



16-port + 2 Gigabit-slots VDSL Stackable Switch

VC-1602

User's Manual



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Revision

PLANET 16-port + 2 Gigabit-slots VDSL Stackable Switch User's Manual

FOR MODELS: VC-1602

Part No.: EM-VC1602

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Chapter 1 INTRODUCTION

1.1 Checklist

Check the contents of your package for following parts:

- I VC-1602.
- I CD-ROM.
- I Quick Installation Guide
- I Power cord.
- I 19" rack-mount brackets.
- I RS-232 cable.

If any of these pieces are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.

1.2 About the Switch

The VC-1602 is an Ethernet over VDSL switch with sixteen VDSL ports (on 1 RJ-21 connector) and two Gigabit slide-in slots on the rear panel for optional fiber/copper Gigabit modules. The switch is a DSLAM (Digital Subscriber Line Access Multiplexer) accommodating well proven Ethernet and VDSL technologies to extend Ethernet over single-pair phone line by using a VDSL signal. Up to 15/17Mbps bandwidth and 5 selective transmission modes provides ultra-high performance to the pervasive telephone line network, and has the advantage of minimum installation time and minimum expense by allowing voice and data to share the same telephone pair without interference. Moreover, the maximum 1.5km distance provides wide coverage for service providers. The 2 Gigabit slide-in slots on the rear panel provide fat pipes for connecting to the backbone or connecting to servers. 10/100/1000Base-T, 1000Base-SX and 1000Base-LX modules are available to fit existing networks and to provide flexible media selections.

The VDSL Switch contains an advanced management capability that can be remotely accessed by Telnet, SNMP and Browser. The standard IEEE 802.1Q with VLAN tagging feature makes logically separating nodes easier with up to 255 VLAN groups allowed. Two priority queues with 802.1p support, IGMP snooping and rate control function are also provided to optimize network bandwidth.

The VC-1602 provides switch stacking functionality to manage up to 8 switches using a single IP address. Through its proprietary management bus using a standard RJ-45 cable, the distance between stacked switches can be up to 800m. The management bus traffic is separated from the network ports, ensuring heavy network loading does not affect management tasks. 128 VDSL ports can be managed with a single IP address.

The VC-1602 is ideal for providing broadband services to subscribers in apartment, hotel and campus communities. Fully compatible with Cisco LRE CPE modems, PLANET's VDSL solution provides a lower cost replacement and smooth migration from existing Cisco LRE networks.

1.3 Features

- w Cisco LRE CPE modem compatible
- w Complies with IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE 802.3z 1000Base-SX/LX, IEEE 802.3ab 1000Base-T, IEEE 802.3x flow control, IEEE 802.1Q VLAN and 802.1p priority queuing
- w 5 selectable transmission modes using the management interface of the VC-1602
- w QAM (Quadrature Amplitude Modulation) line code
- w Designed based on Frequency Division Duplexing
- w A telco-50 (RJ-21) connector for VDSL ports
- w Voice and data communication can be shared on the existing telephone wire simultaneously
- w Provides 6k MAC address table and 384K bytes memory buffer
- w Supports 802.1p QoS with two priority queues
- w Supports 802.1Q tagged VLAN, up to 255 VLAN groups can be configured
- w Console, telnet, web and SNMP manageable
- w Supports IGMP snooping
- w Port mirroring for dedicated port monitoring
- w Rate control function to limit bandwidth to 10%, 20% to 100%.

1.4 Specifications

Product	16-port + 2 Gigabit-slots VDSL Stackable Switch
Model	VC-1602
Network Ports	Telco-50 (RJ-21), provides 16 VDSL connections
Stack Ports	2 x RJ-45
Module slot	2 for 10/100/1000Base-T, 1000Base-SX and 1000Base-LX modules
Console	1 x RS-232 DB-9
Stack ID selection	Knob with 8 settings (0~7)
MAC address table size	6k
Transmission method	Store-and-forward
Packet Buffer Memory	384K Bytes
LEDs	System: PWR, Master, Status Per port: LNK, ACT Port Module: LNK/ACT Stack: LNK
Cables	10Base-T: 2-pair UTP Cat. 3,4,5 up to 100m 100Base-TX: 2-pair UTP Cat.5, up to 100m 1000Base-T: 4-pair UTP Cat 5, up to 100m 1000Base-SX: 50/125 and 62.5/125 fiber-optic cable, up to 550m 1000Base-LX: 9/125 fiber optic cable, up to 10km 50/125 and 62.5/125 fiber-optic cable, up to 550m VDSL: twisted-pair telephone or ISDN wires (AWG24 or better) up to 5000ft (1.5km)
Mode/Distance (Based on AWG24 wires)	ANSI - 15/4Mbps asymmetrical rate up to 4100 feet (1.25km) ETSI - 11/4Mbps asymmetrical rate up to 4100 feet (1.25km) VE-5 - 5/5 Mbps symmetrical rate up to 5000 feet (1.5km) VE-10 - 11/11Mbps symmetrical rate up to 4100 feet (1.25km) VE-15 - 15/17Mbps asymmetrical rate up to 3500 feet (1.05km)
Rack Mount	19" rack mount, 1U height
Dimension	440 x 285 x 44 mm
Operating Environment	Temperature: 0~50 degree C (operating), -20~70 degree C (storage) Humidity: 0~90%, non-condensing
Power Supply	100~240VAC, 50~60Hz, auto-sensing

EMC/EMI	FCC, CE
Management Interface	Web, Console, Telnet and SNMP
Protocols and Standards	IEEE 802.3 (Ethernet) IEEE 802.3u (Fast Ethernet) IEEE 802.3z/802.3ab (Gigabit Ethernet) IEEE 802.3x (flow control) IEEE 802.1Q VLAN tag IEEE 802.1p QoS RFC 768 UDP RFC 783 TFTP RFC 791 IP RFC 792 ICMP RFC 826 ARP RFC 854 Telnet RFC 2068 HTTP RFC 2236 IGMPv2
Network Management	RFC 1157 SNMP v1/v2 RFC 1123 MIB-2 RFC 1493 Bridge MIB

Chapter 2 HARDWARE INSTALLATION

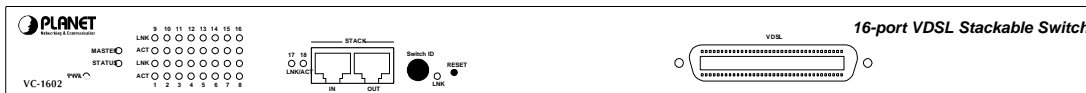
This section describes the hardware features and installation of these Switches. For easier management and control of the switch, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the switch, read this chapter carefully.

Furthermore, there are three choices of different modules for expansion:

- I WGSW-D1GT: 10/100/1000Base-T module
- I WGSW-D1SX: 1000Base-SX module
- I WGSW-D1LX: 1000Base-LX module

2.1 Front Panel

The unit front panel provides a simple interface monitoring the switch.



VC-1602 Switch front panel

LED indicators

PWR	Green	On: Power on	
MASTER	Green	When this LED steady green, it means the device acts competent leading role(Master), an indispensable essential for system administrator to control and monitor whole system. At the time one member of the cluster disconnected or new member joined, the LED blinks. Soon, one and only one master will be raised. You can refer to "SWITCH ID" for relative information.	
STATUS	Flashing Green	Run Time Error occurs	
VDSL	LNK	Green	Well connected with CPE device
	ACT	Flashing Green	There is traffic transverses the port
Module	LNK/ACT	Green	When one slide-in module is well installed and functioning, the relevant one lights green
		Flashing Green	There is traffic transverses the port
STACK	LNK	Green	On: The switch is stacked to others Off: The switch is standalone or the stack link have problem

Stack ports

There are two stack ports on the front panel. One is IN and the other is OUT. When stacked, the IN port should connect to the other switch's OUT port and the OUT port should connect to other switch's IN out. You can just use normal Cat 5 or better cable with RJ-45 connector to stack. Only straight-through UTP/STP cable can be used. There is no Duplex Mode issue and the maximum distance between first and last switch is 800m.

SWITCH ID

Each switch on a stack must have a unique switch ID. There are eight degrees (0~7) in the rotary switch. The switch with least switch ID will become master switch and the others become slave. If master switch is fail or disconnected to the switch by stack port, the switch with least switch ID will become master.

Every device in the management stack should have a unique "Switch ID". In the meanwhile, a "Switch ID" which has been using by a device, reused by another, the management stack will fail.

Reset button

At the middle of front panel, the reset button is designed for reboot the switch without turn off and on the power.

