NetComm®
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IP DSLAM

Management User Guide

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1. Introduction

This document is intended for First Office Acceptance test plan for NetComm's **ADSL2+ Broadband Access Switch solution (BAS)**. The Netcomm NCT240 Broadband Access Switch contains 24 ADSL2/2+ circuits to deliver high-speed data, video and voice service over traditional twisted copper pairs by using DSL technology.

To meet the increasing demand for high-speed internet access and triple play application services. The next generation network offers a feasible functionality of integrated services with the most cost effective architecture. Next generation broadband access networks are designed to provide rich video contents, DSL , POTS and VoIP services over traditional copper wire infrastructure. These types of services will be supported on NGN architecture simultaneously. DSL is used as the data service platform for traditional POTS technology which is used for voice services. The multimedia and local content-rich applications can also be easily implemented on this NGN architecture.

xDSL (Digital Subscriber Line) is a technology for delivering high-bandwidth information over copper telephone lines. xDSL service can deliver POTS and high date rate services simultaneously over a single twisted-wire pair. The POTS and data service are simultaneous and independent; the xDSL data service does not affect the POTS service. xDSL uses the bandwidth above the 4-kHz POTS frequency to transmit duplex data using digital modulation techniques from the C.O side to the Customer Premises Equipment (CPE).

ADSL is a form of xDSL service that delivers an asymmetric data rate over a twisted copper pair. ADSL delivers a higher rate downstream, towards the customer premises and lower rate upstream, from the customer premises. ITU standard compliant Full-Rate ADSL2+ can deliver data rates up to 25 Mbps downstream and 1 Mbps upstream; Full-Rate ADSL can deliver data rates up to 8 Mbps downstream and 800 kbps upstream; G.Lite ADSL can deliver up to 1.5 Mbps downstream and 512 kbps upstream. The actual data rate depends on the length, gauge, and condition of the twisted-wire pair, the bandwidth of the uplink depends on the data network, and the capacity of the network service provider.

Digital Subscriber Line (DSL) dominates broadband market. The position of national telecom operators in most countries has given the advantage in reaching out to customers with broadband services over DSL.

The NCT240 Access system contains 24 ADSL2/2+ circuits to deliver high-speed data service over twisted copper pairs using industry standard Discrete Multi-Tone (DMT) line coding technology. The NCT240 complies with full-rate ADSL in accordance with ANSI T1.413 Issue 2, ITU-T G.992.1 (G.dmt), ITU-T G.992.2 (G.lite)ITU-T G.992.3 (ADSL2) and ITU G.992.5 (G.ADSL2+) protocols.

The NCT240 greatly expand broadband capabilities in the access network, enhancing the infrastructure for emerging services. With simple in-service upgrades, service providers obtain the capacity and Quality of Service (QoS) to support larger populations of narrowband and broadband users. For management, NCT240 can be easily configured by SNMP, Telnet, SSH, HTTP, HTTPS and RS-232 console.

1.1 Features

- Complete Intelligent L2 switch feature
- Intelligent DSL interworking feature
  - RFC2684 MpoA
  - VPN pass-through
  - RFC2516 PPPoE packet forwarding.
- Advanced L2+/higher layer protocol & policy control
  - GVRP/GARP/GMRP (IEEE 802.1q) (phase2)
  - STP/RSTP (IEEE 802.1d/w) (phase2)
  - IGMP Snooping
  - DHCP relay and relay agent option 82
  - Packet inspection and do policy control (filtering, forwarding..)
- Security of authentication mechanism and encryption
  - SSH/SSL
- Rich user interface for management including security
  - CLI/Telnet/SSH/SNMP/HTTP/S-HTTP
- Variety of uplink interface
  - SFP for 1000 Base-SX, LX, LHX and ZX.
  - RJ45 for 1000 Base-TX. (Default)
- Remote software upgrade

1.2 Basic operating information

1.2.1 Default username and Password

Username: admin
Password: admin

1.2.2 Default IP addresses

MGMT : (Management Ethernet port) – 192.168.1.1
UPLINKs : 192.168.0.1

1.2.3 Default profile

The NetComm NCT240 comes with the following default settings for all of the ADSL ports and it is ready to use as a basic DSLAM out of the box.

VC Profile:

Name: default
Encapsulation: LLC
VPI: 8
VCI: 35

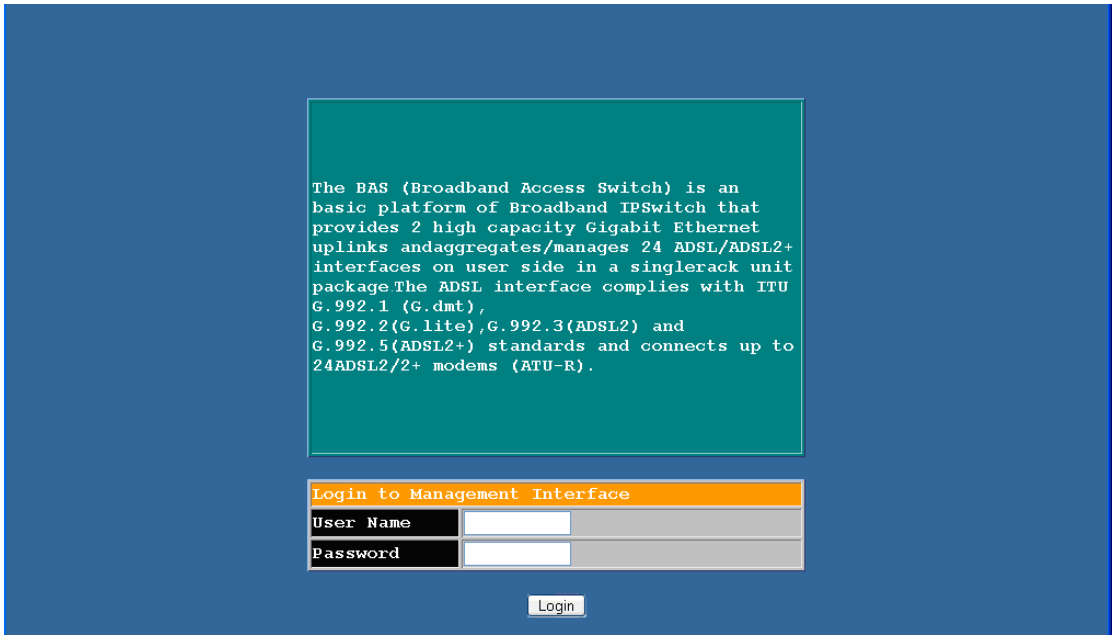
DSL Profile:

Mode: Auto, Annex A
Latency: interleave

	Downstream	Upstream
Minimum Data Rate	4000000	512000
Maximum Data Rate	26000000	1280000
Maximum Interleave Delay Downstream	0	0
Minimum Impulse Noise Protection	0	0
Target Noise Margin	50	50
Minimum Noise Margin	10	10
Maximum Noise Margin	310	310

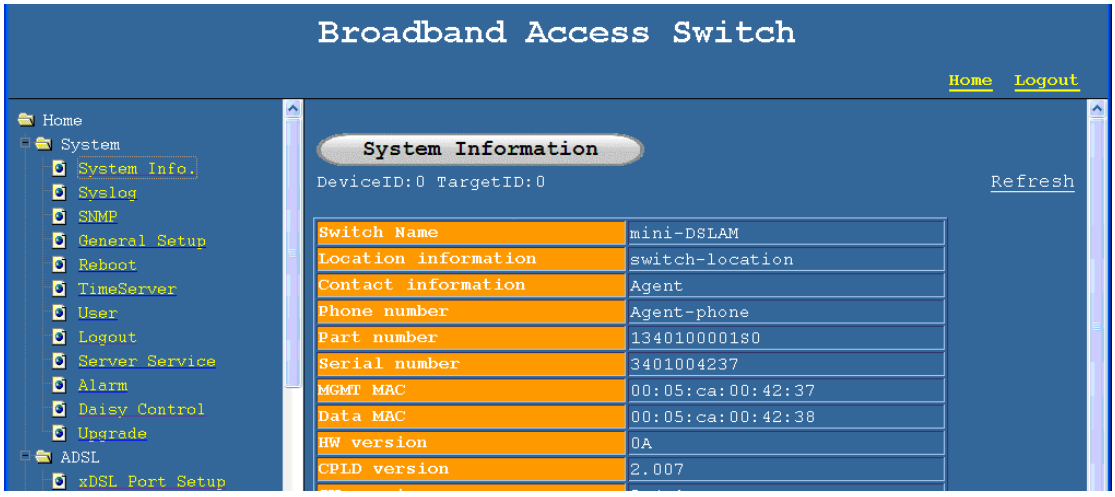
2. Configuring the Switch by Web Interface

Log in



2.1 System

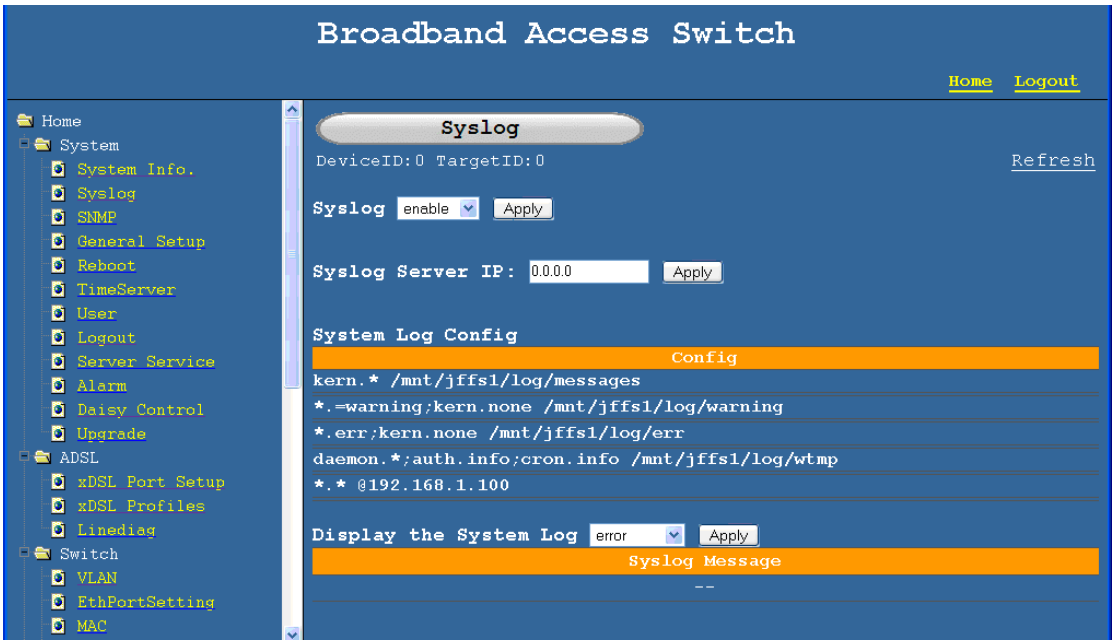
2.1.1 System Info



This page displays the basic system information

2.1.2 System log

When you enter to the syslog page the first function visible is enable and disable, default is enabled.



There are three types of syslogs ,

1) Error log
2) Warning log
3) Message log

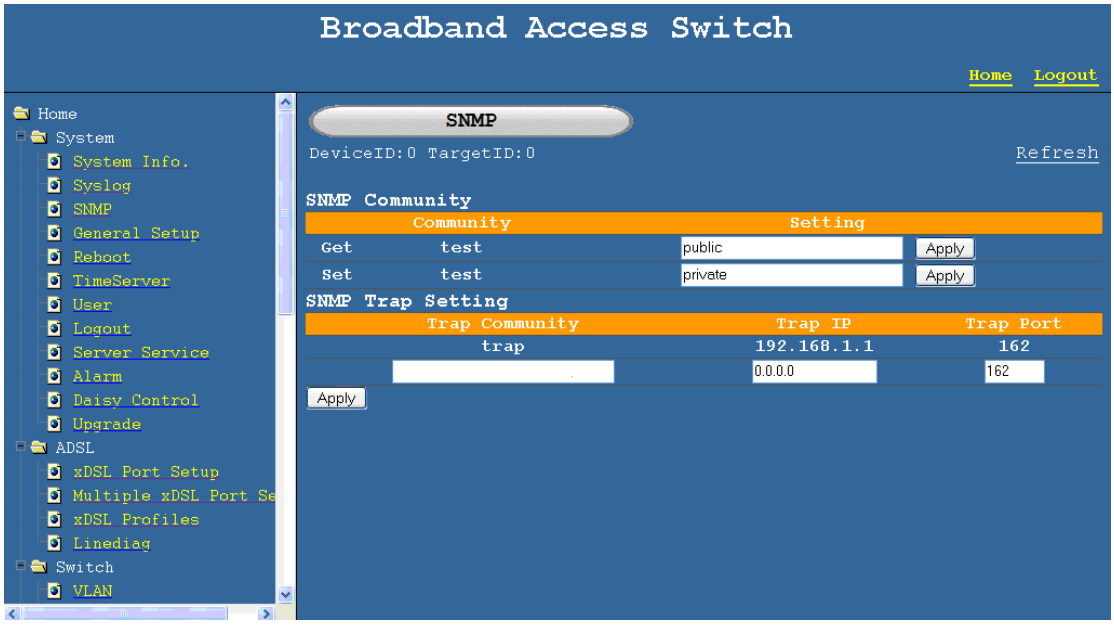
Show – display the syslog

Clean - The syslog can be cleaned using the syslog CLEAN option,

Config – shows the current configuration of the syslog and the syslog server IP

Syslog server IP also can be set using the same web page.

2.1.3 SNMP setup



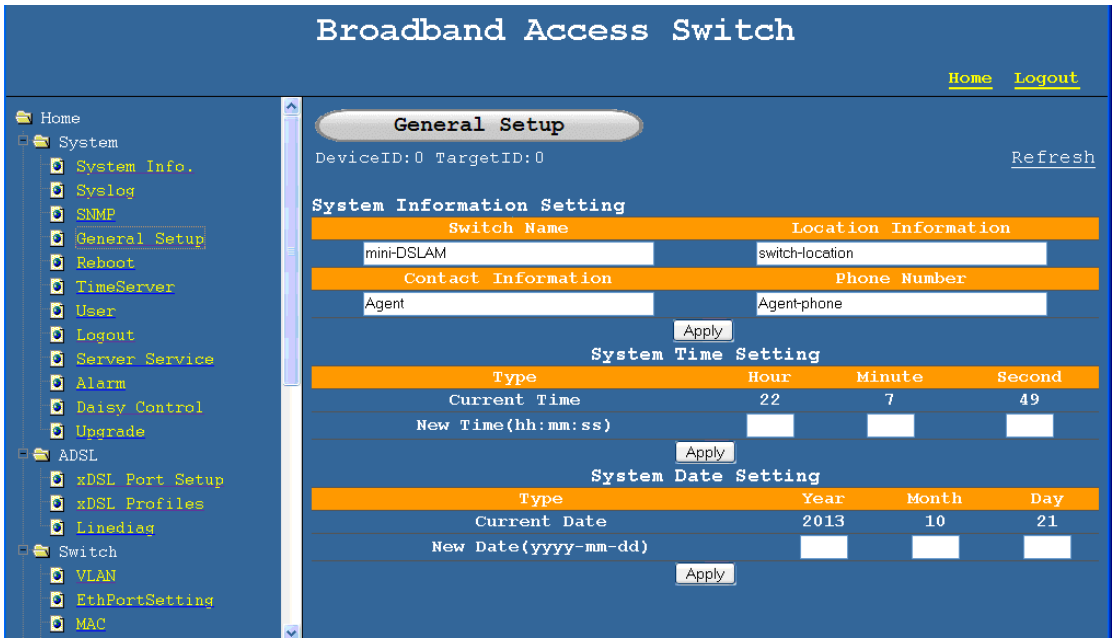
This page is for configuring the built in SNMP agent, NCT240 support SNMP V2c

SNMP set community:

SNMP get community:

