

Intelligent Ethernet over VDSL Switch

VC-412



User's Manual

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CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Revision

PLANET Intelligent Ethernet over VDSL Switch User's Manual

For Model: VC-412

Part No.: EM-VC412V1

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1. INTRODUCTION

Thank you for choosing the VC-412 VDSL Managerial Switch for your MDU Solution. PLANET has been on the forefront of VDSL (Very High Bit-Rate Digital Subscriber Line) technologies since their inception, and will always strive to create quality, cost-effective solutions for VDSL users and installers.

Fiber all the way to the home (FTTH) is very expensive therefore another alternative is a combination of fiber cables to Optical Network Units (ONUs) or otherwise called the Fiber to the Neighborhood (FTTN) as the connection point between fiber and existing or new copper wire. One of the enabling technologies for FTTN is Very high rate Digital Subscriber Line, or VDSL. In simple terms, VDSL transmits high speed data over short reaches of twisted-pair copper telephone lines, with a range of speeds depending upon actual line length.

By choosing the VC-412 VDSL Managerial Switch, you have enabled your network to have the superb speed and manageability. VC-412 offers 12 VDSL ports, 12 POTS/ISDN ports and 4 Ethernet ports for your VDSL solutions.

1.1 Feature

Some VC-412 highlights include:

- Twelve (12) VDSL ports
- Twelve (12) POTS/ISDN ports
- Four (4) 10/100 Mbps Ethernet ports
- One (1) Local management Console port
- Supports security with port based VLAN function
- Virtual LAN (VLAN) Grouping
- Frequency division multiplexing for uninterrupted simultaneous voice/data transmission
- Layer 2 Switching.
- Support Telnet, Web-Based, Console and SNMP Interfaces
- Ethernet ports status monitoring
- Management Information Base (MIB) Settings
- Store-and-Forward mechanism

- Back Pressure and IEEE 802.3x compliant flow control
- Supports 8K MAC addresses entries
- 1 MB Buffer Memory
- Back Pressure flow control for half-duplex
- PAUSE Frame flow control for full-duplex (802.3x)

1.2 VC-412 Technical Specifications

- **Management Features**
 - SNMP/MIB-II/RFC1213
 - In-Band/Out-Band management
 - Firmware upgradeable through TFTP
 - Telnet/Console/Web-Based/SNMP interfaces management support
 - Supports four languages (English, Traditional Chinese, Simplified Chinese, Japanese)
- **SNMP Management**
 - Standard based SNMP, MIB-II and proprietary MIBs
 - Supports TCP/IP, SNMP, HTTP, TFTP, DHCP, BOOTP, Telnet protocols.
- **Twelve (12) VDSL Ports and Twelve (12) POTS/ISDN Ports**
 - LED: Sync, Activity, Error
 - Maximum Distance – 1.5 km
- **Four (4) Ethernet Ports**
 - 10/100 Mbps, Auto-Negotiation
 - IEEE 802.3, 802.3u, 802.3x
 - LED: Link/Activity, 10/100, Full Duplex/Collision
- **One (1) Console Port**
 - Baud Rate: 19200 bps, 8 Data Bits, 1 Stop Bit, No Parity, No Flow Control
 - For VC-412 Local Console management
- **Physical Specifications:**
 - AC Input: 100 - 250 VAC, 47 - 63 Hz, Internal Universal Power Supply
 - Power Consumption: 60W Max / 205 BTU Max.

- Operating Temperature: 32 to 122°F (0 to 50°C)
- Storage Temperature: -13 to 158°F (-25 to 70°C)
- Humidity: 10% - 90% Non-Condensing
- Certification: FCC, VCCI, CE
- Net Weight: 4.16 kg
- Dimensions: 446 x 300 x 44 mm

1.3 Package Contents & Hardware Description

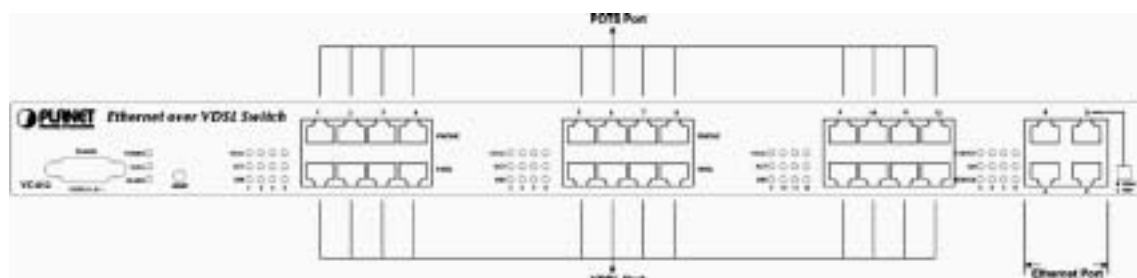
Upon opening your package you should have the following items:

- (1) Power Cord
- (1) VC-412 Intelligent VDSL Switch
- (1) RS232 Male Console Cable (DB9 to DB9)
- (1) Setup and Installation Manual CD
- (1) Quick Installation Guide

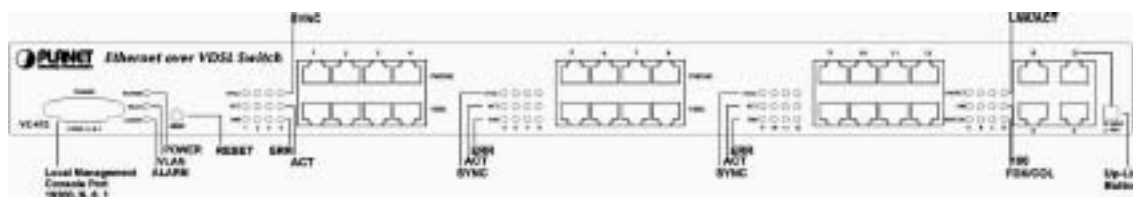
If any of these items are missing, please contact your vendor immediately before continuing. For additional manuals please contact your vendor.

Before removing the switch from the package please ensure to remove all static devices and static electricity from your body by touching an available metal plate or grounding point.

Your new VC-412 has 12 VDSL ports, 12 POTS/ISDN ports, 4 Ethernet ports and 1 Local Console (RS232) port.



1.4 LED Indicators And Button Definition



LED	Function	Color	Status	Description
System Status				
POWER	Power indication	Green	On	System is turned on
			Off	System is off
VLAN	VLAN status	Green	On	VLAN or VLAN grouping is on
			Off	VLAN off
ALARM	Reserved	--	--	--
Ethernet Port				
LNK/ACT	Ethernet port Link/Active	Green	On	Link no data transmit
			Blinking	Link and transmitting data (active)
			Off	No Ethernet link
100	Ethernet port transmit and receive speed	Green	On	The speed is 100Mbps
			Off	The speed is 10Mbps
FDX/COL	Ethernet port duplex mode	Yellow	On	Full Duplex
			Off	Half duplex no collision
			Blinking	Half duplex and transmission collisions have occurred
VDSL Ports				
SYNC	VDSL link	Green	On	VDSL link is established
			Off	No VDSL link
ACT	VDSL active	Green	On	Transmitting data
			Off	Not transmitting data
ERR	Errors on line	Yellow	On	Errors occurred on the line
			Off	No error

Button	Function
Reset	Push to reboot the switch
Normal / Uplink	Normal: When connect port D to PC or other end nodes. Uplink: When connect port D to other switch or hub.