VDSL ports

There are 16 VDSL ports within 1 RJ-21 connector on the front panel.

The VDSL supports 5 selective transmission modes that operate in different band allocation and result in different upstream and downstream bandwidth. Due to different telephone line quality, cross talk or extension distance may affect actual achievable speed; you can configure individual port in built-in management interface for optimized connectivity.

The following is the summary table of transmission modes, bandwidth and distance extensibility tested for AWG 24 (0.5mm) twisted-pair without noise and cross talk.

Profile Name	Profile Type	Downstream Rate (Mbps)	Upstream Rate (Mbps)	Maximum Distance between the CO Port and the CPE
ANSI	Public	15.17	4.27	4100 ft (1.25km)
ETSI	Public	11.38	4.27	4100 ft (1.25km)
VE-5	Private	5.69	5.69	5000 ft (1.5km)
VE-10 (default)	Private	11.38	11.38	4100 ft (1.25km)
VE-15	Private	15.17	17.06	3500 ft (1.05km)

Note

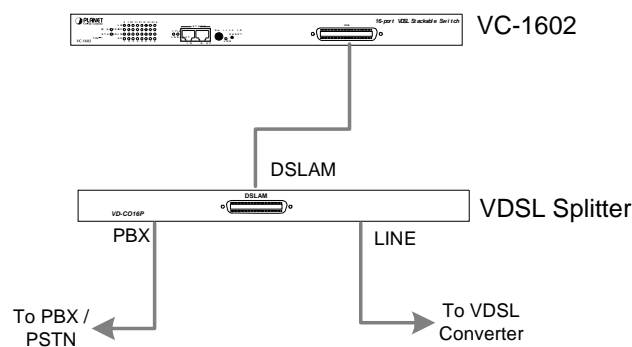
- 1.The payload rate is about 9% less than the line rate due to framing overhead.
 - 2.AWG 26 (0.4mm) cable can also be used but the distance is 20% to 40% shorter than above table.
 - 3.Each terminated bridge tap can reduce the VDSL link distance by 90m. The quality of the cable, the size of the cable bundles, and the cross talk within the bundle, can also affect other overall reach.
-

Wiring for VDSL ports

The VDSL port of VC-1602 uses one RJ-21 (Telco 50) connector to connect up to 16 VDSL converters (VC-102S, VC-101S or Cisco LRE modem) through structured or unstructured wiring, such as existing telephone lines. The link between the VDSL switch port and each converter can reach speeds of up to 15/17 Mbps over distances of up to 5000 feet (1500 meters). You can hot swap the VDSL converters without powering down the switch or disrupting the other switch ports.

If telephone services, such as voice or an Integrated Services Digital Network (ISDN), use the same cabling as VDSL traffic, the VDSL port must be connected to the patch panel through a plain old telephone service (POTS) splitter. The splitter routes VDSL data (high-frequency) and voice (low-frequency) traffic from the telephone line to the switch and private branch exchange (PBX) switch or public switched telephone network (PSTN).

The connection diagram is as the following.



If the port is connected but the relevant LED is dark, check the following items:

1. The switch and the connected device's power are on or not.
2. The connecting cable is good and with correct type.
3. The cable is firmly seated in its connectors in the switch and in the associated device.
4. The connecting device, including any network adapter is well installed and functioning.
5. Confirm the CPE device is implemented within the scope of operative without interference.

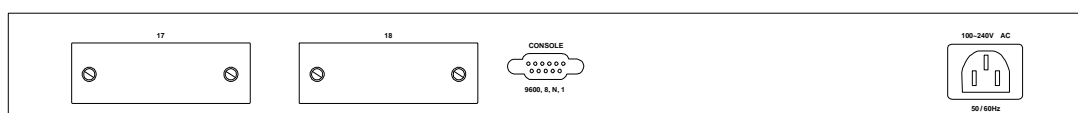
For more information about the splitter, please consult your local dealer about the splitter and refer the user's guide of the splitter.

ë Note

PLANET VC-1602 products are designed to share lines with analog, Integrated Services Digital Network (ISDN), and digital private branch exchange (PBX) switch telephones that use the 0 to 700 kHz frequency range. Digital telephones connected to digital PBX switches that use frequencies above 700 kHz do not work when sharing a line with LRE signals. Due to the proprietary nature of digital PBX switches, some digital PBX switch services use frequencies above 700 kHz. Besides, digital telephones connected to digital PBX switches that use frequencies above 700 kHz will not work when sharing a line with LRE signals.

2.2 Rear Panel

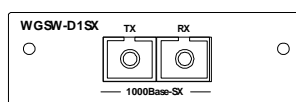
The rear panel of the switch indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz, one RS-232 console port for setting up the switch via a connection to a terminal or PC using a terminal emulation program, and two slide-in slots for installing additional modules.



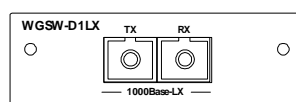
VC-1602 Switch front panel

Slide-in slots

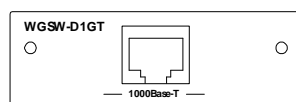
The two slide-in slots on the rear panel are reserved for following optional gigabit modules. They can provide fat pipes for up linking to backbone or connecting to servers.



1000BASE-SX : WGSW-D1SX



1000BASE-LX : WGSW-D1LX



1000BASE-T : WGSW-D1GT

The following is the gigabit module operation and cabling required:

Media	Speed	Duplex Mode	Wiring	Distance
1000BASE-T	10Mbps	Full / Half	Category 3,4,5 UTP/STP	100m
	100Mbps	Full / Half	Category 5 UTP/STP	100m
	1000Mbps	Full	Category 5 UTP/STP	100m
1000BASE-SX	1000Mbps	Full	62.5/125 μ m MMF	220m
			50/125 μ m MMF	500m
1000BASE-LX	1000Mbps	Full	62.5/125 μ m MMF	550m
			50/125 μ m MMF	550m
			9/125 μ m SMF	10km

Console Port

The RS-232 console is an interface for connecting a terminal directly. Through the console port, it provides rich diagnostic information includes network statistics, link status and system setting. The operating mode of the console port is:

- ◆ DCE
- ◆ 9600 (Fix baud rate)
- ◆ n (No parity checking)
- ◆ 8 (8 Data bits)
- ◆ 1 (1 stop bit)
- ◆ None (No flow control)

You can use a normal RS-232 cable and connect to the console port on the device. After the connection, you can run any terminal emulation program (Hyper Terminal, Winterm, Telix, and so on) to enter the startup screen of the device.

Power Receptacle

For compatibility with electric service in most areas of the world, the switch's power supply automatically adjusts to line power in the range 100-240 VAC and 50/60 Hz.

Plug the female end of the power cord firmly into the receptacle on the rear panel of the switch. Plug the other end of the power cord into an electric service outlet then the power will be ready.

Power Notice:

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.
2. In some area, installing a surge suppression device may also help to protect your switch from being damaged by unregulated surge or current to the Switch or the power adapter.

2.3 Hardware Installation

This switch can be placed directly on your desktop, or mounted in a rack. If you install the device in a normal-standalone standard, the switch is an managed Switch, and users can immediately use most of the features simply by attaching the cables and turning the power on. In this case, any managerial proceedings are effective only in the range of the switch. After management stacking, you can enjoy the powerful management functions and control the whole system.

Desktop Installation

For desktop installation, the switch needs to put on a clean, flat desk or table close to a power outlet. Plug in all network cables and the power cord, then the system is ready.

Before installing the switch, you must ensure:

1. It is accessible and cables can be connected easily.
2. Cabling is away from:
 - w Sources of electrical noise such as radios, transmitters and broadband amplifiers
 - w Power lines and fluorescent lighting fixtures.
3. Keep water or moisture off.
4. Airflow around the unit and through the vents in the side of the case is great for heat radiation (company recommend that you provide a minimum of 25 mm clearance).

To prolong the operational life of your units:

1. Never stack unit more than eight sets high if freestanding.
2. Do not place objects on top of any unit or stack.
3. Do not obstruct any vents at the sides of the case.

Rack-mount Installation

The switch may stand alone, or may be mounted in a standard 19-inch equipment rack. Rack mounting produces an orderly installation when you have a number of related network devices. The switch is supplied with rack mounting brackets and screws. These are used for rack mounting the unit.

Rack Mounting the Switch in the 19-inch rack:

1. Disconnect all cables from the switch before continuing.
2. Place the unit the right way up on a hard, flat surface with the front facing toward you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.
5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the 19" rack and secure with suitable screws (not provided).
7. Reconnect all cables.

