



VDSL 2 Router

VC-230

User's Manual

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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. Connect 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, and (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.

CE mark Warning

This is a class B device, in a domestic environment; this product may cause radio interference, in which case the user may be required to take adequate measures.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/EC 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.

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 and have to collect such WEEE separately.

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.

Revision

User's Manual for VDSL 2 Router

Model: VC-230

Rev: 1.0 (Oct. 2009)

Part No. EM-VC230_v1

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1. Introduction

The PLANET VDSL2 Router, VC-230 is based on two core networking technologies: Ethernet and VDSL2 (Very High Speed Digital Subscriber Line 2). This technology offers the absolute fastest data transmission speeds over existing copper telephone lines without the need for rewiring.

The PLANET VC-230 can provide very high performance access to Internet, both downstream and upstream up to 100Mbps. The VC-230 complies with ITU-T G993.2 standard, and provides two modes for applications – Bridge and Router. With 4-port 10/100 Ethernet switch, it provide data deliver and receive in local network, so that it is the best solution for small enterprise and residence.

There are two selectable operating modes of VC-230, CO and CPE. The CO or CPE mode can be adjusted by WEB UI and users can connect two VC-230 for Point-to-Point Application, data transmission between two networks over existing copper telephone lines.

Via the user-friendly management interface, VC-230 can be managed easily by computer running standard web browsers. Furthermore, the VC-230 not only provides basic router's functions, such as DHCP server, Virtual Server, DMZ, QoS, and UPnP, but also provides the fully firewall functions, such as Network Address Translation (NAT), IP/Port/MAC Filtering and Content Filtering. It serves as an Internet firewall to protect your network from being accessed by outside users.

1.1 Feature

Internet Access Features

- ◆ **Shared Internet Access:** All users on the LAN can access the Internet through the VC-230 using only a 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-230 provides VDSL2 modem, and supports all common VDSL2 connections.
- ◆ **Multiple WAN Connection:** On the Internet (WAN port) connection, the VC-230 supports Dynamic IP Address (IP Address is allocated on connection), Fixed IP Address, PPPoE, PPTP and L2TP.
- ◆ **CO and CPE type Support:** The VC-230 provides the Peer-to-Peer connection. Users can select the CO and CPE mode manually.
- ◆ **Bridge and Router Application:** The VC-230 supports two application modes. Currently, it comes pre-configured with routing mode. Note that, 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 required setup is quick and easy.
- ◆ **Firewall:** 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-230 supports common VDSL2 profiles (30a, 17a, 12a, 12b, 8a, 8b, 8c, 8d) for selectable. Users can choose different VDSL2 profiles based on their requirements.
- ◆ **User Friendly Interface:** VC-230 can be managed and controlled through Web UI.
- ◆ **DMZ Support:** The VC-230 can translate public IP addresses to private IP address to allow unrestricted 2-way communication with Servers or individual users on the Internet. This provides the most flexibility to run programs, which could be incompatible in NAT environment.
- ◆ **Bridge and Router Application:** The VC-230 supports two application modes. Currently, it comes pre-configured with routing mode. Note that, routing mode and bridging mode cannot be used simultaneously.
- ◆ **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-230 incorporates a 4-port 10/100Base-TX switching hub, making it easy to create or extend your LAN.
- ◆ **DHCP Server Support:** Dynamic Host Configuration Protocol provides a dynamic IP address to PCs and other devices upon request. The VC-230 can act as a DHCP Server for devices on your local LAN.

1.2 Package Contents

- ◆ VC-230 Unit x 1
- ◆ Power Adapter x 1
- ◆ Quick Installation Guide x 1
- ◆ User's Manual CD x 1
- ◆ RJ-45 cable x 1
- ◆ RJ-11cable x 1

1.3 Physical Details

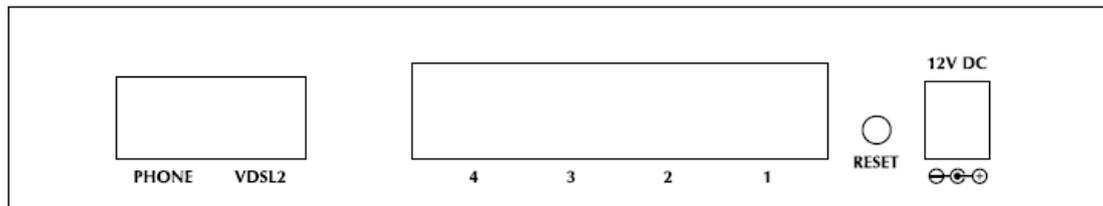
Front Panel of VC-230



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 connection connected successfully.
LAN1-4	Flashing	Data is being transmitted or received via the corresponding LAN port.
	ON	The port is up.

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. 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 System Requirement

1. Personal computer (PC)
2. Pentium III 266 MHz processor or higher
3. 128 MB RAM minimum
4. 20 MB of free disk space minimum
5. RJ45 Ethernet Port

2.2 Hardware Installation

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 VC-230 with CO mode.
- Use Ethernet cable to connect “LAN” port of the modem and “LAN” port of your computer.

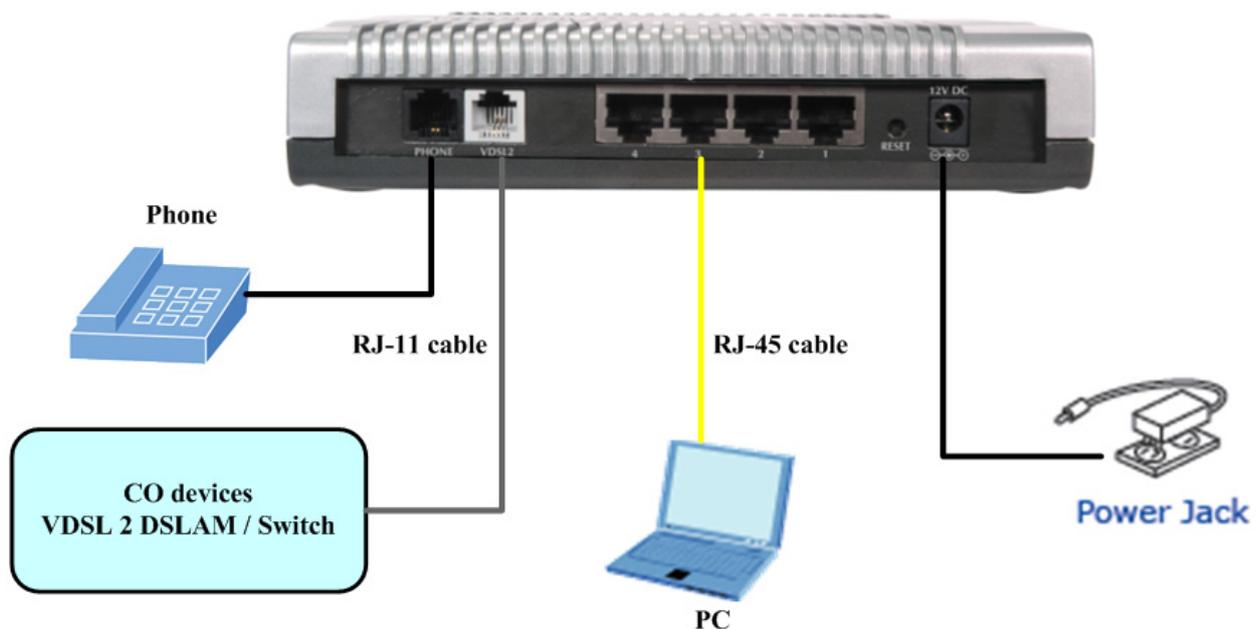
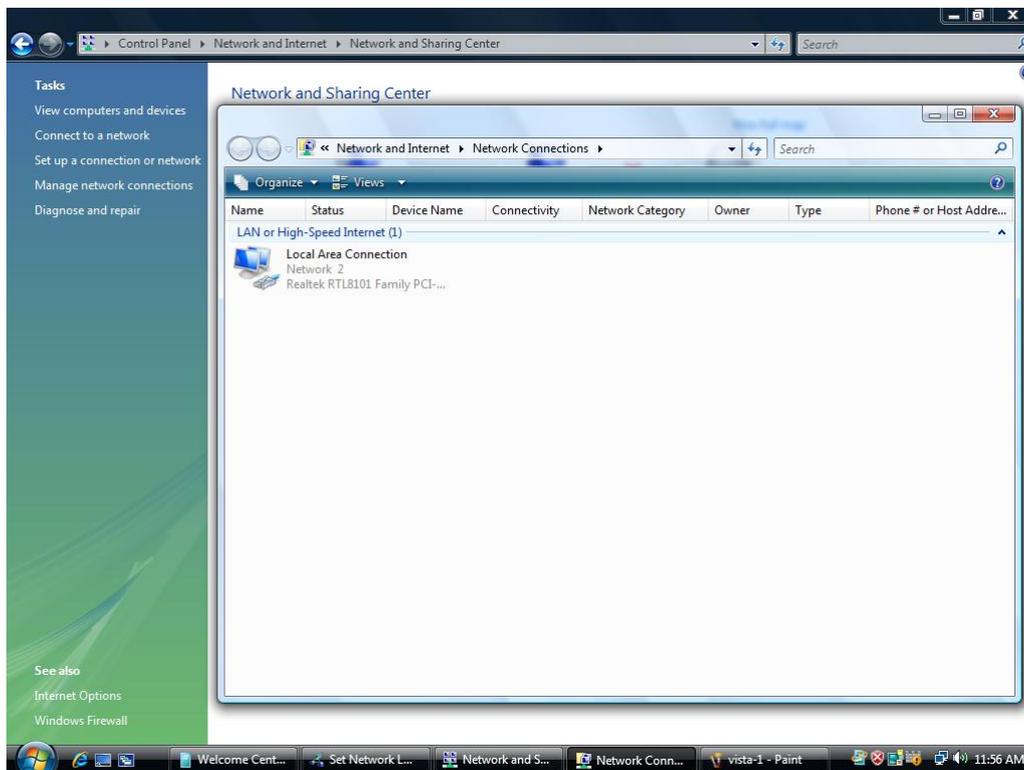