2. INSTALLATION

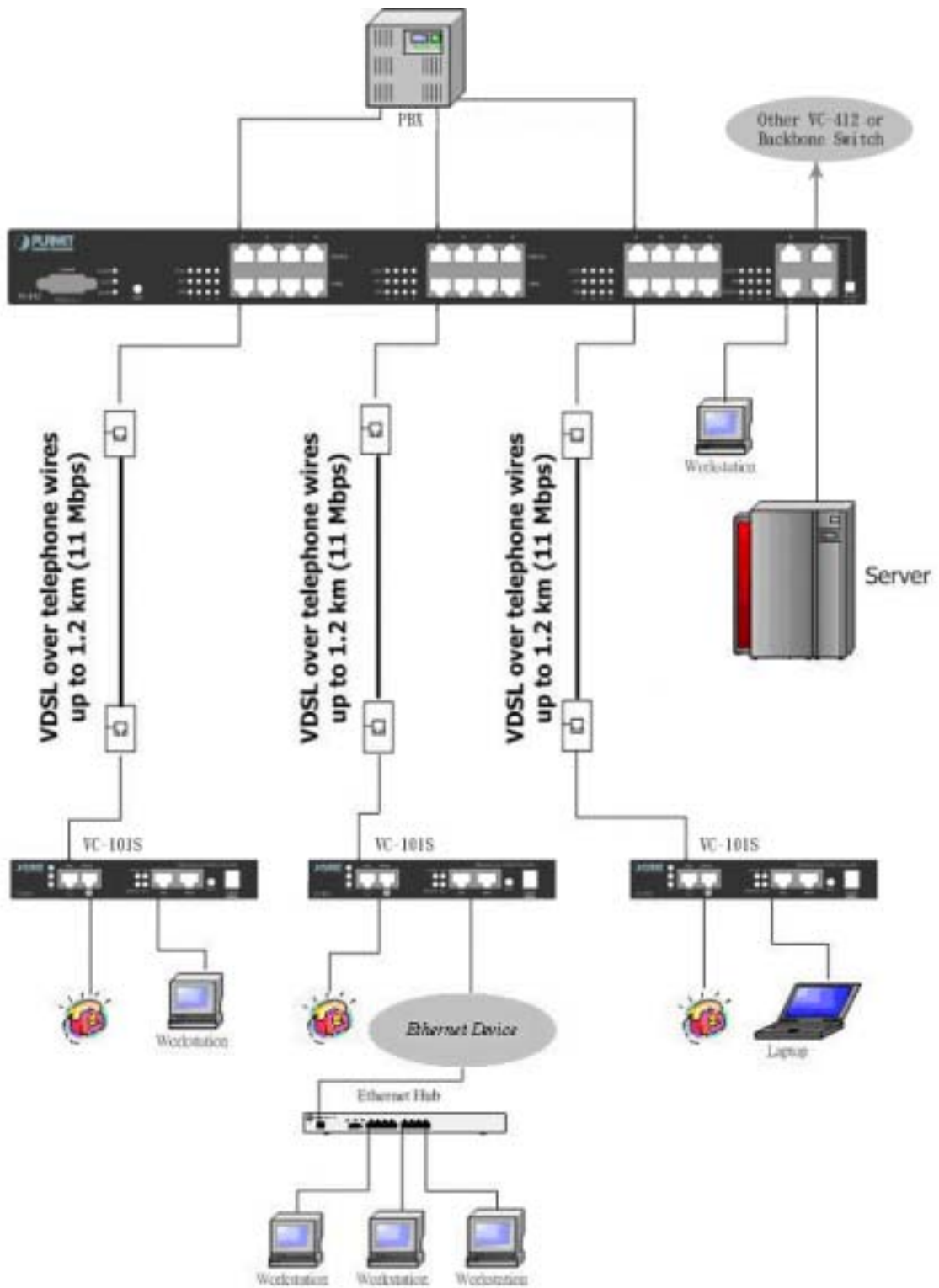
2.1 Connecting VC-412

The VC-412 has the ability to provide up to 12 remote VDSL connections. The VC-412 serves as a VDSL Managerial Switch, it can connect up to 12 sets of PLANET remote VDSL modems such as the VC-101S.

The VC-412 connects to the PBX through the POTS/ISDN ports to provide telephone services to the remote ends. The VC-412 VDSL ports then connect to the remote VDSL modems via telephone wires with a maximum distance up to 1.5 km.

The VC-412 takes approximately 15 seconds to start, therefore when connecting the VC-412 to a remote modem such as the VC-101S, it will take 15 seconds for link to be established.

VC-412 Ethernet Port-D can serve as an uplink or a regular Ethernet port on, when the Uplink button is pressed down it serve as an uplink port, when the Uplink button is released it serve as a regular Ethernet port. Hence when connecting the VC-412 to WAN via regular Cat. 5 cable on Port-D press down the Uplink button.



2.2 Console Port Setup

The VC-412 contains a powerful management interface accessible through the Console Port. This section will discuss connecting to the switch through Console Port or Telnet. For connection to the VC-412 via the console port, you must use the included DB-9 to DB-9 cable.

Once out of the box and powered on, you must use the Console Port to setup the switch core settings. Some of the basic settings include:

- Switch Management Module IP Address
- Gateway Address
- Subnet Mask
- Password Settings

To setup Console connection, use the DB9-to-DB9 cable to connect the VC-412 Console port to PC COM port.

Once the VC-412 Console port is connected to the PC COM port, start any terminal application. Subsequently, configure the terminal application settings with following variables:

Baud Rate	Data Bits	Parity	Stop Bits	Flow Control
19200bps	8	None	1	None

Once connected, password authentication is required. The default password is **admin**.

Console and Telnet share similar interfaces, the main difference between them is that Console connects to the Switch directly through a cable. Telnet connects to the switch remotely via an IP Address. Therefore, to use Telnet to access to the Switch, you will first need to assign a valid IP address to the Switch through the Console. Otherwise use the factory default IP address listed in the Appendix A. Web-Based interfaces also required the same Switch IP, however the interfaces are different from Console and Telnet. (This will be discussed in the Chapter 3.)

To assign an IP address to the Switch:

1. Select *Management Configuration* option from the Main Menu.
2. Select *System Configuration* option from the Submenu.
3. Select *IP Address* option.
4. Enter valid IP address.
5. When setting up Gateway Address and Subnet Mask repeat Step 2 and select the appropriate option in the menu. Refer to your network administrator for your appropriate Gateway Address and Subnet Mask.

Once you have assigned a valid IP address to the Switch, proceed to chapter 4 for an explanation of the menu systems and commands.

2.3 Telnet Setup

Once you have setup the switch IP address via the Console Port, you are ready to access the management functions from any station on your network via Telnet. To connect, simply start your telnet client and enter the address you configured into the switch (Device IP Address). Below you can see an example of using the standard Windows® Telnet client. Before using Telnet, you must first know your Switch device IP address. The IP should have been set earlier in the Console setup section. If the IP address has not yet been set, refer to the quick installation guide.

For Windows 95/98/NT/2000/XP:

- A. Press on Start Menu, then on RUN, type in telnet and the device IP address. For example, if the IP address is 192.168.0.1, type "**telnet 192.168.0.1**" and hit enter.
- B. Connection will initiate and you will be prompt to enter password.
- C. The default password is **admin**, unless it has been changed previously.

Once you have logged into the switch, proceed to the next section for an explanation on issuing ICD commands.

3. WEB CONFIGURATION

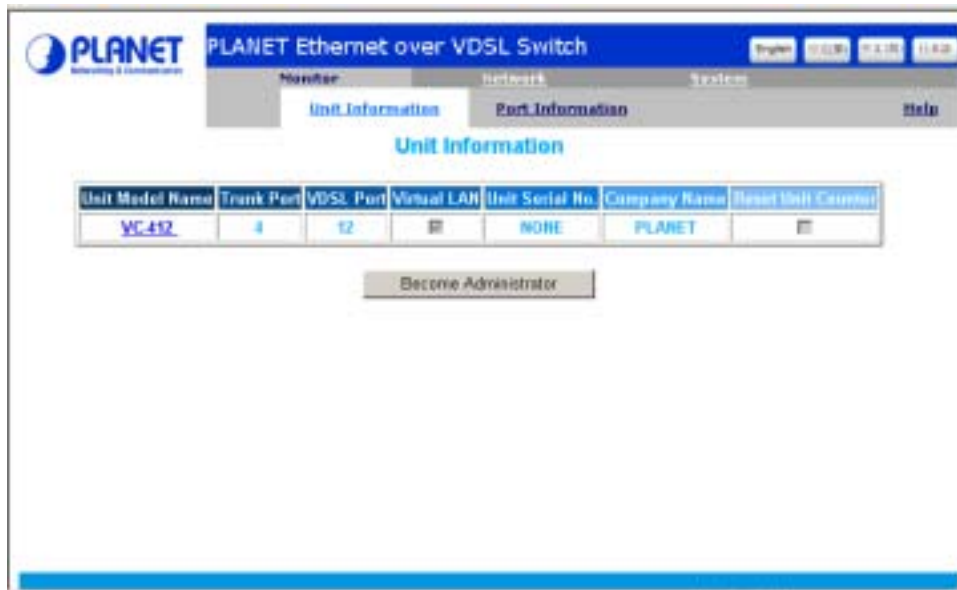
3.1 Web configuration setup

Configuration through Web browser interface is a fast and convenient way. Although this is an easy method, you do not have the full flexibility and control granted as you would under Telnet or Console. The HTTP interface allows basic functions, such as Reset Unit Counters. However, we recommend users to perform modifications through Console or Telnet interfaces. The Web browser interface also allows VDSL ports and Ethernet (trunk) ports monitoring, providing feedback on network statuses.

