

DATA-CONNECT

The Right Connection!

USER MANUAL



DCE 5224AV-DSG

24-Port VDSL2/ADSL2+ IP DSLAM

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Energy Saving Note of the Device

This power required device does not support Standby mode operation.

For energy saving, please remove the power cable to disconnect the device from the power circuit.

Without removing power cable, the device will still consuming power from the power source. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

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Revision

Data Connect 24-Port VDSL2 / ADSL2+ + 2-Port Gigabit TP/SFP Combo IP DSLAM User's Manual

FOR MODEL: 5224AV-DSG

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1. INTRODUCTION

The Data Connect 5224AV-DSG comes with the 24-port VDSL2/ADSL2+ and 2-slot TP/SFP fiber optical combo convertibility and robust layer2 features. The description of this model is shown below:

5224AV-DSG 24-Port VDSL2 / ADSL2+ + 2-Slot Gigabit TP/SFP Combo IP DSLAM

“**DSLAM**” is used as an alternative name in this user’s manual.

1.1 Packet Contents

Open the box of the DSLAM and carefully unpack it. The box should contain the following items:

Check the contents of your package for the following parts:

- | | |
|---|----|
| <input checked="" type="checkbox"/> The) &&(5 J!8 G; | x1 |
| <input checked="" type="checkbox"/> Quick Installation Guide | x1 |
| <input checked="" type="checkbox"/> Rack-mount Accessory Kit | x1 |
| <input checked="" type="checkbox"/> Telco-50 (RJ21) Cable | x2 |
| <input checked="" type="checkbox"/> Power Cord | x1 |

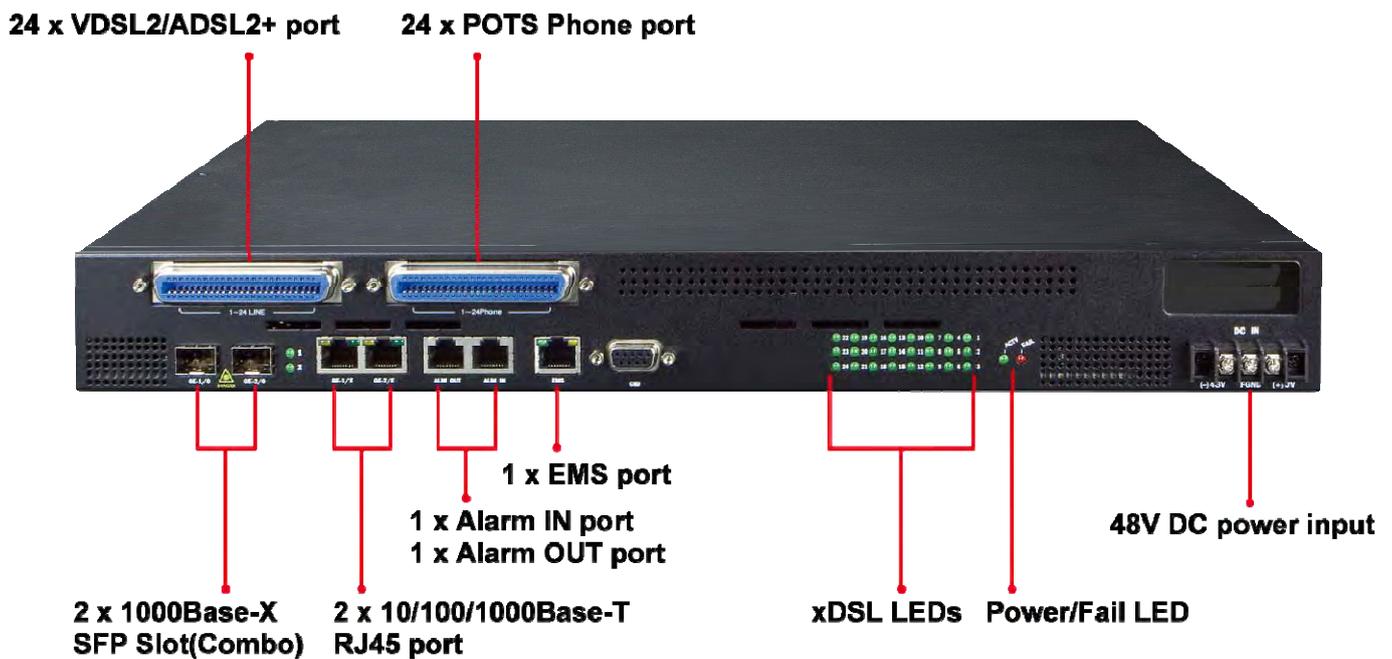
If any item is found missing or damaged, please contact your local reseller for replacement.

1.2 Product Description

Perfectly Designed for FTTx Last Mile Applications

Data Connect 5224AV-DSG is a telecom-level high performance **IP-DSLAM** (Digital Subscriber Line Access Multiplexer) with **24-Port VDSL2 / ADSL2+** and **2 Gigabit TP / SFP** combo interfaces, and **AC and DC Redundant Power System**. The 5224AV-DSG is fully compliant with ITU-T G.993.2 VDSL2 standard band plan up to 30a profiles. It offers maximum download and upload line rate up to **100/100Mbps** on the existing twisted pair lines.

For ADSL connectivity, the 5224AV-DSG supports high interoperability and backward compatible for ATU-R and supports ADSL2/ADSL2+ line mode.



The 5224AV-DSG helps service providers to easily provide high bandwidth demanded triple-play services such as IPTV, HDTV, Video Phone and Internet Gaming at the same copper line and uplink to the core / metro Ethernet network through the two Gigabit fiber optical interfaces. It is an ideal CO solution for **FTTx last mile** applications of broadband access by ISPs, Telecoms and campuses.

Comprehensive and Advanced VDSL2 / ADSL2+ Configuration

For the bandwidth and distance of broadband access, the 5224AV-DSG IP-DSLAM supports multiple selective VDSL2 profiles (8a, 8b, 8c, 8d, 12a, 12b, 17a and 30a), 997/998 Band plan and ADSL ITU-T G.993.1, ITU-T G.992.3, ITU-T G.992.5, Annex A/B/L/M transmission modes to each subscriber line. Furthermore, it can be configured on a per-link basis for transmission mode, rate limitation, INP (impulse noise protection) and SNR (signal-to-noise) margin. These advanced xDSL functionalities help service providers to adjust the line performance and build a stable and reliable IP DSLAM solution.

Extremely Reliable Design to Ensure Continuous Operation

The 5224AV-DSG supports the SELT (Single-ended loop testing) and dual power inputs system. SELT, like metallic testing from POTS world, is an automated way of testing a DSL loop from one end to the line, either from the central office (CO) or, less likely from the subscriber's end. Unlike dual-end loop testing (DELT), where someone must install some sort of test device at customer's end of the line, SELT doesn't require a technician or any equipment at the subscriber site.

The 5224AV-DSG is equipped with one 100~240V AC unit and one -48V DC power supply unit. Dual power systems offer more power deploy flexibility, and the -48V DC power supply implemented makes the 5224AV-DSG IP DSLAM as a telecom level device that can be located at the electronic room.

1.3 How to Use This Manual

This User's Manual is structured as follows:

Section 2, INSTALLATION

The section explains the functions of the IP DSLAM and how to physically install the IP DSLAM.

Section 3, DSLAM MANAGEMENT

The section contains the information about the software function of the IP DSLAM.

Section 4, WEB CONFIGURATION

The section explains how to manage the IP DSLAM by Web interface.

Section 5, TROUBLESHOOTING

The chapter explains how to troubleshoot the IP DSLAM.

1.4 Product Features

➤ DSL Interfaces

- 24 full-duplex VDSL2 / ADSL2+ links via RJ21 (Telco-50) connector
- 24 corresponding POTS lines via RJ21 (Telco-50) connector
- Built-in POTS splitter for each VDSL / ADSL port
- Compatible with Data Connect's VDSL2 CPE devices: VC-231, VC-234, VDR-300NU
- Compatible with Data Connect's ADSL2/2+ router: ADN-4101, ADE-3400, ADE-3410, ADE-4400, VDR-300NU
- Auto-speed function for DSL link (by distance and cable quality)

➤ Ethernet Interfaces

- 2 10/100/1000Mbps TP and 2 1000Mbps SFP shared combo interfaces
- 1 alarm in and 1 alarm out copper ports
- Auto-MDI/MDI-X detection on Gigabit RJ45 port

➤ VDSL2 Features

- Cost-effective VDSL2 link and central management solution
- Compliant with ITU-T G.993.2 VDSL2 standard (8a, 8b, 8c, 8d, 12a, 12b, 17a and 30a Profiles)
- Configurable xDSL line profile and alarm profile
- DMT (discrete multi-tone) line coding VDSL
- Up to profile 30a 100/100Mbps symmetric data rate for VDSL2
- Selectable target data rate and target SNR margin
- Built-in surge protection against surge damage from high energy spike
- Voice and data communication can be shared on the existing telephone wire simultaneously
- Supports downstream / upstream rate control on each port
- Support VDSL2 mode power back-off

➤ ADSL2/2+ Features

- Compliant with ADSL2/2+ standard
 - ITU-T G.992.1 Annex A/B
 - ITU-T G.992.3 Annex A/B, Annex L mode1 and mode2
 - ITU-T G.992.5 Annex A/B/M
- Configurable xDSL line profile and alarm profile
- Supports upstream 3.5Mbps and downstream 24Mbps at the maximum
- Supports PPPoE relay
- Supports ADSL2 mode power back-off

➤ Layer 2 Features

- Destination Lookup Fail (DLF) / Broadcast Rate Limit
- IEEE 802.1Q Tag-based VLAN
- IEEE 802.1ad Q-in-Q VLAN
- Supports Redundancy / Static Link Aggregation / Daisy Chain uplink application mode
- 8 queues priority for SP-Priority and WRR-Weight QoS
- ToS to VLAN priority remark mapping

➤ Quality of Service

- 8 queues priority for all xDSL ports
- SP-Priority / WRR-Weight QoS
- ToS to VLAN priority remark mapping

➤ **Multicast**

- IGMP v2 Snooping
- IGMP Fast Leave

➤ **Security**

- 8 groups Layer2 / 3 / 4 Access Control List
- DHCP Option82

➤ **Management**

- System date and time control
- Single-ended loop testing
- Lamp test
- User management account
- Out-band management
- Remote IP-based management control
- SNMPv1 and V2c
- SNMP trap
- Telnet command line

➤ **Power System**

- 90~240V AC and -48V DC dual power input interfaces
- Supports power redundancy

1.5 Product Specifications

Product) && (5 J I 8 G;	
Hardware Specifications		
DSL Interface	24-Port VDSL2 / ADSL2+ Line via 1 RJ21 (Telco-50) connector	
	24-Port POTS/Telephone via 1 RJ21 (Telco-50) connectors	
1000Mbps Copper Ports	2 10/100/1000Mbps RJ45 auto-negotiation, auto MDI/MDI-X	
SFP/mini-GBIC Slots	2 1000BASE-SX/LX/BX, shared with GE1 and GE2 port	
Totally Fabric	8.8Gbps / non-blocking maximum	
Throughput	6.547Mpps @64Bytes maximum	
MAC Address Table	16K entries	
LED	System: ACTV (Power LED, Green) Alarm: Fail (Red) VDSL2 / ADSL2+ Link/Sync. Gigabit Port: 1000 Link/Active (Green), 100 Link/Active (Orange)	
Dimensions (W x D x H)	436 x 320 x 50.5 mm	
Weight	4.8kg	
Power Requirements	AC Input	90~240V AC, 50-60 Hz
	DC Input	-48V DC, 1.62A (Power Range: -40V to -60V DC)
Power Consumption / Dissipation	75 watts maximum / 257 BTU/hr maximum	
Standard Accessory	<ul style="list-style-type: none"> - 1.4 meter Telco-50 Cable x 2 - 19" rack-mount kit x 1 for 19" rack installation. - AC power cord x 1 	
xDSL		
VDSL2 Standard	Complies with ITU-T G.993.2 Annex A/B/C	
Encoding	VDSL-DMT	
VDSL2 Profile	8a/8b/8c/8d/12a/12b/17a/30a 8a, 8b, 8c, 8d 12a, 12b	
Band Plan	Selectable band plan for each VDSL line on a per port basis Band plan A: <ul style="list-style-type: none"> - Profile 998, Annex A of G.993.2; Optimized for symmetric services Band plan B: <ul style="list-style-type: none"> - Profile 997, Annex B of G.993.2 ; Optimized for asymmetric services 	
ADSL2 Standard	ANSI T1.413 Issue 2 ITU-T G.992.1, Annex A/B ITU-T G.992.3 (ADSL2) Annex A/B, Annex L mode1 and mode2 ITU-T G.992.5 (ADSL2+) Annex A/B/M	
PPPoE	PPPoE relay	

xDSL Features	Selectable rate limit control Selectable target SNR (signal to noise ratio) mode POTS voices pass-through																												
POTS Splitter	Compliant with ETSI TS 101 952-1-1 option A for European The splitter is passive element.																												
Layer 2 Functions																													
Management Interface	Web browser, Telnet																												
IGMP Snooping	IGMP v2, Fast Leave																												
Multicast	Supports up to 256 multicast groups																												
VLAN	IEEE 802.1Q Tag-based VLAN IEEE 802.1ad Q-in-Q VLAN																												
Link Aggregation	Static port trunk with 1 group of 2-port trunk																												
QoS	8 priority queue Traffic classification based on - Port priority - TOS to Q-in-Q VLAN priority																												
Access Control List	Layer 2 / 3 / 4 ACL																												
Standards Conformance																													
Regulation Compliance	FCC Part 15 Class A, CE																												
Standards Compliance	<table border="0"> <tr><td>IEEE 802.3</td><td>10BASE-T</td></tr> <tr><td>IEEE 802.3u</td><td>100BASE-TX</td></tr> <tr><td>IEEE 802.3z</td><td>1000BASE-SX / LX</td></tr> <tr><td>IEEE 802.3ab</td><td>1000BASE-T</td></tr> <tr><td>IEEE 802.1ad</td><td>Q-in-Q VLAN tagging</td></tr> <tr><td>ITU-T G.993.2</td><td>VDSL2 (Profile 30a Support), Annex A/B</td></tr> <tr><td>ITU-T G.992.1</td><td>ADSL</td></tr> <tr><td>ITU-T G.992.3</td><td>ADSL2</td></tr> <tr><td>ITU-T G.992.5</td><td>ADSL2+</td></tr> <tr><td>RFC 768</td><td>TFTP</td></tr> <tr><td>RFC 783</td><td>IP</td></tr> <tr><td>RFC 791</td><td>ICMP</td></tr> <tr><td>RFC 792</td><td>Telnet</td></tr> <tr><td>RFC 854</td><td>HTTP</td></tr> </table>	IEEE 802.3	10BASE-T	IEEE 802.3u	100BASE-TX	IEEE 802.3z	1000BASE-SX / LX	IEEE 802.3ab	1000BASE-T	IEEE 802.1ad	Q-in-Q VLAN tagging	ITU-T G.993.2	VDSL2 (Profile 30a Support), Annex A/B	ITU-T G.992.1	ADSL	ITU-T G.992.3	ADSL2	ITU-T G.992.5	ADSL2+	RFC 768	TFTP	RFC 783	IP	RFC 791	ICMP	RFC 792	Telnet	RFC 854	HTTP
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ITU-T G.992.5	ADSL2+																												
RFC 768	TFTP																												
RFC 783	IP																												
RFC 791	ICMP																												
RFC 792	Telnet																												
RFC 854	HTTP																												
Cables	<ul style="list-style-type: none"> • VDSL2: twisted-pair telephone wires (AWG24 or better) up to 1.4km • 10/100BASE-TX: 2-pair UTP Cat.5, up to 100m (328ft) • 1000BASE-T: 4-pair UTP Cat.5E, up to 100m • 1000BASE-SX: 50/125µm and 62.5/125µm fiber optic cable, up to 550m • 1000BASE-LX: 9/125µm fiber optic cable, up to 10km 50/125µm and 62.5/125µm fiber optic cable, up to 550m 																												
SNMP MIB	Private MIBs																												
Environment																													
Temperature	0~50 degrees C																												
Humidity	5~90% (non-condensing)																												

2. INSTALLATION

This section describes the hardware features and installation of the DSLAM on the desktop or rack mount. For easier management and control of the DSLAM, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the DSLAM, please read this chapter completely.

2.1 Hardware Description

2.1.1 DSLAM Front Panel

The front panel provides a simple interface monitoring the DSLAM. [Figure 2-1](#) shows the front panel of the DSLAM.

Figure 2-1: Front Panel of DSLAM



Figure 2-1: Front Panel of DSLAM

■ Gigabit TP interface

10/100/1000BASE-T Copper, RJ-45 twisted-pair: Up to 100 meters.

■ SFP slots

1000BASE-X mini-GBIC slot, SFP (Small Form-factor Pluggable) transceiver module: From 550 meters to 2km (multi-mode fiber), up to above 10/20/30/40/50/70/120 kilometers (single mode fiber).

■ Console Port

The console port is a DB9, RS-232 male serial port connector. This port is for engineering use, and you can use a straight DB9 console cable to use it. The COM port properties is 115200, n, 8, 1.

■ xDSL and POTS interface

There are 24 VDSL2 / ADSL 2+ ports and 24 POTS ports with 2 Telco-50 / RJ21 type connectors on the front panel of 5224AV-DSG. Each port has a built-in POTS splitter that helps the voice of telephone and data of network applications transmit over the same wire without interruption.

The xDSL port supports detecting transmission rate automatically that operates in different band allocation and results in different upstream and downstream bandwidths, and due to different telephone line quality, cross talk or extension distance may affect actual achievable speed; you can configure individual port in built-in management interface for optimized connectivity.



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

■ DC IN Power Connector

The front panel of DSLAM contains a DC power connector, which accepts DC power input voltage of -48V DC. Connect the power cable to the DSLAM at the input terminal block. The size of the three screws in the terminal block is M3.5.



2.1.2 LED Indications

The front panel LEDs indicate instant status of power and system status, fan status, port links and activity. It helps monitor and troubleshoot when needed. [Figure 2-2](#) shows the LED indications of the DSLAM.

5224AV-DSGLED Indication



Figure 2-2: DSLAM LED on Front Panel

DSLAMP LED Indication Table

■ System

LED	Color	Function	
ACTV	Green	On:	Indicates that the IP DSLAM is powered on .
		Off:	Indicates that the IP DSLAM is powered off .
		Blink	Indicates that the IP DSLAM is booting.
Fail	Red	On:	Indicates that the system is inactive.
		Off:	Indicate that the system is active without problem.

■ Per VDSL Interface (Port-1 to Port-24)

LED	Color	Function	
DSL	Green	On:	Indicates that the VDSL link is established.
		Slow Blink:	Indicates that the VDSL is chaining with remote CPE.
		Quick Blink:	Indicates that the Data link is actively sending or receiving data over that DSL port.
		Off:	Indicates that the DSL has not activated.

■ 10/100/1000BASE-T Copper / 1000BASE-SX/LX SFP Interface (GE1 and GE2)

LED	Color	Function	
Copper Port	Green	On:	Indicates the link through that port is successfully established.
		Blink:	Indicates that the DSLAM is actively sending or receiving data over that port. (LNK/ACT LED is orange in color).
		Off:	Indicates that the port has linked down.
Fiber Port	Green	On:	Indicates the link through that port is successfully established.
		Blink:	Indicates that the DSLAM is actively sending or receiving data over that port.
		Off:	Indicates that the port has linked down.

2.1.3 DSLAM Rear Panel

The rear panel of the DSLAM indicates an AC inlet power socket, which accepts input power from 100 to 240V AC, 50-60Hz.

Figure 2-3 shows the rear panel of the DSLAM.

DSLAMP Rear Panel



Figure 2-3: Rear Panel of DSLAM

■ AC Power Receptacle

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

Plug the female end of the power cord firmly into the receptacle on the rear panel of the DSLAM. Plug the other end of the power cord into an electrical service outlet and the power will be ready.



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

2.2 Installing the DSLAM

This section describes how to install your DSLAM and make connections to the DSLAM. Please read the following topics and perform the procedures in the order being presented. To install your DSLAM on a desktop or shelf, simply complete the following steps.

2.2.1 Rack Mounting

To install the DSLAM in a 19-inch standard rack, please follow the instructions described below.

Step1: Place the DSLAM on a hard flat surface, with the front panel positioned towards the front side.

Step2: Attach the rack-mount bracket to each side of the DSLAM with supplied screws attached to the package.

Figure 2-4 shows how to attach brackets to one side of the DSLAM.

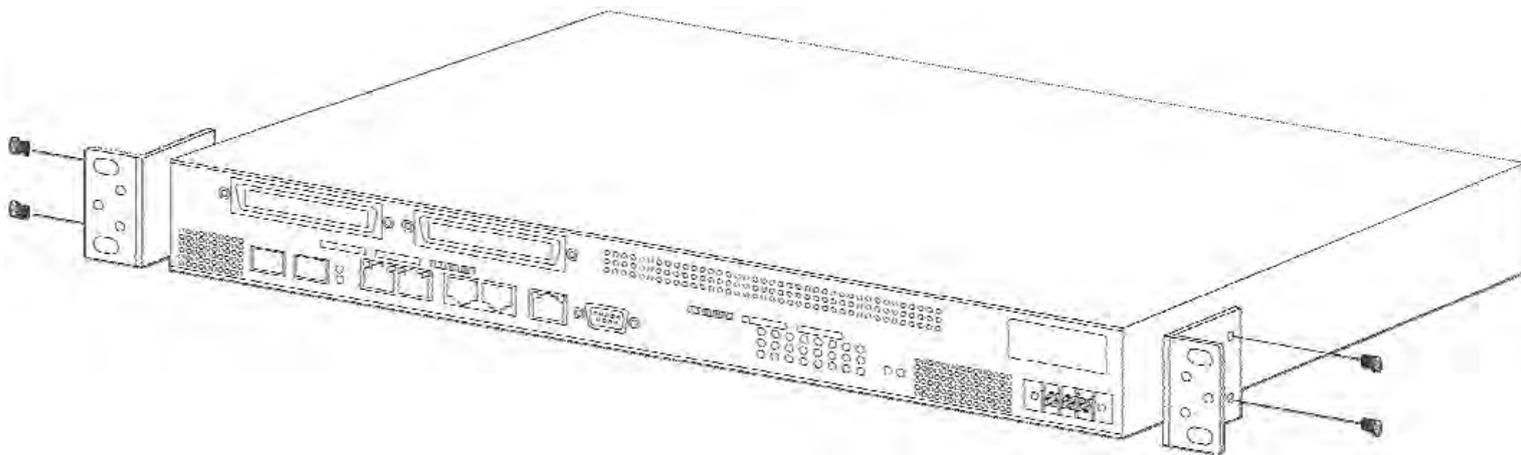


Figure 2-4: Attach Brackets to the DSLAM.



You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate the warranty.

Step3: Secure the brackets tightly.

Step4: Follow the same steps to attach the second bracket to the opposite side.

Step5: After the brackets are attached to the DSLAM, use suitable screws to securely attach the brackets to the rack, as shown in Figure 2-5.

