Advanced Management System DAS4-Series IP-DSLAM Operation Guide

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Chapter 1 Preface

This preface describes the "DAS4-Series IP-DSLAM Operation Guide" about how it is organized, and its document conventions. It contains the following topics.

- Purpose
- Organization
- Conventions
- Related Documentation

1.1 Purpose

The purpose of this guide is to provide detailed information and description of Advanced Management System (AMS), which includes both software and hardware architecture and other specific features. This document is intended to help the operator to operate the software to manage the D-Link DAS4 Series IP-DSLAM.

1.2 Organization

This guide contains the following information:

- Preface
- Advanced Management System Overview
- Getting Started AMS
- Configuration Management Functions
- Performance Management Functions
- Fault Management Functions
- Security Management Functions
- Subscriber and Service Management Functions
- General System Management Functions

1.3 Conventions

This section describes the conventions used in this guide.

NE/NEs hereinafter referred as DAS4672, and DAS4192 IP CO-DSLAM, unless specifically indicated.

ADSL mentioned in this document covers ADSL, ADSL2, and ADSL2+, unless specifically indicated. The **ADSL** specified in this document complies with ITU-T Rec. G.992.1, G.992.2, G.992.3 and G.992.5.

SHDSL mentioned in this document complies with ITU-T Rec. G.991.2,

xDSL hereinafter is referred as both the ADSL and SHDSL, unless specifically indicated.

CLI Ex – Command line management with a local console or Telnet through in-band or out-of-band IP interface for CIT (Craft Interface Terminal) connection.

AMS – A complete centralized SNMP base NMS (Network Management System) provides GUI operation under Client-Server architecture through in-band or out-of-band IP interface to carrying out day of day operation, administration, maintenance, and configuration functions of the NE.

AMS Client - Software system for Network Management System (NMS), it's in

Client-Server architecture and has ability to provide controlling and management for the whole network through GUI interface to collocate with AMS Server.

AMS Server – The server station provides multiple NEs management and Database in order to perform reliability, stability, and flexibility to entire network management.



•

This sign indicates the **NOTICE**. A note contains helpful suggestions or reference relay on the topical subjects.



This sign indicates the **TIP**. Performing the information described in the paragraph will help you solve a problem. The tip information might not be troubleshooting or even an action, but could be useful information.



This sign indicates the **CAUTION**. In this situation, you might do something that could result in equipment damage or loss of data.

Chapter 2 Advanced Management System Overview

This chapter provides a general overview of AMS. It contains concepts used in the network and service management for the NEs (IP-DSLAM).

- AMS Overview
- Configuration Management Functions
- Fault Management Functions
- Performance Management Functions
- Security Management Functions

2.1 AMS Overview

The Advanced Management System (AMS) enables high-speed data transfer using xDSL technology with the IP-DSLAM. AMS provide the carrier classes' level management of networks. AMS supports various functions and operations for effective management and troubleshooting of faults and the maintenance of the IP-DSLAM. It also supports GUI operations including various testing functions for the IP-DSLAM network elements.

Based on the unified Network Management System (NMS) platform of AMS, it employs the mature and widely-used Client-Server architecture. Therefore, it supports multiple clients and can be used to manage large and complex networks and flexibly extended to satisfy different requirements.

AMS provides a concise and consistent management mode. It provides unified topology management, fault management, performance management, configuration management, and security management. It also provides uniform device panels and operation maintenance interfaces.

2.2 AMS Design Algorithm

AMS is an integrated Service/Network/Element Management System (SMS/NMS/EMS) for the DAS4 Series equipments. It is designed to provide the operation, administration, maintenance and provisioning (OAM&P) functions of the DSLAM broadband access networks for the Telco operators.

With powerful activities of AMS, the Telco operators can monitor and controlling NEs (IP-DSLAM) equipments from a central Network Operating Center (NOC) and/or multiple geographically separated management site of domains to streamline of their operation needs.

The system supports Fault Management, Configuration Management, Performance Management, and Security Management functions follow by ITU-T TMN recommendations principles as defined in M.3010.

AMS is a centralized system that provides Graphic User Interface (GUI) capabilities for operators to perform OAM functional to the IP-DSLAM network elements (NE) operation of the Network and display the Network topology map. AMS is a total solution for end-to-end management systems.

AMS is developed based on the Client-Server model and follows the concept of Telecommunication Management Network (TMN) defined by ITU-T Rec. M.3000 series and DSL Forum TR-005/TR-066 and TR-030/TR-035 for ADSL Network Element Management and ADSL EMS to NMS, respectively.

AMS is designed based on the following principles:

- Follow the ITU-T TMN standards X.700 series recommendations
- Control, monitor and configure the network in real-time such as diagnostics and status of the NE
- Provide synchronization function to maintain the data consistence between the AMS Server and the NEs
- Centralized management with distributed system
- Client-Server architecture
- High reliability and scalable for future enhancement and upgrade
- Easy to maintain with AMS hardware platform
- Provide southbound and northbound communication interface for NMS
- Provide user-friendly configuration interface
- Provide mass capability to manage xDSL link
- Support workstations working simultaneously
- Support restoration of configuration data in case of system failure
- Keep historic data for each subscriber line
- To enable/disable various alarm severity levels are provided for all possible events/conditions
- Easy to be integrated with the carrier's existing OSSs
- Failure on AMS or loss of communication between AMS and network element will not affect the operation of equipment and network

2.3 AMS Feature

The AMS system supports various functions for the effective operation and maintenance of the xDSL communications network. The system supports topology management, fault management, performance management, configuration management, and security management of the IP-DSLAM.

User Friendly GUI Design for OAM

The AMS provides standard Graphic User Interface (GUI) of AMS Client, it support OAM function operation of the network and display topology map, the command processing functions through graphical menu capabilities to provide convenient operation and maintenance.

Real-time System Status Monitoring

The AMS collects the SNMP traps for the discrete alarm, faceplate LEDs, and system failures in real-time for monitoring and display of the xDSL and network interfaces, and Fan, Power, and Alarm relay status.

The NE indicated with colors for different status by GUI interface. Any addition and deletion of element or plug-in unit of NE will automatically detect and reflected in AMS Client GUI interface.

Administrative

The AMS has ability to displaying the network objects (NEs) graphically to define the topology of the network and configure the network, this feature allow operator be able to built, view and modify the network by placing nodes and subscriber into the network.

The AMS also provides function to equip the node with unit and interface module to adding it on the network.

Administrative function allows operator to planning or supervision their NE on the network.

Error Handling

When execution is not successful, error message will be displayed, and the operator has to configure problem entries and the process before proceeding further.

AMS Client support function to depict the failure status of the Location and NE in registered manage network.

Historical Footprint

The AMS is able to maintain an on-line historical log for all received management parameters. The retrieving function with filtering capabilities for management data is provided.

The AMS is able to export and report the log and management information to the specific file format.

2.4 The Architecture of AMS

This section describes the AMS Server architecture and network protocols within used.

AMS is base on Client-Server architecture with database to store the enormous of NEs (Network Elements) information, includes the fault manager, performance manager, and other facility.

2.4.1 AMS Server Software Block Diagram

By employing the multi-process, modular architecture, and object-oriented design, with distributed system management supported, AMS provides high scalability, flexibility, and reliability.

The Process Manager (PM) control schedules to the NE daemon in a real-time of unified manner and monitors, all PM use the same ASKBA Communication Center (ACC) to transfer messages in between, thus making the NE daemons highly independent, each PM application can initiate multiple real-time tasks, which can be quickly switched in between.

Figure 2-1 AMS Server Processes Block Diagram



AMS Server provides device-specific component management applications. As one major feature of the NMS, the high scalability shows itself in the modular management to added new functions and easy integrated with other NMS devices.

2.4.2 AMS Interface Standards Architecture

The interface standards use with in AMS Server northbound are support of SNMP v1, SNMP v2c, FTP, and WEB as an open data interface for communication between other OSS (Operation Support Systems), for southbound interface standards use are SNMP v2c and FTP/TFTP. The communication between AMS Client and AMS Server use SNMP and it proprietary protocol.

The interface protocol between AMS Server and NE is SNMP v2c.

The AMS is acts as the manager of management activities to perform monitoring and controlling NEs within its management domain.

The AMS will synchronize the NEs information and its database automatically in real-time for both direction.

Figure 2-2 AMS Interface Standards Diagram



Northbound Interface

- Northbound SNMP (v1, v2c) Interfaces The integration interfaces of the AMS to other NMS devices.
- Northbound FTP Interface The management interfaces for report retrieve.
- Northbound WEB Interface The WEB base monitoring of Configuration, Fault, and Performance management.

Southbound Interface

- Southbound SNMP v2c Interfaces The management interfaces of AMS Server to the NE devices.
- Southbound FTP/TFTP Interfaces The standard FTP/TFTP interfaces used to load, backup, and synchronize the NE devices.
- Southbound Telnet interface The command line interface (CLI) of the AMS to the NE devices.

2.4.3 AMS Hardware Development Architecture

AMS system has ability to provide the end-to-end connecting via out-of-band IP management Ethernet interface or in-band with VLAN through gateway to reach GE interface of NE, to perform management function either independently or simultaneously.

Figure 2-3 AMS Hardware Development Diagram



AMS consists of a system server (AMS Server), workstations (AMS Client), gateways, switch hubs, and laser printers to manage the NEs, the AMS hardware architecture is shown as Figure 2-3.

The AMS is designed using Client-Server architecture and able to be managed from single software and hardware platform to have centralized network view of NEs.

2.5 AMS Technical Indices

- The AMS supports more then 1,000 NEs and 700,000 xDSL Subscribers in single AMS Server with minimum hardware specification, see this document "Chapter 2.6".
- AMS Server can support 20 of AMS Client logging simultaneously.
- The current alarm table can store 1,000,000 alarm records at most. The alarm records to be stored in the alarm history table and the event table can be set by the user (the data will be dumped when the alarm history table or the event table is full). A maximum of 1,000,000 history alarms can be stored.
- The log database can save the log information generated during 3 months or more.
- The AMS supports function to maintain the data consistence between the AMS Server and the registered NEs in real-time.
- AMS Server has ability to keep the records of registered NEs parameter status update due to power or equipment failures.

2.6 System Hardware and Software Requirement

AMS has design in high stability and reliability platform, for perform fluent in management, the minimum hardware specification require for handle around 1,000 NEs and 20 concurrent user access from AMS Client are recommend in list below to optimal the performance. System itself have not limitation on the number of elements under it management, the limit has only be restricted by the size of the AMS hardware capabilities.

The recommend hardware & OS for AMS Server:

- Intel® Xeon[™] 2.8 GHz or higher
- 1 GB RAM
- 100 GB Hard disk
- RAID 1 support
- SCSI hard disk or SATA-I/II support
- 10/100/1000 Base-T Ethernet network card
- Operating System MS Windows 2000 Server / Windows 2003 Server

The recommend hardware & OS for AMS Client:

- Pentium 4 2.0 GHz or higher
- 512 MB RAM
- 40 GB Hard disk
- 10/100/1000 Base-T Ethernet network card
- Operating System MS Windows 2000 Professional

The Software require for AMS System:

- AMS Installation Package
- JDK Runtime (Java)

2.7 Database for AMS Server

The Database use for AMS server is very comprehensive, the current implementing database using with AMS Server is MySQL and operating under same AMS Server OS.

The features of AMS database are lists as follow:

- Accommodate on future enhancement and modification design base
- Stability and flexibility to be able to grow with upgrade hardware
- Easy to migrate and backup
- Portable from one server to another without massive conversion involved
- Support data automated polling to the specify common repository server

2.8 Backup and Recovery Mechanism

With database backup and restore mechanism, AMS provide this mechanism for operator to save and reload the entire network configuration, include, configuration management, fault management, performance management, subscriber management, and security management data, the system data can be stored at the external non-volatile media and can be reloaded on demand to the network. In case if AMS fails due to power or equipment defective, this mechanism can keep the records of network management parameters up-to-date to prevent unnecessary damage.

The NE configuration data are backup in the server in plain text format, server will keep most recent of 30 days NE data, while the restore required; the operator has ability to choose the data from the backup list to retrieve the passed configuration.

Once the backup is in process, none of any user operation and network service will be interrupted, the files will be store in the hard disk of specific backup directory. A display message will inform operator on back and recovery to maintain the data integrity, operator can easy to store backup data to the DAT tape or burning to the recordable CD.

The duration of database backup storage is around 60 seconds with 1500 subscribers in 7 days of performance and fault management relation data files.

The features of AMS database backup and recovery are lists as follow:

- Support both backup and recovery
- Support automation and schedule of backup activity
- Support database backup and recovery on demand
- Support database backup file include the NE's IP address and date-time
- Support NE bye NE or entire network backup and recovery

2.9 AMS O&M Tools

The AMS has ability and capabilities to perform the AMS platform of its own self-health check, such as viewing the CPU utilization, Memory, and Network utilization.

Figure 2-4 CPU Utilization



Figure 2-5 Network Utilization



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NOTE

Chapter 3 Getting Started AMS

This chapter describes on how to install the AMS server and client software, and provides the general navigating concept of AMS client software to help you to quickly handle it.

This chapter contains the following sections:

- Get the AMS server and client files
- Start the AMS Server
- Stop the AMS Server
- Start the AMS Client
- Navigating of AMS Client

The AMS Server and Client can be executed on either the same PC or on different PCs.

3.1 Get the AMS server and client files

AMS software consists of two zip files: AMS_Server_Windows.rar and AMS_Client_Windows.rar. Please contact with the local agent to get them.

3.2 Start the AMS Server

Follow the subsequent procedures to start the AMS server.

- Step 1 Unzip the AMS_Server_Windows file to a designated path on AMS server PC, for example, C:\AMS Server Windows\
- Step 2 Change to the sub-directory under "bin", for example, C:\AMS_Server_Windows\bin\
- Step 3 Reinitialize the AMS Server by executing "reinitialize_nms.bat". And click "YES" button in the **Reinitialize IP DSLAM Manager Dialog** as shown in Figure 3-1.
- Step 4 Start the AMS Server by executing "startnms.bat".
- Step 5 Two pop-up windows will appear. Wait for the message "Please connect your client to the web server on port: 9090" which indicates that AMS server is running, as shown in Figure 3-2.



It is forbidden to stop the AMS server by closing these two pop-up windows that are created in **Step 4**. It is strongly recommended to stop the AMS server by the procedure shown in Section 3.3

Figure 3-1 Reinitialize IP DSLAM Manager Dialog



Figure 3-2 Started AMS Server Dialog

| ex C:\WINDOWS\system32\cmd.exe | | <u>_ </u> |
|--|------------------------------|--|
| Process : NmsAuthManager | [Started] | A |
| Process : DBServer | [Started] | |
| Process : NmsConfigurationServer | [Started] | |
| Process : NmsSUM | [Started] | |
| Process : EventMgr | [Started] | |
| Process : WebNMSAgentApp | [Started] | |
| Process : ASKEYModuleBE | [Started] | |
| Process : Collector | [Started] | |
| Process : MapServerBE | [Started] | |
| Process : StartProvModule | [Started] | |
| Process : PolicyFE | [Started] | |
| Process : MServerFE | [Started] | |
| Process : NmsSAServerFE | [Started] | |
| Process : SAServerFE | [Started] | |
| Process : AuthenticationManagerFE | [Started] | |
| Process : UserConfigProcessFE | [Started] | |
| Process : ExampleFE | [Started] | |
| Process : ProvisioningFE | [Started] | |
| Process : WebNMSMgmtFEProcess | [Started] | |
| Process : MapFE | [Started] | |
| Process : AlertFE | [Started] | |
| Process : ConfigFE | [Started] | |
| Process : NmsMainFE | [Started] | |
| Process : AuthorizationManagerFE | [Started] | |
| Process : PollFE | [Started] | |
| Process : TopoFE | [Started] | |
| Process : EventFE | [Started] | |
| Verifying connection with web server v | verified | |
| Web NMS Server modules started successful | ly at 一月 02,2007 11:55:52 上午 | |
| Please connect your client to the web serv | ver on port: 9090 | |
| | | - |

3.3 Stop the AMS Server

Follow the subsequent procedures to stop the AMS server.

| Step 1 | Change to the sub-directory under "bin", for example, |
|--------|---|
| | C:\AMS_Server_Windows\bin\ |
| Step 2 | Stop the AMS Server by executing "shotdownms.bat" |

- **Step 3** In Figure 3-3, **Shutdown AMS Server Dialog**, fill the "Host Name" field with the AMS server IP address. And key in the user name and password accordingly.
- **Step 4** Click "OK" button to complete the shutdown procedure.



It is forbidden to stop the AMS server by closing these two pop-up windows which are created in **Step 4** depicted in Section 3.2.

Getting Started AMS

| Host Name | 10.12.3.92 | | | |
|-----------|------------|--|--|----------|
| User Name | root | | | |
| Password | ***** | | | |
| | | | | Settings |

Figure 3-3 Shutdown AMS Server Dialog

3.4 Start AMS Client

Follow the subsequent procedures to start the AMS client.

- Step 1 Unzip the AMS_Client_Windows file to a designated path on AMS client PC, for example,
- C:\AMS_Client_Windows\. Step 2 Change to the sub-directory under "bin", for example,
 - C:\AMS_Client_Windows\bin\..
- Step 3Start the AMS Client by executing "startApplicationClient.bat" to launch the IPDSLAM Manager Dialog as shown in Figure 3-4
- Step 4 In IP DSLAM Manager Dialog, fill the "User ID" field and "Password" field with "root" and "public", respectively.
- Step 5 Click the "Advanced" button to extend the IP DSLAM Manager Dialog as shown in Figure 3-5.
- Step 6 In IP DSLAM Manager Advanced Dialog, fill the "Host" field and "Port" field with the AMS server IP address and "9090", respectively.
- **Step 7** press "Connect" button to login the AMS server.

Figure 3-4 IP DSLAM Manager Dialog

| inter userna 090 . | me for IP D | SLAM Manager Au | ithentication at loca | alhost |
|-----------------------------|-------------|-----------------|-----------------------|--------|
| <u>U</u> ser ID Password | root | | | |
| co | nnect | X Cancel | Advanced> | ~ |

| <u>U</u> ser ID | root | |
|--------------------------------|---------------------|--|
| Password | ***** | |
| Ho <u>s</u> t P <u>o</u> rt | 9090 | |
| Port Language | 9090 en(English) | |
| <u>C</u> ountry | US(United states) | |
| Show Consol | | |

Figure 3-5 IP DSLAM Manager – Advanced Dialog

3.5 Navigating the AMS Client

AMS software uses familiar functionality and menus found in most MS-Windows based graphical user interface. This section describes the functions available in AMS Client.

3.5.1 Keyboard Commands

Certain Keyboard commands are available in AMS Client. These commands serve as an alternative to mouse functionality.

| Keyboard Command | Description |
|------------------|--|
| Operation | |
| Tab | Move among the fields in a window/dialog. |
| Arrow Keys | Scroll through the text in a data entry field or through the values of a list box. |

3.5.2 Right Mouse Button

AMS Client software provides right-click mouse functionality. By positioning the mouse cursor over an "NE object", you can click the right mouse button to view the launched **Function Menu**. The **Function Menu** options available depend on selected "NE object". You can then use the left or right mouse button to open the associated function dialog window.



The "NE object" denotes the NE entity, Shelf, Slot/Box, and Port displaying on the Rack tab of Multimedia View area or Network Tree View area.

3.5.3 AMS Management Window Overview

The AMS management window contains several parts in an organized design. It provides convenience for operator to task the job easier and faster.

The AMS management window consists of three kinds of windows.

- AMS Network Management Window: As shown in Figure 3-6, it is the main window to manage the NEs from a network-wide perspective. Figure 3-7 shows the enlarged view of Network Management Sub-window.
- **AMS Device Management Window**: As shown in Figure 3-8, it is the NE management Window to manage a specific NE.
- **NE Frame Region and Card Module Region:** As shown in Figure 3-9, there are two implicit regions, **NE Frame Region and Card Module Region** on the NE. Click on either region will launch the either NE-specific pop-up menu or card-specific pop-up menu.
- **AMS NE Configuration/Status/Information Page Window**: As shown in Figure 3-10, it is the NE management Window to either configure a specific NE or view its status and information.



Figure 3-6 AMS Network Management Window



Figure 3-7 Network Management Sub-window







Figure 3-9 Illustration of the NE Frame Region and Card Module Region on NE.

(b) NE Frame Region and Card Module Region on the DAS4192

| D Location Map P [2] YM AM0031 AM0031(10.12.3.124) | Device Page | System -> General Information | |
|---|---|--|--|
| | System Description: System Up Time: System Contact: System Name: System Location: System Services: | IP-DSLAM 0 hours, 30 minutes, 57 seconds No_Contact_Information IP_DSLAM No_Physical_Location 79 Refresh Submit Commit | |

Figure 3-10 AMS NE Configuration/Status/Information Page Window

Chapter 4 Configuration Management Functions

This chapter provides a general configuration management overview and features of AMS. It contains concepts used in the network and service management for the IP-DSLAM.

4.1 Configuration Management General Function

Configuration management implies all necessary tasks to identify, initialize, control and to get status information of all units and function of all NEs in a telecommunication network. With the help of configuration management it has to be possible to initialize and administrator the status of manage object.

The status information of all network elements are configured and displayed by the AMS, and the AMS provides various information management and provision functions for the network configuration elements, it has capability to setup, query, update, backup, and restore NE's configured database of it managed.

PVC to VLAN conversion table information and line rate information that is required for operation. The configuration management function of AMS consists of various views for configuration management of NE and various menus for changing the status information of NE's or for searching information on the NE.

Registration and Initialization

The AMS provides functions for registering and displaying the NE in the network search screen and able to be add, remove or edit NE from the database.

Location Management Facility

AMS provides group management function in hierarchical that present configuration of network as well as one of each specific NEs, graphic present routing of different connections and sections are visible by request of operator.

System Software/Firmware Remote Download

Remote functions for downloading, maintenance and recovery, it provided the S/W and F/W update of registered NEs.

Ethernet over ATM Management

The configuration information is able to manage such as ATM PVC to VLAN ID conversion link table, encapsulation method, bandwidth information, IP CoS information, and other Layer 2 control.