To log on to the VC-412 via HTTP you must first provide the IP address to the VC-412. The IP address should have been set earlier in the Console setup section. If your IP has not been set, please refer to the Console port section or the Defaults section in the Appendix A.

Note: *Please use MS Internet Explorer 5.5 or above to access to the VDSL Web page.*

- A. Launch your Web browser.
- B. Enter the corresponding VDSL Managerial Switch IP Address in the address field and press Enter.
- C. You will be able to select your language preferences in the upper-right corner. Selections are: English, Traditional Chinese, Simplified Chinese and Japanese respectively.
- D. Press the Become Administrator button if you want to access to administrator options.



- E. A password dialog will appear prompting for username and password. The default username is **VDSL** and password is **admin**, unless it has been changed previously in the preliminary setup.



Important: Username and password are both case sensitive.

Note: Browsing is available without becoming an administrator by default. However, the administrator can turn off the browse option (this will be discussed in later). Set Value option is not available without entering the correct username and password. Administrators will need to close browser to log out of administrator page.

3.2 Monitor Configuration

3.2.1 Unit Information

After the correct username and password are entered, you will be redirected to an administrator page. On this particular screen you will be able to see the Virtual LAN status. This window also contains the serial number information of the units. However, the only adjustable value this panel is the Reset Unit Counter option. This option will reset the Receive, Send and Collision counters for the unit. Select the check box and press the Set Value button will reset the unit counter.

Unit Model Name	Trunk Port	VDSL Port	Virtual LAN	Unit Serial No.	Company Name	Reset Unit Counter
VC-412	4	12	<input checked="" type="checkbox"/>	NONE	PLANET	<input type="checkbox"/>

Set Value Refresh

3.2.2 Port Information

3.2.2.1 VDSL PORT Information

Under the VDSL Port Information, you will find a representation of the switch LED to indicate activity, collision, link etc. Administrator is also able to enable or disable port by selecting or deselecting the check box under Enable option. Administrator may also rename the ports by typing over the existing names.

The screenshot shows the PLANET Ethernet over VDSL Switch web interface. The top navigation bar includes 'Monitor', 'Network', and 'System'. Below it, there are tabs for 'Unit Information', 'Part Information', and 'Help'. The 'Part Information' tab is active, displaying a table with the following data:

Model Name	VC-412	Company Name	PLANET	Serial-No.	NONE
Trunk Port Number	4	VDSL Port Number	12	VLAN Status	OFF

Below this, the 'VDSL Port Information' section contains a table with 11 rows and 8 columns:

VDSL Port	Port Name	Enable	Sync	Act	Err	Receive Counter	Send Counter
1	ROOM	<input checked="" type="checkbox"/>	●	<input type="checkbox"/>	<input type="checkbox"/>	0	16834
2	ROOM	<input checked="" type="checkbox"/>	●	<input type="checkbox"/>	<input type="checkbox"/>	19287	26912
3	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16836
4	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16836
5	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16845
6	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16845
7	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16845
8	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16846
9	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16846
10	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16846
11	ROOM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	16847

3.2.2.2 TRUNK PORT INFORMATION

Under this section you will be able to monitor the Ethernet Link, Active and Collision LEDs. A green signal in the LED columns represents active status in the corresponding port and column.

Trunk Port Information

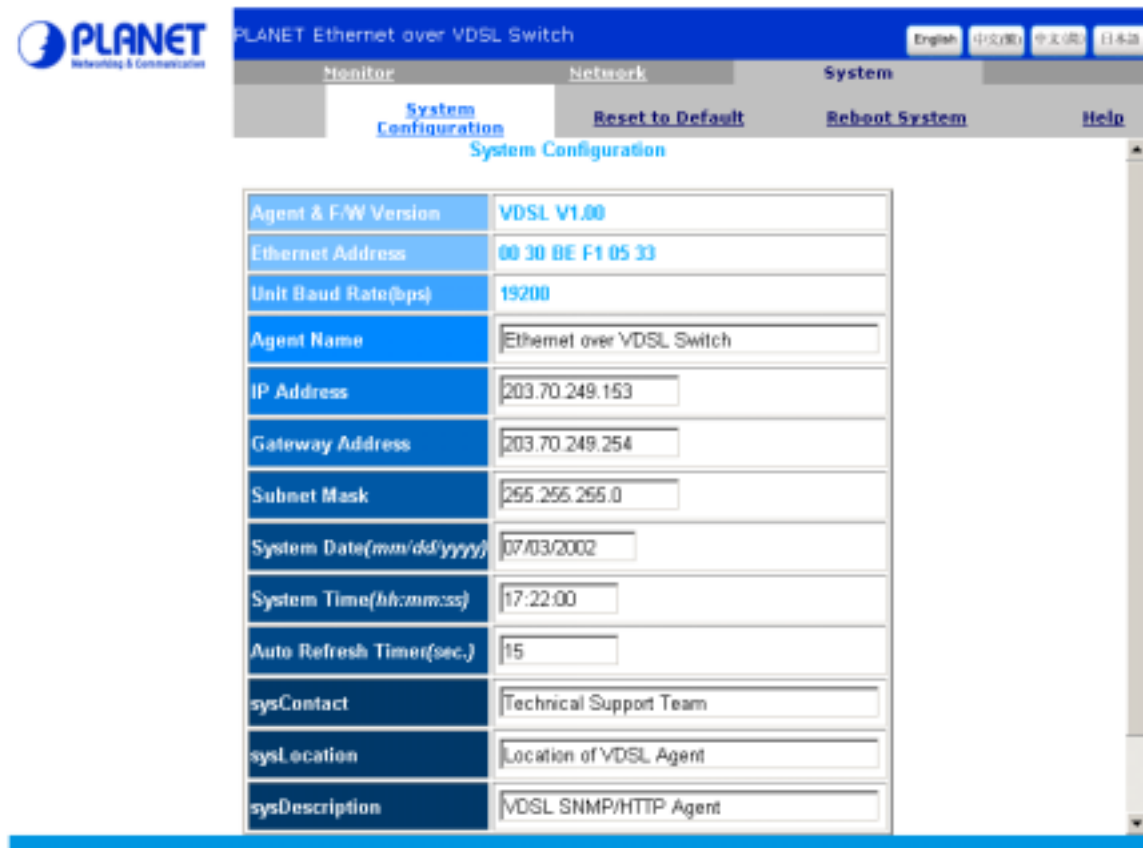
Trunk Port	Enable	Link	Act	Colli.	Receive Counter	Send Counter
A	●	●	<input type="checkbox"/>	<input type="checkbox"/>	18654	1384
B	●	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0
C	●	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0
D	●	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10077	19287

3.3 System configuration

3.3.1 System Configuration

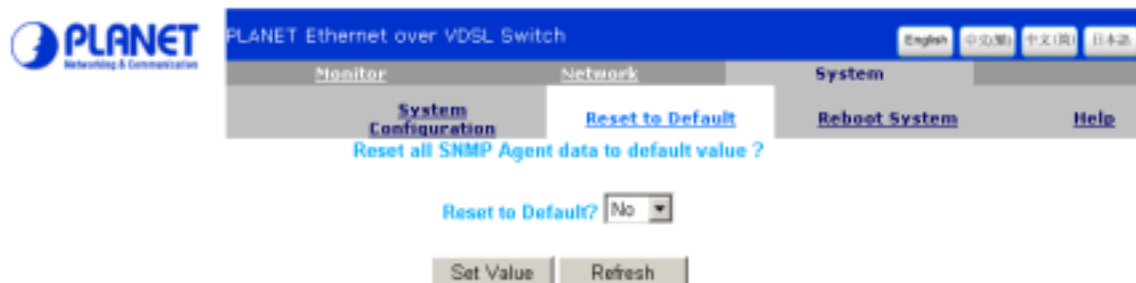
You will also notice the System link at the top frame, select this link to change the system

settings of the switch such as refresh time (the rate at which the monitoring screen refreshes itself to report back statuses) and IP Address. The System Configuration screen is illustrated below; the settings are self-explanatory.