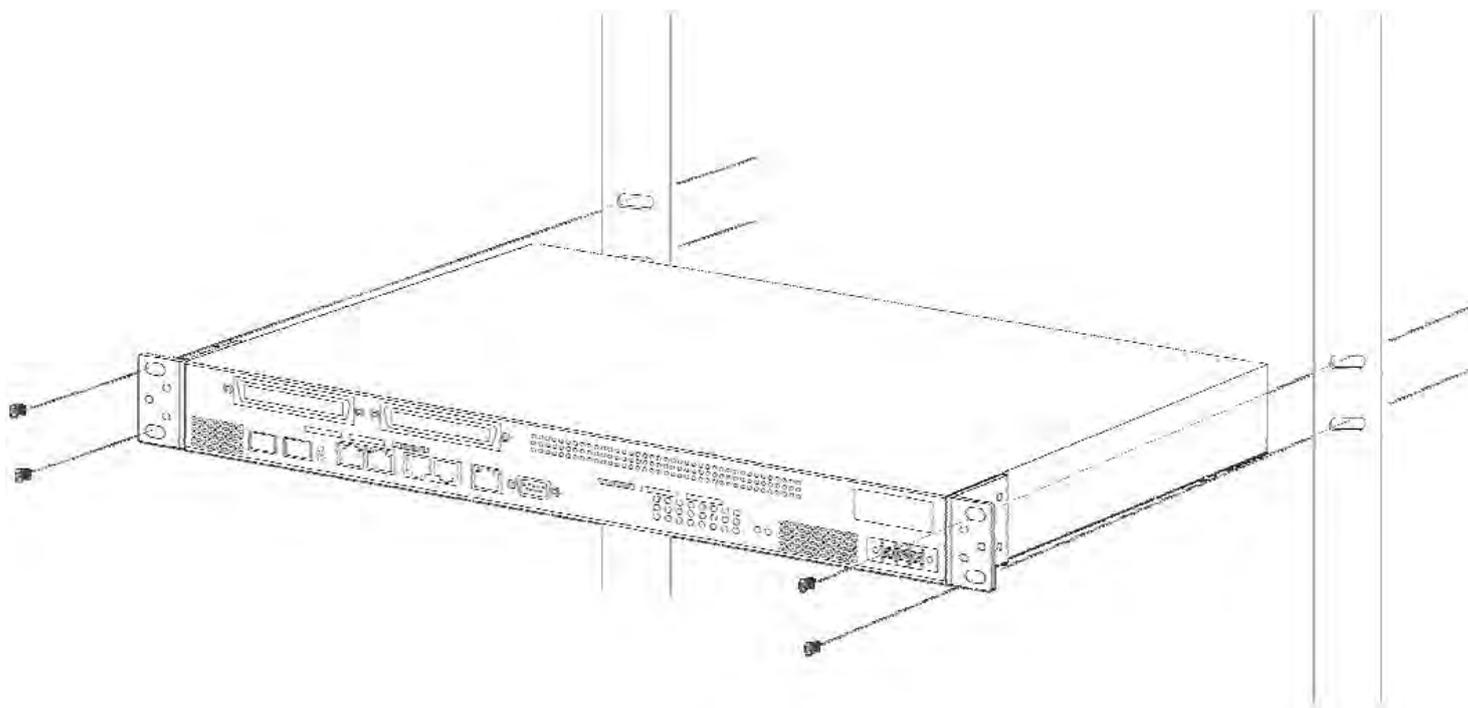


Figure 2-5: Mounting DSLAM on a Rack

Step6: Proceeds with steps 4 and 5 of session 2.2.1 Desktop Installation to connect the network cabling and supply power to the DSLAM.

2.2.2 Installing the SFP Transceiver

The sections describe how to insert an SFP transceiver into an SFP slot. The SFP transceivers are hot-pluggable and hot-swappable. You can plug-in and out the transceiver to/from any SFP port without having to power down the DSLAM, as the [Figure 2-6](#) shows.



Figure 2-6: Plug-in the SFP Transceiver

■ Approved SFP Transceivers

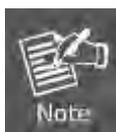
Data Connect DSLAM supports both single mode and multi-mode SFP transceiver. The following list of approved Data Connect SFP transceivers is correct at the time of publication:

Gigabit SFP Transceiver Modules

- **MGB-GT** SFP-Port 1000BASE-T Module
- **MGB-SX** SFP-Port 1000BASE-SX mini-GBIC module
- **MGB-LX** SFP-Port 1000BASE-LX mini-GBIC module
- **MGB-L50** SFP-Port 1000BASE-LX mini-GBIC module -50KM
- **MGB-L70** SFP-Port 1000BASE-LX mini-GBIC module -70KM
- **MGB-L120** SFP-Port 1000BASE-LX mini-GBIC module -120KM
- **MGB-LA10** SFP-Port 1000BASE-LX (WDM,TX:1310nm) -10KM
- **MGB-LA20** SFP-Port 1000BASE-LX (WDM,TX:1310nm) -20KM
- **MGB-LB20** SFP-Port 1000BASE-LX (WDM,TX:1550nm) -20KM
- **MGB-LA40** SFP-Port 1000BASE-LX (WDM,TX:1310nm) -40KM
- **MGB-LB40** SFP-Port 1000BASE-LX (WDM,TX:1550nm) -40KM
- **MGB-TSX** SFP-Port 1000BASE-SX mini-GBIC module - 550m (-40~75°C)
- **MGB-TLX** SFP-Port 1000BASE-LX mini-GBIC module - 10km (-40~75°C)
- **MGB-TL30** SFP-Port 1000BASE-LX mini-GBIC module - 30km (-40~75°C)
- **MGB-TL70** SFP-Port 1000BASE-LX mini-GBIC module - 70km (-40~75°C)
- **MGB-TLA10** SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC

- module-10km (-40~75°C)

■ **MGB-TLB10** SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC
module-10km (-40~75°C)
- **MGB-TLA20** SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC
module-20km (-40~75°C)
- **MGB-TLB20** SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC
module-20km (-40~75°C)
- **MGB-TLA40** SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC
module-40km (-40~75°C)
- **MGB-TLB40** SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC
module-40km (-40~75°C)
- **MGB-TLA60** SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC
module-60km (-40~75°C)
- **MGB-TLB60** SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC
module-60km (-40~75°C)



-
1. It is recommended to use Data Connect SFP transceiver on the DSLAM. If you insert an un-supported SFP transceiver into the DSLAM, the DSLAM will not recognize it.
 2. In the installation steps below, this Manual uses Gigabit SFP transceiver as an example. However, the steps for Fast Ethernet SFP transceiver are similar.
-

1. Before we connect DSLAM to the other network device, we have to make sure both sides of the SFP transceivers are with the same media type, for example: 1000BASE-SX to 1000BASE-SX, 1000Bas-LX to 1000BASE-LX.
2. Check whether the fiber-optic cable type matches with the SFP transceiver requirement.
 - To connect to 1000BASE-SX SFP transceiver, please use the multi-mode fiber cable with one side being the male duplex LC connector type.
 - To connect to 1000BASE-LX SFP transceiver, please use the single-mode fiber cable with one side being the male duplex LC connector type.

■ Connect the Fiber Cable

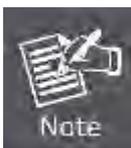
1. Insert the duplex LC connector into the SFP transceiver.
2. Connect the other end of the cable to a device with SFP transceiver installed.
3. Check the LNK/ACT LED of the SFP slot on the front of the DSLAM. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link fails.

■ Remove the Transceiver Module

1. Make sure there is no network activity.
2. Remove the fiber-optic cable gently.
3. Lift up the lever of the MGB module and turn it to a horizontal position.
4. Pull out the module gently through the lever.



Figure 2-7: How to Pull Out the SFP Transceiver



Never pull out the module without lifting up the lever of the module and turning it to a horizontal position. Directly pulling out the module could damage the module and the SFP module slot of the DSLAM.

2.2.3 Wiring for DSL Ports

The DSL port of 5224AV-DSG uses one RJ21 (Telco-50) connector to connect to a patch panel and then link up to 24 DSL CPEs which can be just directly connected to the remote CPEs through structured or unstructured wiring, such as the existing telephone lines. Each 5224AV-DSG has a built-in plain old telephone service (**POTS**) splitter to transmit both DSL traffic and telephone services, such as voice or fax through the same phone wire. The splitter routes DSL data (high-frequency) and voice (low-frequency) traffic from the telephone line and private branch exchange (**PBX**) DSLAM or public switched telephone network (**PSTN**).

The connection diagrams are as follows:

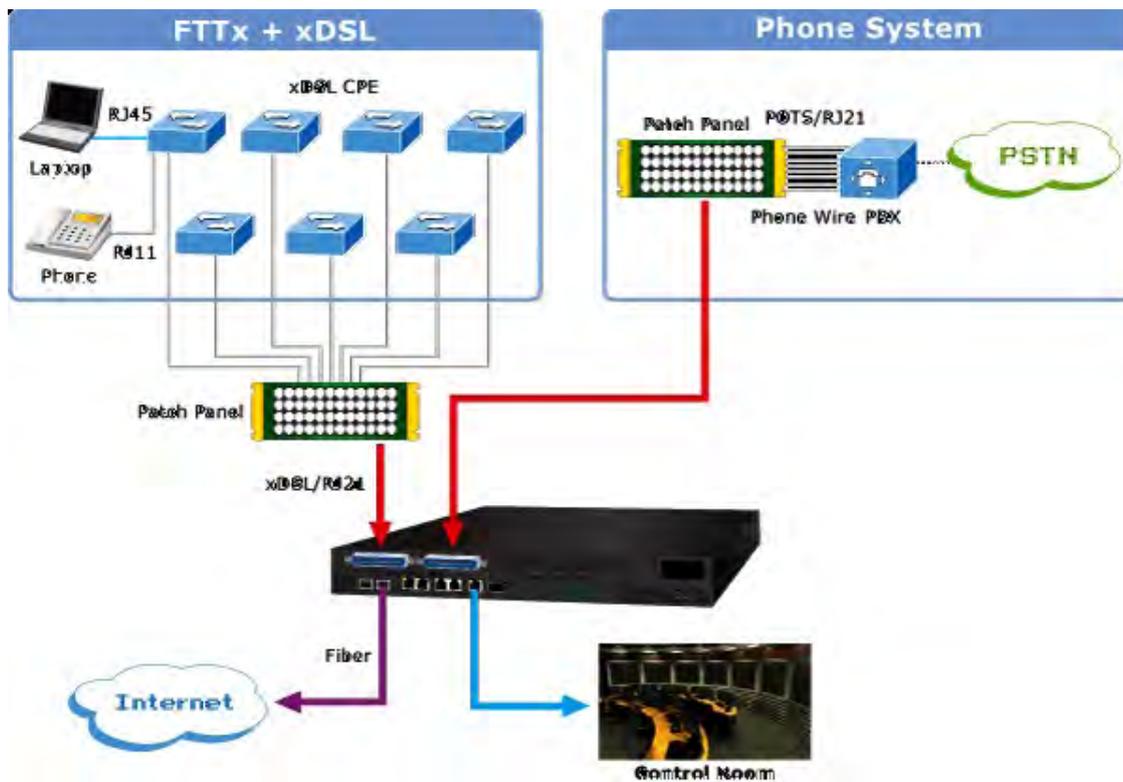


Figure 2-8: xDSL and POTS connection diagram

The DSL port and POTS port of the 5224AV-DSG always connect to a patch panel. The connection between the 5224AV-DSG and the patch panel is made by an RJ21 (Telco-50) interface connector and cable, as shown in [Figure 2-9](#).

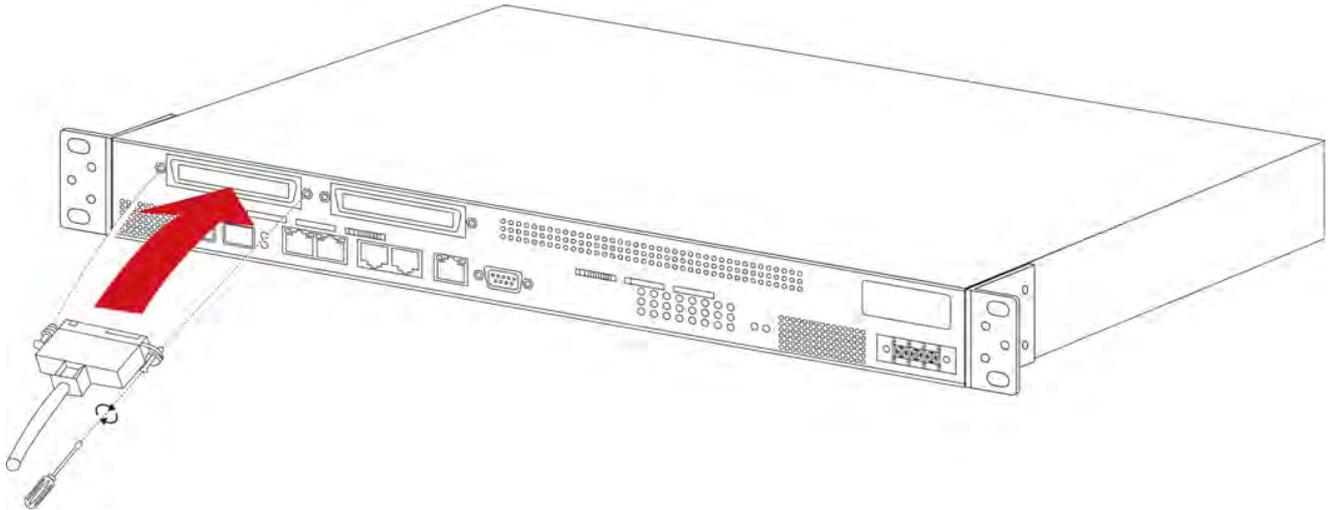


Figure 2-9: Connect RJ21 (Telco-50) cable to 5224AV-DSG

3. DSLAM MANAGEMENT

This chapter explains the methods that you can use to configure management access to the DSLAM. It describes the types of management applications and the communication and management protocols that deliver data between your management device (workstation or personal computer) and the system. It also contains information about port connection options.

This chapter covers the following topics:

- Requirements
- Management Access Overview
- Web Management Access
- SNMP Access
- Standards, Protocols, and Related Reading

3.1 Requirements

- We suggest using **Firefox or Microsoft IE 9 or later** to operate the DSLAM.
- Workstation is installed with **Ethernet NIC** (Network Interface Card).
- Ethernet Port connects
 - Network cables -- Use standard network (UTP) cables with RJ45 connectors.
- The above Workstation is installed with **Web browser** and **JAVA runtime environment** plug-in.

3.2 Web Management

The DSLAM offers out-of-band management features that allow users to manage the DSLAM from anywhere on the network through a standard browser such as Firefox or Microsoft Internet Explorer. After you set up your IP address for the DSLAM, you can access the DSLAM's Web interface applications directly from your Web browser by entering the IP address of the DSLAM.

Please connect management PC to the **EMS** port and then you can access Web UI of the DSLAM via web browser.

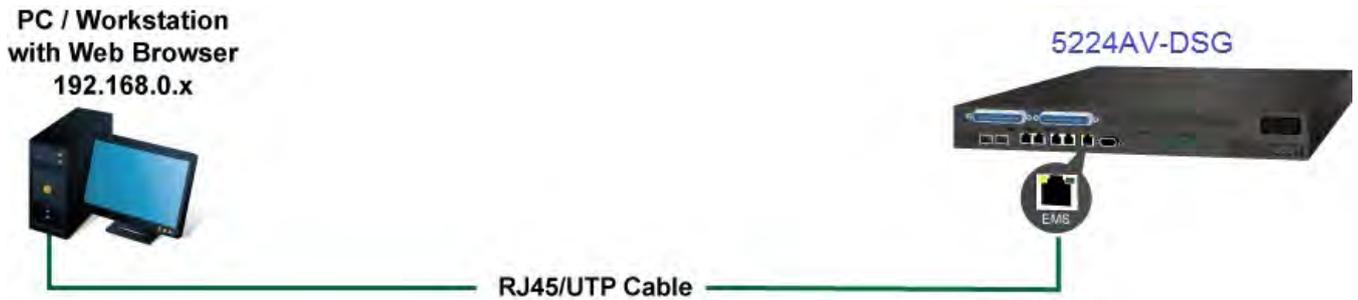


Figure 3-1: Web Management

You can then use your Web browser to list and manage the DSLAM configuration parameters from **Firefox**, **Microsoft Internet Explorer 9.0** or later and **Safari**.



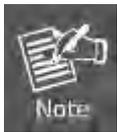
Figure 3-2: Web Main Screen of DSLAM

4. WEB CONFIGURATION

The DSLAM can be configured through an Ethernet connection, making sure the manager PC must be set on the same IP subnet address with the DSLAM.

For example, the default IP address of the DSLAM is **192.168.0.100**, then the manager PC should be set at **192.168.0.x** (where x is a number between 1 and 254, except 100), and the default subnet mask is 255.255.255.0.

If you have changed the default IP address of the DSLAM to 192.168.1.1 with subnet mask 255.255.255.0 via console, then the manager PC should be set at 192.168.1.x (where x is a number between 2 and 254) to do the relative configuration on manager PC.



The DSLAM supports out-of-band management. Please connect your manager PC to **EMS** port for accessing the Web UI.

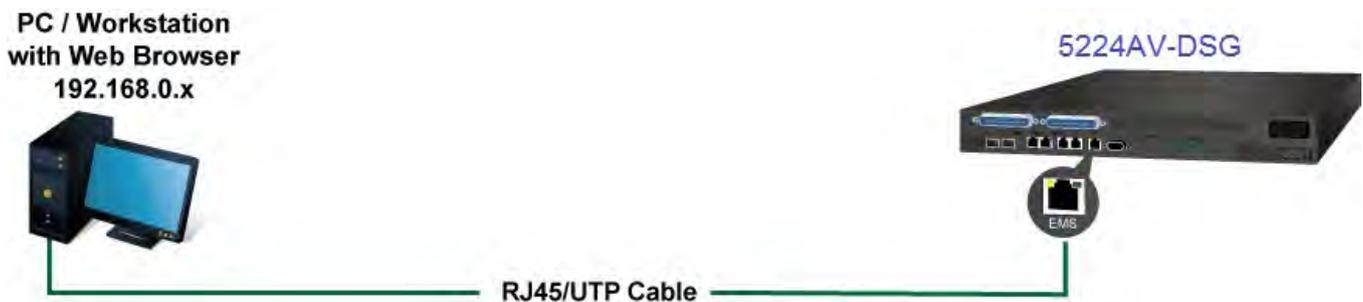


Figure 4-1-1: Web Management

■ Logging on the DSLAM

1. Use Internet Explorer 7.0 or above Web browser. Enter the factory-default IP address to access the Web interface. The factory-default IP address is shown as follows:

http://192.168.0.100

2. When the following login screen appears, please enter **"admin" for both** default username and password (or the username and password you have changed via console) to login the main screen of DSLAM. The login screen in [Figure 4-1-2](#) appears.



Figure 4-1-2: Login Screen

Default User Name: **admin**

Default Password: **admin**

After entering the username and password, the main screen appears as shown in [Figure 4-1-3](#).



Figure 4-1-3: Web Main Page

Now, you can use the Web management interface to continue the DSLAM management or manage the DSLAM by Web interface. The DSLAM menu on the left of the web page lets you access all the commands and statistics the DSLAM provides.



1. It is recommended to use Internet Explorer 9.0 or above to access DSLAM.
 2. When you have finished your configuration, please apply "Save Configuration" immediately, or configuration will be lost after the system starts to reboot.
 3. For security reason, please change and memorize the new password after this first setup.
-

4.1 Main Web Page

The DSLAM provides a Web-based browser interface for configuring and managing it. This interface allows you to access the DSLAM using the Web browser of your choice. This chapter describes how to use the DSLAM's Web browser interface to configure and manage it.



Figure 4-1-4: Web Main Page

Main Menu

Using the onboard web agent, you can define system parameters, manage and control the DSLAM, and all its ports, or monitor network conditions. Via the Web management, the administrator can set up the DSLAM by selecting the functions those listed in the Main Function. The screen in [Figure 4-1-5](#) appears.

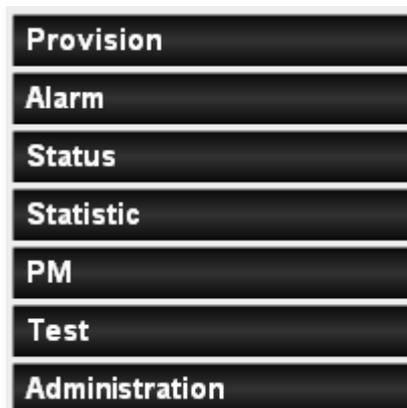


Figure 4-1-5: DSLAM Main Functions Menu

4.2 Provision

This section allows user to set up xDSL, IGMP, VLAN, QoS, DHCP, PPPoE and ACL features.

4.2.1 Modify Age Time

Modify age time is for you to set the time to clear system MAC address table. The screen in [Figure 4-2-1](#) appears.

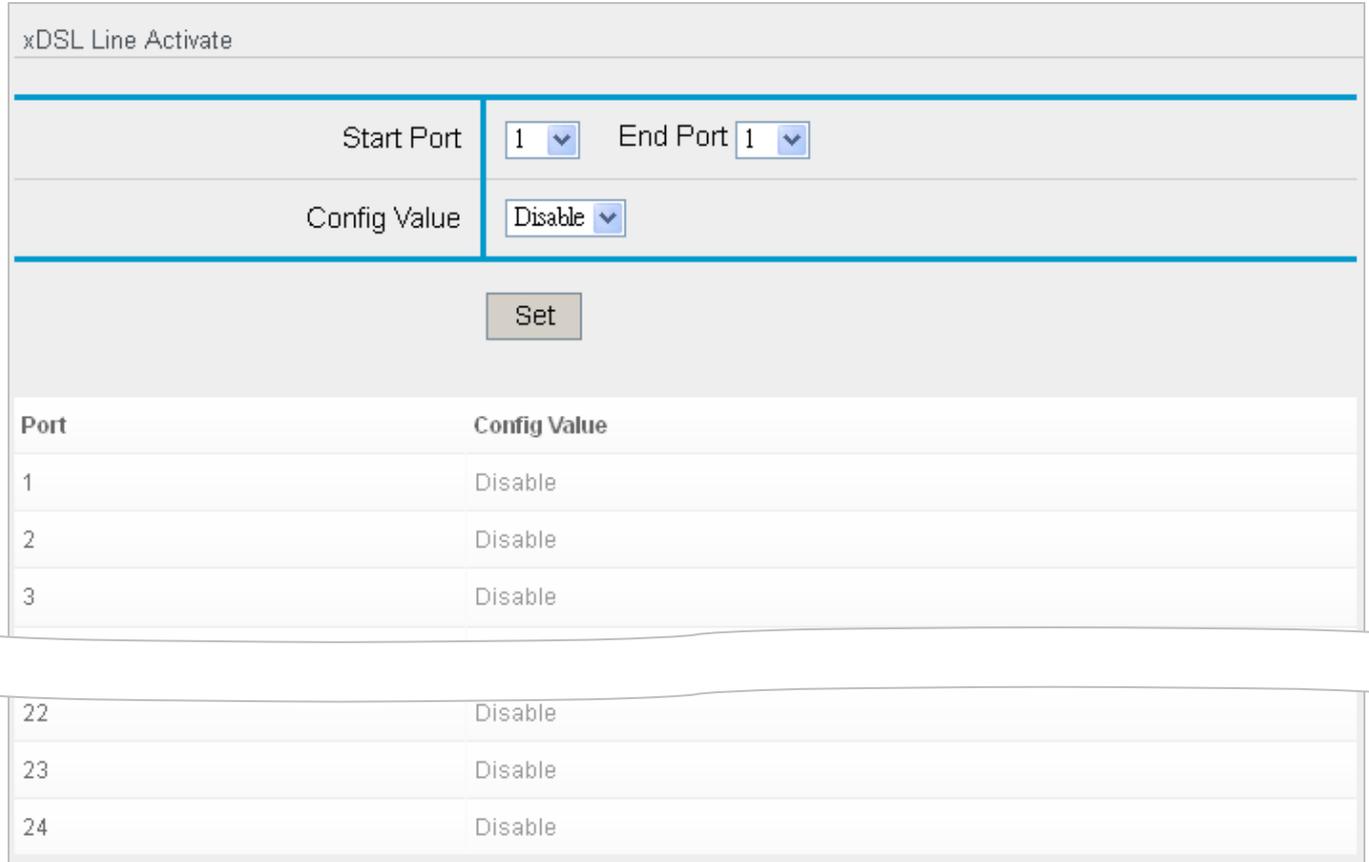


Modify Age Time	
Aging Timer	300 (1~600)
<input type="button" value="Set"/> <input type="button" value="Get"/> <input type="button" value="Reset"/>	

Figure 4-2-1: Modify Age Time Page Screenshot

4.2.2 xDSL Line Activate

This section is for you to activate and indicate xDSL port. By default, xDSL is disabled. User has to activate the port to enable xDSL device to chain with 5224AV-DSG. The screen in [Figure 4-2-2](#) appears.



xDSL Line Activate	
Start Port	1
End Port	1
Config Value	Disable
<input type="button" value="Set"/>	
Port	Config Value
1	Disable
2	Disable
3	Disable
22	Disable
23	Disable
24	Disable

Figure 4-2-2: xDSL Line Activate Page Screenshot

The Page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• Config Value	Enable: Enables xDSL port. Disable: Disables xDSL port.