PVC to VLAN Mapping Setup and Release

The AMS has ability to configure the mapping function of ATM PVC to VLAN ID (one-to-one or multiple-to-one) as well as ATM PVC and 802.1p priority queue in the same connection. Modification and status management on the set connections is possible.

NE Connectivity

The AMS has ability to checking for any loss of connectivity between the NE and the AMS Server. If the connection is lost, and once it is reestablished, the AMS will automatic synchronize its database with the current state of NE.

ATM PVC Management

The AMS is able to create, modify, and delete the assign ATM VPI/VCI values in xDSL interface; each xDSL interface has ability to assign 8 of different ATM PVC in maximum.

Profile Template Management

AMS supports xDSL profile template and alarm definition template in centralize manage with the

registered NEs, a profile is a name list of configuration parameters with a value assigned to each parameter, the profile template function provides manual synchronization in order to download profile configuration to the specific NEs. The profile is able to create, modify, and delete.

Profile parameter changed and download to NE will affect the value of relevance ports using that profile.

ADSL Connection Management

Configuration of ADSL line rate can be managed by creating a profile for ADSL interface; the configuration and read parameters for ADSL contains SNR target margin, SNR maximum margin, SNR minimum margin, maximum interleaving delay, minimum data rate, maximum data rate, Up-shelf SNR margin, and Down-shelf SNR margin for both downstream and upstream. Rate mode support fix rate, adaptive rate, and dynamic rate, channel mode support interleave and fast mode.

The parameter supports additional maximum nominal transmit PSD for downstream and configurable spectrum bound for the ADSL2+ connection, this function is available on **AMS** as well as **CLI Ex**.

The controllable spectrum bound defined in ITU-T Rec. G.992.5 is supported, the subcarriers that will be included and not be included in the downstream and upstream will be able to be configured, and this function is available on **AMS** as well as **CLI Ex**.

The ADSL power management line states (including L0, L2, and L3) specified in ITU-T Rec. G.992.5 is supported and allowed ADSL power management link stats for L2 and L3 states to be configurable, the transitions between L0 and L2 states in downstream will be on conditions according to the control parameters specified in ITU-T Rec. G.992.5 and ITU-T Rec. G.997.1, this function is available on **AMS** as well as **CLI Ex**.

Deleted and modified will make effect of all ADSL port status apply to this profile. Operator has ability to create, delete, or modify the profile to change the connection status.

SHDSL Connection Management

Configuration of SHDSL line rate can be managed by creating a profile for SHDSL interface. The configurable and read parameter contains SNR target margin, SNR maximum margin, SNR minimum margin, minimum data rate, and maximum data rate in symmetric data transmission. Deleted and modified will make effect of all SHDSL port status apply to this profile. Operator has ability to create, delete, or modify the profile to change the connection status.

Loop Diagnostic Function

The ADSL Subscriber interface support configuration of loop diagnostic on demand (DELT / SELT), this function for any ADSL line will not affect and interrupt other working xDSL line traffic during and after the loop diagnostic procedure. This function is available for **AMS** as well as **CLI Ex**.

IP Traffic Profile Management

Configuration of IP Traffic profile can be create and delete and apply to the specific xDSL interface, the parameter contains rate limiting and queue priority control.

Traffic Policing Profile Management

Configuration of Traffic Policing profile can be create and delete and apply to the specific xDSL interface, the Traffic Policing profile is design to police on the unicast connection for user's upstream traffic; once it is created you can apply it to distinct xDSL line interfaces.

Multicast Service Management

Configuration of multicast service can be managed by creating a profile; the parameter contains channel group information, transmission rate, and class queue. Operator can create, delete, and modify the profile.

Administration for Multicast Service

The AMS has ability to enable/disable the IGMP snooping and IGMP Proxy functions of the Multicast Service.

Administration and Configure of DHCP relay and agent Option 82

The AMS has ability to enable/disable the DHCP relay and agent option 82 functions and configure the value of Circuit ID and Remote ID sub-option.

System Deletion Function

This function enables the deletion of the corresponding NE, when deleting a NE that has been registered and was in used, database will no longer to store relevance information. This function is for managing the registered NE by Location, and enables setup, change, and delete of Location as well.

System Registration Search Function

Provides function for searching Network information, various information including NE type, IP Address.

xDSL Configuration Information Inquiry

The operating status of the subscriber modem in service, e.g. Speed, SNR margin, line conditions, etc. are managed to provide the operator in real-time.

Card Installation Information Inquiry

Various unit installation information that installed and operating onto system is read from the NE to operator. Unit installation information is automatically reported.

NE and AMS Server Synchronization

Function for maintaining synchronization of the configuration on NE and AMS can be performs on demand, the partial configuration synchronization is supported. Synchronization maintenance provides bidirectional on both NE and AMS Server.

AMS supports the instant view of every NE object (equipment) and network section.

NE Configuration Backup and Restore

If the AMS or NE information is damaged, this function enables upload or download of all configuration information. Periodical auto backup is support.

AMS provides the function request to identification of NEs and replaceable units by configuration backup and restores to procure the change of NE type and information, Configuration, and software version.

Subscriber Access Information Inquiry

Manages subscriber's ATM PVC to VLAN ID mapping table and MAC address of PVC and xDSL interface are upon to request searches and provide the corresponding information to the operator.

Subscriber Access Limiting

By verify of MAC address, AMS has ability to limiting the subscriber in port base, Source MAC filter is support.

NE Object Installation Status Display

Classifies NE and it card module installation/un-installation/dismount status, and provides the status change in real-time, AMS supply of current status and information of the present NE objects.

Administration for Ethernet over ATM Link and Status Display

Operation status controls allow operator to enable/disable the ATM PVC to VLAN ID mapping on Ethernet over ATM of xDSL interface, administration and operation status can be display from AMS, this function is available for **AMS** as well as **CLI Ex**.

Administration for xDSL port and Status Display

Operation status controls allow operator to enable/disable the ADSL/SHDSL/VDSL subscriber interface unit on per port basis, this function is available for **AMS** as well as **CLI Ex**.

Interface Port Connection Status Display

The port status on NE is reflects to AMS in real-time during status change, AMS is able to configure the administration status and read operational status for ADSL/SHDSL/VDSL subscriber interface and network interface of NE.

Remote Reset Functions

The AMS Client provides the remote reset function to reset entire NE system, Line card, and ADSL/SHDSL/VDSL subscriber on per port base.

SNMP Management

The AMS provides the configuration function for SNMP read, write, and trap community names of the NE.

AMS Database Backup and Restore

AMS Server database is conserve the current configuration of all the equipment within the sub-network that is manages in a non-volatile database, in case of breakdown all NEs (equipment) can be easily rest to the previous configuration.

4.2 Configuration Management General Features

The AMS provides the capability to setup, retrieve, update, and backup/restore all the configuration data of network elements in the managed domain.

The AMS provides request to identification of NEs and replaceable NE object (DSLAM, Card module), configuration, and software version.

The configuration management features are lists as follow:

- Support NE manually add, remove, and modify
- Identify software version of NE object (DSLAM, Card module)
- Automatic update NE status and information
- Network topology configuration
- Network element configuration
- ADSL Line profile configuration
- SHDSL Line profile configuration
- IP Traffic profile configuration
- Traffic Policing profile configuration
- Multicast service profile configuration
- ATM PVC to VLAN ID mapping
- Support DHCP relay agent option 82
- VLAN Membership listing function
- Multicast Membership listing function
- Source MAC filtering function in subscriber xDSL connection
- Subscriber Line configuration
- Subscriber Management
- DSLAM software upgrade and check software version
- Subscriber Line reset

- Subscriber interface unit enable/disable
- Support remote port reset, card reset, and NE reset

4.3 Constructing the Managed NE Network

AMS supports to construct managed NE (Network Element) network topology by adding locations to or deleting locations from a managed NE network. Each location and NE can be assign with the contact person information and topology map. And every location and NE can be assign with name for identity issue. Any modification of particular location will process updating of database regarding to particular location automatically whenever the modification has been initialized.

The AMS is able to segment the NE geographically in level with no limit, multiple map and sub-map is support to ease the configuration process.

4.3.1 Add a Location to the Managed NE Network

The first step to construct the managed NE network is to add the locations where the NE is deployed.

Follow the subsequent procedure to add a location to the managed NE network.

- Step 1 Position the mouse cursor over the "Location Map" tab in Network Management Sub-window as shown in Figure 3-7, and then click the right mouse button to launch the Add Location Dialog as shown in Figure 4-1.
- Step 2 Fill the Add Location Dialog with the contact person information and name and click OK. A new location will appear in the Network Element Overview Sub-window as indicated in Figure 4-2
- Step 3 Position the mouse cursor over this new location in Network Element Overview Sub-window, and then press the left mouse button and move the mouse to change its position as you want.

Figure 4-1 Add Location Dialog

| Location Name: | TaiTung | |
|-------------------|-------------------|---------|
| Background Image: | AMS_bg.jpg | Browser |
| Comment: | | |
| Contact Person | | |
| Name: | CWFu | |
| Telephone | 04-23445222 | |
| Mobile: | 0928-292393 | |
| | aufu Baht aana tu | 1 |



It is noted that each location is to be associated with a **Backgroud Image** as indicated in Figure 4-1. The operator should configure the **Backgroud Image** by an appropriate location map to reflect the real environment.

Figure 4-2 Locations added in the Network Element Overview Sub-window



4.3.2 Add a NE to the Location

Follow the subsequent procedure to add a NE to the location in NE network.

- Step 1 Position the mouse cursor over a location tab under the "Location Map" tab in Network Management Sub-window and then click the right mouse button to launch the Network Management Sub-window – Location Management Pop-up as shown in Figure 4-3.
- Step 2 Select the Add Device option to launch the Add NE Dialog as shown in Figure 4-4.
- Step 3 Fill the Add NE Dialog with the contact person information and name and click OK. A new NE will appear in the Network Element Overview Sub-window as indicated in Figure 3-6.
- Step 4 Position the mouse cursor over this new NE in Network Element Overview Sub-window, and then press the left mouse button and move the mouse to change its position as you want.



Refer to Section 4.4 for the details of constructing a NE on the AMS.

4-6
| D IP DSLAM Manager | | |
|-------------------------------------|-------------------|--|
| | | |
| 🖗 碗 Network Maps | | |
| 🌳 📗 Location Map | | |
| — 🌔 Taipei | | |
| — 🔔 Kaohsiung | | |
| 📃 🛄 TaiTune | 353 3 | |
| Q SS IP Networl Vie | w Location Detail | |
| - # 10.12 Ad | d Location | |
| ⊙- 🛞 Fault Managerr Delete Location | | |
| 🕞 🍥 Configuration Mo | dify Location | |
| O- O Network Datak Add Device | | |

Figure 4-3 Network Management Sub-window – Location Management Pop-up

Figure 4-4 Add NE Dialog

| ocation | Locatio | n Map/YM | | |
|-----------------|---------|--------------|-------|------|
| ame: | AM0031 | (10.12.3.124 | 4) | |
| Address: | 10 | .12 | .3 | .124 |
| et Mask: | 255 | .255 | . 248 | .0 |
| mmunity: | netman | 5 | | |
| te Community: | netman | | | |
| IMP Agent Port: | 161 | | | |
| evice Type: | DAS-41 | 92 | | |

4.3.3 Add a Nested Location to the Location

AMS supports nested location management. The network operator is allowed to add a location to a location to reflect the deployment of NE in real environment.

Follow the subsequent procedure to add a nested location to the location in NE network.

- Step 1 Position the mouse cursor over a location tab under the "Location Map" tab in Network Management Sub-window and then click the right mouse button to launch the Network Management Sub-window – Location Management Pop-up as shown in Figure 4-3.
- **Step 2** Select the **Add Location** option to launch the **Add Location Dialog** as shown in Figure 4-1.
- Step 3 Fill the Add Location Dialog with the contact person information and name and click OK. A new location will appear in the Network Element Overview Sub-window as indicated in Figure 4-5.
- Step 4Position the mouse cursor over this new NE in Network Element OverviewSub-window, and then press the left mouse button and move the mouse to change its

location as you want.

Figure 4-5 Nested Locations added in the Network Element Overview Sub-window





It is noted that there is something different between Figure 4-2 and Figure 4-5. They are different at the up-left corner which displays the location.

4.3.4 Managed NE Network Database

AMS supports to view the managed NEs status in various points of view. Operator can easy to identify the connection between the NEs and the AMS Server. Operators can also use the SNMP connection tools to check the up level protocol on the link between NE and AMS Server.

The operator can view the details of managed NEs by a network perspective as follows

Click to the "Network Database" tab in **Network Management Sub-window** as shown in Figure 3-7. Click the "Network Database" tab to launch the **Detailed Network Database List** in the Network Element Overview Sub-window as depicted in Figure 4-6.

Or the operator can follow the subsequent procedure to view managed NEs records from the perspective of node/network/uplink interface.

- Step 1 Double Click to extend the "Network Database" tab in Network Management Sub-window as shown in Figure 3-7.
- **Step 2** Click the "Networks" tab under the "Network Database" tab to view the managed NE network from a perspective of IP-sub-networks as shown in Figure 4-7.

Or

Step 2 Click the "Nodes" tab under the "Network Database" tab to view the managed NE network from a perspective of NE nodes as shown in Figure 4-8.

Or

Step 2 Click the "Nodes" tab under the "Network Database" tab to view the managed NE network from a perspective of NE interfaces as shown in Figure 4-9.

Figure 4-6 Detailed Network Database List

| P 📗 Location Map | Network Database | Tota | al 376 Displayin | g 1 to 1: | 25 Page Length 1 | 25 🕶 📢 🔺 🕨 | |
|---|-------------------------|-------------|------------------|-----------|------------------|---------------|---|
| O- ∭ Taipei | | 1 | | | | 1 | |
| - 📗 Kaohsiung | | IPAddress | Status | I Iype | Issnmp | Netwask | _ |
| TaiTung | 10.12.3.112 | 10.12.3.112 | Major | DAS-4192 | true | 255.255.248.0 | |
| • E IP Networks | 10.12.0.0 | 10.12.0.0 | Clear | Network | Taise | 255.255.248.0 | |
| B Fault Management | 10.12.3.112_LC1 | | Clear | LC | | | |
| 🖻 🍥 Configuration | | | Warning | LCPort | | | |
| 🖻 📵 Network Database | 10.12.3.112_LC1_Port2 | | Warning | LCPort | | | |
| 🕞 🐔 Administration Tools | 10.12.3.112_LC1_Port3 | | Warning | LCPort | | | |
| C (2) SNMP Tools | 10.12.3.112_LC1_Port4 | | Warning | LCPort | | | |
| | 2 10.12.3.112_LC1_Port5 | | Warning | LCPort | | | |
| Alarm Summary View | - 10.12.3.112_LC1_Port6 | | Warning | LCPort | | | |
| 6 0 | 10.12.3.112_LC1_Port7 | | Warning | LCPort | | | |
| | 10.12.3.112_LC1_Port8 | | Warning | LCPort | | | |
| | 10.12.3.112_LC1_Port9 | | Warning | LCPort | | | |
| | 10.12.3.112_LC1_Port10 | | Warning | LCPort | | | |
| 250 - | 10.12.3.112_LC1_Port11 | | Warning | LCPort | | | |
| m. | 10.12.3.112_LC1_Port12 | | Warning | LCPort | | | |
| 200 | 10.12.3.112 LC1_Port13 | | Warning | LCPort | | | |
| 150 - | 10.12.3.112 LC1 Port14 | | Warning | LCPort | | | |
| 100 - | 10.12.3.112 LC1 Port15 | | Warning | LCPort | | | |
| | 10.12.3.112 LC1 Port16 | | Warning | LCPort | | | |
| 50- | 10.12.3.112 L C1 Port17 | | Warning | I CPort | | | |
| a Materia and the second state | 10.12.3.112 L C1 Port18 | | Marning | L CPort | | | |
| | 10.12.3.112_ECT_0.0110 | | Warning | LCRort | | | |
| Cutical - I talay - I finan - Minimizer - Class | 10.12.0.112_LC1_Points | | Vitamina | LCPost | | | |

Figure 4-7 Network Database – IP Sub-networks Perspective List





Figure 4-8 Network Database – NE Node Perspective List





4.4 Constructing a NE on AMS

In Section 4.3.2, a procedure is described to add NE to a location in the managed HE network. This section and hereafter describes the procedure construct a NE on AMS.

As the DAS4 Series IP-DSLAM provides the flexibility to be equipped with various card modules such as ADSL-LC (Line Card) and SHDSL-LC, constructing the NE board type of card module is the first task you need to perform.

The AMS supports operator to predefine NE object from AMS Client application. Once the card modules to be equipped to the DAS4 Series IP-DSLAM are determined, you need to set the planned type according to their correspondent slot to secure the system operation. For any reason (removed or type error), if the planned type is not the same as the online type detected from the NE, the board mismatch alarm message will be reported to the AMS server and the error sign will be shown on the NE.

- Step 1Click the location tab under the "Location Map" tab in Network Management
Sub-window. AMS will present the NEs on this location in the Network Element
Overview Sub-window as shown in Figure 4-10.
- Step 2 Select and click the NE in the Network Element Overview Sub-window to launch the AMS Device Management Window. Depending on the type of NE, either DAS4192 or DAS4672 shelf view appears in the window as shown in Figure 4-11 and Figure 4-12, respectively.
- Step 3 Click Configuration \rightarrow Board Setting on Main Menu to open the Board Setting List Dialog as shown in Figure 4-13. Table 4-1 depicts the related parameters.
- **Step 4** To modify the slot setting, double click and highlight a slot from **Board Setting List** to launch the **Board Setting** Dialog as shown in Figure 4-14.

Figure 4-10 Constructing a NE on a location in the managed NE Network



Figure 4-11 DAS4672 Shelf View in the AMS Device Management Window



D IP DSLAM Manager (Current Device: 10.12.3.112) System Configuration Fault Performance Status Utility Maintenance Help - 0 × D Location Map Constitution Table Location Map Constitution Amount Constitution Device Page Critical Major Minor **DAS-4192** .NC Networi Card . . COM GE1 GE2 13 14 15 16 17 18 19 20 21 22 ATUC-48 Fan L4 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 8 9 8 L3 × STUC-48 37 38 39 40 41 42 43 44 45 48 47 48 25 26 27 28 29 30 31 32 33 34 35 36 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 10 17 18 19 20 21 22 23 24 L2 ATUC-48 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 48 47 48 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 ATUC-48 L1 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 48 47 48 Power 1 Power 2 0 ۲ • 0 0 ۲ ۲

Figure 4-12 DAS4192 Shelf View in the AMS Device Management Window

Figure 4-13 Board Setting List Dialog

| _ocation Map | Device | Page | | | | | |
|---|--------|------|------------------------|------------------------|--------------------|-----------------------|----------------------|
| Taipei — AM0031 — AM0031(10.12.3.124) | | | | Configuratio | on > Board Setting | 9 | |
| - 1 Chung-Cheng | No. | Slot | Planned Type | Online Type | AAL5 Encap | VLAN Tag Pass Through | Service Control Type |
| Kaohsiung | 1 | LC1 | DAS-4192 ADSLx48 Board | DAS-4192 ADSLx48 Board | LLC | Disable | Disable |
| TaiTung | 2 | LC2 | DAS-4192 SHDSLx48 Bo | | LLC | Disable | Disable |
| | 3 | LC3 | DAS-4192 SHDSLx48 Bo | DAS-4192 SHDSLx48 Bo | LLC | Disable | Disable |
| | 4 | LC4 | | | | | |
| | 5 | NC | DAS-4192 Network Board | DAS-4192 Network Board | | | |
| | | | | | | | |
| | | | | | | | |

Figure 4-14 Board Setting Dialog

| Online Type: | DAS-4192 ADSLx48 Board DAS-4192 ADSLX48 Board | | |
|------------------------|---|----------|--|
| Planned Type (NE): | | | |
| Board Setting | | | |
| AAL5 Encapsulation: | • LLC | ⊖ VC Mux | |
| VLAN Tag Pass Through: | 🔾 Enable | Oisable | |
| Service Type Control: | C Enable | Oisable | |

| Field | Description |
|-----------------------|--|
| List Table | • |
| No. | This indicates the serial number of entry of the List Table. |
| Slot | This indicates the location of board. |
| Planned Type | This specifies the board type planned to be equipped to the slot of DAS4 Series IP-DSLAM. If the planned type is mismatched (removed or type error) with online type detected from the system, the board mismatch alarm message will be reported. |
| Online Type | This indicates the observed board type of the card module in the slot (current type) |
| AAL5 Encap | This specifies the AAL5 encapsulation mode, either "LLC" or "VC-MUX"(VC Based Multiplexing) per RFC-2684. RFC 2684 defines the encapsulation methods for transporting the routed and bridged Protocol Data Units (PDUs) across an native ATM network. |
| VLAN Tag Pass Through | This specifies the VLAN tab pass-through as enables or not. (per LC setting) Whenever the VLAN tag pass-through function is enabled, it provides transparent transportation of the VLAN traffic from subscriber interface to network interface without VLAN tag attached. |
| Service Type Control | This specifies the "Service Type Control" function as enabled or not. The service type control can be enabled to provide control of PPPoE, DHCP or static IP on a per line card basis. |

Table 4-1 Board Setting Dialog Description



Board Setting Dialog allows you to define the line card (LC) AAL5 encapsulation mode, "VLAN Tag pass-through" mode and "Service Type Control" mode. Those functions indicate as per board, configuration affects the setting of all ports of selected LC.



Whenever changing the setting of "AAL5 Encap", "VLAN Tag Pass Through" or "Service Type Control" of a specific ADSL LC, the operator MUST reset this ADSL LC to let the changes take effect.

4.5 NE CLI User Account Management

Follow the subsequent procedures to configure the CLI user account of the NE.