SNMP trap community and the Trap receiver IP address

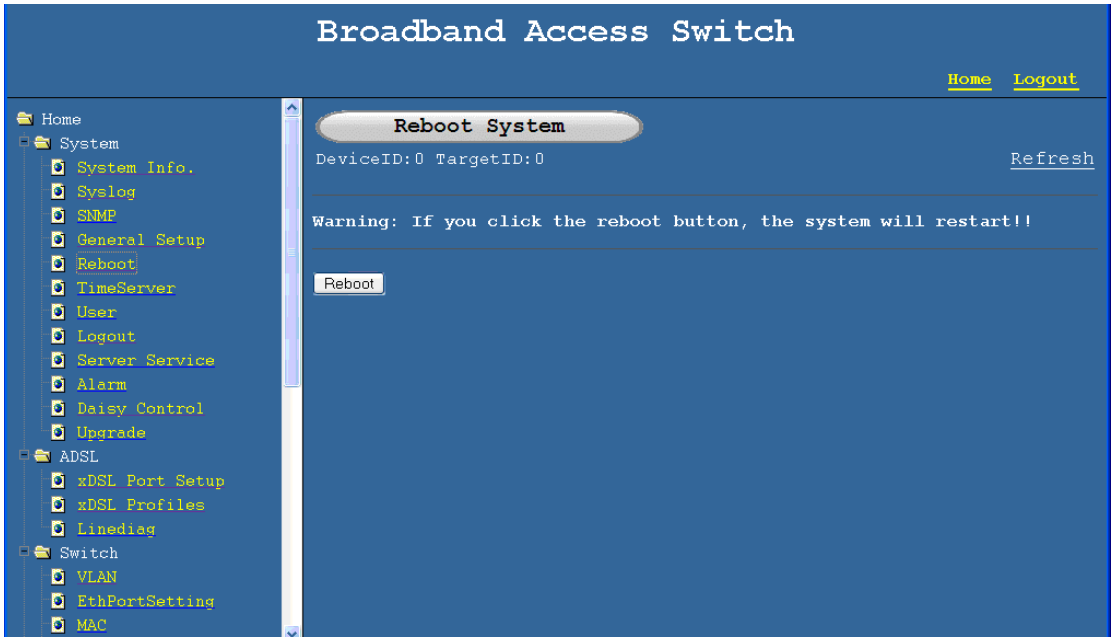
2.1.4 General setup



Display and Edit General information

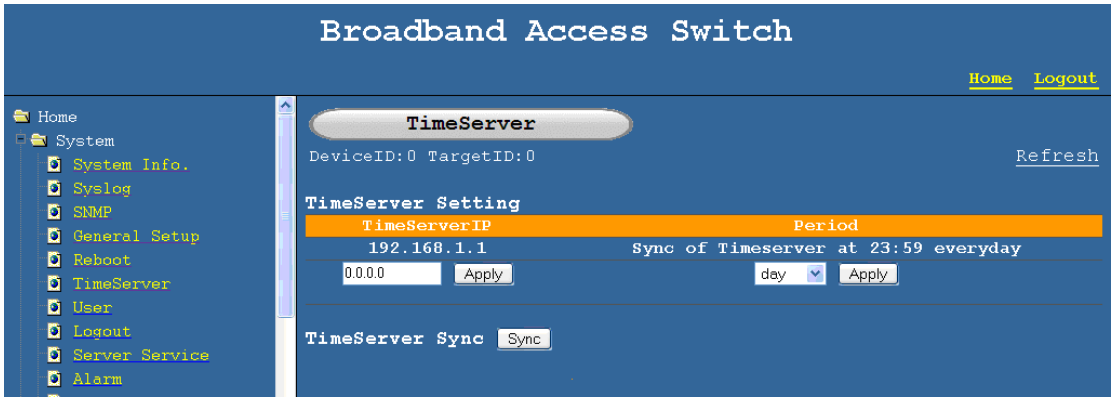
Host Name: NCT240 Host name
Location: NCT240 location
Contact Person's Name: maintainer's name
Model: NCT240 model
User Time Server When Bootup: Select time service protocol during bootup.
Time Server IP Address: IP address of Time server
Current Time: current time
New Time (hh:min:ss): enter new time in hh:mm:ss format
Current Date (yyy-mm-dd): enter current date in yyyy-mm-dd format

2.1.5 Reboot

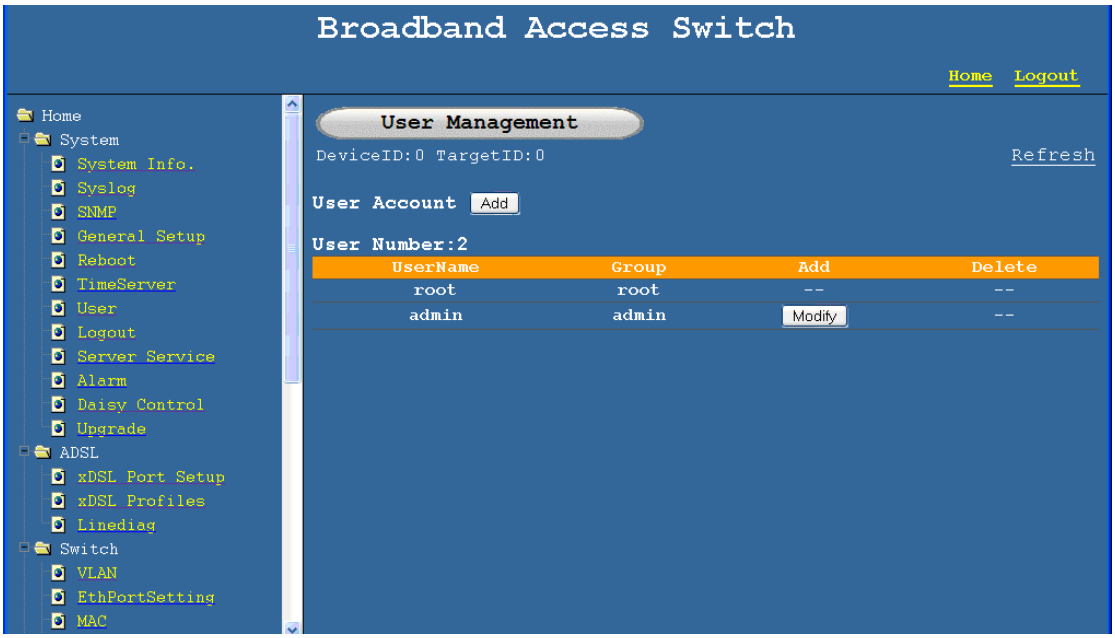


Reboot the system (ALL the unsaved settings will be lost)

2.1.6 Synchronization with Time server (SNTP)

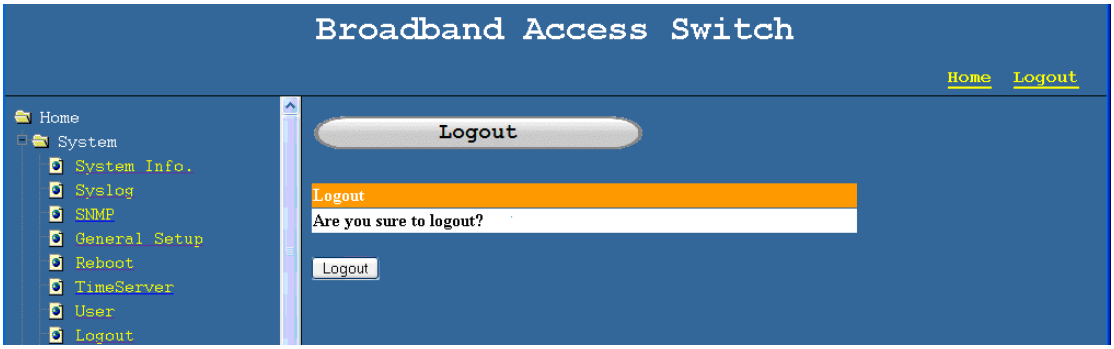


2.1.7 User Management

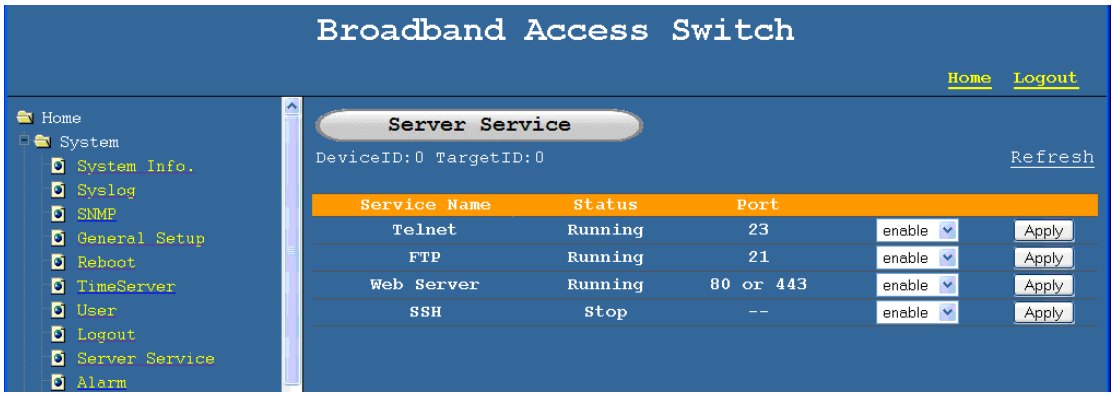


Add, delete and Modify user information

2.1.8 Log out



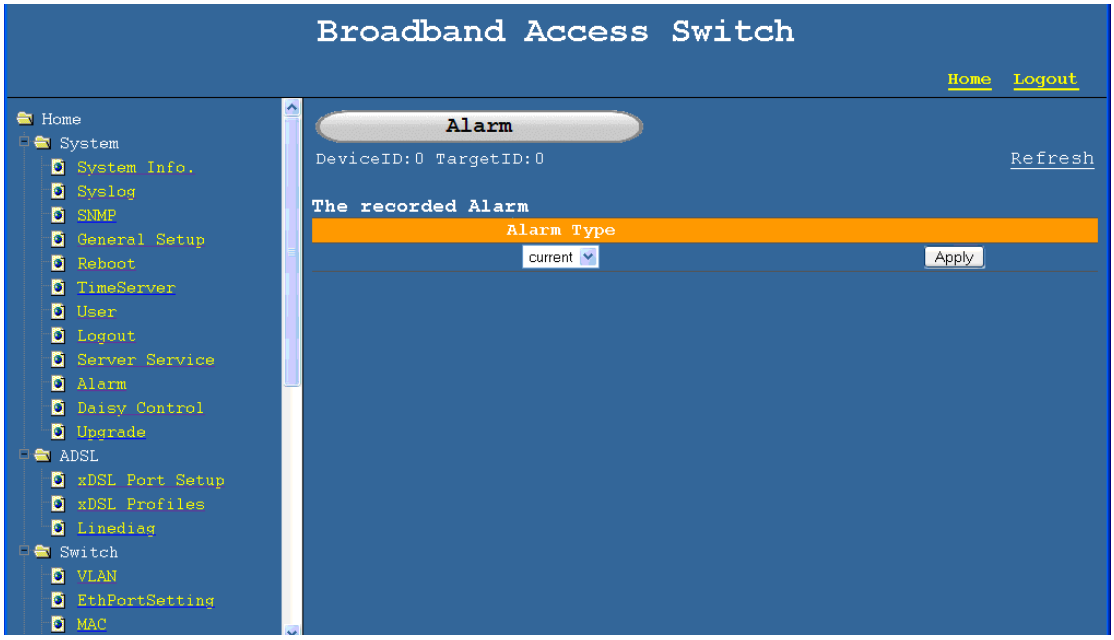
2.1.9 Server services



2.1.10 Alarm

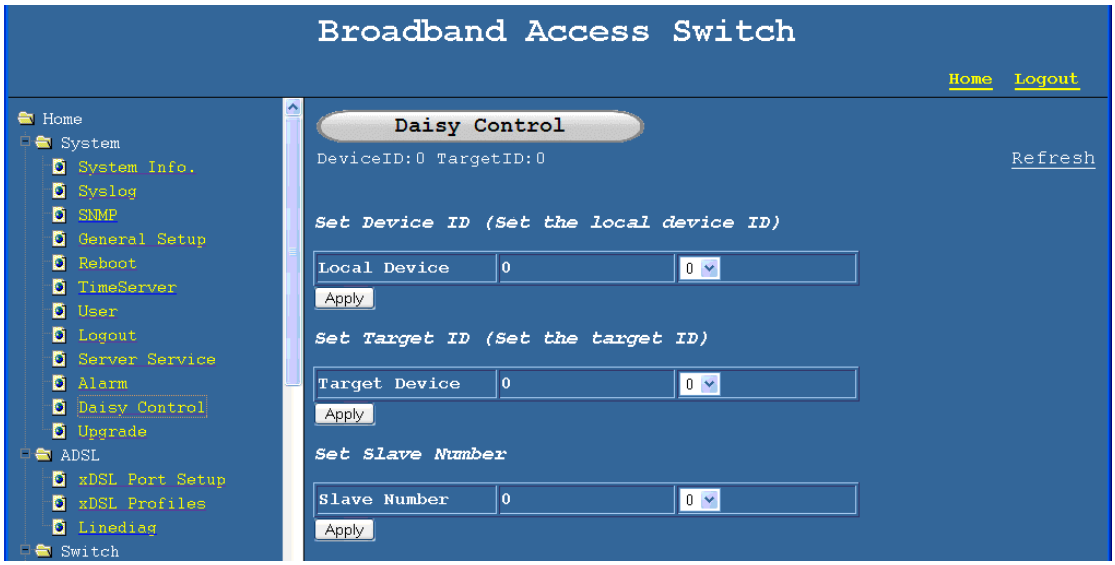
This page is used for displaying current alarms and alarm history,

Display current alarms or Alarm history,



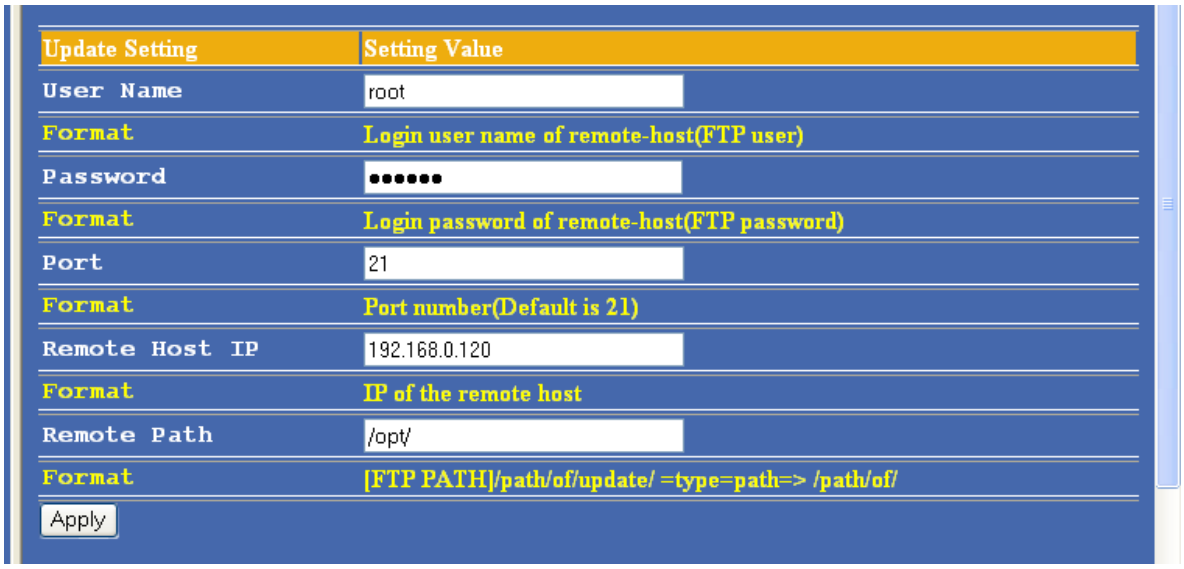
2.1.11 Daisy control

Please refer to the application note on Daisy control for more details

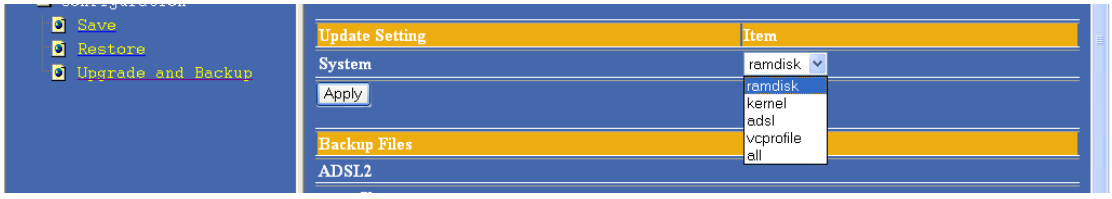


2.1.12 Software upgrade and Configuration backup

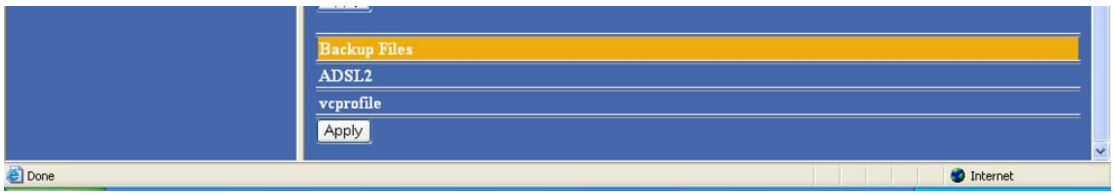
Page for setting the FTP server settings