Button



: Save configuration.

4.2.3 Apply xDSL Line Profile

This section is for you to apply xDSL line profile to xDSL port. Before you change line profile to xDSL port, you have to create an xDSL line profile from xDSL Line Profile page. As default setting, Line-default profile has been applied to each xDSL port. The screen in [Figure 4-2-3](#) appears.

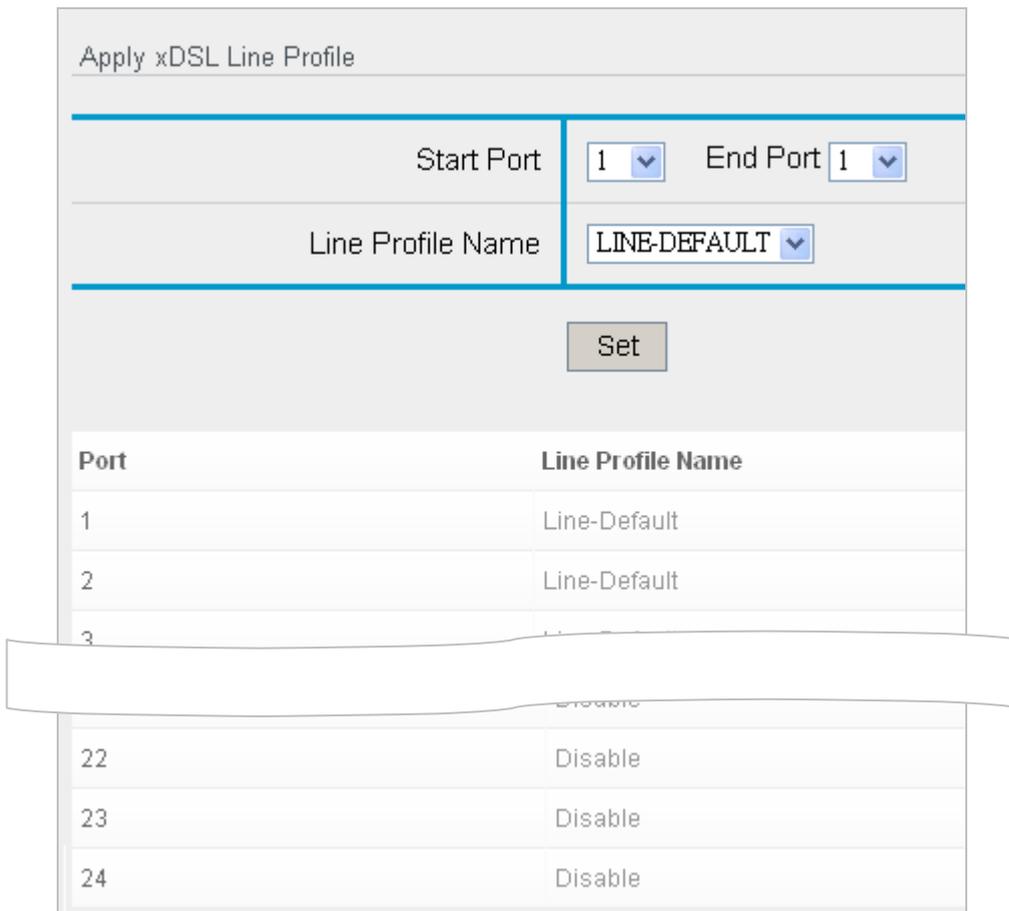


Figure 4-2-3: Apply xDSL Line Profile Page Screenshot

The Page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• Line Profile Name	Allows user to indicate a created xDSL line profile name. Default setting is LINE-DEFAULT .

Button

: Save configuration.

4.2.4 Apply xDSL Alarm Profile

This section is for you to apply xDSL alarm profile to xDSL port. Before you change alarm profile name, you have to create a new profile from xDSL Alarm Profile page. However, its default setting “ALARM-DEFAULT” profile has been applied. The screen in [Figure 4-2-4](#) appears.

Port	Alarm Profile Name
1	Alarm-Default
2	Alarm-Default
3	Alarm-Default
4	Alarm-Default
5	Alarm-Default
6	Alarm-Default
7	Alarm-Default
8	Alarm-Default
9	Alarm-Default
10	Alarm-Default
11	Alarm-Default
12	Alarm-Default
13	Alarm-Default
14	Alarm-Default
15	Alarm-Default
16	Alarm-Default
17	Alarm-Default
18	Alarm-Default
19	Alarm-Default
20	Alarm-Default
21	Alarm-Default
22	Alarm-Default
23	Alarm-Default
24	Alarm-Default

Figure 4-2-4: Apply xDSL Alarm Profile Page Screenshot

The page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• Alarm Profile Name	Allows user to indicate a created alarm profile name. Default setting is LINE-DEFAULT .

Button

: Save configuration.

4.2.5 VLAN Ethernet Type

This section is for you to set up service VLAN type and customer VLAN type. It is IEEE 802.1ad Q-in-Q concept. Before you set up the type, please confirm where it is 88A8 or 8100 from your network and then set up the VLAN type as the same as your network. By default, they are both 8100. The screen in [Figure 4-2-5](#) appears.

Figure 4-2-5: VLAN Ethernet Type Page Screenshot

The Page includes the following fields:

Object	Description
• Service VLAN Type	Allows user to set up Service VLAN type from 0 to ffff as default setting is 8100. This is 16-hexadecimal code.
• Customer VLAN Type	Allows user to set up Customer VLAN type from 0 to ffff as default setting is 8100. This is 16-hexadecimal code.

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

Reset

: Click to reset IP address to default setting.

4.2.6 DLF/Broadcast Rate Limit

Destination Lookup Failure -- The Destination Lookup Failure (DLF) setting is concerned with comparing the destination MAC address of a packet received by the switch to the forwarding database. When the switch receives a packet, it scans the forwarding database and looks for a match to the destination MAC address in the received packet. If the MAC address is not present, then the packet is flooded according to the VLAN rules. By default, this setting is disabled on the switch which means that all DLF packets are automatically forwarded according to the VLAN rules. Broadcast Setting - The broadcast setting applies to allowing or denying broadcast packets on each port. The screen in [Figure 4-2-6](#) appears.

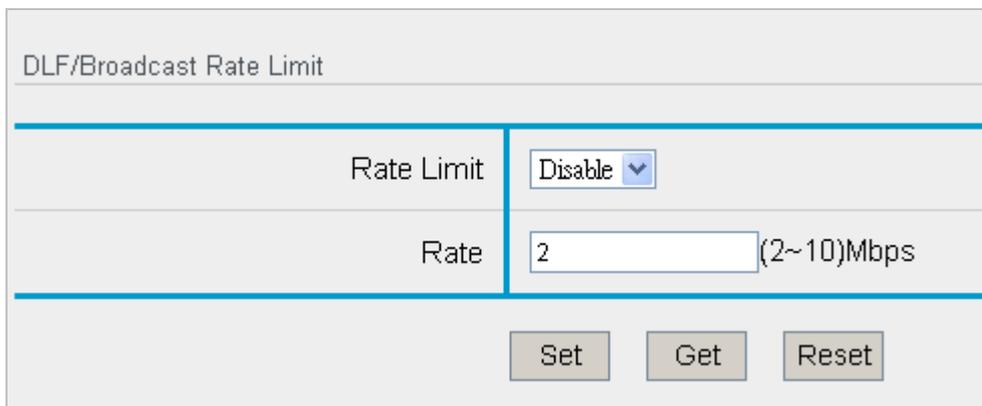


Figure 4-2-6: DLF/Broadcast Rate Limit Page Screenshot

The Page includes the following fields:

Object	Description
• Rate Limit	Enables or disables the rate limitation function. Default setting is disable.
• Rate	Specifies the maximum rate for transmission. Valid range: 2~10

Button

Set

: Save configuration.

Get

: Click to undo any changes made locally and revert to previously saved values.

Reset

: Click to reset IP address to default setting.

4.2.7 Uplink Application Mode

This section introduces how to configure uplink Interface about system side connectivity for two GE/FE ports with 1:1 redundancy (active/standby), link aggregation (static trunk), or daisy chain. The screen in [Figure 4-2-7](#) appears.

Figure 4-2-7: Uplink Application Mode Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Mode 	<p>Valid option:</p> <ul style="list-style-type: none"> • Redundancy: GE1 or GE2 works as primary link while the other works as backup link (see Figure 4-2-8) • Aggregation: GE1 or GE2 works together under aggregated algorithm to increase throughput (see 錯誤! 找不到參照來源。-9). <p>Daisy Chain: GE1 or GE2 works as uplink while the other works as daisy link to implement device cascade. (see Figure 4-2-10)</p>
<ul style="list-style-type: none"> • Primary Link 	Valid option: GE1, GE2 (Default primary link setting is GE1)
<ul style="list-style-type: none"> • Algorithm 	<p>For aggregation upstream, packets are distributed into GE1 and GE2 according to 1-bit/6-bit SA distribution algorithm.</p> <p>Valid option: 1-bit SA, 6-bits SA</p>



Figure 4-2-8: Uplink Application Mode of Redundancy

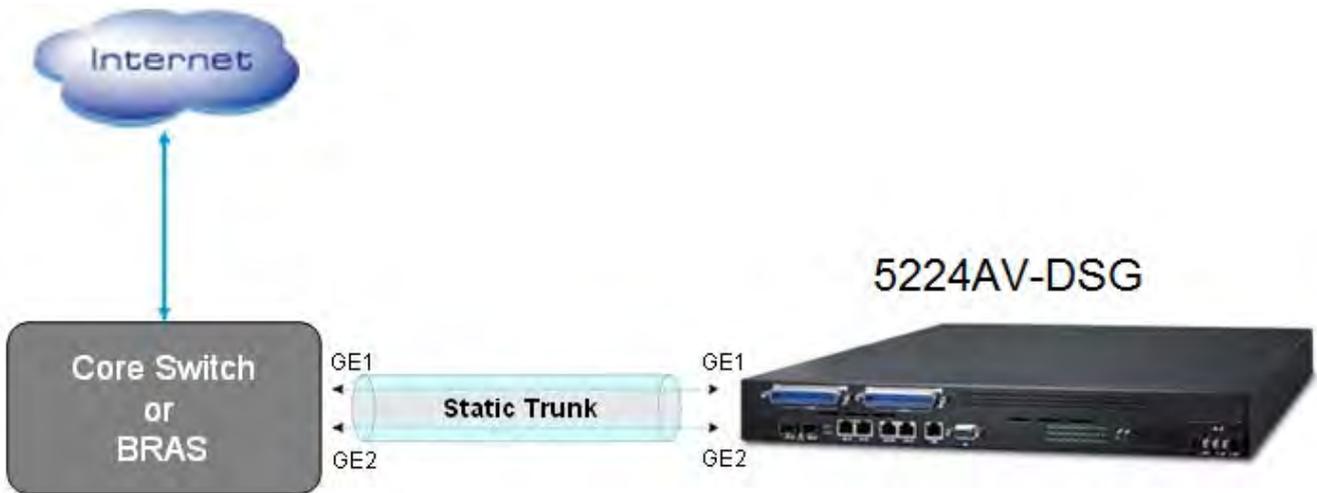


Figure 4-2-9: Uplink Application Mode of Aggregation

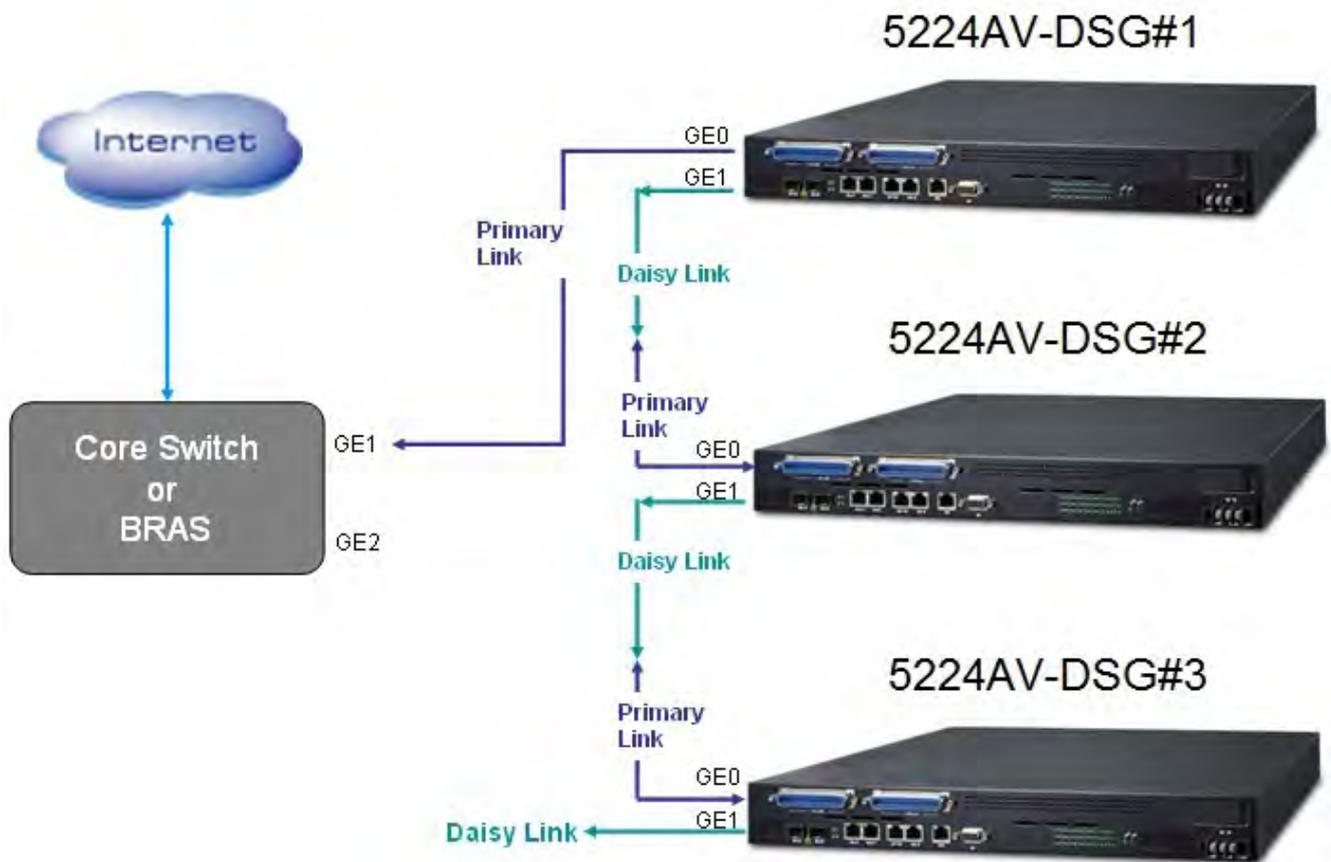


Figure 4-2-10: Uplink Application Mode of Daisy

4.2.8 Access Control List

This section introduces how to configure ACL group profile application to xDSL port. Before you apply new ACL profile to xDSL port, you have to create a new ACL profile from Access Control List Group page as default setting is ACL-DEFAULT. When you create a new ACL profile, you can find a new profile is going to appear under ACL Group option, and then you can select it to apply the port to whatever you want. The screen in [Figure 4-2-11](#) appears.

Figure 4-2-11: Access Control List Page Screenshot

The Page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• ACL Group	Allows user to select an ACL group for applying to xDSL port. New ACL profile has to be created from Access Control List Group page first and then you will see new profile appear.

Button

: Save configuration.

4.2.9 QoS Configuration

This section introduces how to configure QoS and apply to xDSL port. QoS configuration status is shown on the same page, Please rotate your web page to the bottom. The screen in [Figure 4-2-12](#) appears.

The screenshot shows a web interface for QoS Configuration. The title is "QoS Configuration". The form contains the following fields:

- Start Port: 1 (dropdown)
- End Port: 1 (dropdown)
- QoS Service: Disable (dropdown)
- QoS Mode: SP-Priority (dropdown)
- Queue 0 Priority: 0 (input field, range 0~7)
- Queue 1 Priority: 1 (input field, range 0~7)
- Queue 5 Weight: 4 (input field, range 1~255)
- Queue 6 Weight: 8 (input field, range 1~255)
- Queue 7 Weight: 8 (input field, range 1~255)

A "Set" button is located at the bottom of the form.

Figure 4-2-12: QoS Configuration Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Start Port 	Allows user to set up port range.
<ul style="list-style-type: none"> • End Port 	Allows user to set up port range.
<ul style="list-style-type: none"> • QoS Service 	Allows user to enable or disable QoS service.
<ul style="list-style-type: none"> • QoS Mode 	<p>It offers two QoS modes.</p> <p>SP-Priority: Strict Priority ensures service for high-priority traffic. The software assigns the maximum weights to each queue, causing the queuing mechanism to serve as many packets in one queue as possible before moving to a lower queue. This method is based on the queuing mechanism to favor the higher queues over the lower queues.</p> <p>WRR-Weight: Weighted Round Robin ensures that all queues are serviced during each</p>

	cycle. A WRR algorithm is used to rotate service among the eight queues on the devices. The rotation is based on the weights you assign to each queue. This method rotates service among the queues, forwarding a specific number of packets in one queue before moving on to the next one.
• Queue 0-7 Priority	Queue 0-7 Priority options are for SP-Priority mode.
• Queue 0-7 Weight	Queue 0-7 Weight options are for WRR-Weight mode.

Button

: Save configuration.

4.2.10 IGMP Configuration

This section introduces how to configure IGMP. The 5224AV-DSG supports IGMP v2 snooping only, so please make sure your multicast source and the other network devices both support IGMP version2. Please note that 5224AV-DSG doesn't support IGMP Querier feature, so user must use it to co-work a switch that supported IGMPv2 Querier feature. The screen in [Figure 4-2-13](#) appears.

IGMP Configuration	
IGMP Version	V2
IGMP Mode	Snooping
IGMP Fast Leave	Enable
IGMP Leave Timeout	300 (60~600)seconds
<input type="button" value="Set"/> <input type="button" value="Get"/> <input type="button" value="Reset"/>	

Figure 4-2-13: IGMP Configuration Page Screenshot

The page includes the following fields:

Object	Description
• IGMP Version	The 5224AV-DSG supports IGMP version2 only.
• IGMP Mode	IGMP Snooping mode is enabled always.

<ul style="list-style-type: none"> • IGMP Fast Leave 	Allows user to disable or enable IGMP fast leave mode for leaving multicast stream immediately or leaving multicast stream according to IGMP Leave Timeout configuration.
<ul style="list-style-type: none"> • IGMP Leave Timeout 	Allows user to set IGMP leave time out as default is 300 seconds.

Button

Set : Save configuration.

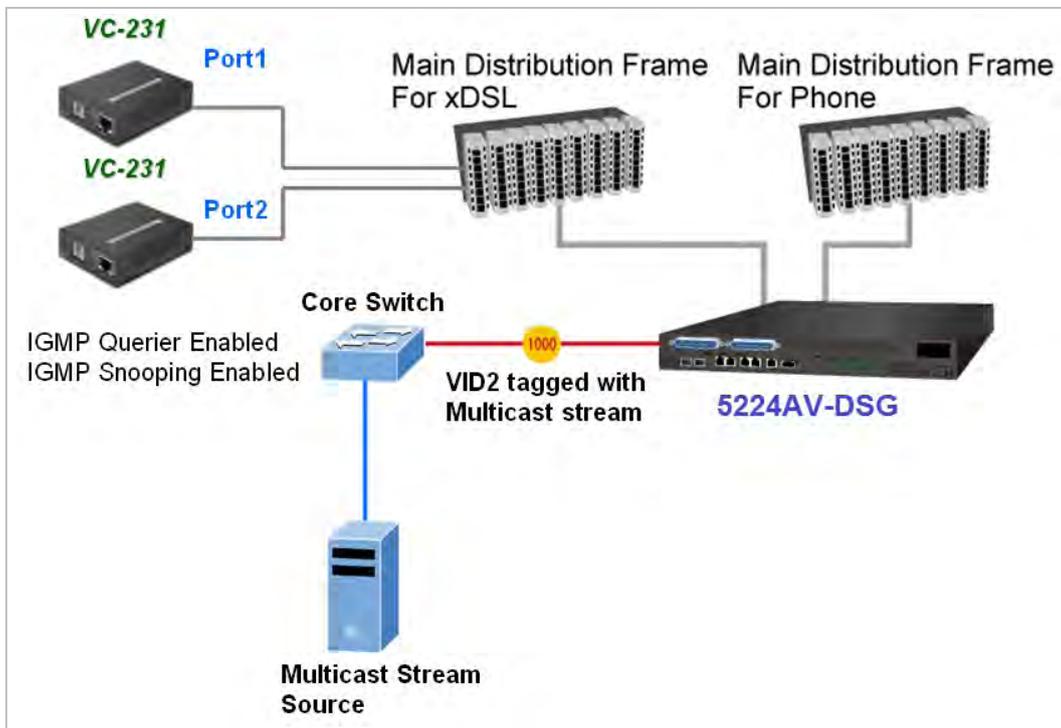
Get : Click to undo any changes made locally and revert to previously saved values.

Reset : Click to reset IP address to default setting.

Please make sure that when multicast stream input to GE#1 and GE#2 ports, it should be tagged VID then IGMP Snooping is going to control the multicast stream and to avoid it flooding to CPE side. Also 5224AV-DSG should be enabled VLAN feature. For example, two VC-231 CPE devices want to access the multicast stream from the multicast stream source and we won't multicast stream flooding to the other port.

We leave IGMP Snooping, IGMP Channel Profile Apply and IGMP Channel Profile configuration to default, but we have to set up VLAN to port1 and port2. The configuration example is as following. You can check IGMP group table and IGMP Snooping table from "Static" option in menu tree.

[Topology]



[Port1 VLAN Configuration]

Apply xDSL Alarm Profile	Set VLAN Port Table
VLAN Ethernet Type	
DLF/Broadcast Rate Limit	
Uplink Application Mode	
Access Control List Appl...	
QoS Configuration	
IGMP Configuration	
IGMP Channel Profile App...	
PPPoE Configuration	
DHCP Configuration	
PBO Profile Apply	
xDSL Line Profile	
xDSL Alarm Profile	
Set VLAN Port Table	
Access Control List Grou...	

xDSL Port	1	*(1~24)
Index	1	*(1~8)
Type	Untag	
SVLAN ID	2	(1~4094)
SVLAN Priority	0	(0~7)
CVLAN ID (4095 = IGNORE)	4095	(1~4095)
CVLAN Priority	0	(0~7)
CVLAN Accept (4095 = IGNORE)	4095	(1~4095)

Set Get Reset Delete DelAll

[Port2 VLAN Configuration]

VLAN Ethernet Type	Set VLAN Port Table
DLF/Broadcast Rate Limit	
Uplink Application Mode	
Access Control List Appl...	
QoS Configuration	
IGMP Configuration	
IGMP Channel Profile App...	
PPPoE Configuration	
DHCP Configuration	
PBO Profile Apply	
xDSL Line Profile	
xDSL Alarm Profile	
Set VLAN Port Table	
Access Control List Grou...	

xDSL Port	2	*(1~24)
Index	1	*(1~8)
Type	Untag	
SVLAN ID	2	(1~4094)
SVLAN Priority	0	(0~7)
CVLAN ID (4095 = IGNORE)	4095	(1~4095)
CVLAN Priority	0	(0~7)
CVLAN Accept (4095 = IGNORE)	4095	(1~4095)

Set Get Reset Delete DelAll

4.2.11 IGMP Channel Profile

This section introduces how to configure IGMP channel profile and apply to xDSL port. Before you apply the new IGMP channel profile, you have to create a new IGMP channel profile from the IGMP Channel Profile page. The screen in [Figure 4-2-14](#) appears.

IGMP Channel Profile Apply	
Start Port	1 ▾ End Port 1 ▾
Channel Profile Apply	CHANNEL-DEFAULT ▾
Maximum Concurrent Group Limit	0 (0~128)0 is no limit
Limit IGMP Message per Second	0 (0~10)0 is no limit

Set

Figure 4-2-14: IGMP Channel Profile Page Screenshot

The Page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• Channel Profile Application	Allows user to select new IGMP channel profile and apply to xDSL port. Default setting is CHANNEL-DEFAULT. Please note that you have to create a new profile from IGMP Channel Profile page first and then you can select the created profile from this option.
• Maximum Concurrent Group Limit	Allows user to set up concurrent group limitation. Range: 0-128, 0 is no limit. 128 is the maximum.
• Limit IGMP Message per Second	Allows user to limit IGMP message issuing per second. Range: 0-10, 0 is no limit.

