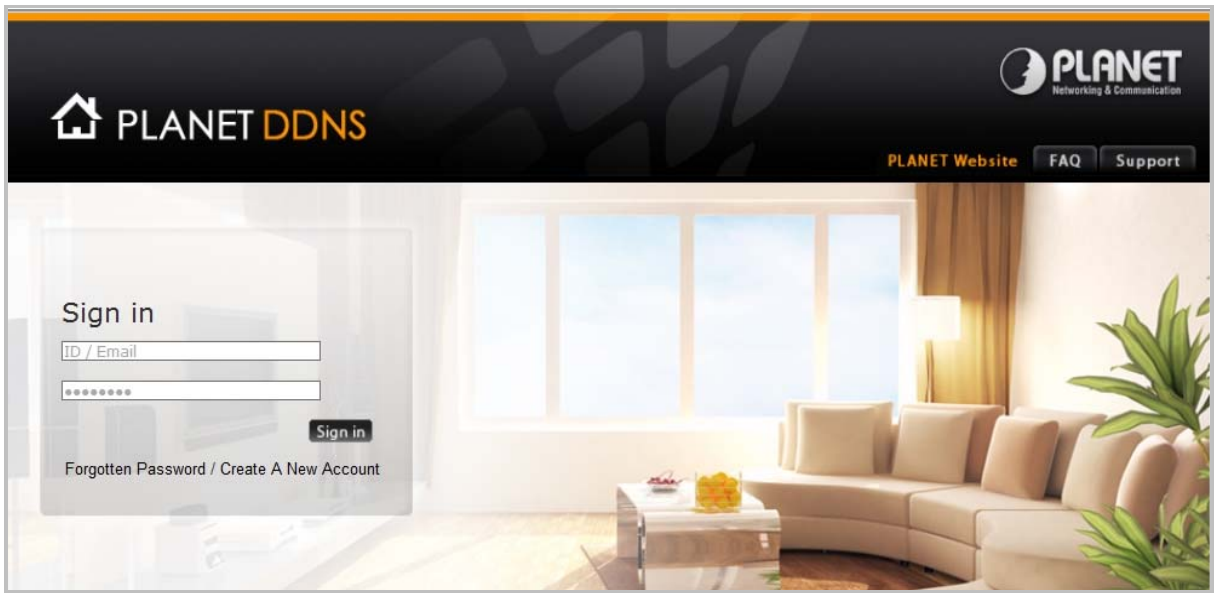


DDNS Settings

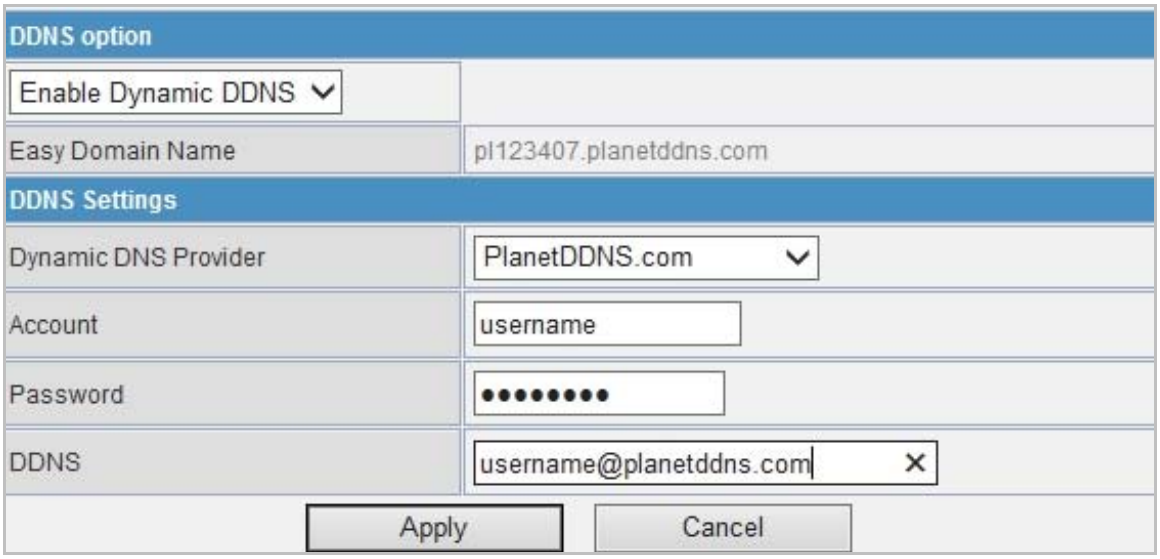
Object	Description
Dynamic DNS Provider	Select the proper dynamic DNS provider in the drop-down list. After selecting a dynamic DNS provider, you are allowed to set the following parameters.
Account	Enter the username of DDNS provider in the field.
Password	Enter the password of DDNS provider in the field.
DDNS	Enter the domain name of your device.