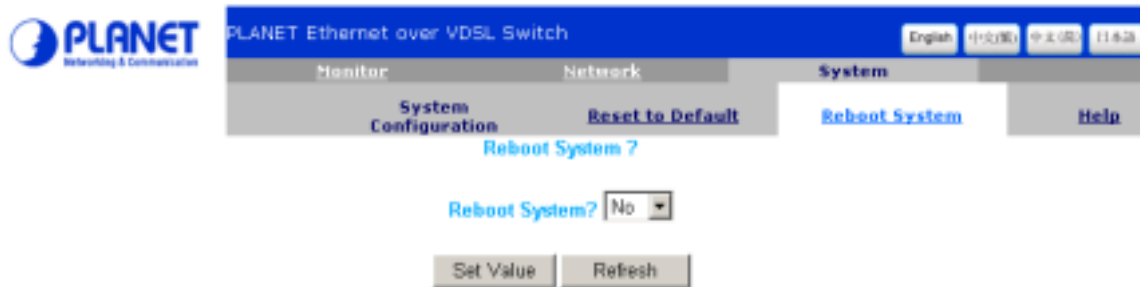
3.3.2 Reset To Default

Also available under the System Link is the Reset to Default. Reset to Default option will clear the VC-412 settings, then restore the initial factory settings to it.



3.3.3 Reboot System

Reboot System option reboots the VC-412 when it seems to be malfunctioning. It will not reset or change any settings. Select the option from the drop-down menu and press the Set Value button.



3.4 Network Configuration

3.4.1 Protocol Control

Selecting on the Network link will allow you to set access methods and set the capability of future firmware updates. In the Protocol Control section you are presented with the selections shown below.

HTTP Login Username: Set username for Web interface access to the VC-412. (Note: The password for the Http interface is the same as the console password.)

HTTP Security: When disabled you will allow users on your network to view settings and statuses of the VC-412, however modifications are prohibited unless users login through "Become Administrator" option. When enabled, viewing is forbidden unless users provide a correct password to login.

BOOTP/DHCP: Obtain IP address from DHCP server.

Telnet Control: Permit or forbid users to login via Telnet.

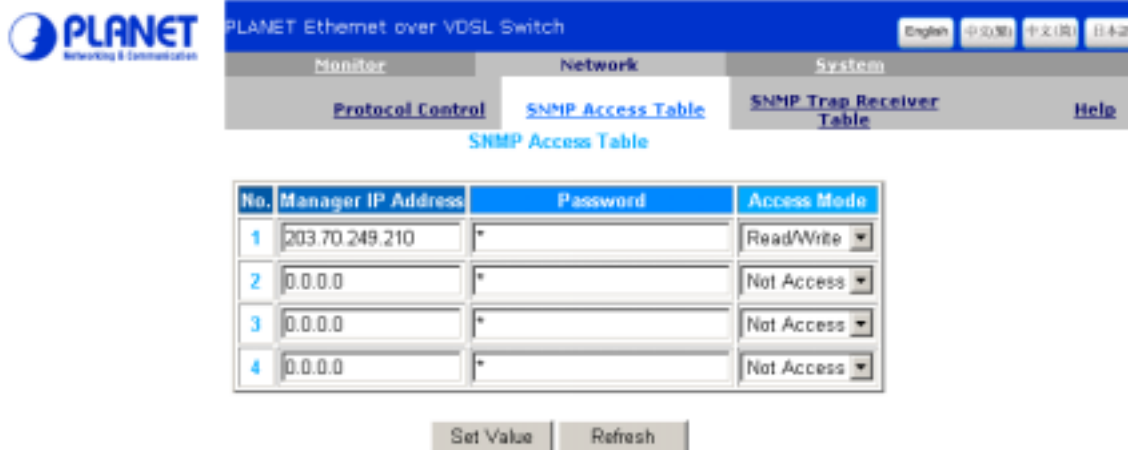
TFTP Upgrade: Permit or forbid users to upgrade SNMP firmware via TFTP.



3.4.2 SNMP Access Table

Under SNMP Access Table and SNMP Trap Receiver Table options, you can set IP addresses that will be enter into SNMP database relating to the functionality and status of the VC-412. You can grant or deny accesses to a single PC or an entire subnet by entering the appropriate IP address. To utilize this feature, you must have a workstation with SNMP client access and protocols installed. The VC-412 has been tested with HP OpenView® and Windows NT® SNMP client services, and should be also compatible with most other SNMP client software. However, we do not recommend users to use Silvercreek SNMP client, it has been found that it sometimes causes problem to the firmware.

The SNMP Access Table specifies addresses In-Band or Out-of-Band of your network that will have the ability to issue SNMP commands to the VC-412. Setting these IP addresses and passwords will ensure only authorized SNMP clients can issue commands to the VC-412.



PLANET Ethernet over VDSL Switch

English 中文(繁) 中文(简) 日本語

Monitor Network System

Protocol Control **SNMP Access Table** SNMP Trap Receiver Table Help

SNMP Access Table

No.	Manager IP Address	Password	Access Mode
1	203.70.249.210	*	Read/Write
2	0.0.0.0	*	Not Access
3	0.0.0.0	*	Not Access
4	0.0.0.0	*	Not Access

Set Value Refresh

3.4.3 SNMP Trap Receiver Table

The SNMP Trap Receiver Table is a set of user-defined addresses that belonged to the SNMP Trap server. When enabled (entered addresses, 4 receivers maximum) the VC-412 will send out SNMP information to the trap clients. Currently the VC-412 offers 6 Trap Conditions in addition to port information and counters. The 6 trap conditions are:

1. Unit Up (Power On and Check Status OK)
2. Unit Down (Error or Power Off)
3. Port Link Up (RJ-11 Plugged-in and Link LED is On)
4. Port Link Down (RJ-11 is not plugged and Link LED is Off)
5. Trunk Port Up (RJ-45 is linked and Link/ACT LED is On)
6. Trunk Port Down (RJ-45 is not linked and Link/ACT LED is Off)



PLANET Ethernet over VDSL Switch

English 中文(繁) 中文(简) 日本語

Monitor Network System

Protocol Control SNMP Access Table **SNMP Trap Receiver Table** Help

SNMP Trap Receiver Table

No.	Trap Receiver IP Address	Community Name	Description
1	203.70.249.210	*	Network Manager
2	0.0.0.0	*	
3	0.0.0.0	*	
4	0.0.0.0	*	

Set Value Refresh

Note: *Be sure to press the **Set Value** button at the bottom of the screen to administer the new settings, failure to do so will result in lost of settings at refresh time.*

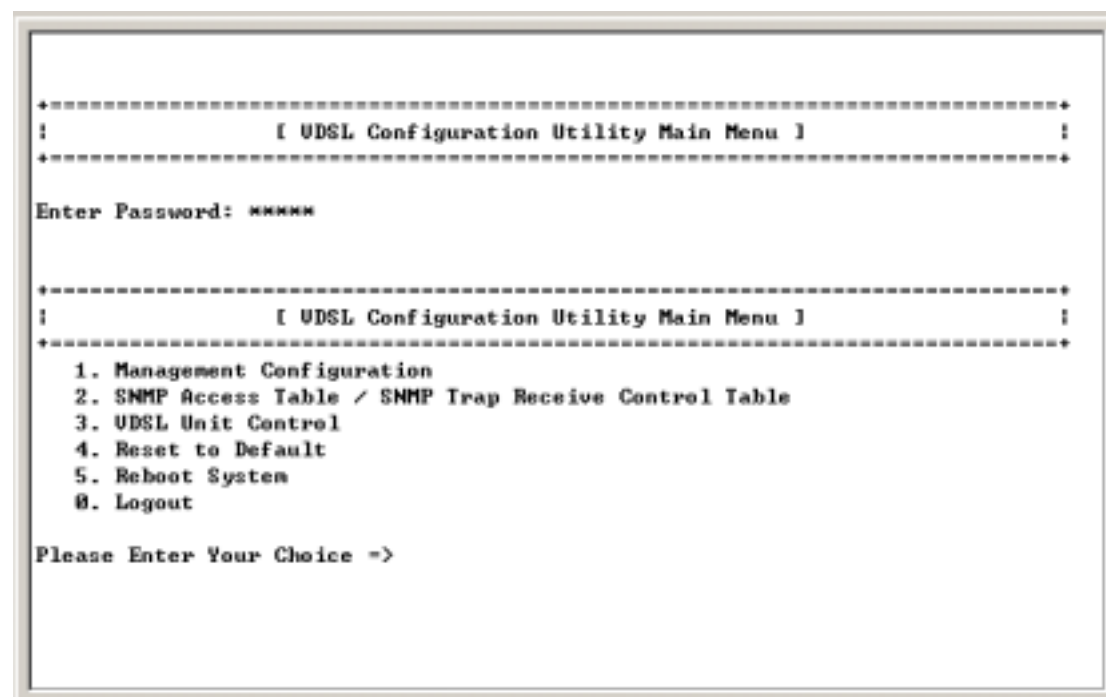
4. COMMANDS FOR CONSOLE AND TELNET

Once successfully logged into the VC-412, administrator is ready to issue commands to the VC-412. This chapter will cover option menus and their structures, giving details to each option and setting. We will also list the ICD commands index in this chapter. The ICD commands grant a variety of management controls and monitoring reports.