4.2.12 PPPoE Configuration

This section introduces how to configure PPPoE configuration. The screen in [Figure 4-2-15](#) appears.

Figure 4-2-15: PPPoE Configuration Page Screenshot

The Page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • PPPoE Service 	Allows user to enable or disable PPPoE service.
<ul style="list-style-type: none"> • PPPoE Relay Circuit ID 	It specifies unique ID to distinguish which devices that traffic comes from. Combination format: string- \${Line}:\${Vid} (refer to Table 4-2-1). Acceptable signs include: “/”, “;”, “:”, “,” and so on. Default: Null

Button

Set : Save configuration.

Get : Click to undo any changes made locally and revert to previously saved values.

Reset : Click to reset IP address to default setting.

Input Variance	Description	Remarks
Characters	String	Length: 255 characters
\${Line}	Line	Display Channel (1~N)
\${Vid}	VLAN ID of the bridge port	VLAN ID (Default VID would be applied if no VLAN ID has been set.)

Table 4-2-1: PPPoE Variance

4.2.13 DHCP Configuration

This section introduces how to configure DHCP option82 configuration. The 5224AV-DSG is going to insert specific option82 information into a DHCP discover packet when a DHCP request goes through the 5224AV-DSG and forwards to DHCP server.

The DHCP option82 message will be removed when IP address is allocated and is transferred to DHCP client. Please note that DHCP server also needs to support DHCP option82 feature and user has to set up DHCP option 82 policies to DHCP server to allocate IP address according to the option82 policy. The screen in [Figure 4-2-16](#) appears.

Figure 4-2-16: DHCP Configuration Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> DHCP Option 82 Service 	Allows user to enable or disable DHCP Option82 service.
<ul style="list-style-type: none"> DHCP Option82 Circuit ID 	It specifies unique ID to distinguish which devices that traffic comes from. Combination format: string- \${Line}:\${Vid} (refer to Table 4-2-2). Acceptable signs include: “/”, “;”, “:”, “.”, “\” and so on. Default: Null

Button

 : Save configuration.

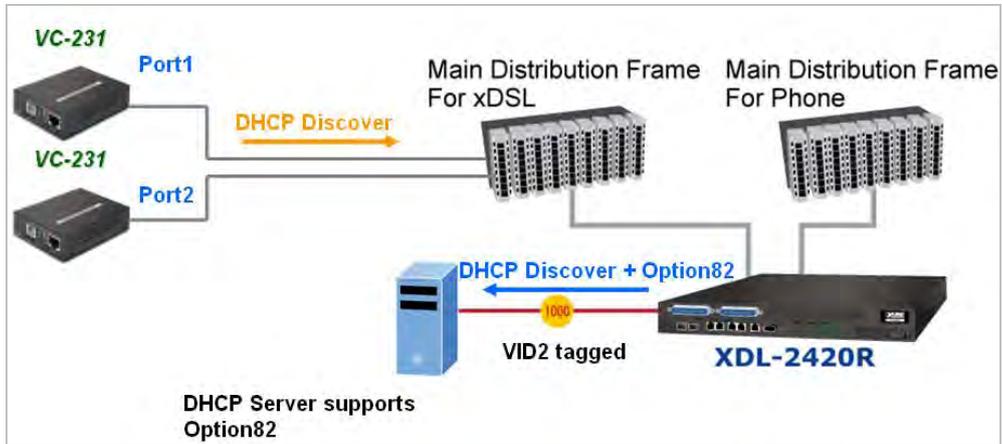
 : Click to undo any changes made locally and revert to previously saved values.

 : Click to reset IP address to default setting.

Input Variance	Description	Remarks
Characters	String	Length: 255 characters
\${Line}	Line	Display Channel (1~N)
\${VPI}	VPI	0~4095
\${VCI}	VCI	1~65535

\${Vid}	VLAN ID of the bridge port	VLAN ID (Default VID would be applied if no VLAN ID has been set.)
---------	----------------------------	--

This feature must co-worked with VLAN then the option82 message will be attached to DHCP discover packet and output from 5224AV-DSG.



[DHCP Configuration Example]

<ul style="list-style-type: none"> DLF/Broadcast Rate Limit Uplink Application Mode Access Control List Appl... QoS Configuration IGMP Configuration IGMP Channel Profile App... PPPoE Configuration DHCP Configuration PBO Profile Apply 	<p>DHCP Configuration</p> <table border="1"> <tr> <td data-bbox="558 1041 1037 1120">DHCP Option 82 Service</td> <td data-bbox="1037 1041 1482 1120">Enable</td> </tr> <tr> <td data-bbox="558 1120 1037 1198">DHCP Option 82 Circuit ID</td> <td data-bbox="1037 1120 1482 1198">01060004000200 (5~40 chars)</td> </tr> </table> <p style="text-align: right;"> <input type="button" value="Set"/> <input type="button" value="Get"/> <input type="button" value="Reset"/> </p>	DHCP Option 82 Service	Enable	DHCP Option 82 Circuit ID	01060004000200 (5~40 chars)
DHCP Option 82 Service	Enable				
DHCP Option 82 Circuit ID	01060004000200 (5~40 chars)				

[Port1 Configuration Example]

DLF/Broadcast Rate Limit	Set VLAN Port Table
Uplink Application Mode	
Access Control List Appl...	
QoS Configuration	
IGMP Configuration	
IGMP Channel Profile App...	
PPPoE Configuration	
DHCP Configuration	
PBO Profile Apply	
xDSL Line Profile	
xDSL Alarm Profile	
Set VLAN Port Table	
Access Control List Grou...	
Remark Mapping	

xDSL Port	1 *(1~24)
Index	1 *(1~8)
Type	Untag
SVLAN ID	2 (1~4094)
SVLAN Priority	0 (0~7)
CVLAN ID (4095 = IGNORE)	4095 (1~4095)
CVLAN Priority	0 (0~7)
CVLAN Accept (4095 = IGNORE)	4095 (1~4095)

[Port2 Configuration Example]

DLF/Broadcast Rate Limit	Set VLAN Port Table
Uplink Application Mode	
Access Control List Appl...	
QoS Configuration	
IGMP Configuration	
IGMP Channel Profile App...	
PPPoE Configuration	
DHCP Configuration	
PBO Profile Apply	
xDSL Line Profile	
xDSL Alarm Profile	
Set VLAN Port Table	
Access Control List Grou...	
Remark Mapping	

xDSL Port	2 *(1~24)
Index	1 *(1~8)
Type	Untag
SVLAN ID	2 (1~4094)
SVLAN Priority	0 (0~7)
CVLAN ID (4095 = IGNORE)	4095 (1~4095)
CVLAN Priority	0 (0~7)
CVLAN Accept (4095 = IGNORE)	4095 (1~4095)

4.2.14 xDSL Line Profile

This section introduces how to configure xDSL Line Profile. **xDSL Line Profile** contains parameters for configuring VDSL and ADSL lines. As a managed node can handle a large number of CPE, (e.g., hundreds or perhaps thousands of lines), provisioning every parameter on every CPE may become burdensome. A profile is a set of parameters that can be shared by multiple lines using the same configuration.

One or more lines may be configured to share parameters of a single profile by setting their `vdslLineConfProfile` objects to the value of this profile. If a change is made to the profile, all lines that refer to it will be reconfigured to the changed parameters. Before a profile can be deleted or taken out of service it must be first unreferenced from all associated lines.

Implementations **MUST** provide a default profile with an index value of 'DEFVAL' for each profile type. Before a line's profiles have been set, these profiles will be automatically used by default profile. This default profile name, 'DEFVAL', is considered reserved in the context of profiles defined in system.

Profile changes **MUST** take effect immediately. These changes **MAY** result in a restart (hard reset or soft restart) of the units on the line.

The screen in [Figure 4-2-17](#) appears.

xDSL Line Profile

List Profile		LINE-DEFAULT ▼
Profile Name	LINE-DEFAULT	*(1~40 chars)
[VDSL] Transmode	G.993.2 Annex B	▼
[VDSL] Profile	17a	▼
[VDSL] Annex A Band Plans	BP DS D32	▼
[VDSL] Annex B Band Plans	BP B8-12 998ADE17-M2x-B	▼
[VDSL] Annex C Band Plans	POTS-138B	▼
[ADSL] Transmode	Auto	▼
[Dnstream] Max Rate (kbps)	200000	(32~200000)
[Dnstream] Min Rate (kbps)	32	(32~200000)
[Dnstream] Msg Rate (kbps)	16	(4~248)
[Dnstream] Max SNRM (0.1dB)	310	(60~310)
[Dnstream] Min SNRM (0.1dB)	0	(0~60)
[Dnstream] Target SNRM (0.1dB)	80	(0~310)
[Dnstream] Max Interleave Delay (ms)	4	(0~63)
[Dnstream] Min INP	0.5 symbol	▼
[Dnstream] Min INP8	No INP8	▼
[Upstream] Max Rate (kbps)	200000	(32~200000)
[Upstream] Min Rate (kbps)	32	(32~200000)

[Upstream] Msg Rate (kbps)	16	(4~248)
[Dnstream] Max SNRM (0.1dB)	310	(60~310)
[Dnstream] Min SNRM (0.1dB)	0	(0~60)
[Dnstream] Target SNRM (0.1dB)	80	(0~310)
[Dnstream] Max Interleave Delay (ms)	4	(0~63)
[Dnstream] Min INP	0.5 symbol	
[Dnstream] Min INP8	No INP8	
[Upstream] Max Rate (kbps)	200000	(32~200000)
[Upstream] Min Rate (kbps)	32	(32~200000)
[Upstream] Msg Rate (kbps)	16	(4~248)
[Upstream] Max SNRM (0.1dB)	310	(60~310)
[Upstream] Min SNRM (0.1dB)	0	(0~60)
[Dnstream] Target SNRM (0.1dB)	80	(0~310)
[Dnstream] Max Interleave Delay (ms)	4	(0~63)
[Dnstream] Min INP	0.5 symbol	
[Dnstream] Min INP8	No INP8	
[Upstream] Max Rate (kbps)	200000	(32~200000)
[Upstream] Min Rate (kbps)	32	(32~200000)
[Upstream] Msg Rate (kbps)	16	(4~248)
[Upstream] Max SNRM (0.1dB)	310	(60~310)

[Upstream] Min SNRM (0.1dB)	<input type="text" value="0"/> (0~60)
[Upstream] Target SNRM (0.1dB)	<input type="text" value="80"/> (0~310)
[Upstream] Max Interleave Delay (ms)	<input type="text" value="16"/> (0~63)
[Upstream] Min INP	<input type="text" value="0.5 symbol"/>
[Upstream] Min INP8	<input type="text" value="No INP8"/>

Figure 4-2-17: xDSL Line Profile Page Screenshot

The page includes the following fields:

Object	Description
• List Profile	xDSL profile name selection. If you want to add a new xDSL profile, please click the drop-down list and select "Add New" option to change profile and keep the profile configuration, after pressing the "Set" button. A new profile name will be shown on the profile list.
• Profile Name	Allows user to change profile name for adding a new xDSL profile. (1-40 characters)
• [VDSL] Transmode	There are 3 VDSL transaction modes: Annex A, Annex B and Annex C.
• [VDSL] Profile	Supports "Auto, 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a", "8a 8b 8c 8d" and "12a 12b" profiles. Default: 17a.
• [VDSL] Annex A Band Plans	Supports "BP DS D32", "BP DS D48", "BP DS D64", "BP DS D128". Default: "BP DS D32".
• [VDSL] Annex B Band Plans	Band plans are listed as follows. Default: 22 <ol style="list-style-type: none"> 1. BP B7-1 9 97-M1c-A-7, 2. BP B7-2 997- M1x-M-8, 3. BP B7-3 997- M1x-M, 4. BP B7-4 997- M2x-M-8, 5. BP B7-5 997- M2x-A 6. BP B7-6 997- M2x-M, 7. BP B7-7 HPE 17-M1-NUS0, 8. BP B7-8 HPE 30-M1-NUS0, 9. BP B7-9 997E17-M2x -A, 10. BP B7-10 997E30-M2x-NUS0, 11. BP B8-1 9 98-M1x-A, 12. BP B8-2 9 98-M1x-B, 13. BP B8-3 9 98-M1x-NUS0, 14. BP B8-4 9 98-M2x-A 15. BP B8-5 998- M2x-M 16. BP B8-6 9 98-M2x-B 17. BP B8-7 9 98-M2x-NUS0 18. BP B8-8 9 98E17-M2x 19. BP B8-9 998E17-M2x -NUS0-M

	20. BP B8-10 998ADE17-M2x-NUS0-M 21. BP B8-11 998ADE17-M2x-A 22. BP B8-12 998ADE17-M2x-B 23. BP B8-13 998E30-M2x-NUS0 24. BP B8-14 998E30-M2x-NUS0-M 25. BP B8-15 998ADE30-M2x-NUS0-M 26. BP B8-16 998ADE30-M2x-NUS0-A
• [VDSL] Annex C Band Plans	POTS-138B, POTS-276B, POTS-138CO, TCM-ISDN Default: POTS-138B
• [ADSL] Transmode	ADSL transaction modes are listed as follows. Default: 1 1. Auto 2. G.992.1 Annex A 3. G.992.1 Annex B 4. G.992.3 Annex A 5. G.992.3 Annex B 6. G.992.3 Annex L Mode 1 7. G.992.3 Annex L Mode 2 8. G.992.3 Annex M 9. G.992.5 Annex A 10. G.992.5 Annex B 11. G.992.5 Annex M 12. G.992.1 G.992.3 G.992.5 Annex A 13. G.992.1 G.992.3 G.992.5 Annex B 14. G.992.3 G.992.5 Annex M 15. G.992.3 G.992.5 Annex A Annex M
• [Dnstream] Max Rate (kbps)	Allows user to configure downstream maximum rate from 32 to 200000. Default: 20000
• [Dnstream] Min Rate (kbps)	Allows user to configure downstream minimum rate from 32 to 200000. Default: 32
• [Dnstream] Msg Rate (kbps)	Allows user to configure downstream rate from 4 or 248 kbps. Default: 16.
• [Dnstream] Max SNRM (0.1dB)	Allows user to configure downstream SNR margin maximum from 60 to 310. Default: 310dB
• [Dnstream] Min SNRM (0.1dB)	Allows user to configure downstream SNR margin minimum from 0 to 60. Default: 0dB
• [Dnstream] Target SNRM (0.1dB)	Allows user to configure downstream target SNR margin from 0 to 310. Configured acceptable SNR margin. If the SNR margin is above this value, the CO should attempt to reduce its power output to optimize its operation. Default: 80dB
• [Dnstream] Max Interleave Delay (ms)	Allows user to configure maximum downstream interleave delay from 0 to 63ms. Interleave Delay defines the mapping (relative spacing) between subsequent input bytes at the interleave input and their placement in the bit stream at the interleave output.

	Default: 4ms
• [Dnstream] Min INP	Allows user to configure downstream minimum INP from 0.5 symbols to 16 symbols. (INP means impulse noise immunity) Default: 0.5 symbols.
• [Dnstream] Min INP8	Allows user to configure downstream minimum INP8 from 0.5 symbols to 16 symbols. Default: No INP8
• [Upstream] Max Rate (kbps)	Allows user to configure upstream maximum rate from 32 to 200000. Default: 20000
• [Upstream] Min Rate (kbps)	Allows user to configure upstream minimum rate from 32 to 200000. Default: 32
• [Upstream] Msg rate (kbps)	Allows user to configure upstream rate from 4 or 248 kbps. Default: 16.
• [Upstream] Max SNRM (0.1dB)	Allows user to configure upstream SNR margin maximum from 60 to 310. Default: 310dB
• [Upstream] Min SNRM (0.1dB)	Allows user to configure upstream SNR margin minimum from 0 to 60. Default: 0dB
• [Upstream] Target SNRM (0.1dB)	Allows user to configure upstream target SNR margin from 0 to 310. Configured acceptable SNR margin. If the SNR margin is above this value, the CO should attempt to reduce its power output to optimize its operation. Default: 80dB
• [Upstream] Max Interleave Delay (ms)	Allows user to configure maximum upstream interleave delay from 0 to 63ms. Interleave Delay defines the mapping (relative spacing) between subsequent input bytes at the interleave input and their placement in the bit stream at the interleave output. Default: 16ms
• [Upstream] Min INP	Allows user to configure downstream minimum INP from 0.5 symbols to 16 symbols. (INP means impulse noise immunity) Default: 0.5 symbols.
• [Upstream] Min INP8	Allows user to configure downstream minimum INP8 from 0.5 symbols to 16 symbols. Default: No INP8

Button

: Save configuration.

: Click to reset IP address to default setting.

: Click to delete current xDSL profile.

: Click to delete all xDSL profiles.

4.2.15 xDSL Alarm Profile

This section introduces how to configure xDSL Alarm Profile. The 5224AV-DSG offers 15Min and 1 Day threshold for user setting flexibility. It means if this threshold value has been reached or exceeded within 15 minutes or 1 day, then it will alarm. This profile could be applied to **Apply xDSL Alarm Profile** configuration page. The screen in [Figure 4-2-18](#) appears.

xDSL Alarm Profile	
List Profile	ALARM-DEFAULT ▼
Profile Name	ALARM-DEFAULT *(1~20 chars)
[Upstream] 15Min ES Threshold	0 (0~900)
[Upstream] 15Min SES Threshold	0 (0~900)
[Upstream] 15Min UAS Threshold	0 (0~900)
[Dnstream] 15Min ES Threshold	0 (0~900)
[Dnstream] 15Min SES Threshold	0 (0~900)
[Dnstream] 15Min UAS Threshold	0 (0~900)
[Upstream] Day ES Threshold	0 (0~86400)
[Upstream] Day SES Threshold	0 (0~86400)
[Upstream] Day UAS Threshold	0 (0~86400)
[Dnstream] Day ES Threshold	0 (0~86400)
[Dnstream] Day SES Threshold	0 (0~86400)
[Dnstream] Day UAS Threshold	0 (0~86400)

Figure 4-2-18: xDSL Alarm Profile Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • List Profile 	<p>xDSL alarm profile name selection. If you want to add a new xDSL profile, please click the drop-down list and select “Add New” option to change profile and keep the profile configuration, after pressing the “Set” button. A new profile name will be shown on the profile list.</p>
<ul style="list-style-type: none"> • Profile Name 	<p>Allows user to change profile name for adding a new xDSL profile. (1-40 characters)</p>
<ul style="list-style-type: none"> • [Upstream] 15Min ES Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes upstream error seconds threshold.</p>
<ul style="list-style-type: none"> • [Upstream] 15Min SES Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes upstream severely error seconds threshold.</p>
<ul style="list-style-type: none"> • [Upstream] 15Min UAS Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes upstream unavailable error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] 15Min ES Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes downstream severely error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] 15Min SES Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes downstream unavailable error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] 15Min UAS Threshold 	<p>Allows user to configure the lowest limitation of 15 minutes downstream unavailable error seconds threshold.</p>
<ul style="list-style-type: none"> • [Upstream] Day ES Threshold 	<p>Allows user to configure the lowest limitation of 1 day upstream error seconds threshold.</p>
<ul style="list-style-type: none"> • [Upstream] Day SES Threshold 	<p>Allows user to configure the lowest limitation of 1 day upstream severely error seconds threshold.</p>
<ul style="list-style-type: none"> • [Upstream] Day UAS Threshold 	<p>Allows user to configure the lowest limitation of 1 day upstream unavailable error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] Day ES Threshold 	<p>Allows user to configure the lowest limitation of 1 day downstream severely error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] Day SES Threshold 	<p>Allows user to configure the lowest limitation of 1 day downstream unavailable error seconds threshold.</p>
<ul style="list-style-type: none"> • [Dnstream] Day UAS Threshold 	<p>Allows user to configure the lowest limitation of 1 day downstream unavailable error seconds threshold.</p>

Button

Set: Save configuration.

Reset: Click to reset IP address to default setting.

Delete: Click to delete current xDSL profile.

DelAll: Click to delete all xDSL profiles.

4.2.16 Setting VLAN Port Table

This section introduces how to configure VLAN Port table and user can customize their VLAN application. The screen in [Figure 4-2-19](#) appears.

The Set VLAN table is Q-in-Q VLAN concept.

■ IEEE 802.1Q Tunneling (Q-in-Q)

IEEE 802.1Q Tunneling (Q-in-Q) is designed for service providers carrying traffic for multiple customers across their networks. Q-in-Q tunneling is used to maintain customer-specific VLAN and Layer 2 protocol configurations even when different customers use the same internal VLAN IDs. This is accomplished by inserting **Service Provider VLAN (SPVLAN)** tags into the customer's frames when they enter the service provider's network, and then stripping the tags when the frames leave the network.

A service provider's customers may have specific requirements for their internal VLAN IDs and number of VLANs supported. VLAN ranges required by different customers in the same service-provider network might easily overlap, and traffic passing through the infrastructure might be mixed. Assigning a unique range of VLAN IDs to each customer would restrict customer configurations, require intensive processing of VLAN mapping tables, and could easily exceed the maximum VLAN limit of 4094.

The IP DSLAM supports multiple VLAN tags and can therefore be used in MAN applications as a provider bridge, aggregating traffic from numerous independent customer LANs into the **MAN (Metro Access Network)** space. One of the purposes of the provider bridge is to recognize and use VLAN tags so that the VLANs in the MAN space can be used independent of the customers' VLANs. This is accomplished by adding a VLAN tag with a MAN-related VID for frames entering the MAN. When leaving the MAN, the tag is stripped and the original VLAN tag with the customer-related VID is again available.

This provides a tunneling mechanism to connect remote customer VLANs through a common MAN space without interfering with the VLAN tags. All tags use Ether Type **0x8100** or **0x88A8**, where 0x8100 is used for customer tags and 0x88A8 are used for service provider tags.

In cases where a given service VLAN only has two member ports on the IP DSLAM, the learning can be disabled for the particular VLAN and can therefore rely on flooding as the forwarding mechanism between the two ports. This way, the MAC table requirements is reduced.

Set VLAN Port Table	
xDSL Port	<input type="text" value="1"/> *(1~24)
Index	<input type="text" value="1"/> *(1~8)
Type	<input type="button" value="Untag"/> ▾
SVLAN ID	<input type="text" value="1"/> (1~4094)
SVLAN Priority	<input type="text" value="0"/> (0~7)
CVLAN ID (4095 = IGNORE)	<input type="text" value="4095"/> (1~4095)
CVLAN Priority	<input type="text" value="0"/> (0~7)
CVLAN Accept (4095 = IGNORE)	<input type="text" value="4095"/> (1~4095)

Figure 4-2-19: Set VLAN Port Table Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • xDSL Port 	<p>Allows user to indicate which xDSL port is going to configure VLAN tagged.</p> <p>Default: 1.</p>
<ul style="list-style-type: none"> • Index 	<p>Allows user to set configuration index. It offers 8 indexes configuration totally.</p> <p>Default: 1.</p>
<ul style="list-style-type: none"> • Type 	<p>Allows user to set tag or untag to ingress packet. This option is used for CVLAN.</p> <p>Untag: To deal with those packets without VID. Refer to following parameters about SVLAN/CVLAN ID.</p> <p>Single: To deal with those packets with specific VID (see CVLAN Accept parameter). Refer to the following parameters about SVLAN/CVLAN ID.</p> <p>Default: Untag</p>
<ul style="list-style-type: none"> • SVLAN ID 	<p>Allows user to indicate a VID to be replaced to egress packet.</p> <p>Default: 1.</p>
<ul style="list-style-type: none"> • SVLAN Priority 	<p>Allows user to indicate priority of SVLAN (Service VLAN)</p> <p>Default: 0</p>

<ul style="list-style-type: none"> • CVLAN ID (4095=IGNORE) 	<p>Allows user to indicate a VID to be replaced to egress packet.</p> <p>Default: 4095.</p>
<ul style="list-style-type: none"> • CVLAN Priority 	<p>Allows user to indicate priority of CVLAN (Customer VLAN)</p> <p>Default: 0</p>
<ul style="list-style-type: none"> • CVLAN Accept (4095=IGNORE) 	<p>Allows user to indicate a VID to accept ingress packet of the same VID tagged.</p>

Button

Set : Save configuration.