Figure 1 VC-230 connection diagram

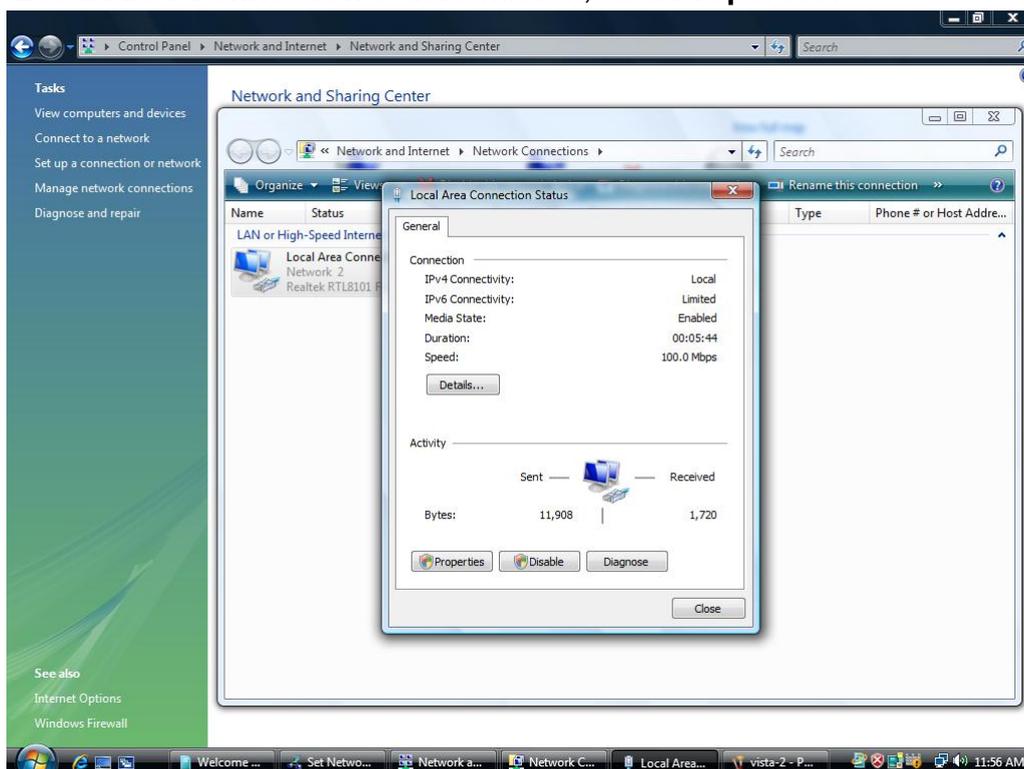
2.3 Configuring the Network Properties

Configuring PC in Windows Vista

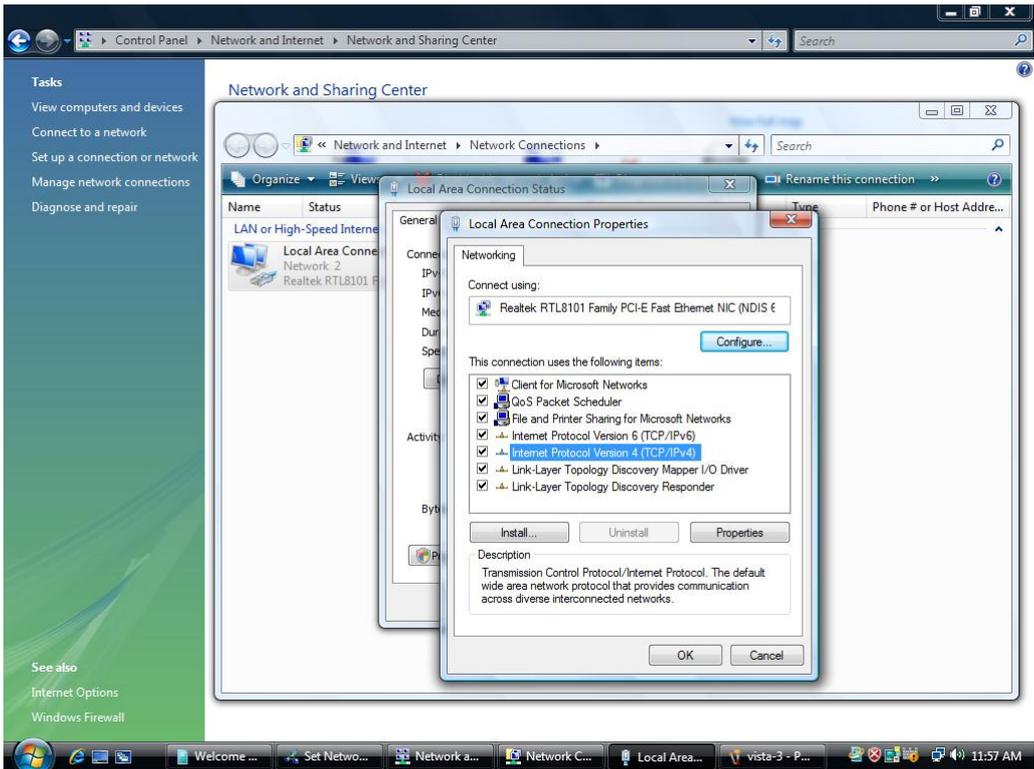
1. Go to **Start / Control Panel / Network and Internet / Network and Sharing Center**. Double-click on **Network Connections**.
2. Double-click **Local Area Connection**.



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

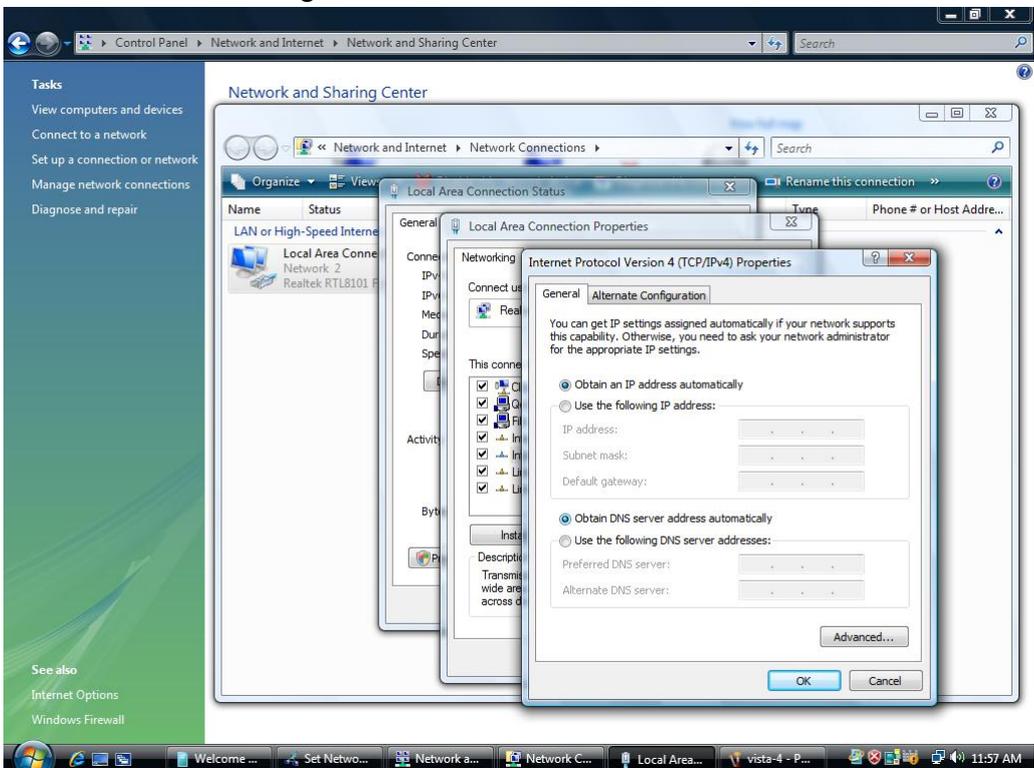


4. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



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

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

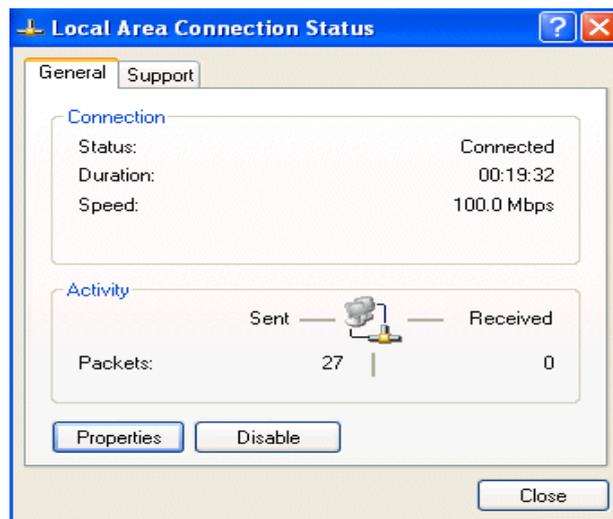


Configuring PC in Windows XP

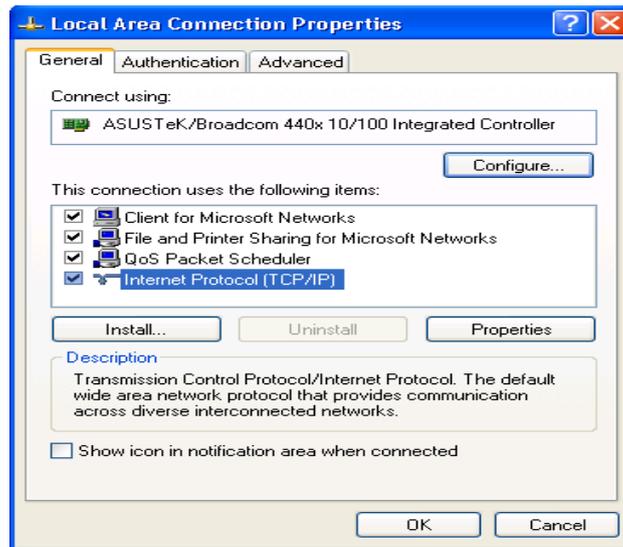
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.



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

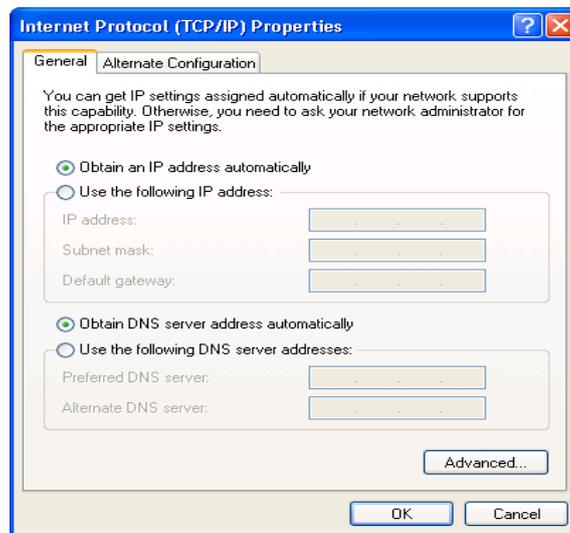


4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



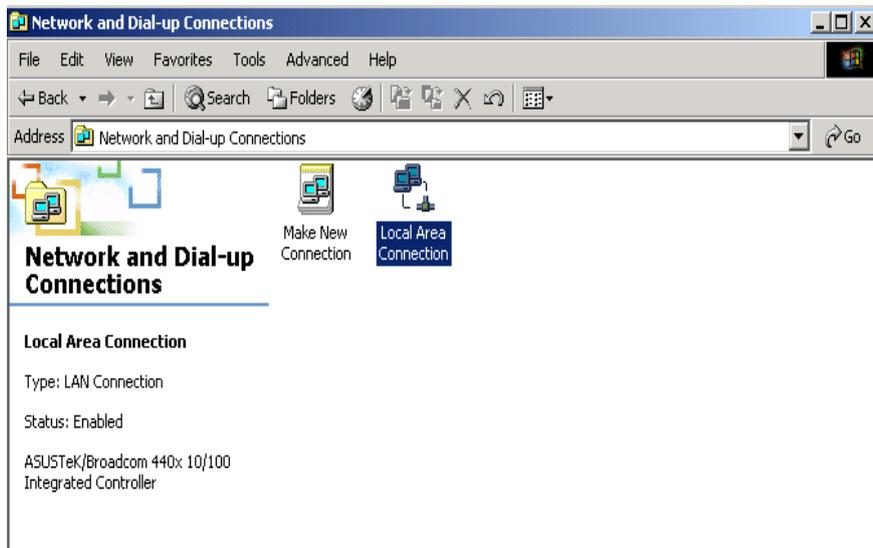
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.