The following section will discuss the VC-412 Telnet menu structures and their functions.

Note: *Telnet will timeout and end its session on the VC-412 if no action is taken within one minute.*

4.1 Main Menu Selections



```
+-----+
|                                     |
|           [ UDSL Configuration Utility Main Menu ]           |
|                                     |
| Enter Password: ***** |
|                                     |
|-----+
|                                     |
|           [ UDSL Configuration Utility Main Menu ]           |
|-----+
|  1. Management Configuration      |
|  2. SNMP Access Table / SNMP Trap Receive Control Table |
|  3. UDSL Unit Control              |
|  4. Reset to Default              |
|  5. Reboot System                 |
|  0. Logout                        |
|                                     |
| Please Enter Your Choice ->      |
|                                     |
+-----+
```

4.2 Management Configuration

By choosing Management Configuration you will reach this sub menu.

```

+-----+
:                [ UDSL Configuration Utility Main Menu ]                :
+-----+
 1. Management Configuration
 2. SNMP Access Table / SNMP Trap Receive Control Table
 3. UDSL Unit Control
 4. Reset to Default
 5. Reboot System
 0. Logout

Please Enter Your Choice -> 1

+-----+
:                [ Management Configuration Menu ]                      :
+-----+
 1. System Configuration
 2. Network Configuration
 3. System MIB Configuration
 0. Return to previous menu

Please Enter Your Choice -> _

```

4.2.1 System Configuration

Choosing System Configuration will allow you to change the basic settings such as IP Address, Subnet, Gateway etc., as well as date and time and login password.

```

 1. System Configuration
 2. Network Configuration
 3. System MIB Configuration
 0. Return to previous menu

Please Enter Your Choice -> 1

+-----+
:                [ System Configuration Menu ]                          :
+-----+
 Agent & Version           : UDSL 01.00
 Ethernet Address          : 00 30 BE F1 05 30
 Unit Baud Rate(bps)      : 19200
 1. Agent Name             : Ethernet over UDSL Switch
 2. IP Address             : 203.70.249.174
 3. Gateway Address        : 203.70.249.254
 4. Subnet Mask            : 255.255.255.0
 5. System Date(mm/dd/yyyy) : 06/21/2002
 6. System Time(hh:mm:ss)  : 16:25:24
 7. Change Password
 0. Return to previous menu

Please Enter Your Choice ->

```

- I. Select the number you wished to edit and press "Enter" key. Type in the new value and press "Enter". If you do not wish to change any information press "Enter" key without typing in any information.


```

2. Network Configuration
3. System MIB Configuration
0. Return to previous menu

Please Enter Your Choice -> 1

-----+-----
:                               [ System Configuration Menu ]                               :
-----+-----

Agent & Version      : UDSL 01.00
Ethernet Address     : 00 30 BE F1 05 30
Unit Baud Rate(bps) : 19200
1. Agent Name        : Ethernet over UDSL Switch
2. IP Address        : 203.70.249.174
3. Gateway Address   : 203.70.249.254
4. Subnet Mask       : 255.255.255.0
5. System Date(mm/dd/yyyy) : 06/21/2002
6. System Time(hh:mm:ss)  : 16:25:24
7. Change Password
0. Return to previous menu

Please Enter Your Choice -> 1
Enter Agent Name : [Ethernet over UDSL Switch] _

```

Figure 24

- II. To change password select option 7 and press “Enter” key. Type in the new password and press Enter.

```

7. Change Password
0. Return to previous menu

Please Enter Your Choice -> 1
Enter Agent Name : [Ethernet over UDSL Switch] UC-412

-----+-----
:                               [ System Configuration Menu ]                               :
-----+-----

Agent & Version      : UDSL 01.00
Ethernet Address     : 00 30 BE F1 05 30
Unit Baud Rate(bps) : 19200
1. Agent Name        : UC-412
2. IP Address        : 203.70.249.174
3. Gateway Address   : 203.70.249.254
4. Subnet Mask       : 255.255.255.0
5. System Date(mm/dd/yyyy) : 06/21/2002
6. System Time(hh:mm:ss)  : 16:27:27
7. Change Password
0. Return to previous menu

Please Enter Your Choice -> 7
Enter New Password : *****_

```

- III. Enter the new password again to confirm.

```

0. Return to previous menu

Please Enter Your Choice -> 1
Enter Agent Name : [Ethernet over VDSL Switch] UC-412

-----
|                               [ System Configuration Menu ]                               |
-----
Agent & Version      : VDSL V1.00
Ethernet Address    : 00 30 BE F1 05 30
Unit Baud Rate(bps) : 19200
1. Agent Name       : UC-412
2. IP Address       : 203.70.249.174
3. Gateway Address  : 203.70.249.254
4. Subnet Mask      : 255.255.255.0
5. System Date(mm/dd/yyyy) : 06/21/2002
6. System Time(hh:mm:ss) : 16:27:27
7. Change Password
8. Return to previous menu

Please Enter Your Choice -> 7
Enter New Password  : *****
Enter Password Again : *****_

```

Important: There is only one set of password; therefore the password will apply to Console connection, Telnet, HTTP, and SNMP client.

4.2.2 Network Configuration

Choosing the Network Configuration will allow you to set the access methods for administering the VC-412 as well as some future product enhancements.

```

-----
|                               [ Management Configuration Menu ]                               |
-----
1. System Configuration
2. Network Configuration
3. System MIB Configuration
8. Return to previous menu

Please Enter Your Choice -> 2

-----
|                               [ Network Configuration Menu ]                               |
-----
1. HTTP Login Username : VDSL
2. HTTP Security Control : Disable
3. BOOTP/DHCP Control  : Disable
4. Telnet Control       : Enable
5. FTP Upgrade Control  : Enable
8. Return to previous menu

Please Enter Your Choice -> _

```

HTTP Login Username: Set username for Web interface access on

the VC-412.

Note: The password for HTTP is the same as the password in Console, but you will need to specify username for HTTP access.

HTTP Security Control: When enabled, anyone who tries to access the VC-412 via HTTP is required to enter a password and username before able to see any settings or information. When disabled, the VDSL Managerial Switch will allow all users to see and monitor the settings of the VDSL Managerial Switch, however they will be unable to make changes, unless they become an administrator by selecting the "Become Administrator" button in the Web interface.

BootP/DHCP Control: Obtain IP address from DHCP server.

Telnet Control: Permit or forbid access to the VC-412 via the Telnet Console.

TFTP Upgrade Control: Permit or forbid users to upgrade SNNP firmware via TFTP.

- I. To change login username, select option 1 and enter new username, otherwise press Enter key without entering any information to cancel operation.

```
-----+-----
|                               [ Management Configuration Menu ]                               |
-----+-----

 1. System Configuration
 2. Network Configuration
 3. System MIB Configuration
 0. Return to previous menu

Please Enter Your Choice => 2

-----+-----
|                               [ Network Configuration Menu ]                               |
-----+-----

 1. HTTP Login Username   : UDSL
 2. HTTP Security Control : Disable
 3. BOOTP/DHCP Control   : Disable
 4. Telnet Control        : Enable
 5. TFTP Upgrade Control  : Enable
 0. Return to previous menu

Please Enter Your Choice => 1
Enter Username : [UDSL] _
```

- II. To Enable or Disable Network properties, select the option number and press Enter key. Enter the new value and press

Enter key, otherwise press Enter key without entering any information to cancel operation.

```
4. Telnet Control      : Enable
5. TFTP Upgrade Control : Enable
0. Return to previous menu

Please Enter Your Choice -> 1
Enter Username : [UDSL]

-----
|                               |
|           [ Network Configuration Menu ]           |
|-----|
1. HTTP Login Username   : UDSL
2. HTTP Security Control : Disable
3. BOOTP/DHCP Control    : Disable
4. Telnet Control        : Enable
5. TFTP Upgrade Control  : Enable
0. Return to previous menu

Please Enter Your Choice -> 2
Enable/Disable HTTP Security - [Disable]
1. Enable
2. Disable

Please Enter Your Choice -> _
```