Get : Click to undo any changes made locally and revert to previously saved values. User has to input xDSL port and index number then the configuration could be gotten back. If you forgot the VLAN configuration, please telnet to this device and list VLAN table.

Reset : Click to reset IP address to default setting.

Delete : Click to delete current xDSL profile.

DelAll : Click to delete all xDSL profiles.

[VLAN Setting Example]

The following table shows four kinds of VLAN setting examples.

The configuration of No1 is 802.1Q tag-based VLAN application.

The configuration of No2 is Q-in-Q VLAN application.

The value of “Type” is used for CVLAN only.

The configuration of No3 is same as 802.1Q VLAN, but it just accepts VID10 tagged packet from CPE side.

The configuration of No4 is same as Q-in-Q VLAN, but it just accepts VID10 tagged packet from CPE side.

No.	VLAN Conditions	Type	SVLAN Setting	CVLAN Setting	CVLAN_Accept	Ingress VID ①	Egress VID②	Figure
1	Un-Tag in / Single-Tag out	Untag	30	4095	4095	-	30	802.1Q VLAN Figure 4-2-20
2	Un-Tag in / Double-Tag out	Untag	30	50	4095	-	30,50	Q-in-Q VLAN Figure 4-2-21
3	Single-Tag in / Single-Tag out	Single	30	4095	10	10	30	Figure 4-2-22
4	Single-Tag in / Double-Tag out	Single	30	50	10	10	30,50	Figure 4-2-23

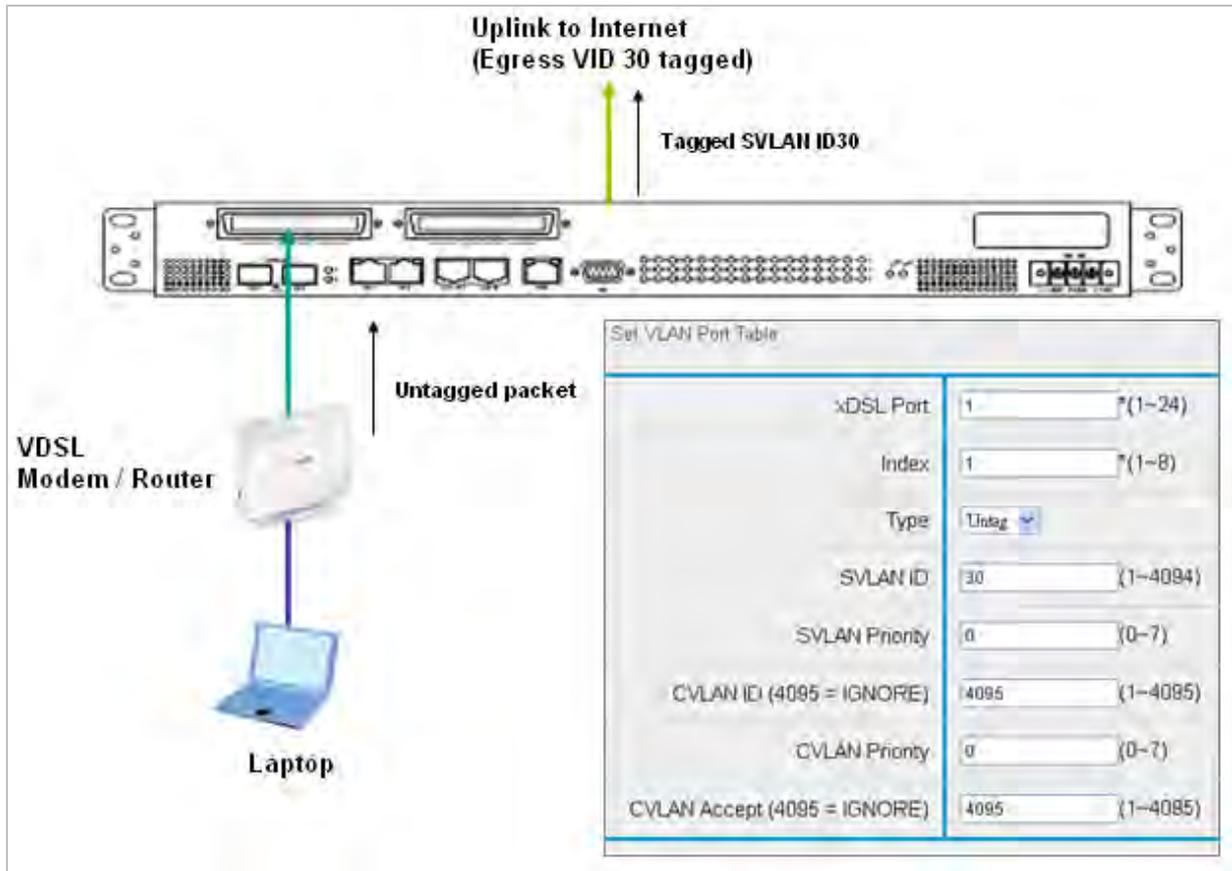


Figure 4-2-20: Example of setting Untagged packet in and Single Tagged packet out

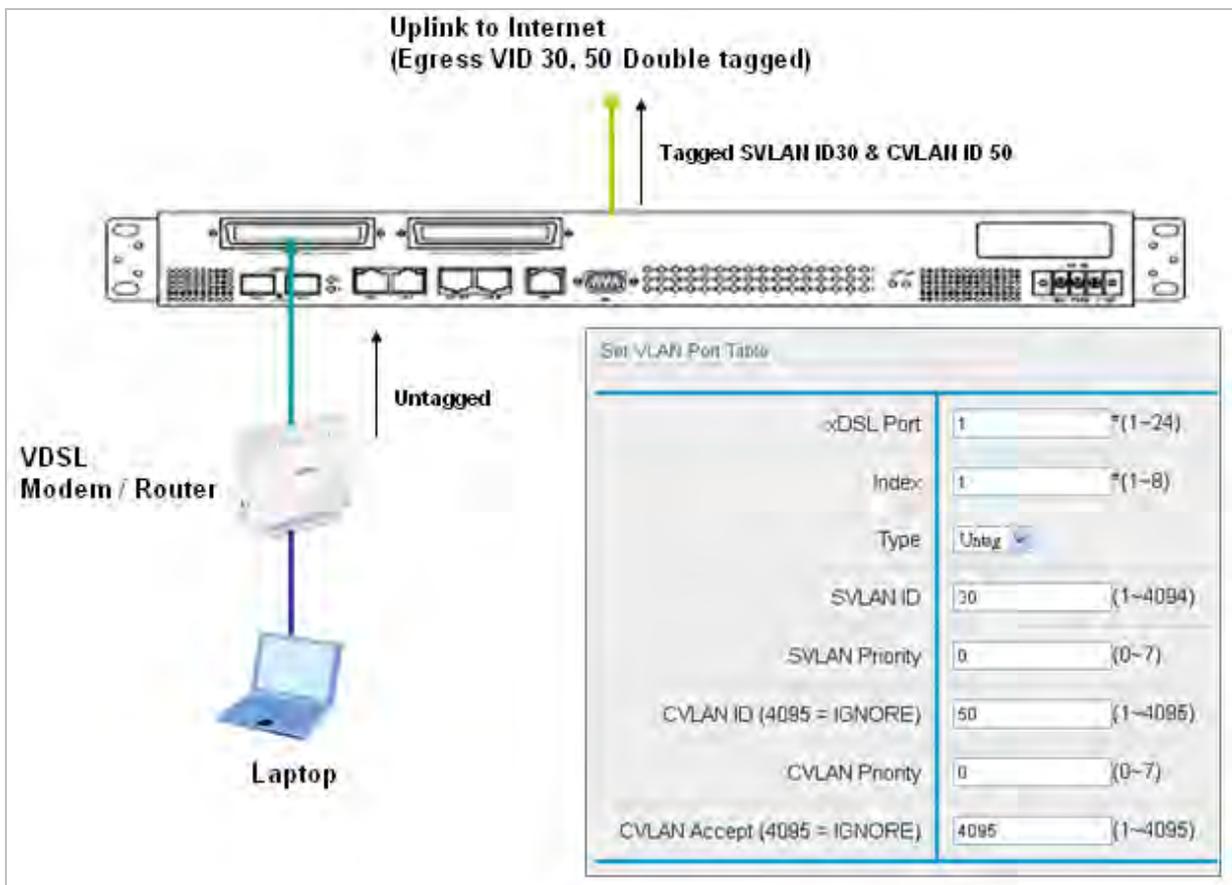


Figure 4-2-21: Example of setting Untagged packet in and Double Tagged packet out

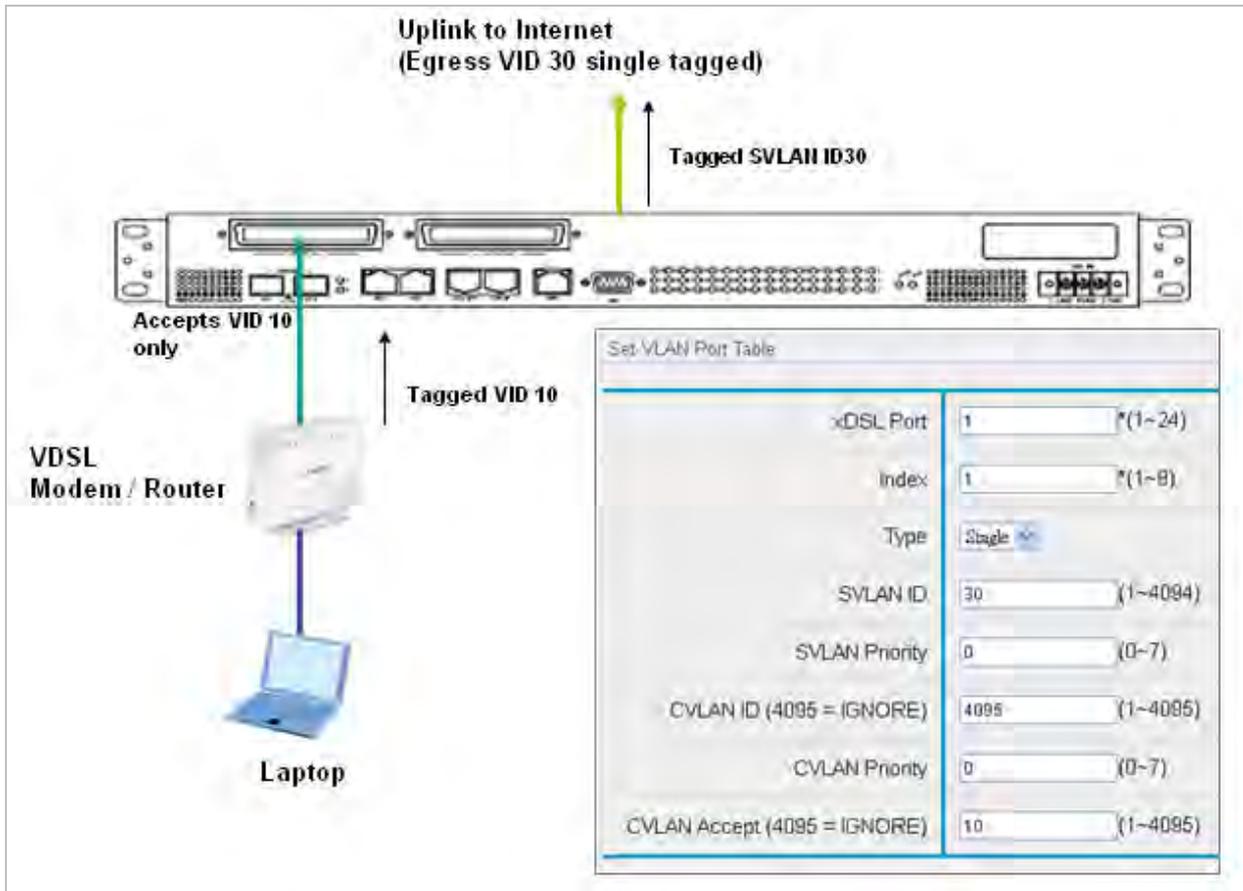


Figure 4-2-22: Example of setting Single Tagged packet in and Single Tagged packet out

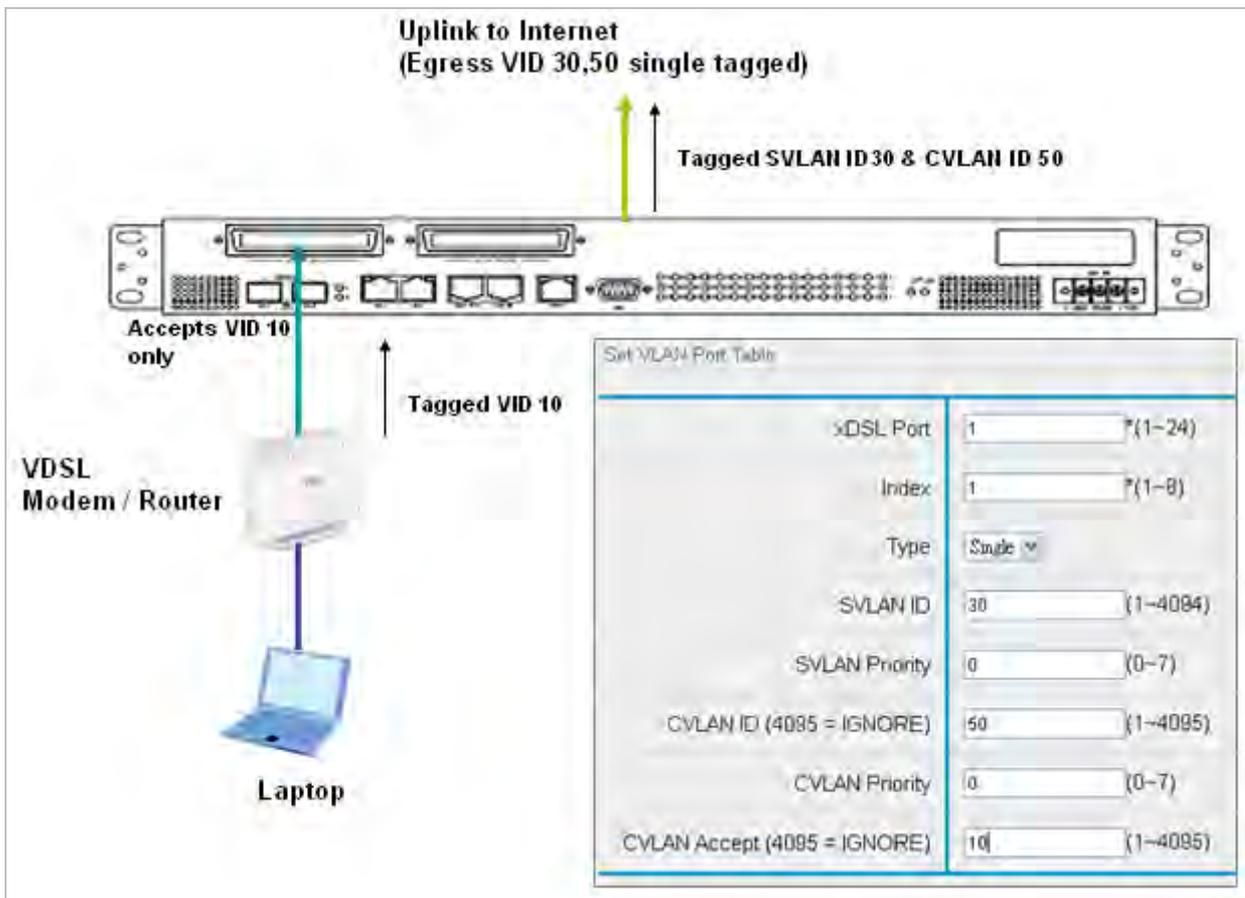


Figure 4-2-23: Example of setting Single Tagged packet in and Double Tagged packet out

4.2.17 Access Control List Group

This section introduces how to configure access control list group. The screen in [Figure 4-2-24](#) appears.

Access Control List Group	
Group Name	<input type="text" value="ACL-DEFAULT"/> *(5~20 chars)
Index	<input type="text" value="1"/> *(1~8)
Action	<input type="text" value="Deny"/> ▼
Overwritten Value	<input type="text" value="0"/> (0~63)Overwritten action only
Address Type	<input type="text" value="None"/> ▼
Source	<input type="text" value="Any"/> (3~40 chars)
Destination	<input type="text" value="Any"/> (3~40 chars)
Protocol Type	<input type="text" value="255"/> (0~255)255 is ignore
Service Type	<input type="text" value="None"/> ▼
Service Type Value	<input type="text" value="0"/> (0~63)
VLAN ID	<input type="text" value="0"/> (0~65535)0 is ignore
EtherType	<input type="text" value="0"/> (0~ffff)0 is ignore
TCP/UDP Src. Port	<input type="text" value="0"/> (0~65535)0 is ignore
TCP/UDP Dst. Port	<input type="text" value="0"/> (0~65535)0 is ignore

Figure 4-2-24: Access Control List Group Page Screenshot

The current column is used to show the active IP configuration.

Object	Description
<ul style="list-style-type: none"> • Group Name 	Allows user to change ACL group name. Default: ACL-DEFAULT
<ul style="list-style-type: none"> • Index 	Allows user to change group index and it offers 8 indexes totally. It means ACL sub-index for each group name. Each ACL group can be configured 1~128 sub-indexes. Default: 1
<ul style="list-style-type: none"> • Action 	Once related parameters are complied (type~TCP/UDP port), "Action parameters" will be executed. Default: Deny Valid option includes: <ol style="list-style-type: none"> 1. Deny : Deny access. 2. TOS to SVLAN Priority 3. TOS to CVLAN Priority 4. SVLAN Priority to TOS 5. CVLAN Priority to TOS 6. SVLAN Priority to CVLAN Priority 7. CVLAN Priority to SVLAN Priority 8. SVLAN Priority overwritten 9. CVLAN Priority overwritten 10. T oS overwritten
<ul style="list-style-type: none"> • Overwritten Value 	Allows user to indicate the overwritten value if the "Action" option chooses SVLAN Priority overwritten, CVLAN Priority overwritten and ToS overwritten.
<ul style="list-style-type: none"> • Address Type 	Allows user to choose address type. Default: None MAC: Mac address. IP: IP addrss: None: none.
<ul style="list-style-type: none"> • Source 	Allows user to indicate source IP / MAC address. Default: Any Format Example: IP address: 192.168.0.100 MAC Address: 00:30:4F:00:01:02
<ul style="list-style-type: none"> • Destination 	Allows user to indicate destination IP / MAC address. Default: Any Format Example: IP address: 192.168.0.100 MAC Address: 00:30:4F:00:01:02

<ul style="list-style-type: none"> • Protocol Type 	<p>Allows user to indicate protocol type number. User has to translate the protocol number from Hexadecimal To Decimal.</p> <p>Ex.</p> <table border="1"> <thead> <tr> <th>Protocol Number (Hexadecimal)</th> <th>Protocol Name</th> <th>Decimal</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>ICMP</td> <td>1</td> </tr> <tr> <td>0x02</td> <td>IGMP</td> <td>2</td> </tr> <tr> <td>0x06</td> <td>TCP</td> <td>6</td> </tr> <tr> <td>0x11</td> <td>UDP</td> <td>17</td> </tr> </tbody> </table>	Protocol Number (Hexadecimal)	Protocol Name	Decimal	0x01	ICMP	1	0x02	IGMP	2	0x06	TCP	6	0x11	UDP	17
Protocol Number (Hexadecimal)	Protocol Name	Decimal														
0x01	ICMP	1														
0x02	IGMP	2														
0x06	TCP	6														
0x11	UDP	17														
<ul style="list-style-type: none"> • Service Type 	<p>Allows user to indicate service type. Default: CoS</p> <p>None / Cos / ToS / DSCP / Precedence</p>															
<ul style="list-style-type: none"> • Service Type Value 	<p>Allows user to indicate service type value; it is from 0 to 63. Default: 0</p>															
<ul style="list-style-type: none"> • VLAN ID 	<p>Allows user to indicate VLAN ID; it is from 0 to 65536. 0 is ignoring. Default: 0</p>															
<ul style="list-style-type: none"> • Ether Type 	<p>Allows user to indicate ether type number. Default: 0</p>															
<ul style="list-style-type: none"> • TCP/UDP Src. Port 	<p>Allows user to indicate TCP/UDP source port. 0 is ignoring. Default: 0</p>															
<ul style="list-style-type: none"> • TCP/UDP Dst. Port 	<p>Allows user to indicate TCP/UDP destination port. 0 is ignoring. Default: 0</p>															

Button

Set : Save configuration.

Get : Click to undo any changes made locally and revert to previously saved values. Input new created group name then you can get back the new created group configuration.

Reset : Click to reset IP address to default setting.

Delete : Click to delete current xDSL profile.

DelAll : Click to delete all xDSL profiles.

4.2.18 Remark Mapping

This section introduces how to configure remark mapping. The screen in [Figure 4-2-25](#) appears.

Figure 4-2-25: Remark Mapping Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Remark Action 	Allows user to indicate remark action type. Default: ToS to SVLAN Priority <ol style="list-style-type: none"> 1. TOS to SVLAN Priority 2. TOS to CVLAN Priority 3. SVLAN Priority to TOS 4. CVLAN Priority to TOS 5. SVLAN Priority to CVLAN Priority 6. CVLAN Priority to SVLAN Priority
<ul style="list-style-type: none"> • From 	Allows user to indicate from a mapping digits.
<ul style="list-style-type: none"> • Change To 	Allows user to indicate change to a new mapping digits.

Button

Set : Save configuration.

Get : Click to undo any changes made locally and revert to previously saved values.

Reset : Click to reset IP address to default setting.

Delete : Click to delete current xDSL profile.

DelAll : Click to delete all xDSL profiles.

4.2.19 IGMP Channel Profile

This section introduces how to configure IGMP Channel Profile. The screen in [Figure 4-2-26](#) appears.

IGMP Channel Profile	
Profile Name	<input type="text" value="CHANNEL-DEFAULT"/> *(5~20 chars)
Index	<input type="text" value="1"/> *(1~128)
Channel Assign Method	<input type="button" value="Range"/> ▾
Action	<input type="button" value="Permit"/> ▾
Channel IP	<input type="text" value="224.0.0.0"/>
End Channel IP	<input type="text" value="239.255.255.255"/> For Range Assign
Mask Channel IP	<input type="text" value="24"/> (4~32)For Mask Assign
Multicast Router Port	<input type="button" value="GE1"/> ▾

Figure 4-2-26: Remark Mapping Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> Profile Name (5~20 chars) 	Allows user to change profile name for creating or modifying profile. Please note that the default profile cannot be changed, and rename the default profile name directly for creating new profile.
<ul style="list-style-type: none"> Index (1~128) 	There are maximum 128 sub-indexes that can be set for each IGMP profile. Valid range: 1~128
<ul style="list-style-type: none"> Channel Assign Method 	Indicates the way to assigned available IGMP channels. Valid option includes: <ol style="list-style-type: none"> Single: Indicate one IP and its value is "channel IP". Range: Indicates available IP which begins from "channel IP" to "End channel IP". Mask: Indicates available IP according to how many bits to be ignored. It begins with "channel IP".
<ul style="list-style-type: none"> Action 	Permit: Allow the access for IGMP packets.

	Deny: Refuse the access for IGMP packets Default: Permit
• Channel IP	Allows user to indicate multicast group IP to be assigned. Default: 224.0.0.0
• End Channel IP	Allows user to indicate available multicast group IP which begins from “channel IP” to “End channel IP”. Default: 239.255.255.255
• Mask Channel IP	Mask: Indicate s avaiila ble IP accordin g to how m any bits to be Ignored. It begins with “channel IP”. Valid option: 1~32. Default: 24 e.g., Set Musk: 24, meaning available IGMP channels that begin with Channel IP (i.e. 224.0.0.0) to 224.0.0.255
• Multicast Router Port	Allows user to indicate multicast router port to GE1 or GE2. Default: GE1

Button

Set

: Save configuration.

Get

: Click to undo any changes made locally and revert to previously saved values. User has to input new created profile name then you can get back new created profile configuration.

Reset

: Click to reset IP address to default setting.

Delete

: Click to delete current xDSL profile.

DelAll

: Click to delete all xDSL profiles.

.4.2.20 PBO Profile Apply

This section introduces how to configure “PBO Profile”. This page is for you to apply PBO profile to DSL port only. If you would like to change PBO profile setting, please go visit the power back off profile page and make a new profile first. The screen in [Figure 4-2-27](#) appears.