- Step 1 Click Configuration \rightarrow NE Management \rightarrow NE User Account on Main Menu to open the NE User Account List Dialog as shown in Figure 4-15 and Table 4-2 depicts the related parameters.
- Step 2 Click 'Add' button to create a new user account or click 'Modify' button to modify a user account, while to remove the user account, click and highlight a user name in the list and click 'Delete' button, as shown in Figure 4-16. Table 4-3 depicts the related parameters.

| Uper Name | Administrator Administrator Coest Administrator | Role | | Eroble Eroble Eroble Eroble | Status | |
|-----------|--|---------|----------------------|---|----------------------------------|----------------------------------|
| | Administrator Administrator Coverst Administrator | | | Enable Enable Enable Enable Enable Enable | | |
| | Antimistrator (Coest (Administrator | | | ≥ Enable È Enable È Enable | | |
| | Coest Administrator | | | Enable | | |
| | Administrator | | | Enable | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | Refresh | Refresh Add Modify D | Refresh Add Modify Delete Export | Refresh Add Modify Delete Export | Refresh Add Modify Delete Export |

Figure 4-15 NE User Account List Dialog

 Table 4-2
 NE User Account List Dialog Description

| Field | Description |
|-----------------|--|
| List Table | |
| User Name | This indicates the user account name. |
| Role | This indicates the permission right of user group. |
| Status | This indicates the operational state of the role.(julia) |
| Function Button | |
| Refresh | Click this button to refresh the NE User Account List Dialog |
| Modify | Select a user name from the list table to modify. |
| Add | Click this button to create a new user of NE. |
| Delete | Select a user from the list table to remove. |
| Export | Click this button to save the contents of NE User Account List to the AMS client. |

Figure 4-16 NE User Account Setting Dialog

| lser Name: | admin1 | |
|--------------|-----------------------------------|---------|
| assword: | | |
| erification: | | |
| Role: | Administrator | ⊖ Guest |

| Field | Description |
|--------------|--|
| User Name | This indicates the user account name. |
| | Valid values: String of up to 20 characters and any combination of printable characters ('A' - 'Z', 'a' - 'z', '0' - '9', '-', '_', '@'). |
| Password | This specifies the password. |
| Verification | This verifies the password again. |
| Role | This indicates the permission right of user group. |
| | Administrator – Owns privilege of Read/Write |
| | Guest – Owns only Read privilege |

 Table 4-3
 NE User Account Setting Dialog Description

4.6 NE Secured Host Management

Follow the subsequent procedures to configure the secured (trusted) hosts allowed to access the NE.

Step 1 Click System \rightarrow SNMP Configuration \rightarrow Secured Hosts on Main Menu to open the SNMP Secured Host List Dialog as shown in Figure 4-17. Table 4-4 depicts the related parameters.

Figure 4-17 SNMP Secured Host List Dialog

| System > SNMP Configuration > Secured Hosts | | | | |
|---|-----------------|---------------------------|---------------------|--|
| Secured Host Administrative State: Disa | able | | | |
| Index | From IP Address | To IP Address | Authorized Services | |
| 1 | 0.0.0.0 | 0.0.0.0 | | |
| 2 | 0.0.0.0 | 0.0.0.0 | | |
| 3 | 0.0.0.0 | 0.0.0.0 | | |
| 4 | 0.0.0 | 0.0.0 | | |
| 5 | 0.0.0 | 0.0.0.0 | | |
| 6 | 0.0.0.0 | 0.0.0 | | |
| 7 | 0.0.0.0 | 0.0.0 | | |
| 8 | 0.0.0.0 | 0.0.0 | | |
| 9 | 0.0.0.0 | 0.0.0.0 | | |
| 10 | 0.0.0 | 0.0.0 | | |
| | | | | |
| | Refresh | nange State Modify Export | | |

| Field | Description |
|--------------------------|--|
| Secured Host Administrat | tive State |
| Administrative State | This indicates the state of NE secured host function. In case of enabled state, only the hosts of configured IP addresses are allowed to access the NE via the configured 'Authorized Services'. |
| List Table | |
| Index | This indicates the number of List Table. |
| From IP Address | This indicates the beginning of the IP address range of the secured hosts. |
| To IP Address | This indicates the end of the IP address range of the secured hosts. |
| Authorized Services | This indicates the services (any combination of SNMP, TELNET, FTP and TFTP) the specified secured hosts are allowed. |
| Function Button | |
| Refresh | Click this button to refresh the SNMP Secured Host List |
| Change State | Click this button to enable or disable the secured host function. |
| Modify | Click this button to modify the specified secured host list. |
| Export | Click this button to save the contents of SNMP Secured Host List to the AMS client. |

Table 4-4 NE Secured Host List Dialog Description

- **Step 2** Click and highlight a row and click '**Modify**' button to modify the secured hosts, as shown in Figure 4-18. Table 4-5 depicts the related parameters.
- **Step 3** Assign the IP range and check the authorized services (any combination of SNMP, TELNET, FTP and TFTP) of trusted hosts to be allowed.

Figure 4-18 Modify Secured Host Dialog

| D Modify Secured Hosts | | | × |
|------------------------|--------|----------|---|
| From IP Address: | 0.0 | 0.0 | |
| To IP Address: | 0.0 | 0.0 | |
| Authorized Services: | SNMP | 🗌 Telnet | |
| [| Cancel | | |

| Field | Description |
|---------------------------|--|
| IP Address Section | |
| From IP Address | This specifies the beginning of the IP address section of the secured hosts. |
| To IP Address | This specifies the end of the IP address section of the secured hosts. |
| Authorized Service | Check the checkbox to select the authorized services. |

Table 4-5Secured Host Setting Dialog Description

4.7 Profile Management

A profile is a named list of configuration parameters with a value assigned to each parameter. By using a profile, the operator can configure the NE without to key in a lot of configuration parameters.

The AMS supports the configuration of profile and profile template. Both the profile and profile template possess the same parameter fields. However, the profile indicates the profile saved in the NE. As to the profile template, it indicates the profile saved in the AMS. Whenever the operator modifies a profile on a NE, the modification will affect all the ports using that profile. For this sake, the AMS provides the profile template to make management of port/NE settings easier to operator. It is recommended to set-up a number of templates prior to creating any xDSL profile and alarm definition profile.

As the profile and profile template possess the same parameter fields, the descriptions of profile are applicable to profile template in this section and here after.

This section describes the management of two kinds of profiles, data transport related profiles and alarm definition profile. The alarm definition profile defines the attributes of the report (alarm) of abnormality launched by the NE.

As to the data transport related profiles, they are

- xDSL Profile
- VLAN Profile

The xDSL Profile indicates the ADSL Profile and SHDSL Profile. It defines the attributes of the connection established via the xDSL subscriber loop. As to the VLAN Profile, it defines the attributes of services/applications applied to the xDSL subscriber.

Figure 4-19 and Table 4-6 help you to understand each profile and their interrelationship.



Figure 4-19 Interrelationship of Data Transport Related Profiles

Table 4-6 Data Transport Related Profiles

| Profile | | Capacity | Level | Category | Description |
|-----------------|--|----------|-------|--------------|--|
| | Line Profile | 60 sets | Link | Loop | Define the attributes of xDSL loop connection. |
| XDSL Profile | PM Threshold Profile | 60 sets | Link | Loop | Report the message if loop connection error across the threshold. |
| | Traffic Policing Profile (ADSL LC only) | 60 sets | Data | User Data | Define the rule of traffic policing for user data. |
| | IP Traffic Profile | 60 sets | Data | Unicast | Define the traffic bandwidth of Unicast connection. |
| VLAN Profile | Multicast Service Profile | 60 sets | Data | Multicast | A set of service selected from menu list. |
| | TV Channel Profile | 800 sets | Data | Multicast | A menu list of multicast channel, it also defines the traffic bandwidth of Multicast connection. |

NOTE

To make Traffic Policing Profile take effect, it needs to set IP Traffic Profile properly. Please refer to the NOTE under Table 4-14.

NOTE

To make an xDSL line works normally, the IP Traffic Profile is essential. As to the Traffic Policing Profile, it is optional and is only applicable to ADSL LC.



A profile is a named list of configuration parameters with a value assigned to each parameter. When you delete a profile you will affect the change on all port or connection using that profile. If you want to change a single port or a subset of ports, you can create another profile with desired parameters, and then assign the new profile to the desired port. This section contains the following sections:

- ADSL profile management
- ADSL profile template management
- SHDSL profile management
- SHDSL profile template management
- VLAN profile management
- VLAN profile template management
- Alarm definition profile management
- Alarm definition profile template management

4.7.1 ADSL Profile Management

The ADSL profiles enable you to simplify the process to configure the different ADSL loops with the same loop/data connection attributes. For example, you may classify the subscribers to several categories like category of residential customers, category of small office customers, category of enterprise customers and so on. Each category of subscribers is with the same loop/data connection attributes. Different categories are with their specific attributes like the line speed and performance monitoring to secure their particular service quality. Once the profiles are created, you can easily assign the ADSL subscriber with the request ADSL loop attributes.

Three types of profiles are relative to the ADSL loop, which are Line Profile, PM Threshold Profile and Traffic Policing Profile.

To configure the ADSL loop relative profiles, click Configuration \rightarrow Line Profile \rightarrow ADSL Profile List on **Main Menu** to open the **ADSL Profile List Dialog** as shown in Figure 4-20. Table 4-7 depicts the utilities of function button in the function menu as indicated in Figure 4-20.

Figure 4-20 ADSL Profile List – Line Dialog

| | | | Configuration > Line Pr | ofile > ADSL Profile List | | |
|-----------------------|----------------|---------|-------------------------|-----------------------------|--------------------------|-----------|
| Line PM Threshold Tra | affic Policing | | | | | |
| Profile Name | ADSL | Channel | RateMode | Liprate Max / Min (Kbps) | Donrate Max / Min (Kbps) | Status |
| | ADSL | Fast | Adaptive/Startup | 2976 / 64 | 29984 / 64 | O Disable |
| astar | ADSL | Fast | Adaptive/Startup | 2976 / 64 | 29984 / 64 | Enable |
| | | | | | Function Menu | |
| | Refresh | Add | Modify Delete Deta | il Save All as Template Cor | nmit Export | |

| Field | Description |
|----------------------|---|
| Refresh | Click this button to refresh the ADSL Profile List |
| Add | Click to add a new profile. |
| Modify | Click this button to modify the parameters of selected profile |
| Delete | Click this button to delete the selected profile. |
| Detail | Click this button to view the details of selected profile. |
| Save All as Template | Click to save all the profile on the NE as the profile template on the AMS server |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of ADSL Profile List to the AMS client. |

Table 4-7 ADSL Profile List Dialog Function Button

Line Profile

The line profile contains parameter relate to the ADSL.loop connection.

Follow the subsequent procedures to configure an ADSL line profile.

- Step 1Click the Line tab in ADSL Profile List Dialog to launch the ADSL Profile List –
Line Dialog to configure the ADSL Line profile as shown in Figure 4-20.
- **Step 2** Click 'Add' button to generate a line profile. Or select an existent profile and click 'Modify' to modify it. It is noted that each profile must have its unique profile name.

The line profile consists of the following groups of ADSL loop related parameters.

- Transmission Rate
- SNR margin
- PSD
- Power management
- INP

Transmission Rate

Click the **Transmission Rate tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile**– **Transmission Rate Dialog** as shown in Figure 4-21. Table 4-8 depicts the related parameters.

| Transmission Rate SNR Margin | PSD Power Management INP |
|--------------------------------|---|
| Channel Mode | Rate Mode Fixed Adaptive at Startup Adaptive at Run-time |
| Upstream | Downstream |
| Max Rate (Kbps): 2,(| 376 Max Rate (Kbps): 29,984 |
| | |

Figure 4-21 Add ADSL Line Profile– Transmission Rate Dialog

Table 4-8 Add Line Profile- Transmission Rate Dialog Description

| Field | Description |
|----------------------|---|
| Profile Information | |
| Profile Name | Enter to give a profile name |
| Channel Mode | |
| Interleave | Click to let the ADSL loop to be in the interleave mode. Interleave mode enhances the immunity to the impulse noise like lighting. However, its side effect is to introduce the transmission latency. Hence it is suitable for the time-insensitive data transmission, like file transfer. Its associated parameters are the 'Upstream/Downstream Max Delay' |
| Fast | Click to let the ADSL loop to be in the fast mode. Fast mode is suitable for the transmission of time-sensitive information such as audio. |
| Rate Mode | |
| Fixed | Click to let the ADSL loop to be of a fixed rate as specified by the 'Upstream/Downstream Min Rate'. In this mode, the NE will fail to establish the connection with ATU-R whenever it is not allowed in the physical loop environment. The failure may be due to the loop length, line quality, and so on. |
| Adaptive at Startup | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'. In comparison with 'Adaptive at Run-time', the NE will re-try to establish a new lower-rate connection with the ATU-R whenever |
| | the NE or ATU-R detects 10 consecutive SESs (Severely Error Seconds) in this mode. |
| Adaptive at Run-time | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'. In comparison with 'Adaptive at Startup', the NE will trigger the SRA (Seamless Rate Adaptation) process to change the line rates without losing the connection with ATU-R whenever the physical loop environment varies in this mode |

| Field | Description |
|----------------------|---|
| Rate Mode | |
| Fixed | Click to let the ADSL loop to be of a fixed rate as specified by the 'Upstream/Downstream Min Rate'. In this mode, the NE will fail to establish the connection with ATU-R whenever it is not allowed in the physical loop environment. The failure may be due to the loop length, line quality, and so on. |
| Adaptive at Startup | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'. In comparison with 'Adaptive at Run-time', the NE will re-try to establish a new lower-rate connection with the ATU-R whenever the NE or ATU-R detects 10 consecutive SESs (Severely Error Seconds) in this mode. |
| Adaptive at Run-time | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'.In comparison with 'Adaptive at Startup', the NE will trigger the SRA (Seamless Rate Adaptation) process to change the line rates without losing the connection with ATU-R whenever the physical loop environment varies in this mode. |
| Upstream | |
| Min Rate | Choose the minimum rate for the ATU-R to transmits traffic |
| Max Rate | Choose the maximum rate for the ATU-R to transmits traffic |
| Max Delay | Choose the maximum interleaved delay in milliseconds. (interleave mode only) Interleaved delay applies only to the interleave channel and defines the mapping between subsequent input bytes at the inter-leaver input and their placement in the bit stream at the interleave output. Larger numbers provide greater separation between consecutive input bytes in the output bit stream, allowing for improved impulse noise immunity at the expense of payload latency. |
| Downstream | |
| Min Rate | Choose the minimum rate for the ATU-C to transmits traffic |
| Max Rate | Choose the maximum rate for the ATU-C to transmits traffic |
| Max Delay | Choose the maximum interleaved delay in milliseconds. (applied to the interleave mode only) |

Table 4-8 Add Line Profile- Transmission Rate Dialog Description (Continued)



The associated parameters of the Rate Mode 'Adaptive at Run-Time' are as follows. 'Upshift Noise Margin', 'Downshift Noise Margin', 'Upshift Time' and 'Downshift Time'

NOTE

In the Rate Mode 'Adaptive at Run-Time', the NE will lose the connection with ATU-R if it fails to complete the SRA process to change the line rates

SNR Margin

Click the **SNR Margin tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile**– **SNR Margin Dialog** as shown in Figure 4-22. Table 4-9 depicts the related parameters.



| Fransmission Rate SNR | Margin PS | D Power Managemer | nt INP |
|-----------------------|-----------|-------------------|--------|
| Jpstream- | 10 | Downstream- | |
| Margin (dB/10) | | Margin (dB/10) | |
| Max: | 310 🔹 | Max: | 310 |
| Upshift: | 0 | Upshift: | 0 |
| Traget: | 60 - | Traget: | 60 |
| Downshift: | 0 - | Downshift: | 0 |
| Min: | 0* | Min: | 0 |
| Min Time (sec) | | Min Time (sec) | |
| Upshift Time: | 0 - | Upshift Time: | 0 |
| Downshift Time: | 0 | Downshift Time: | 0 |

Table 4-9

Add Line Profile- SNR Margin Dialog Description

| Field | Description |
|----------------|---|
| Upstream | |
| Downstream | |
| Max Margin | It specifies the maximum margin in 0.1 dB steps. Default value is 310. |
| Upshift | It specifies the up-shift margin in 0.1dB steps. Default value is 200 |
| Target | It specifies the target margin in 0.1dB steps. Default value is 60. |
| Downshift | It specifies the downshift margin in 0.1 dB steps. Default value is 30 |
| Min | It specifies the minimum margin in 0.1 dB steps. Default value is 0. |
| Upshift Time | It specifies the upshift time in sec. It defines the minimum time interval during which the upstream noise margin should stay above the Upshift SNR before the ATU-C triggers the SRA process to increase the line rate. Default value is 1000.Default value is 1000. |
| Downshift Time | It specifies the downshift time in sec. It defines the minimum time interval during which the upstream noise margin should stay above the Downshift SNR before the ATU-C triggers the SRA process to decrease the line rate. Default value is 1000. |



'Upshift Noise Margin', 'Downshift Noise Margin', 'Upshift Time' and 'Downshift Time' are only applied to the Rate Mode 'Adaptive at Run-Time'.



 $\label{eq:margin} \begin{array}{l} {\rm Minimum\ Noise\ Margin} \leq {\rm Downshift\ Noise\ Margin} \leq {\rm Target\ Noise\ Margin} \leq {\rm Upshift\ Noise\ Margin} \leq {\rm Margin} \leq {\rm Margin} \leq {\rm Margin} \\ {\rm Margin} \leq {\rm Margin} \\ {\rm Mar$

PSD

Click the **PSD tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– PSD Dialog** as shown in Figure 4-23. Table 4-10 depicts the related parameters.

| ransmission Rat | e SNR Margin P | SD Power Managem | ent INP |
|-------------------------|----------------|------------------|-------------------|
| pstream Nominal PSD: | 0.1 dBm/Hz) | Downstream | 10 (0.1dBm/Hz) |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Figure 4-23 Add ADSL Line Profile- PSD Dialog

Table 4-10 Add Line Profile – PSD Dialog Description

| Field | Description |
|-------------|---|
| Upstream | |
| Downstream | |
| Nominal PSD | It specifies the discrepancy with respect to the ITU-T G.992.3-defined MAXNOMPSD value. Its unit is 0.1 dBm/Hz. And its allowed range is from 40 to -400. |



It is noted that the MAXNOMPSD settings are different for the following three protocol groups.

- G.992.1 Annex A and B; G.992.2 Annex A and G; G.992.3 Annex A, B and J;
- G.992.5 Annex A, B and M
- G.992.3 Annex L

To ease the configuration, the Nominal PSD is defined to be the discrepancy with respect to the MAXNOMPSD.

Power Management

In order to save power, G.992.3 and G.992.5 define the power management function. The operator can either configure the ADSL line Transmission (Tx) power be either manually or automatically managed.

The automatic power management function enables the ADSL line to automatically transfer from the L0 (full-on) state to the L2 (low power) state whenever the downstream net data rate is lower than expected. And it also enables the ADSL line to automatically transfer from the L2 state to the L0 state once the NE begins to drop the downstream data.

Click the **Power Management tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– Power Management Dialog** as shown in Figure 4-24. Table 4-11 depicts the related parameters.

Figure 4-24 Add ADSL Line Profile– Power Management Dialog

| Profile Information- | | • # |
|-------------------------|----------------------------|----------------------|
| FIUNE Nam | interleaved-adaptive- | aap |
| Transmission Rate | SNR Margin PSD F | Power Management INP |
| Management Mode- | | |
| | ⊖ Automatic | le Manual |
| Trigger Criteria of Sta | te Transition | |
| L2 State Min & Low | Rate (Kbps): | 32 |
| L2 State Max Rate (F | (bps): | 29,984 |
| L0 State Min Time to | Start Monitoring (sec): | 900 |
| L2 State Low Rate N | lin Contiguous Time (sec): | 300 - |
| CPE L3 State Requ | est: | ● Accept ○ Reject |
| | OK Can | cel |

Table 4-11 Add Line Profile – Power Management Dialog Description

Description

Management Mode

Field

Automatic – This mode enables the ADSL line to automatically transfer from the L0 (full-on) state to the L2 (low power) state whenever the downstream net data rate is lower than expected. And it also enables the ADSL line to automatically transfer from the L2 state to the L0 state once the NE begins to drop the downstream data.

Manual –This mode allows the operator to manually force the specific ADSL line to transfer from the L2 state to the L0 state, and vice versa.

| Trigger Criteria Of State | Fransition |
|--|---|
| L2 State Min & Low Rate | It specifies the minimum rate (manual mode) or Lowest criteria (auto mode) of L2 state. (See the Note below) Default value is 32. |
| L2 State Max Rate | It specifies the maximum rate of L2 state. (See the Note below) Default value is 29984. |
| L0 State Min Time to Start Monitoring | It specifies the minimum time (seconds) the ADSL line must stay at the L0 state. During this time interval, the ADSL line is not allowed to transfer to the L2 state. It is the so-called L0-TIME as defined in ITU-T G.997.1. (See the Note below) Default value is 900. |
| L2 State Low Rate Min Contiguous Time | It specifies the contiguous time interval for which the downstream mean net data rate is below the 'L2 State Min & Low Rate' on a ADSL line. (See the Note below) Default value is 300. |
| CPE L3 State Request | It specifies whether the ADSL port accepts L3 command from CPE or not. Default value is "Accept". |



In order to let the ADSL line avoid going into and out of L2 too often, the following $L0 \leftrightarrow L2$ state transition criteria are adopted.

L0→L2:

- The ADSL line must stay at the L0 state for a period specified by 'L0 State Min Time to Start Monitoring' (i.e., the L0-TIME as defined in ITU-T G.997.1)
- After the L0-TIME, the NE begins to compute the mean net-data rate for a period of 'L2 State Low Rate Min Contiguous Time' on a ADSL line.
- The ADSL line transfers to the L2 state once the computed mean net-data rate is below the 'L2 State Min & Low Rate'.
- Once an ADSL line is at the L2 state, its downstream ADSL line rate is in the range from 'L2 State Min & Low Rate' to 'L2 State Max Rate'.

L2→L0:

• The ADSL line immediately transfers to the L0 state once the NE detects packet loss on the ADSL line in the down stream direction.

INP

The INP (Impulse Noise Protection) defines the minimum protection symbol time both for upstream and downstream on this ADSL subscriber.

Click the **INP tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– INP Dialog** as shown in Figure 4-25. Table 4-12depicts the related parameters.