Planet DDNS

First of all, please go to http://www.planetddns.com to register a Planet DDNS account, and refer to the FAQ (http://www.planetddns.com/index.php/faq) for how to register a free account.



To select **Dynamic DNS Provider > PlanetDDNS.com**



Step 1. Type the User Name for your DDNS account.

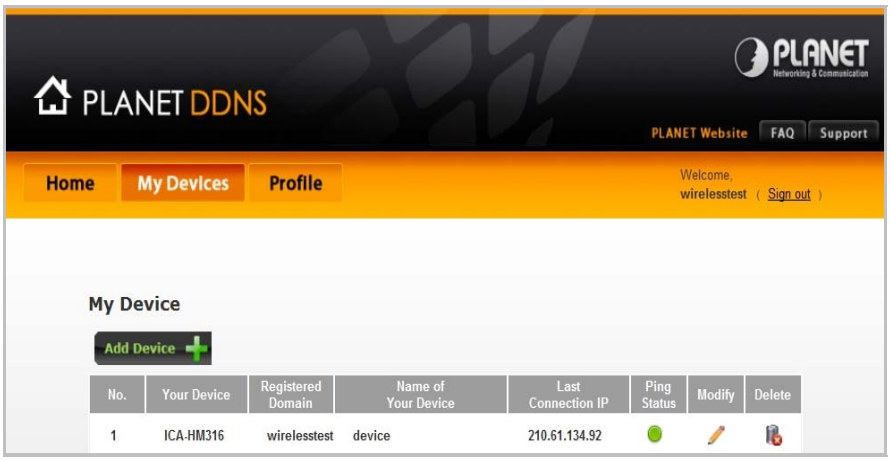
Step 2. Type the Password for your DDNS account.

Step 3. Type the Domain Name you received from dynamic DNS service provider.

Go to **Firewall >System Security> Remote management** and choose **Allow** to allow remote access from WAN port.

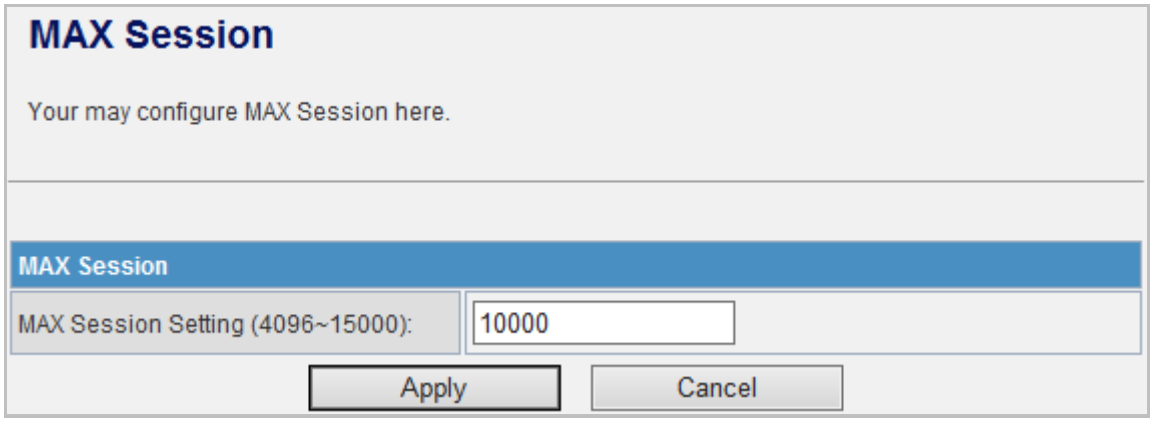
Apply the settings and ensure you have connected the WAN port to the Internet. In a remote device, enter the Domain Name to the internet browser's address bar.

You can go to My Devices page of Planet DDNS website to check if the "Last Connection IP" is displayed. This indicates your DDNS service is working properly.