Page for selecting which file to upgrade

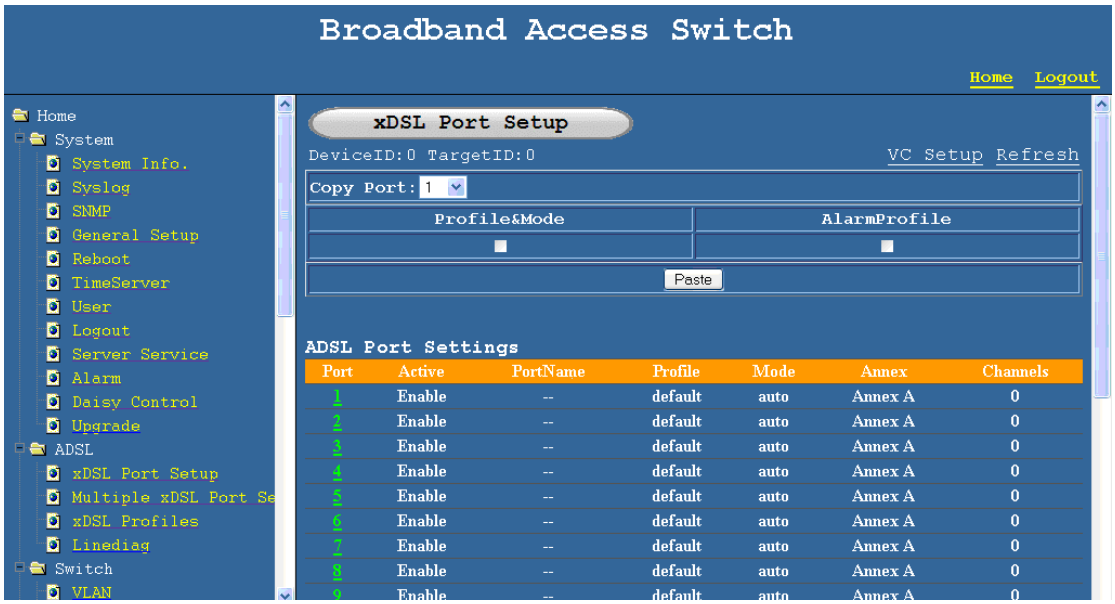


Page to back the files



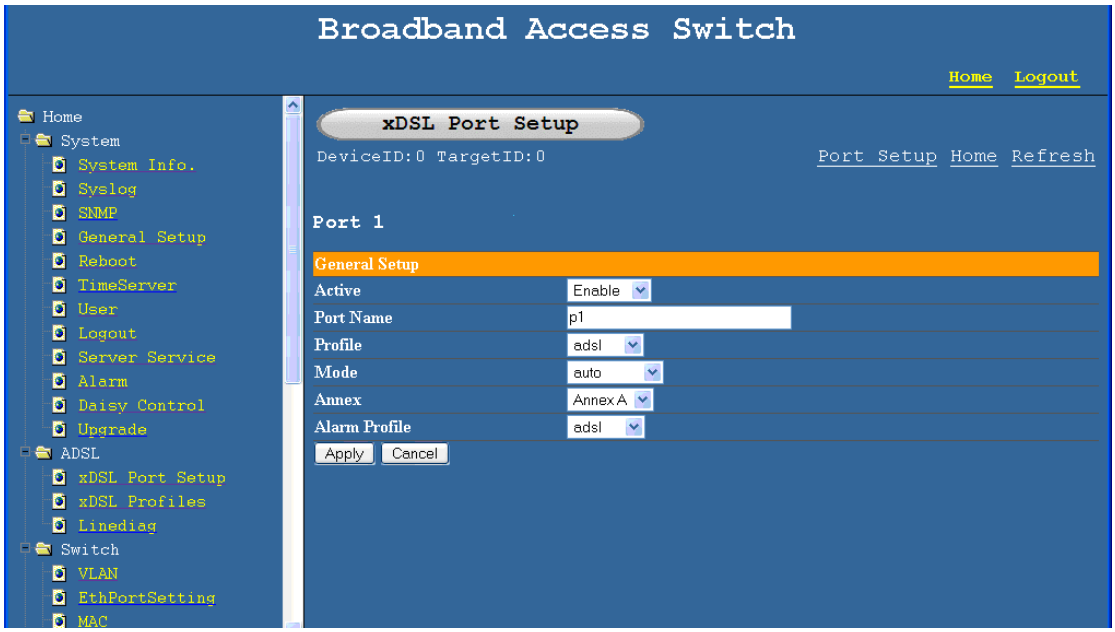
2.2 ADSL

2.2.1 xDSL port setup



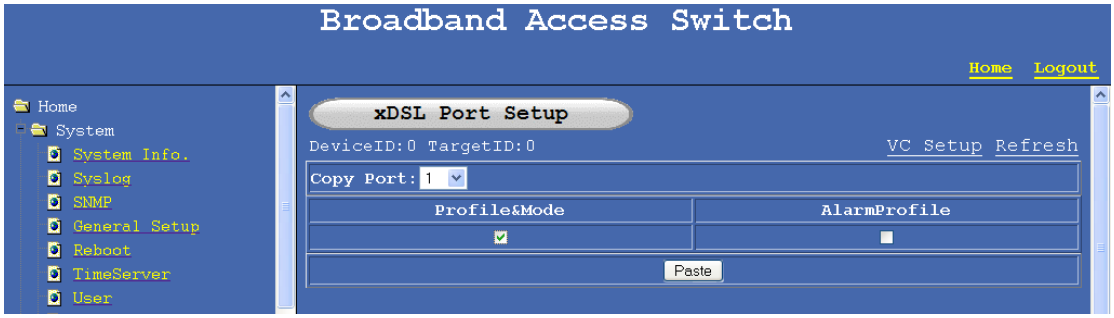
Enable and Disable ADSL ports, map ADSL profiles to each port individually, copy settings of one port to another port

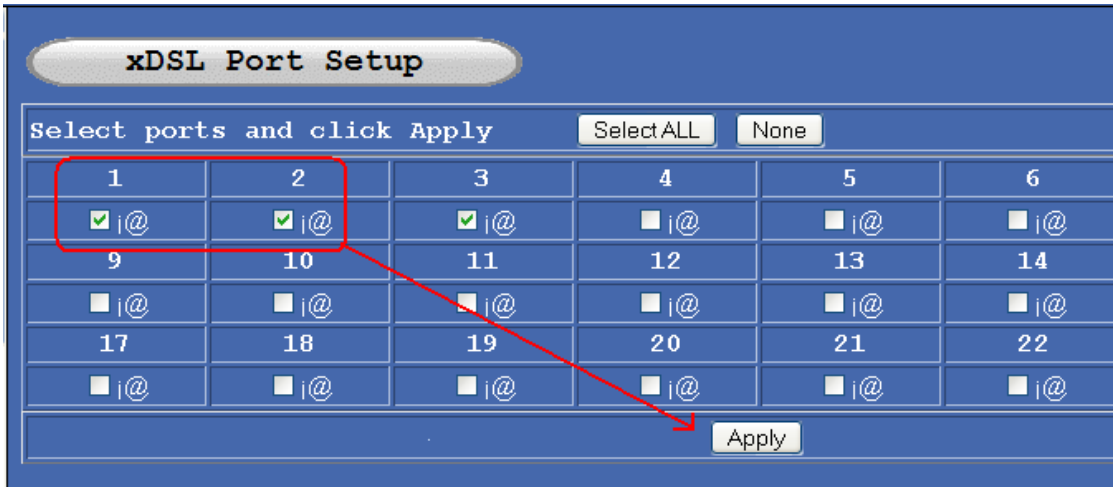
2.2.1.1 Map profile



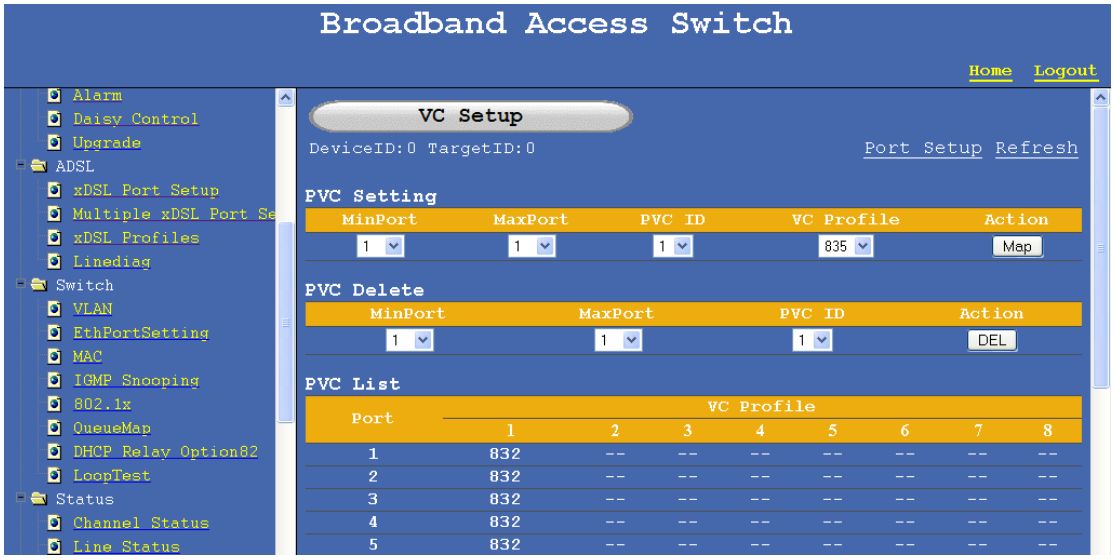
Map ADSL profile, Alarm profile, ADSL mode (and the annex) to ADSL ports

2.2.1.2 copy Settings to other ports



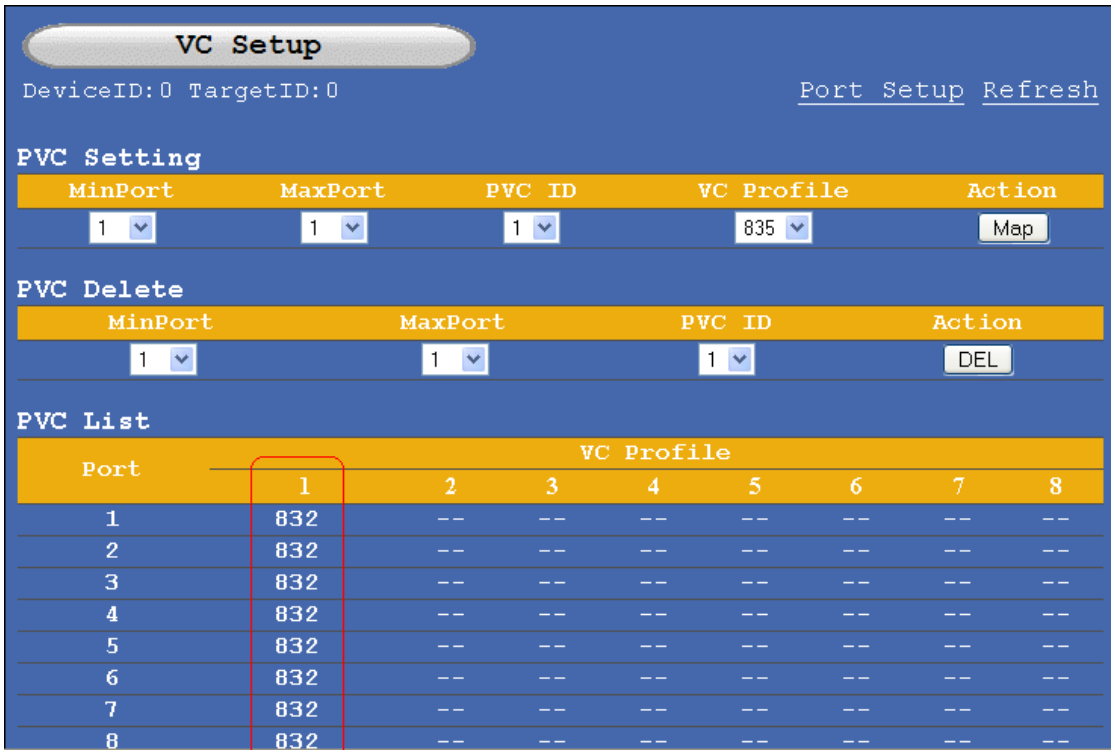


2.2.1.3 PVC Map (single and Multiple PVC setup)



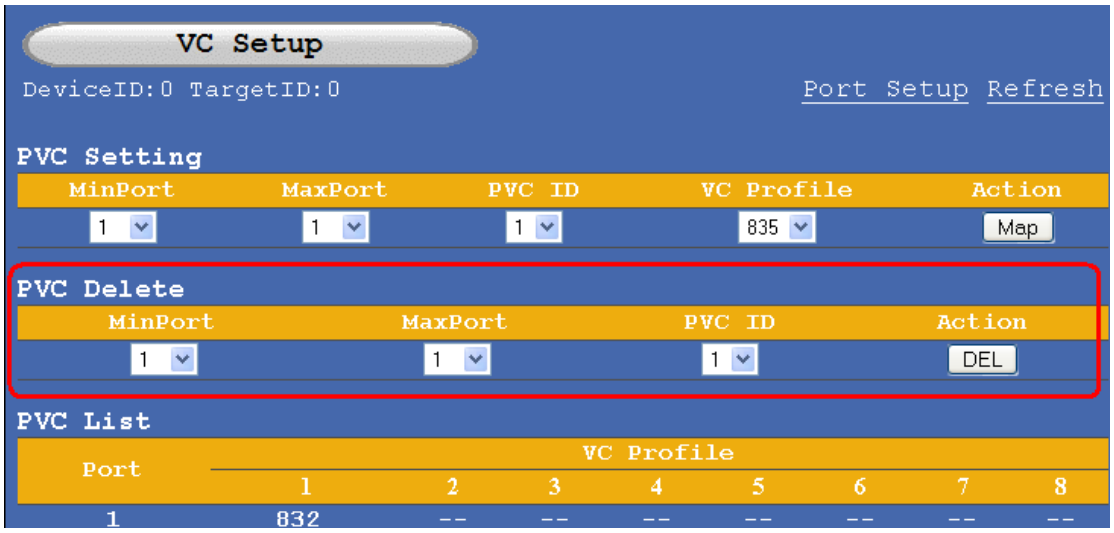
PVC can be set to a range of ports or to Individual ports using this page.

2.2.1.4 PVC show



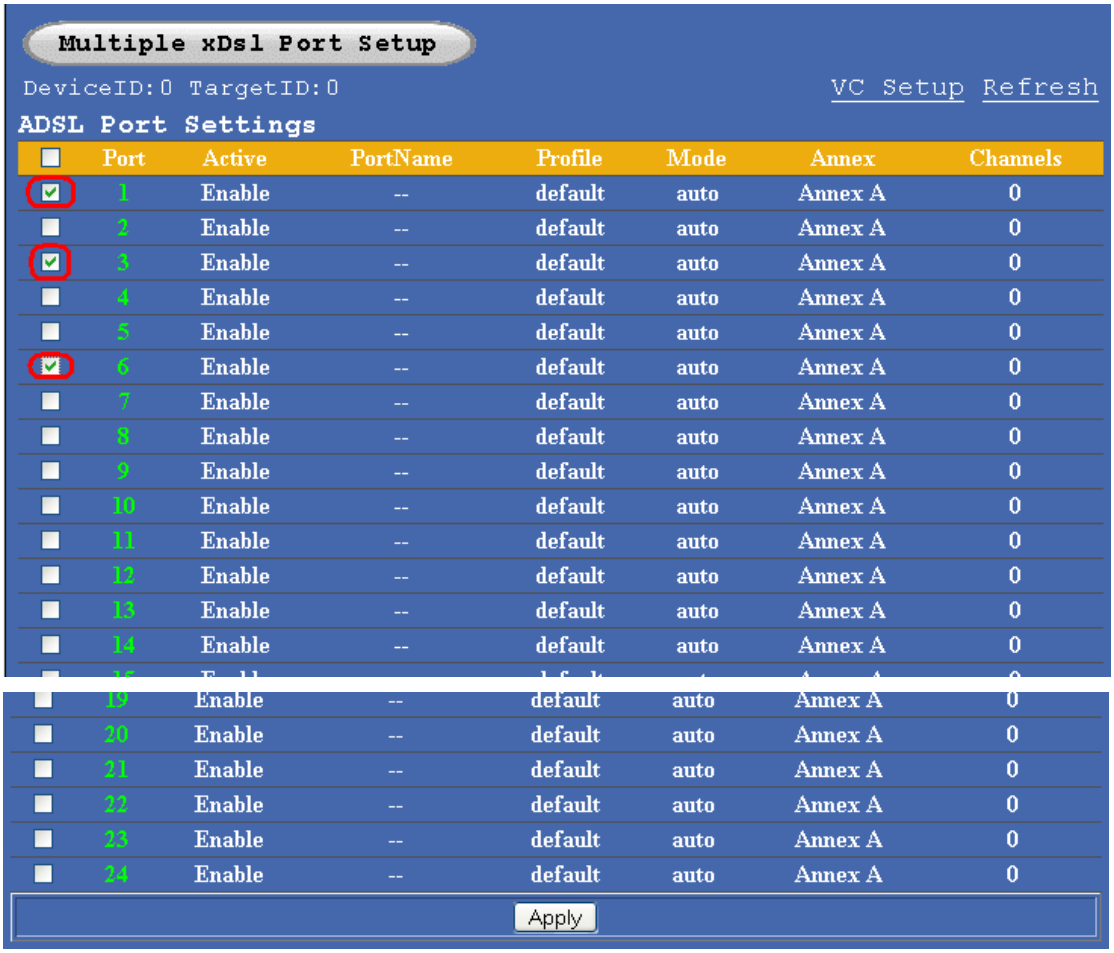
The PVC profile of an individual port or a range of ports can be displayed using this page.