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

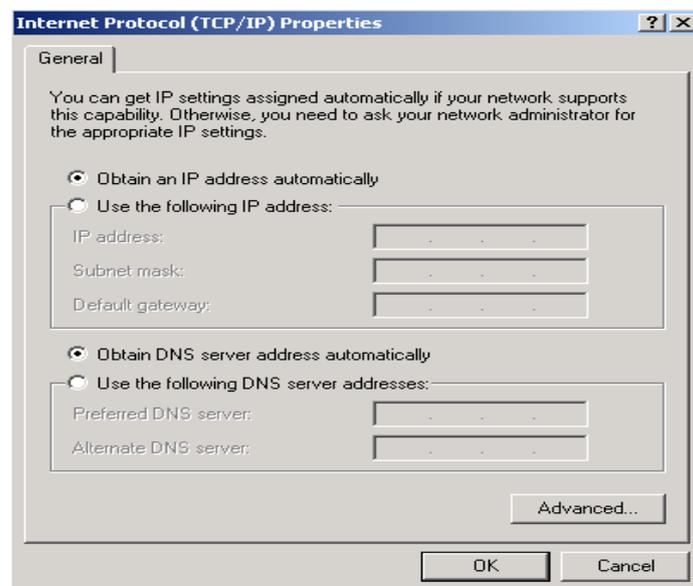


Configuring PC in Windows 2000

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **Local Area Connection**.

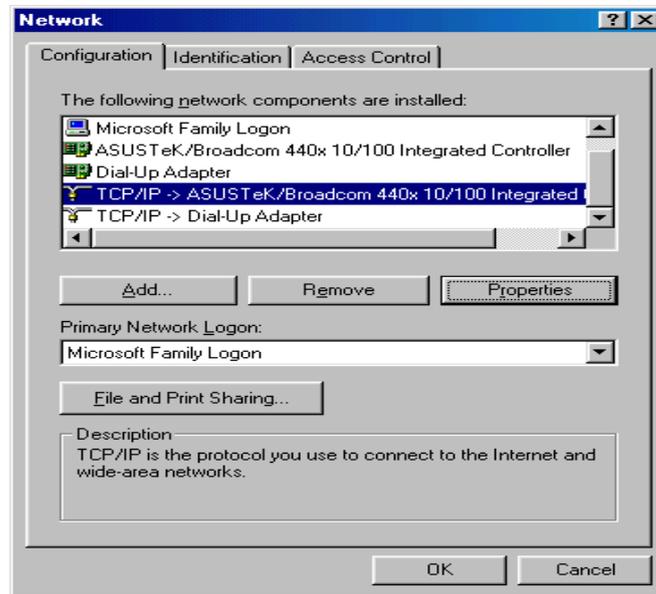


3. In the **Local Area Connection Status** window click **Properties**.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**.
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

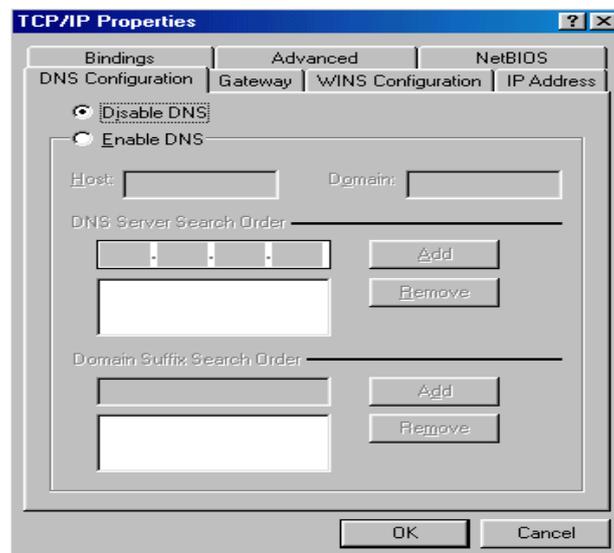


Configuring PC in Windows 98/Me

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.
2. Select **TCP/IP → NE2000 Compatible**, or the name of your Network Interface Card (NIC) in your PC.



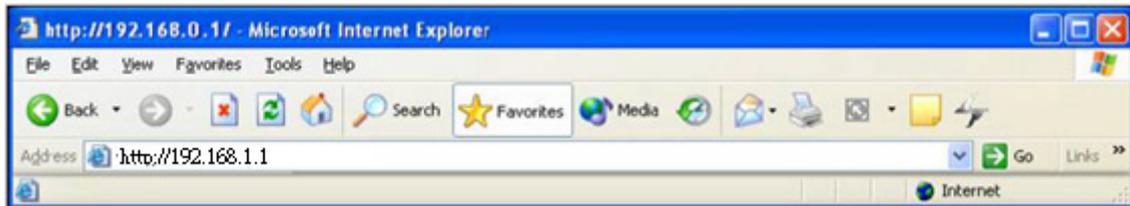
3. Select the **Obtain an IP address automatically** radio button.
4. Then select the **DNS Configuration** tab.
5. Select the **Disable DNS** radio button and click **OK** to finish the configuration.



2.4 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 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 VC-230 successfully and see the status page. Now you can configure the VC-230 for your needs.



The screenshot displays the web management interface for a PLANET VDSL2 Router. The top header features the PLANET logo and the text "VDSL2 Router". A "logout" button is visible in the top right corner. On the left, a navigation menu lists: VC-230, Operation Mode, Internet Settings, Firewall, VDSL, and Administration. The main content area is titled "Router Status" and contains three tables of configuration data.

System Info	
Firmware Version	Beta091015
SDK Version	3.3.0.0
System Up Time	0 day, 0 hour, 4 min, 58 sec
Operation Mode	Gateway Mode

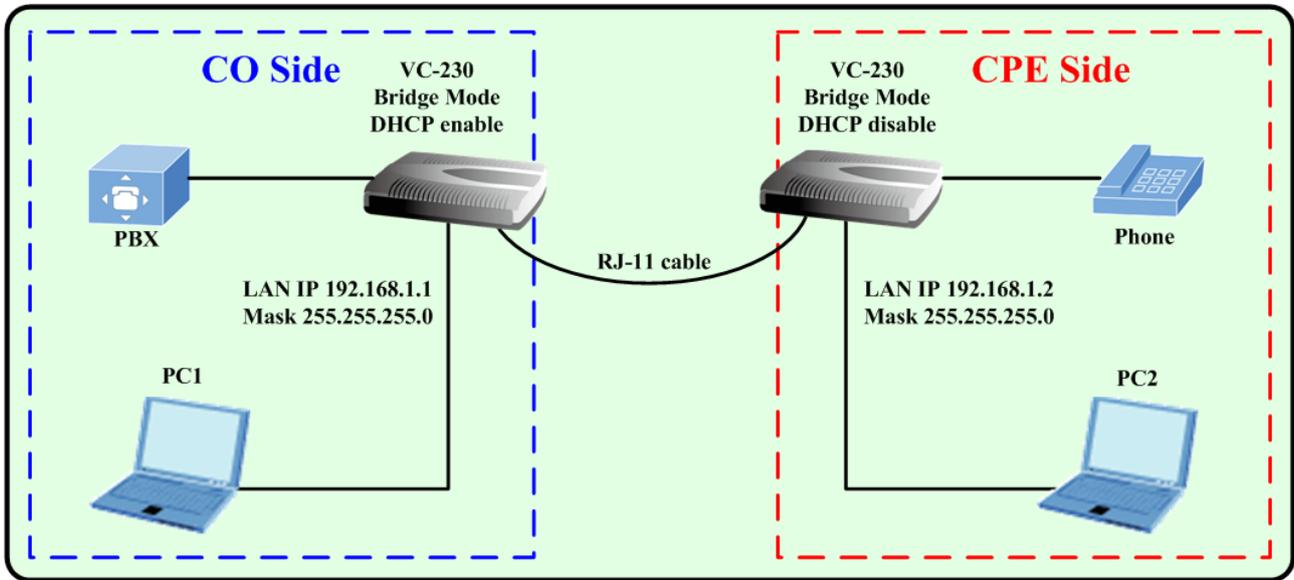
Internet Configurations	
Connected Type	PPPOE
WAN IP Address	203.73.50.173
Subnet Mask	255.255.255.255
Default Gateway	203.73.50.1
Primary Domain Name Server	139.175.55.244
Secondary Domain Name Server	139.175.252.16
MAC Address	00:30:4F:30:52:11

Local Network	
Local IP Address	192.168.100.1
Local Netmask	255.255.255.0
MAC Address	00:30:4F:30:52:10

2.5 Applications

The VC-230 supports two modes, users can select Router or Bridge mode for your applications. Please check as below examples for more details.

2.5.1 Bridge Mode for LAN-to-LAN connection



Web UI Configuration

For VC-230 CO side

- Step 1: Select the Bridge mode.

The screenshot shows the 'Operation Mode Configuration' page in the Web UI. The page title is 'VDSL2 Router'. The left sidebar shows the navigation menu with 'VC-230' selected. The main content area displays the 'Operation Mode Configuration' section. The 'Bridge' mode is selected, indicated by a checked radio button. The 'Gateway' mode is unselected, indicated by an unchecked radio button. The 'Apply' button is highlighted with a red box.

Operation Mode Configuration

You may configure the operation mode suitable for you environment.

Bridge:
All interfaces are bridged into a single bridge interface.

Gateway:
The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

- Step 2: Setup your LAN IP, for example, we use the 192.168.1.1 / 255.255.255.0 and enable DHCP server for VC-230 CO side.

The screenshot shows the PLANET VDSL2 Router web interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings (expanded), WAN, LAN (selected), DHCP Clients, Advanced Routing, QoS, Firewall, VDSL, and Administration. The main content area is titled "Local Area Network (LAN) Settings" and includes a sub-section "LAN Interface Setup" with the following configuration fields:

LAN Interface Setup	
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
LAN2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MAC Address	00:30:4F:30:52:10
DHCP Type	Server
DHCP Start IP	192.168.1.2
DHCP End IP	192.168.1.100
DHCP Subnet Mask	255.255.255.0
DHCP Primary DNS	192.168.1.1
DHCP Secondary DNS	168.95.1.1

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

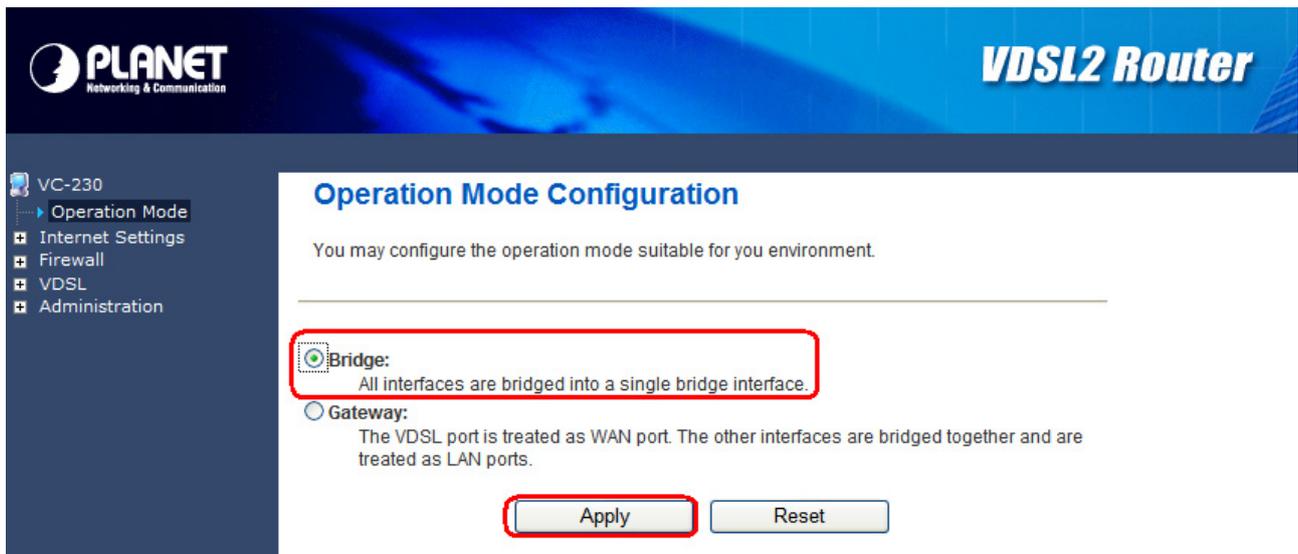
The screenshot shows the PLANET VDSL2 Router web interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (expanded), VDSL Status, VDSL Configuration (selected), and Administration. The main content area is titled "VDSL Configuration" and includes a sub-section "VDSL Configuration" with the following configuration fields:

VDSL Configuration	
Mode	<input checked="" type="radio"/> CO <input type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_30a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17, others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

At the bottom of the configuration area, there are "Apply" and "Cancel" buttons.