Figure 4-25 Add ADSL Line Profile– INP Dialog

| Profile Name: inte | erleaved-adaptive-9db |
|---------------------------------|---|
| ransmission Rate SNR Ma | argin PSD Power Management INP |
| Vinimum INF: 0 (symbol time) | Downstream Minimum INF: 0 (symbol time) |
| | |

Table 4-12 Add Line Profile – INP Dialog Description

| Field | Description |
|-------------|---|
| Upstream | |
| Downstream | |
| Minimum INP | It specifies the impulse noise protection symbol time in $\{0, 1/2, 1, 2, 4, 8, 16\}$. |

PM Threshold Profile

The PM threshold profile sets the threshold values for the performance parameters associated with the ADSL line. The NE will report the threshold-over trap (i.e. TCA, Threshold-Crossing Alarm) to the AMS Server when the specified performance threshold is over. Figure 4-26 shows ADSL PM threshold profiles accommodated in the system and allows adding a new profile or deleting the existing profile, by system (NE) unit. Table 4-7 depicts the utilities of function button in the function menu in Figure 4-26.

Figure 4-26 xDSL Profile List– PM Threshold Dialog

| Configuration > Line Profile > ADSL Profile List | | | | | | |
|--|---------------------------|--------------|---------------|---------------------------|---------------|-----------------|
| Line PM Thr | eshold Traffic Policing | | | | | |
| Profile Name 🔻 | ATUC 15Min ES / SES / UAS | ATUC 1Day ES | /SES/UAS | ATUR 15Min ES / SES / UAS | ATUR 1Day ES | /SES/UAS Status |
| normal-10 | 10/10/10 | 10/10/10 | 10 | /10/10 | 10/10/10 | Enable |
| | | | | | | |
| | Refresh | Add Modify | Delete Detail | Save All as Template | Commit Export |] |

Click 'Add' button to generate a PM threshold profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-27shows Add ADSL PM Threshold Profile Dialog. Table 4-13 depicts the related parameters.

Figure 4-27 Add ADSL PM Threshold Profile Dialog

| normal-10 | | |
|-----------|------------------------------|---|
| | | |
| | | |
| 10 | ES: | 10 |
| 10× | 🗹 SES: | |
| 10 | I∎ UAS: | 10+ |
| | | |
| | - [1-Day | |
| 10 | ES: | 10 |
| 10- | ☑ SES: | 10 - |
| 10 | UAS: | h0 |
| | 10 × 10 × 10 × 10 × | normal-10 10 |

Table 4-13 Add PM Threshold Profile Field Description

| Field | Description |
|-------|-------------|
| | |

15-Min / CO

This field indicates the CO side errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.

1-Day / CO

This field indicates the CO side errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 1 day.

15-Min / RT

This field indicates the RT side (CPE) errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.

1-Day / RT

This field indicates the RT side (CPE) errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 1 day.

| ES | It specifies the Error second $(0 \sim 900 \text{ sec})$ |
|-----|---|
| SES | It specifies the Several Error Second ($0 \sim 900$ sec) |
| UAS | It specifies the unavailable Second ($0 \sim 900$ sec) |

Traffic Policing Profile

According to SLA (Service Level Agreements) between subscribers and ISP, the edge network equipment marks subscriber's traffic with different service level. The traffic policing profile serves to keep the rule to re-mark the subscriber's upstream traffic with designated DSCP values. The traffic policing profile is design to police on the unicast connection for user's upstream traffic; once it is created you can apply it to distinct ADSL line interfaces (see 4.8.1 ADSL Line Interface Management.)

To set the traffic policing profile, click **Configuration** \rightarrow **Profile** \rightarrow **ADSL Profile** \rightarrow **Traffic Policing** tab to launch the **ADSL Profile List** – **Traffic Policing Dialog** as shown in Figure 4-28. Table 4-7 depicts the utilities of function button in the function menu in Figure 4-28

Figure 4-28 ADSL Profile List– Traffic Policing Dialog

| Profile Name Us CIR (Maps) Action Status SQCP.AF11 1 Change DSCP as AF11 Enable SQCP.AF12 1 Change DSCP as AF12 Enable SQCP.AF13 1 Change DSCP as AF13 Enable SQCP.AF13 1 Change DSCP as AF21 Enable SQCP.AF21 1 Change DSCP as AF21 Enable SQCP.AF22 1 Change DSCP as AF21 Enable SQCP.AF23 1 Change DSCP as AF23 Enable SQCP.AF33 1 Change DSCP as AF31 Enable SQCP.AF31 1 Change DSCP as AF33 Enable SQCP.AF33 1 Change DSCP as AF31 Enable SQCP.AF33 1 Change DSCP as AF33 Enable SQCP.AF44 1 Change DSCP as AF33 Enable SQCP.AF43 1 Change DSCP as AF41 Enable SQCP.AF43 1 Change DSCP as AF43 Enable SQCP.AF43 1 Change DSCP as Erf42 Enable SQCP | Line I im miestiona mainer olienny | | | |
|---|------------------------------------|---------------|-------------------------------------|--------|
| SSCP.AF11 Index change DSCP as AF11 Enable SSCP.AF12 1 change DSCP as AF13 Enable SSCP.AF13 1 change DSCP as AF13 Enable SSCP.AF12 1 change DSCP as AF21 Enable SSCP.AF23 1 change DSCP as AF22 Enable SSCP.AF23 1 change DSCP as AF23 Enable SSCP.AF31 1 change DSCP as AF23 Enable SSCP.AF32 1 change DSCP as AF31 Enable SSCP.AF33 1 change DSCP as AF31 Enable SSCP.AF32 1 change DSCP as AF33 Enable SSCP.AF32 1 change DSCP as AF33 Enable SSCP.AF32 1 change DSCP as AF43 Enable SSCP.AF41 1 change DSCP as AF43 Enable SSCP.AF42 1 change DSCP as AF43 Enable SSCP.AF43 1 change DSCP as AF43 Enable SSCP.AF5 1 change DSCP as DF43 Enable SSCP | Profile Name | Us CIR (Mbps) | Action | Status |
| SQP_AF12 1 change DSCP as AF12 Enable SQP_AF21 1 change DSCP as AF21 Enable SQP_AF22 1 change DSCP as AF21 Enable SQP_AF23 1 change DSCP as AF23 Enable SQP_AF23 1 change DSCP as AF23 Enable SQP_AF23 1 change DSCP as AF31 Enable SQP_AF31 1 change DSCP as AF31 Enable SQP_AF33 1 change DSCP as AF32 Enable SQP_AF33 1 change DSCP as AF32 Enable SQP_AF33 1 change DSCP as AF32 Enable SQP_AF44 1 change DSCP as AF32 Enable SQP_AF45 1 change DSCP as AF41 Enable SQP_AF45 1 change DSCP as AF43 Enable SQP_AF45 1 change DSCP as BF474 Enable SQP_AF69 <t< td=""><td>SCP-AF11</td><td></td><td>change DSCP as AF11</td><td>Enable</td></t<> | SCP-AF11 | | change DSCP as AF11 | Enable |
| SSCP.AF13 I change DSCP as AF13 Enable SSCP.AF21 I change DSCP as AF21 Enable SSCP.AF23 I change DSCP as AF23 Enable SSCP.AF33 I change DSCP as AF23 Enable SSCP.AF33 I change DSCP as AF31 Enable SSCP.AF33 I change DSCP as AF31 Enable SSCP.AF33 I change DSCP as AF31 Enable SSCP.AF33 I change DSCP as AF32 Enable SSCP.AF34 I change DSCP as AF32 Enable SSCP.AF33 I change DSCP as AF33 Enable SSCP.AF41 I change DSCP as AF33 Enable SSCP.AF43 I change DSCP as AF41 Enable SSCP.AF43 I change DSCP as AF42 Enable SSCP.AF54 I change DSCP as Enable Enable SSCP.AF5 I change DSCP as Expedited Forwarding Enable SSCP.AF0 I change DSCP as Expedited Forwarding Enable SSCP.AF0 I change DSCP as Expedited Forwarding Enable SSCP-Aro-action I ro action Enable | DSCP-AF12 | | change DSCP as AF12 | Enable |
| SQP_AF21 1 change DSCP as AF21 Enable SQP_AF22 1 change DSCP as AF22 Enable SQP_AF23 1 change DSCP as AF23 Enable SQP_AF31 1 change DSCP as AF31 Enable SQP_AF33 1 change DSCP as AF32 Enable SQP_AF33 1 change DSCP as AF33 Enable SQP_AF33 1 change DSCP as AF33 Enable SQP_AF44 1 change DSCP as AF34 Enable SQP_AF42 1 change DSCP as AF41 Enable SQP_AF42 1 change DSCP as AF41 Enable SQP_AF43 1 change DSCP as AF41 Enable SQP_AF44 1 change DSCP as EF471 Enable SQP_AF44 1 change DSCP as EF471 Enable SQP_AF45 1 change DSCP as EF16701 Enable SQP_AF4 1 change DSCP as EF16701 Enable SQP_AF40 | SCP-AF13 | | change DSCP as AF13 | Enable |
| Image: SQP-AF22 1 change DSCP as AF23 Enable SQP-AF23 1 change DSCP as AF33 Enable SQP-AF31 1 change DSCP as AF31 Enable SQP-AF32 1 change DSCP as AF31 Enable SQP-AF33 1 change DSCP as AF33 Enable SQP-AF33 1 change DSCP as AF33 Enable SQP-AF41 1 change DSCP as AF31 Enable SQP-AF41 1 change DSCP as AF41 Enable SQP-AF43 1 change DSCP as AF42 Enable SQP-AF43 1 change DSCP as AF42 Enable SQP-AF44 1 change DSCP as AF43 Enable SQP-AF43 1 change DSCP as AF43 Enable SQP-AF44 1 change DSCP as EF42 Enable SQP-AF45 1 change DSCP as EF42 Enable SQP-AF45 1 change DSCP as EF42 Enable SQP-Af45 1 change DSCP as AF43 Enable SQP-Af45 1 change DSCP as Infait Enable SQP-Af5 1 change DSCP as Infait Enable SQP-Af5 1 change DSCP as Infait Enable SQP-Af5 1< | SCP-AF21 | | change DSCP as AF21 | Enable |
| SCP-AF33 1 charge DSCP as AF31 Enable SCP-AF31 1 charge DSCP as AF31 Enable SCP-AF32 1 charge DSCP as AF32 Enable SCP-AF32 1 charge DSCP as AF32 Enable SCP-AF32 1 charge DSCP as AF31 Enable SCP-AF34 1 charge DSCP as AF31 Enable SCP-AF42 1 charge DSCP as AF41 Enable SCP-AF42 1 charge DSCP as AF43 Enable SCP-AF42 1 charge DSCP as Er43 Enable SCP-AF43 1 charge DSCP as Er43 Enable SCP-AF44 1 charge DSCP as Er43 Enable SCP-AF44 1 charge DSCP as Er43 Enable SCP-AF45 1 charge DSCP as Er43 Enable SCP-AF64 1 charge DSCP as Er44 Enable SCP-AF64 1 charge DSCP as Er44 Enable SCP-AF64 1 charge DSCP as Er44 Enable SCP-AF64 1 < | SCP-AF22 | | change DSCP as AF22 | Enable |
| SCP-AF31 1 charge DSCP as AF31 Enable SCP-AF32 1 charge DSCP as AF32 Enable SCP-AF33 1 charge DSCP as AF33 Enable SCP-AF41 1 charge DSCP as AF34 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF44 1 charge DSCP as BF42 Enable SCP-AF43 1 charge DSCP as BF42 Enable SCP-AF44 1 charge DSCP as BF42 Enable SCP-AF44 1 charge DSCP as BF42 Enable SCP-AF44 1 charge DSCP as BF45 Enable SCP-AF44 1 charge DSCP as BF45 Enable SCP-AF44 1 charge DSCP as BF45 Enable SCP-AF4 1 charge DSCP as BF45 Enable SCP-Af47 1 <t< td=""><td>SCP-AF23</td><td></td><td>change DSCP as AF23</td><td>Enable</td></t<> | SCP-AF23 | | change DSCP as AF23 | Enable |
| SCP-AF32 1 charge DSCP as AF33 Enable SCP-AF33 1 charge DSCP as AF33 Enable SCP-AF41 1 charge DSCP as AF33 Enable SCP-AF43 1 charge DSCP as AF41 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF5 1 charge DSCP as EV43 Enable SCP-AF0 1 drop Enable SCP-AF0 1 drop Enable | SCP-AF31 | | change DSCP as AF31 | Enable |
| SCP-AF33 1 charge DSCP as AF33 Enable SCP-AF41 1 charge DSCP as AF41 Enable SCP-AF42 1 charge DSCP as AF42 Enable SCP-AF43 1 charge DSCP as EF40 Enable SCP-AF43 1 charge DSCP as EF40 Enable SCP-AF4 1 charge DSCP as EF40 Enable SCP-AF4 1 charge DSCP as EF40 Enable SCP-AF4 1 charge DSCP as EF1ford Enable SCP-AF4 1 charge DSCP as EF1ford Enable SCP-AF4 1 charge DSCP as EF1ford Enable SCP-AF4 1 charge DSCP as Expedited Forwarding Enable SCP-Arop 1 drop Enable SCP-Arop. 1 no action Enable | SCP-AF32 | | change DSCP as AF32 | Enable |
| SCP-AF41 1 charge DSCP as AF41 Enable SCP-AF42 1 charge DSCP as AF42 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF43 1 charge DSCP as AF43 Enable SCP-AF44 1 charge DSCP as AF43 Enable SCP-AF43 1 charge DSCP as Dest Effort Enable SCP-AF40 1 charge DSCP as Expetited Forwarding Enable SCP-Af40 1 drop Enable SCP-Af40 1 orage DSCP as Expetited Forwarding Enable | SCP-AF33 | | change DSCP as AF33 | Enable |
| SCP-AF42 1 charge DSCP as AF42 Enable SCP-AF43 1 charge DSCP as Best Effort Enable SCP-EF 1 charge DSCP as Best Effort Enable SCP-EF 1 charge DSCP as Enable Enable SCP-Arp40 1 charge DSCP as Description Enable SCP-Arp40 1 charge DSCP as Enable Enable | SCP-AF41 | | change DSCP as AF41 | Enable |
| SCP-AF43 1 charge DSCP as AF43 Enable SCP-BE 1 charge DSCP as Ext Effort Enable SCP-Arop 1 charge DSCP as Expedited Forwarding Enable SCP-Arop 1 drop Enable SCP-Arop 1 orop Enable SCP-Arop 1 orop Enable SCP-Arop 1 orop Enable | SCP-AF42 | | change DSCP as AF42 | Enable |
| SCP-BE 1 charge DSCP as Best Enfort Enable SCP-FF 1 charge DSCP as Expedited Forwarding Enable SCP-arco 1 drop Enable SCP-no-action 1 no action Enable | SCP-AF43 | | change DSCP as AF43 | Enable |
| SCP-EF 1 change DSCP as Expedited Forwarding Enable SCP-drop 1 drop Enable SCP-no-action 1 no action Enable | SCP-BE | | change DSCP as Best Effort | Enable |
| SCP-incp 1 drop Enable SCP-no-action 1 no action Enable | SCP-EF | | change DSCP as Expedited Forwarding | Enable |
| ISCP-no-action I Enable | SCP-drop | | drop | Enable |
| | SCP-no-action | | nn action | Enable |
| | | | | |

Click 'Add' button to generate a Traffic Policing profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-29 shows the **Add Traffic Policing Profile Dialog**. Table 4-14 depicts the related parameters.

| Figure 4-29 Add Traffic Policing Profile Dialo | Figure 4-29 | Add Traffic Policing Profile Dialog |
|--|-------------|-------------------------------------|
|--|-------------|-------------------------------------|

| Profile Name : DSCP-AF13 | |
|--|-----|
| Upstream CIR (Mbps) : | þ 🛌 |
| Action to Out-profile Packets : change DSCP as AF13 | • |
| AFxy: Assured Forwarding, service class x, drop precedence y | |
| NOTE: "Change DSCP" only takes effect on non-PPoE packets. | |
| OK Cancel | |

Table 4-14 Add Traffic Policing Profile Field Description

| Field | Description |
|----------------------------------|---|
| Profile Information | |
| Name | It specifies the name of traffic policing profile. |
| Rate Limiting | |
| Upstream CIR (Mbps) | It specifies the CIR (Commit Information Rate). Valid value is $0\sim 2$ Mbps. |
| Action to Out-profile Packets | It specifies the DSCP value to be set, drop packets or do nothing whenever the user's upstream traffic exceeds CIR. |



The Service Type Control shall be enabled when Traffic Policing Profile is assign to xDSL subscribers (refer to Figure 4-51).



Please refer to Figure 4-59 for more details of Differentiated Service Code Point.

4.7.2 ADSL Profile Template Management

The profile template indicates the profile saved in the AMS. The AMS provides the profile template to make management of port/NE settings easier to operator. It is recommended to set-up a number of templates prior to creating any ADSL profile.

To configure the ADSL loop relative profile templates, click Configuration \rightarrow Line Profile \rightarrow ADSL Profile Template on Main Menu to open the ADSL Profile Template Dialog as shown in

Figure 4-30. Table 4-15 depicts the utilities of function button in the function menu as indicated in Figure 4-30.

As the profile template possesses the same parameter fields as the profile does, the descriptions of profile in Section 4.7.1 are applicable to the profile template. Please refer to Section 4.7.1 for the configuration details.

| Profile Name xOSL Channell RateMode Uprate Max / Min Dn asa ADSL Fast Adoptive/Strutup 2975 / 640 29884 / 2048 aba ADSL Interleave Adoptive/Strutune 2977 / 640 29884 / 2048 abb ADSL Interleave Adoptive/Strutune 2977 / 640 29884 / 2048 abb ADSL Interleave Adoptive/Strutune 2977 / 640 29884 / 2048 pf1001 ADSL Fest Fixed 128 / 128 2048 / 2048 | | fic Policing | | | | |
|---|--------------|--------------|------------|------------------|------------------|------------------|
| ae ADSL Fest Adoptive/Startup 2976 / 64 29894 / 24 bb ADSL Interleave Adoptive/Startup 2976 / 640 29894 / 2048 bb ADSL Interleave Adoptive/Runtime 2977 / 640 29894 / 2048 into ADSL Interleave Adoptive/Runtime 2977 / 640 29894 / 2048 into ADSL Fast Pixed 128 / 128 2046 / 2048 | Profile Name | xDSL | Channel | RateMode | Uprate Max / Min | Dnrate Max / Min |
| icc AOSL Interfereve AdaptiveRuntime 2976 / 640 29894 / 2049 bb AOSL Interfereve AdaptiveRuntime 2976 / 640 29894 / 2049 yff001 AOSL Fast Fixed 128 / 128 2049 / 2049 AOSL Fast Fixed 128 / 128 2048 / 2049 | aa | ADSL | Fast | Adaptive/Startup | 2976 / 64 | 29984 / 64 |
| kbo AOSL Interleave Adaptive/Runtime 2976 / 640 2988 / 2048 offi001 AOSL Feat Fixed 128 / 128 2048 / 2048 | abc | ADSL | Interleave | Adaptive/Runtime | 2976 / 640 | 29984 / 2048 |
| priloon ADSL Fast Fixed (128/128 2048/2048 | ddc | ADSL | Interleave | Adaptive/Runtime | 2976 / 640 | 29984 / 2048 |
| Func Men | pff001 | ADSL | Fast | Fixed | 128 / 128 | 2048 / 2048 |
| | | | | | | |
| | | | | | | Function Menu |

Figure 4-30 ADSL Profile Template Dialog

Table 4-15 ADSL Profile Template Dialog Function Button

| Field | Description |
|-----------------------------|--|
| Refresh | Click to refresh the ADSL Profile Template List |
| Add | Click to add a new profile template. |
| Modify | Click this button to modify the parameters of selected profile template. |
| Delete | Click this button to delete the selected profile template. |
| Detail | Click this button to view the details of selected profile template. |
| Download ADSL profile to NE | Click to download all the ADSL profile templates on the AMS server to the NE. |
| Export | Click this button to save the contents of ADSL Profile Template List to the AMS client. |

4.7.3 SHDSL Profile Management

The SHDSL profiles enable you to simplify the process to configure the different SHDSL loops with the same loop/data connection attributes. For example, you may classify the subscribers to several categories like category of residential customers, category of small office customers, category of enterprise customers and so on. Each category of subscribers is with the same loop/data connection attributes. Different categories are with their specific attributes like the line speed and performance monitoring to secure their particular service quality. Once the profiles are created, you can easily assign the SHDSL subscriber with the request SHDSL loop attributes.

Two types of profiles are related with the SHDSL loop, which are Line Profile and PM Threshold Profile.

To configure the SHDSL loop relative profiles, click Configuration \rightarrow Line Profile \rightarrow SHDSL Profile List on **Main Menu** to open the **SHDSL Profile List Dialog** as shown in Figure 4-31. Table 4-16 depicts the utilities of function button in the function menu as indicated in Figure 4-31.



Figure 4-31 SHDSL Profile List– Line Dialog

Table 4-16 SHDSL Profile List Dialog Function Button

| Field | Description |
|----------------------|--|
| Refresh | Click this button to refresh the SHDSL Profile List |
| Add | Click to add a new profile. |
| Modify | Click this button to modify the parameters of selected profile |
| Delete | Click this button to delete the selected profile. |
| Detail | Click this button to view the details of selected profile. |
| Save All as Template | Click to save all the profile on the NE as the profile template on the AMS server |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of SHDSL Profile List to the AMS client. |

Line Profile

The line profile contains parameter relate to the SHDSL loop connection.

Follow the subsequent procedures to configure an SHDSL line profile.

Click the **Line** tab in **SHDSL Profile List Dialog** to launch the **SHDSL Profile List – Line Dialog** to configure the ADSL Line profile as shown in Figure 4-31.

Click 'Add' button to generate a line profile. Or select an existent profile and click 'Modify' to modify it. It is noted that each profile must have its unique profile name.

The line profile consists of the following groups of SHDSL loop related parameters.

- Transmission Rate
- SNR margin
- Miscellaneous

Transmission Rate

Click the **Transmission Rate tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile– Transmission Rate Dialog** as shown in Figure 4-32. Table 4-17depicts the related parameters.