2.2.1.5 PVC delete

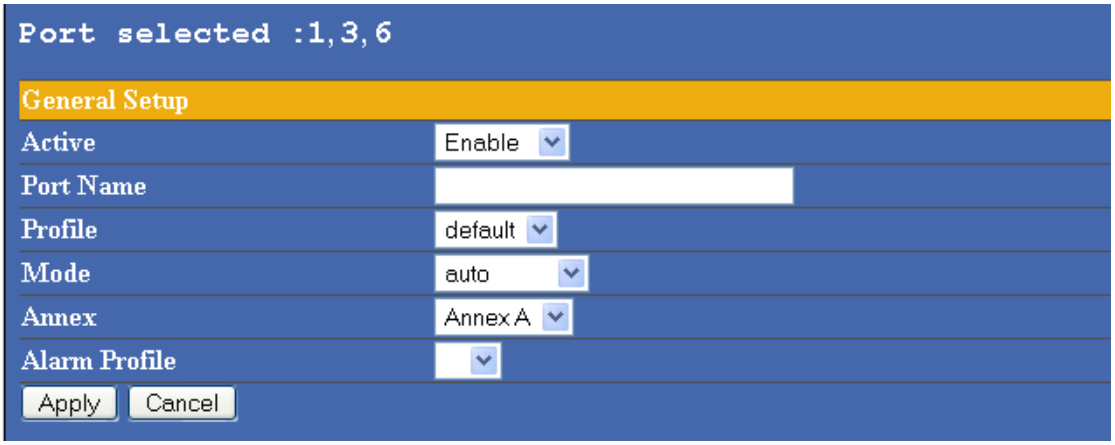


2.2.2 Multiple port xDSL set up

This page is used for configuring several ports with the same configuration:

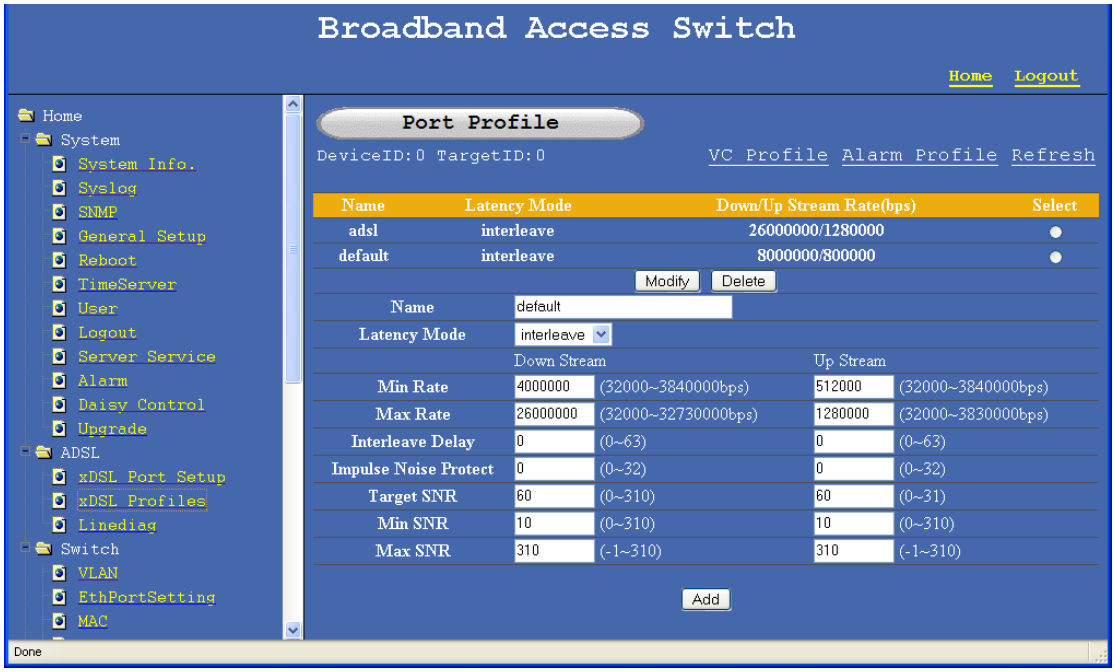


After selecting the ports, click on Apply:



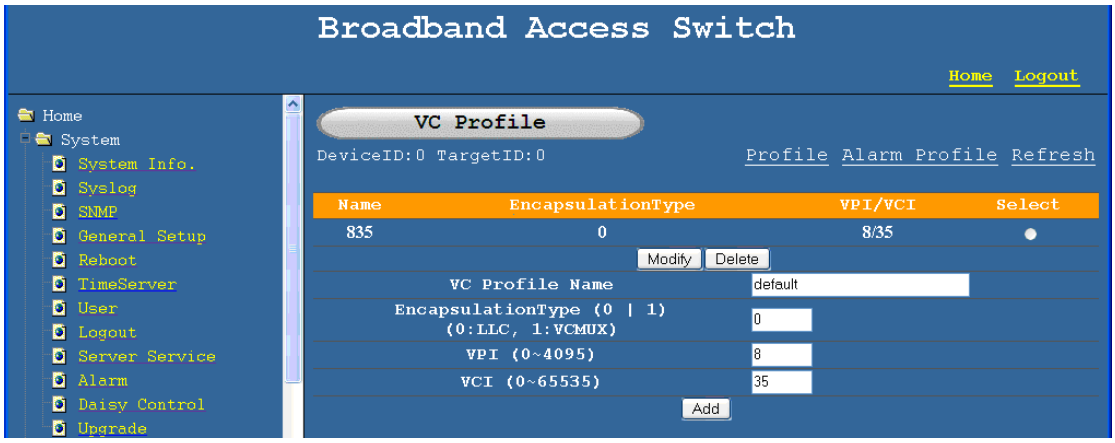
2.2.3 xDSL profiles

2.2.3.1 Port profile



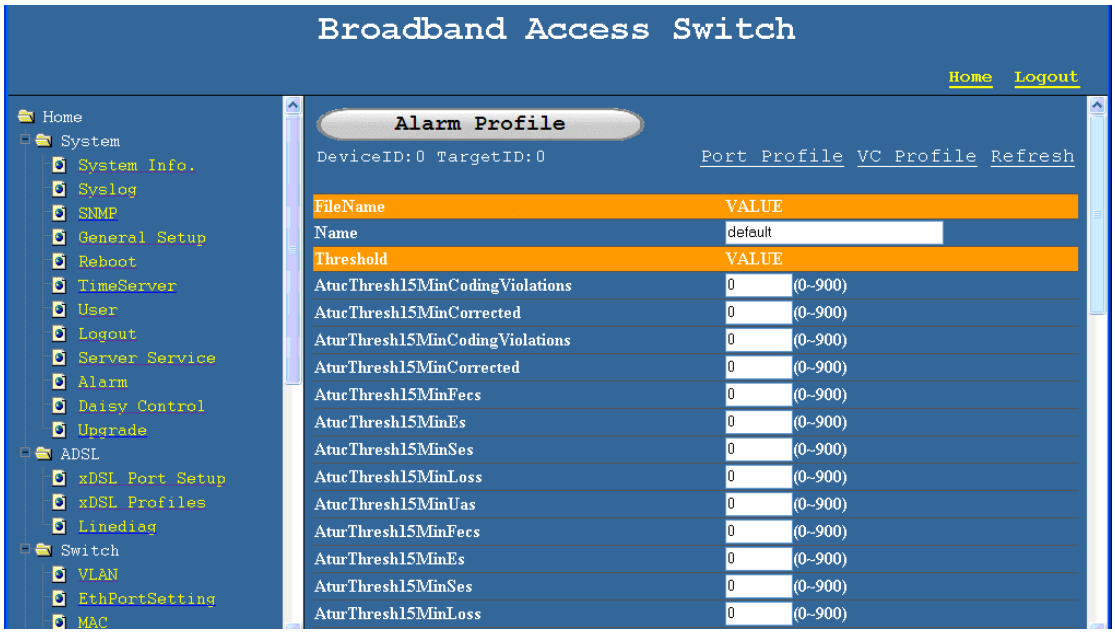
ADSL profiles can be added and deleted using this page