Installing Network Cables

Station Connections -

Refer to the wiring statement of the previous section; connect each station with correct type of cables.

Switch-to-Switch Connections –

In making a switch-to-switch connection, use Gigabit ports to connect another switch or backbone is strongly recommended. The Gigabit ports provide the fat pipe to the server or backbone connectivity for boosting the total system performance. Refer to the wiring statement of the previous section; connect each station to the switch with correct type of cables.

Module Installation

The two slide-in slots on the rear panel are purposed for installing optional modules. They can be used as a network backbone or connect to a server. Follow the steps as described to install a module:

1. Power off the switch.
2. Removing the two screws on the face plate of slide-in slot with a flat-head screwdriver.
3. Push the module gently into the slot along the slide tracks.
4. Ensuring that it firmly engages with the connector then tighten the screws to secure the module.

ë Note The slide-in slots are not hot swappable, power off the switch before installing modules.

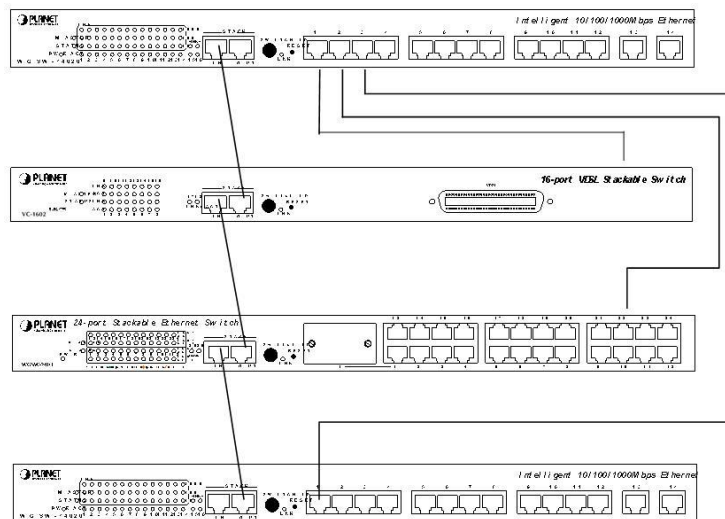
2.4 Stack Installation

There are two RJ-45 ports on the front panel for proprietary management stack. Only straight-through UTP/STP cable can be used.

Plug one end of the cable in the "IN" port and the other end to the "OUT" port of next device. Repeat the step for every device in the stack cluster, then ending at last switch.

Note Before management stacking, be sure of every device uses a unique "SWITCH ID", or the management stack will not work. The switch with least SWITCH ID will become Master. Only Master switch's management interface (console, telnet, web and SNMP) is accessible.

Please find the following picture for sample connection. Please note the stack port is for management only. For data packets to be transmitted between switches, you will still need to connect their network ports.



Chapter 3 CONSOLE AND TELNET MANAGEMENT

3.1 Connect To PC by RS-232 serial Cable

Note

If you have stacked several switches together, make sure you are working on Master switch (switch with least Switch ID). Other slave switches' management interface allows only viewing the configuration by "guest" account.

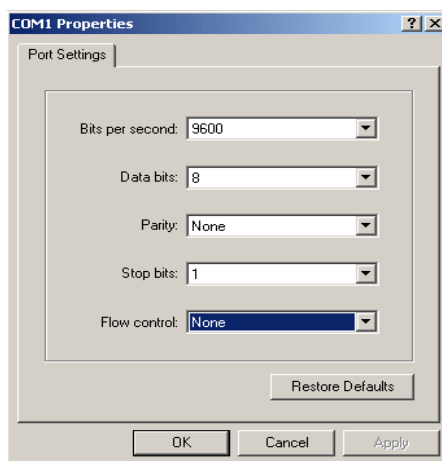
To configure the system, connect the provided serial cable to a COM port on a PC or notebook computer and to serial (console) port of the device. The console port of the device is DCE already, so that you can connect the console port directly through PC without the need of Null Modem.

A terminal program is required to make the software connection to the device. Windows' Hyper Terminal program may be a good choice. It can be accessed from the Start menu. Click START, then Programs, Accessories and then Hyper Terminal.

MS-DOS based terminal program such as PC-PLUS, PROCOMM, can also make the connection with the device built-in software. The COM port should be configured as:

- ◆ Baud : 9600
- ◆ Parity : None
- ◆ Data bits : 8
- ◆ Stop bits : 1
- ◆ Flow Control : None

If you are using Windows 95/NT/98/2000/XP, launch "HyperTerminal", create a new connection, and adjust settings as below:



Please then power on the switch; launch the new terminal program you just set up. Press "Enter" key, then login screen appears. Please check chapter 3.3 for detail on console management.

3.2 Telnet

To access the switch through a Telnet session:

1. Be Sure of the switch is configured with an IP address and the switch is reachable from a PC.
2. Start the Telnet program on a PC and connect to the switch.

The management interface is exactly the same with RS-232 console management except the “root” privilege is not supported.

3.3 Main Menu

After you enter the switch’s console interface by RS-232 cable or telnet, the following page is shown. Please enter username and password to access VC-1602.

```

PLANET VC-1602 VDSL Stackable Switch                               UserLevel: NONE
=====
[Login]
UserName :

```

There are three system default accounts for different privilege levels:

- “root”: root can do any configuration includes changing password and enable/disable management capability via console port. The default password of root is “superuser”. Note that this account is not workable on telnet and web management interface.
- “admin” admin can do any configuration except changing password. The default password of admin is “admin”.
- “guest”: guest can view the whole switch information only, moreover, access to Web management interface is not allowed. The default password is “guest”.

Main menu appears after successfully login VC-1602. To enter any of the submenus, simply type the number after the command prompt. When select further options, you may be asked for the device ID which you want to configure. Please just input the SWITCH ID which you have configured on the switch front panel.

```

PLANET VC-1602 VDSL Stackable Switch                               UserLevel: ADMIN
=====
[Main Menu]
1. System Information
2. Management Setup
3. Device Control
4. User Authentication
5. System Utility
6. Save Runtime Configuration
=====
<Press ESC key to logout>, or
Please input one value (1..6):

```

The following table shows all the available options on the switch. The management functions are exactly the same with web-based management interface but in text mode. For further operation, please refer to “4. Web Management”.

Main menu	Submenu	Function
1. System Information	1. Topology Information	Show the Device ID, Hardware version, Boot-up version, POST version, runtime code version, agent status, device name and device location of each switch on the stack.

	2. System Information	Show detail system information of each switch including their hardware, software version, system up time, system contact, device name, device location and system management capabilities.
	3. System Configuration	Modify system contact, device name and device location of each switch on the stack.
2. Management Setup	1. Network Configuration	Configure each switch's IP address, subnet mask and default gateway.
	2. Console Port Status Display	Display the console port configuration, like baudrate, databits, parity, etc.
	3. SNMP Community Setup	Create, modify or delete SNMP community name, the IP address associated with the name and the access right. Up to 5 entries are supported.
	4. Trap Receiver Control	Create, modify or delete the community name, IP address and aging time of the trap receivers. Up to 5 receivers are supported.
	5. Management Features Control	Enable or disable web, telnet and SNMP management function of the switch. You can also change the http port number on this menu.
	6. Trap Filtering Setup	Define which events will trigger the trap on this menu.
3. Device Control	1. Port Status/Configuration	Show the status of each VDSL and Ethernet ports and configure each ports settings. It also allows you to check the status of connected CPE (VDSL converter), reset the CPE and do loopback test.
	2. Address Table	Create, delete and display the MAC address entries of each port. You can also modify the aging time and search a specified MAC address on this menu.
	3. VLAN	Two VLAN modes are supported on this switch, 802.1Q VLAN and port group VLAN. Please select the VLAN mode first and then make further configuration. Please refer to section 4.9 for detail configuration available on this switch.
	4. Security	This function is reserved for future use.
	5. IGMP Snooping	Enable or disable the IGMP Snooping. You can also display the IP multicast registration table on this menu.
	6. Mirror	Enable or disable the mirror function and choose the sniffer port and monitored port.
	7. Statistic Information	Show traffic information of each VDSL and Ethernet ports.