Figure 4-32 Add SHDSL Line Profile– Transmission Rate Dialog

| Profile Name: | 001 |
|-------------------|--------------------------|
| Transmission Rate | SNR Margin Miscellaneous |
| Rate Mode | |
| Mod | e: |
| Rate Limit | |
| Min Rate: | 1,600 |
| Max Rate: | 1,600 |
| | |
| | OK Cancel |

Table 4-17 Add SHDSL Line Profile- Transmission Rate Dialog Description

| Field | Description | |
|---------------------|--|--|
| Profile Information | | |
| Profile Name | Enter to give a profile name | |
| Rate Mode | | |
| Fixed | Click to let the SHDSL loop to be of a fixed rate as specified by the 'Min Rate'. In this mode, the NE will fail to establish the connection with STU-R whenever it is not allowed in the physical loop environment. The failure may be due to the loop length, line quality, and so on. | |
| Adaptive at Startup | Click to let the SHDSL loop to be of the rate adapted in the range specified by the 'Min/Max Rate'. | |
| Rate Limit | | |
| Min Rate | Choose your minimum rate | |
| Max Rate | Choose your maximum rate | |

SNR Margin

Click the **SNR Margin tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile–SNR Margin Dialog** as shown in Figure 4-33. Table 4-18 depicts the related parameters.

| Figure 4-33 | Add SHDSL Line Profile– SNR Margin Dialog |
|-------------|---|
|-------------|---|

| Profile Information | _ |
|--|---|
| Profile Name: 001 | |
| Transmission Rate SNR Margin Miscellaneous | |
| Upstream | |
| ✓ Current Target Margin: 6 | |
| ✓ Worst Target Margin: | |
| -Downstream | |
| Current Target Margin: 6 | |
| ✓ Worst Target Margin: 6 | |
| OK Cancel | |

Table 4-18 Add SHDSL Line Profile - SNR Margin Dialog Description

| Field | Description |
|-----------------------|--|
| Upstream / Downstream | |
| Current Target Margin | It specifies the current target margin. Default value is 6. |
| Worst Target Margin | It specifies the worst target margin. Default value is 6. |

Miscellaneous

Click the **Miscellaneous tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile–Miscellaneous Dialog** as shown in Figure 4-34. Table 4-19 depicts the related parameters.



Figure 4-34 Add SHDSL Line Profile– Miscellaneous Dialog

Table 4-19 Add SHDSL Line Profile– Miscellaneous Dialog Description

| Field | Description | |
|--------------------------|--|--|
| Miscellaneous Parameters | | |
| PSD Mask | It specifies the setting of PSD Mask to be symmetric or asymmetric | |
| Tx Mode | It specifies the setting of Tx mode. A: Indicates the ITU-T G.991.2 Annex A B: Indicates the ITU-T G.991.2 Annex B A+B: Compatible with ITU-T G.991.2 Annex A and Annex B. | |
| Line Probe | Enable or disable the line probe state before training with STU-R. Enable: To make the 'line rate limit' up to 2312Kbps. Disable: To make the 'line rate limit' up to 1.5Mbps. | |

PM Threshold Profile

The PM threshold profile sets the threshold values for the error status generated in the ADSL line, and sets the system to report the threshold-over trap (alarm) to the AMS Server when the set error threshold is over. Figure 4-35 lists SHDSL PM threshold profiles accommodated in the system and allows adding a new profile or deleting the existing profile, by system (NE) unit. Table 4-7 depicts the utilities of function button in the function menu in Figure 4-35.

Click the PM Threshold tab to launch the PM Threshold Dialog as shown in Figure 4-35.

Figure 4-35 SHDSL Profile List– PM Threshold Dialog

Click 'Add' button to generate a PM threshold profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-36 shows **Add SHDSL PM Threshold Profile Dialog**. Table 4-20 depicts the related parameters.

Figure 4-36 Add SHDSL PM Threshold Profile Dialog

| Threshold (dB) |
|----------------|
| 6 |
| 6 |
| |
| 10* |
| 10* |
| 10 * |
| 10 |
| 10 |
| |

Table 4-20 Add SHDSL PM Threshold Profile Dialog Description

| Field | Description | |
|---|---|--|
| CO SNR Margin and Loop Attenuation Threshold | | |
| This field indicates the minimum SNR margin and maximum loop attenuation. | | |
| When the minimum SNR margin is set to 10, if the current SNR margin is below 10 dB, a trap | | |
| (alarifi) occurs. | | |
| When the maximum loop at | tenuation is set to 100, if the current loop attenuation exceeds 100 | |
| dB, a trap (alarm) occurs. | | |
| CO 15-Min PM High-Threshold | | |
| This field indicates the CO side errors. When the threshold is set to 10, if the count of specific errors exceeds 10 seconds for the last error accumulated, a trap (alarm) occurs. | | |
| ES | It specifies the Error second ($0 \sim 900$ sec) | |
| SES | It specifies the Several Error Second ($0 \sim 900$ sec) | |
| UAS | It specifies the unavailable Second ($0 \sim 900$ sec) | |
| LOSWS | It specifies the Loss of Synchronization Word Second ($0 \sim 900$ sec) | |
| CRC Anomalies | It specifies the count of anomaly of Cyclic Redundancy Check $(1 \sim 44100)$ | |

4.7.4 SHDSL Profile Template Management

The profile template indicates the profile saved in the AMS. The AMS provides the profile template to make management of port/NE settings easier to operator. It is recommended to set-up a number of templates prior to creating any SHDSL profile.

To configure the SHDSL loop relative profile templates, click Configuration \rightarrow Line Profile \rightarrow SHDSL Profile Template on **Main Menu** to open the **SHDSL Profile Template Dialog** as shown in Figure 4-37. Table 4-21 depicts the utilities of function button in the function menu as indicated in Figure 4-37.

As the profile template possesses the same parameter fields as the profile does, the descriptions of profile in Section 4.7.3 are applicable to the profile template. Please refer to Section 4.7.3 for the configuration details.

Figure 4-37 SHDSL Profile Template Dialog Function Button

 Table 4-21
 SHDSL Profile Template Dialog Function Button

| Field | Description |
|------------------------------|---|
| Refresh | Click this button to refresh the SHDSL Profile Template List |
| Add | Click to add a new profile template. |
| Modify | Click this button to modify the parameters of selected profile template. |
| Delete | Click this button to delete the selected profile template. |
| Detail | Click this button to view the details of selected profile template. |
| Download SHDSL profile to NE | Click to download all the SHDSL profile templates on the AMS server to the NE. |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of SHDSL Profile Template List to the AMS client. |

4.7.5 VLAN Profile Management

VLAN Profile contains three categories of profiles; IP Traffic Profile, TV Channel Profile, and Multicast Service Profile.

As shown in Figure 4-19, NE forwards traffic on 2 kinds of connections, unicast connection and multicast connection, on the Data Level. For the unicast connection, it carries all traffic (unicast and broadcast) except multicast traffic. The attributes of unicast connection are specified by the IP Traffic Profile. As for the multicast connection, its attributes are specified by the TV Channel Profile. Moreover, the NE also supports to restrict the subscriber to receive a set of specific TV channels. Multicast Service Profile records the set of specific TV channels.

Click Configuration \rightarrow Line Profile \rightarrow VLAN Profile List on **Main Menu** to open the **VLAN Profile List Dialog** as shown in Figure 4-38. Table 4-22 depicts the utilities of function button in the function menu as indicated in Figure 4-38.

| Field | Description |
|----------------------|---|
| Refresh | Click to refresh the VLAN Profile List |
| Add | Click to add a new profile. |
| Modify | Click this button to modify the parameters of selected profile |
| Delete | Click this button to delete the selected profile. |
| Detail | Click this button to view the details of selected profile. |
| Save All as Template | Click to save all the profile on the NE as the profile template on the AMS server |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of VLAN Profile List to the AMS client. |

Table 4-22 VLAN Profile List Dialog Function Button

IP Traffic Profile

The IP traffic profile is design to specify the traffic attributes of the PVC on the ADSL line. The operator can create the IP Traffic Profile according to the Service Level Agreement (SLA) and apply it to the corresponding VC-to-VLAN on demand. (see Section 4.9.1 'VC-to-VLAN Connection Management').

Click the **IP Traffic** tab in **VLAN Profile List Dialog** to launch the **VLAN Profile List–IP Traffic Dialog** as shown in Figure 4-38.

Figure 4-38 VLAN Profile List– IP Traffic Dialog

| | | Configuration > Line Profile > | VLAN Profile List | |
|------------------------------------|----------|--------------------------------|------------------------------------|-----------------|
| IP Traffic TV Channel Multicast Se | ervice | | | |
| Profile Name | Queue | Downstream Rate (Kbps) | Upstream Rate (Kbps) | Status |
| ip001 | low | 29984 | <no limit=""></no> | Enable |
| ip002 | medium | 1024 | <no limit=""></no> | Display Enable |
| ip003 | high | 1024 | <no limit=""></no> | Enable |
| ip004 | highest | 1024 | <no limit=""></no> | Distance Enable |
| | | | | Function |
| | | | | Menu |
| Ref | resh Add | Modify Delete Detail | Save All as Template Commit Export | |

Click 'Add' button to generate an IP traffic profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-39 shows Add xDSL IP Traffic Profile Dialog. Table 4-23 depicts the related parameters.

Figure 4-39 Add xDSL IP Traffic Profile Dialog

| Profile Information | |
|----------------------------|-------------|
| Name: | VLAN-IP-Iow |
| -IP CoS Setting | |
| Downstream Priority Queue: | low 🗸 |
| Downstream Rate (Kbps): | 20,032 |
| Upstream Rate (Kbps): | 768 👻 |
| -Broadcast Control | |
| Downstream Broadcast: | forward 👻 |
| c | OK Cancel |

 Table 4-23
 Add xDSL IP Traffic Profile Dialog Description

| Field | Description |
|-------------------------------------|---|
| Profile Information | |
| Name | Enter the name of traffic profile. |
| Line Board IP CoS Setting | ļ |
| Downstream Priority Queue (Kbps) | It specifies the downstream priority queue. Valid values are "Low", "Medium", "High" and "Highest". |
| Downstream Rate (Kbps) | It specifies the maximum allowed downstream net-data rate. The drops drop packets whenever the downstream traffic exceeds the specified rate. |
| Upstream Rate (Kbps) | It specifies the maximum allowed upstream net-data rate. The drops drop packets whenever the user's upstream traffic exceeds the specified rate. Valid values are "no limit", "32", "64", "128", "256", "384", "512" "768" |
| Broadcast Control | 512, 700 |
| Downstream Broadcast | This indicates the rule (forward or drop) for downstream broadcast traffic. |

TV Channel Profile

The TV channel profile sets value of multicast group IP and the associated downstream bandwidth resource, it is a menu list of the TV channel (multicast group) provided by the Content Service Provider (CSP) or Application Service Provider (ASP).

Click the **TV Channel tab** in **VLAN Profile List Dialog** to launch the **VLAN Profile List–TV Channel Dialog** as shown in Figure 4-40.

| P Traffic | TV Channel | Multicast Service | | | | | | | |
|-----------|------------|-------------------|------------|--------------|-----------|------------------|-----------|----------------------|-----------|
| ID | | Profile Name | 1 | TV Channel I | P Address | Queue | Do | wnstream Rate (Kbps) | Status |
| | TV1 | | 234.5.1.1 | | | low | 29984 | | Enable |
| | TV001 | | 0.0.0.0 | | | low | 32 | | 🔘 Disable |
| 0 | TV2 | | 234.5.1.2 | | | low | 64 | | 👂 Enable |
| | | | | | | | | | |
| | | Pefrech | Add Modify | Delete | Detail S | Save All as Temp | late Comm | it Evport | |

Figure 4-40 VLAN Profile List– TV Channel Dialog

Click 'Add' button to generate a TV channel profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-41 shows **Add xDSL TV Channel Profile Dialog.** Table 4-24 depicts the related parameters.

Figure 4-41 Add xDSL TV Channel Profile Dialog

| 1. |
|-----------|
| НВО |
| 233 0 1 1 |
| |
| highest 👻 |
| 1538 |
| |
| |

| Field | Description |
|----------------------------|---|
| Profile Information | |
| Profile ID | It specifies the TV channel ID |
| Name | Enter the TV channel name |
| TV Channel IP Address | It specifies the IP address of TV channel (multicast group IP) |
| IP CoS Settings | |
| Priority Queue | This specifies the priority queue of TV Channel address. Valid values are "Low", "Medium", "High" and "Highest". |
| Downstream Rate (Kbps) | It specifies the maximum allowed downstream net-data rate. The drops drop packets whenever the downstream traffic exceeds the specified rate. |

Table 4-24 Add xDSL TV Channel Profile Dialog Description

Multicast Service Profile

The multicast service profile is a set of TV channel profiles. Once the TV channel profiles are created, you can generate the multicast service profile to bind suitable TV channel profiles. Each multicast service profile is viewed as a service package for the subscriber to book. The operator then applies the booked multicast service profile to the distinct VC-to-VLAN associated with the subscriber. (see Section 4.9.1 'VC-to-VLAN Connection Management').

Whenever the subscriber clicks his remote controller to watch a TV channel transmitted via the ADSL line, the set-top-box sends the corresponding IGMP report packet. The NE will forward IGMP packet if its multicast IP hits the associated multicast service profile. Otherwise, the NE drops the IGMP packet. As a result, the subscriber is restricted to watch the TV programs that he booked.

Click the **Multicast Service tab** in **VLAN Profile List Dialog** to launch the **VLAN Profile List–Multicast Service Dialog** as shown in Figure 4-42.

Figure 4-42 VLAN Profile List– Multicast Service Dialog

| Configuration > Line Profile > VLAN Profile List | | | | | | | | | | |
|--|----------------|-------------|-----|--------|--------|-----------------|----------------------|--------|--------|------------|
| IP Traffic TV | Channel Multic | ast Service | | | | | | | | |
| Profile Name | | 1 | | | T١ | / Channel Profi | le IDs | | | Status |
| TVg1 | 1 | | | | | | | | | Enable |
| TVg2 | 1,100 | | | | | | | | | Enable |
| | | | | | | | | | | |
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| | | [] | | [] | [] | [] | [| 1 | | |
| | | Refresh | Add | Modify | Delete | Detail | Save All as Template | Commit | Export | |

Click 'Add' button to generate a multicast service profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 4-43 shows **Add xDSL Multicast Service Profile Dialog**. Table 4-25 depicts the related parameters.

Figure 4-43 Add xDSL Multicast Service Profile Dialog

| <u> </u> | нво раскаде | |
|----------|--------------------|-----------------------|
| Channel | Group Profile Nome | TV Channel ID Address |
| 1 | HBO | 233.0.1.1 |
| 3 | HBO2 | 230.0.1.2 |
| | | |

Table 4-25 Add Multicast Service Profile Dialog Description

| Field | Description |
|-----------------------|--|
| Profile Information | |
| Name | Enter the multicast service profile name. |
| TV Channel | |
| ID | The serial number for group profile. |
| Group Profile Name | It indicates the TV Channel profile name specified in Figure 4-41. |
| TV Channel IP Address | It indicates the corresponding multicast IP address of TV Channel. |
| Function Button | |
| OK | Click this button to confirm the setting |
| Detail | Click this button to view the details of TV Channel profile. |
| Cancel | Click this button to cancel the modification. |
| | |

4.7.6 VLAN Profile Template Management

The profile template indicates the profile saved in the AMS. The AMS provides the profile template to make management of port/NE settings easier to operator. It is recommended to set-up a number of templates prior to creating any VLAN profile.

To configure the VLAN profile templates, click Configuration \rightarrow Line Profile \rightarrow VLAN Profile Template on **Main Menu** to open the **VLAN Profile Template Dialog** as shown in Figure 4-44. Table 4-26 depicts the utilities of function button in the function menu as indicated in Figure 4-44.

As the profile template possesses the same parameter fields as the profile does, the descriptions of profile in Section 4.7.5 are applicable to the profile template. Please refer to Section 4.7.5 for the configuration details.
| | | | Confi | guratior | 1 > Line F | Profile > VL | AN Profile Templa. | ite | | | |
|------------|------------|-------------------|-------|----------|------------|---------------|--------------------|-------------|--------|--------------------|--|
| IP Traffi | TV Channel | Multicast Service | | | | | | | | | |
| | Pro | file Name | Queue | | [| Downstream Ra | ite (Kbps) | | Up | stream Rate (Kbps) | |
| VLAN-IP-Io | w | | low | 20032 | | | | 768 | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | Function | |
| | | | | | | | | | | Ivienu | |
| | | | | | | | | | | | |
| | | Refresh | Add | odify | Delete | Detail | Download VLAN Pro | files to NE | Export | | |

Figure 4-44 VLAN Profile Template Dialog Function Button

 Table 4-26
 VLAN Profile Template Dialog Function Button

| Field | Description |
|--------------------------------|--|
| Refresh | Click to refresh the VLAN Profile Template List |
| Add | Click to add a new profile template. |
| Modify | Click this button to modify the parameters of selected profile template. |
| Delete | Click this button to delete the selected profile template. |
| Detail | Click this button to view the details of selected profile template. |
| Download VLAN profile to NE | Click to download all the VLAN profile templates to the NE. |
| Export | Click this button to save the contents of VLAN Profile Template List to the AMS client. |

4.7.7 Alarm Definition Profile Management

The alarm definition profile allows you to define the rule of alarm element in system. Through this profile, you are able to change the severity of individual alarm element and decide to report it or not.

Alarm Severity. Change the particular alarm type's severity level

Alarm Reporting. Alarm reporting provides enable/disable capability for the specific alarm types. E.g. to disable the LPR alarm will mask this alarm inherent in the NE.

Alarm Suppression. To suppression with specify alarm type due to occurrence. E.g. LOF is suppress by LOS, NE will reporting LOS when both are occurrence.

Alarm element is specified in the class of module or port. Different types of module may present different alarm element. Different types of port may also present different alarm element.

- Step 1 Click Configuration → Alarm Definition → Alarm Definition List on Main Menu to open the Alarm Definition List Dialog as shown in Figure 4-45. Table 4-27 depicts the related parameters.
- **Step 2** Select either a module or a port on the **Class** combo-box.
- Step 3 Select a module model on the Model combo-box as shown in Figure 4-46.
 Or
 Select a port model on the Model combo-box as shown in Figure 4-47.
- **Step 4** Click 'Modify' button to modify the Alarm Definition. Figure 4-48 shows an example of **Modify Alarm Definition Dialog**. Table 4-28 depicts the related parameters.

Figure 4-45 Alarm Definition List Dialog



Table 4-27Alarm Definition List Dialog Description

| Field | Description |
|---------------|--|
| List Table | |
| Name | It specifies the alarm name. |
| Severity | It specifies the alarm severity. |
| Reporting | It specifies the reporting status. |
| Suppressed By | It specifies the rule of alarm suppression. |
| Description | It specifies the alarm description. |
| Top Combo-box | |
| NE | This indicates the current NE model. |
| Class | Use this combo-box to select the alarm class, either module or port. |
| Model | Use this combo-box to select the card module or port module. |

| Field | Description | | | | |
|-----------------------------|---|--|--|--|--|
| Function Button | | | | | |
| Refresh | Click to refresh the Alarm Definition List | | | | |
| Sync NE | Click to get all the profile from the NE to the AMS server. | | | | |
| Save All Models as Template | Click to save all the profile on the AMS server as the profile template. | | | | |
| Commit | Click this button to apply the setting to NE. | | | | |
| Export | Click this button to save the contents of Alarm Definition List to the AMS client. | | | | |

Table 4-27 Alarm Definition List Dialog Description (Continued)

Figure 4-46 Selection of a module model on the Model combo-box

| | | | Configuration > Alarm P | rofile > Alarm Defini | tion List 🛛 🐻 බි ශ් 🌄 🖪 🖊 4 |
|-------------------|------------------------|------------|----------------------------|------------------------|---|
| NE: DAS-4672 | - Class: | Module 👻 M | Model: DAS-4672 ADSLx48 Bo | ard 🔻 | |
| | | | DAS-4672 ADSLx48 Boa | rd | |
| Name | Severity | Reporting | DAS-4672 Fan Module | | Description |
| AISSING | Major | Yes | Brid 40121 dir Module | | ADSL module off-line |
| remp | Major Yes | Yes | DAS-4672 Network Boar | DAS-4672 Network Board | Temperature over the threshold |
| /OL | Major | Yes | DAS-4672 Power Module | 9 | Voltage below the threshold |
| /ISMATCH | Major Yes Major Yes | Yes | DAS-4672 Relay Module | | Planned type and online type mismatched |
| NOT_OPERABLE | | Yes | D40 1072 0UD01 | | Line card is not operable |
| SPLITTER_MISSSING | Warning | Yes | DAS-4672 SHDSD(48 B) | bard | No splitter card presented |
| WV_INFO_INV | Major | Yes | | | Hardware serial or version invaild |
| DISABLED | Unknown | Yes | | | ADSL module disabled |