For VC-230 CPE side

- Step 1: Select the Bridge mode.



PLANET Networking & Communication **VDSL2 Router**

VC-230

- Operation Mode
- Internet Settings
- Firewall
- VDSL
- Administration

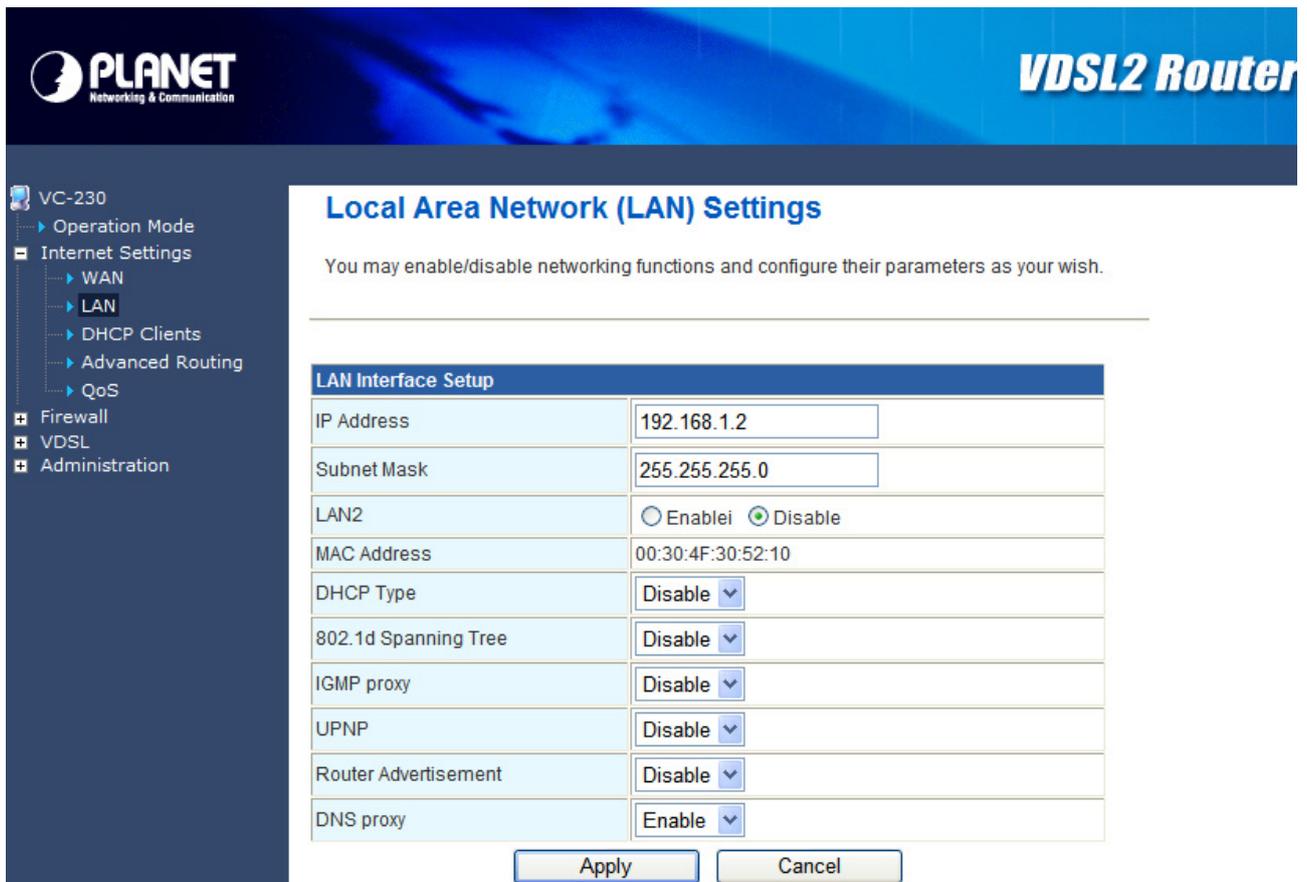
Operation Mode Configuration

You may configure the operation mode suitable for you environment.

Bridge:
All interfaces are bridged into a single bridge interface.

Gateway:
The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

- Step 2: Setup your LAN IP, for example, we use the 192.168.1.2 / 255.255.255.0 and disable DHCP server for VC-230 CPE side.



PLANET Networking & Communication **VDSL2 Router**

VC-230

- Operation Mode
- Internet Settings
 - WAN
 - LAN**
 - DHCP Clients
 - Advanced Routing
 - QoS
- Firewall
- VDSL
- Administration

Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Interface Setup	
IP Address	192.168.1.2
Subnet Mask	255.255.255.0
LAN2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MAC Address	00:30:4F:30:52:10
DHCP Type	Disable
802.1d Spanning Tree	Disable
IGMP proxy	Disable
UPNP	Disable
Router Advertisement	Disable
DNS proxy	Enable

■ Step 3: Modify your VDSL mode, default is CPE mode.

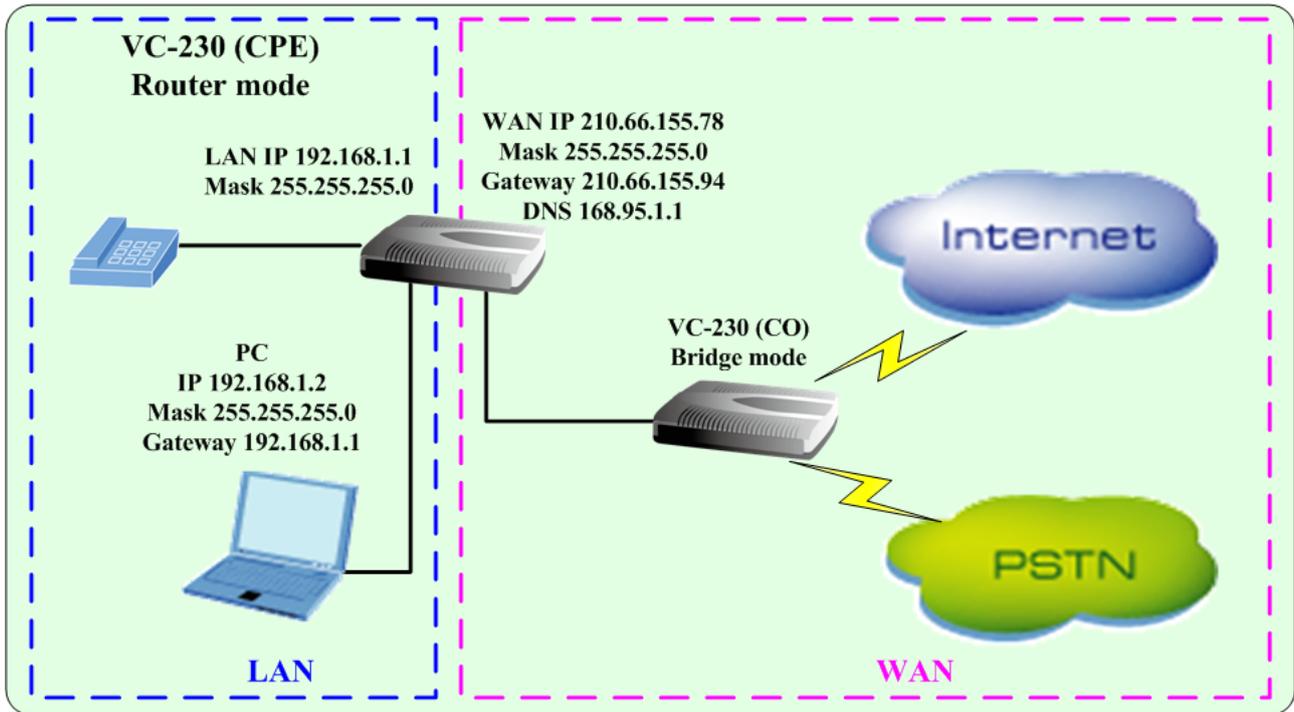
The screenshot shows the PLANET VDSL2 Router configuration interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (highlighted with a red box), VDSL Status, VDSL Configuration (highlighted with a red box), and Administration. The main content area is titled "VDSL Configuration" and contains the text "Set VDSL Configuration." Below this is a table of configuration parameters:

VDSL Configuration	
Mode	<input type="radio"/> CO <input checked="" type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_17a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17 , others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

At the bottom of the configuration area are two buttons: "Apply" and "Cancel".

After setting, the DSL line will try to establish the connection between two VC-230. you can check the DSL LED, when the LED stop flashing and steady, the VC-230 will establish a connection and the PC1 and PC2 can access to each other.

2.5.2 Router Mode for Internet connection



Web UI Configuration

For VC-230 CO side

- Step 1: Select the Bridge mode.

The screenshot shows the Planet VDSL2 Router Web UI. The left sidebar lists navigation options: VC-230, Operation Mode, Internet Settings, Firewall, VDSL, and Administration. The main content area is titled 'Operation Mode Configuration' and contains the text: 'You may configure the operation mode suitable for you environment.' Below this, there are two radio button options: 'Bridge:' (selected) and 'Gateway:'. The 'Bridge:' option is highlighted with a red box and includes the text: 'All interfaces are bridged into a single bridge interface.' The 'Gateway:' option includes the text: 'The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.' At the bottom, there are 'Apply' and 'Reset' buttons, with the 'Apply' button highlighted by a red box.

- **Step 2: Setup your LAN IP, for example, we use the 192.168.1.1 / 255.255.255.0 for VC-230 CO side.**

The screenshot shows the PLANET VDSL2 Router web interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings (expanded), WAN, LAN (selected), DHCP Clients, Advanced Routing, QoS, Firewall, VDSL, and Administration. The main content area is titled "Local Area Network (LAN) Settings" and includes a sub-header "LAN Interface Setup". Below this is a form with the following fields:

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
LAN2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MAC Address	00:30:4F:30:52:10
DHCP Type	Server
DHCP Start IP	192.168.1.2
DHCP End IP	192.168.1.100
DHCP Subnet Mask	255.255.255.0
DHCP Primary DNS	192.168.1.1
DHCP Secondary DNS	168.95.1.1

- **Step 3: Modify your VDSL mode, default is CPE mode. Select the VDSL CO mode.**

The screenshot shows the PLANET VDSL2 Router web interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (expanded), VDSL Status, VDSL Configuration (selected), and Administration. The main content area is titled "VDSL Configuration" and includes a sub-header "VDSL Configuration". Below this is a form with the following fields:

Mode	<input checked="" type="radio"/> CO <input type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_30a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17, others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

At the bottom of the form are two buttons: "Apply" and "Cancel".