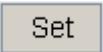
Port	PBO Profile Apply
1	PBO-DEFAULT
2	PBO-DEFAULT
3	PBO-DEFAULT
4	PBO-DEFAULT
21	PBO-DEFAULT
22	PBO-DEFAULT
23	PBO-DEFAULT
24	PBO-DEFAULT

Figure 4-2-27: PBO Profile Page Screenshot

The page includes the following fields:

Object	Description
• Start Port	Allows user to set up port range.
• End Port	Allows user to set up port range.
• PBO Profile Apply	Allows user to apply PBO profile. Default is PBO-DEFAULT.

Button

: Save configuration.

4.2.21 Power Back Off Profile

This section introduces how to configure power back off profile. The screen in [Figure 4-2-28](#) appears.

Power Back Off Profile	
Profile Name	PBO-DEFAULT *(5~20 chars)
DPBO EPsd	adsl2+ mode
DPBO EsEL	0 (0~511)0.5 dB-0 is DPBO off
DPBO EsCableModelA	270 (0~640)2e-8
DPBO EsCableModelB	490 (0~640)2e-8
DPBO EsCableModelC	246 (0~640)2e-8
DPBO Mus	216 (0~255)0.5 dBm
DPBO Frequency Min	60 (0~2048)4.3125 kHz
DPBO Frequency Max	512 (0~8956)4.3125 kHz
UPBO KL	270 (0~1280)0.1 dBm
UPBO KLF	UPBO Disable
UPBO U0 band Psd A	4000 (4000~8095)0.01 dBm/Hz
UPBO U0 band Psd B	0 (0~4095)0.01 dBm/Hz
UPBO U1 band Psd A	4000 (4000~8095)0.01 dBm/Hz
UPBO U1 band Psd B	0 (0~4095)0.01 dBm/Hz
UPBO U2 band Psd A	4000 (4000~8095)0.01 dBm/Hz
UPBO U2 band Psd B	0 (0~4095)0.01 dBm/Hz
UPBO U3 band Psd A	4000 (4000~8095)0.01 dBm/Hz
UPBO U3 band Psd B	0 (0~4095)0.01 dBm/Hz

Figure 4-2-28: Power Back Off Profile Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Profile Name 	<p>Allows user to input new profile name for creating a new profile. Default is PBO-DEFAULT. Please note that default profile cannot be changed.</p>
<ul style="list-style-type: none"> • DPBO EPsd 	<p>Allows user to select different ADSL modes from DPBO exchange PSD. There are ADSL mode, ADSL2+ mode, VDSL2 mode and custom. Default is ADSL2+ mode.</p>
<ul style="list-style-type: none"> • DPBO EsEL 	<p>This configuration parameter defines the assumed electrical length of cables (E-side cables) connecting exchange-based DSL services to a remote flexibility point (cabinet) that hosts the xTU-C that is subject to spectrally shaped downstream power back- off (DPBO) depending on this length. The electrical length is defined as the loss (in dB) of an equivalent length of hypothetical cable at a reference frequency defined by the network operator or in spectrum management regulations. This parameter shall be coded as an unsigned integer representing an electrical length from 0 dB (coded as 0) to 255.5 dB (coded as 511) in steps of 0.5 dB. All values in the range are valid. If this parameter is set to '0', the DPBO shall be disabled.</p>
<ul style="list-style-type: none"> • DPBO EsCableModelA 	<p>The E-side Cable Model parameter A (DPBOESCMA) of the cable model (DPBOESCM) for cables connecting exchange-based DSL services to a remote flexibility point (cabinet), that hosts the xTU-C that is subject to spectrally shaped downstream power back- off (DPBO) depending on this value. It is used to estimate the frequency dependent loss of E-side cables calculated from the xdsl2LConfProfDpboEsEL (DPBOESEL) parameter. Possible values shall be coded as unsigned integers representing a scalar value from -1 (coded as 0) to 1.5 (coded as 640) in steps of 2^{-8}. All values in the range are valid. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • DPBO EsCableModelB 	<p>The E-side Cable Model parameter B (DPBOESCMB) of the cable model (DPBOESCM) for cables connecting exchange-based DSL services to a remote flexibility point (cabinet), that hosts the xTU-C that is subject to spectrally shaped downstream power back- off (DPBO) depending on this value. It is used to estimate the frequency dependent loss of E-side cables calculated from the xdsl2LConfProfDpboEsEL (DPBOESEL) parameter. Possible values shall be coded as unsigned integers representing a scalar value from -1 (coded as 0) to 1.5 (coded as 640) in steps of 2^{-8}. All values in the range are valid. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • DPBO EsCableModelC 	<p>The E-side Cable Model parameter C (DPBOESCMC) of the cable model (DPBOESCM) for cables connecting exchange-based DSL services to a remote flexibility point (cabinet), that hosts the xTU-C that is subject to spectrally shaped downstream power back- off (DPBO) depending on this</p>

	<p>value. The cable model is in terms of three scalars <code>xdsl2LConfProfDpboEsCableModelA</code> (DPBOESCMA), <code>xdsl2LConfProfDpboEsCableModelB</code> (DPBOESCMB), and <code>xdsl2LConfProfDpboEsCableModelC</code> (DPBOESCMC), that are used to estimate the frequency dependent loss of E-side cables calculated from the <code>xdsl2LConfProfDpboEsEL</code> (DPBOESEL) parameter. Possible values shall be coded as unsigned integers representing a scalar value from -1 (coded as 0) to 1.5 (coded as 640) in steps of 2^{-8}. All values in the range are valid. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • DPBO Mus 	<p>This configuration parameter defines the assumed minimum usable receive PSD mask (in dBm/Hz) for exchange-based services, used to modify parameter <code>xdsl2LConfProfDpboFMax</code> (DPBOFMAX) defined below (to determine the DPBO). It shall be coded as an unsigned integer representing a PSD mask level from 0 dBm/Hz (coded as 0) to -127.5 dBm/Hz (coded as 255) in steps of 0.5 dBm/Hz. All values in the range are valid. NOTE - the PSD mask level is 3.5 dB above the signal PSD level. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • DPBO Frequency Min 	<p>This configuration parameter defines the minimum frequency from which the DPBO shall be applied. It ranges from 0 kHz (coded as 0) to 8832 kHz (coded as 2048) in steps of 4.3125 kHz. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • DPBO Frequency max 	<p>This configuration parameter defines the maximum frequency at which DPBO may be applied. It ranges from 138 kHz (coded as 32) to 29997.75 kHz (coded as 6956) in steps of 4.3125 kHz. This parameter is used only for G.993.2.</p>
<ul style="list-style-type: none"> • UPBO KL 	<p>This configuration parameter defines the electrical length expressed in dB at 1 MHz, <code>kl0</code>, configured by the CO-MIB. The value ranges from 0 (coded as 0) to 128 dB (coded as 1280) in steps of 0.1 dB. This parameter is relevant only if <code>xdsl2LConfProfUpboKLF</code> is set to 'override (2)', which indicates that this parameter's value will override the VTUs' determination of the electrical length. If <code>xdsl2LConfProfUpboKLF</code> is set either to auto (1) or disableUpbo (3), then this parameter will be ignored.</p>
<ul style="list-style-type: none"> • UPBO KLF 	<p>Defines the upstream power back off force mode.</p>
<ul style="list-style-type: none"> • UPBO U0 band Psd A • UPBO U1 band Psd A • UPBO U2 band Psd A • UPBO U3 band Psd A 	<p>This configuration parameter defines the 'a' reference parameter of the UPBO reference PSD used to compute the upstream power back-off for the upstream band. A UPBO PSD defined for each band shall consist of two parameters [a, b]. Parameter 'a' (<code>xdsl2LConfProfUpboPsdA</code>) ranges from 40 dBm/Hz (coded as 4000) to 80.95 dBm/Hz (coded as 8095) in steps of 0.01 dBm/Hz; and parameter 'b' (<code>xdsl2LConfProfUpboPsdB</code>) ranges from 0 dBm/Hz (coded as 0) to 40.95 dBm/Hz (coded as 4095) in steps of 0.01 dBm/Hz. The UPBO reference PSD at the frequency 'f' expressed in MHz shall be equal to '-a-b(SQRT(f))'. Setting <code>xdsl2LConfProfUpboPsdA</code> to 4000 and</p>

	xdsI2LConfProfUpboPsdB to 0 is a special configuration to disable UPBO in the respective upstream band.
<ul style="list-style-type: none"> • UPBO U0 band Psd B • UPBO U1 band Psd B • UPBO U2 band Psd B • UPBO U3 band Psd B 	<p>This configuration parameter defines the 'b' reference parameter of the UPBO reference PSD used to compute the upstream power back-off for the upstream band. A UPBO PSD defined for each band shall consist of two parameters [a, b]. Parameter 'a' (xdsI2LConfProfUpboPsdA) ranges from 40 dBm/Hz (coded as 4000) to 80.95 dBm/Hz (coded as 8095) in steps of 0.01 dBm/Hz; and parameter 'b' (xdsI2LConfProfUpboPsdB) ranges from 0 dBm/Hz (coded as 0) to 40.95 dBm/Hz (coded as 4095) in steps of 0.01 dBm/Hz. The UPBO reference PSD at the frequency 'f' expressed in MHz shall be equal to '-a-b (SQRT(f))'. Setting xdsI2LConfProfUpboPsdA to 4000 and xdsI2LConfProfUpboPsdB to 0 is a special configuration to disable UPBO in the respective upstream band.</p>

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values. User has to input new created profile name then you can get back the new created profile configuration.

: Click to reset IP address to default setting.

: Click to delete current xDSL profile.

: Click to delete all xDSL profiles.

4.3 Alarm

4.3.1 List Current Alarms

This section introduces how to configure List Current Alarms for displaying present data of the current alarm event. The screen in [Figure 4-3-1](#) appears.

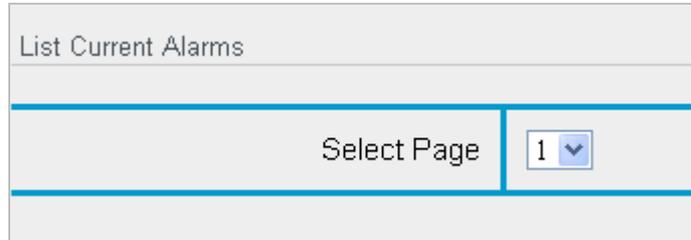


Figure 4-3-1: List Current Alarms Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Select Page	Allows user to indicate page number to show the current alarm data.

4.3.2 List Alarms History

This section introduces how to configure List Alarm History for displaying history alarm data. The screen in [Figure 4-3-2](#) appears.

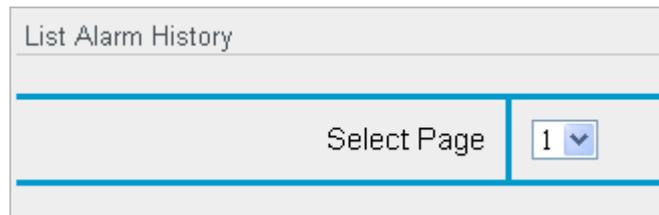


Figure 4-3-2: List Current Alarms Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Select Page	Allows user to indicate page number to show history alarm data.

4.3.3 Clear Alarm History

User just needs to click “Clear Alarm History” link from menu tree. The screen in [Figure 4-3-3](#) appears.



Figure 4-3-3: Clear Alarm History Page Screenshot

4.3.4 Operate Alarm Cut Off

The operate alarm cut off is for you to cut off audio alarm sound if 4th external alarm output has been triggered. The screen in [Figure 4-3-4](#) appears.



Figure 4-3-4: Operate Alarm Cut off Page Screenshot

4.3.5 Modify Alarm Severity

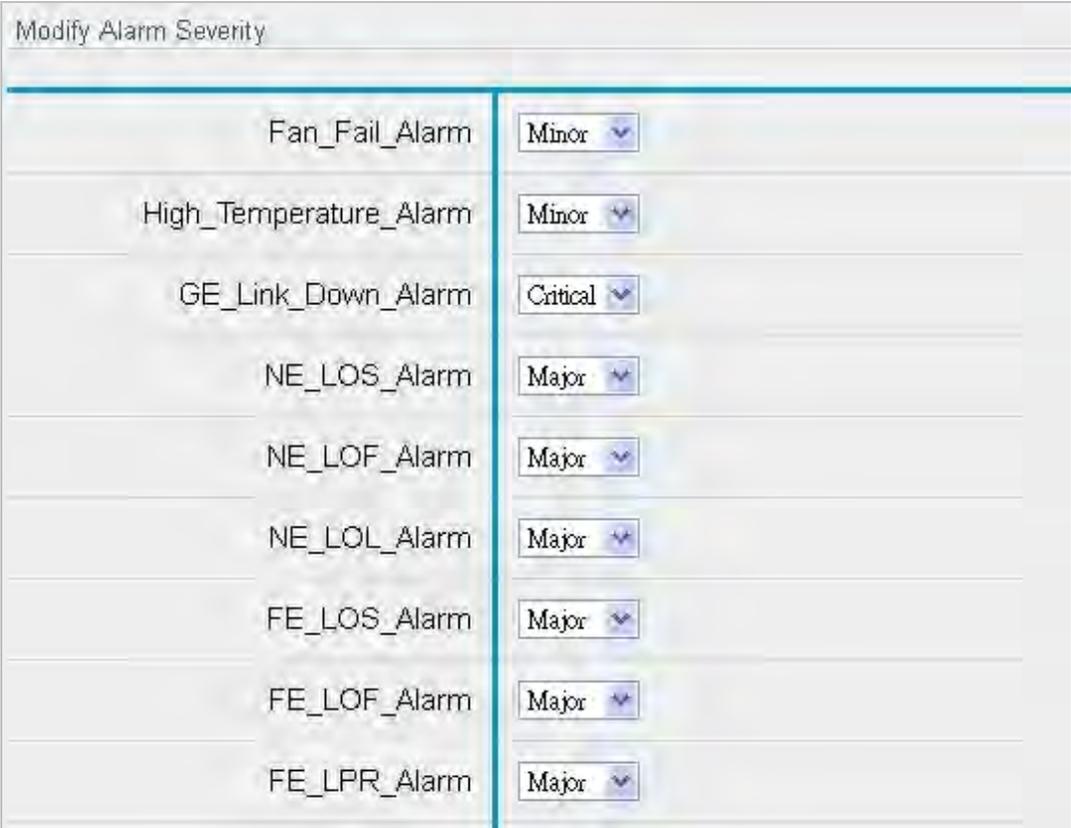
This section introduces how to configure Modify Alarm Severity. Define alarm severity is going to help user to manage which alarm severity level should be outputted to what alarm out group. The screen in [Figure 4-3-5](#) appears

As built-in alarm output assignment to “ALARM OUT” port is as following table.

For example, if user set “FAN_Fail_Alarm” severity to “Minor” then “External Alarm OUT3” will be triggered when 5224AV-DSG fan has stopped.

If user set “FAN_Fail_Alarm” severity to “Critical” then “External Alarm OUT1” will be triggered when 5224AV-DSG fan has stopped.

Object	Severity Definition
• External Alarm OUT1	Critical
• External Alarm OUT2	Major
• External Alarm OUT3	Minor
• External Alarm OUT4	For audio alarm device only. (Use “Operate Alarm Cut Off” can control the alarm out immediately.)



Modify Alarm Severity	
Fan_Fail_Alarm	Minor
High_Temperature_Alarm	Minor
GE_Link_Down_Alarm	Critical
NE_LOS_Alarm	Major
NE_LOF_Alarm	Major
NE_LOL_Alarm	Major
FE_LOS_Alarm	Major
FE_LOF_Alarm	Major
FE_LPR_Alarm	Major

NE_ES_15Min_Threshold	Event
NE_SES_15Min_Threshold	Event
NE_UAS_15Min_Threshold	Event
FE_ES_15Min_Threshold	Event
FE_SES_15Min_Threshold	Event
FE_UAS_15Min_Threshold	Event
EXT1_ALARM	Minor
EXT2_ALARM	Minor
EXT3_ALARM	Minor
EXT4_ALARM	Minor

Figure 4-3-5: Modify Alarm Severity Page Screenshot

The page includes the following fields:

Object	Description
• Fan_Fail Alarm	Allows user to set fan failure alarm type to critical, major and minor, event or info.
• High_Temperature_Alarm	Allows user to set high temperature alarm type to critical, major and minor, event or info. This alarm event triggering is according to "Temperature Threshold" setting. If system temperature has reached or exceeded the temperature threshold then high temperature alarm will be triggered.
• GE_Link Down_Alarm	Allows user to set GE port link down alarm type to critical, major, minor, event or info.
• NE_LOS_Alarm	Allows user to set NE_LOS_Alarm type to critical, major and minor, event or info.
• NE_LOF_Alarm	Allows user to set NE_LOF_Alarm type to critical, major and minor, event or info.
• NE_LOL_Alarm	Allows user to set NE_LOL_Alarm type to critical, major and minor, event or info.
• FE_LOS_Alarm	Allows user to set FE_LOS_Alarm type to critical, major and minor, event or info.
• FE_LOF_Alarm	Allows user to set FE_LOF_Alarm type to critical, major and minor, event or info.
• FE_LOL_Alarm	Allows user to set FE_LOL_Alarm type to critical, major and minor, event or info.
• FE_LPR_Alarm	Allows user to set FE_LPR_Alarm type to critical, major and minor, event or info.

• NE_ES_15Min_Threshold	Allows user to set NE_ES_15Min_Threshold type to critical, major and minor, event or info.
• NE_SES_15Min_Threshold	Allows user to set NE_SES_15Min_Threshold type to critical, major and minor, event or info.
• NE_UAS_15Min_Threshold	Allows user to set NE_UAS_15Min_Threshold type to critical, major and minor, event or info.
• FE_ES_15Min_Threshold	Allows user to set FE_ES_15Min_Threshold type to critical, major and minor, event or info.
• FE_SES_15Min_Threshold	Allows user to set FE_SES_15Min_Threshold type to critical, major and minor, event or info.
• FE_UAS_15Min_Threshold	Allows user to set FE_UAS_15Min_Threshold type to critical, major and minor, event or info.
• EXT1_ALARM	Allows user to set Alarm Input 1 mapping alarm type to critical, major and minor, event or info.
• EXT2_ALARM	Allows user to set Alarm Input 2 mapping alarm type to critical, major and minor, event or info.
• EXT3_ALARM	Allows user to set Alarm Input 3 mapping alarm type to critical, major and minor, event or info.
• EXT4_ALARM	Allows user to set Alarm Input 4 mapping alarm type to critical, major and minor, event or info.

**Note: When user sets up EXT ALARM (ALARM INPUT) severity, it will be relayed to alarm out at the same time if alarm input event has been triggered.

[Additional Alarm Description]

Specified line failures bit field about ATU-C/ATU-R. The meaning of all bits is as follows:

0: No failure present on the line

1: A failure is detected on the line.

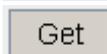
Type	Description
LOS	It means Loss-of-signal failure. A (far-end) LOS failure is declared after 2.5 +- 0.5 s of contiguous (fared) LOS defect, or, if (far-end) LOS defect is present when the criteria for (far-end) LOF failure declaration have been met (see LOF definition below). A (far-end) LOS failure is cleared after 10 +- 0.5 s of no (far-end) LOS defected.
LOF	It means Loss-of-frame failure. A (far-end) LOF failure is declare+d after 2.5+-0.5 s of contiguous (RDI) SEF defect, except when an (far-end) LOS defect or failure is present (see LOS definition blow). A (far-end) LOF failure is cleared when (far-end) LOS failure is declared, or after 10 +- 0.5 s of no (RDI) SEF defect.
LOL	Loss of link LOL indicates a loss-of-link condition according to RFC2662.
LPR	It means Loss-of-power failure. <ul style="list-style-type: none"> LPR_NE: An LPR failure is declared after 2.5 +- 0.5 s of contiguous near end LPR primitive presence. An LPR failure is cleared after 10 +- 0.5 s of no near-end LPR primitive presence.

	LPR_FE: A far end Loss of power - LPR-FE failure is declared after the occurrence of a far end LPR primitive followed by 2.5 +- 0.5 s of contiguous near end LOS defected. A far end LPR failure is cleared after 10 +- 0.5 s of no near end LOS defected.
ES	<p>It means Error Seconds.</p> <p>This parameter is a count of 1 second intervals with following factors:</p> <ol style="list-style-type: none"> 1. one or more CRC 8 anomalies summed over all received bearer channels 2. one or more LOS defects 3. one or more SEF defects <p>one or more LPR defects</p>
SES	<p>It means Severely Error Seconds. This parameter is a count of 1 second intervals with 18 or more CRC 8 anomalies summed over all received bearer channels and related definition refer to items 2~4 of "ES". If a common CRC is applied over multiple bearer channels, then each related CRC-8 anomaly shall be counted only once for the whole set of bearer channels over which the CRC is applied.</p>
UAS	<p>It means Unavailable Seconds.</p> <p>This parameter is a count of 1 second intervals for which the XDSL line is unavailable. The XDSL line becomes unavailable at the onset of 10 contiguous SES Ls. The 10 SESs are included in unavailable time. Once unavailable, the XDSL line becomes available at the onset of 10 contiguous seconds with no SESs. The 10 seconds with no SESs are excluded from unavailable time.</p>

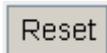
Button



: Save configuration.



: Click to undo any changes made locally and revert to previously saved values.



: Click to reset IP address to default setting.

4.3.6 Modify Alarm Reporting

This section introduces how to configure modify alarm reporting. The screen in [Figure 4-3-6](#) appears

Modify Alarm Reporting	
Fan_Fail_Alarm	Yes <input type="button" value="v"/>
High_Temperature_Alarm	Yes <input type="button" value="v"/>
GE_Link_Down_Alarm	Yes <input type="button" value="v"/>
NE_LOS_Alarm	Yes <input type="button" value="v"/>
NE_LOF_Alarm	Yes <input type="button" value="v"/>
NE_LOL_Alarm	Yes <input type="button" value="v"/>
FE_LOS_Alarm	Yes <input type="button" value="v"/>
FE_LOF_Alarm	Yes <input type="button" value="v"/>
FE_LPR_Alarm	Yes <input type="button" value="v"/>
NE_ES_15Min_Threshold	No <input type="button" value="v"/>
FE_SES_15Min_Threshold	No <input type="button" value="v"/>
FE_UAS_15Min_Threshold	No <input type="button" value="v"/>
EXT1_ALARM	Yes <input type="button" value="v"/>
EXT2_ALARM	Yes <input type="button" value="v"/>
EXT3_ALARM	Yes <input type="button" value="v"/>
EXT4_ALARM	Yes <input type="button" value="v"/>

Figure 4-3-6: Modify Alarm Reporting Page Screenshot

The Page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Fan_Fail Alarm 	<p>Allows user to set sending out fan fail alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • High_Temperature_Alarm 	<p>Allows user to set sending out fhigh temperature alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • GE_Link Down_Alarm 	<p>Allows user to set sending out GE port fail alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • NE_LOS_Alarm 	<p>Allows user to set sending out NE lost of signal alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • NE_LOF_Alarm 	<p>Allows user to set sending out NE lost of frame alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • NE_LOL_Alarm 	<p>Allows user to set sending out NE lost of link alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • FE_LOS_Alarm 	<p>Allows user to set sending out FE lost of signal alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • FE_LOF_Alarm 	<p>Allows user to set sending out FE lost of frame alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • FE_LOL_Alarm 	<p>Allows user to set sending out FE lost of link alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • FE_LPR_Alarm 	<p>Allows user to set sending out FE LPR alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • NE_ES_15Min_Threshold 	<p>Allows user to set sending out NE 15 minutes error seconds threshold alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p> <p>No: Don't send out report to trap server when a specific alarm occurred.</p>
<ul style="list-style-type: none"> • NE_SES_15Min_Threshold 	<p>Allows user to set sending out NE15 minutes severely error seconds threshold alarm report to trap server.</p> <p>Yes: Sent out alarm report to trap server when a specific alarm occurred.</p>

	No: Don't send out report to trap server when a specific alarm occurred.
• NE_UAS_15Min_Threshold	Allows user to set sending out NE 15 minutes unavailable seconds threshold alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• FE_ES_15Min_Threshold	Allows user to set sending out FE15 minutes error seconds threshold alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• FE_SES_15Min_Threshold	Allows user to set sending out FE 15 minutes severely error seconds threshold alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• FE_UAS_15Min_Threshold	Allows user to set sending out FE 15 minutes unavailable seconds threshold alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• EXT1_ALARM	Allows user to set sending out EXT1 alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• EXT2_ALARM	Allows user to set sending out EXT1 alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• EXT3_ALARM	Allows user to set sending out EXT1 alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.
• EXT4_ALARM	Allows user to set sending out EXT1 alarm report to trap server. Yes: Sent out alarm report to trap server when a specific alarm occurred. No: Don't send out report to trap server when a specific alarm occurred.