Figure 4-47 Selection of a port model on the Model combo-box

| Device | Page | | | | | | | |
|-----------|------------|---------|--|-----------|--------|----------------------------|---------------------------|--|
| | | | | | Col | nfiguration > Alarm Profil | e > Alarm Definition List | |
| NE: | AC 4672 | _ | Olasai | Port | Madali | DAS 4672 ADSL Bort | | © @ & € Z 4 |
| NE. | JA0-4072 | · · · · | class. | Fon | wouer. | DR3-4072 ADSE FOR | | |
| | | | | | | DAS-4672 ADSL Port | | |
| | Name | 5 | seventy | Reporting | | DAS-4672 GE Port | | Description |
| ES_INE_15 | D_MIN | Minor | r. | Yes | | DAS-4672 Relavin Port | | 15 min ES-NE threshold alarm |
| SES_NE_1 | IS_MIN | Minor | С. | Yes | | | | 15 min SES-NE threshold alarm |
| UAS_NE_ | 15_MIN | Minor | r., | Yes | | DAS-4672 SHDSL PUR | | 15 min UAS-INE threshold alarm |
| ES_FE_15 | _PAIN | Minor | r | Yes | | | | 15 min ES-FE threshold alarm |
| SES_FE_1 | S_MIN | Minor | | Yes | | | | 15 min SES-FE threshold alarm |
| UAS_FE_1 | 15_MIN | Minor | | Yes | | | | 15 min UAS-rE threshold alarm |
| CEC NE 4 | DAY | Minor | r | Yes | | | | 1 day ES-NE threshold alarm |
| SES_NE_1 | LDAY | Minor | | Yes | | | | 1 day SES-NE threshold alarm |
| UAS_NE_ | 1_DAY | Minor | r. | Yes | | | | 1 day UAS-NE threshold alarm |
| ES_FE_1_ | DAY | Minor | real and a second s | Yes | | | | 1 day ES-FE threshold alarm |
| SES_FE_1 | DAY | Minor | r | Yes | | | | 1 day SES-FE threshold alarm |
| UAS_FE_1 | 1_DAY | Minor | r | Yes | | | | 1 day UAS-FE threshold alarm |
| LOS | | Minor | r:/ | Yes | | | | Loss of signal |
| LOF | | Minor | r (| Yes | | | | Loss of Frame |
| LPVVR | | Minor | r// | Yes | | | | CPE loss of power |
| GEN_LINE | _INIT_FAIL | Minor | ro. | Yes | | | | Generic line initialization failure |
| CONFIG_E | RROR | Minor | ra 👘 | Yes | | | | CONFIG_ERROR(G.997.1 Line Initialization Failure) |
| HIGH_BIT_ | RATE | Minor | r 👘 | Yes | | | | HIGH_BIT_RATE |
| COMM_PR | ROBLEM | Minor | r) | Yes | | | | COMM_PROBLEM (G.997.1 Line Initialization Failure) |
| NO_PEER_ | DETECTED | Minor | r) | Yes | | | | NO_PEER_DETECTED (G.997.1 Line Initialization Failure |
| TRAINING | | Warr | ning | Yes | | | | Port is under training |
| NO_CONF | IG | Warr | ning | Yes | | | | Port is not configured |
| PS_L2_MA | ANUAL | Unkn | iown | Yes | | | | ADSL2/ADSL2+ Power State transfers to L2 by manual mode |
| PS_L2_AL | JTO | Unkn | iown | Yes | | | | ADSL2/ADSL2+ Power State transfers to L2 by automatic mode |
| PS_L3_CC | 0 | Unkn | iown | Yes | | | | ADSL2/ADSL2+ Power State transfers to L3 by CO side |
| PS_L3_CP | Έ | Unkn | own | Yes | | | | ADSL2/ADSL2+ Power State transfers to L3 by CPE side |
| STC_ILLEG | GAL_IP | Warr | ning | Yes | | | | Packets with illegal IP addresses have been dropped |
| STC_ILLEG | GAL_MAC | Warr | ning | Yes | | | | Packets with illegal MAC addresses have been dropped |
| DISABLED |) | Unkn | iown | Yes | | | | The port is disabled |
| | | | | | | | | |

| Madal | DAC 4402.1 | DEL David (1DC | 1 Denti | | | |
|-----------------|---------------|--|----------------|------------------|-----------------------|--|
| Model | DAS-4192 A | DSL POIT (ADS | L Poft) | | | |
| Alarm Name | LOS | | | | | |
| Description | Loss of sign | al | | | | |
| Alarm Severity | 8 | | | | | |
| | C Critical | C Major | Minor | © Warning | C Info | |
| Alarm Reporting | g | | | | | |
| | Enable | C Disable | | | | |
| Marm Suppres: | sion (Suppres | sed by) | | | | |
| Name 🛆 | | Description | | | 1 | |
| CFGEF | RR | Configuration error | | | | |
| 🔲 🥥 DISAB | BLE | Port is disabled | | | | |
| 🔲 🌙 ILLEG | AL_IP | Packets with illegal IP addresses have been di | | | | |
| 🗌 🌖 ILLEG | AL_MAC | duplicated I | MAC address | ses from differe | ent line _l | |
| | MMC | Line initializ | ation failure | - communicatio | on probl | |
| | ENERICFAIL | Generic line | initialization | i failure | | |
| | BIIRATE | Line initializ | auon tallure | - nigh bit rate | | |
| | | Loss of frag | ine ine | | | |
| 1 | | | | | F | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | OK L | Cancel | |

Figure 4-48 Modify Alarm Definition Dialog

```
Table 4-28 Modify Alarm Definition Dialog Description
```

| Field | Description |
|-------------------------|--|
| Alarm Information | |
| Model | It specifies current module name under modifying. |
| Alarm Name | It specifies the alarm name. |
| Description | This describes the current selected alarm. |
| Alarm Severity | Check the radio button to set the alarm severity of the specified alarm. |
| Alarm Reporting | Enable or disable reporting of the specified alarm. |
| Alarm Suppression (Supp | ressed by) |
| Name | Check the check-box to choose which the specified alarm to be suppressed by. |
| Description | This describes the alarm's meaning. |
| | |



The alarm suppression (suppressed by) allows you to mask specific alarms when there are sequences occurred at the same time. For example, let the LOF (Loss of Frame) be configured to be suppressed by the LOS (Loss of Signal), the LOF will not be display on the screen but only LOS whenever the corresponding ADSL loop is cut.

4.7.8 Alarm Definition Profile Template Management

The profile template indicates the profile saved in the AMS. It is recommended to set-up a number of templates prior to creating any alarm definition profile.

To configure the alarm definition profile templates, click Configuration \rightarrow Alarm Definition \rightarrow

Alarm Definition Template on **Main Menu** to open the **Alarm Definition Template Dialog** as shown in Figure 4-49. Table 4-29 depicts the utilities of function button in the function menu as indicated in Figure 4-49.

As the profile template possesses the same parameter fields as the profile does, the descriptions of profile in Section 4.7.7 are applicable to the profile template. Please refer to Section 4.7.7 for the configuration details.

| | Configuration > Alarm Profile > Alarm Definition Template | | | | | | |
|--------------|---|-----------|--|---|--|--|--|
| NE: DAS-4192 | Class: | Module | ▼ Model: DAS-4192 ADSLx48 Board ▼ | | | | |
| Name | Severity | Reporting | Suppressed By | Description | | | |
| MISSING | Major | Yes | | ADSL module off-line | | | |
| TEMP | Major | Yes | | Temperature over the threshold | | | |
| VOL | Major | Yes | | Voltage below the threshold | | | |
| MISMATCH | Major | Yes | MISSING, TEMP, VOL, NOT_OPERABLE, | Planned type and online type mismatched | | | |
| NOT_OPERABLE | Major | Yes | | Line card is not operable | | | |
| HW_INFO_INV | Major | Yes | | Hardware serial or version invaild | | | |
| DISABLED | Unknown | Yes | | ADSL module disabled | | | |
| | | | | Function Menu | | | |
| | | | Refresh Modify Download All Models to NE Expor | | | | |

Figure 4-49 Alarm Definition Template Dialog

 Table 4-29
 Alarm Definition Template Dialog Function Button

| Field | Description |
|---------------------------|--|
| Refresh | Click to refresh the Alarm Definition Template List |
| Modify | Click this button to modify the parameters of selected profile |
| Download All Models to NE | Click to download all the Alarm Definition profile templates on the AMS server to the NE. |
| Export | Click this button to save the contents of Alarm Definition Template List to the AMS client. |

4.8 Interface Port Management

This section depicts the management of subscriber interfaces and GE network interfaces. This section contains the following sections:

- ADSL Line Interface Management
- SHDSL Line Interface Management
- GE Network Interface Management

4.8.1 ADSL Line Interface Management

This section helps you to attach the profile to the ADSL line interfaces. The function buttons of ADSL Port List dialog provides shortcut of relative port setting.

Step 1Click Configuration \rightarrow ADSL Port Setting on Main Menu to open the ADSL Port
List Dialog as shown in Figure 4-50. Table 4-30 depicts the related parameters.



Figure 4-50 ADSL Port List Dialog

Table 4-30

ADSL Port List Dialog Description

| Field | Description |
|------------------|---|
| List Table | |
| No. | This specifies the serial number of entry of List Table. |
| Slot-Port | This specifies the location of ADSL port |
| Line Profile | This specifies the line profile. |
| PM Threshold | This specifies the PM threshold profile. |
| Traffic Policing | This specifies the Traffic Policing profile. [Only for the ADSL Port List Dialog] |
| Admin State | This specifies the administrative status (enable or disable) |
| Link Status | It specifies the link connection status. |

| Field | Description |
|-----------------|--|
| Function Button | |
| Show | Click this button to show. |
| Modify | Click this button to modify. |
| VC-to-VLAN | Click this button to configure the VC-to-VLAN parameters |
| MC Channel | Click this button to configure the multicast channel related parameters. [Only for the ADSL Port List Dialog] |
| Rate Status | Click this button to monitor the connection rate status. |
| Profile | Click this button to arrange the profile setting. |
| Reset Port | Click this button to reset port |
| Current PM | Click this button to view the current performance |
| History PM | Click this button to view the historical performance |
| Export | Click this button to save the contents of ADSL Port List to the AMS client. |
| Close | Exit the ADSL Port List Dialog. |

Table 4-30 ADSL Port List Dialog Description (Continued)

Step 2 Select an ADSL port and click 'Modify' button to modify the ADSL port. Figure 4-51 shows **Modify ADSL Port Dialog**. Table 4-31 depicts the related parameters.

Figure 4-51 Modify ADSL Port Dialog.

| ort: | LC1-17 | | |
|--------------------|-------------|-------------------------|----------|
| dmin Status: | Enable | 🔿 Disable | |
| Vireless Function: | ⊖ On | Off | |
| ine Profile: | bbb | | ✓ Detail |
| M Profile: | none | | ✓ Detail |
| raffic Policing: | none | | ✓ Detail |
| ervice Type Contro | I: Disabled | | |

| Field | Description |
|----------------------|--|
| ADSL Port | This indicates the current ADSL Port under modification. |
| Administrative State | Enable or disable the specified ADSL port. |
| ADSL Profiles | |
| Line Profile | Use this combo-box to select an existent ADSL line profile. |
| PM Threshold | Use this combo-box to select an existent PM Threshold profile. |
| Traffic Policing | Use this combo-box to select an existent Traffic Policing profile. |
| Service Type Control | This indicates the state of Service Type Control (STC) of the selected ADSL line card. |
| Function Button | |
| OK | Press this button to commit setting. |
| Cancel | Press this button to cancel setting. |

Table 4-31 Modify ADSL Port Dialog Description



Service Type Control (STC) only takes effect after the applied line card is reset.



To make the applied Traffic Policing Profile take effect, Service Type Control (STC) must be enabled.

4.8.2 SHDSL Line Interface Management

This section helps you to attach the profile to the SHDSL line interfaces. The function buttons of SHDSL Port List dialog provides shortcut of relative port setting.

Step 1 Click Configuration \rightarrow SHDSL Port Setting on Main Menu to open the SHDSL Port List Dialog as shown in. Figure 4-52 depicts the related parameters.

| Slot: LC1 | ▼ Port: </th <th>All> 👻</th> <th></th> <th></th> <th></th> <th></th> | All> 👻 | | | | |
|-----------|---|---------|--------------|------------|--------------|-------------|
| No. | Slot | Port | Line Profile | PM Profile | Admin Status | Link Status |
| [] | LC1 | Port 1 | | | 🔘 Disable | 🏂 Down |
| 2 | LC1 | Port 2 | | | ▶ Enable | 🏂 Down |
| 3 | LC1 | Port 3 | | | ▶ Enable | 🕸 Down |
| | LC1 | Port 4 | | | 🔘 Disable | 🏂 Down |
| j. | LC1 | Port 5 | | | 🔘 Disable | 🏂 Down |
| E. | LC1 | Port 6 | | | Disable | 🏂 Down |
| | LC1 | Port 7 | | | Disable | 🕸 Down |
| | LC1 | Port 8 | | | O Disable | 🕸 Down |
| L. | LC1 | Port 9 | | | Disable | 35 Down |
| 0 | LC1 | Port 10 | | | Enable | 与 Up |
| 1 | LC1 | Port 11 | | | Disable | 35 Down |
| 2 | LC1 | Port 12 | | | O Disable | 🏂 Down |
| 3 | LC1 | Port 13 | | | Enable | 🏂 Down |
| 4 | LC1 | Port 14 | | | O Disable | 🏂 Down |
| 5 | LC1 | Port 15 | | | O Disable | 🏂 Down |
| 6 | LC1 | Port 16 | | | O Disable | 🏂 Down |
| 7 | LC1 | Port 17 | | | Enable | 🗴 Down |
| 8 | LC1 | Port 18 | | | O Disable | 🕸 Down |
| 9 | LC1 | Port 19 | | | O Disable | 🏂 Down |
| 20 | LC1 | Port 20 | | | O Disable | 🏂 Down |
| 21 | LC1 | Port 21 | | | O Disable | 🏂 Down |
| 22 | LC1 | Port 22 | | | O Disable | 🛣 Down |
| 23 | LC1 | Port 23 | | | Enable | 🛣 Down |
| 24 | LC1 | Port 24 | | | Disable | 🏂 Down |
| 25 | LC1 | Port 25 | | | O Disable | 🕱 Down |
| 26 | LC1 | Port 26 | | | O Disable | 🗴 Down |
| 27 | LC1 | Port 27 | | | O Disable | 🕱 Down |
| 28 | LC1 | Port 28 | | | O Disable | 🗯 Down |
| 29 | LC1 | Port 29 | | | O Disable | 35 Down |
| 30 | LC1 | Port 30 | | | O Disable | 🏂 Down |
| 31 | LC1 | Port 31 | | | O Disable | 35 Down |
| 32 | LC1 | Port 32 | | | O Disable | 35 Down |

Figure 4-52 SHDSL Port List Dialog

Step 2 Select a SHDSL port and click 'Modify' button to modify the SHDSL port. Figure 4-53 shows Modify SHDSL Port Dialog. Table 4-32 depicts the related parameters.

Figure 4-53 Modify SHDSL Port Dialog

| Port: | LC1-17 | | |
|---------------|--------------|---------|--------|
| Admin Status | : 🖲 Enable 🔾 | Disable | |
| Line Profile: | none | • | Detail |
| PM Profile: | none | • | Detail |
| FM FIOME. | | | Detail |



In comparison with the ADSL Port List Dialog, the SHDSL Port List Dialog does not support the following functions

- Traffic Policing • •
 - Service Type Control

| Field | Description |
|------------------------|---|
| SHDSL Port | This indicates the current SHDSL Port which is under modifying. |
| Administrative State | Enable or disable the specified SHDSL port. |
| SHDSL Profiles | |
| Line Profile | Use this combo-box to select an existent SHDSL line profile. |
| PM Threshold | Use this combo-box to select an existent PM Threshold profile. |
| Function Button | |
| ОК | Press this button to commit setting. |
| Cancel | Press this button to cancel setting. |

Table 4-32 Modify SHDSL Port Dialog Description

4.8.3 GE Network Interface Management

There are two GE network interfaces, GE1 and GE2, for DAS4 series IP-DSLAM. GE1 is stated as the uplink GE port. All traffic from the xDSL line interface is forwarded to this interface by default. (i.e., the so-called port isolation) GE2 is stated as the subtended GE port, and it connects to other equipment and forward traffics to GE1 if none of LACP or RSTP is enabled.

Step 1Click Configuration \rightarrow Trunk \rightarrow Trunk Port Setting to open the Trunk Port List
Dialog as shown in Figure 4-54 and Table 4-33 depicts the related parameters.

Figure 4-54 Trunk Port List Dialog

| | Configuration | n > Trunk Port Setting | |
|-----|---------------|------------------------|-------------|
| No. | Slot-Port | Admin Status | Link Status |
| 1 | NC-GE1 | Enable | 与 Up |
| 2 | NC-GE2 | Enable | * Down |
| | | | |
| | Refresh | ity Commit Export | |

Table 4-33Trunk Port List Dialog Description

| Field | Description |
|-----------------------|---|
| Trunk Port List Table | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This indicates the location of trunk GE port. |
| Admin State | This indicates the administrative state of GE port. |
| Link Status | This indicates the operational state of GE port. |
| Function Button | |
| Refresh | Click this button to refresh the Trunk Port List |
| Modify | Click this button to modify. |
| Commit | Click this button to apply the setting to NE |
| Export | Click this button to save the contents of Trunk Port List to the AMS client. |

Step 2Click 'Modify' button to modify the trunk port. Figure 4-55 shows the Trunk Port
Configuration Dialog, and Table 4-34 depicts the related parameters.

Figure 4-55 Trunk Port Configuration Dialog

| D Trunk Port Settin | ng | | × |
|---------------------|----------|-----------|---|
| | | | |
| Slot-Port: | NC-GE1 | | _ |
| Admin State: |) Enable |) Disable | |
| Port Mode: | Uplink | 🔘 Subtend | |
| Auto-Negociation: | Enable | 🔿 Disable | |
| | | | |
| | ОК | Cancel | |

Table 4-34 Trunk Port Configuration Dialog Description

| Field | Description |
|------------------|---|
| Slot-port | This indicates the location of GE port under configuring. |
| Admin. State | Enable or disable the specified GE port. |
| Port Mode | Setting the GE port to uplink mode or subtended mode. Subtended mode is only available on GE2, GE1 is always the uplink port. |
| Auto-Negotiation | Enable or disable the auto-negotiation mode of the specified GE port. |





The DAS4 series IP-DSLAM support the so-called "Port Isolation", all xDSL users can not communicate with each other.

Once the GE2 is configured as a subtended port, all the ingress traffic of GE2 is restricted to be forwarded to GE1.

Link Aggregation (Static / Dynamic)

Link aggregation is to aggregate the 2 GE ports to provide higher uplink bandwidth. This dialog allows you to configure both static link aggregation and LACP (IEEE802.3ad, Link Aggregation Control Protocol).

Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow Trunk \rightarrow Link Aggregation on Main Menu to open the LACP for Trunk Port Dialog. Figure 4-57 shows LACP for Trunk Port Dialog. Table 4-35 depicts the related parameters.

| Link Aggregation Type: C |) LACP | ⊖ Static | Disable |
|---------------------------|----------|----------|---------|
| System Priority: | | 32,768 | |
| CP Group Setting | | | |
| Group 1 Actor Admin State | | | |
| Activity: | O Active | Pa | ssive |
| Timeout: | Long | O sh | ort |
| Group 2 Actor Admin State | | | |
| Activity: | O Active | Pa | ssive |
| Timeout: | Long | O Sh | ort |
| CP Link Setting | | | |
| LACP Group: | Group1 | * | |
| Port Priority: | | 32,768 🛫 | |
| GE2 | | | |
| LACP Group: | Group1 | * | |
| Port Priority: | | 32,768 | |
| | | | |

Figure 4-57 LACP for Trunk Port Dialog

Table 4-35 LACP for Trunk Ports Dialog Description

| | Description |
|------------------------|--|
| Link Aggregation Type | |
| LACP | Set link aggregation type to "LACP" for GE ports. |
| Static | Set link aggregation type to "Static" for GE ports. |
| Disable | Check this radial button to forbid the GE ports to run any link aggregation function. |
| LACP Setting | |
| System Priority | It specifies the system priority required for the LACP. |
| LACP Group1/Group2 Set | ting |
| Activity | It specifies the activity of the GE ports of the specified group, active or passive, for the LACP. |
| | Passive: The NE does not initiate LACP negotiation procedure on the specified group voluntarily, but waits for its LACP peer (in active state) initiates negotiation. The NE will form the aggregation link with its peer at the end of the negotiation procedure. Active: The NE is willing to initiate the LACP negotiation procedure on the specified group and sends out an LACP packet voluntarily. The aggregation link will be formed if the other end is running in LACP active or passive mode |
| Timeout | It specifies the interval of periodical transmitting LACP BPDU by the peer NE. If the NE does not receive the LACP BPDU after 3 consecutive specified intervals, the NE will remove the port from the aggregation link. For a busy aggregation link, it is recommended to set a short timeout to ensure that a disabled port is removed as soon as possible. Its value is either long (30 seconds) or short (1 second). |
| LACP GE1/GE2 Link Sett | ing |
| LACP Group | It specifies which the LACP group of GE1/GE2 is. |
| Port Priority | It specifies the port priority of GE1/GE2. |
| Function Button | |
| Refresh | Click this button to refresh the LACP for Trunk Port Dialog |
| Submit | Click this button to apply the setting to NE. |
| Commit | Click this button to apply the setting to NE. |

RSTP Configuration

The RSTP protocol smartly prevents the loop connection in your uplink networks. It improves the Spanning Tree Protocol (STP) by reducing the fail-over time whenever there is network topology change. The configuration of RSTP is divided to 2 parts. One is the system-wise configuration, which is described in the subsection "Bridge". The other one is the port-specific configuration, which is described in the subsection "Port GE1/Port GE2".

Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow Trunk \rightarrow RSTP Setting on **Main Menu** to open the **Rapid Spanning Tree Protocol for Trunk Ports** Dialog as shown in Figure 4-58. Table 4-36 depicts the related parameters.

| | Config | juration > RSTP Sett | ing | |
|--|---|---|--|---------------------------------|
| RSTP Administrative Stati | us | | | |
| Administrative Status: | 🔿 Enable | | Disable | |
| Version: | RSTP | - | | |
| RSTP Bridge Parameter- | | | | |
| Bridge ID: | 0x8000-00:01:03:05:07:09 | Hello time (sec): | Γ | 2 |
| Bridge Priority: | 32,768 | Forward Delay (sec) |): | 15 |
| Max Age (sec): | 20 - | Tx Hold Count: | | 3 |
| | | | | |
| | | | | |
| RSTP Port Setting | | | | |
| RSTP Port Setting | GE1 | | GI | ≣2 |
| RSTP Port Setting | GE1 | | GF 0x8002 | ≣2 |
| RSTP Port Setting Port ID: Port Enable: | 0E1 0x8001 Enable | | Gf 0x8002 Enable | Ē2 |
| RSTP Port Setting Port ID: Port Enable: Port Priority: | GE1 0x8001 Enable | 128 - | Gf 0x8002 Enable | Ξ2 128 - 1 |
| RSTP Port Setting Port ID: Port Enable: Port Priority: Path Cost: | CE1 | 128 - 20,000 - | Gt 0x8002 Enable Default | 2 128 20,000 |
| RSTP Port Setting Port ID: Port Enable: Port Priority: Path Cost: Edge Port: | GE1 Dx8001 Enable Default Edge | 128 - | Gi 0x8002 Enable I Default Edge | 2 128 20,000 20,000 |
| RSTP Port Setting Port ID: Port Enable: Port Priority: Path Cost: Edge Port: Point-to-Point Link: | CE1 | 128 <u>-</u> 20,000 <u>-</u> | Gf 0x8002 Enable Default Edge Auto | 2 2 |
| RSTP Port Setting Port ID: Port Enable: Port Priority: Path Cost: Edge Port: Point-to-Point Link: Protocol Migration: | GE1 Dx8001 Enable Default Edge Auto Check | 128 - - 20,000 - - | Gf 0x8002 Enable Default Edge Auto Check | 22 |

Figure 4-58 RSTP Setting Dialog

Table 4-36 RSTP Setting Dialog Description

| Field | Description | | | |
|------------------------------|--|--|--|--|
| RSTP Administrative State | | | | |
| Administrative State | Enable or disable the RSTP function for GE ports. | | | |
| Version | This specifies the RSTP version the NE runs. | | | |
| RSTP Bridge Parameter | | | | |
| Bridge ID | It indicates an unique 8-octet bridge ID which consists of a 2-octet Bridge Priority and a 6-octet MAC address. | | | |
| Bridge Priority | It specifies the 2-octet bridge priority. If the given value is lower than all the other L2 devices', the NE is selected as the root bridge as defined in IEEE 802.1d/ 802.1w. | | | |
| | Its valid range is through 0 to 61440 in steps of 4096 | | | |
| Max Age (Sec) | It specifies the maximum age of STP/RSTP information learned from the network on any port before it is discarded. | | | |
| Hello Time | It specifies the amount of time between the transmission of configuration bridge PDUs by this node on any port when it is the root of the spanning tree or trying to become so. | | | |
| Forward Delay | This specifies the time value that controls how fast a port changes its spanning state when moving towards the Forwarding state. The value determines how long the port stays in the Learning states, which precede the Forwarding state. This value is also used, when topology change has been detected and is underway, to age all dynamic entries in the Forwarding Database. | | | |
| Tx Hold Count | This specifies the value used by the port Transmit state machine to limit the maximum transmission rate. | | | |

| Field | Description | | |
|----------------------|---|--|--|
| RSTP GE1/GE2 Port Se | etting | | |
| Port ID | It specifies the GE1/GE2 port's port ID so far. | | |
| Port Enable | The current RSTP enabled/disabled status of the port | | |
| Port Priority | It specifies the port priority of a port. In the case that more that one ports form a loop in the NE, the RSTP/STP will block the ports of lower Port Priority (higher numerical value). Only the port of higher Port Priority (lower numerical value) is to be at Forwarding state. Its valid range is through 0 to 240 in steps of 16 | | |
| Path Cost | It specifies the contribution of this port to the path cost of paths towards the spanning tree root bridge. A port of higher speed should be configured with lower numerical value. When set it to be "default", its value follows the definition of IEEE 802.1d Table 17-3. | | |
| Edge Port | Check to let the port become edge port in spanning tree topology. An edge port on an RSTP switch will immediately transition to the forwarding state. However, the port will be a non-edge port if the NE receives RSTP BPDU on that port. And the port state and port role of the non-edge port will be determined by the RSTP hereafter. | | |
| Point-to-Point Link | Select YES to force this port always be treated as if it is connected to a point-to-point link. Select NO to let this port be treated as having a shared media connection. AUTO indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregately, or if the MAC entity is configured for full duplex operation, either through auto-negotiation or by management means. | | |
| Protocol Migration | Check to force this port to transmit RSTP BPDUs. | | |
| Function Button | | | |
| Refresh | Click this button to refresh the RSTP Setting Dialog | | |
| Submit | Click this button to apply the setting to NE. | | |
| Commit | Click this button to apply the setting to NE. | | |

Table 4-36 RSTP Setting Dialog Description (Continued)



It is noted that the following relationships have to be maintained.

2 x (Forward Delay - 1 second) >= Max Age Max Age >= 2 x (Hello Time + 1 second)



When set Path Cost to be "default", its value follows the definition of IEEE 802.1d Table 17-3 as follows.

| Link Speed | Recommended value | Recommended range | Range |
|------------|----------------------|------------------------|---------------|
| <=100 Kb/s | 200 000 000" | 20 000 000-200 000 000 | 1-200 000 000 |
| 1 Mb/s | 20 000 000ª | 2 000 000-200 000 000 | 1-200 000 000 |
| 10 Mb/s | 2 000 000ª | 200 000-20 000 000 | 1-200 000 000 |
| 100 Mb/s | 200 000 ^a | 20 000-2 000 000 | 1-200 000 000 |
| 1 Gb/s | 20 000 | 2 000-200 000 | 1-200 000 000 |
| 10 Gb/s | 2 000 | 200-20 000 | 1-200 000 000 |
| 100 Gb/s | 200 | 20-2 000 | 1-200 000 000 |
| 1 Tb/s | 20 | 2-200 | 1-200 000 000 |
| 10 Tb/s | 2 | 1-20 | 1-200 000 000 |

CoS Configuration

In order for the NE to play the role of edge (boundary) node of a DiffServ domain, the NE supports the the configurable mapping among the following entities.

- IEEE 802.1p User Priority as configured in the VC-to-VLAN configuration.
- Queue (Traffic Class) on each uplink trunk GE port
- DiffServ Code Point (DSCP) of the IP frame to be forwarded via the uplink trunk GE port.

User priority: The IEEE 802.1p user priority is a label carried with the frame that communicates the requested priority to the next hop (bridge, router or end systems). Typically, the user priority is not modified in the intermediate hop. Thus, the user priority has end-to-end significance across bridged LANs.

Queue (traffic class): A bridge can be configured so that multiple queues are used to hold frames waiting to be transmitted on a given outbound port, in which case the traffic class is used to determine the relative priority of the queues. Whenever the bridge's physical port is configured as strict priority (SP), all waiting frames at a higher traffic class are transmitted before any waiting frames of a lower traffic class. As with access priority, traffic class is assigned by the bridge on the basis of incoming user priority.



Currently, the NE supports 8 traffic classes (queues) on its GE ports with the strict priority (SP) scheduling policy only.

Differentiated Service Code Point (DSCP): RFC 2474/2475 defines the DiffServ field, which replaces the Type of Service (ToS) field in the IPv4 header. It facilitates the network devices behind IP-DSLAM to fulfill the end-to-end QoS. Figure 4-59 shows the DiffServ field.

Figure 4-59 DiffServ Field



The most significant six bits of DiffServ field are called DSCP. The network device classifies packets and marks them with appropriate DSCP value. According to these values, other network devices in the DiffServ domain can make decision for packets behavior and provide the Quality of Service properly.

A network device classify the priorities of traffic with 6 different levels, they are Express Forwarding (EF), Assured Forwarding Class 4 (AF4), Assured Forwarding Class 3 (AF3), Assured

Forwarding Class 2 (AF2), Assured Forwarding Class 1 (AF1) and Best Effort (BE). These forwarding classes are represented by the first 3 bits of DSCP as shown in Table 4-37. Moreover, the network device differentiates three drop precedence in AF4~AF1 respectively into last 3 bits of DSCP, they are Low Drop Precedence, Medium Drop Precedence and High Drop Precedence.

Table 4-37 DSCP: DS3~DS5 Bit Representation

| Decimal representation of bits DS5, DS4 and DS3 | Description |
|---|---|
| 7 | For link layer and routing protocol keep alive. |
| 6 | For using for IP routing protocols. |
| 5 | Express Forwarding (EF) |
| 4 | Assured Forwarding Class 4 (AF4) |
| 3 | Assured Forwarding Class 3 (AF3) |
| 2 | Assured Forwarding Class 2 (AF2) |
| 1 | Assured Forwarding Class 1 (AF1) |
| 0 | Best Effort (BF) |

Expedited Forwarding: The code point of EF is 101110, the packets marked with EF is to be transmitted with highest priority, lowest drop probability.

Assured Forwarding: Assured Forwarding PHB is suggested for applications that require a better reliability than the best-effort service. There are 4 classes of AF. Within Each AF class, there are 3 drop precedences. In case of congestion, the drop precedence of a packet determines the relative importance of the packet within the AF class. Table 4-38 indicates the relationship of the 4 AF class.

Table 4-38 DSCP Class Relationship

| | Class | | | | |
|-------------------------|---------------|---------------|---------------|---------------|--|
| Drop | AF1 | AF2 | AF3 | AF4 | |
| Low Drop Probability | 001010 (AF11) | 010010 (AF21) | 011010 (AF31) | 100010 (AF41) | |
| Medium Drop Probability | 001100 (AF12) | 010100 (AF22) | 011100 (AF32) | 100100 (AF42) | |
| High Drop Probability | 001110 (AF13) | 010110 (AF23) | 011110 (AF33) | 100110 (AF43) | |

Follow the subsequent procedure to configure the Trunk CoS mapping.

Click Configuration \rightarrow Trunk \rightarrow CoS Mapping on Main Menu to open the CoS Priority – Queue Mapping Dialog as shown in Figure 4-60. Table 4-39 depicts the related parameters.

| ser Priority | > Queue (Traffic Class) | | DiffServ Code Point (DSCP) | |
|------------------------------------|---|--|----------------------------|---|
| 0 | 3 | • | Best Effort | ▼ |
| 1 | 1 | • | Best Effort | • |
| 2 | 2 | • | Best Effort | • |
| 3 | 4 | • | Best Effort | • |
| 4 | 5 | - | Best Effort | • |
| 5 | 6 | • | Best Effort | • |
| 6 | 7 | • | Best Effort | • |
| 7 | 8 | • | Best Effort | • |
| Note: Queur AFxy: P Re-mappi | e 8 has the highest priority for pack Assured Forwarding, service class ng Administrative State | et transmisstion x, drop precedence | э у | |

Figure 4-60 Trunk CoS Mapping and DSCP Re-mapping Dialog

Table 4-39

Trunk CoS Mapping and DSCP Re-mapping Dialog Description

| Field | Description | | | | |
|--------------------------------------|---|--|--|--|--|
| 802.1p User Priority-CoS | 802.1p User Priority-CoS Queue Mapping and DSCP Re-mapping | | | | |
| User Priority | This indicates the 802.1p user priority as configured in the VC-to-VLAN configuration | | | | |
| Queue (Traffic Class) | Use this combo-box to set the mapping relation between each 802.1p and CoS queues on the uplink trunk GE port | | | | |
| DiffServ Code Point (DSCP) | Use this combo-box to set the new DSCP value on the IP frame to be forwarded via the uplink trunk GE port. | | | | |
| DSCP Re-mapping Administrative State | | | | | |
| Administrative State | Enable or disable the DSCP Re-mapping function. | | | | |
| Function Button | | | | | |
| Refresh | Click this button to refresh the Trunk CoS Mapping and DSCP Re-mapping Dialog. | | | | |
| Submit | Click this button to apply the setting to NE. | | | | |
| Commit | Click this button to apply the setting to NE. | | | | |

This section contains the following sections:

- VC-to-VLAN Configuration
- ISP Information for IP over ATM

4.9.1 VC-to-VLAN Connection Management

The VC-to-VLAN setting can easily define the multiple to one or one to one mapping; you can group different PVCs to a single VLAN ID as well as single PVC to one VLAN mapping. Figure 4-61 illustrates the basic principle for VLAN assignment in the DAS4 Series IP-DSLAM. As shown in Figure 4-61, the NE forwards five data flows, A~E, which may be either owned by the same subscriber or by different subscribers. It is noted that these data flows are conveyed in five individual ATM PVCs, and they are grouped into 3 individual VLANs.



The NE supports up to 8 PVCs per xDSL port . The NE supports up to 4094 VLANs per system .

Figure 4-61

VC-to-VLAN Mapping Illustrate



According to IETF RFC2684, an IP packet is encapsulated in either bridged mode or routed mode. The VC-to-VLAN settings are similar but not the same in these two encapsulation modes. This section depicts their configuration procedures together.



The VC-to-VLAN configuration procedures are the same to both the ADSL port and SHDSL port.

Follow the subsequent procedure to manage your VC-to-VLAN connectivity on a specific xDSL port.

Step 1Click Configuration \rightarrow VC-to-VLAN on Main Menu to open the xDSL VC-to-VLAN
List Dialog as shown in Figure 4-62.

| | Configuration > VC to VLAN | | | | | | | | |
|--------|----------------------------|------------|-----------|-------------------------|------------|-----------------------------|----------------------------|----------------|-----------------|
| Slot L | D1 👻 Pi | ort Port 1 | - |] | | | | | |
| No. | Slot-Port | 0 | VCI 32 | RFC2684 Mode bridged | VLAN / ISI | PName IPTrafficP BC_drop | rofile Service Ty PPPoE | pe Base IP / C | ount Status |
| | - Instances | | | | | | | | K-state and the |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| | | Re | fresh | Add Modify | Delete | Detail ACL | VC OAM Test | ommit Export | |

Figure 4-62 xDSL VC-to-VLAN List Dialog

Step 2 Click on the 'Add' button on the bottom side of Figure 4-62 to display the window (Figure 4-63) for adding new PVC and configuring the associated setting. Figure 4-63 ~ Figure 4-68 show the corresponding configuration dialogs in the RFC2684 bridged mode and routed mode. Click either one tab to launch the corresponding dialog to configure the parameters. Table 4-40 depicts the related configuration parameters



According to IETF RFC2684, an IP packet is encapsulated in either bridged mode or routed mode. The VC-to-VLAN settings are similar but not the same in these two encapsulation modes.

Figure 4-63 xDSL VC-to-VLAN Setting – IP Traffic Dialog

| D Add VC-to-VLAN Configuration | m | × Add VC-to-VLAN Configuratio | n X |
|--------------------------------|--------------------------|-------------------------------|-----------------------------|
| Virtual Channel- | | Virtual Channel | |
| Slot: | LC3 💌 | Slot: | LC3 💌 |
| Port: | Port 1 💌 | Port: | Port 1 |
| VPI: | 0 | VPI: | 0.* |
| VCI: | 32 | VCI: | 32 |
| RFC2684 Mode: | bridged 🗸 | RFC2684 Mode: | routed |
| Administrative State: | ● Enable | Administrative State: | Enable |
| IP Traffic Profile Service | Type 802.1Q/1P MAC Limit | IP Traffic Profile Service T | Type 802.1P ISP Server Name |
| IP Traffic Profile: 2 | ▼ Detail | IP Traffic Profile: 2 | ▼ Detail |
| | OK Cancel | | OK Cancel |

(a) IP Traffic Dialog in RFC2684 bridged mode (b) IP Traffic Dialog in RFC2684 routed mode

Figure 4-64 xDSL VC-to-VLAN Setting – 802.1Q/1P Dialog (only for the RFC2684 bridged mode)

| D Add VC-to-VLAN Configuration | | x |
|----------------------------------|------------------------|---|
| Virtual Channel | | - |
| Slot | LC3 👻 | |
| Port: | Port 1 | |
| VPI: | 0 | |
| VCI: | 32 | |
| RFC2684 Mode: | bridged 👻 | |
| Administrative State: | Enable | |
| IP Traffic Profile Service Typ | pe 802.1Q/1P MAC Limit | |
| VLAN ID: User Priority: | 1 × × | |
| C | DK Cancel | |

Figure 4-65 xDSL VC-to-VLAN Setting – 802.1P Dialog (only for the RFC2684 routed mode)

| D Add VC-to-VLAN Configuration | × |
|---------------------------------|------------------------|
| Virtual Channel | |
| Slot: | L03 💌 |
| Port: | Port 1 👻 |
| VPI: | 0 |
| VCI: | 32 |
| RFC2684 Mode: | routed 👻 |
| Administrative State: | Enable O Disable |
| IP Traffic Profile Service Type | 802.1P ISP Server Name |
| User Priority: | 0 |
| 0 | Cancel |

| Figure 4-66 | xDSL VC-to-VLAN S | Setting – MAC Limit | Dialog (only for the | RFC2684 bridged mode) |
|-------------|-------------------|---------------------|----------------------|-----------------------|
|-------------|-------------------|---------------------|----------------------|-----------------------|

| D Add VC-to-VLAN Configuratio | m | <u>></u> |
|-------------------------------|----------------|-------------|
| -vinuai Channei | | |
| Slot: | LC3 | * |
| Port: | Port 1 | • |
| VPI: | | 0 |
| VCI: | | 32 |
| RFC2684 Mode: | bridged | ~ |
| Administrative State: | Enable |) Disable |
| IP Traffic Profile Service 1 | Type 802.1Q/1P | MAC Limit |
| MAC Count: | | 1 |
| | OK Cancel | |

Figure 4-67 xDSL VC-to-VLAN Setting – ISP Server Dialog (only for the RFC2684 routed mode)

| DAdd VC-to-VLAN Configurat | 000 |] |
|----------------------------|--------------------|-----------|
| Slot: | LC3 | • |
| Port: | Port 1 | ¥ |
| VPI: | | 0 * |
| VCI: | | 32 |
| RFC2684 Mode: | routed | • |
| Administrative State: | Enable | Disable |
| IP Traffic Profile Service | Type 802.1P ISP Se | rver Name |
| ISP Server Name: | cwfu-try | ▼ Detail |
| | OK Cancel | |

| Figure 4-68 | xDSL VC-to-VLAN Setting – Service Type Dialog |
|-------------|---|
|-------------|---|

| N ALL VC IN VILLAN CONSTR | | | |
|--------------------------------|-----------------------|---------------------------------|------------------------|
| Virtual Channel | | Virtual Channel | <u>ک</u> |
| Slot: | LC3 | Slot | LC3 |
| Port | Port 1 | Port | Port1 |
| | | | |
| VPI: | 0 | VPI: | 0* |
| VCI: | 32 | VCI: | 32 * |
| RFC2684 Mode: | bridged 👻 | RFC2684 Mode: | bridged 💌 |
| Administrative State: | Enable | Administrative State: | Enable O Disable |
| IP Traffic Profile Service Typ | e 802.1Q/1P MAC Limit | IP Traffic Profile Service Type | 802.1Q/1P MAC Limit |
| Service Type: | PPPoE - | Service Type: | DHCP |
| IP Count: | 1 | IP Count: | 2 |
| Static IP's Base Address: | 0.0.0 | Static IP's Base Address: | 0.0.0.0 |
| 0 | K Cancel | | Cancel |
| mode | | mode | |
| Virtual Channel | | Virtual Channel | |
| Slot: | LC3 💌 | Slot: | LC3 💌 |
| Port: | Port 1 | Port: | Port 1 💌 |
| VPI: | 0 | VPI: | 0× |
| VCI: | 32 | VCI: | 32 |
| RFC2684 Mode: | bridged 👻 | RFC2684 Mode: | routed 👻 |
| Administrative State: | Enable Disable | Administrative State: | Enable O Disable |
| IP Traffic Profile Service Typ | e 802.1Q/1P MAC Limit | IP Traffic Profile Service Type | 802.1P ISP Server Name |
| Service Type: | Static IP 💌 | Service Type: | Static IP |
| IP Count: | 1 * | IP Count: | 1 |

Static IP's Base Address: 66 03 11 0 OK Cancel (C) Static IP service in RFC2684 bridged mode

(d) Static IP service in RFC2684 routed mode

OK Cancel

Static IP's Base Address: 69 .03 .10 .0

| Field | Description |
|---|--|
| Virtual Channel | |
| Slot, Port | This specifies the location of xdsl port. |
| VPI | It specifies the VPI value |
| VCI | It specifies the VCI value |
| Administrative State | It specifies the state of this VC-VLAN to enable or disable. |
| RFC2684 Mode | It specifies the RFC 2684 mode, (Bridged or Routed) |
| IP Traffic Profile Dialog | |
| IP Traffic Profile | This specifies the IP traffic profile |
| 802.1Q/1P Dialog [only for | RFC2684 bridged mode] |
| VLAN ID | This specifies the VLAN ID value |
| User Priority | This specifies the VLAN priority |
| 802.1P Dialog [only for RF | C2684 routed mode] |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| ISP Server Dialog [only for | r RFC2684 routed mode] |
| ISP Server Name | It specifies the ISP server name as specified in Section 4.9.2 'ISP Information for IP over ATM' |
| MAC Limit Dialog [only for | or RFC2684 bridged mode] |
| MAC Count | This specifies the number of subscriber's MACs allowed for the corresponding VC-to-VLAN connection. |
| Service Type Dialog | |
| Service Type | This specifies the service type to be allowed on the PVC of individual subscriber. In RFC2684 routed mode, the following service type is supported. Static IP In RFC2684 bridged mode, the following three service types are supported. PPPoE DHCP Static IP |
| IP Count [only for DHCP/ Static IP Service] | Static IP' service type is selected |
| Static IP's Basic Address [only for Static IP Service] | This specifies the base of the IP address if the service type is Static IP |

Table 4-40 xDSL VC-to-VLAN Setting Description



Enabling the Service Type Control makes the NE to provide the IP/MAC anti spoofing function. In the case that the subscriber acquires his IP address dynamically via PPPoE or DHCP, the NE will block the subscriber's traffic before a valid IP address assigning. Once the subscriber

possesses a valid dynamic or static IP, the NE will just forward the packet of valid source IP/MAC addresses. IN other words, the NE drops the subscriber's traffic of invalid source IP/MAC addresses.

4.9.2 ISP Information for IP over ATM

In the RFC 2684 routed mode, IP packets are directly encapsulated, i.e., no MAC layer is presented. Through the IWF (Inter-Work Function) of IPoA of IP-DSLAM, it needs to append the Ethernet MAC layer for particular subscriber interface, the source MAC address is specially generate by IP-DSLAM, and the destination MAC address is the next-hop router toward the ISP's router. The NE determines the MAC address of next-hop router by the(Address Resolution Protocol (ARP). Figure 4-69 illustrates an example of the IWF in the case of RFC 2684 routed mode.

Figure 4-69 RFC 2684 Route Mode Connection Method



Follow the subsequent procedure to launch the ISP Information dialog to resolve the MAC address by just specifying the ISP's IP address.