	8. Priority Tag	Define the 802.1p tag mapping and the service rule. Please refer to section 4.13 for detail.
4. User Authentication		This menu allows you to configure the password of <i>root</i> , <i>admin</i> and <i>guest</i> account. Only <i>root</i> account has the right to enter this menu.
5. System Utility	1. System Restart	Restart the switch. Two options are available: cold start and warm start.
	2. Default Factory Reset	Reset the switch back to factory default settings.
	3. Timeout Interval Setup	Configure the telnet timeout interval.
	4. TFTP Download	Update the firmware through TFTP server.
	5. Local Transfer	Transfer the firmware from master switch to slave switch.
	6. Ping	Ping a IP to test the connection status.
	7. Search Location by Port Name	Input a port name to get the correspondence of Device ID and Port number.
6. Save Runtime Configuration		Save the configuration you have make on the switch.

CHAPTER 4. WEB MANAGEMENT

4.1 Start A Web Browser Session

The Web Interface of VC-1602 is coded by Java Applet and running on the Java™ Virtual Machine (JVM) version 1.3.1 platform. You should configure the management station with an IP address and subnet mask compatible with VC-1602 for accessing it. Also, the management station should be well configured and connected to Internet for automatically downloading (upgrading) the suitable JVM through Internet from <http://java.sun.com>. Or you can download from <http://java.sun.com/j2se/1.3/download.html> and manually install it.

Note Usually the newer Java™ Virtual Machine is not backward compatible. JVM version 1.3.1 is strongly recommended to ensure properly operation.

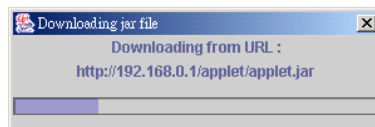
The default network configurations are as follows:

IP: 192.168.0.1
Subnet Mask:255.255.255.0
Default Gateway: 192.168.0.254

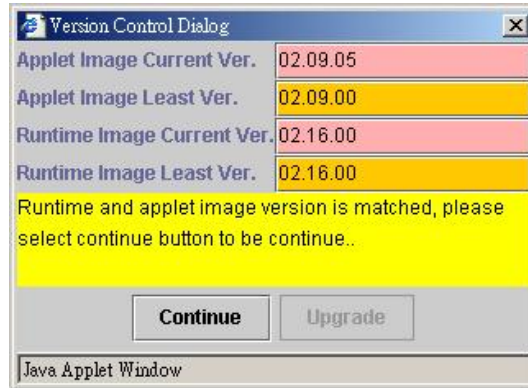
1. Activate a web browser and enter the IP address you have configured in the address field. A screen pops up and asks for username/password. Use system default users name “admin” and password “admin” (If you have configured a new password, input the new password) to access VC-1602.



2. After Login, the web management will start to download the java file for the switch.



3. After the file download is completed, the following message is shown. Please click “Continue” to enter the stack main page.

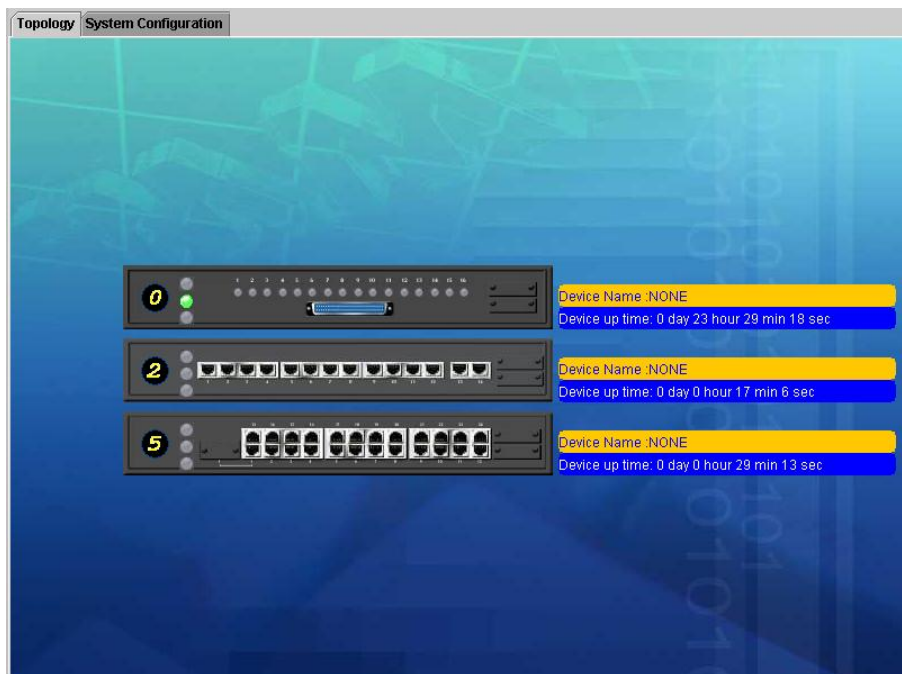


4.2 Stack Main Page

The stack main page contains two options:

Topology

This screen displays one or more switches of the management stack. Basic properties can be read by the screen, including Hardware characteristic, Device Name, Up time, Master and Slave relationship. Also, by mouse clicking listed items can enter for further operation.

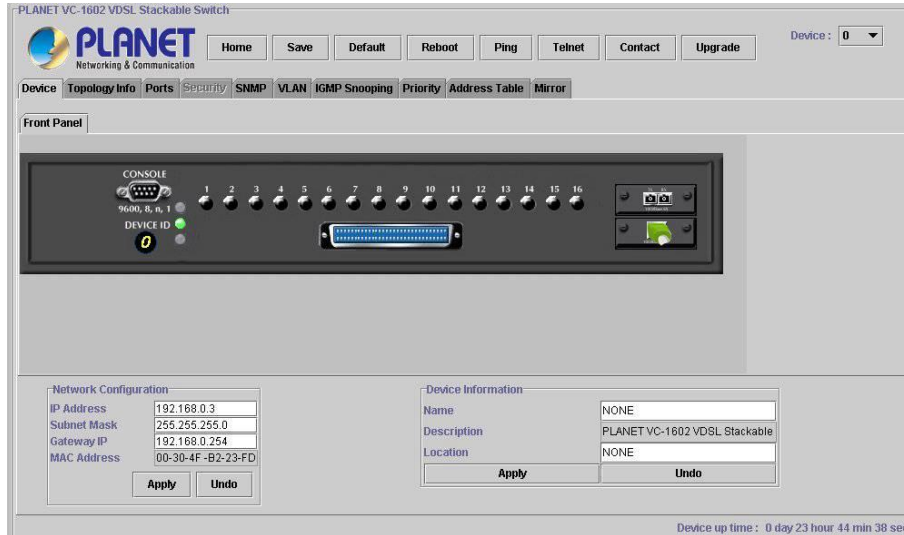


System Configuration

If you are managing a Master or a Standalone device, the system configuration parameters are equal to parameters of Net Configuration and Device Information in **Device** tab. For further information, please refer to **Device** statement.

4.3 Switch Main Page

Switch Main Page appears after you click one of the switch(es) on the topology page. There are 8 function button listed on top: Home, Save, Default, Reboot, Ping, Telnet, Contact, and Upgrade.



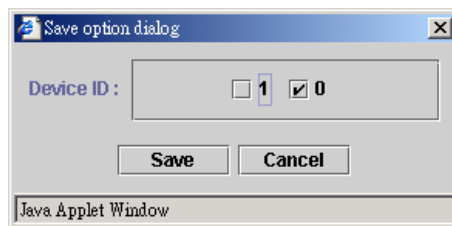
<Home>

Shortcut to back to stack home page

<Save>

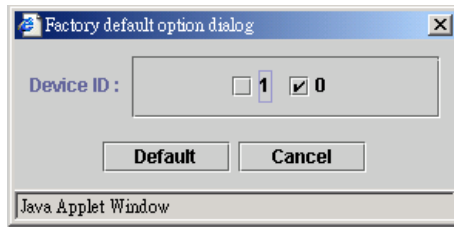
Save the current setting to **Non-volatile Memory**. The difference between <Save> and <Apply> is that *Apply* applies settings right away but saves the values in the system memory. Every time when switch reboots, system obtains system parameters from **Non-volatile Memory** you <Saved> before but not system memory.

Select the one(s) you want to save parameters, then click "Save" button to save it to **Non-volatile Memory**.



<Default>

Make the switch(es) returning to factory default value. Select the switch and click "Default" button, the selected-switch(es) will return to initial value. If you want to clear the previous value in the **System Memory**, please <Save> it.

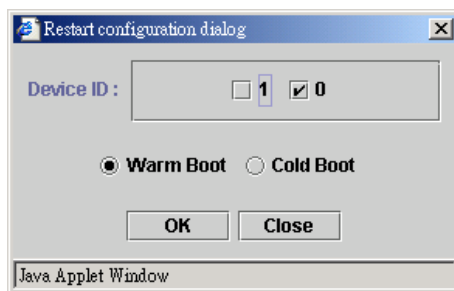


<Reboot>

You can specify switch(es) and reboot it.