2.2.3.2 VC profile



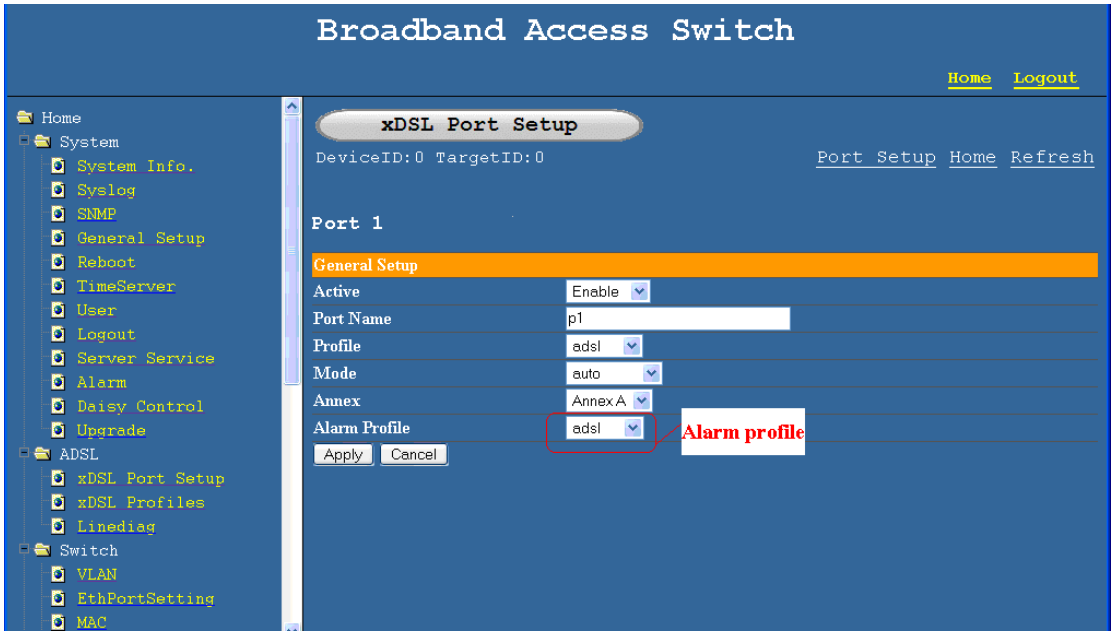
VC profile can be added using this page

2.2.3.3 Alarm profile



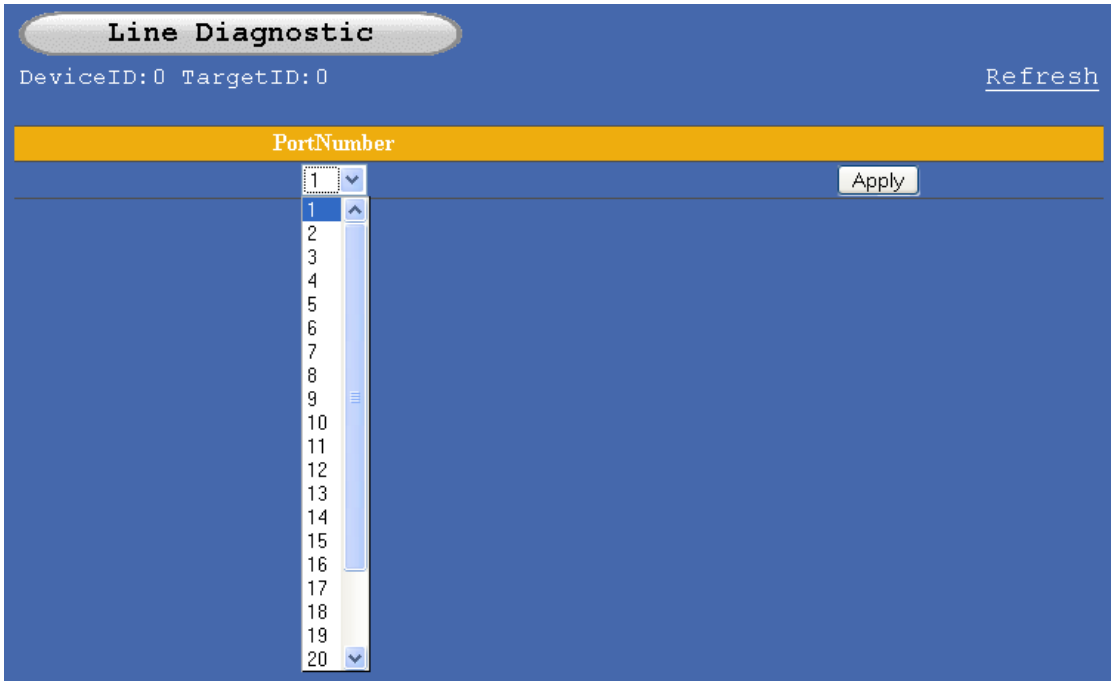
SET alarm profile

2.2.3.4 Map alarm profile



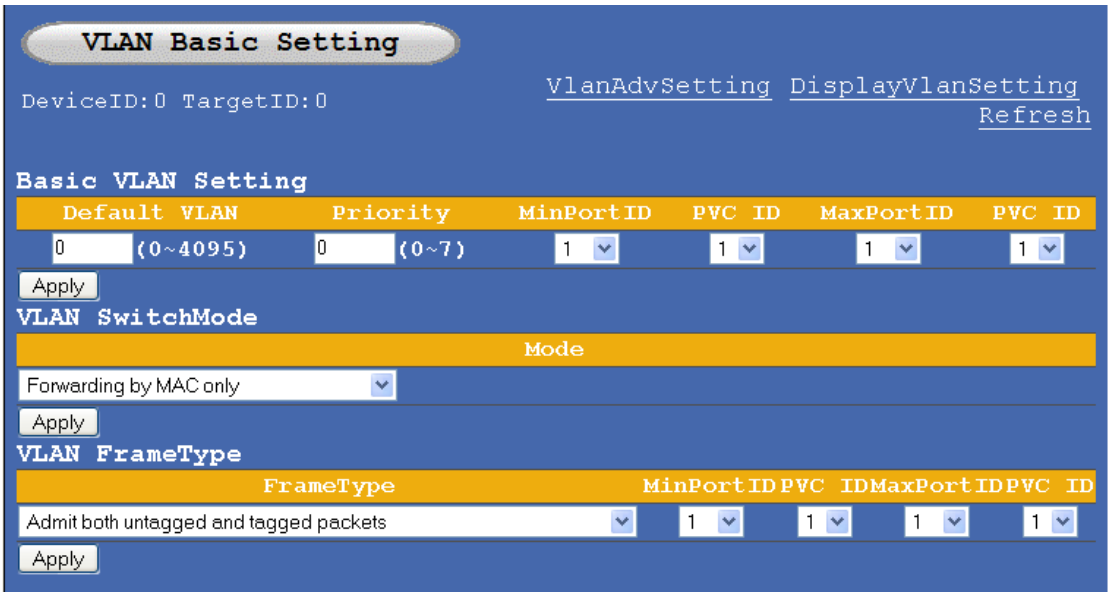
Map the Alarm profile

2.2.4 Line Diagnostic – DELT



2.3 Switch

2.3.1 VLAN



Default VLAN

Stack VLAN

Priority

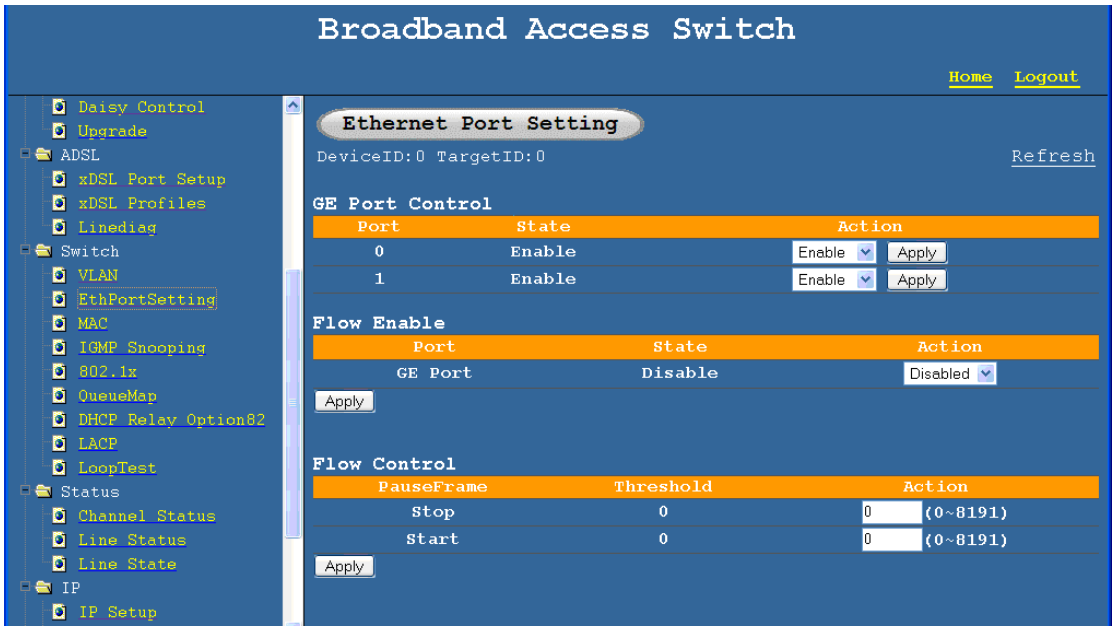
Tag mode

Strip mode

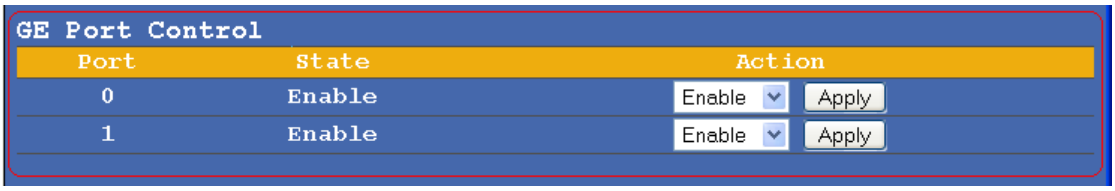
Forwarding method

Frame types

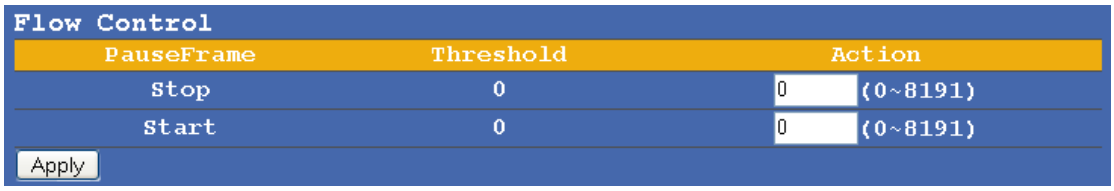
2.3.2 Ethernet Port Setting



Uplink 1 and 2 enable and disable



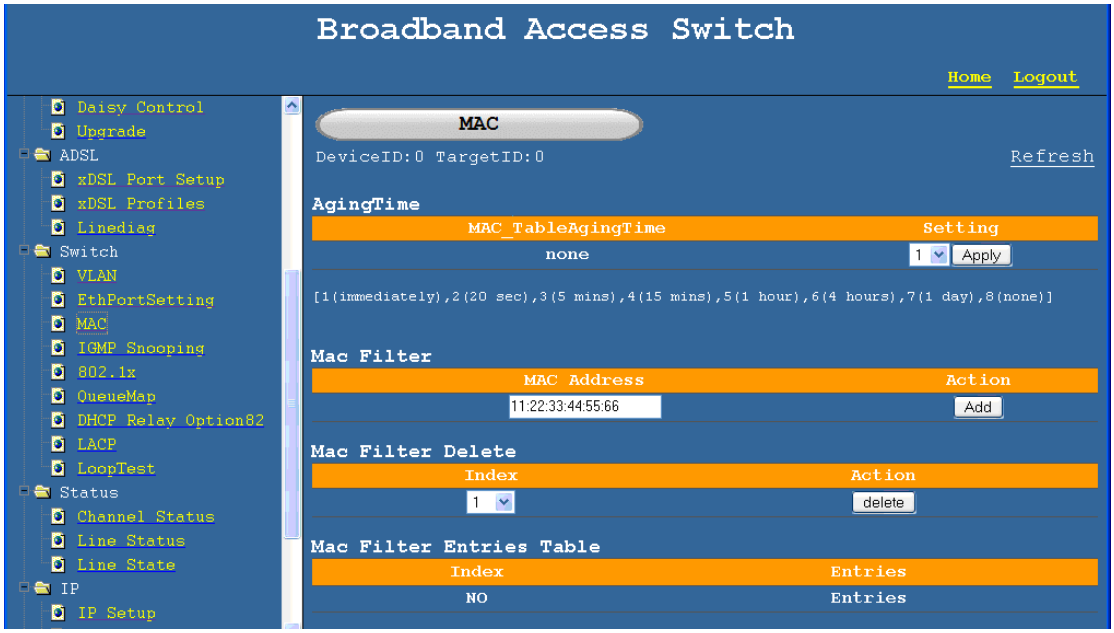
Flow control configuration



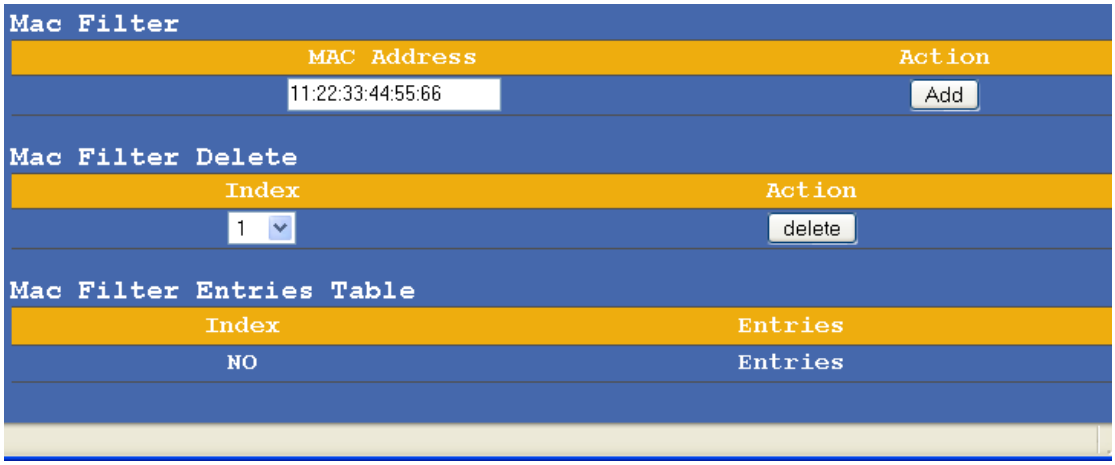
2.3.3 MAC management

This page is used for setting up the MAC aging time for the L2 switch feature in NCT240 and for setting up the MAC filter,

MAC aging time setting – Default is NO MAC ageing

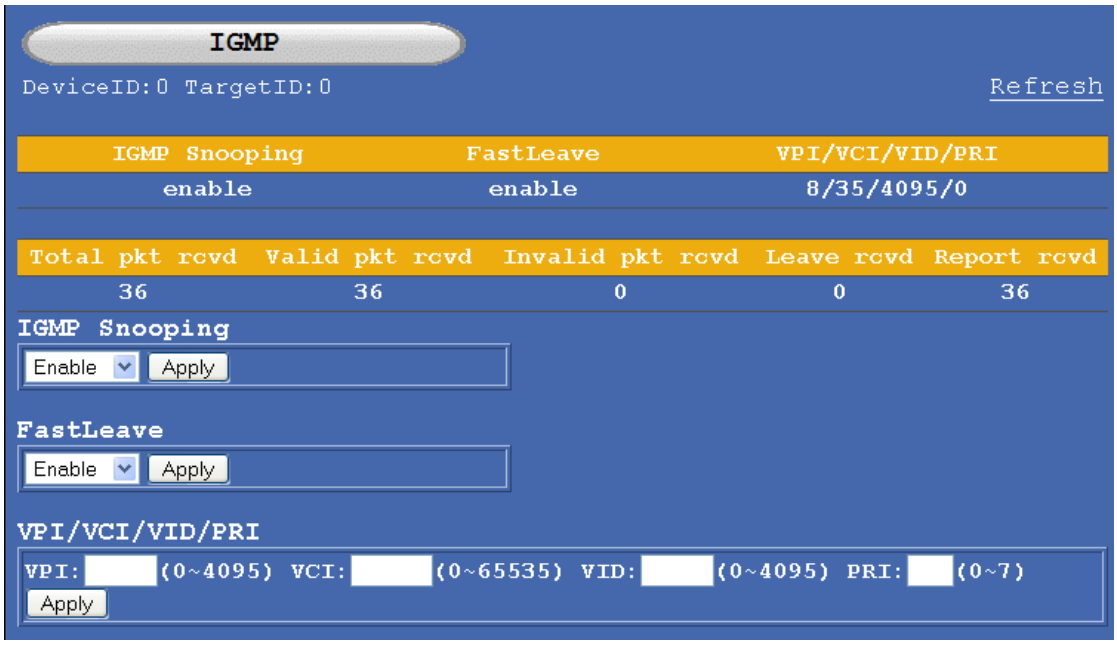


MAC filter settings, up to 20 MAC addresses can be added to the filter list.



MAC aging time settings – (if the MAC ageing time is set to "immediately" the packet loss is very large due to MAC learning process every second)

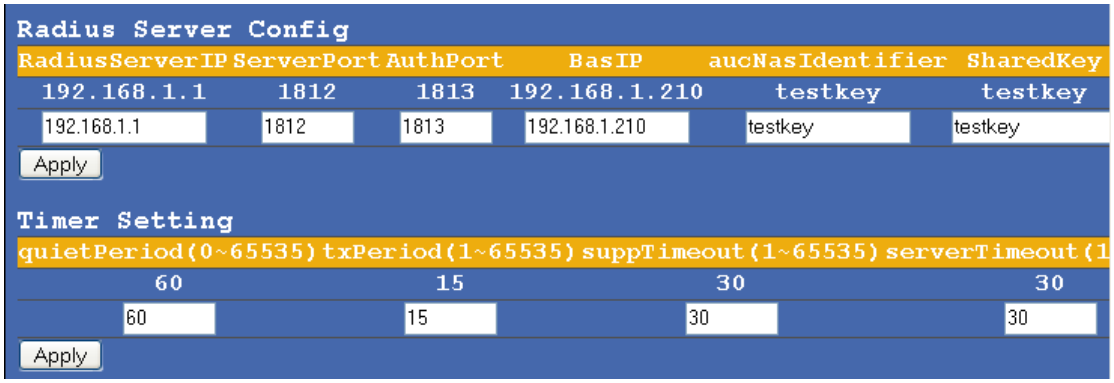
2.3.4 IGMP snooping



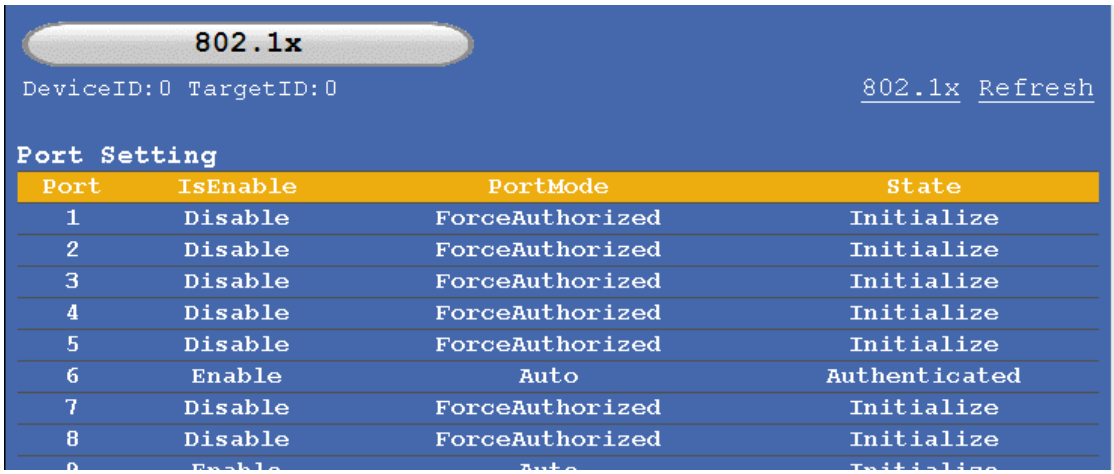
This page is for configuring IGMP snooping feature, IGMP snooping can be enabled for PVC, VLAN. IGMP snooping and IGMP fast leave feature can be enabled and disabled.

2.3.5 Port authentication 802.1x

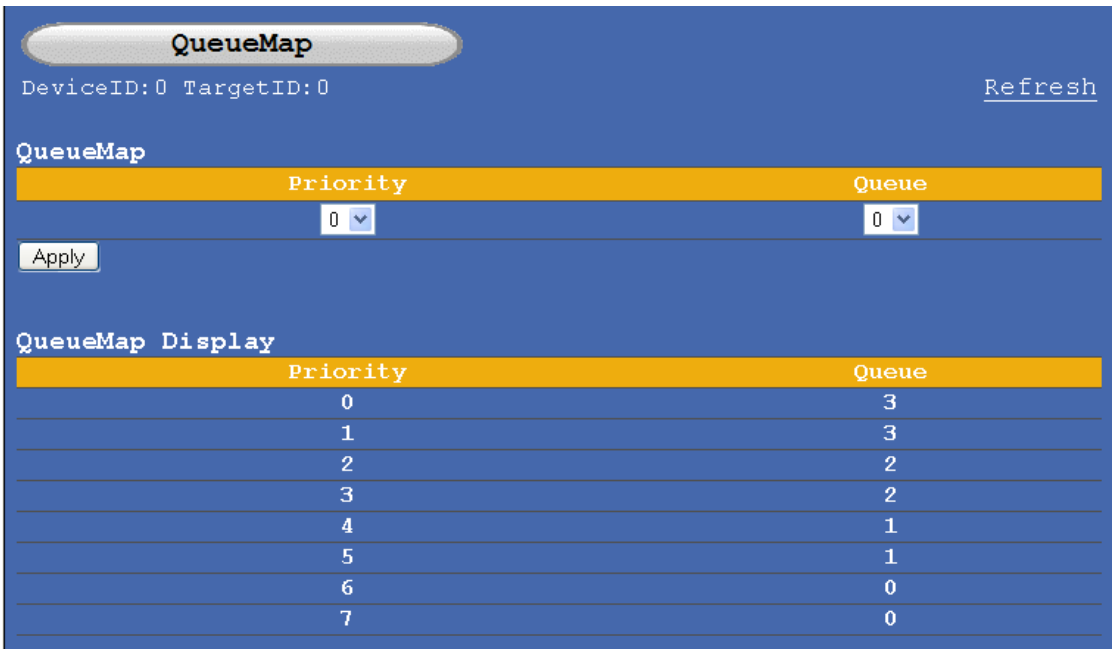
802.1x configure page



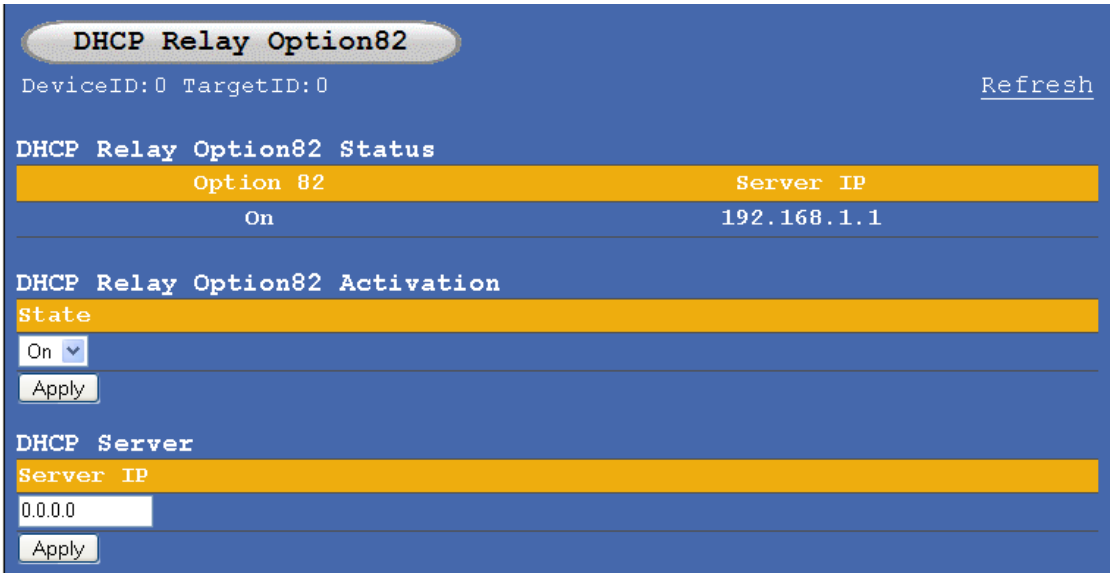
802.1x monitor page:



2.3.6 Queue MAP



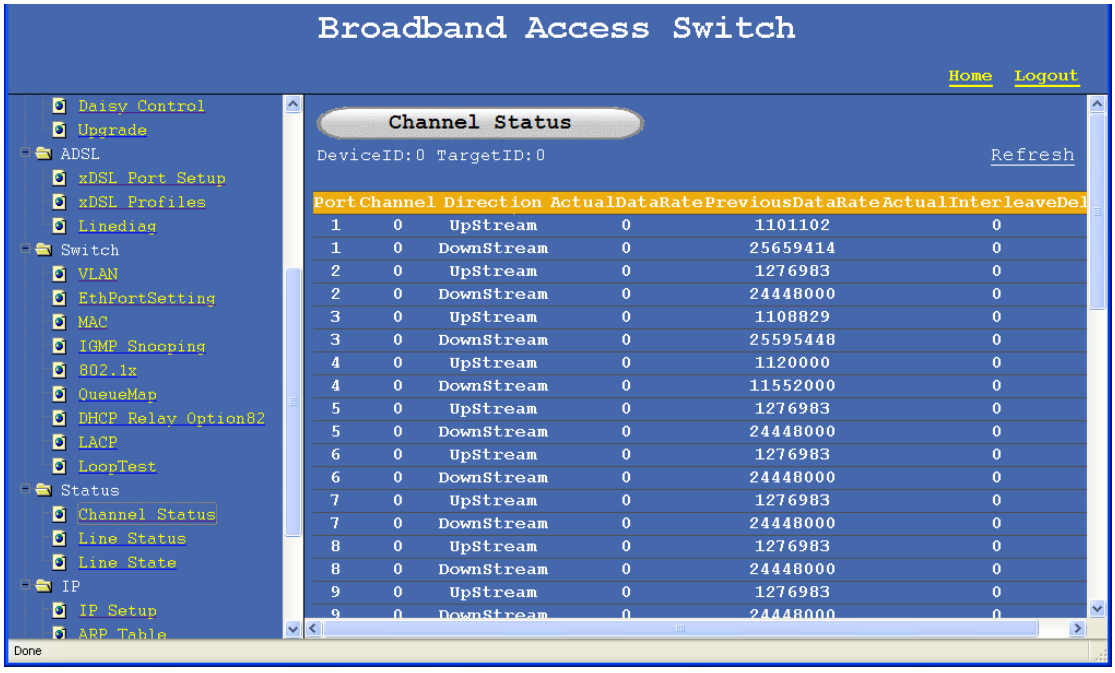
2.3.7 DHCP relay – option 82



2.3.8 Loop test

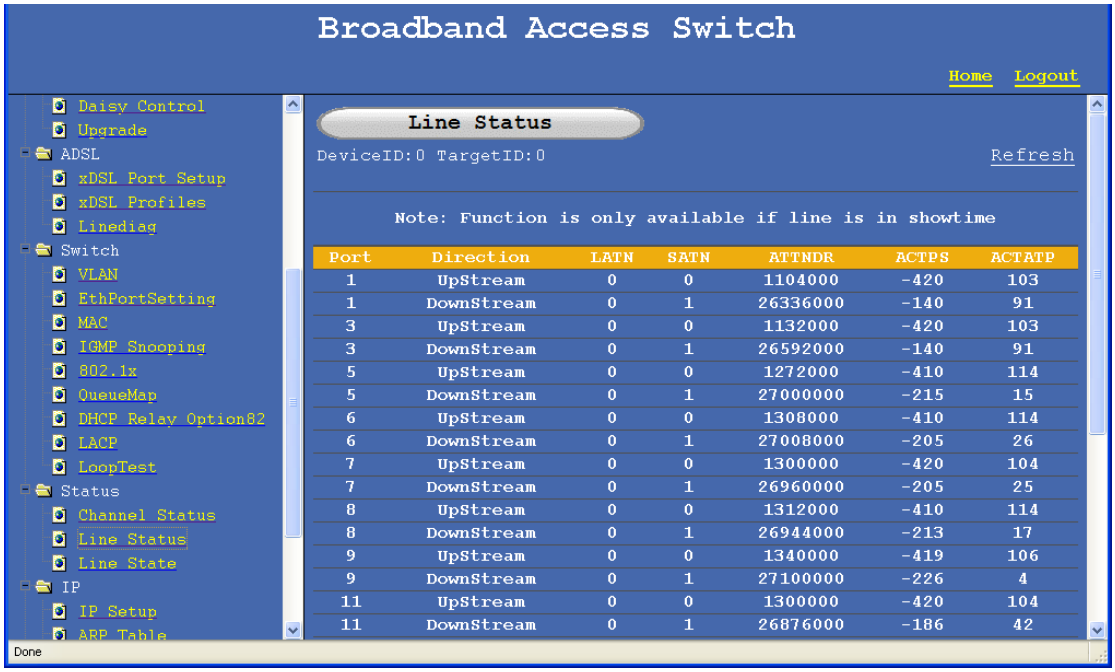
2.4 Status

2.4.1 Channel status



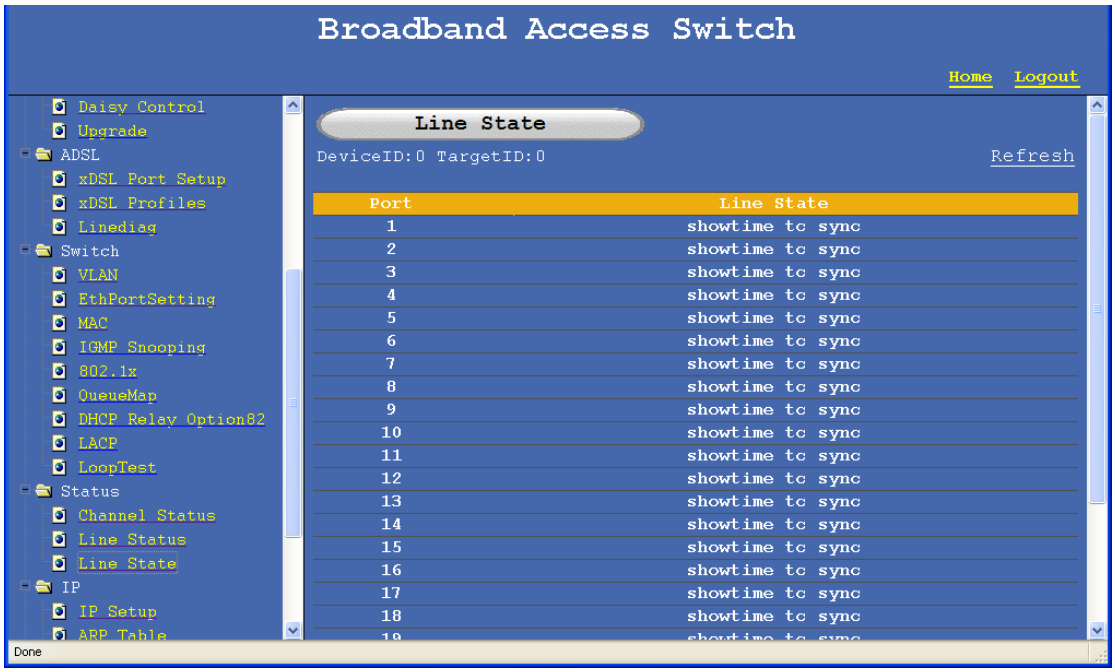
Display the channel status of each port Upstream and Downstream.

2.4.2 Line status



Display the Line status for each line.

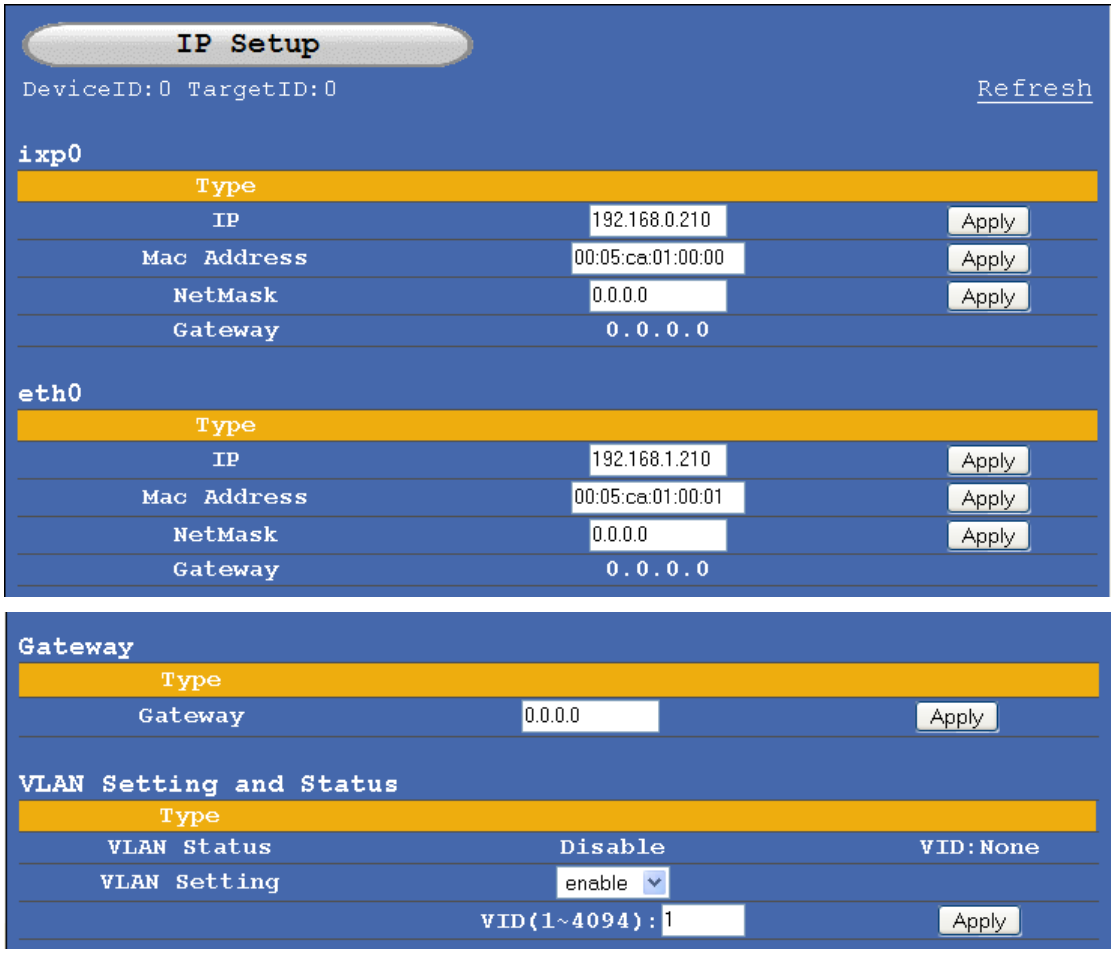
2.4.4 Line state



This page displays the current state of the line.

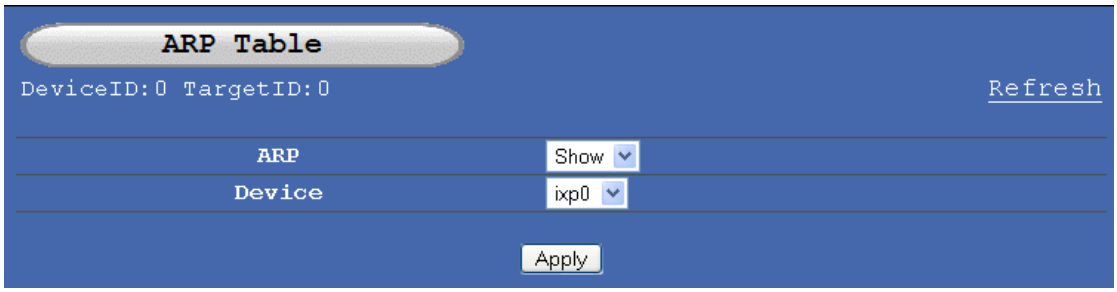
2.5 IP

2.5.1 IP setup



For Setting IP, Net mask and Default gateway for two 1000base uplink ports.
For setting IP, Net mask and Default gateway for the Management 100base Ethernet port.

2.5.2 ARP table Display and flush

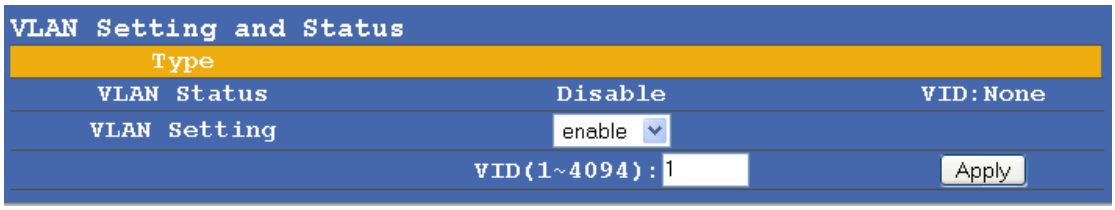


For display and Flush ARP table

2.5.3 PING function

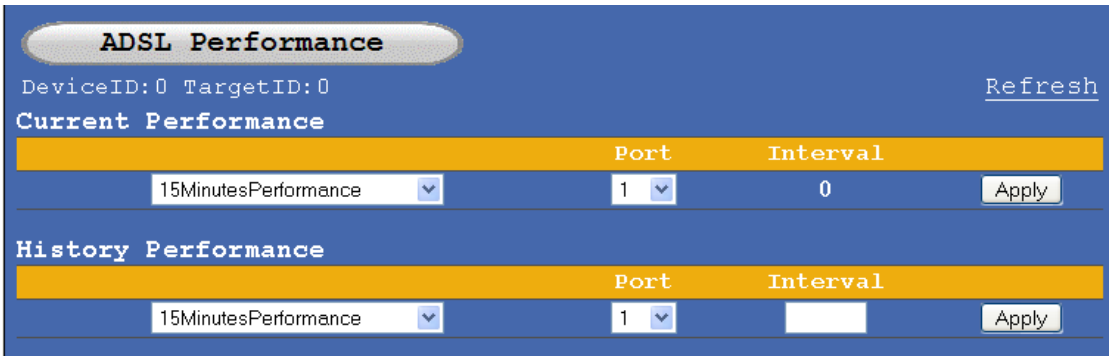
For pinging any IP address for diagnostic purposes.

2.5.4 VLAN (For management)



2.6 Performance

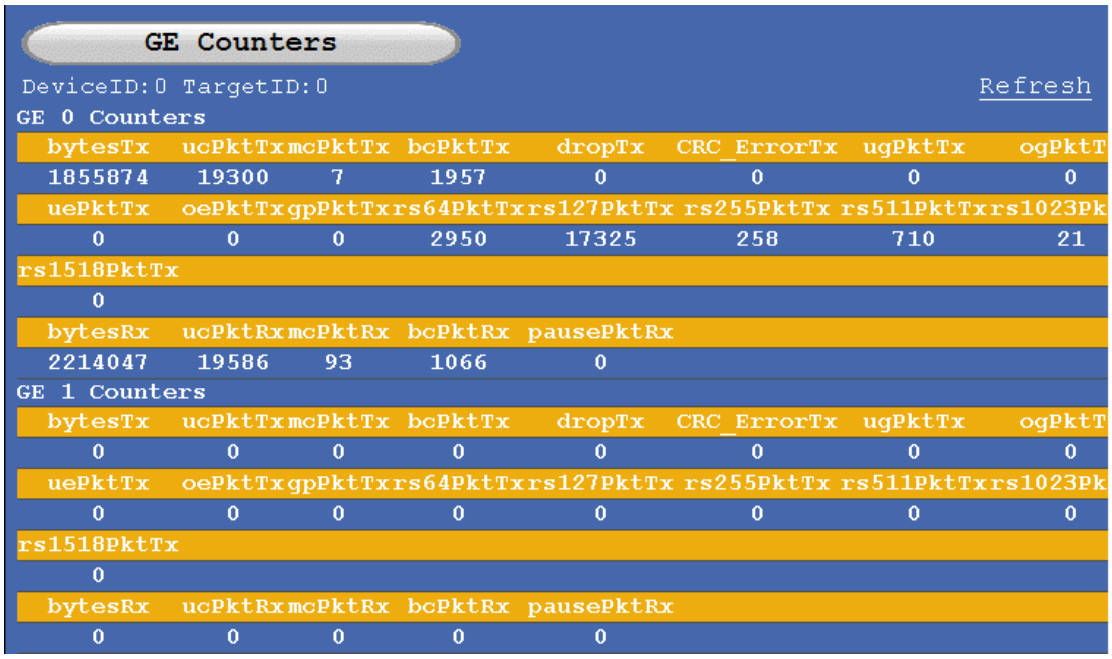
2.6.1 ADSL performance



For 15 minutes to 1days performance data for NCT240

2.7 Statistics

2.7.1 Gigabit Ethernet port counters



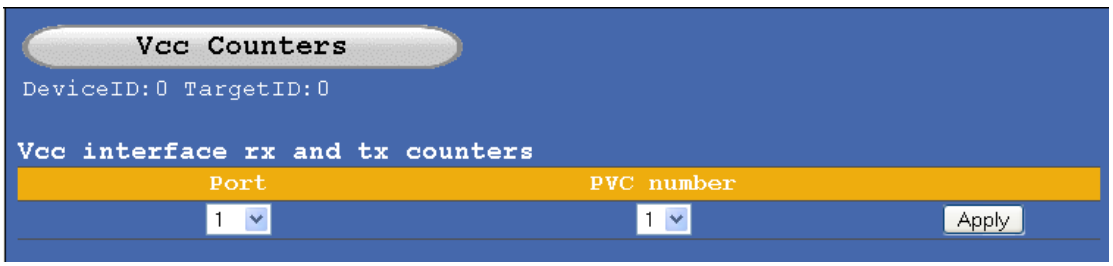
2.7.2 Utopia counter

Port 1~8 = Utopia port 0~7

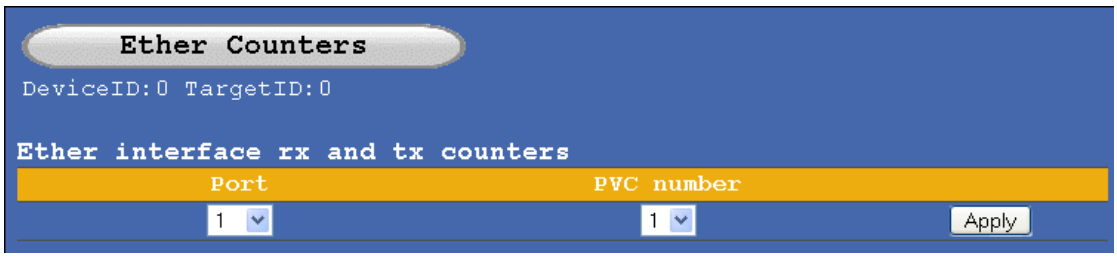
Port 9~16 = Utopia port 32~39

Port 17~24 = Utopia port 64~71

2.7.3 VCC counter



2.7.4 Ether port counter



2.7.5 Vcencap counter

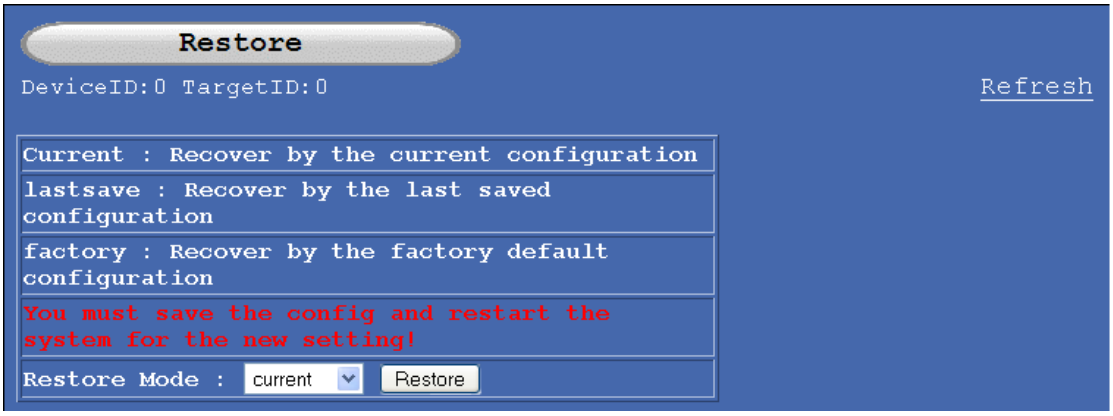
2.7.6 Excpetion counter

2.8 Configuration

2.8.1 Configuration save

SAVE the current configuration of NCT240 in to non volatile Memory

2.8.2 Restore



Set the current configuration to last saved or factory default settings

3. Configuring NCT240 by CLI Interface

To use “windows hyper terminal” to get into CLI interface, a configuration need to be set as the method below:

GOTO –

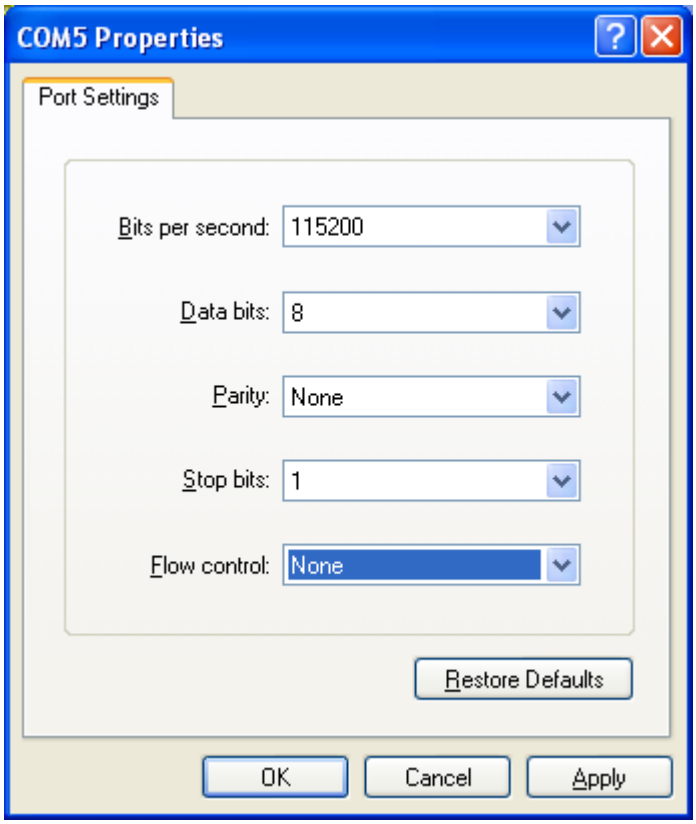
Start > Programs > Accessories > Communications > HyperTerminal

Creating a New connection

Give a Name to the connection

Select the comport the device is connected to - (if you are using a computer with a built in com-port the port number will be COM1 or COM2 but if you are using a RS232 to USB converter the number of com-port can be any other number)

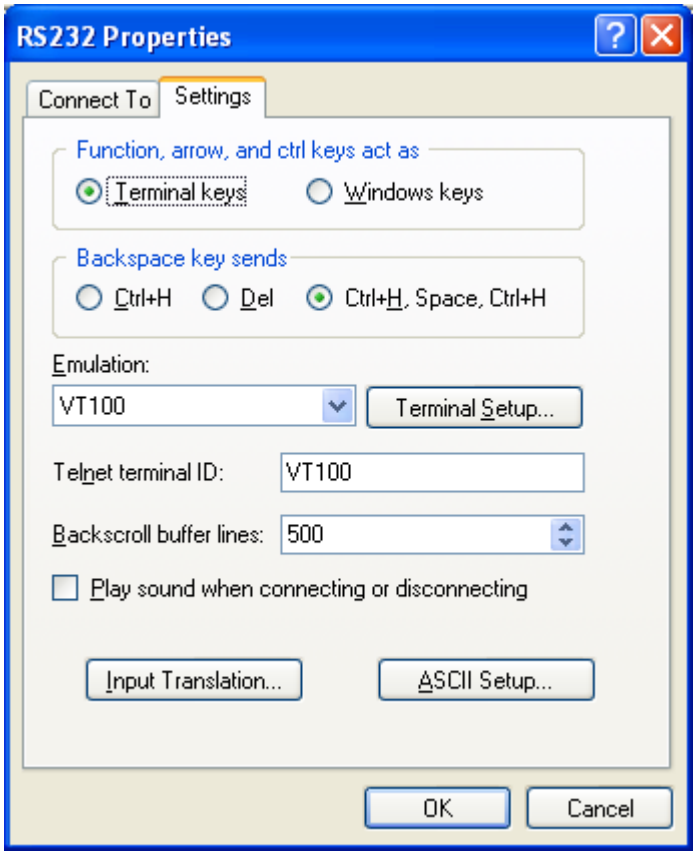
Set the port settings as shown in the image below



After completing the initial setup,

GOTO –
File > Properties > settings

And do the settings according to the window below.



Log in Process

When connected to the CLI please use the username/password – **admin/admin**;

BAS login: admin

Password: admin

BAS>

This chapter introduces the command line interface and lists the available commands.

It is divided into 7 topics:

1. **System:-** Deal with system configuration and maintenance.
2. **ADSL:-** Introducing and configuring ADSL parameters.
3. **Status :-** Display the system status
4. **Switch:-** Deal with Switch functions, such as activates and configures IGMP, RSTP and other protocol parameters. (NOTE: some of the functions describe in this topic is still under development).
5. **IP:-** Deal with IP (Internet Protocol) parameters configuration.
6. **Statistics:-** Deal with Error performance and statistic counters.
7. **Config:-** Deal with system parameters and display settings.

After login, help command can be accessed at any time. Help command can be accessed by typing “help” or a “h”. Help command lists all the available commands that are accessible to the user. The following is a screenshot of the system.

```
BAS0>help

help                Display command list
?                   Display command list
< sys >
< adsl >
< status >
< switch >
< ip >
< statistics >
< config >
exit                Return to upper level
```

Figure 1: Help menu under root directory

Figure 1 showed all the commands under root directory. User can access different directory by typing the corresponding directory name. For example, to enter *system* directory, just type “system” or simply “sys”. To return to parent directory, just type “exit”. To end CLI session, type “end” under root directory.

Command format

Some commands required parameter(s). The number of parameter required is different for each command. To know each command's parameters, just type the command name. For example, to know the command format for *XXX*, you can type *XXX*; the screen will show something like this:

XXX <aaa|bbb|ccc|ddd> <eee|fff> [ggg]

Each set of "<>" bracket represent a parameter and the possible options are enclosed within the bracket, separated by "|". The option enclosed in the square bracket "[ ]" means this parameter is optional. In this example, we can see that command *XXX* has three parameters. There are 4 possible options for 1st parameter, namely *aaa*, *bbb*, *ccc* and *ddd*, and two possible option for 2nd parameter, namely *eee* and *fff*, and an optional 3rd parameter. For the command to be executed, you can either type:

XXX aaa eee ggg

or

XXX aaa eee

Both of them are valid input, since this command takes two OR three parameters.

SYSTEM:

These are the commonly used commands that belong to the sys (system) group of commands as the figure 2. You can input “help” or “?” for help.

```
BAS/sys>help

help            Display command list
?               Display command list
daisycontrol    The management of daisy chain
update          Update system version
info            Show general system information
user            Setup user information
reboot          Reboot the system
snmp            SNMP information
server          The device's service status and port numbers information
syslog          Log the system status and exception
time            The system's current time
date            The system's current date
timeserver      The system's time server
alarm           The recorded system alarm
exit            Return to upper level
```

sys command

daisycontrol

syntax: daisycontrol <show|setdevice|settarget|tsetslavenum|tshowslavenum>

- show Display the settings of daisy chain management.
- setdevice Set the local device ID.
- settarget Set the target ID.
- setslavenum Set the max slave number.
- showslavenum Show the max slave number.

Command usage :

```
BAS0/sys>daisy

The management of daisy chain.

Usage:
daisycontrol <show|setdevice|settarget|tsetslavenum|tshowslavenum>
        show        Display the settings of daisy chain management.
        setdevice       Set the local device ID.
        settarget       Set the target ID.
        setslavenum     Set the max slave number.
        showslavenum    Show the max slave number.
```

Update

Syntax: update <system|setting|backup>

- system Update the system into new version.
- setting Update parameters setting.
- backup Backup the config files (ADSL/vcprofile) into remote .

command usage :

```
BAS0/sys>update
usage:
update <system|setting|backup>
        system  Update the system into new version.
        setting Update parameters setting.
        backup  Backup the config files (ADSL/vcprofile) into remote .
```

Info

This command shows general system setting about switch name, switch location, contact person and contact phone number.

Syntax: info <show | switchname | location | contact | phone>

- show – list all the settings of the info menu
- switchname – switch name
- location – switch location, you can set this device location into the system
- contact – contact person that you maybe contact to
- phone – contact phone number

Command usage:

```
BAS/sys>info

Show general system information.

Usage:
info <show| switchname| location| contact| phone>
        show            Display general system information.
        switchname      Set the switch name.
        location        Set the location information.
        contact         Set the contact person information.
        phone           Set the contact phone number.
```

info command

User

The commands can add/del/list users in the system. It provides several methods of user management.

Syntax: user <add <username>|del <username>|list |online| passwd <username>>

- add – add an account and assign it's group to management or browse system.
- del – delete an account from the system
- list – list all registered users in the system
- online – list all online users in the system
- passwd – set or change users password in the system

Command usage :

```
BAS/sys>user

Setup user information.

Usage:
user <add| del| list| online| passwd>
        add         Add an account and assign it's group.
        del         Delete an account.
        list        List all registered users in the system
        online      List all online users in the system
        passwd      Set the user's password.
```

user command

Reboot

This command let user reboot the system.

Syntax: reboot <now >

Command usage:

```
BAS/sys>reboot

Reboot the system.

Usage:
reboot < now >
        now         Reboot the system immediately.
```

reboot command

SNMP

This command is for configuring SNMP agent:

Syntax:

snmp <show|getcommunity|setcommunity|trapcommunity>

- show Display SNMP settings.
- getcommunity Set the SNMP GetRequest community.
- setcommunity Set the SNMP SetRequest community.
- trapsetting Set the SNMP TrapCommunity, trapIP, trapPort.

Command usage:

snmp show

snmp getcommunity <getcommunity>

snmp setcommunity <setcommunity>

trapsetting <trap community> <trap receiver IP> <trap port>

Server

Syntax: server <show| enable <telnet| ftp| web| ssh>|disable <telnet |ftp| web| ssh>| port>

- show – display current server service status.
- enable – open the telnet, ftp, web or ssh server service
- disable – close the telnet, ftp, web or ssh server service
- port – show the port of a service

Command usage:

BAS/sys>server

The device's service status and port numbers information

Usage:
server <show| enable| disable| port><telnet| ftp| web| ssh>
show Display the device's service status and port numbers.
enable Turn on a service.
disable Turn off a service.
port Show the port of a service.

server command

Syslog

syslog is a utility for tracking and logging all manner of system messages from the merely informational to the extremely critical. Each system message sent to the syslog server has two descriptive labels associated with it that makes the message easier to handle

- The first describes the function (facility) of the application that generated it. For example, applications such as mail and cron generate messages with easily identifiable facilities named mail and cron
- The second describes the degree of severity of the message

Syntax: syslog <show|config|enable|disable|clean>

- show Display the system log.
- config Display the syslog settings.
- clean Clean the syslog show.
- enable Turn on the syslog logging.
- disable Turn off the syslog logging.

Command usage :

```
BAS/sys>syslog

Log the system status and exception.

Usage:
syslog <show|config|enable|disable|clean|server>
        show            Display the system log.
        config          Display the syslog settings.
        clean           Clean the syslog show.
        enable          Turn on the syslog logging.
        disable         Turn off the syslog logging.
        server          Log message to remote log server.
```

syslog command

Time

This command can display and set system's time.

Syntax: time <show | set>

- show – display system time
- set – set system time

Command usage:

- set time use this format hh:mm:ss
- NCT240 uses 24 hours format

```
BAS/sys>time

The system's current time

Usage:
time <show| set>
        show    Display the system's current time.
        set     Set the system's time.
```

time command

Date

This command can display and set system's date.

Syntax: date <show | set>

- show – display system date
- set – set system date

Command usage:

- set date use this format yyyy:mm:dd

```
BAS/sys>date

The system's current date

Usage:
date <show| set>
        show    Display the system's current date.
        set     Set the system's date.
```

date command

Timeserver

This command can display and use system's time server.

Syntax: timeserver <show | set>

- show – display system's time server
- sync – retrieves the date and time from the timeserver

```
BAS/sys>timeserver
Usage:
timeserver <show|sync|setting>
        show    Display the system's time server.
        sync    Retrieves the date and time from the timeserver.
        setting Set the IP of timeserver,Set the periods of sync.
```

timeserver command

Alarm

Syntax: alarm <show>

show Display the recorded system alarm.

alarm show <current|history>

Command usage:

BAS0/sys>alarm

The recorded system alarm.

Usage:
alarm <show>
show Display the recorded system alarm.

BAS0/sys>alarm show

Usage:
alarm show <current|history>

ADSL:

This chapter explains how to configure NCT240 system's ADSL ports. It also covers how to configure virtual channels and virtual channel profiles.

A profile is a table that contains a list of pre-configured ADSL settings. Each ADSL port has one profile assigned to it. The profile defines the latency mode and upstream/downstream latency delay maximum and minimum upstream/downstream rates, the target upstream/downstream signal noise margins, and the maximum and minimum upstream/downstream acceptable noise margins of all the ADSL ports that have this profile. You can configure multiple profiles, including profiles for troubleshooting.

help	Display command list
?	Display command list
enable	Turn on the specified ADSL ports
disable	Turn off the specified ADSL ports
profile	Display, create, modify, delete, or copy an ADSL line profile
name	Set the name of the port
linediag	set,get line diagnostics
vcprofile	display, create, modify, delete a virtual channel profile
alarmprofile	Display, create, modify, delete, or copy an ADSL line alarmprofe
pvc	Display, create, modify, and remove a PVC setting
exit	Return to upper level

adsl command

Enable

Syntax: enable <port>

- enable an ADSL port

Command usage:

```
BAS/adsl>enable

Turn on the specified ADSL ports

Usage:
enable portlist (1-24)

BAS/adsl>enable 1~24    (will enable all the ports)
```

enable command

Disable

Syntax: disable <port>

- disable an ADSL port

Command usage:

```
BAS/adsl>disable

Turn off the specified ADSL ports

Usage:
disable portlist (1-24)

BAS/adsl>disable 1~24    (will disable all the ports)
```

disable command

Profile

Syntax: profile <show| set| delete| map>

- show –show an ADSL profile
- set – create an ADSL line profile downstream max rate – downstream minimum rate
- delete – remove an ADSL profile
- map – assign a specified profile to a port and set the port's ADSL mode

Command usages:

- set – the default
- delete – the default
- map <portlist> <profile> <glite| gdmt| t1413| auto| adsl2>

```
BAS/adsl>profile

Display, create, modify, delete, or copy an ADSL line profile

Usage:
profile <show| set| delete| map>
        show    Show an ADSL profile.
        set     Create an ADSL line profile.
        delete  Remove an ADSL profile.
        map     Assign a specified profile to a port and set the port's ADSL
                mode.
```

profile command

Name

Syntax: name <port> <name>

- Give a name for ADSL port profile

```
BAS/adsl>name

Enter port number you want to set
```

name command

Line diagnostic

Syntax: linediag <port number>

- Run line diagnostic on the specified port

Command usage:

```
BAS/adsl>linediag

Usage:
linediag
        Set the specified port to line diagnostics and display the result.
```

Vcprofile

Syntax: vcprofile <show| set| delete>

- show – show a virtual channel profile's contents
- set – create a VBR virtual channel profile (with encapsulation)
- delete – remove a virtual channel profile (with encapsulation)

Command usage:

```
BAS/adsl>vcprofile

display, create, modify, delete a virtual channel profile

Usage:
vcprofile <list|show|set|delete>
        list    List all exist vcprofiles.
        show    Show a virtual channel profile's contents.
        set     Create a VBR virtual channel profile (with encapsulation).
        delete  Remove a virtual channel profile (with encapsulation).
```

vcprofile command

Vcprofile set,

Syntax:

vcprofile set vcprofilename EncapsulationType(0|1) VPI(0~4095) VCI(0~65535)

Alarmprofile

Syntax: alarmprofile <show| set| delete| map>

- show – display alarm profiles and their settings
- set – configure an alarm profile
- delete – remove an alarm profile
- map – map specified ADSL ports to an alarm profile

Command usage:

```
BAS/adsl>alarmprofile

Display,create,modify,delete,or copy an ADSL line alarmprofile

Usage:
alarmprofile <list| show| set| delete| map>
        list            List all alarm profiles.
        show            Display alarm profiles and their settings.
        set             Configure an alarm profile.
        delete          Remove an alarm profile.
        map             Map specified ADSL ports to an alarm profile.
        showmap         Showmap Display alarm profile to ADSL mapping
        showport        Showport Display which alarm profile parameters set
```

vcprofile command

PVC

Syntax: pvc <list|show| set| delete>

- list – lists set PVCs
- show –display PVC settings
- set –create or modify a PVC setting
- delete –remove a PVC setting

Command usage:

```
BAS/adsl>pvc

Display, create, modify, and remove a PVC setting

Usage:
pvc <list|show| set| delete>
        list      List all mapped vcprofiles for all port.
        show      Display PVC settings.
        set       Create or modify a PVC setting.
        delete    Remove a PVC setting.
```

pvc command

Status:

This chapter will guide user to show some system status.

```
help                Display command list
?                   Display command list
exit                Return to upper level
chstatusget         channel status get
linestatusget       line status get
linestateget        line state get
```

status command list

Chstatusget

Syntax: chstatusget

Example:

```
BAS/status>chstatusget

channel status get

Usage:
chstatusget nLine(1-24) nChannel(0) nDirection(0-1)
```

Chstatusget command

Linestatusget

This command will list the line status.
Syntax: linestatusget

Command usage:

```
BAS/status>linestatusget

line status get

Usage:
linestatusget nLine(1-24) nDirection(0-1)
```

linestateget command

Linestateget

This command will list the line states.
Syntax: linestateget

Example:

```
BAS/status>linestateget

line state get

Usage:
linestateget nline(1-24)
```

linestatusget command

SWITCH:

This chapter will guide user how to configure the NCT240 switch features.

```
help                Display command list
?                   Display command list
queuemap            The system's priority level to physical queue mapping
vlan                Setting VLAN
portvlan            Setting port based vlan group
mac
8021_x              802_1x protocol settings
igmpsnoop           igmp configuration
dhcprelay
eth                 The Ethernet port settings
looptest            The loop setting
exit                Return to upper level
```

switch command list

Queuemap

This command display system related physical queue map and set a degree to a physical queue.