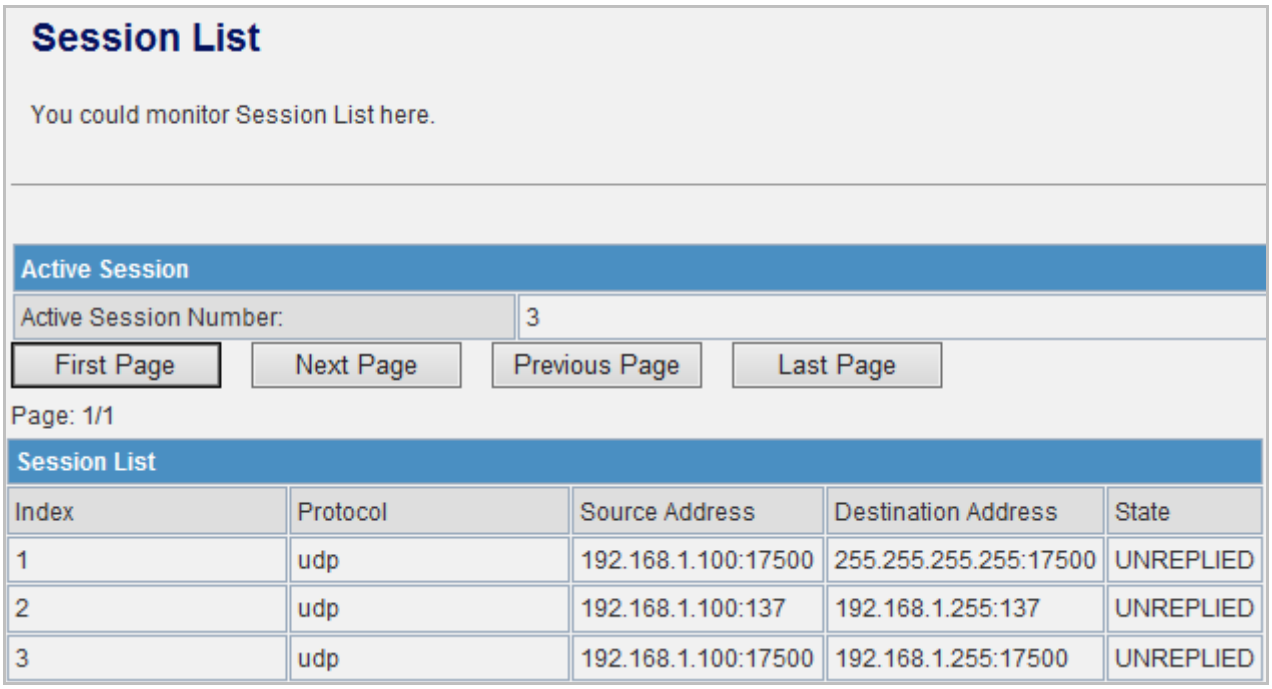
5.8.12 Max Session

Choose **Administration > Max Session** and the following page appears. You may configure Max Session on this page.



5.8.13 Session List

Choose **Administration > Session List** and the following page appears. You may monitor Session List on this page.



Appendix A: Performance of VDSL Router Profiles

The table below is a performance table for profile and line distance; this data is just for reference. The actual data rate will vary on the quality of the telephone line and environmental factors.

For better performance, we suggest you use the AWG-26 or above cable for your connection, and the best line distance is about 1km.

(Data Rate: Mbps)

Profile \ Distance		200m	400m	800m	1000m
AnnexA_EU-32_30a	Up	100	50	5	
	Down	100	100	60	
AnnexA_ EU-32_17a	Up	55	45	20	7
	Down	100	100	55	50
AnnexA_EU-32_12a	Up	55	45	20	7
	Down	80	70	60	50
AnnexA_EU-32_12b	Up	55	45	20	7
	Down	80	70	60	50
AnnexA_EU-32_8a	Up	15	13	9	6
	Down	80	72	60	50
AnnexA_EU-32_8b	Up	15	13	9	6
	Down	80	72	60	50
AnnexA_EU-32_8c	Up	15	14	10	7.5
	Down	80	72	60	50
AnnexA_EU-32_8d	Up	15	13	9	6
	Down	80	72	60	50

The real data rate and distance are based on your real environment. This is just for reference.

Appendix B: Glossary

Address mask

A bit mask select bits from an Internet address for subnet addressing. The mask is 32 bits long and selects the network portion of the Internet address
and one or more bits of the local portion. Sometimes it called subnet mask.