4.2.3 System MIB Configuration

Choosing the System MIB Configuration will allow you to set your Management Information Base fields. This feature allows administrator to enter contact information and it is useful in situations where there is a problem with the unit or the network. The customer can refer to this information from the Web interface or console to contact the vendor or installer. To change this value, select the option number and enter the new value then press "Enter", otherwise press "Enter" key without entering any information to cancel operation.

```

Please Enter Your Choice => 0

+-----+
|                                     |
|               [ Management Configuration Menu ]               |
|-----+-----+
|  1. System Configuration          |
|  2. Network Configuration        |
|  3. System MIB Configuration     |
|  0. Return to previous menu     |
|-----+-----+
Please Enter Your Choice => 3

+-----+
|                                     |
|               [ System MIB Configuration Menu ]               |
|-----+-----+
|  1. sysName      : Ethernet over UDSL Switch                 |
|  2. sysContact  : Technical Support Team                    |
|  3. sysLocation : Location of UDSL Agent                    |
|  4. sysDescr    : UDSL SNMP/HTTP Agent                      |
|  0. Return to previous menu     |
|-----+-----+
Please Enter Your Choice ->

```

4.3 SNMP Access Table/SNMP Trap Receive Control Table

Choosing option 2 in the Main menu (SNMP Access Table/SNMP Trap Receive Control Table) enables the administrator to set Community and SNMP Access properties.

```

+-----+
|                                     |
|               [ UDSL Configuration Utility Main Menu ]       |
|-----+-----+
|  1. Management Configuration          |
|  2. SNMP Access Table / SNMP Trap Receive Control Table     |
|  3. UDSL Unit Control                |
|  4. Reset to Default                 |
|  5. Reboot System                    |
|  0. Logout                            |
|-----+-----+
Please Enter Your Choice => 2

+-----+
|                                     |
|               [ SNMP Access/Trap Control Menu ]             |
|-----+-----+
|  1. Community Read-Only   : public   |
|  2. Community Read/Write  : *       |
|  3. SNMP Access Table    |
|  4. SNMP Trap Receiver Table |
|  0. Return to previous menu |
|-----+-----+
Please Enter Your Choice ->

```

4.4 VDSL Unit Control

To monitor and issue commands to the VC-412:

Select option 3 - VDSL Unit Control from the Main menu.

```

+-----+
|                                     |
|      [ VDSL Configuration Utility Main Menu ]      |
|                                     |
+-----+
|  1. Management Configuration          |
|  2. SNMP Access Table / SNMP Trap Receive Control Table |
|  3. VDSL Unit Control                 |
|  4. Reset to Default                 |
|  5. Reboot System                   |
|  0. Logout                           |
|                                     |
| Please Enter Your Choice -> 3        |
|                                     |
+-----+
|Unit Model Name      Trunk      Port      Serial No.      Company Name      |
+-----+
|[00] UC-412          4          12          E902060003      PLANET          |
|  1. Pass-Through ICD Command to Unit |
|  2. Set Each VDSL Port Name of Unit  |
|  3. Display All Ports Status of Unit  |
|  4. Display All Trunks Status of Unit |
|  0. Return to previous menu          |
|                                     |
| Please Enter Your Choice ->         |
|                                     |
+-----+

```

4.4.1 Pass-Through ICD Command to Unit

Option 1 will be discussed in “Using the ICD Command Interface” section. In the section, you will learn how to access the command line interface (ICD command interface) of the VC-412, and how to issue commands to the VC-412 via this interface.

4.4.2 Set Each VDSL Port Name of Unit

This option enables users to name or rename ports therefore offering a better port monitoring organization. When asking for unit number, please input “0” and press Enter.

```

Please Enter Your Choice => 2
Enter Unit Number : 00

+-----+
| [Unit 00] Port Name |
+-----+
[01] Room101
[02] Room102
[03] Room201
[04] Room202
[05] ROOM
[06] ROOM
[07] ROOM
[08] ROOM
[09] ROOM
[10] ROOM
[11] ROOM
[12] ROOM
    1. Modify - Modify an entry of table
    2. Reset - Reset an entry to default from table
    0. Return to previous menu

Please Enter Your Choice ->

```

4.4.3 Display All Ports Status of Unit

This option displays the statuses of all twelve VDSL ports. The three counter columns to the right of the status indicators report the amount of packets have received, sent, and collided. Using these statistics you will be able to monitor your network status easily and quickly, allowing you to alleviate network build-up before problems occur.

```

Please Enter Your Choice => 3
Enter Unit Number : 00

+-----+
| [Unit 00] Port Name   E/S/R/Er  RecvCounter  SendCounter  CollCounter |
+-----+
[01] Room101           1 0 1 0    0             76550        0
[02] Room102           1 0 1 0    0             76648        0
[03] Room201           1 0 1 0    0             76679        0
[04] Room202           1 0 1 0    0             76679        0
[05] ROOM              0 0 1 0    0             76679        0
[06] ROOM              1 0 1 0    0             76683        0
[07] ROOM              1 0 1 0    0             76684        0
[08] ROOM              1 0 1 0    0             76685        0
[09] ROOM              1 0 1 0    0             76687        0
[10] ROOM              1 0 1 0    0             76687        0
[11] ROOM              1 0 1 0    0             76688        0
[12] ROOM              0 0 1 0    0             76689        0

    0. Return to previous menu

Please Enter Your Choice -> _

```

The E/S/A/Er Column represents the current operating status of the ports.

E- Enabled

S- Sync

A- Activity

Er- Error

4.4.4 Display All Trunks Status of Unit

This option will display the statuses of all four trunk ports. The three counter columns to the right of the status indicators report the amount of packets have received, sent, and collided. Using these statistics you will be able to monitor your network status easily and quickly, allowing you to alleviate network build-up before problems occur.

The E/L/A/C Column represents the current operating status of the ports.

E- Enabled

L- Link

A- Activity

C- Collision

Note: 0 indicates off, 1 indicates on

```

:Unit Model Name      Trunk      Port      Serial No.      Company Name      :
+-----+-----+-----+-----+-----+
[00] UC-412           4          12         E902060003      PLANET
  1. Pass-Through ICD Command to Unit
  2. Set Each UDSL Port Name of Unit
  3. Display All Ports Status of Unit
  4. Display All Trunks Status of Unit
  0. Return to previous menu

Please Enter Your Choice -> 4
Enter Unit Number : 00

+-----+-----+-----+-----+-----+
:  [Unit 00] Trunk Name      E/L/A/C      RecvCounter      SendCounter      CollCounter      :
+-----+-----+-----+-----+-----+
[A]                1 0 0 0      64              0                0
[B]                1 0 0 0      0                0                0
[C]                1 1 0 0      79238           2440             0
[D]                1 0 0 0      0                0                0

  0. Return to previous menu

Please Enter Your Choice -> _

```

Note: Packet throughput is polled every 6 seconds.

4.5 Reset To Default

At the Main menu, you have the options to reset the VC-412 to its factory default settings. The Reset option will reset ALL settings back to factory default; IP Addresses, Gateway Address, Subnet Address, Auto Refresh Time, and any other commands issued to the VC-412 will be lost by the reset. Use this option only when there is a malfunction of the unit that prohibits it from functioning correctly after a reboot or power cycling.

```
Unit Model Name      Trunk   Port   Serial No.   Company Name
-----+-----+-----+-----+-----+
[00] UC-412          4       12     E902060003   PLANET
  1. Pass-Through ICD Command to Unit
  2. Set Each UDSL Port Name of Unit
  3. Display All Ports Status of Unit
  4. Display All Trunks Status of Unit
  0. Return to previous menu

Please Enter Your Choice -> 0

-----+-----+-----+-----+
:                               [ UDSL Configuration Utility Main Menu ]                               :
-----+-----+-----+-----+
  1. Management Configuration
  2. SNMP Access Table / SNMP Trap Receive Control Table
  3. UDSL Unit Control
  4. Reset to Default
  5. Reboot System
  0. Logout

Please Enter Your Choice -> 4
Reset all SNMP Agent data to default value (y/n)? : [No]
```

4.6 Reboot System

The Reboot System command is used to reboot the OS but does not reset or change any settings of the VC-412 and its firmware. On some occasions you will have to reboot the firmware. The VC-412 may function improperly after major changes, use the reboot function to refresh the VC-412 with the new settings.

```
+-----+
1. Management Configuration
2. SNMP Access Table / SNMP Trap Receive Control Table
3. UDSL Unit Control
4. Reset to Default
5. Reboot System
0. Logout

Please Enter Your Choice -> 4
Reset all SNMP Agent data to default value (y/n)? : [No]

+-----+
|                               |
|           [ UDSL Configuration Utility Main Menu ]           |
|                               |
+-----+

1. Management Configuration
2. SNMP Access Table / SNMP Trap Receive Control Table
3. UDSL Unit Control
4. Reset to Default
5. Reboot System
0. Logout

Please Enter Your Choice -> 5
Reboot System (y/n)? : [No]
```

4.7 Logout

After finished issuing commands to the VC-412, it is recommended that you log out of the interface. Logging out will ultimately end the session and require to re-enter password to re-login.