Syntax: queuemap <show | set <priority> <queue>>

Command usage:

```
BAS/switch>queuemap

The system's priority level to physical queue mapping

Usage:
queuemap <show| set>
        show    Display the system's priority level to physical queue mapping.
        set     Map a priority level to a physical queue.
```

queuemap command

VLAN

Usage:
vlan <show|portshow|basicset|advset|switchmode|frametype>

- show Display VLAN settings.
- portshow Display the port(s) VLAN settings.
- basicset Basic Configuration of a VLAN entry.
- advset Advanced Configuration of a VLAN entry.
- switchmode Set forwarding mode.
- frametype Set the specified DSL port to accept tagged, untagged or Ethernet frames (or both).

```
BAS/switch>vlan

Usage:
vlan <show|portshow|basicset|advset|switchmode|frametype>
        show            Display VLAN settings.
        portshow        Display the port(s) VLAN settings.
        basicset        Basic Configuration of a VLAN entry.
        advset          Advanced Configuration of a VLAN entry.
        switchmode      Set forwarding mode.
        frametype       Set the specified DSL port to accept tagged, untagged or
                        Ethernet frames (or both).
```

MAC

Syntax: mac <agingtime|agingtimeshow|filter>

- agingtime Set MAC table aging time
- agingtimeshow Show MAC table aging time
- filter Set MAC filter table

```
BAS/switch>mac

Usage:
mac <agingtime|agingtimeshow|filter>
        agingtime       Set MAC table aging time
        agingtimeshow   Show MAC table aging time
        filter          Set MAC filter table
```

802.1x

Syntax: 802_1x <show|portmode|enable|disable|portenable|portdisable|config|timer>

- show - Display IEEE 802.1X settings.
- Enable - Enable 802.1x protocol
- disable - Disable 802.1x protocol
- portmode - Set portmode on special ports
- portenable - Turn on IEEE 802.1X on special ports.
- Portdisable - Turn off 802.1X on special ports.
- Config - config radius settings.
- timer - timer set of 802.1X protocol.

Command usage

802_1x <show|portmode|enable|disable|portenable|portdisable|config|timer>

802_1x show <port range>

802_1x <enable>

802_1x <disable>

802_1x portmode <portlist> <portmode>

802_1x portenable <port range>

802_1x portdisable <port range>

802_1x config <radiusserverIP> <serverport> <authport> <NasIP> <aucNasIdentifier> <sharedkey>

802_1x timer <quietPeriod> <txPeriod> <suppTimeout> <serverTimeout> <reAuthMax reAuthPeriod>

IGMP snooping

Syntax: igmpsnoop <show|set|enable|disable|fastleave>

- show - Display the IGMP snooping setting.
- set - Set the IGMP snooping VPI/VCI/VID/PRI.
- enable - Turn on IGMP snooping.
- disable - Turn off IGMP snooping.
- fastleave - onfig IGMP fastleave settings.
- Showentry - show the igmp table entry.

Command Usage:

igmpsnoop <show|set|enable|disable|fastleave>

igmpsnoop <show>
igmpsnoop set <VPI(0~4095)> <VCI(0~65535)> <VID> <Priority>
igmpsnoop <enable> Turn on IGMP snooping.
igmpsnoop <disable>
igmpsnoop fastleave <enable>|<disable>
igmpsnoop <showentry>

DHCP relay, option 82

Syntax:
dhcprelay <show|enable|disable|server>

- show - show settings and status of dhcp relay.
- enable - Turn on DHCP relay option 82.
- disable - Turn off DHCP relay option 82.
- server - Set a DHCP server IP address .

Command usage:
dhcprelay <show|enable|disable|server>

dhcprelay <show>
dhcprelay <enable>
dhcprelay <disable>
dhcprelay server <ip:xxx:xxx:xxx:xxx>

Eth

Syntax: eth <show| speed| enable| disable>

- show – display the Ethernet port settings
- speed – set the Ethernet port(s) connection speed
- enable – Turn on the specified Ethernet port
- disable – Turn off the specified Ethernet port

Looptest

Using this command you can diagnostic this device through four ways loops.

Syntax: looptest <ingutopia|egutopia|ingge0|egge0|disable>

- ingutopia - LoopLine Interface, UTOPIA Ingress Loop enable
- egutopia - LoopLine Interface, UTOPIA Egress Loop enable
- ingge0 - System Interface, LAN Interface Ingress Loop enable
- egge0 - System Interface, LAN Interface Egress Loop enable
- disable - All Loop disable

IP:

A set of IP commands may be used for management access to NCT240 over your network.

help	Display command list
?	Display command list
show	Display the management ip address settings
arp	Display, flush the device ARP table
set	Set the management ip address and subnet mask and mac address
gateway	Set the default gateway of the device's default gateway
route	The routing table.
ping	Ping a remote host
exit	Return to upper level

IP command list

show

Syntax: show

- show – displays the IP settings for this device

Command usage:

```
BAS/ip>show

ixp0      ip addr:          192.168.1.1
          mac addr:         00:aa:aa:aa:aa:aa
          gateway:          0.0.0.0
          net mask:         255.255.255.0

eth0      ip addr:          192.168.0.1
          mac addr:         00:05:ca:00:04:10
          gateway:          0.0.0.0
          net mask:         255.255.255.0
```

Figure 29：show command

Arp

Syntax: arp <show | flush>

- show – displays the ARP table
- flush – remove all of the entries from the ARP table

Command usage:

arp <show|flush>

arp show <device ID>

arp <flush>

*** Device IP : uplink = eth0 , MGMT = ixp0

Set

Syntax: set <ip| netmask| mac>

- ip –set the management ip address
- netmask –set the management subnet mask
- mac –set the management mac address

Command usage:

set <ip|netmask|mac|vlan>

set ip <device ID> <ip>

set netmask <device ID> <netmask>

set mac <device ID> <MAC>

set vlan <enable|disable> <VID>

Gateway

Use this command to establish a static route between this device and management stations that exist on another network segment.

Syntax: gateway <gateway ip>

- gateway ip – the IP address of the gateway that you want to send the packets through

Command usage :

gateway <gateway ip>

*** the Device to which the Gateway is set will be selected automatically

Route

Use this command to display the routing table.

Syntax: route <show>

- show – display the routing table

Command usage:

route <show>

Ping

This is an IP facility to check for network functionality by sending an echo request to another IP host and waiting for the replay

Syntax: ping <ip> [count]

- ip – the IP address of the target
- count – the number of pings you want the NCT240 to send

Command usage :

ping <ip> <count>

STATISTICS:

Use these commands to display ADSL statistics.

help	Display command list
?	Display command list
adsl	Display DSL statistics
ethuto	Display UTOPIA|VCC|ETHER|GE data
exit	Return to upper level

Figure 35：statistics command list

Adsl

Syntax: adsl < 15mperf|1dayperf|15mdpc|1daydpc>

- 15mperf – display the line performance statistics for the current and previous 15-minute periods
- 1dayperf –display the line performance statistics for the current and previous 24 hours
- 15mdpc – display the data path counters statistics for the current and previous 15-minute periods
- 1daydpc – display the data path counters statistics for the current and previous 24 hours

Example;

```
BAS/statistics>adsl

Display DSL statistics
Usage:
adsl <15mperf|1dayperf|15mdpc|1daydpc>
        15mperf      Display the line performance statistics for the current
                       and previous 15-minute periods.
        1dayperf     Display the line performance statistics for the current
                       and previous 24 hours.
        15mdpc       Display the data path counters statistics for the current
                       and previous 15-minute periods.
        1daydpc      Display the data path counters statistics for the current
                       and previous 24 hours.
```

adsl command

Ethuto

Syntax: ethuto <utopia| vcc| ether| ge| vcencapgroup| exception>

- utopia –display UTOPIA port rx and tx counters
- vcc –display Vcc interface rx and tx counters
- ether –display ether interface rx and tx counters
- ge – display ge port rx and tx counters
- vcencapgroup – display Vc EncapGroup rx and tx counters
- exception – display exception rx and tx counters

Command Usage:

```
BAS/statistics>ethuto

Display all counter data

Usage:
ethuto <utopia| vcc| ether| ge| vcencapgroup| exception>
        utopia          Display UTOPIA port rx and tx counters.
        vcc             Display Vcc interface rx and tx counters.
        ether           Display Ether interface rx and tx counters.
        ge              Display GE port rx and tx counters.
        vcencapgroup    Display Vc EncapGroup rx and tx counters.
        exception       Display Exception rx and tx counters.
```

ethuto command

CONFIG:

These command let user save/restore/set default the configuration in system.

```
help        Display command list
?           Display command list
save        Save the current configuration
restore     Recover the specified configuration
exit        Return to upper level
```

config command list

Save

This command saves all system configurations to nonvolatile memory. You must use this command to save any configuration changes that you make, otherwise the NCT240 will ignore the changes. Save your changes after each configuration session.
Syntax: save

- use this command to save your configuration when you are done with a configuration session

command usage:

```
BAS/config>save

Do you want to save the current configuration? (y/n)
```

save command

Restore

This command will reload the last correct configuration in the system. Using this command you can easily back to the latest successful configuration
Syntax: restore <current| last| factory>

- current – recover by the current configuration
- last – recover the by last saved configuration
- factory – recover by the factory default configuration

Command usage:

```
BAS/config>restore

Recover the specified configuration

Usage:
restore    <current| last| factory>
             current          Recover by the current configuration.
             last             Recover by the last saved configuration.
             factory          Recover by the factory default configuration.
```

restore command

4. Troubleshooting

Troubleshooting guide

Trouble	**Possible cause**	Solution
PWR indicator does not light up after power on.	Power outlet, power cord, or internal power supply may be defective.	• Check the power outlet by plugging in another device that is functioning properly. • Check the power cord with another device.
SYS indicator does not light up after startup.	Microprocessor, SDRAM, Flash or Software may be defective.	• Verify that the switch is powered on. • Check the boot-up statement from console. The boot up procedure is Boot -> kernel->application •
ADSL2+ LINK indicator does not light up after making a connection.	NCT240 Switch, cabling, ADSL Line, or ADSL Switch Ports may be defective.	• Verify that the Access Switch and attached CPE are powered on. • Be sure the RJ-21 cables are plugged into the Access Switch from ADSL2+ modem through the Phone-line punch-down block. • Verify that the cable length does not exceed specified limits. • Check the cable connections on the access Switch, punch-down block/patch panel, and the Extended Ethernet CPE for possible defects. Replace the defective cable if necessary.
UP LINK indicator does not light up after making a connection.	Network cable or Ethernet device attached to this port may be defective.	• Verify that the access switch and attached device are powered on. • Be sure an Ethernet cable is plugged into both the switch and attached device. • Verify that the proper cable type is used and its length does not exceed specified limits. • Check the network cable connections for possible defects. Replace the defective cable if necessary.

Cannot ping uplink		

6. Glossary

10BASE-T

IEEE 802.3 specification for 10 Mbps Ethernet over two pairs of Category 3, 4, or 5 UTP cable.

100BASE-TX

IEEE 802.3u specification for 100 Mbps Fast Ethernet over two pairs of Category 5 UTP cable.

100BASE-FX

IEEE 802.3u specification for 100 Mbps Fast Ethernet over two strands of 50/125, 62.5/125 or 9/125 micron core fiber cable.

1000BASE-T

IEEE 802.3ab specification for Gigabit Ethernet over 100-ohm Category 5 or 5e twisted-pair cable (using all four wire pairs).

Auto-Negotiation

Signalling method allowing each node to select its optimum operational mode (e.g., 10 Mbps or 100 Mbps and half or full duplex) based on the capabilities of the node to which it is connected.

Bandwidth

The difference between the highest and lowest frequencies available for network signals. Also synonymous with wire speed, the actual speed of the data transmission along the cable.

Collision

A condition in which packets transmitted over the cable interfere with each other. Their interference makes both signals unintelligible.

Collision Domain

Single CSMA/CD LAN segment.

CSMA/CD

CSMA/CD (Carrier Sense Multiple Access/Collision Detect) is the communication method employed by Ethernet, Fast Ethernet, or Gigabit
Ethernet.

End Station

A workstation, server, or other device that does not forward traffic.

Ethernet

A network communication system developed and standardized by DEC, Intel, and Xerox, using baseband transmission, CSMA/CD access, logical bus topology, and coaxial cable. The successor IEEE 802.3 standard provides for integration into the

OSI model and extends the physical layer and media with repeaters and implementations that operate on fiber, thin
coax and twisted-pair cable.

Fast Ethernet

A 100 Mbps network communication system based on Ethernet and the CSMA/CD access method.

Gigabit Ethernet

A 1000 Mbps network communication system based on Ethernet and the CSMA/CD access method.

Full-Duplex

Transmission method that allows two network devices to transmit and receive concurrently, effectively doubling the bandwidth of that link.

IEEE

Institute of Electrical and Electronic Engineers.

IEEE 802.3

Defines carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.

IEEE 802.3ab

Defines CSMA/CD access method and physical layer specifications for 1000BASE-T Fast Ethernet.

IEEE 802.3u

Defines CSMA/CD access method and physical layer specifications for 100BASE-TX Fast Ethernet.

IEEE 802.3x

Defines Ethernet frame start/stop requests and timers used for flow control on full-duplex links.

IEEE 802.3z

Defines CSMA/CD access method and physical layer specifications for 1000BASE Gigabit Ethernet.

Local Area Network (LAN)

A group of interconnected computer and support devices.

LAN Segment

Separate LAN or collision domain.

LED

Light emitting diode used for monitoring a device or network condition.

Local Area Network

A group of interconnected computers and support devices.

Media Access Control (MAC)

A portion of the networking protocol that governs access to the transmission medium, facilitating the exchange of data between network nodes.

MDF (Main Distribution Frame)

Equipment where outside telephone lines are terminated at a building or site.

MIB

An acronym for Management Information Base. It is a set of database objects that contains information about the device.

MPOE (Minimum or Main Point of Entry)

The location in a building where cables from the telephone service provider are terminated.

Network Diameter

Wire distance between two end stations in the same collision domain.

Private Branch Exchange (PBX)

A telephone exchange local to a particular organization who use, rather than provide, telephone services.

POTS

Plain Old Telephone Service.

Redundant Power Unit (RPU)

A backup power supply that automatically takes over in case the primary power supply should fail.

RJ-45 Connector

A connector for twisted-pair wiring.

Splitter

A filter to separate DSL signals from POTS signals to prevent mutual interference.

Switched Ports

Ports that are on separate collision domains or LAN segments.

Transmission Control Protocol/Internet Protocol (TCP/IP)

Protocol suite that includes TCP as the primary transport protocol, and IP as the network layer protocol.

UTP

Unshielded twisted-pair cable.

ADSL

asymmetric data rate Digital Subscriber Line: A family of digital telecommunications protocols designed to allow high speed data communication at data rates deliver data rates up to 25 Mbps downstream and 1 Mbps upstream with corresponding maximum reach 18K feet of 24 gauge twisted pair cable over the existing copper telephone lines between end-users and telephone companies.

Virtual LAN (VLAN)

A Virtual LAN is a collection of network nodes that share the same collision domain regardless of their physical location or connection point in the network. A VLAN serves as a logical workgroup with no physical barriers, allowing users to share information and resources as though located on the same LAN.

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Product Warranty

NetComm products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option, via registering your product online at the NetComm website **www.netcomm.com.au**.

Technical Support

If you have any technical difficulties with your product, please refer to the support section of our website.

www.netcomm.com.au/support

Note: NetComm Technical Support for this product only covers the basic installation and features outlined in the Quick Start Guide. For further information regarding the advanced features of this product, please refer to the configuring sections in the User Guide or contact a Network Specialist.

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