VDSL

VDSL2 (Very High-Bit-Rate Digital Subscriber Line 2), G.993.2 is the newest and most advanced standard of xDSL broadband wire line communications.

ADSL

Asymmetric digital subscriber line

AAL5

ATM Adaptation Layer - This layer maps higher layer user data into ATM cells, making the data suitable for transport through the ATM network.

ATM

Asynchronous Transfer Mode - A cell-based data transfer technique in which channel demand determines packet allocation. ATM offers fast packet technology,
real time, and demand led switching for efficient use of network resources.

AWG

American Wire Gauge - The measurement of thickness of a wire

Bridge

A device connects two or more physical networks and forward packets between them. Bridges can usually be made to filter packets, that is, to forward only certain traffic. Related devices are repeaters which simply forward electrical signals from one cable to the other and full-fledged routers which make routing decisions based on several criteria.

Broadband

Characteristic of any network multiplexes independent network carriers onto a single cable. Broadband technology allows several networks to coexist on one single cable; traffic from one network does not interfere with traffic from another. Broadcast a packet delivery system where a copy of a given packet is given to all hosts attached to the network. Example: Ethernet.

CO
Central Office. Refers to equipment located at a Telco or service provider's office.

CPE
Customer Premises Equipment located in a user's premises

DHCP (Dynamic Host Configuration Protocol)
DHCP is software that automatically assigns IP addresses to client stations logging onto a TCP/IP network. DHCP eliminates having to manually assign permanent IP addresses to every device on your network. DHCP software typically runs in servers and is also found in network devices such as Routers.

DMT
Discrete Multi-Tone frequency signal modulation

Downstream rate
The line rate for return messages or data transfers from the network machine to the user's premises machine.

DSLAM
Digital Subscriber Line Access Multiplex

Dynamic IP Addresses
A dynamic IP address is an IP address that is automatically assigned to a client station (computer, printer, etc.) in a TCP/IP network. Dynamic IP addresses are typically assigned by a DHCP server, which can be a computer on the network or another piece of hardware, such as the Router. A dynamic IP address may change every time your computer connects to the network.

Encapsulation
The technique layer protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), and followed by the application protocol data.

Ethernet
One of the most common local area network (LAN) wiring schemes, Ethernet has a transmission rate of 10 Mbps.

FTP

File Transfer Protocol. The Internet protocol (and program) transfer files between hosts.

Hop count

A measure of distance between two points on the Internet. It is equivalent to the number of gateways that separate the source and destination.

HTML

Hypertext Markup Language - The page-coding language for the World Wide Web.

HTML browser

A browser used to traverse the Internet, such as Netscape or Microsoft Internet Explorer.

http

Hypertext Transfer Protocol - The protocol carry world-wide-web (www) traffic between a www browser computer and the www server being accessed.

ICMP

Internet Control Message Protocol - The protocol handle errors and control messages at the IP layer. ICMP is actually part of the IP protocol.

Internet address

An IP address is assigned in blocks of numbers to user organizations accessing the Internet. These addresses are established by the United States Department
of Defense's Network Information Center. Duplicate addresses can cause major problems on the network, but the NIC trusts organizations to use individual
addresses responsibly. Each address is a 32-bit address in the form of x.x.x.x where x is an eight- bit number from 0 to 255. There are three classes: A, B and C, depending on how many computers on the site are likely to be connected.

Internet Protocol (IP)

The network layer protocol for the Internet protocol suite

IP address

The 32-bit address assigned to hosts that want to participate in a TCP/IP Internet.

ISP

Internet service provider - A company allows home and corporate users to connect to the Internet.

MAC
Media Access Control Layer - A sub-layer of the Data Link Layer (Layer 2) of the ISO OSI Model responsible for media control.

MIB
Management Information Base - A collection of objects can be accessed via a network management protocol, such as SNMP and CMIP (Common Management Information Protocol).

NAT
Network Address Translation - A proposal for IP address reuse, where the local IP address is mapped to a globally unique address.

NVT
Network Virtual Terminal

PAP
Password Authentication Protocol

PORT
The abstraction used in Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host.

POTS
Plain Old Telephone Service - This is the term describe basic telephone service.

PPP
Point-to-Point-Protocol - The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

PPPoE
PPP over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Remote server
A network computer allows a user to log on to the network from a distant location.

RFC

Request for Comments - Refers to documents published by the Internet Engineering Task Force (IETF) proposing standard protocols and procedures for the Internet. RFC can be found at www.ietf.org.