Note: *Make sure to save all changes before logging out.*

5. ICD COMMANDS FOR TELNET AND CONSOLE

NOTE: DO NOT ATTEMPT TO ISSUE COMMANDS TO THE SWITCH VIA THE ICD COMMAND LINE INTERFACE UNLESS YOU HAVE READ THIS SECTION.

This section will discuss accessing the command line interface within the switch, and the commands available in this mode. It is recommended that you read this section before proceeding into the command line interface.

5.1 Enter ICD command line interface

From the Main Menu, Select option 3 for VDSL unit control

```

+-----+
|                               |
|           [ VDSL Configuration Utility Main Menu ]           |
|                               |
+-----+
|  1. Management Configuration                               |
|  2. SNMP Access Table / SNMP Trap Receive Control Table   |
|  3. VDSL Unit Control                                     |
|  4. Reset to Default                                       |
|  5. Reboot System                                         |
|  0. Logout                                                 |
|
| Please Enter Your Choice -> 3
|
+-----+
|Unit Model Name      Trunk      Port      Serial No.      Company Name      |
+-----+
| [00] UC-412          4          12          E902060003       PLANET
|  1. Pass-Through ICD Command to Unit
|  2. Set Each VDSL Port Name of Unit
|  3. Display All Ports Status of Unit
|  4. Display All Trunks Status of Unit
|  0. Return to previous menu
|
| Please Enter Your Choice -> _

```

Now select Option 1 to issue ICD Commands. On “Enter Unit Number:” prompt, press “0” and “Enter” button to enter ICD command prompt.

```

+-----+
1. Management Configuration
2. SNMP Access Table / SNMP Trap Receive Control Table
3. VDSL Unit Control
4. Reset to Default
5. Reboot System
0. Logout

Please Enter Your Choice -> 3

+-----+
|Unit Model Name      Trunk   Port   Serial No.   Company Name   |
+-----+-----+-----+-----+-----+
[00] UC-412           4      12     E902060003   PLANET
1. Pass-Through ICD Command to Unit
2. Set Each VDSL Port Name of Unit
3. Display All Ports Status of Unit
4. Display All Trunks Status of Unit
0. Return to previous menu

Please Enter Your Choice -> 1
Enter Unit Number : 0
U00-ICD>_
    
```

The above line indicates “U00-ICD>”. The unit is now ready to be administered through ICD commands.

5.2 ICD command Index Table

Please find the following table for available commands.

ICD Console Command & Description Index Table	
Command	Description
System Command	
?	Display command list
U	Display unit information
S	Save data to EEPROM This command will save: VDSL and Trunk port settings. Speed mode: auto or preset modes only
RS	Reboot system
RSW	Restore factory defaults and reset the switch and ports. This command will reset all VDSL ports settings to the following default: VLAN ON

	VDSL port Enable Speed Mode = Auto Speed
X	To exit ICD command prompt
VLAN Command	
V	Show the current VLAN settings
VO	Set VLAN to ON **1
VF	Set VLAN to OFF
VG <group>-<port>, ..., <port>	Select the <port(s)> to belong to <group> The available VLAN group number is from 1 to 16. Issue this VG command will automatically switch the VLAN mode to USER DEFINED. Example: " VG 2-1,2,3,B " will create VLAN group 2 with member ports:1,2,3 and B.
VG <group>	Empty VLAN Ports group
VDSL Command	
LT <port>-<speed>	Set VDSL <port> to <speed> on local(LT) end There are six speed levels to select from when setting VDSL port speed. A, B, C, D is for VC-101S firmware version R4.5. P is for firmware version R2 and Q is for firmware version R4. A: Downstream 4 Mbps/Upstream 1 Mbps (R4.5) B: Downstream 5 Mbps/Upstream 5 Mbps (R4.5) C: Downstream 11 Mbps/Upstream 11 Mbps (R4.5) D: Downstream 15 Mbps/Upstream 17 Mbps (R4.5) P: Downstream 11 Mbps/Upstream 11 Mbps (R2) Q: Downstream 15 Mbps/Upstream 17 Mbps (R4) Example: " LT 2-B " will configure local port 2's speed to symmetric 5Mbps
RT <port>-<speed>	Set VDSL <port> to <speed> on remote(RT) end
LR <port>-<speed>	Set VDSL <port> to preset <speed>. Please then issue S command if you want to save this settings.
LR <port>-	Set VDSL <port> to auto-speed
SR <port>	Save data on remote side of VDSL <port>
Port Command	
PC	Show all counters for all ports
PC <port>	Show all counters for <port>
C	Clear all counters for all ports
C <port>	Clear all counters for <port>

P	Show the status of all ports. Legend: RS Err = Reed Solomon Error AUT = Auto PRE = Preset MAN = Manual P/A = Preset/Actual * = Don't Care
PE <port>	enable <port>
PD <port>	Disable <port>

Note:

There are three VLAN modes: **ON**, **OFF** and **USER DEFINED**. When the VLAN mode is **OFF**, all VDSL and Ethernet ports can communicate each other. When VLAN mode is **ON**, the switch will automatically create the following 13 VLANs. All VDSL ports cannot communicate each other and can only connect to port A and D. When VLAN mode is **USER DEFINED**, you can use VG command to create your own VLAN settings.

VLAN settings when VLAN is ON:

Group 01 - 1,A,D
Group 02 - 2,A,D
Group 03 - 3,A,D
Group 04 - 4,A,D
Group 05 - 5,A,D
Group 06 - 6,A,D
Group 07 - 7,A,D
Group 08 - 8,A,D
Group 09 - 9,A,D
Group 10 - 10,A,D
Group 11 - 11,A,D
Group 12 - 12,A,D
Group 13 - A,B,C,D

5.3 Setting VLAN Functionality

The VLAN function offers security and flexibility of controlling each port's access to one another. This feature is useful in MDU and hotel situations where you would not want each computer to be able to "see" all other computers connected to the VC-412. However, in some situation you may need to have a few ports with the capability of communicating with one another. Such situations may arise for sharing files, collaboration software, faster multi-player gaming, etc.

Activating the VLAN function allows each port to be individualized, and

non-communicative to the other ports on the VC-412 in regards to local traffic. Deactivating VLAN allows the switch to act as a normal Ethernet VC-412, by passing along multicast and broadcast traffic to each port. Disabling this feature would be useful when installing the VC-412 in office settings and for file/print sharing.

Within the ICD command interface or web interface, you can turn the VLAN function on or off. In ICD simply type "VO" to activate the VLAN function, and "VF" to deactivate the VLAN function.

Note that when VLAN is on, group 1 to 12 is categorized by one VDSL port and two Ethernet ports (port-A and port-D). Hence, Ethernet port-B and port-C will not grant any bandwidth to VDSL ports. Therefore, trunking can be only done via port-A and port-D. Turning VLAN off will enable all four Ethernet ports accessible to all VDSL ports, however, it sometimes causes the switch to halt since the Ethernet port-B and port-C are designed for different purposes.

VC-412 also allows VLAN Grouping, which enables user to define ports to communicate with each other, while remaining isolated from the other ports (outside the defined range) traffic. The VC-412 supports up to 16 different groupings, and **can only be set within the ICD Command Interface**. The ICD Command for VLAN Grouping is VG.

The command line format is as follow:

[VG] [Group]-[port1,...,portN]

Syntax	Description
[VG]	Command string.
[Group]	Group number, from 01 to 16.
[-]	Command string
[port1,...,portN]	List of ports to be included in the group separated by commas, the VDSL ports are numbered with 01 to 12 and Ethernet ports are ordered from A to D.

Important: Same ports can exist in different groups, however each invocation of the VG for the same group will overwrite the previously saved list for that group.

Examples:

To group VDSL port-1, port-2, and Ethernet port-A together you will need to issue the following commands:

VG 1-1,2,A

Add port-4, port-8 and port-D to group 1 from previous example

VG 1-1,2,4,8,A,D

Delete port-2 and port-8, port-A of group 1 from previous example

VG 1-1,4,D

Empty group 1

VG 1-

Add port-1, port-3, port-6, port-10, port-B, port-C, port-D to group 5

VG 5-1,3,6,10,B,C,D

You can verify the VLAN groups through the "V" command.