Button

Set

: Save configuration.

Get

: Click to undo any changes made locally and revert to previously saved values.

Reset

: Click to reset IP address to default setting.

4.3.7 External Alarm State

This section shows you external alarm state table. If an alarm is triggered, the state will be shown “ON” and the alarm group wire will be opened. As “Normal” state, the alarm group wire will be closed. The screen in [Figure 4-3-7](#) appears

External Alarm State	
External Alarm Input 1 State:	Normal
External Alarm Input 2 State:	Normal
External Alarm Input 3 State:	Normal
External Alarm Input 4 State:	Normal
External Alarm Output 1 State:	Normal
External Alarm Output 2 State:	Normal
External Alarm Output 3 State:	Normal
External Alarm Output 4 State:	Normal

Figure 4-3-7: External Alarm State Page Screenshot



Please note that when alarm in or alarm out has triggered, also the external alarm out4 is triggered at the same time.

4.3.8 Alarm IN and ALARM OUT Port Pin Assignment

One “ALARM IN” port offers 4 alarm input groups and a pair pin for one alarm input group.

Same group and pin assignment method for “ALARM OUT” port.

ALARM IN / ALARM OUT PIN Assignment:

Connects alarm input 1 to 4 groups via RJ45 jack. Alarm inputs are used for environment detection.

NO.	Wire Color	Alarm Severity Setting	Alarm IN PIN Mapping
1	White Orange	Minor	Alarm IN #1
2	Orange		
3	White Green	Minor	Alarm IN #2
4	Green		
5	White Blue	Minor	Alarm IN #3
6	Blue		
7	White Brown	Minor	Alarm IN #4
8	Brown		

Alarm outputs are used for fault alarm relay. When any alarm out group is triggered, it also triggers Alarm OUT #4, because the alarm out4 is set for audio alarm purpose, and of course, user can use “operate Alarm Cut Off” to recovery alarm out4 state.

NO.	Wire Color	Built-in Definition	Alarm OUT PIN Mapping
1	White Orange	Critical Alarm	Alarm OUT #1
2	Orange		
3	White Green	Major Alarm	Alarm OUT #2
4	Green		
5	White Blue	Minor Alarm	Alarm OUT #3
6	Blue		
7	White Brown	Audio	Alarm OUT #4
8	Brown		

4.4 Status

4.4.1 xDSL Line Status

This section is to show you xDSL lines status. The screen in [Figure 4-4-1](#) appears.

xDSL Line Status	
Select Port	1
Port 1:	
Admin State:	Disable
Operation State:	Idle
xDSL Uptime:	N/A
xDSL Mode:	N/A
[Us] Line Attenuation 5(dB):	N/A
[Us] Signal Attenuation 5(dB):	N/A
[Us] Power Spectral Density(dBm):	N/A
[Us] Aggregate Transmit Power(dBm):	N/A

Figure 4-4-1: xDSL Line Status Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">Select Port	Allows user to select xDSL port to show the port status.

4.4.2 Forward Table

This section is to show you MAC address forwarding table through GE port. The screen in [Figure 4-4-2](#) appears.

Forward Table			
Select Page		1 ▾	
Index	MAC Address	Port	VLAN ID
1	00:d0:59:d9:0b:43	GEW	1

Figure 4-4-2: Forward Table Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Select Port 	Allows user to select xDSL port to show the port status.

4.4.3 LED Status

This section is to show you all xDSL LEDs and system LED status. The screen in [Figure 4-4-3](#) appears.

LED Status				
LED Name	Port	Color	Status	
Fail		Red	LED Off	
Active		Green	LED On	
Link	1	Green	LED Off	
Link	2	Green	LED Off	
Link	22	Green	LED Off	
Link	23	Green	LED Off	
Link	24	Green	LED Off	

Figure 4-4-3: Forward Table Page Screenshot

4.5 Statistic

4.5.1 xDSL Statistics

This section is to show you per xDSL port statistics. The screen in [Figure 4-5-1](#) appears.

xDSL Statistic	
Select Port	1 ▾
Port1:	
RxCRCAlignErrors:	0
RxUndersizePkts:	0
RxOversizePkts:	0
TxPkts1024to1518:	0
TxOctets:	11682
TxPkts:	115
TxBroadcastPkts:	109
TxMulticastPkts:	0

Figure 4-5-1: xDSL Line Status Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">Select Port	Allows user to select xDSL port to show the port statistics.

4.5.2 IGMP Group Table

This section is to show you IGMP Group Table statistics. The screen in [Figure 4-5-2](#) appears.

IGMP Groups Table					
Select Page					1
Index	IGMP Group	Uptime	Expires	Last Reporter	Count
1	239.255.255.250	463	229	10.0.14.210	1
2	224.0.0.251	461	224	10.0.200.176	1
3	224.1.1.123	332	231	192.168.1.100	1

Figure 4-5-2: IGMP Group Table Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> Select Port 	Allows user to select xDSL port to show the port statistics.

4.5.3 IGMP Snooping Table

This section is to show you IGMP Snooping Table statistics. The screen in [Figure 4-5-3](#) appears.

IGMP Snooping Table							
Select Page							1
Index	IGMP Group	VLAN	Port	Ver	Uptime	Expires	Reporter
1	239.255.255.250	1	2	2	616	203	10.0.14.210
2	224.0.0.251	1	2	2	614	204	10.0.200.176
3	224.1.1.123	1	2	2	485	205	192.168.1.100

Figure 4-5-3: IGMP Snooping Table Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> Select Port 	Allows user to select xDSL port to show the port statistics.

4.5.3 xDSL Port Bandwidth

This section is to show you per xDSL port bandwidth statistics. The screen in [Figure 4-5-4](#) appears.

xDSL Port Bandwidth	
Select Port	1
Port 1:	
Rx Bandwidth - 5 sec(bits/sec):	0
Rx Bandwidth - 3 min(bits/sec):	0
Rx Bandwidth - 10 min(bits/sec):	0
Tx Bandwidth - 5 sec(bits/sec):	0
Tx Bandwidth - 3 min(bits/sec):	0
Tx Bandwidth - 10 min(bits/sec):	0

Figure 4-5-4: IGMP Snooping Table Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Select Port	Allows user to select xDSL port to show the port statistics.

4.6 PM (Performance)

This chapter is to show you xDSL line performance statistics per 15 minutes, 1 hour and 1 day.

4.6.1 xDSL 15 Min PM

This section is to show you per 15 minutes xDSL port performance statistics. The screen in [Figure 4-6-1](#) appears.

xDSL 15 Min PM														
Select Port														2
Clear														
Port02 - xDSL 15 Min PM														
Interval	VTUC FECS	VTUC ES	VTUC SES	VTUC LOSS	VTUC UAS	VTUC CRC	VTUC FEC	VTUR FECS	VTUR ES	VTUR SES	VTUR LOSS	VTUR UAS	VTUR CRC	VTUR FEC
00- current	0	116	0	0	0	253	0	0	21	0	2	193	28	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4-6-1: xDSL Per 15 Minute Performance Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> Select Port 	Allows user to select xDSL port to show the port statistics.

Clear

: This button is for you to clear whole performance statistics page.

4.6.2 xDSL 1 Hour PM

This section is to show you per 1 hour xDSL port performance statistics. The screen in [Figure 4-6-2](#) appears.

xDSL 1 Hour PM														
Select Port		2 ▼												
Clear														
Port02 - xDSL 1 Hour PM														
Interval	VTUC FECS	VTUC ES	VTUC SES	VTUC LOSS	VTUC UAS	VTUC CRC	VTUC FEC	VTUR FECS	VTUR ES	VTUR SES	VTUR LOSS	VTUR UAS	VTUR CRC	VTUR FEC
00- current	0	116	0	0	0	253	0	0	21	0	2	193	28	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4-6-2: xDSL 1 hour Performance Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> Select Port 	Allows user to select xDSL port to show the port statistics.

Clear

: This button is for you to clear whole performance statistics page.

4.6.2 xDSL 1 Day PM

This section is to show you per 1 day xDSL port performance statistics. The screen in [Figure 4-6-3](#) appears.

xDSL 1 Day PM 1

Select Port

2 ▾

Port01 - xDSL 1 Day PM

Interval	VTUC FECS	VTUC ES	VTUC SES	VTUC LOSS	VTUC UAS	VTUC CRC	VTUC FEC	VTUR FECS	VTUR ES	VTUR SES	VTUR LOSS	VTUR UAS	VTUR CRC	VTUR FEC
00- current	0	116	0	0	0	253	0	0	21	0	2	193	28	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4-6-3: xDSL 1 Day Performance Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Select Port 	Allows user to select xDSL port to show the port statistics.

: This button is for you to clear whole performance statistics page.

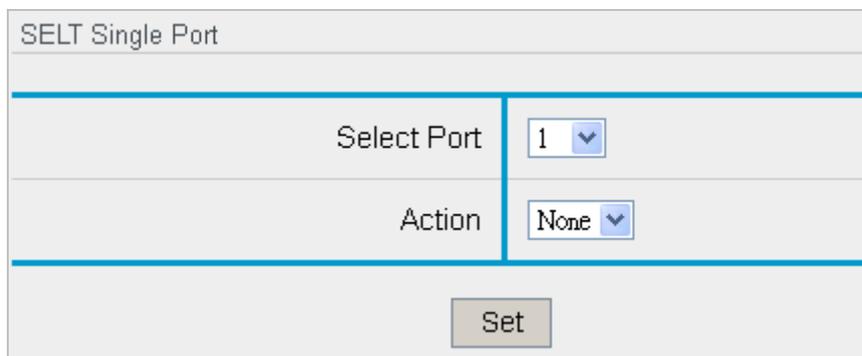
4.7 Test

This chapter introduces you about how to make single-ended loop testing (SELT) and 5224AV-DSG lamp testing.

4.7.1 SELT Single Port

The single-ended loop testing (SELT), like metallic testing from POTS world, is an automated way of testing a DSL loop from one end to the line, either from the central office (CO) or, less likely from the subscriber's end. Unlike dual-ended loop testing (DELT), where someone must install some sort of test device at customer's end of the line, SELT doesn't require a technician or any equipment at the subscriber site.

This section is to introduce you how to configure single-ended loop test configuration. The screen in [Figure 4-7-1](#) appears.



SELT Single Port

Select Port 1

Action None

Set

Figure 4-7-1: SELT Single Port Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Select Port	Allows user to select xDSL port to show the port statistics.
<ul style="list-style-type: none">• Acton	It offers you None, Stop and Start options to make xDSL line testing None: do anything. (Default) Stop: Stop to make loop testing to indicate xDSL port. Start: Start to make loop testing to indicate xDSL port.

Set: Save configuration.

4.7.2 SELT Result

This section is to show you single-ended loop test result. The screen in [Figure 4-7-2](#) appears.

SELT Result	
Select Port	
1 ▼	
Port1:	
Test Status:	Complete
Loop Length:	1500 m
Cable Type:	26 AWG
Up Stream Attainable Rate:	560627 bps
Down Stream Attainable Rate:	33637622 bps
Loop Attenuation:	53 dB
CrossTalk:	0
Bridge Tap Number:	0
Loading Coil Number:	0

Figure 4-7-2: SELT Result Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Select Port	Allows user to select xDSL port to show the port statistics.

4.7.3 Lamp Test

The lamp test is for you to check whether lamps on the 5224AV-DSG are good or bad. It doesn't have the configuration page, so you just need to click it from the menu tree. The screen in [Figure 4-7-3](#) appears.



Figure 4-7-2: Lamp Test Page Screenshot

4.8 Administration

4.8.1 Version Information

This section is to show you about software version, hardware version, serial number of this device and MAC address information. The screen in [Figure 4-8-1](#) appears.

Version Information	
Software Version:	1.1.3-453
Hardware Version:	1
Serial Number:	AC00384900001
MAC Address:	00:30:4F:01:02:03

Figure 4-8-1: Version Information Page Screenshot

4.8.2 System Information

This section is to show you about system information. The screen in [Figure 4-8-2](#) appears.

System Information	
System Description:	XDL-2420R
Object Identifier:	1.3.6.1.4.3.1486
System Uptime:	14:46:08 up 1:36
System Service:	00000002
Current Date and Time:	Fri Sep 26 14:46:08 UTC 2014
Temperature Threshold:	65 C.
Current Temperature:	47.000000 C.
Fan Module State:	Fail

External Alarm Input 1 State:	Alarm Occurred
External Alarm Input 2 State:	Normal
External Alarm Input 3 State:	Normal
External Alarm Input 4 State:	Normal
External Alarm Output 1 State:	ON
External Alarm Output 2 State:	Normal
External Alarm Output 3 State:	ON
External Alarm Output 4 State:	ON

Figure 4-8-2: Version Information Page Screenshot

4.8.3 Modify Date and Time

This section is to introduce you about how to configure date and time configuration. Because the 5224AV-DSG has no battery inside and also it doesn't support NTP server, it cannot keep date and time for a long time; however, it can keep date and time information for about 3 days. The screen in [Figure 4-8-3](#) appears.

Modify Date And Time	
Current	2014/09/26 14:56:54
Year	<input type="text" value="2014"/> (1900~2200)
Month	<input type="text" value="9"/> (1~12)
Day	<input type="text" value="26"/> (1~31)
Hour	<input type="text" value="14"/> (0~23)
Minute	<input type="text" value="56"/> (0~59)
Second	<input type="text" value="54"/> (0~59)

Figure 4-8-3: Modify Date and Time Page Screenshot

The page includes the following fields:

Object	Description
• Current	Show you the current date and time.
• Year	Allows user to configure year. It could be set from 1900 to 2200.
• Month	Allows user to configure month. It could be set from 1 to 12.
• Day	Allows user to configure day. It could be set from 1 to 31.
• Hour	Allows user to configure hour. It could be set from 0 to 23.
• Minute	Allows user to configure minutes. It could be set from 0 to 59.
• Second	Allows user to configure second. It could be set from 0 to 59.

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

: Click to reset IP address to default setting.

4.8.4 Temperature Threshold

This section is to introduce you about how to configure temperature threshold. The screen in [Figure 4-8-4](#) appears.

Temperature Threshold

Temperature Threshold (5~100)

Figure 4-8-4: Modify Date and Time Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none">• Temperature Threshold	Allows user to set temperature threshold. If the system temperature has reached or exceeded the threshold value, it will alarm.

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

: Click to reset IP address to default setting.

4.8.5 Save Configuration

The save configuration doesn't have the configuration page. You just need to click it from the menu tree. When user applies save configuration, the configuration will be saved to flash memory. If user doesn't save configuration then it will be lost after the system starts to reboot. The screen in [Figure 4-8-5](#) appears.



Figure 4-8-5: Save Configuration Page Screenshot

4.8.6 System Reboot

This section is to introduce you about how to configure system reboot. The screen in [Figure 4-8-6](#) appears.

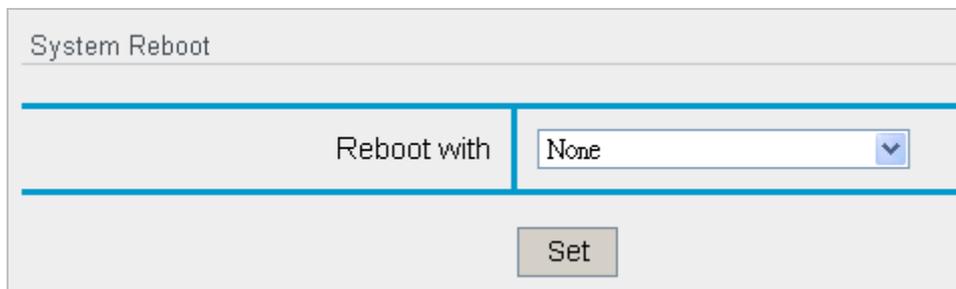


Figure 4-8-6: System Reboot Page Screenshot

The page includes the following fields:

Object	Description
<ul style="list-style-type: none"> • Reboot with 	<p>Allows user to set 4 reboot types.</p> <p>None: system reboots only.</p> <p>Save Configuration: System save configuration first, then reboot.</p> <p>Factory Default: System reboots and makes factory default reset.</p> <p>Factory Default without Network: System reboot is set to factory default.</p>

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

: Click to reset IP address to default setting.

4.8.7 Location Information

This section is to introduce you about how to configure location information. This is for user to fill out related information for identifying this device that is used for the project, site or wherever it is putted, etc. The screen in [Figure 4-8-7](#) appears.

Location Information	
Project ID	<input type="text"/> (1~20 chars)
Site ID	<input type="text"/> (1~20 chars)
Rack	<input type="text"/> (1~20 chars)
Longitude	<input type="text" value="000.000000"/> (3~15 chars)
Latitude	<input type="text" value="00.0000000"/> (2~15 chars)
System Contact	<input type="text"/> (1~40 chars)
System Name	<input type="text"/> (1~40 chars)
System Location	<input type="text"/> (1~40 chars)

Figure 4-8-7: Location Information Page Screenshot

The page includes the following fields:

Object	Description
• Project ID	Allows user to set project name. (1~20 characters)
• Site ID	Allows user to set site name. (1~20 characters)
• Rack	Allows user to set rack name. (1~20 characters)
• Longitude	Allows user to set longitude. (3~15 characters)
• Latitude	Allows user to set latitude. (2~15 characters)
• System Contact	Allows user to set system contact person name. (1~40 characters)
• System Name	Allows user to set system name. (1~40 characters)
• System Location	Allows user to set location name. (1~40 characters)

Button

Set

: Save configuration.

Get

: Click to undo any changes made locally and revert to previously saved values.

Reset

: Click to reset IP address to default setting.

4.8.8 Line Identifier

This section is to introduce you about how to configure line identifier. The screen in [Figure 4-8-8](#) appears.

Port	Customer	Phone Number	Description
1			
2			
3			
22			
23			
24			

Figure 4-8-8: Line Identifier Page Screenshot

The page includes the following fields:

Object	Description
• Select Port	Allows user to indicate xDSL port for identifying.
• Customer	Allows user to set customer name for the xDSL line.
• Phone Number	Allows user to set customer's phone number for the xDSL line.
• Description	Allows user to set extra description for the line.

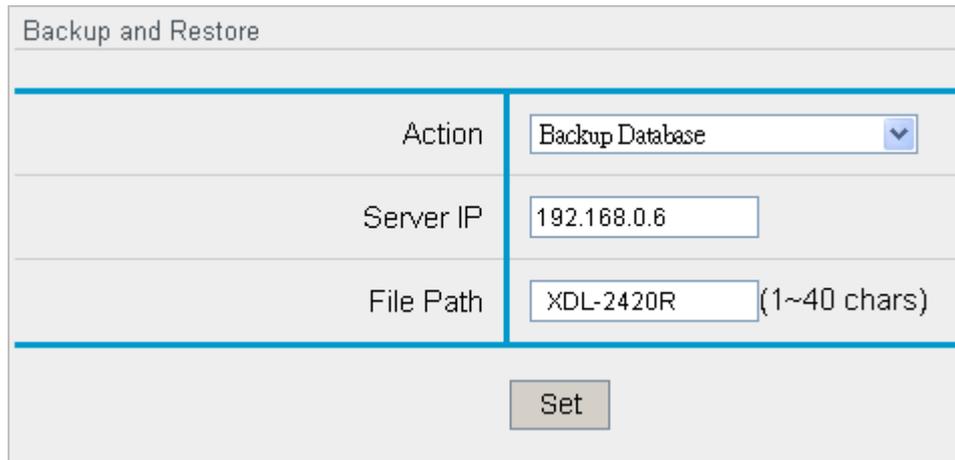
Button

Set: Save configuration.

Reset: Click to reset IP address to default setting.

4.8.9 Backup and Restore

This section is to introduce you about how to back up and restore configuration. The screen in [Figure 4-8-9](#) appears.



Backup and Restore	
Action	Backup Database
Server IP	192.168.0.6
File Path	XDL-2420R (1~40 chars)
<input type="button" value="Set"/>	

Figure 4-8-9: Backup and Restore Page Screenshot

The page includes the following fields:

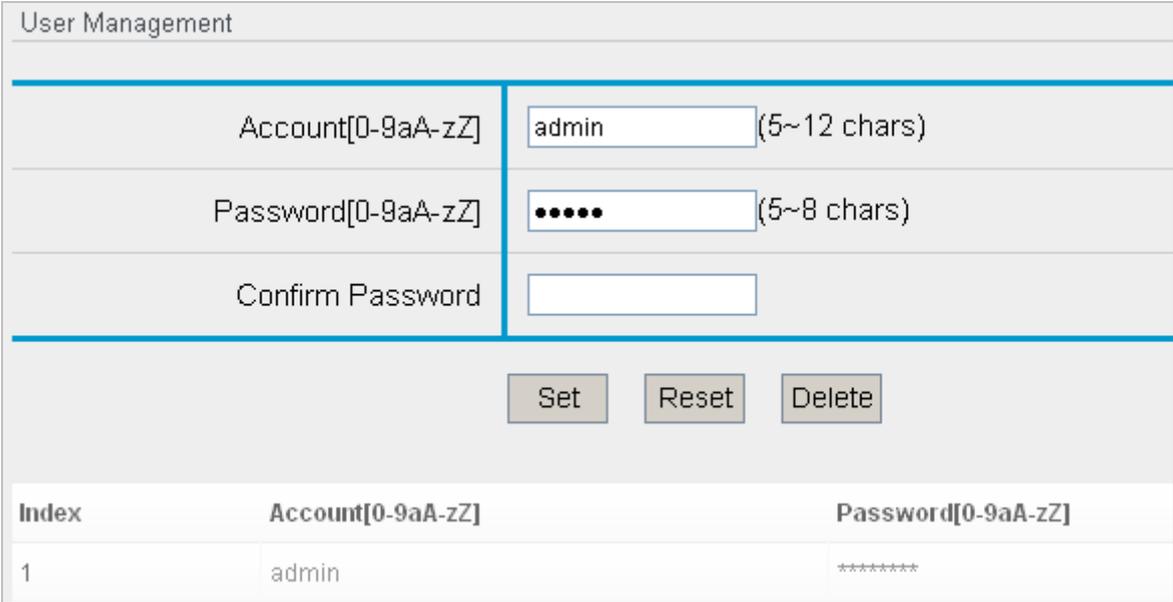
Object	Description
<ul style="list-style-type: none">• Action	Allow user to different action types. Backup Database: It means backing up all configurations. Restore Database All: It means restoring configuration to the 5224AV-DSG. Restore Database without Network: It means restoring configuration to this device except network setting. Backup System Log: Allows user to back up system log.
<ul style="list-style-type: none">• Server IP	Allows user to set TFTP server IP address.
<ul style="list-style-type: none">• File Path	Allows user to input file name and file path.

Button

: Save configuration.

4.8.10 User Management

This section is to introduce you about how to configure user management. This feature allows user to add user account only. The screen in [Figure 4-8-10](#) appears.



The screenshot shows a 'User Management' interface. It features three input fields: 'Account[0-9aA-zZ]' with the value 'admin' and a '(5~12 chars)' constraint; 'Password[0-9aA-zZ]' with masked characters '•••••' and a '(5~8 chars)' constraint; and 'Confirm Password' which is currently empty. Below these fields are three buttons: 'Set', 'Reset', and 'Delete'. At the bottom, there is a table with the following data:

Index	Account[0-9aA-zZ]	Password[0-9aA-zZ]
1	admin	*****

Figure 4-8-10: User Management Page Screenshot

The page includes the following fields:

Object	Description
• Account [0-9aA-zZ]	Allows user to set a user account name. (5-12 characters)
• Password [0-9 aA-zA]	Allows user to set password. (5-8 characters)
• Confirm Password	Allows user to input password again to confirm the password is correct.