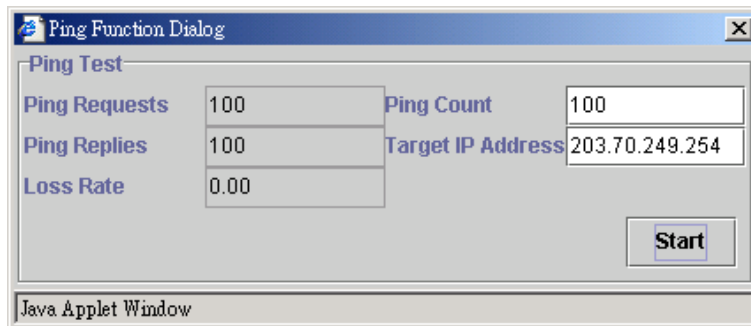
Warm Boot Reboot the switch in a short time.

Cold Boot Boot the switch and with fully Power On Self Test (POST). The system is completely checked but spends much time.



<Ping>

The **Ping** is a commonly used tool to detect the remote host or IP address exists or not. Moreover, network status also can be known by the ratio of packets Reply and Loss.



<Telnet>

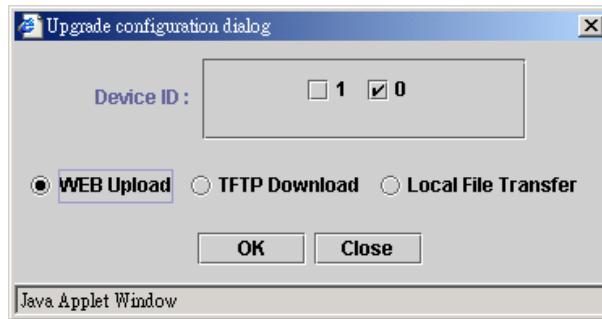
By simply clicking the **<Telnet>** button, the Telnet program implements and displays login screen.

<Contact>

Contact PLANET technicians for technical support by E-Mail

<Upgrade>

You can select the device ID and click the upgrade method. Please note the two or more device can be upgraded at the same time.



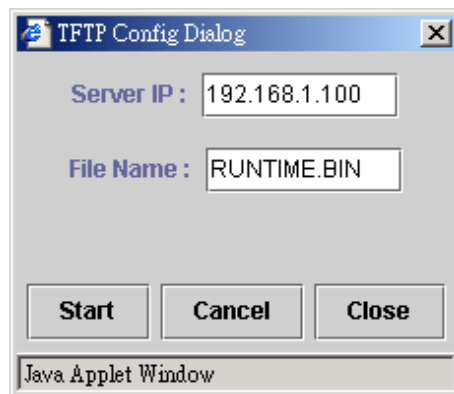
WEB Upload

- w Select Device ID and “WEB Upload” radio button then click **OK**.
- w Specify the file path by clicking **Browse** button and click **Start**.



TFTP Download

1. Select Device ID and “TFTP Download” radio button then click **OK**.
 2. Enter the TFTP server’s IP address in Server IP field.
 3. Enter file name in File Name field.
- Click **Start** button to download the code and system update with it automatically



Local File Transfer

1. Select Device ID and “Local File Transfer” radio button then click **OK**.
2. Click “Application” or “Java Applet” radio button (Application - System firmware, Java Applet -- Web User Interface).

The system starting software synchronization from Master Device (That the synchronized hardware should be identical to Master Device)

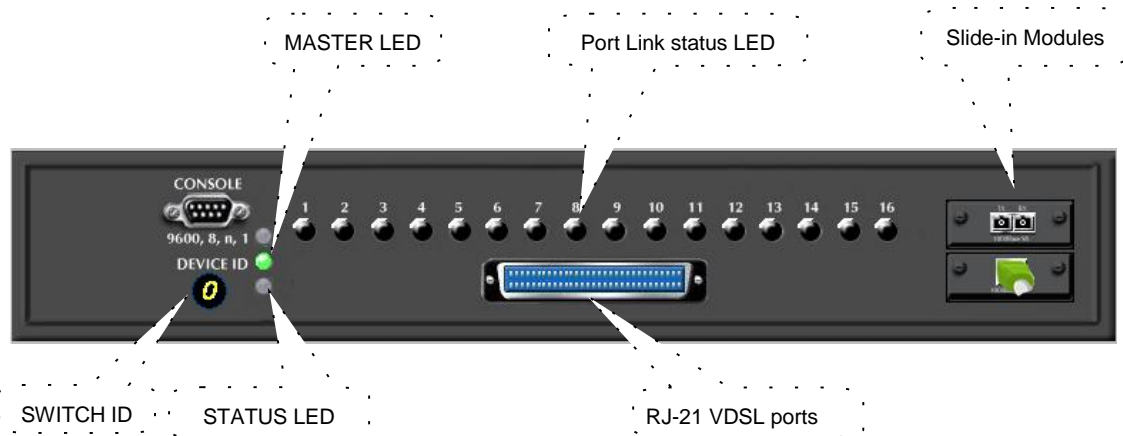


Device

The shortcut to go to another member switch in the management stack.

4.4 Device Configuration

Panel Display



Network Configuration

- IP Address:** IP address of this device.
- Subnet Mask:** Subnet Mask of your network.
- Gateway IP:** IP address of Gateway.

Device Information

- Name:** Naming the system (optional).
- Contact:** Who the System administrator is (optional).
- Location:** Where the management stack locates (optional).

Note The Network Configuration and Device Information of Master Device in the management stack will become system parameters automatically.

4.5 Topology Info

This page displays information about the switch(es), such as Device ID, Hardware version, Boot-Up version, POST version, Runtime version (Firmware version), JAVA Applet version (Web User Interface version), Device Name and Device Location. When management stack persist, by the Device ID, all the members are transparently listed.

Device ID	HW Ver	Boot-UP Ver	POST Ver.	Runtime Ver.	JAVA Applet Ver.	Agent Status	Device Name	Device Location
0	R0	2.01(1/1/0/2...	3.00(4/23...	2.16(4/9/2003)	2.09(6/6/2003)	MASTER	NONE	NONE
2	R0	1.01(1/1/0/2...	1.03(1/1/0...	2.15(4/3/2003)	2.09(6/6/2003)	SLAVE	NONE	NONE
5	R1	2.02(1/1/3/2...	3.01(6/6/...	3.17(4/3/2003)	2.09(6/6/2003)	SLAVE	NONE	NONE

4.6 Ports

Information

It is a ports' configurations summary table. Via the summary table, you can know status of each port clear at a glance, like *Link Up/Link Down*, *Enable/Disable*, *Link Speed*, *Profile*, *Up/Down Rate*, *Up/Down SNR*, *Duplex mode* and *Flow Control*.

Port	Name	Type	Link	Admin	Profile	Up Rate	Down Rate	Up SNR	Down SNR
1	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
2	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
3	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
4	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
5	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
6	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
7	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
8	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
9	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
10	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
11	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
12	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
13	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
14	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000
15	N/A	VDSL	Link Down	Enable	VE-5	0.000	0.000	0.000	0.000

Port	Name	Type	Link	Admin	Speed	Duplex	Flow Ctrl
17	N/A	1000SC	Link Down	Enable	Auto	Auto	Disable
18	N/A	1000T	Link Up	Enable	1000M	Full	Disable

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 profile according to line quality and distance to get better performance or replace the line with new one.

Note Also by simply clicking the port on the 'Panel Display', the port information screen pops up.

Type	1000T	Link Status	Link Up
RX Bytes	16876276	TX Bytes	9651788
RX Frames	174797	TX Frames	73502
RX BCST Frames	50168	TX Collisions	0
RX MCST Frames	49242	RX CRC	0
RX Alignment	0	RX Undersize	0
RX Oversize	0	RX Fragments	0

Clear Refresh

Java Applet Window

Configuration

Port attributes can be setup in this page.