For VC-230 CPE side

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

The screenshot shows the 'Operation Mode Configuration' page in the VDSL2 Router interface. The left sidebar shows a tree view with 'VC-230' expanded to 'Operation Mode'. The main content area has the title 'Operation Mode Configuration' and a sub-header 'You may configure the operation mode suitable for you environment.' There are two radio button options: 'Bridge:' (unselected) and 'Gateway:' (selected). Below the 'Gateway:' option is a text description: 'The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.' Below this is a 'NAT Enabled:' dropdown menu set to 'Enable'. At the bottom are 'Apply' and 'Reset' buttons.

Operation Mode Configuration

You may configure the operation mode suitable for you environment.

Bridge:
All interfaces are bridged into a single bridge interface.

Gateway:
The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

NAT Enabled:

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

The screenshot shows the 'Wide Area Network (WAN) Settings' page in the VDSL2 Router interface. The left sidebar shows a tree view with 'VC-230' expanded to 'Internet Settings' and 'WAN' selected. The main content area has the title 'Wide Area Network (WAN) Settings' and a sub-header 'You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.' There is a 'WAN Connection Type:' dropdown menu set to 'Static Mode (fixed IP)'. Below this is a table with five rows: 'IP Address' (210.66.155.78), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (210.66.155.94), 'Primary DNS Server' (168.95.1.1), and 'Secondary DNS Server' (168.95.192.1). Below the table is a 'MAC Address Clone' section with an 'Enabled' dropdown menu set to 'Disable'. At the bottom are 'Apply' and 'Cancel' buttons.

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type:

Static Mode	
IP Address	<input type="text" value="210.66.155.78"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="210.66.155.94"/>
Primary DNS Server	<input type="text" value="168.95.1.1"/>
Secondary DNS Server	<input type="text" value="168.95.192.1"/>

MAC Address Clone

Enabled

■ Step 3: Modify your VDSL mode, default is CPE mode.

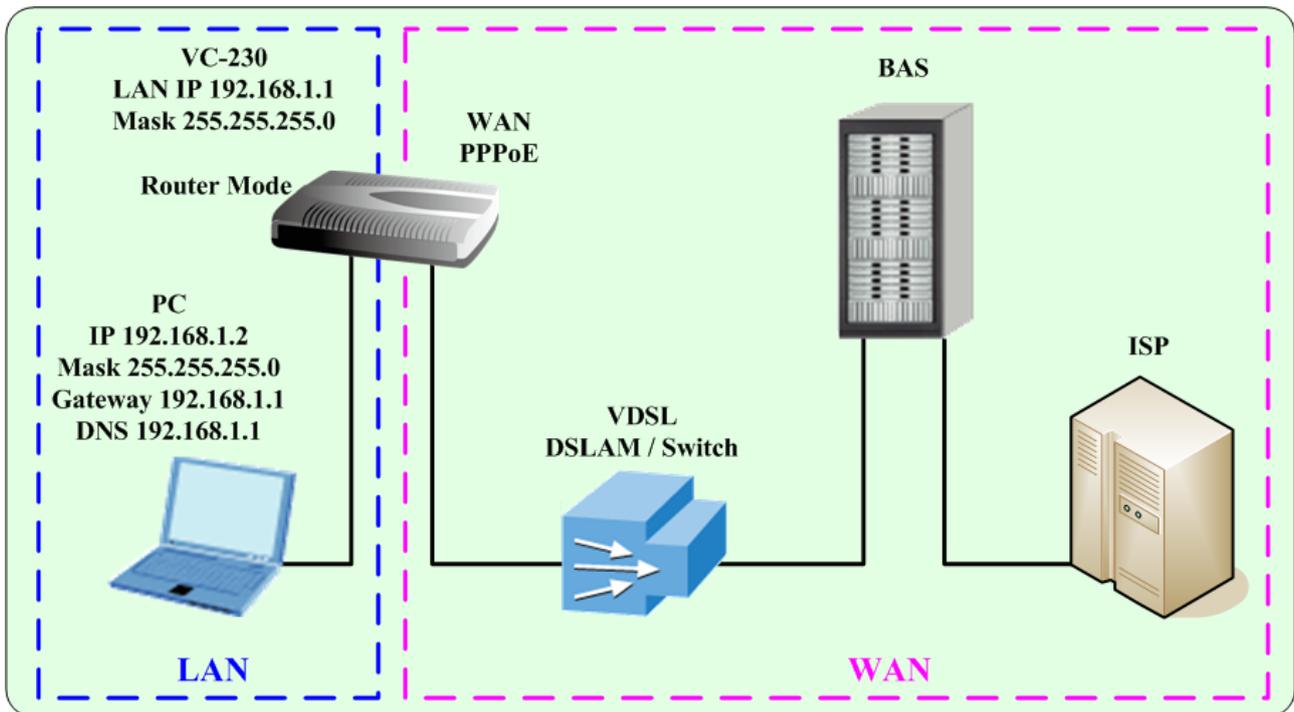
The screenshot shows the PLANET VDSL2 Router configuration interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (highlighted with a red box), VDSL Status, VDSL Configuration (highlighted with a red box), and Administration. The main content area is titled "VDSL Configuration" and includes the instruction "Set VDSL Configuration." Below this is a table of configuration parameters:

VDSL Configuration	
Mode	<input type="radio"/> CO <input checked="" type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_17a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17 , others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

At the bottom of the configuration area are two buttons: "Apply" and "Cancel".

After setting, the DSL line will try to establish the connection between two VC-230. you can check the DSL LED, when the LED stop flashing and steady, the VC-230 will establish a connection and the PC can access to Internet through VDSL connection.

2.5.3 Router Mode for PPPoE with IP Sharing



Web UI Configuration

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

The screenshot shows the Web UI Configuration page for a Planet VDSL2 Router. The page title is "Operation Mode Configuration".

The configuration options are:

- Bridge: All interfaces are bridged into a single bridge interface.
- Gateway: The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

The "NAT Enabled" dropdown menu is set to "Enable".

Buttons for "Apply" and "Reset" are visible at the bottom.

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

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: **PPPoE**

PPPoE Mode

User Name	t0399199
Password	••••••••
Verify Password	••••••••
MRU(Maximum Receive Unit)	1500 (range 128 - 16384, default 1500)
Keep Alive	Keep Alive Mode: Redial Period 60 seconds On demand Mode: Idle Time 5 minutes

MAC Address Clone

Enabled	Disable
---------	---------

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

Router Status

System Info	
Firmware Version	Beta091015
SDK Version	3.3.0.0
System Up Time	0 day, 6 hour, 29 min, 54 sec
Operation Mode	Gateway Mode
Internet Configurations	
Connected Type	PPPOE
WAN IP Address	203.73.50.173
Subnet Mask	255.255.255.255
Default Gateway	203.73.50.1
Primary Domain Name Server	139.175.55.244
Secondary Domain Name Server	139.175.252.16
MAC Address	00:30:4F:30:52:11
Local Network	
Local IP Address	192.168.100.1
Local Netmask	255.255.255.0
MAC Address	00:30:4F:30:52:10

3. Web Configuration Management

Determine your connection settings

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

Connecting the VDSL 2 Router to your network

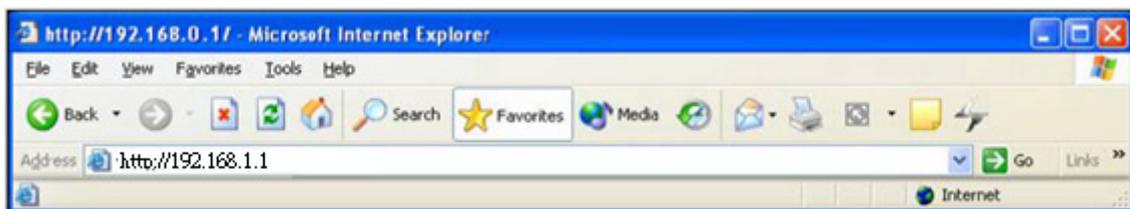
Unlike a simple hub or switch, the setup of the VDSL Router consists of more than simply plugging everything together. Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign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



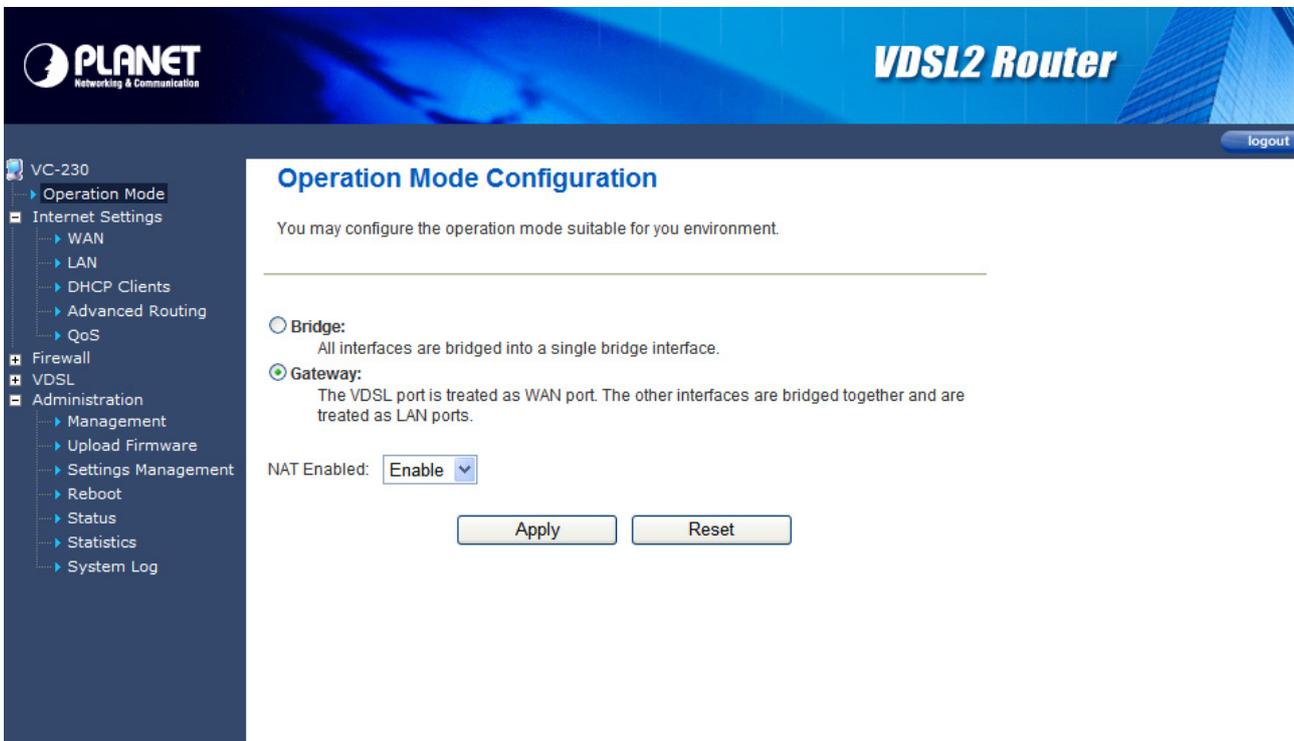
3.1 Operation Mode

The VC-230 supports two operation modes – Router and Bridge. Currently, it comes pre-configured with routing mode. Note that, routing mode and bridging mode cannot be used simultaneously.

For Bridge mode, all interfaces are bridged into a single bridge interface.

For Router mode, the VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports.