5.4 VDSL Command

For VDSL local and remote connections to establish, local switch and remote modem must adjust to a corresponding rate. However if the distance between VC-412 and the remote VDSL modem is too far then connection may not establish with high stream rates. Therefore the VC-412 VDSL Managerial Switch and the VDSL remote modem are factory set to the lowest stream rate; 4 Mbps downstream and 1 Mbps upstream. Once connection between the VC-412 and the remote modem is established the switch will try to adjust the stream rate to the next higher speed mode. If the next new stream rate failed then it will go back to speed level-A (LWD mode) and progressively adjust to the last highest effective rate. It will take approximately 10 seconds for the VC-412 to recalibrate to LWD mode. This is called auto-speed.

In some situations higher stream rate is reachable but line quality might be poor due to environmental factors or/and bad line conditions. In such circumstances, administrators will want to define the maximum steam rate to a more stable rate. For example, if you want to define the maximum speed on port-5 to speed level-B (5 Mbps symmetric) then you can issue LR 5-B in the ICD command interface. Doing so will preset port-5 maximum speed to level-B therefore it will establish connection from speed level-A and if succeeded, it will progress to level-B and stays at that point if it is reachable.

You can also manually set the port speed for testing purposes. To experiment, you must first manually set the remote modem to a desired speed and then set the speed on the

connected port of the VC-412 to the same speed. The reason you need to set the speed on the remote modem first is when you adjust the speed on the remote modem, connection will end since speeds on both sides will be different. After setting the VC-412 port to the same speed as the remote modem, connection will re-establish if it is within the distance limitation. For example if you want to test the quality of transmission with the stream rate speed at speed level-B (5 Mbps symmetric). You will enter the following commands in the ICD command interface.

RT 10-B

Connection will end

LT 10-B

Connection will re-establish if within the range.

If connection does not establish with new speed level, reset the switch and wait approximately 47 seconds for the switch and the remote modem to recalibrate.

5.5 Port Command

The "P" command displays all the VDSL ports status including its speed and speed mode. AUT represents Auto-speed mode, PRE represents preset speed and MAN represents manual set speed. At the speed column you will see a representation of preset speed and the current speed of each port. The numerator is preset speed ("*" means not applicable) and the denominator is current speed. Please refer to the ICD Command Index table for reference.

```

Please Enter Your Choice => 3

-----+-----
|Unit Model Name      Trunk      Port      Serial No.      Company Name      |
|-----+-----|
[00] UC-412           4          12        E982860003      PLANET
  1. Pass-Through ICD Command to Unit
  2. Set Each UDSL Port Name of Unit
  3. Display All Ports Status of Unit
  4. Display All Trunks Status of Unit
  0. Return to previous menu

Please Enter Your Choice => 1
Enter Unit Number : 0
U00-ICD>p
Port           01      02      03      04      05      06      07      08      09      10      11      12
Enable         YES     YES     YES     YES     NO      YES     YES     YES     YES     YES     YES     NO
Link           NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO
Active         YES     YES     YES     YES     YES     YES     YES     YES     YES     YES     YES     YES
RS Err        NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO
Speed          C       C       C       C       C       C       C       C       C       C       C       C
U00-ICD>

```

The "PC" command displays all ports Transmit, Receive and Collision statuses.

```

Port           01      02      03      04      05      06      07      08      09      10      11      12
Enable         YES     YES     YES     YES     NO      YES     YES     YES     YES     YES     YES     NO
Link           NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO
Active         YES     YES     YES     YES     YES     YES     YES     YES     YES     YES     YES     YES
RS Err        NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO      NO
Speed          C       C       C       C       C       C       C       C       C       C       C       C
U00-ICD>pc
Port 01: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 02: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 03: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 04: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 05: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 06: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 07: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 08: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 09: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 10: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 11: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Port 12: Transmit: 0001395E  Receive: 00000000  Collision: 00000000
Trunk A: Transmit: 00000000  Receive: 00000040  Collision: 00000000
Trunk B: Transmit: 00000000  Receive: 00000000  Collision: 00000000
Trunk C: Transmit: 00000003  Receive: 000142D4  Collision: 00000000
Trunk D: Transmit: 00000000  Receive: 00000000  Collision: 00000000
U00-ICD>

```

APPENDIX A – VC-412 FACTORY DEFAULT

Virtual LAN – On

Ethernet Speed – 100 Full/Half Duplex

VDSL Port Line Rate –

Downstream at 4 Mbps

Upstream at 1 Mbps

IP Address – 192.168.1.1

APPENDIX B – UPDATE VC-101S FIRMWARE TO R4.5 REMOTELY THROUGH VC-412

The purpose of this appendix is to upgrade older versions of VC-101 (R2 or R4) into the newest version (R4.5) remotely through VC-412. The new version will contain auto-speed function which can seek the maximum transmission speed automatically.

The default speed of version R4.5 VC-412 Mbps downstream/1 Mbps upstream but the default speed of version R2 is 11 Mbps symmetric and default speed of version R4 is 15 Mbps downstream/17 Mbps upstream. Therefore you will need to adjust both VC-412 and VC-101S to a complementary speed in order to establish link. You can perform these procedures remotely via VC-412 console or telnet.

1. Login to the VC-412 via console or telnet.
2. Access to the ICD Command interface.

```

+-----+
1. Management Configuration
2. SNMP Access Table / SNMP Trap Receive Control Table
3. VDSL Unit Control
4. Reset to Default
5. Reboot System
0. Logout

Please Enter Your Choice => 3

+-----+
|Unit Model Name      Trunk   Port   Serial No.   Company Name   |
+-----+-----+-----+-----+-----+
[00] VC-412           4       12     NONE         PLANET
1. Pass-Through ICD Command to Unit
2. Set Each VDSL Port Name of Unit
3. Display All Ports Status of Unit
4. Display All Trunks Status of Unit
0. Return to previous menu

Please Enter Your Choice => 1
Enter Unit Number : 0
U00-ICD>_

```

3. Adjust the speed on VC-412 to the remote modem's speed with the following command:
LT <port>-<speed of remote modem>
 For example if port-2 is connected to a version R4 VC-101S the command would be:
LT 2-Q
 If it is connected to a version R2 VC-101S then use the command would be:
LT 2-P

Note: Connection will establish after issue above command. Please note this setting

can not be saved. Thus, you have to continue the following command to update the VC-101S firmware.

Refer to the table below for speed versions

Speed	VC-101S Version
P	R2 (12.5/12.5)
Q	R4 (18/16)
A	LWD (4/1)

4. Now set the remote modem's speed to A which is the LWD mode.

Command Description: RT <port>-<LWD speed mode>

Command: RT 2-A

Important: Setting the remote modem's speed first is very important since connection will end once the remote modem's speed differs from the local switch.

5. Now set the speed of VC-412 back to LWD mode.

Command Description: LT<port>-<LWD speed mode>

Command: LT 2-A

Note: Connection will re-establish.

6. Save remote modem's setting so it will not be lost upon power cycling.

Command Description: SR <port>

Command: SR 2

7. Adjust the VC-412 back to auto-speed mode.

Command Description: LR <port>-

Command: LR 2-

The figure below illustrates the commands to upgrade a version R4 VC-101S remotely via VC-412 ICD command.

```

4. Display All Trunks Status of Unit
0. Return to previous menu

Please Enter Your Choice => 1
Enter Unit Number : 0
U00-ICD>LT 2-Q
Setting Port 02 LT to speed Q... OK
U00-ICD>RT 2-A
Setting Port 02 RT to speed A... OK
U00-ICD>LT 2-A
Setting Port 02 LT to speed A... OK
U00-ICD>SR 2
Saving Remote Data to EEPROM on Port 02... OK
U00-ICD>LR 2-
Setting Port 02 to Auto Speed... OK
U00-ICD>P
Port          01  02  03  04  05  06  07  08  09  10  11  12
Enable        YES YES YES YES YES YES YES YES YES YES YES YES
Link          YES YES NO  NO  NO  NO  NO  NO  NO  NO  NO  NO
Active        YES YES NO  NO  NO  NO  NO  NO  NO  NO  NO  NO
RS Err        NO  YES NO  NO  NO  NO  NO  NO  NO  NO  NO  NO
Speed Mode    AUT AUT AUT AUT AUT AUT AUT AUT AUT AUT AUT AUT
Speed - P/A   */D */D */A */A */A */A */A */A */A */A */A */A
U00-ICD>

```

For more detailed ICD command description please refer to the Chapter 5.

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