Port	Name	Admin	Profile	Bandwidth Ctrl
1	N/A	Enable	VE-5	100%
2	N/A	Enable	VE-5	100%
3	N/A	Enable	VE-5	100%
4	N/A	Enable	VE-5	100%
5	N/A	Enable	VE-5	100%
6	N/A	Enable	VE-5	100%
7	N/A	Enable	VE-5	100%
8	N/A	Enable	VE-5	100%
9	N/A	Enable	VE-5	100%
10	N/A	Enable	VE-5	100%
11	N/A	Enable	VE-5	100%
12	N/A	Enable	VE-5	100%
13	N/A	Enable	VE-5	100%
14	N/A	Enable	VE-5	100%
15	N/A	Enable	VE-5	100%

Port	Name	Admin	Speed/Duplex	Flow Ctrl
17	N/A	Enable	Auto	Disable
18	N/A	Enable	Auto	Disable

Setup Port Attributes

- VDSL port

1. Click the "Name" column of the port. Enter a name for identification, like 'Richard'; and press **Enter**.
2. Leave the "Admin" column 'Enable' value to make the port to be in operation or 'Disable' to pause it.
3. Select Profile. 5 profiles available, ANSI, ETSI, VE-5, VE-10 and VE-15. Please check chapter 2.1 for the data rate of each speed and their maximum connection distance.
4. Select the predefined "Bandwidth Ctrl" scale to limit the available bandwidth to 10%, 20%, to 100%.
5. Click **Apply** button to apply settings.

- Gigabit module port

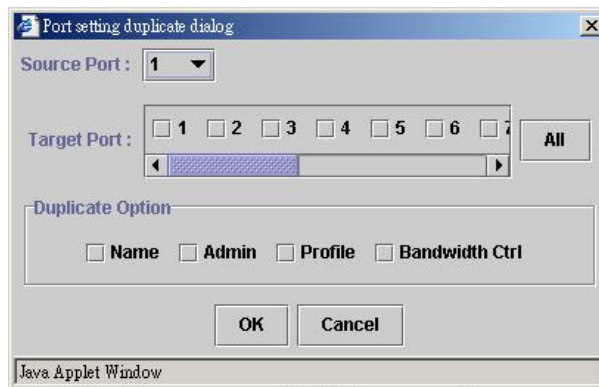
1. Click the "Name" column of the port. Enter a name for identification, like 'Richard'; and press **Enter**.
2. Leave the "Admin" column 'Enable' value to make the port to be in operation or 'Disable' to pause it.
3. Select "Speed/Duplex" mode. 5 modes are supported, 10Half, 10Full, 100Half, 100Full and Auto for auto-negotiation. Please note the fiber modules support only Auto for 1000Mbps, full duplex operation.
4. Select 'Enable' on the "Flow Ctrl" field to enable 802.3x full duplex flow control or back pressure half duplex flow control.
5. Click **Apply** button to apply settings.

Note Also accomplished by simply mouse right-click the port on the 'Panel Display' then select 'Configuration', the configuration screen pops up.



Duplicate Port Attributes

Click “Duplicate” button, the dialogue screen appears.



1. Select Source Port (for example Port 1).
2. Select Target Port, click **All** for select all (for example Port 2, 3, 4, 5).
3. Select the port attributes you want to duplicate.
4. Click **OK** to submit values.
5. Click **Apply** button to apply settings.
6. As the following result, port 1 is duplicated to port 2, 3, 4, 5 accompany with specified attributes.

Port	Name	Admin	Profile	Bandwidth Ctrl
1	N/A	Enable	VE-15	80%
2	N/A	Enable	VE-15	80%
3	N/A	Enable	VE-15	80%
4	N/A	Enable	VE-15	80%
5	N/A	Enable	VE-15	80%
6	N/A	Enable	VE-5	100%
7	N/A	Enable	VE-5	100%
8	N/A	Enable	VE-5	100%
9	N/A	Enable	VE-5	100%
10	N/A	Enable	VE-5	100%
11	N/A	Enable	VE-5	100%
12	N/A	Enable	VE-5	100%
13	N/A	Enable	VE-5	100%
14	N/A	Enable	VE-5	100%
15	N/A	Enable	VE-5	100%
Port	Name	Admin	Speed/Duplex	Flow Ctrl
17	N/A	Enable	Auto	Disable
18	N/A	Enable	Auto	Disable

Note Also accomplished by simply mouse right-click the port on the 'Panel Display' then select 'Copy Setting' to duplicate port properties and select 'Past Setting' when point at destination port.

Statistic

The statistics function provides the following 3 pages for various traffic information of each port. There is a **Clear** button on the bottom of each page for you to clear the statistic data and recount again.

Ether Like Frame Types

RX Bytes	Number of bytes received in good and bad frames
RX Frames	Number of good and bad packets received
RX crc_err	Number of CRC errors received
TX Byte	Number of bytes transmitted in good and bad frames
TX Frames	Number of good and bad packets transmitted
TX Collisions	Number of collisions on transmitted frames
TX drops	Frames dropped due to lack of receive buffer
TX underruns	Increments when packet transmission fails due to the inability of the interface to retrieve packets from the local packet buffer fast enough to transmit them onto the network

RX Good Frame Types

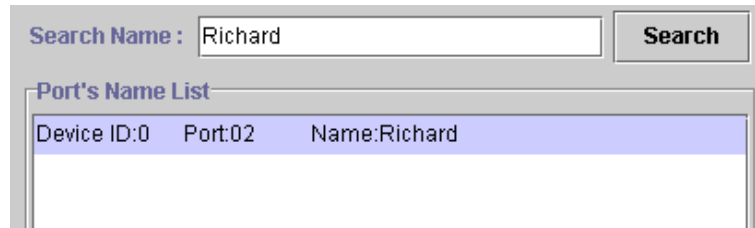
RX Bytes	Number of bytes received in good and bad frames
RX frames	Number of good and bad packets received
RX broadcasts	Number of good broadcasts
RX multicasts	Number of good multicasts
RX less 64_pkts	Number of short frames with invalid CRC (<64 bytes)
RX 65 to127_pkts	Number of 65 to 127-bytes frames in good and bad packets
RX 128to255_pkts	Number of 128 to 255-bytes frames in good and bad packets
RX 256to511_pkts	Number of 256 to 511-bytes frames in good and bad packets
RX 512to1023_pkts	Number of 512 to 1023-bytes frames in good and bad packets
RX 1024more_pkts	Number of 1024 to max-length-type frames in good and bad packets

RX Error Frame Types

RX alignment_err	Number of alignment errors received
RX crc_err	Number of CRC errors received
RX oversize_err	Number of long frames with valid CRC
RX undersize_err	Number of short frames with valid CRC
RX fragments_err	Number of short frames with invalid CRC
RX jabbers_err	Number of long frames with invalid CRC

Location Search

A denominate port can be searched by its given name (Match whole word only).



The screenshot shows a web interface with a search bar labeled 'Search Name :'. The text 'Richard' is entered in the search bar, and a 'Search' button is to its right. Below the search bar is a table titled 'Port's Name List'. The table has three columns: 'Device ID:0', 'Port:02', and 'Name:Richard'. The first row of the table is highlighted in light blue.

OAM-Like

OAM (Operation Administration Maintenance) is a powerful tool indispensable to telecommunication technician for troubleshooting and diagnosis. Experienced technicians can perform looping tests with OAM tool to discover abnormal nodes or segments.

The OAM-Like is a simplified-OAM, which features the switch to run looping tests while remote administer by simply mouse clicking. The VDSL switch also negotiates with CPE (VDSL Converter) to know the link status and recognize hardware version, software version and Ethernet port link status of CPE device.

Information

Link	VDSL port Link status (Link Up/Down)
CPE H/W Ver	Hardware version of VDSL Converter
CPE S/W Ver	Software version of VDSL Converter
CPE Ethernet Link	Ethernet port link status (Link Up/Down) of VDSL Converter

Configuration

-Reset button

Click the **Reset** button can reset the VDSL Converter which is connected to the port.

-Test button

Click the **Test** button to perform Loopback Test. The test result shows on the right field.

Port	Reset CPE	LoopBack Test	Last Setting/Test Result
1	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	Reset CPE OK.
2	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	
3	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	Reset CPE OK.
4	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	
5	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	
6	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	Port Link-Down.
7	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	LoopBack Test OK.
8	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	Reset CPE OK.
9	<input type="button" value="Reset"/>	<input type="button" value="Test"/>	Port Link-Down.

4.7 Security

This is reserved for future use.

4.8 SNMP

Simple Network Management Protocol (SNMP) is a communication protocol for managing devices on a network. It is commonly used for network administrators to communicate with multiple devices (hub, switch, router) for configuring and monitoring while convenient for troubleshooting but no miscellaneous platform consideration.

The built-in SNMP is an agent, which watches the status of it self. The Network Management Station (A computer attached to network with SNMP management program well installed) can be used to access it.