	If you select Bridge operation mode , WAN configuration in Internet Settings are not available. (Firewall functions on the left page are not available.)
---	---



The screenshot shows the web interface of a Planet VC-230 VDSL2 Router. The top header features the Planet logo and the text "VDSL2 Router" with a "logout" button. A left sidebar contains a navigation menu with categories like "Operation Mode", "Internet Settings", "Firewall", "VDSL", and "Administration". The main content area is titled "Operation Mode Configuration" and includes a descriptive text: "You may configure the operation mode suitable for you environment." Below this, there are two radio button options: "Bridge:" (unselected) and "Gateway:" (selected). The "Gateway:" option has a sub-description: "The VDSL port is treated as WAN port. The other interfaces are bridged together and are treated as LAN ports." There is also a "NAT Enabled:" dropdown menu currently set to "Enable". At the bottom of the configuration area are two buttons: "Apply" and "Reset".

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

3.2 Internet Settings

3.2.1 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.

PLANET Networking & Communication **VDSL2 Router** logout

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type:

Static Mode	
IP Address	<input type="text" value="203.73.50.173"/>
Subnet Mask	<input type="text" value="255.255.255.255"/>
Default Gateway	<input type="text" value="203.73.50.1"/>
Primary DNS Server	<input type="text" value="139.175.55.244"/>
Secondary DNS Server	<input type="text" value="139.175.252.16"/>

MAC Address Clone	
Enabled	<input type="text" value="Disable"/>

➤ **STATIC (FIXED IP)**

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

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type:

Static Mode	
IP Address	<input type="text"/>
Subnet Mask	<input type="text"/>
Default Gateway	<input type="text"/>
Primary DNS Server	<input type="text"/>
Secondary DNS Server	<input type="text"/>

MAC Clone	
Enabled	<input type="text" value="Disable"/>

Static Mode

- **IP Address:** Enter the IP address of WAN port.
- **Subnet Mask:** Enter IP subnet mask of WAN port.
- **Default Gateway:** Enter the default gateway address of WAN port.
- **Primary DNS Server:** Primary DNS Server of WAN port.
- **Secondary DNS Server:** Secondary DNS Server of WAN port.

MAC Clone

MAC Clone provides WAN to connect to a MAC address.

- **Enabled:** Enable or disable MAC clone.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

➤ **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.

Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: DHCP (Auto Config) ▼

DHCP Mode	
Host Name (optional)	<input type="text"/>
MAC Address Clone	
Enabled	Disable ▼

MAC Clone

MAC Clone provides WAN to connect to a MAC address.

- **Enabled:** Enable or disable MAC clone.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

➤ **PPPOE (ADSL)**

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.

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type:

PPPoE Mode	
User Name	<input type="text" value="t0399199"/>
Password	<input type="password" value="••••••••"/>
Verify Password	<input type="password" value="••••••••"/>
MRU(Maximum Receive Unit)	<input type="text" value="1500"/> (range 128 - 16384, default 1500)
Operation Mode	<input type="text" value="Keep Alive"/>
	Keep Alive Mode: Redial Period <input type="text" value="60"/> seconds On demand Mode: Idle Time <input type="text" value="5"/> minutes
MAC Address Clone	
Enabled	<input type="text" value="Disable"/>

PPPoE Mode

- **User Name:** User name of PPPoE account
- **Password:** Password of PPPoE account
- **Verify Password:** Enter the password of PPPoE account again.
- **Operation Mode:** It provides two types of operation modes.
 - **Keep Alive** means keeping on-line mode. You can set the redial period in the field. When the redial period expires, Router will execute dial-up again to keep online.
 - **On Demand** means executing dial-up on demand. Within the preset idle time, if Router does not detect the flow of the user continuously, Router automatically stops the PPPOE connection. Once it detects the flow (e.g., accessing a webpage), the router restarts the PPPOE dial-up.

MAC Clone

- **Enabled:** Enable or disable.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

➤ **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.

The screenshot shows the L2TP configuration interface. At the top, 'WAN Connection Type' is set to 'L2TP'. Below this, the 'L2TP Mode' section contains the following fields: 'Server IP' (10.10.10.123), 'User Name' (l2tp_user), 'Password' (masked with dots), 'Address Mode' (Static), 'IP Address' (10.10.10.254), 'Subnet Mask' (255.255.255.0), and 'Default Gateway' (10.10.10.253). The 'Operation Mode' section includes a 'Keep Alive' dropdown, 'Keep Alive Mode: Redial Period' (60 seconds), and 'On demand Mode: Idle Time' (5 minutes). At the bottom, the 'MAC Clone' section has 'Enabled' set to 'Disable'. 'Apply' and 'Cancel' buttons are at the bottom.

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

The screenshot shows the L2TP configuration interface with 'Address Mode' set to 'Dynamic'. All other fields are identical to the previous screenshot: 'WAN Connection Type' is 'L2TP', 'Server IP' is 10.10.10.123, 'User Name' is l2tp_user, 'Password' is masked, 'IP Address' is 10.10.10.254, 'Subnet Mask' is 255.255.255.0, 'Default Gateway' is 10.10.10.253, 'Keep Alive' is selected, 'Keep Alive Mode: Redial Period' is 60 seconds, 'On demand Mode: Idle Time' is 5 minutes, and 'MAC Clone' is 'Disable'. 'Apply' and 'Cancel' buttons are at the bottom.

L2TP Mode

- **Server IP:** Address of L2TP server.
- **User Name:** The user name of L2TP account.
- **Password:** The password of L2TP account.
- **IP Address:** IP address of WAN port.
- **Subnet Mask:** Subnet mask of WAN port.
- **Default Gateway:** The default gate way of WAN port.
- **Operation Mode:** It provides two types of operation modes.
 - **Keep Alive** means keeping on-line mode. You can set the redial period in the field. When the redial period expires, Router will execute dial-up again to keep online.
 - **On Demand** means executing dial-up on demand. Within the preset idle time, if Router does not detect the flow of the user continuously, Router automatically stops the PPPOE connection. Once it detects the flow (e.g., accessing a webpage), the router restarts the PPPOE dial-up.

MAC Clone

- **Enabled:** Enable or disable.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

➤ PPTP

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

WAN Connection Type: PPTP	
PPTP Mode	
Server IP	10.10.10.123
User Name	pptp_user
Password
Address Mode	Static
IP Address	10.10.10.254
Subnet Mask	255.255.255.0
Default Gateway	10.10.10.253
Operation Mode	Keep Alive
	Keep Alive Mode: Redial Period 60 seconds On demand Mode: Idle Time 5 minutes
MAC Clone	
Enabled	Disable
Apply Cancel	

PPTP Mode

- **Server IP:** Address of PPTP server.
- **User Name:** The user name of PPTP account.
- **Password:** The password of PPTP account.
- **IP Address:** IP address of WAN port.
- **Subnet Mask:** Subnet mask of WAN port.
- **Default Gateway:** The default gate way of WAN port.
- **Operation Mode:** It provides two types of operation modes.
 - **Keep Alive** means keeping on-line mode. You can set the redial period in the field. When the redial period expires, Router will execute dial-up again to keep online.
 - **On Demand** means executing dial-up on demand. Within the preset idle time, if Router does not detect the flow of the user continuously, Router automatically stops the PPPOE connection. Once it detects the flow (e.g., accessing a webpage), the router restarts the PPPOE dial-up.

MAC Clone

- **Enabled:** Enable or disable.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

3.2.2 LAN

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

Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup

IP Address	<input type="text" value="192.168.0.1"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
LAN 2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN2 IP Address	<input type="text"/>
LAN2 Subnet Mask	<input type="text"/>
MAC Address	00:30:4F:6E:5D:38
DHCP Type	Server <input type="button" value="v"/>
Start IP Address	<input type="text" value="192.168.0.100"/>
End IP Address	<input type="text" value="192.168.0.200"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Primary DNS Server	<input type="text" value="192.168.1.1"/>
Secondary DNS Server	<input type="text" value="192.168.1.1"/>
Default Gateway	<input type="text" value="192.168.1.1"/>
Lease Time	<input type="text" value="86400"/>
Statically Assigned	MAC: <input type="text"/> IP: <input type="text"/>

- **IP Address:** Enter the IP address of LAN port.
- **Subnet mask:** Enter the subnet mask of LAN port.
- **LAN2:** The second IP switch of LAN port. You can enable or disable this function.
- **LAN2 IP Address:** The second IP address of LAN port.
- **LAN2 Subnet Mask:** The second IP Subnet Mask of LAN port.
- **MAC Address:** MAC address of LAN port (Read-only).
- **DHCP Type:** You can select **Server** or **Disable**. If you select Disable, the DHCP service of LAN port is disabled. After selecting Server, you can set the following items.
- **Start IP Address:** The first IP address that DHCP server assigns.
- **End IP Address:** The last IP address that DHCP server assigns.
- **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:** The default gateway that DHCP server assigns.
- **Lease Time:** Lease time of the IP address.
- **Statically Assigned:** Assign IP to the assigned MAC address. Enter the assigned MAC address and IP in the corresponding fields.
- **802.1d Spanning Tree:** Spanning Tree Protocol. You can select Enable or Disable.
- **IGMP Proxy:** You can select Enable or Disable.
- **UPNP:** Universal Plug and Play (UPNP). You can select Enable or Disable.
- **Router Advertisement:** You can select Enable or Disable.
- **DNS Proxy:** You can select Enable or Disable.

After finishing setting, click **Apply** to save the settings and make the new configuration take effect.

Click **Cancel** to close without saving.

3.2.3 DHCP clients

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

DHCP Client List		
You could monitor DHCP clients here.		
DHCP Clients		
MAC Address	IP Address	Expires in
00:30:40:11:22:33	192.168.0.100	23:44:34

3.2.4 Advanced Routing

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

Static Routing Settings

You may add and remote custom Internet routing rules, and/or enable dynamic routing exchange protocol here.

Add a routing rule

Destination	<input type="text"/>
Range	Host <input type="button" value="v"/>
Gateway	<input type="text"/>
Interface	LAN <input type="button" value="v"/> <input type="text"/>
Comment	<input type="text"/>

Current Routing table in the system:

No.	Destination	Netmask	Gateway	Flags	Metric	Ref	Use	Interface	Comment
1	255.255.255.255	255.255.255.255	0.0.0.0	5	0	0	0	LAN (br0)	
2	192.168.0.0	255.255.255.0	0.0.0.0	1	0	0	0	LAN (br0)	

Add a routing rule

- **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.

After finishing the setting above, click **Apply** to make the new routing rule take effect. Otherwise, click **Reset** to cancel the new routing rule.

Current Routing table in the system

You can delete or reset the routing rules.

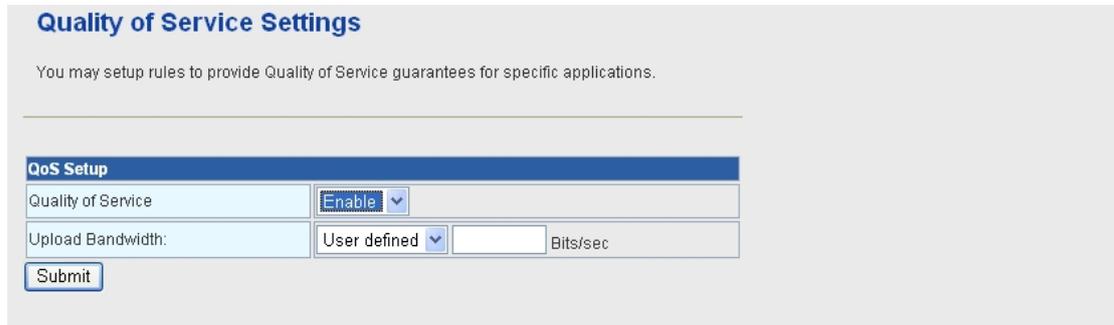
Dynamic Routing Settings

You can enable or disable the **RIP**.