Button

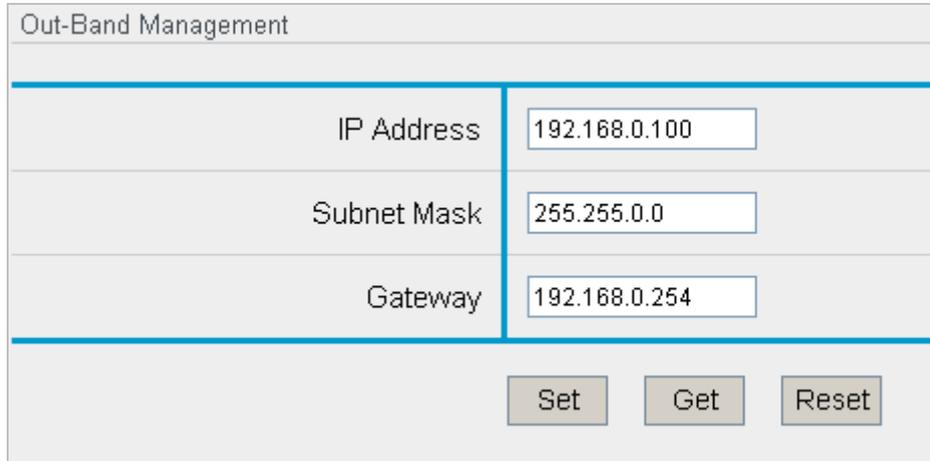
Set: Save configuration.

Get: Click to undo any changes made locally and revert to previously saved values.

Reset: Click to reset IP address to default setting.

4.8.11 Out-of-Band Management

This section is to introduce you about how to configure out-of-band management. This network configuration page is for you to connect to **EMS** port and manage this device. You can't manage this device from GE port or alarm IN/OUT port. The screen in [Figure 4-8-11](#) appears.



Out-Band Management	
IP Address	<input type="text" value="192.168.0.100"/>
Subnet Mask	<input type="text" value="255.255.0.0"/>
Gateway	<input type="text" value="192.168.0.254"/>
<input type="button" value="Set"/> <input type="button" value="Get"/> <input type="button" value="Reset"/>	

Figure 4-8-11: Out-of-Band Management Page Screenshot

The page includes the following fields:

Object	Description
• IP Address	Allows user to set IP address. It supports IPv4 only.
• Subnet Mask	Allows user to set subnet mask.
• Gateway	Allows user to set gateway IP address.

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

: Click to reset IP address to default setting.

4.8.12 Remote Management

This section is to introduce you about how to configure remote management. It offers you to enable SNMP or WEB GUI for management. For security reason, user may need to change standard TCP port number from 80 (for HTTP service) or 161 (for SNMP service) to the other port. The SNMP MIBs support 5224AV-DSG private MIB only and it offers user to monitor VDSL line status. The screen in [Figure 4-8-12](#) appears.

Remote Management	
Web-GUI Action	Enable <input type="button" value="v"/>
Web-GUI Port Number	80 (1~65535)
SNMP Agent Action	Disable <input type="button" value="v"/>
SNMP Read Community	public (1~20 chars)
SNMP Write Community	private (1~20 chars)
SNMP port	161 (1~65535)
Bandwidth Counter	Disable <input type="button" value="v"/>

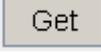
Figure 4-8-12: Out-of-Band Management Page Screenshot

The page includes the following fields:

Object	Description
• WEB-GUI Action	Allows user to disable or enable web GUI. Default: Enable
• WEB-GUI Port Number	Allows user to set web GUI (HTTP service) port number. Default: 80
• SNMP Agent Action	Allows user to enable or disable SNMP service. Default: disabled.
• SNMP Read Community	Allows user to set SNMP read community name. Default: "public".
• SNMP Write Community	Allows user to set SNMP write community name. Default: "private".
• SNMP Port	Allows user to set UDP port number. Default: 161.
• Bandwidth Counter	Allows user to enable or disable xDSL port bandwidth counter. Default: disable. User can check result from "Statistics/xDSL Port Bandwidth"

Button

: Save configuration.

: Click to undo any changes made locally and revert to previously saved values.

: Click to reset IP address to default setting.

4.8.13 Trap Server

This section is to introduce you about how to configure SNMP trap server address and community name. This feature offers 5 trap server configuration groups for user to distribute SNMP trap message to different locations. The screen in [Figure 4-8-13](#) appears.

Trap Server IP	
Trap Server IP 1	<input type="text" value="0.0.0.0"/>
Trap Server Community 1	<input type="text" value="public"/> (3~15 chars)
Trap Port Number 1	<input type="text" value="162"/> (1~65535)
Trap Server IP 2	<input type="text" value="0.0.0.0"/>
Trap Server Community 2	<input type="text" value="public"/> (3~15 chars)
Trap Port Number 2	<input type="text" value="162"/> (1~65535)
Trap Server IP 3	<input type="text" value="0.0.0.0"/>
Trap Server Community 3	<input type="text" value="public"/> (3~15 chars)
Trap Port Number 3	<input type="text" value="162"/> (1~65535)
Trap Server IP 4	<input type="text" value="0.0.0.0"/>
Trap Server Community 4	<input type="text" value="public"/> (3~15 chars)
Trap Port Number 4	<input type="text" value="162"/> (1~65535)
Trap Server IP 5	<input type="text" value="0.0.0.0"/>
Trap Server Community 5	<input type="text" value="public"/> (3~15 chars)
Trap Port Number 5	<input type="text" value="162"/> (1~65535)

Figure 4-8-13: Trap Server Page Screenshot

The page includes the following fields:

Object	Description
• Trap Server IP 1	Allows user to set the 1 st SNMP trap server IP address.
• Trap Server Community 1	Allows user to set the 1 st SNMP trap server community name.
• Trap Port Number 1	Allows user to set the 1 st SNMP trap service port number.
• Trap Server IP 2	Allows user to set the 2 nd SNMP trap server IP address.
• Trap Server Community 2	Allows user to set the 2 nd SNMP trap server community name.
• Trap Port Number 2	Allows user to set the 2 nd SNMP trap service port number.
• Trap Server IP 3	Allows user to set the 3 rd SNMP trap server IP address.
• Trap Server Community 3	Allows user to set the 3 rd SNMP trap server community name.
• Trap Port Number 3	Allows user to set the 3 rd SNMP trap service port number.
• Trap Server IP 4	Allows user to set the 4 th SNMP trap server IP address.
• Trap Server Community 4	Allows user to set the 4 th SNMP trap server community name.
• Trap Port Number 4	Allows user to set the 4 th SNMP trap service port number.
• Trap Server IP 5	Allows user to set the 5 th SNMP trap server IP address.
• Trap Server Community 5	Allows user to set the 5 th SNMP trap server community name.
• Trap Port Number 5	Allows user to set the 5 th SNMP trap service port number.

Button

Set

: Save configuration.

Get

: Click to undo any changes made locally and revert to previously saved values.

Reset

: Click to reset IP address to default setting.

5. TROUBLESHOOTING

This chapter contains information to help you solve issues. If the DSLAM is not functioning properly, make sure the DSLAM is set up according to instructions in this manual.

5.1 The link LED is not lit up

Solution:

Check the cable connection and make sure the xDSL port has been activated.

5.2 Some station cannot be accessed to each other via GE2 port

Solution:

Please login to the 5224AV-DSG and click “Uplink Application Mode” and set “Mode” to “Daisy” then GE1 and GE2 could be switching.

5.3 xDSL Performance is bad

Solution:

Try to change VDSL or ADSL band plan or profile for xDSL device.

Enabling power back off for ADSL2+ mode or VDSL2 mode.

5.4 Why the DSLAM doesn't connect to the network

Solution:

1. Check the LNK/ACT LED on the DSLAM
2. Try another port on the DSLAM
3. Make sure the cable is installed properly
4. Make sure the cable is the right type
5. Turn off the power. After a while, turn on the power again

5.5 1000BASE-T port link LED is lit, but the traffic is irregular

Solution:

Check that the attached device is not set to dedicated full duplex.

5.6 DSLAM does not power up

Solution:

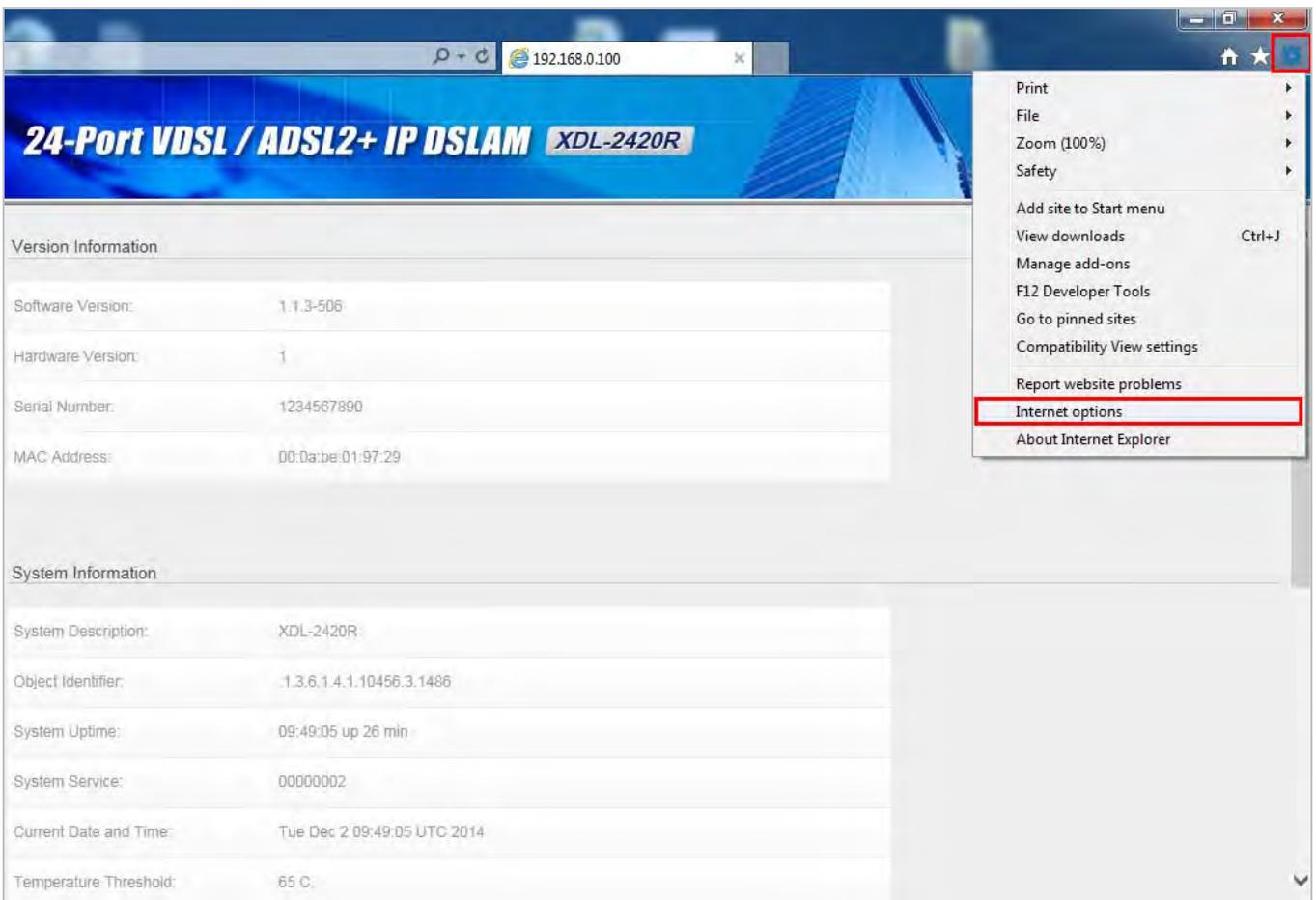
1. AC/DC power cord is not inserted or faulty
2. Check whether the AC/DC power cord/DC cable wire is inserted correctly
3. Replace the power cord if the cord is inserted correctly; check whether the AC/DC power source is working by connecting a different device in place of the DSLAM.
4. If that device works, refer to the next step.
5. If that device does not work, check the AC/DC power

5.7 Microsoft Internet Explorer browser compatibility issue

If user has encountered WEB browser compatibility issue such as “Save Configuration” option works one time only after reboot, please set up your internet explorer browser as following.

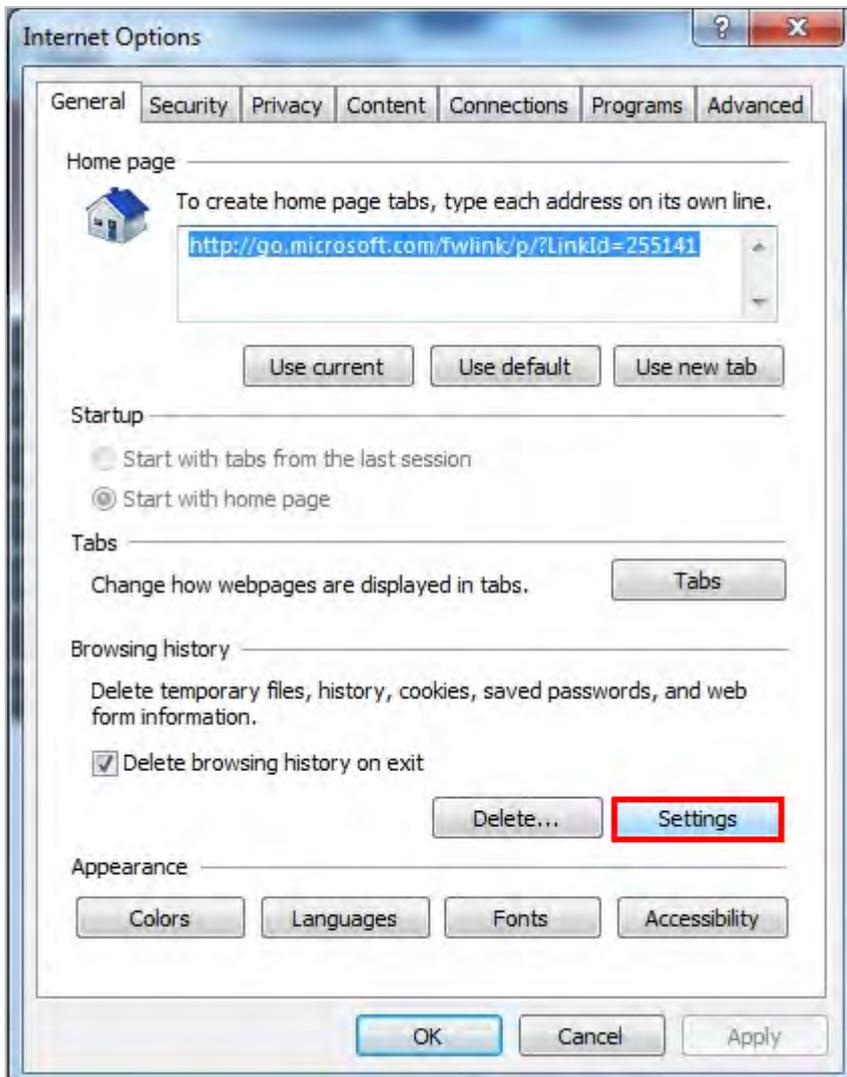
[Setp1.]

Click “Internet Options” to setup your web browser.



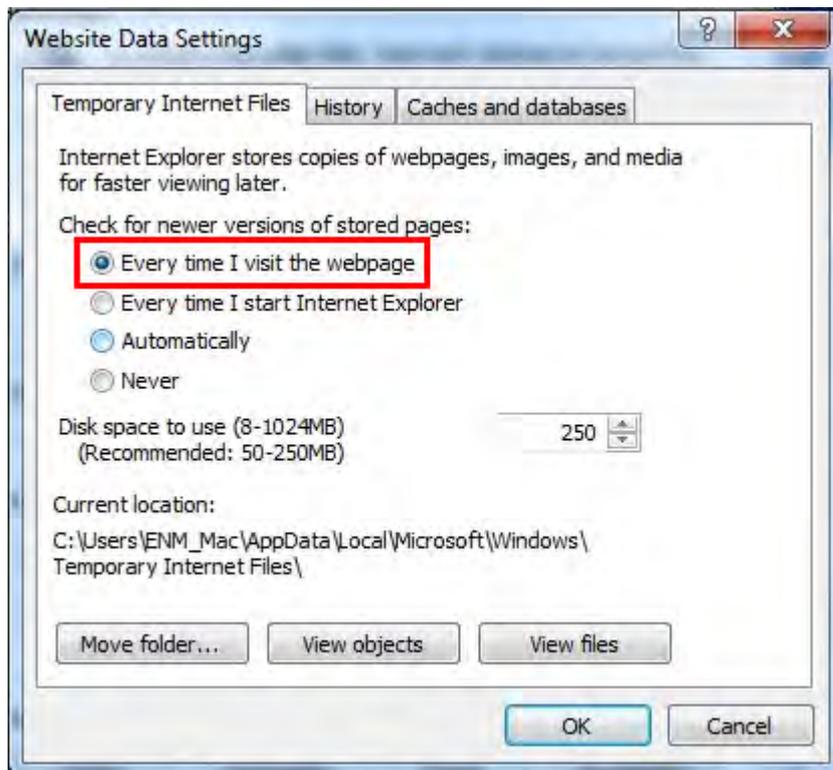
[Setp2]

Please click "Setting" button from "Browsing history".



[Step3]

Changing option from “Automatically” to “Every time I visit the webpage” and then click “OK” button. Re-open the web browser.



6. Appendix

6.1 RJ21 xDSL Connector Port Mapping

The female RJ21 subscriber connectors are located on the front of the 5224AV-DSG. Table 6-1 indicates xDSL (LINE) and Phone (POTS) connectors correspond to ports on xDSL.

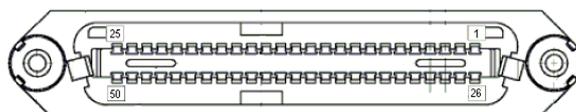


Figure 6-1 RJ21 Connector

Table 6-1 RJ21 Connector Pin Assignment

Phone 1~24				Line 1~24			
Pin				Pin			
1	POTS_Tip1	26	POTS_Ring1	1	LINE_Tip1	26	LINE_Ring1
2	POTS_Tip2	27	POTS_Ring2	2	LINE_Tip2	27	LINE_Ring2
3	POTS_Tip3	28	POTS_Ring3	3	LINE_Tip3	28	LINE_Ring3
4	POTS_Tip4	29	POTS_Ring4	4	LINE_Tip4	29	LINE_Ring4
5	POTS_Tip5	30	POTS_Ring5	5	LINE_Tip5	30	LINE_Ring5
6	POTS_Tip6	31	POTS_Ring6	6	LINE_Tip6	31	LINE_Ring6
7	POTS_Tip7	32	POTS_Ring7	7	LINE_Tip7	32	LINE_Ring7
8	POTS_Tip8	33	POTS_Ring8	8	LINE_Tip8	33	LINE_Ring8
9	POTS_Tip9	34	POTS_Ring9	9	LINE_Tip9	34	LINE_Ring9
10	POTS_Tip10	35	POTS_Ring10	10	LINE_Tip10	35	LINE_Ring10
11	POTS_Tip11	36	POTS_Ring11	11	LINE_Tip11	36	LINE_Ring11
12	POTS_Tip12	37	POTS_Ring12	12	LINE_Tip12	37	LINE_Ring12
13	POTS_Tip13	38	POTS_Ring13	13	LINE_Tip13	38	LINE_Ring13
14	POTS_Tip14	39	POTS_Ring14	14	LINE_Tip14	39	LINE_Ring14
15	POTS_Tip15	40	POTS_Ring15	15	LINE_Tip15	40	LINE_Ring15
16	POTS_Tip16	41	POTS_Ring16	16	LINE_Tip16	41	LINE_Ring16
17	POTS_Tip17	42	POTS_Ring17	17	LINE_Tip17	42	LINE_Ring17
18	POTS_Tip18	43	POTS_Ring18	18	LINE_Tip18	43	LINE_Ring18
19	POTS_Tip19	44	POTS_Ring19	19	LINE_Tip19	44	LINE_Ring19
20	POTS_Tip20	45	POTS_Ring20	20	LINE_Tip20	45	LINE_Ring20
21	POTS_Tip21	46	POTS_Ring21	21	LINE_Tip21	46	LINE_Ring21
22	POTS_Tip22	47	POTS_Ring22	22	LINE_Tip22	47	LINE_Ring22
23	POTS_Tip23	48	POTS_Ring23	23	LINE_Tip23	48	LINE_Ring23
24	POTS_Tip24	49	POTS_Ring24	24	LINE_Tip24	49	LINE_Ring24
25	FGND	50	FGND	25	FGND	50	FGND

6.2 Standard Telco Color Chart

Table 6-2 indicates the reference colors that are used for the IP-DSLAM system cables.

Table 6-2 RJ21 Cable Color Chart Mapping Table

Wire Color	P1	Wire Color	P2	Wire Color	P1	Wire Color	P2
WHT/BLU	1	WHT/BLU	1	GRN/BLK	38	GRN/BLK	38
BLU/WHT	26	BLU/WHT	26	BLK/BRN	14	BLK/BRN	14
WHT/ORG	2	WHT/ORG	2	BRN/BLK	39	BRN/BLK	39
ORG/WHT	27	ORG/WHT	27	BLK/GRY	15	BLK/GRY	15
WHT/GRN	3	WHT/GRN	3	GRY/BLK	40	GRY/BLK	40
GRN/WHT	28	GRN/WHT	28	YEL/BLU	16	YEL/BLU	16
WHT/BRN	4	WHT/BRN	4	BLU/YEL	41	BLU/YEL	41
BRN/WHT	29	BRN/WHT	29	YEL/ORG	17	YEL/ORG	17
WHT/GRY	5	WHT/GRY	5	ORG/YEL	42	ORG/YEL	42
GRY/WHT	30	GRY/WHT	30	YEL/GRN	18	YEL/GRN	18
RED/BLU	6	RED/BLU	6	GRN/YEL	43	GRN/YEL	43
BLU/RED	31	BLU/RED	31	YEL/BRN	19	YEL/BRN	19
RED/ORG	7	RED/ORG	7	BRN/YEL	44	BRN/YEL	44
ORG/RED	32	ORG/RED	32	YEL/GRY	20	YEL/GRY	20
RED/GRN	8	RED/GRN	8	GRY/YEL	45	GRY/YEL	45
GRN/RED	33	GRN/RED	33	VIO/BLU	21	VIO/BLU	21
RED/BRN	9	RED/BRN	9	BLU/VIO	46	BLU/VIO	46
BRN/RED	34	BRN/RED	34	VIO/ORG	22	VIO/ORG	22
RED/GRY	10	RED/GRY	10	ORG/VIO	47	ORG/VIO	47
GRY/RED	35	GRY/RED	35	VIO/GRN	23	VIO/GRN	23
BLK/BLU	11	BLK/BLU	11	GRN/VIO	48	GRN/VIO	48
BLU/BLK	36	BLU/BLK	36	VIO/BRN	24	VIO/BRN	24
BLK/ORG	12	BLK/ORG	12	BRN/VIO	49	BRN/VIO	49
ORG/BLK	37	ORG/BLK	37	VIO/GRY	25	VIO/GRY	25
BLK/GRN	13	BLK/GRN	13	GRY/VIO	50	GRY/VIO	50

6.3 Pin-outs of Local Console DB-9 Connector

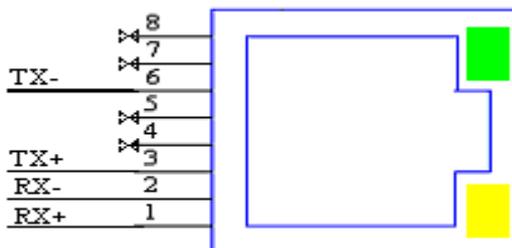
Female DB-9 connector on the 5224AV-DSG system is used for console management, a female DB-9 connector is used to connect PC's COM port. Table 6-3 indicates the pin assignment of female DB-9 local console interface.

The attribute of DB-9 connector is RS-232 DCE interface.

Table 6-3 Female DB-9 Connector Pin Assignments

Pin	Description
1	None
2	Tx
3	Rx
4	None
5	GND
6	None
7	None
8	None
9	None

6.4 Pin-outs of EMS Local Console



Note:

- Green LED Blinking: Receiving packets
- Yellow LED Blinking: Transmitting packets

Figure 6-2 RJ45 Connector