Community

A valid entry of Community String and IP Address is for authentication to login to the SNMP agent for configuration. Moreover, the community capacity can up to 3 sets and only by the way of specified IP address here will be allowed to access the agent. One entry consist of IP address "0.0.0.0" will allow the ones who know the community string to access the agent (with Read-Only access right) without limitation.

To Add a community

1. Input a name as a community string for authentication in the "Community String" field (ex: administrator).
2. Enter the IP address in the "IP address" field you allow to access from (ex: 192.168.1.22)
3. Click the "Access Mode" combo box and select a authority (Read-Only / Read-Write)
4. Click button to add this entry.

To Remove a Community

1. Select the community you want to remove from the "Current" list
2. Click button to remove it

To Modify a Community

1. Select one community you want to modify in the “Current” column
2. The “New” column lists the corresponding values; please modify it
3. Click **Modify** button to update the entry

Current		
Name:public	Mode:Read-Only	IP:0.0.
Name:private	Mode:Read-Write	IP:10.
Name:administrator	Mode:Read-Write	IP:

<< Add
Remove >>
Modify

New
Community String: administrator
IP Address: 10.10.0.22
Access Mode: Read-Write

Trap Manager

Trap Manager specifies the Network Management Stations (NMS) that will receive trap messages from the SNMP agent and can up to 5 entries. A Trap Manager entry with Aging Time “0” will never expire; and Aging Time “10” will expire when 10 minutes is up and no more trap messages the corresponding entry can receive.

To Add a Trap Manager

1. Input a name for authentication in the “Community String” field (ex: administrator).
2. Enter the IP address in the “IP address” field you allow to access from (ex: 192.168.1.22).
3. Enter a expiry time for this entry will be durable in minutes (“0” for never expires).
4. Click **<<Add** button to add the entry.

To Remove a Community

1. Select the community you want to remove from the “Current” list.
2. Click **Remove>>** button to remove it.

To Modify a Community

1. Select one community you want to modify in the “Current” column.
2. The “New” column lists the corresponding values; please modify it.
3. Click **Modify** button to update the entry.

To Test Trap Manager

Press **Trigger test trap** button, one test trap will be sent to all NMS that have been added to Trap Manager list.

Current		
Name:NetAdmin	IP:10.10.14.123	Aging:0
Name:MIS	IP:10.10.14.125	Aging:0
Name:Alex	IP:10.10.14.126	Aging:0
Name:Richard	IP:10.10.14.188	Aging:120
Name:Maggie	IP:10.10.14.210	Aging:50

<< Add
Remove >>
Modify
Trigger test trap

New
Community String: Richard
IP Address: 10.10.14.188
Aging Time: 120

Trap Filtering

Check the “Enable” boxes by mouse clicking to receive a notice when corresponding event occurs.

Option	Enable
Cold Boot	<input checked="" type="checkbox"/>
Warm Boot	<input checked="" type="checkbox"/>
Cluster Changed	<input checked="" type="checkbox"/>
Link UP	<input checked="" type="checkbox"/>
Link Down	<input checked="" type="checkbox"/>
Device Inserted	<input checked="" type="checkbox"/>
Device Removed	<input checked="" type="checkbox"/>
Port Intrusion	<input checked="" type="checkbox"/>
Flash Updated	<input checked="" type="checkbox"/>
Test Only	<input checked="" type="checkbox"/>
Console Login	<input checked="" type="checkbox"/>
SNMP Authentication Failure	<input checked="" type="checkbox"/>
STA Topology Change	<input checked="" type="checkbox"/>
STA New Root	<input checked="" type="checkbox"/>

4.9 VLAN

The VLAN is a group of ports that may spread around the network but communicate as though they belong to one subnet. By using VLAN, all ports can be reorganized into separate broadcast domains for security reasons and reduce bandwidth occupation instead of using routers to divide whole network into subnets. It produces cleaner network environment by reducing broadcast traffic and simplify network management by allowing you to move devices to another VLAN without changing physical connections. The switch support 2 VLAN type: 802.1Q VLAN and Port Group VLAN.

802.1Q VLAN:

Before enabling 802.1Q VLAN, pay attention to:

- w All ports are default to VLAN 1 and assigned PVID 1.
- w Though you can configure VLAN group with VLAN ID from 1 to 4094. Due to hardware’s restriction, the maximum PVID supported on this switch is 255.

VLAN Static List

This screen is used to Add / Remove / Modify VLAN and up to 255 groups is supported on this switch. The VLAN groups that have been created are all listed here.

To create a new VLAN group

1. Specify the name for the new VLAN group (VLAN name is only used for identification).
2. Enter a number (VLAN ID) for the new VLAN group. The VLAN ID can be set from 1 to 4094.
3. Check the “Active” box to activate the VLAN or leave it blank and activate it afterward.
4. Click button to create the new VLAN.

Current		New
ID:1 Name: State:ACTIVE	<input type="button" value=" <<Add"/> <input type="button" value=" Remove>>"/> <input type="button" value=" Modify"/>	VLAN ID: 222
ID:3 Name:MKT State:ACTIVE		VLAN Name: MFD
ID:222 Name:MFD State:ACTIVE		Status: <input checked="" type="checkbox"/> Active

To remove a VLAN group

1. Select a VLAN group you want to remove from the “Current” list.
2. Click button to remove it.

Attention:

1. If a removed port is no longer belonged to any other group, it is temporarily disabled because no one can communicate with it.
2. If one port’s PVID is equal to this VLAN ID, removing this VLAN group will not allow until you change it.

To modify a VLAN group

1. Select a VLAN group you want to modify from the current list
2. Modify parameters in “New” column
3. Click button to submit the new parameters

VLAN Static Table

This screen is used to Add/Remove member ports of a VLAN.

To add member port

1. Click the “VLAN ID” combo box and select a VLAN you want new ports to join in
2. Select ports (press Shift/Ctrl key for selecting multi ports) in the “Non-Member” column
3. Click button to join selected ports in

To remove member port

1. Click the “VLAN ID” combo box and select a VLAN you want to remove ports
2. Select ports (with Shift/Ctrl key to select multi ports) in the “Member” column
3. Click button to delete selected ports

ë Note

- 1.If a removed port is no longer belonged to any other group, it is temporarily disabled because no one can communicate with it.
 - 2.The port which is assigned a PVID and the PVID is equal to VLAN ID, removing the port will not allow until you change it.
-

VLAN Port Configuration

When the VLAN-enabled switch receives an untagged packet, the packet will be sent to the port's default VLAN according to the PVID (port VLAN ID) of the receiving port.

Port	PVID	Ingress Filtering
1	1	Disable
2	1	Disable
3	1	Disable
4	1	Enable
5	1	Enable
6	1	Disable
7	1	Disable
8	1	Enable
9	1	Disable
10	1	Enable
11	1	Disable

To change the PVID

1. Double click the "PVID" column of a port.
2. Input a new VLAN ID (1~255).
3. Press "**Enter**" to submit the value.
4. Click **Apply** button to apply it.

Note

1. All the ports are default as members of VLAN 1 and assigned PVID 1.
2. Though you can configure a VLAN group with VLAN ID from 1 to 4094, the supported PVID on this switch is only from 1 to 255.
3. The port which was assigned a PVID and the PVID is equal to LAN ID, removing the port will not allow until you change it.
4. Automatically, a port will join the VLAN of its PVID, and if the VLAN does not exist, system will create it.

To Enable/Disable Ingress Filtering

When one packet comes in from Port X to VLAN Y, but Port X is not a member of VLAN Y:

Ingress Filter Enabled - The filter checks the packet and detects Port X does not belong to the VLAN Y, the Ingress Filter discards the packet.

Ingress Filter Disabled - All the packets destined to VLAN Y are all unobstructed.

Click the "Ingress Filtering" column of a port and select 'Enable' to activate Ingress Filter.

Port Group VLAN

The Port Group VLAN (Port-based VLAN) is concentrate on definite ports. The packets forwarding policies are based on destination MAC addresses or related ports by voluntary learning relationship of MAC addresses and its related ports.

- All Together

Click **All Together** button then all the ports of the switch will be added to VLAN group 1.

- All Independent

Click **All Independent** button then all the ports will be divided into separated subnets (totally 18 subnets).

Every port can belong to different Port Group VLANs simultaneously without limitation.

4.10 Address Table

The address table is the learning table, which is composed of many entries and is the most important base to do packet filtering and forwarding.

MAC Address List

Choose the port you preferred to view the address table and click “Refresh” button, the MAC address table will be list.