After finishing the setting above, click **Apply** to make the new routing rule take effect. Otherwise, click **Reset** to cancel the new routing rule.

3.2.5 QoS

You may set up rules to provide Quality of Service (QoS) guarantee for some specific applications. In the page, you can enable or disable Quality of Service. After enabling QoS, you can set upload bandwidth and download bandwidth.



The screenshot shows a web interface titled "Quality of Service Settings". Below the title is a descriptive sentence: "You may setup rules to provide Quality of Service guarantees for specific applications." Below this is a form section titled "QoS Setup". The form contains two rows of controls. The first row is for "Quality of Service", with a dropdown menu currently set to "Enable". The second row is for "Upload Bandwidth:", with a dropdown menu set to "User defined" and an adjacent empty text input field followed by the unit "Bits/sec". At the bottom left of the form is a "Submit" button.

- **Upload Bandwidth:** You can select the proper bandwidth in the drop-down list. The value is from **64K** to **60M**. You can also set the bandwidth by selecting **User defined** and enter the proper bandwidth in the field.
- **Download Bandwidth:** You can select the proper bandwidth in the drop-down list. The value is from **64K** to **60M**. You can also set the bandwidth by select **User defined** and enter the proper bandwidth in the field.

After finishing the setting above, click **Submit** to save the new configuration.

3.3 Firewall

The VC-230 provides the fully firewall functions, such as IP/Port/MAC 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.

3.3.1 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.

MAC/IP/Port Filtering Settings

You may setup firewall rules to protect your network from virus, worm and malicious activity on the Internet.

Basic Settings

MAC/IP/Port Filtering ▾

Default Policy -- The packet that don't match with any rules would be: ▾

MAC/IP/Port Filter Settings

MAC address	<input type="text"/>
Dest IP Address	<input type="text"/>
Source IP Address	<input type="text"/>
Protocol	<input type="button" value="None"/> ▾
Dest Port Range	<input type="text"/> - <input type="text"/>
Source Port Range	<input type="text"/> - <input type="text"/>
Action	<input type="button" value="Drop"/> ▾
Comment	<input type="text"/>

(The maximum rule count is 32.)

Current MAC/IP/Port filtering rules in system:

No.	MAC address	Dest IP Address	Source IP Address	Protocol	Dest Port Range	Source Port Range	Action	Comment	Pkt Cnt
Others would be accepted									-

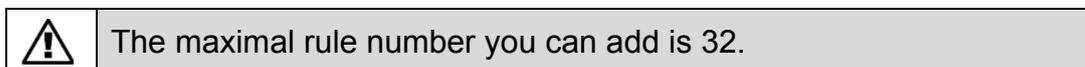
Basic Settings

- **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

- **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.
- **Dest 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.

Click **Apply** to make the configuration take effect. Click **Reset** to cancel the new configuration.



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

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**.

3.3.2 Port Forwarding (Virtual Server)

The Virtual Server is the server or server(s) behind NAT (on the LAN), for example, Web server or FTP server, that you can make visible to the outside world even though NAT makes your whole inside network appear as a single machine to the outside world.

This page allows you to set virtual server to provide services on the Internet.

Virtual Server Settings

You may setup Virtual Servers to provide services on Internet. The VDSL Roter's default remote management is Port 80, if you want to use this port for your Virtual server, please change the remote management port to another port (Ex. Port 8080). you can change it on "Firewall --> [System Security](#)" setting menu.

Virtual Server Settings	
Virtual Server Settings	Disable ▾
Protocol	TCP&UDP ▾
WAN Port Range	<input type="text"/> - <input type="text"/>
Server IP Address	<input type="text"/>
Server Host Port	<input type="text"/>
Comment	<input type="text"/>

(The maximum rule count is 32.)

Virtual Server Settings

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

 The maximal rule number you can add is 32.

Click **Apply** to make the configuration take effect. Click **Reset** to cancel the new configuration.

3.3.3 DMZ

DMZ (Demilitarized 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 (Demilitarized 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	
You may setup a De-militarized Zone(DMZ) to separate internal network and Internet.	
DMZ Settings	Disable ▾
DMZ IP Address	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Reset"/>	

- **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.

Click **Apply** to make the configuration take effect. Click **Reset** to cancel the new configuration.

3.3.4 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.

System Firewall Settings

You may configure the system firewall to protect itself from attacking.

Remote management	
Remote management (via WAN)	Enable ▾
Remote Web Management Port	8080

Ping from WAN Filter	
Ping from WAN Filter	Disable ▾

Stateful Packet Inspection (SPI) Firewall	
SPI Firewall	Disable ▾

Remote Management

Remote management (via WAN): Deny or allow remote management through web.

Remote management Port: The default remote management port is 80, you can change the remote management port for your needs. Ex. 8080.

Ping from WAN Filter

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

Stateful Packet Inspection (SPI)

SPI Firewall: You may disable or enable the SPI firewall.

Click **Apply** to make the configuration take effect. Click **Reset** to cancel the new configuration.

3.3.5 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.

The screenshot shows the 'Content Filter Settings' page. At the top, there is a title 'Content Filter Settings' and a subtitle 'You can setup Content Filter to restrict the improper content access.' Below this is a section titled 'Webs Content Filter' with a 'Filters:' label and three checkboxes: 'Proxy', 'Java', and 'ActiveX'. There are 'Apply' and 'Reset' buttons below the checkboxes. The next section is 'Webs URL Filter Settings', which contains a table titled 'Current Webs URL Filters:'. The table has two columns: 'No' and 'URL'. Below the table are 'Delete' and 'Reset' buttons. At the bottom, there is a section titled 'Add a URL filter:' with a 'URL:' label and an input field. Below the input field are 'Add' and 'Reset' buttons.

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: 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

URL: 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.

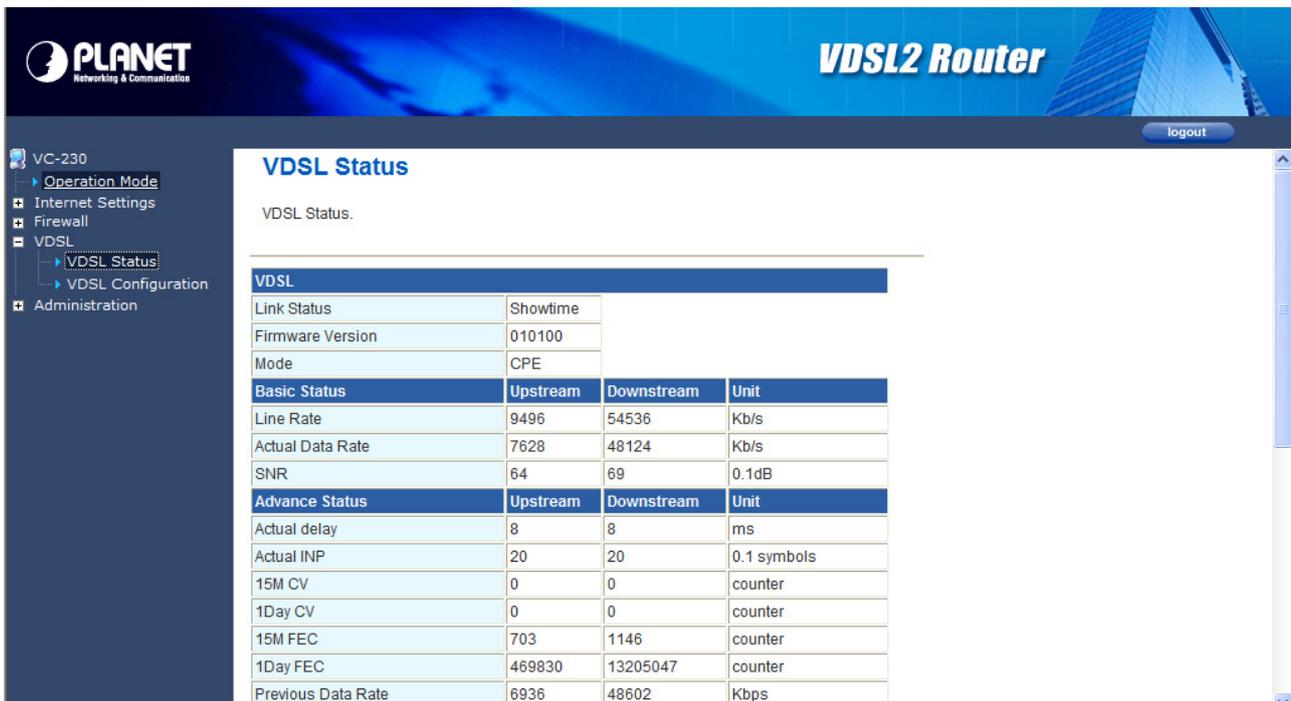
3.4 VDSL

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. 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.

The PLANET VC-230 can provide very high performance access to Internet, both downstream and upstream up to 100Mbps. The VC-230 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 for Point-to-Point Application, data transmission between two networks over existing copper telephone lines.

3.4.1 VDSL Status

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



The screenshot shows the PLANET VDSL2 Router web interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (expanded), VDSL Status (selected), VDSL Configuration, and Administration. The main content area is titled "VDSL Status" and displays the following information:

VDSL Status.

VDSL				
Link Status	Showtime			
Firmware Version	010100			
Mode	CPE			
Basic Status		Upstream	Downstream	Unit
Line Rate	9496	54536		Kb/s
Actual Data Rate	7628	48124		Kb/s
SNR	64	69		0.1dB
Advance Status		Upstream	Downstream	Unit
Actual delay	8	8		ms
Actual INP	20	20		0.1 symbols
15M CV	0	0		counter
1Day CV	0	0		counter
15M FEC	703	1146		counter
1Day FEC	469830	13205047		counter
Previous Data Rate	6936	48602		Kbps

3.4.2 VDSL Configuration

The VC-230 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 on 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 VC-230 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.

The screenshot shows the web interface of a VDSL2 Router. The top header includes the PLANET logo and the text "VDSL2 Router". A navigation menu on the left lists various settings, with "VDSL Configuration" selected. The main content area is titled "VDSL Configuration" and contains a form for setting VDSL parameters. The "Mode" is set to "CPE". Other parameters include VDSL Profile, SNR, Line Type, Interleave Max delay, INP, and Upstream/Downstream Rate Limits.