Route

The path that network traffic takes from its source to its destination. The route a datagram may follow can include many gateways and many physical networks.
In the Internet, each datagram is routed separately.

Router

A system is responsible for making decisions about which of several paths network (or Internet) traffic will follow. To do this, it uses a routing protocol to gain information about the network and algorithms to choose the best route based on several criteria known as "routing metrics".

Routing Table

Information stored within a router that contains network path and status information. It is used to select the most appropriate route to forward information along.

Routing Information Protocol

Routers periodically exchange information with one another so that they can determine minimum distance paths between sources and destinations.

SNMP

Simple Network Management Protocol - The network management protocol of choice for TCP/IP-based Internet.

SOCKET

(1) The Berkeley UNIX mechanism for creating a virtual connection between processes.
(2) IBM term for software interfaces that allow two UNIX application programs to talk via TCP/IP protocols.

Spanning-Tree Bridge Protocol (STP)

Spanning-Tree Bridge Protocol (STP) - Part of an IEEE standard. A mechanism for detecting and preventing loops from occurring in a multi-bridged environment.
When three or more LAN's segments are connected via bridges, a loop can occur. Because of a bridge forwards all packets that are not recognized as being local,
some packets can circulate for long periods of time, eventually degrading system performance. This algorithm ensures only one path connects any pair of stations, selecting one bridge as the 'root' bridge, with the highest priority one as identifier, from which all paths should radiate.

Spoofing

A method of fooling network end stations into believing that keep alive signals have come from and returned to the host. Polls are received and returned locally at
either end

Static IP Address

A static IP address is an IP address permanently assigned to computer in a TCP/IP network. Static IP addresses are usually assigned to networked devices that are consistently accessed by multiple users, such as Server PCs, or printers. If you are using your Router to share your cable or DSL Internet connection, contact your ISP to see if they have assigned your home a static IP address. You will need that address during your Router's configuration.

Subnet

For routing purposes, IP networks can be divided into logical subnets by using a subnet mask. Values below those of the mask are valid addresses on the subnet.

TCP

Transmission Control Protocol - The major transport protocol in the Internet suite of protocols provides reliable, connection-oriented full-duplex streams.

TFTP

Trivial File Transfer Protocol. A simple file transfer protocol (a simplified version of FTP) that is often boot diskless workstations and other network devices such as routers over a network (typically a LAN).

Telnet

The virtual terminal protocol in the Internet suite of protocols - Allows users of one host to log into a remote host and act as normal terminal users of that host.

Transparent bridging

The intelligence necessary to make relaying decisions exists in the bridge itself and is thus transparent to the communicating workstations. It involves frame forwarding, learning workstation addresses, and ensuring no topology loops exist (in conjunction with the Spanning-Tree algorithm).

UDP

User Datagram Protocol - A connectionless transport protocol that runs on top of TCP/IP's IP. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagram without acknowledgments or guaranteed delivery. Best suited for small, independent requests, such as requesting a MIB value from an SNMP agent, in which first setting up a connection would take more time than sending the data.

UNI signaling

User Network Interface signaling for ATM communications.

Virtual Connection (VC)

A link that seems and behaves like a dedicated point-to-point line or a system that delivers packets in sequence, as happens on an actual point-to-point network. In reality, the data is delivered across a network via the most appropriate route. The sending and receiving devices do not have to be aware of the options and the route is chosen only when a message is sent. There is no pre-arrangement, so each virtual connection exists only for the duration of that one transmission.

WAN

Wide area network - A data communications network that spans any distance and is usually provided by a public carrier (such as a telephone company or service provider).

EC Declaration of Conformity

For the following equipment:

*Type of Product: 802.11n wireless VDSL2 Router (4*RJ45, 1*VDSL2, 1*Phone -30a)

*Model Number: VC-230N

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 10F., No.96, Minquan Rd., Xindian Dist.
New Taipei City 231, Taiwan (R.O.C.).

is here with confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to 1999/5/EC R&TTE. For the evaluation regarding the R&TTE the following standards were applied:

EN 55022	(2007+A2:2010)
EN 300 328 V1.7.1	(2006-10)
EN 301 489-17 V2.1.1	(2009-05)
EN 301 489-1 V1.9.2	(2011-09)
EN 60950-1	(2006+A11:2009+A1:2010+A12:2011)

Responsible for marking this declaration if the:

☒ **Manufacturer** ☐ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Product Manager**

Taiwan — *Place*

13st Sep., 2013 — *Date*

Kent Kang — *Legal Signature*

EC Declaration of Conformity

For the following equipment:

*Type of Product: Ethernet over VDSL2 Router (4*RJ45, 1*VDSL2, 1*Phone -30a)

*Model Number: VC-230

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 10F., No.96, Minquan Rd., Xindian Dist.
New Taipei City 231, Taiwan (R.O.C.).