Configuration

The screenshot shows a network management interface. At the top, there are two input fields: "Dynamic Address Counts : 34" and "Static Address Counts : 0". Below this, a "Port : 13" dropdown menu is visible. A table titled "Current MAC Address" lists several entries with columns for MAC address, VLAN ID, and Status. To the right of the table are buttons for "<< Add", "Remove >>", and "Clear All MAC Table". Further right is a "Configuration Value" section with input fields for "VLAN ID : 1" and "MAC Address : 00-30-4f-12-34-56".

MAC Address	VLAN ID	Status
MAC:00-00-B4-A7-F2-5D	VLAN ID:1	Status:dyn
MAC:00-00-B4-A7-FA-52	VLAN ID:1	Status:dyn
MAC:00-02-03-06-02-0A	VLAN ID:1	Status:dyn
MAC:00-03-2F-0A-13-D3	VLAN ID:1	Status:dyn
MAC:00-04-AC-96-C8-1D	VLAN ID:1	Status:dyn
MAC:00-06-29-A2-67-41	VLAN ID:1	Status:dyn
MAC:00-10-B5-7E-6C-F8	VLAN ID:1	Status:dyn
MAC:00-20-15-02-E7-CD	VLAN ID:1	Status:stc

Dynamic Address Counts

Number of MAC addresses automatically learned by the current switch.

Static Address Counts

Number of MAC addresses manually added to the current switch.

To add a static address

1. Click the combo box and select a port, then the MAC address table of the port appears.
2. Fill in configuration value (VLAN ID, MAC address), then click “<<Add” button (Note that ports on the switch are all default to VLAN 1).

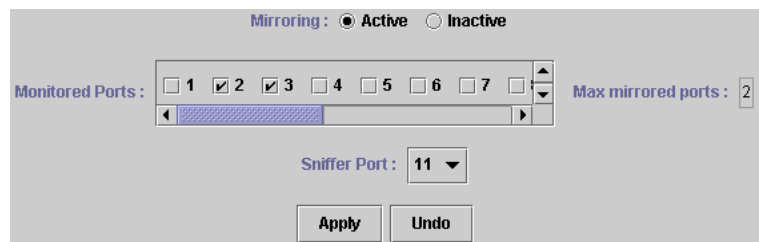
To remove a static address

1. Click the static address in the MAC address table of the port.
2. Click “Remove>>” button to remove it from MAC address table.

4.11 Mirror

Port mirror is used to mirror traffic from source port to a target port for analysis. Only 2 ports can be monitored (mirrored) simultaneously to 1 sniffer port (target port). (Note that the target port must be in the same VLAN as the source port).

1. Click “Active” radio button to activate port mirror.
2. Select ‘Monitored Ports’ (up to 2 ports).
3. Click ‘Sniffer Port’ combo box and select a sniffer port (target port) and click “Apply” to apply.
4. This figure describes port 2 and port 3 will be mirrored to port 11.



4.12 IGMP Snooping

Multicasting is widely used to support multi-media applications such as video conferencing. The multicasting simply broadcasts its services to the group of a network instead of establishing connections separately with every host that subscribed the services. With no Multicast Filtering-aware switches, a multicast server may floods broadcast-data overall the broadcast domain and wastes a lot of bandwidth.

The Internet Group Management Protocol (IGMP) snooping uses the protocol to make switches join/leave multicast group and interacts switches to optimize the network performance by monitoring the IGMP packets and forward to the ports containing multicast hosts or switches. This will efficiently reduce the multicast traffic rather than flooding overall network. IGMP snooping is more and more important especially when the multi-media demand is booming.

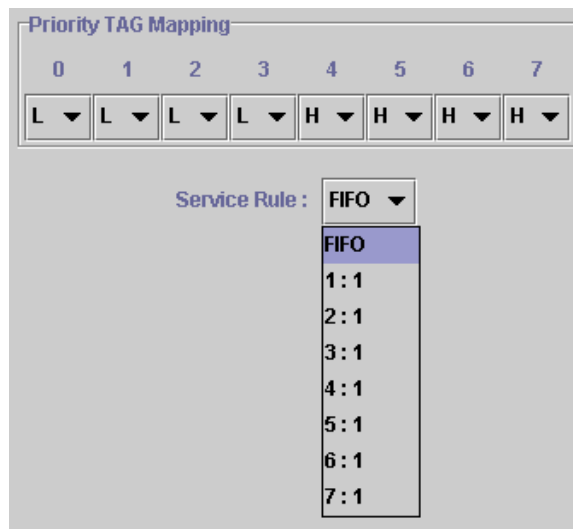
Note As IGMP Snooping only operates under 802.1Q VLAN mode, please change VLAN mode from Port Group VLAN to 802.1Q VLAN before enabling IGMP Snooping.

4.13 Priority

This switch supports IEEE802.1p CoS with 2-level priority. There are 8 traffic classes and 8 Service Rules in the Priority Map. When one packet carries with priority-tag, which has specified a CoS (Class of Service) comes into the switch, the specified CoS tag will determine what priority (Low/High) will it get according to the Priority Map in the switch. The available Service Rules are:

- | | |
|-------|---|
| FIFO | The first in packet, the first out packet (No priority) |
| 1 : 1 | Send 1 high priority packet, then 1 low priority packet |

- 2 : 1 Send 2 high priority packets, then 1 low priority packet
- 3 : 1 Send 3 high priority packets, then 1 low priority packet
- 4 : 1 Send 4 high priority packets, then 1 low priority packet
- 5 : 1 Send 5 high priority packets, then 1 low priority packet
- 6 : 1 Send 6 high priority packets, then 1 low priority packet
- 7 : 1 Send 7 high priority packets, then 1 low priority packet



CHAPTER 5. TROUBESHOOTING

This chapter contains information to help you solve problems. If VC-1602 is not functioning properly, make sure the Switch was set up according to instructions in this manual.

The port is connected but the port LED is not lit

Solution:

Check the following items:

1. The switch and the connected device's power are on or not.
2. The connecting cable is good and with correct type.
3. The cable is firmly seated in its connectors in the switch and in the associated device.
4. The connecting device, including any network adapter is well installed and functioning.

Some stations can not talk to other stations located on the other port

Solution:

1. Check the VLAN and PVID settings.
2. The address table may contain older information than of the address table of that node. Please power down to refresh the address information.

APPENDIX A

A.1 Switch's RJ-45 Pin Assignments

1000Mbps, 1000Base T

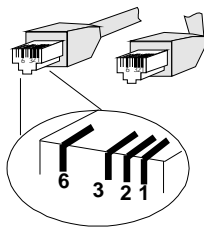
Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

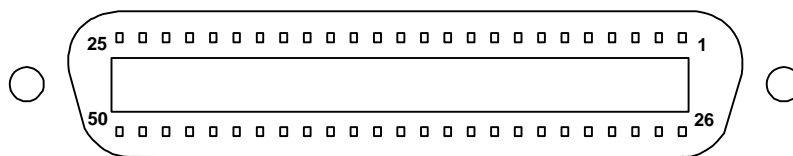
A.2 10/100Mbps, 10/100Base-TX

Contact	MDI	MDI-X
1	1	3
2	2	6
3	3	1
6	6	2

A.3 RJ-45 cable pin assignment



A.4 RJ-21 Connector pin out



The above picture is the RJ-21 connector on VC-1602. The following lists the RJ-21 connector pinouts.

Pin	Port / Function	Pin	Port / Function
1	No Connect	26	No Connect
2	No Connect	27	No Connect
3	No Connect	28	No Connect
4	No Connect	29	No Connect
5	No Connect	30	No Connect
6	No Connect	31	No Connect
7	No Connect	32	No Connect
8	No Connect	33	No Connect
9	Port 16, Tip	34	Port 16, Ring
10	Port 15, Tip	35	Port 15, Ring
11	Port 14, Tip	36	Port 14, Ring
12	Port 13, Tip	37	Port 13, Ring
13	Port 12, Tip	38	Port 12, Ring
14	Port 11, Tip	39	Port 11, Ring
15	Port 10, Tip	40	Port 10, Ring
16	Port 9, Tip	41	Port 9, Ring
17	Port 8, Tip	42	Port 8, Ring
18	Port 7, Tip	43	Port 7, Ring
19	Port 6, Tip	44	Port 6, Ring
20	Port 5, Tip	45	Port 5, Ring
21	Port 4, Tip	46	Port 4, Ring

22	Port 3, Tip	47	Port 3, Ring
23	Port 2, Tip	48	Port 2, Ring
24	Port 1, Tip	49	Port 1, Ring
25	No Connect	50	No Connect



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