VDSL Configuration	
Mode	<input type="radio"/> CO <input checked="" type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_17a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17, others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

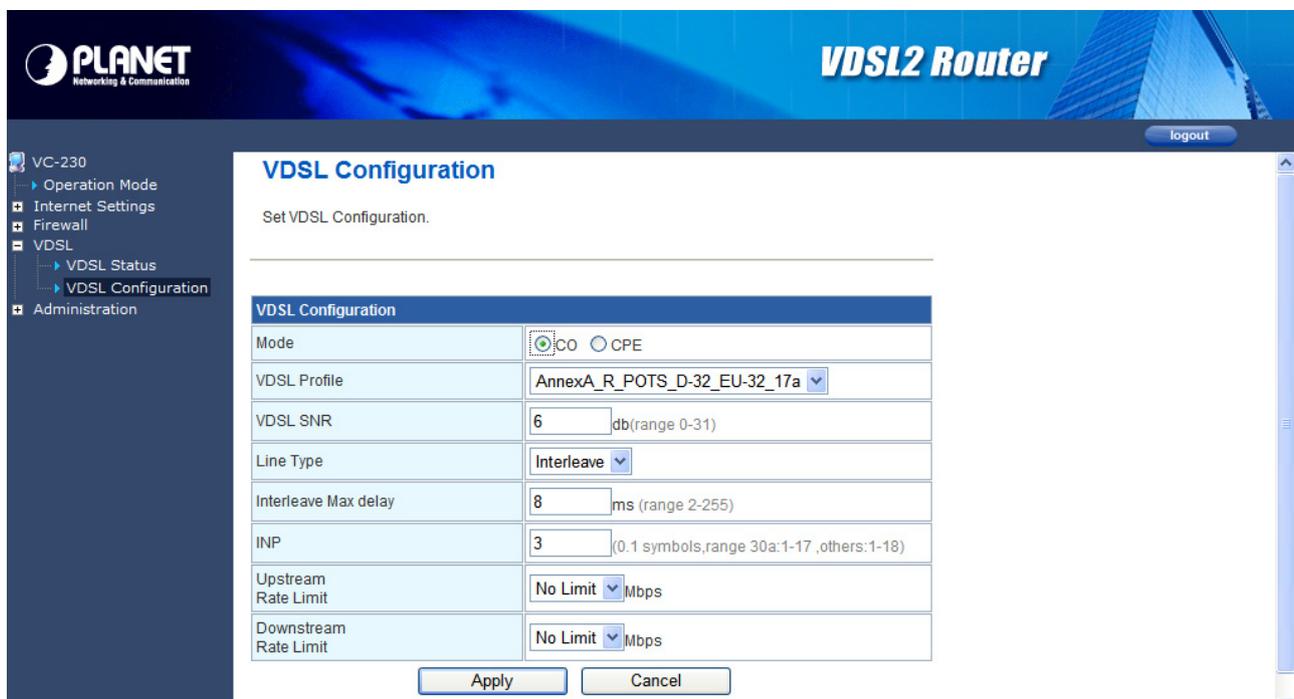
Buttons: Apply, Cancel

CO Mode

If you want to configure the VC-230 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 screenshot shows the VDSL2 Router configuration interface. The left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL (expanded), VDSL Status, VDSL Configuration (selected), and Administration. The main content area is titled "VDSL Configuration" and contains the following settings:

VDSL Configuration	
Mode	<input checked="" type="radio"/> CO <input type="radio"/> CPE
VDSL Profile	AnnexA_R_POTS_D-32_EU-32_17a
VDSL SNR	6 db (range 0-31)
Line Type	Interleave
Interleave Max delay	8 ms (range 2-255)
INP	3 (0.1 symbols, range 30a:1-17, others:1-18)
Upstream Rate Limit	No Limit Mbps
Downstream Rate Limit	No Limit Mbps

Buttons: Apply, Cancel

VDSL Profile

The VC-230 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.

The VC-230 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_12b
6. AnnexA_R_POTS_D-32_EU-32_12a
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

In analog and digital communications, Signal-to-Noise Ratio, often written SNR, is a measure of signal strength relative to background noise. The ratio is usually measured in decibels (dB).

In digital communications, the SNR will probably cause a reduction in data speed because of frequent errors that require the source (transmitting) computer or terminal to resend some packets of data. SNR measures the quality of a transmission channel over a network channel. The greater the ratio, the easier it is to identify and subsequently isolate and eliminate the source of noise.

Generally speaking, the higher SNR value gets better line quality, but lower performance. You can set your SNR in this field, default is 6.

Line Type

You can select the VDSL line type, there are three types for selection – Interleave, fast and No Limit. Default is Interleave type for VDSL CO mode.

- **Fast mode:** guarantees a minimum end to end latency less than 1 ms.
- **Interleaved mode:** provides impulse noises protection for any impulse noise with a duration less than 250 us. Interleaved mode has a maximum end to end latency of 10m sec.

Rate Limit

You can limit your Max. Data Rate for Upstream and Downstream, select the data rate which you want for Upstream and Downstream.

- **Upstream Rate Limit:** 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:** 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.

3.5 Administration

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

3.5.1 Management

Choose **Administration > Management**, and the following page appears. You may configure administrator account and password, NTP settings, and dynamic DNS settings in the page.

The screenshot shows the 'System Management' configuration page. It has a title 'System Management' and a subtitle 'You may configure administrator account and password, NTP settings, and Dynamic DNS settings here.' Below this are three sections: 'Administrator Settings', 'NTP Settings', and 'DDNS Settings'. Each section has 'Apply' and 'Cancel' buttons.

Administrator Settings	
Account	<input type="text" value="admin"/>
Password	<input type="password" value="....."/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

NTP Settings	
Current Time	<input type="text" value="Sat Jan 1 01:43:07 UTC 2000"/> <input type="button" value="Sync with host"/>
Time Zone:	<input type="text" value="(GMT-11:00) Midway Island, Samoa"/>
NTP Server	<input type="text"/> <small>ex: time.nist.gov ntp0.broad.mit.edu time.stdtime.gov.tw</small>
NTP synchronization(hours)	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

DDNS Settings	
Dynamic DNS Provider	<input type="text" value="None"/>
Account	<input type="text"/>
Password	<input type="text"/>
DDNS	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Administrator Settings

- **Account:** Enter the username of the administrator in the field.
- **Password:** Enter the password of the administrator in the field.

NTP Settings

- **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 (hours):** Enter the time interval for synchronization.

DDNS Settings

- **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.

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

3.5.2 Upload Firmware

Choose **Administration > Upload Firmware** and the following page appears. In this page, you may upgrade the correct new version firmware to obtain new functionality. It takes about 1 minute to upload upgrade flash.

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

Upgrade Firmware

Upgrade firmware to obtain new functionality. *It takes about 1 minute to upload & upgrade flash and be patient please. Caution! A corrupted image will hang up the system.*

Update Firmware

Location:

Update Firmware

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

3.5.3 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.

The screenshot shows a web interface titled "Settings Management". At the top, there is a blue header with the title. Below the header, a paragraph of text reads: "You might save system settings by exporting them to a configuration file, restore them by importing the file, or reset them to factory default." The interface is divided into three main sections, each with a blue header bar:

- Export Settings:** This section contains a text input field labeled "Export Button" and a button labeled "Export".
- Import Settings:** This section contains a text input field labeled "Settings file location", a "Browse.." button, and two buttons labeled "Import" and "Cancel".
- Load Factory Defaults:** This section contains a text input field labeled "Load Default Button" and a button labeled "Load Default".

Export Settings

Export Button: Click the **Export** to export the settings.

Import Settings

Settings file location: Click **Browse** to select the configuration file, and then click **Import** to upload the configuration file. Click **Cancel** to cancel the uploading operation.

Load Factory Defaults

Load Default Button: Click **Load Default** to make Router return to the default settings.

3.5.4 Reboot

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

Reboot

You might reboot device.

Reboot Device	
Reboot Button	<input type="button" value="Reboot"/>

3.5.5 Status

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

Router Status

System Info	
Firmware Version	Beta091015
SDK Version	3.3.0.0
System Up Time	1 day, 3 hour, 28 min, 47 sec
Operation Mode	Gateway Mode
Internet Configurations	
Connected Type	PPPOE
WAN IP Address	61.59.238.49
Subnet Mask	255.255.255.255
Default Gateway	61.59.238.1
Primary Domain Name Server	139.175.55.244
Secondary Domain Name Server	139.175.252.16
MAC Address	00:30:4F:30:52:11
Local Network	
Local IP Address	192.168.100.1
Local Netmask	255.255.255.0
MAC Address	00:30:4F:30:52:10

3.5.6 Statistics

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

The screenshot shows the Planet VDSL2 Router web interface. The top header includes the Planet logo and the text "VDSL2 Router" with a "logout" button. A left sidebar contains a navigation menu with the following items: VC-230, Operation Mode, Internet Settings, Firewall, VDSL, and Administration. Under Administration, there are sub-items: Management, Upload Firmware, Settings Management, Reboot, Status, Statistics (highlighted), and System Log.

The main content area is titled "Statistic" and contains three tables of data:

Memory	
Memory total:	29236 kB
Memory left:	15704 kB

WAN/LAN	
WAN Rx packets:	269011
WAN Rx bytes:	35926804
WAN Tx packets:	248535
WAN Tx bytes:	29510723
LAN Rx packets:	23866
LAN Rx bytes:	1510175
LAN Tx packets:	22358
LAN Tx bytes:	2139535

All interfaces	
Name	lo
Rx Packet	50
Rx Byte	27561
Tx Packet	50

3.5.7 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 in this page.

System Log

System Log Setup

System log mode	Enable <input type="button" value="v"/>
-----------------	---

System Log:

```
Jan  2 08:45:46 PLANET syslog.info syslogd started: BusyBox v1.12.1
Oct 21 11:23:59 PLANET user.info kernel: br0: topology change detected, propagat
Oct 21 11:23:59 PLANET user.info kernel: br0: port 1(eth2.1) entering forwarding
Oct 21 11:24:08 PLANET local0.info udhcpd[2661]: Sending ACK to 192.168.100.10
Oct 21 11:24:25 PLANET local0.info udhcpd[2661]: Sending OFFER of 192.168.100.2
Oct 21 11:24:25 PLANET local0.info udhcpd[2661]: Sending ACK to 192.168.100.2
Oct 21 11:24:26 PLANET local0.info udhcpd[2661]: Sending OFFER of 192.168.100.3
Oct 21 11:24:26 PLANET local0.info udhcpd[2661]: Sending ACK to 192.168.100.3
Oct 21 11:27:18 PLANET daemon.notice pppd[2226]: Serial link appears to be disco
Oct 21 11:27:24 PLANET daemon.notice pppd[2226]: Connection terminated.
Oct 21 11:27:24 PLANET daemon.info pppd[2226]: Connect time 5155361.8 minutes.
Oct 21 11:27:24 PLANET daemon.info pppd[2226]: Sent 15834 bytes, received 12308
Oct 21 11:27:54 PLANET daemon.info pppd[2226]: PPP session is 903
Oct 21 11:27:54 PLANET daemon.info pppd[2226]: Using interface ppp0
Oct 21 11:27:54 PLANET daemon.notice pppd[2226]: Connect: ppp0 <--> eth2.2
```

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

Appendix A: Performance of VC-230 Profiles

Below table 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 environment factors.

For better performance, we suggest using 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 : Ethernet over VDSL2 Router (4*RJ45, 1*VDSL2, 1*Phone -30a) -
Metanoia solution
*Model Number : VC-230
* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address : 11F, No. 96, Min Chuan Road, Hsin Tien,
Taipei, Taiwan, R.O.C.

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (89/336/EEC).

For the evaluation regarding the EMC, the following standards were applied:

Emission	EN 55022	(1998 + A1:2000 Class B)
Harmonic	EN 61000-3-2	(2000)
Flicker	EN 61000-3-3	(1995 + A1:2001)
Immunity	EN 55024	(1998 + A1:2001)
ESD	EN 61000-4-2	(2001)
RS	EN 61000-4-3	(2002)
EFT/ Burst	EN 61000-4-4	(1995 + A1:2000)
Surge	EN 61000-4-5	(2001)
CS	EN 61000-4-6	(2001)
Magnetic Field	EN 61000-4-8	(2001)
Voltage Disp	EN 61000-4-11	(2001)

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: **11F, No. 96, Min Chuan Road, Hsin Tien, Taipei, Taiwan, R.O.C.**

Person responsible for making this declaration

Name, Surname Allen Huang

Position / Title : Product Manager

Taiwan
Place

29th, Oct., 2009
Date

Allen
Legal Signature

PLANET TECHNOLOGY CORPORATION

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