We here by confirmed that the products mentioned comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC).
For the evaluation regarding the EMC, the following standards were applied:

EN55022		(2006 + A1 :2007)
EN 61000-3-2		(2006 + A1:2009 + A2:2009)
EN 61000-3-3		(2008)
EN55024		(2010)
	IEC 61000-4-2	(2008)
	IEC 61000-4-3	(2010)
	IEC 61000-4-4	(2012)
	IEC 61000-4-5	(2005)
	IEC 61000-4-6	(2008)
	IEC 61000-4-6	(2009)
	IEC 61000-4-11	(2004)

Responsible for marking this declaration if the:

☒ **Manufacturer** ☐ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Product Manager**

Taiwan	**13st Sep., 2013**	Kent Kang
Place	*Date*	*Legal Signature*

EC Declaration of Conformity

English	Hereby, **PLANET Technology Corporation,** declares that this **802.11n Wireless VDSL2 Router** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.	**Lietuviškai**	Šiuo **PLANET Technology Corporation,**, skelbia, kad **802.11n Wireless VDSL2 Router** tenkina visus svarbiausius 1999/5/EC direktyvos reikalavimus ir kitas svarbias nuostatas.
Česky	Společnost **PLANET Technology Corporation,** tímto prohlašuje, že tato **802.11n Wireless VDSL2 Router** splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/EC.	**Magyar**	A gyártó **PLANET Technology Corporation**, kijelenti, hogy ez a **802.11n Wireless VDSL2 Router** megfelel az 1999/5/EK irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek.
Dansk	**PLANET Technology Corporation,** erklærer herved, at følgende udstyr **802.11n Wireless VDSL2 Router** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF	**Malti**	Hawnhekk, **PLANET Technology Corporation,** jiddikjara li dan **802.11n Wireless VDSL2 Router** jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Deutsch	Hiermit erklärt **PLANET Technology Corporation,** dass sich dieses Gerät **802.11n Wireless VDSL2 Router** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)	**Nederlands**	Hierbij verklaart , **PLANET Technology orporation,** dat **802.11n Wireless VDSL2 Router** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
Eestikeeles	Käesolevaga kinnitab **PLANET Technology Corporation,** et see **802.11n Wireless VDSL2 Router** vastab Euroopa Nõukogu direktiivi 1999/5/EC põhinõuetele ja muudele olulistele tingimustele.	**Polski**	Niniejszym firma **PLANET Technology Corporation,** oświadcza, że **802.11n Wireless VDSL2 Router** spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 1999/5/EC”.
Ελληνικά	*ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ* , **PLANET Technology Corporation,** *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ* **802.11n Wireless VDSL2 Router** *ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ* *ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ*	**Português**	**PLANET Technology Corporation**, declara que este **802.11n Wireless VDSL2 Router** está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Español	Por medio de la presente, **PLANET Technology Corporation,** declara que **802.11n Wireless VDSL2 Router** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE	**Slovensky**	Výrobca **PLANET Technology Corporation,** týmto deklaruje, že táto **802.11n Wireless VDSL2 Router** je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 1999/5/EC.
Français	Par la présente, **PLANET Technology Corporation,** déclare que les appareils du **802.11n Wireless VDSL2 Router** sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE	**Slovensko**	**PLANET Technology Corporation**, **s tem potrjuje,** da je ta **802.11n Wireless VDSL2 Router** skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 1999/5/EC.
Italiano	Con la presente , **PLANET Technology Corporation,** dichiara che questo **802.11n Wireless VDSL2 Router** è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.	**Suomi**	**PLANET Technology Corporation,** vakuuttaa täten että **802.11n Wireless VDSL2 Router** tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Latviski	Ar šo **PLANET Technology Corporation,** apliecina, ka šī **802.11n Wireless VDSL2 Router** atbilst Direktīvas 1999/5/EK pamatprasībām un citiem atbilstošiem noteikumiem.	**Svenska**	Härmed intygar, **PLANET Technology Corporation,** att denna **802.11n Wireless VDSL2 Router** står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.