Step 1 Click Configuration \rightarrow ISP Info for IP over ATM on Main Menu to open the xDSL ISP List for IP over ATM Dialog as shown in Figure 4-70 and Table 4-41 depicts the related parameters.

| | | Confi | guration > ISP | Information | |
|----|----------|---------------|----------------|----------------|---------------|
| No | ISP Name | ISPIP | VLAN | M&C Address | Status |
| 1 | ISP1 | 100 168 1 150 | 100 | 00-00-00-00-00 | Enable |
| 2 | ISP2 | 100 168 1 151 | 300 | 00-00-00-00-00 | D Enable |
| 3 | cwfu try | 2333 | 6 | 00-00-00-00-00 | Enable Enable |
| | | | | | |
| | | Refresh Ad | d Delete | Commit Export | |

Figure 4-70 xDSL ISP List for IPoA Dialog

Table 4-41 xDSL ISP List for IPoA Dialog Description

| Field | Description |
|------------------------|--|
| List Table | |
| No. | This indicates the serial number of entry of the List Table. |
| ISP Name | It specifies the ISP name. |
| ISP IP | It specifies the ISP router IP. |
| VLAN | It specifies the VLAN grouping number for ISP connection. |
| MAC Address | It specifies the MAC address of the next-hop router toward the ISP's router. |
| Function Button | |
| Refresh | Click this button to refresh the ISP List |
| Add | Click this button to add a new ISP entry |
| Delete | Click this button to remove the ISP entry |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of ISP List to the AMS client. |

Step 2Click 'Add' button to launch the xDSL ISP for IPoA Dialog Figure 4-71 shows xDSLISP for IPoA Dialog, and Table 4-42 depicts the related parameters.

| Name: | MARUKO |
|-------------|------------------|
| IP Address: | 168 .113 .17 .66 |
| VLAN ID: | 1 * |

Table 4-42

| 4-42 | Add xDSL | ISP for IPoA | Dialog | Description |
|------|----------|--------------|--------|-------------|
|------|----------|--------------|--------|-------------|

| Field | Description |
|-----------------|---|
| ISP Information | |
| Name | This specifies the ISP name. |
| IP Address | This specifies the ISP router IP. |
| VLAN ID | This specifies the VLAN grouping number for ISP connection. |

4.10 Access Control List

The NE supports packet filtering functions to forward or drop subscriber traffics received on the subscriber interfaces.

• Source MAC Access Control List

4.10.1 Source MAC Access Control List

Follow the subsequent procedures to configure the access control list.

- Step 1Click Configuration \rightarrow VC-to-VLAN on Main Menu to open the xDSL VC-to-VLAN
List Dialog as shown in Figure 4-62.
- Step 2 Select a port in VC to VLAN List dialog and click "ACL" button on the bottom side of Figure 4-72 to configure the Access Control List option of the selected port. Figure 4-72 illustrated the VC-to-VLAN Access Control List dialog. Table 4-43 depicts the related parameters. Figure 4-73 illustrated the window for adding new MAC into the access control list.

| Port: | LC3-1 | |
|-------------------|--------------------|---|
| VPL/VCI: | 8/36 | • |
| ont Control State | | |
| Ptoto: | | |
| olale. | | |
| rolled Source MA | C List | |
| | Source MAC Address | |
| | | |
| | | |
| | | |

Figure 4-72 VC-to-VLAN Access Control List dialog

Table 4-43 VC-to-VLAN Access Control List Dialog Description

| Field | Description | |
|----------------------------|---|--|
| xDSL PVC | | |
| Port | This indicates the location of xDSL port | |
| VPI/VCI | This indicates the PVC. | |
| Current Control State | | |
| State | This indicates the current access control state of the specified PVC. | |
| Controlled Source MAC List | | |
| Source MAC Address | This indicates the MAC address under controlling. | |
| Function Button | | |
| Refresh | Click this button to refresh the Access Control List. | |
| Add | Click this button to add an access control entry. | |
| Delete | Click this button to delete the specified access control entry. | |
| Close | Exit the Access Control List Dialog. | |

Step 3 Click 'Add' button to launch the xDSL Access Control Dialog. Figure 4-73 shows the xDSL Access Control Dialog, and Table 4-44 depicts the related parameters.

| PVC: | LC3-1 | |
|---------------------------------------|--|-----------------------------|
| | 2001 | |
| ontrol State | | |
| Current State: | | |
| New State: | (Permit | ○ Denv |
| NOTE: If "New State" controlled MA | is different to "Current St Cs in this PVC will be clea | ate", all currently red. |
| | C Address | |
| controlled Source MA | | |

Figure 4-73 Add xDSL Access Control Dialog

Table 4-44Add xDSL Access Control Dialog Description

| Field | Description | | |
|---|---|--|--|
| xDSL PVC | | | |
| PVC | This indicates the specified xDSL port and specified PVC. | | |
| Control State (Add) | | | |
| Current State | This indicates the current access control state of the specified PVC. | | |
| New State | Check the radio button to select the role of new state. | | |
| Controlled Source MAC Address (Add) | | | |
| MAC Address (Hex) This specifies the MAC address under controlling. | | | |



The roles of access control function, Deny and Permit, are repulsive, i.e. a "deny" role will be replaced while a new role "permit" is be configured.

Review of Source MAC Access Control List

Follow the subsequent procedures to review the access control list configuration.

Click Configuration \rightarrow Access Control List on **Main Menu** to open the **xDSL Access Control** List Dialog as shown in Figure 4-74 and Table 4-45 depicts the related parameters.

| Configuration > Access Control List | | | | | | | | | |
|-------------------------------------|-----------|-------|-------------|-----|--------|-------------|----|--------------------|--|
| Blot: [| LC1 👻 | Port: | <a > | - | | | | | |
| No. | Slot-Port | 1 | VPI | VCI | 1 | Control Sta | te | Source MAC address | |
| 1 | LC1-15 | 0 | | 35 | permit | | | 00:00:00:00:00:01 | |
| | LC1-15 | 0 | | 35 | permit | | | 00:00:00:00:00:02 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Figure 4-74 xDSL Access Control List

Table 4-45

xDSL Access Control List Description

| Field | Description |
|--------------------|--|
| List Table | |
| No. | This indicates the serial number of entry of the access control list. |
| Slot-Port | This indicates the location of xDSL port. |
| VPI | This indicates the VPI of the specified xDSL subscriber. |
| VCI | This indicates the VCI of the specified xDSL subscriber. |
| Control State | This indicates the control state of access control of the specified xDSL subscriber. |
| Source MAC Address | This indicates the source MAC address which is under controlling of the specified xDSL subscriber. |
| Function Button | |
| Refresh | Click this button to refresh the Access Control List. |
| Commit | Click this button to apply the setting NE |
| Export | Click this button to save the contents of xDSL Access Control List to the AMS client. |

4.11 Multicast Service Management

To provide multicast service, the operator needs to properly configure the multicast channel and IGMP snooping /IGMP proxy. This section contains the following two subsections.

- Multicast Channel Configuration
- IGMP snooping/IGMP proxy Configuration

4.11.1 Multicast Channel Configuration

To forward the multicast stream, you are required to establish a VC-to-VLAN tunnel and specify the associated multicast service profile.

Follow the subsequent procedures to configure the related parameters.

- Step 1 Click Configuration → Multicast Channel on Main Menu to open the xDSL Multicast Channel Dialog.
- Step 2 Click on the 'Modify' or 'Add' button on the bottom side of Figure 4-75 to open the window (Figure 4-76) for adding new multicast channel and configure the associated setting.

In Figure 4-76, it is noted that two individual tabs (Multicast Channel Profile and MAC Limit) are provided to set the Multicast Channel related parameters. Click either one **tab** to launch the corresponding dialog to configure the parameters. Table 4-46 depicts the related parameters

Figure 4-75 xDSL Multicast Channel List Dialog

| | | | Configuratio | n > Multicast Channel | | | |
|-------------|--------------|-----|--------------|---------------------------|--------|--------|--|
| Slot: LC1 | Port: Port 1 | - | | | | | |
| No. Slot-Po | ort VPI | VCI | VLAN | Multicast Service Profile | | Status | |
| | | | | | | | |
| | Refresh | Add | lify Delete | Detail VC OAM Test | Commit | Export | |

| Slat | Let | |
|---------------------------|----------------|-----------|
| Side. | | · · · · |
| Port: | Port 1 | × |
| VPI: | | 1 |
| VCI: | | 32 * |
| VLAN ID: | | 1 |
| Administrative Status: | Enable | ◯ Disable |
| Iulticast Service Profile | Access Control | |
| Profile: | | ▼ Detail |
| | | |

Figure 4-76 xDSL Multicast Channel Setting Dialog

Table 4-46 xDSL Multicast Channel Setting Description

| Field | Description |
|-----------------------------|---|
| Ethernet over ATM | |
| Slot, Port | This specifies the physical connection information |
| VPI | This specifies the VPI values |
| VCI | This specifies the VCI values |
| VLAN ID | This specifies the multicast VLAN ID |
| Administrative State | Enable or disable the specified multicast channel. |
| Multicast Service Profile I | Dialog |
| Profile | This specifies the multicast service profile. Please refer to the section "Multicast Service Profile" in Section 4.7.5. |
| Access Control Dialog | |
| Stream Count | This specifies the allowed number of multicast streams to be forwarded via the VC-to-VLAN connection. |

4.11.2 IGMP snooping/IGMP proxy Configuration

Follow the subsequent procedures to configure the IGMP snooping and IGMP proxy related parameters.

Click Configuration \rightarrow IGMP Snooping / Proxy on **Main Menu** to open the **IGMP Snooping / IGMP Proxy Setting** Dialog as shown in Figure 4-77 and Table 4-47 depicts the related parameters.

| Figure 4-77 | IGMP Snooping / IGMP Proxy Setting Dialog |
|-------------|---|
| | |

| | Configuration > IGMP Proxy | |
|--|----------------------------|--|
| -IGMP Snooping / Proxy Setting | | |
| Disable IGMP Snooping and IGMP Proxy | | |
| C Enable IGMP Snooping | | |
| IGMP Snooping MAC Aging | | |
| Aging Time (sec): | 300 | |
| C Enable IGMP Proxy IGMP Proxy Parameter | | |
| Robustness (Query Retry): | 5 | |
| Query Response Interval (sec): | 10 | |
| Immediate Leave: | | |
| | Refresh Submit Commit | |

Table 4-47 IGMP Proxy Setting Dialog Description

| Field | Description | | | |
|---|---|--|--|--|
| IGMP Snooping / IGMP Proxy Setting | | | | |
| Disable IGMP snooping and IGMP proxy | This disables the IGMP Snooping and Proxy functionality. (Default) | | | |
| Enable IGMP Snooping | This enables the IGMP Snooping functionality. | | | |
| Enable IGMP Proxy | This enables the IGMP Proxy functionality. | | | |
| IGMP Snooping MAC Agi | ng | | | |
| Aging Time | This specifies the aging time of snooped legal multicast group MAC address. | | | |
| IGMP Proxy Setting | | | | |
| Robustness (Query Retry) | This specifies the IGMP Robustness retry times. Available value is $1 \sim 5$ (times). | | | |
| Query Response Interval (Sec) | This specifies the period between the NE send 2 consecutive IGM queries to the xDSL subscriber. Available value is $1 \sim 30$ (seconds). | | | |
| Immediate Leave | This specifies the immediate leave. | | | |
| Function Button | | | | |
| Refresh | Click this button to refresh the IGMP Snooping / IGMP Proxy Setting Dialog. | | | |
| Submit | Click this button to apply the setting to NE | | | |
| Commit | Click this button to apply the setting to NE | | | |

4.12 System Services Configuration

The system services configuration covers the following settings.

- MAC Aging for Bridged Services
- VLAN MAC Limit
- DHCP Service Configuration
- PPPoE Sub-option Configuration
- xDSL Port Agent ID

4.12.1 MAC Aging for Bridged Services

The MAC aging time sets the lifetime for the learned MAC address. A specific MAC address will be dropped when aging out until it get learning again. Disable this function will keep the learned MAC addresses permanent in the learning table.

Click Configuration \rightarrow MAC Aging on **Main Menu** to open the **MAC Aging** Dialog as shown in Figure 4-78 and Table 4-48 depicts the related parameters.

Figure 4-78 MAC Aging Setting Dialog

| Configuration > MAC Aging | |
|---------------------------|--|
| | |
| | |
| | |
| | |
| MAC Aging Setting | |
| O Disable MAC Aging | |
| Enable MAC Aging | |
| Unicast MAC Aging | |
| Aging Time (sec): 300 | |
| Refresh Submit Commit | |
| | |
| | |
| | |
| | |

Table 4-48 MAC Aging Setting Dialog Description

| Field | Description |
|----------------------|--|
| Unicast MAC Aging | |
| Admin Status | This specifies the administration status |
| Aging Time (seconds) | This specifies the MAC aging time. |
| | Default value is 300 seconds. |
| Function Button | |
| Refresh | Click this button to refresh the MAC Aging Setting Dialog. |
| Submit | Click this button to apply the setting to NE. |
| Commit | Click this button to apply the setting to NE |

4.12.2 VLAN MAC Limit

To limit the number of source MAC address learned in a specific VLAN, the users can enable the MAC limiting function and configure the upper limit of allowed MAC for a specific VLAN.

Step 1Click Configuration \rightarrow VLAN MAC Limit on Main Menu to open the VLAN MAC
Limit Dialog as shown in Figure 4-79. Table 4-49 depicts the related parameters.

Figure 4-79 VLAN MAC Limit List Dialog

| Configuration > VLAN MAC Limit | | |
|--------------------------------|--------------|-----------|
| VLAN ID | Admin Status | MAC Limit |
| 1 | O Disable | 12288 |
| 100 | O Disable | 12288 |
| 101 | O Disable | 12288 |
| 102 | O Disable | 12288 |
| 103 | O Disable | 12288 |
| 104 | ᅌ Disable | 12288 |
| 105 | O Disable | 12288 |
| 106 | 😂 Disable | 12288 |
| 107 | O Disable | 12288 |
| 200 | 😂 Disable | 12288 |
| | | |
| Refresh Modify Export | | |

| Field | Description | |
|-----------------|---|--|
| List Table | | |
| VLAN ID | It specifies the VLAN. | |
| Admin State | It specifies the administrative state. | |
| MAC Limit | It specifies the number of MACs allowed for the corresponding VC-to-VLAN connection. | |
| Function Button | | |
| Refresh | Click this button to refresh the VLAN MAC Limit List Dialog | |
| Modify | Click this button to open the MAC limit configure dialog. | |
| Export | Click this button to save the contents of VLAN MAC Limit List to the AMS client. | |

Table 4-49 VLAN MAC Limit List Dialog Description

Step 2 Click 'Modify' button to launch the VLAN MAC Limit Configure Dialog. Figure 4-80 shows VLAN MAC Limit Configure Dialog, and Table 4-50 depicts the related parameters.

Figure 4-80 VLAN MAC Limit Configure Dialog

| MAC Limit | | 8 |
|-----------------------|-----------|---------|
| VLAN ID: | 101 | |
| Administrative State: | 🔿 Enable | Disable |
| MAC Limit: | | 12,288 |
| | | |
| | OK Cancel | |

Table 4-50

VLAN MAC Limit Setting Dialog Description

| Field | Description |
|----------------------|---|
| MAC Limit (Modify) | |
| VLAN ID | It specifies the VLAN. |
| Administrative State | Enable or disable the MAC limit function. Default state is "disable". |
| MAC Limit | This specifies the number of MAC allowed for the VLAN, from 5 ~ 50000. Default value is 12288. |
4.12.3 DHCP Service Configuration

Four dialogs are related to the DHCP Service Configuration.

- DHCP Setting
- DHCP Server List for DHCP Relay
- DHCP Broadcast Control

DHCP Setting

The DHCP relay intercepts the DHCP request packets from subscriber interface and forwards them to the specified DHCP server. In the opposite direction, the DHCP relay transfers the DHCP reply packets from DHCP server to the specified xDSL subscriber.



Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow DHCP \rightarrow DHCP Setting on Main Menu to open the DHCP Setting Dialog as shown in Figure 4-81 and Table 4-51 depicts the related parameters.

Figure 4-81 DHCP Setting Dialog

| Configuration > DHCP > DHCP Setting | | | | |
|-------------------------------------|--|--|--|--|
| | | | | |
| | DHCP Setting | | | |
| | Administrative State | | | |
| | | | | |
| | DHCP Relay: 🔿 Enable 💿 Disable | | | |
| | | | | |
| | DHCP Option 82: O Enable Disable | | | |
| | | | | |
| | | | | |
| | DHCP Broadcast Control | | | |
| | Admin State: O Enable | | | |
| | | | | |
| | Rate Limit: 98 | | | |
| | | | | |
| | Action to Vialoation: drop packet and send alarm 💌 | | | |
| | | | | |
| | Refresh Submit Commit | | | |
| | | | | |

| Field | Description | |
|-----------------|--|--|
| DHCP Relay | Enable or disable the DHCP Relay function. | |
| DHCP Option82 | Enable or disable the DHCP option 82 function. Enable: The relayed DHCP packet is to be appended with the configured DHCP option 82 information as specified in the xDSL Port Agent ID List | |
| Function Button | | |
| Refresh | Click this button to refresh the DHCP Setting Dialog. | |
| Submit | Click this button to apply the setting to NE. | |
| Commit | Click this button to apply the setting to NE. | |

Table 4-51 DHCP Setting Dialog Description

DHCP Server List for DHCP Relay

Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow DHCP \rightarrow DHCP Server for DHCP Relay on **Main Menu** to open the **DHCP Server List for DHCP Relay** Dialog as shown in Figure 4-82and Table 4-52 depicts the related parameters.

Figure 4-82 DHCP Server List for DHCP Relay Dialog

| Configuration > DHCP > DHCP Server for DHCP Relay | | | |
|---|-------------|--------------------|-----------|
| No. | | | Server IP |
| 1 | | 192.168.1.4 | |
| | | | |
| | | | |
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|) | | | |
| | Refresh Add | Delete Commit Expo | rt |

| Field | Description | |
|-----------------|--|--|
| Table List | | |
| No. | This indicates the serial number of entry of the List. | |
| Server IP | This specifies the DHCP server IP address. | |
| Function Button | | |
| Refresh | Click this button to refresh the DHCP Server List for DHCP Relay Dialog | |
| Add | Click this button to add a new DHCP server IP address. | |
| Delete | Click this button to delete the specified DHCP server. | |
| Commit | Click this button to apply the setting to NE. | |
| Export | Click this button to save the contents of DHCP Server List to the AMS client. | |

Table 4-52 DHCP Server List for DHCP Relay Dialog Description

DHCP Broadcast Control

Users can set the DHCP broadcast packet rate limit and set the action applied to the out-of-profile traffic.

Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow DHCP \rightarrow DHCP Broadcast Control on **Main Menu** to open the **DHCP Broadcast Control s** Dialog as shown in Figure 4-83 and Table 4-53 the related parameters.

Figure 4-83 DHCP Broadcast Control Dialog

| CHCP Setting | |
|---|--|
| -Administrative State | |
| | |
| DHCP Relay: O Enable O Enable | |
| DHCP Option 82: | |
| -DHCP Broadcast Control | |
| Admin State: | |
| Rate Limit: 100 Packets / sec | |
| Action to Vialoation: drop packet and send alarm 💌 no action | |
| Refresh drop packet send alarm | |
| drop packet and send alarm | |
| | |

| Field | Description | |
|---------------------|--|--|
| Rate Limit | | |
| Admin State | Enable or disable the DHCP broadcast control. The default setting is "disable". | |
| Rate Limit | This specifies the rate limit based on packets per second. Availabl value is 1 ~ 100000 (packet per second). Default value is 100 packets per second. | |
| Action to Violation | This specifies the action to be taken for the packets over the limit. "No action", "Drop packet", "Send alarm" and "Drop packet and send alarm". | |
| Function Button | | |
| Refresh | Click this button to refresh the DHCP Broadcast Control Dialog. | |
| Submit | Click this button to apply the setting to NE. | |
| Commit | Click this button to apply the setting to NE. | |

Table 4-53 DHCP Broadcast Control Dialog - Description



When the action is set to be either "Send alarm" and "Drop packet and send alarm", the NE will launch SNMP traps to the SNMP trap managers as specified in Section 4.14.1 "Configuring the SNMP Trap Manager".

4.12.4 PPPoE Sub-option Configuration

PPPoE sub-option has similar mechanism as DHCP option 82. The NE can insert Circuit ID and Remote ID in all upstream PPPoE discovery stage packets, i.e. the PADI, PADR and upstream PADT packets. Figure 4-84 illustrates the enable/disable window for this functionality.



The setting of PPPoE sub-option contents is performed by configuring the xDSL Port Agent ID

Follow the subsequent procedures to configure the related parameters.

Click Configuration \rightarrow PPPoE on **Main Menu** to open the **PPPoE setting** Dialog as shown in Figure 4-84 and Table 4-54 depicts the related parameters.

Figure 4-84 PPoE Sub-option Setting Dialog

| Configuration > PPPoE Setting | |
|--|--|
| | |
| | |
| | |
| | |
| PPPoE Setting | |
| PPPoE Sub-option 1 & 2 | |
| | |
| | |
| | |
| Administrative state: O Enable O Disable | |
| | |
| | |
| | |
| Refresh Submit Commit | |
| | |
| | |
| | |
| | |

Table 4-54PPPoE Sub-option Setting Dialog Description

| Field | Description |
|------------------------|---|
| PPPoE Sub-option 1 & 2 | |
| Administrative State | Enable or disable the PPPoE sub-option function. Enable: The relayed PPPoE packet is to be appended with the configured PPPoE Sub-option 1 &2 information as specified in the xDSL Port Agent ID List Default value is "Disable". |
| Function Button | |
| Refresh | Click this button to refresh the PPPoE Sub-option Setting Dialog |
| Submit | Click this button to apply the setting to NE. |
| Commit | Click this button to apply the setting to NE. |

4.12.5 xDSL Port Agent ID Management

The xDSL Port Agent ID List keeps the Agent Circuit ID (intended for circuits terminated by the system hosting the Relay agent) and Agent Remote ID (intended to identify the remote host end of a circuit). The NE allows the operator to specify Agent Remote ID with an ASCII string of up to 63 characters. As to the Agent Circuit ID, NE assigns its value with the format as follows.

```
"NE-InbandIP-userSrcMAC atm slot-port:VPI.VCI"
Here is one example Agent Circuit ID
```

```
"IP_DSLAM-100.168.3.97-00:11:d8:80:93:23 atm 3-1:100.33",
```

which represents

NE's inband IP=100.168.3.97,

MAC address of subscriber's personal computer (or the CPE)= 00:11:d8:80:93:23, slot = 3, port = 1, vpi = 100, vci = 33.



xDSL Port Agent ID is to be inserted into either all upstream DHCP messages sent by the client and all upstream PPPoE discovery stage packets

Follow the subsequent procedures to configure the xDSL Port Agent ID.

- Step 1 Click Configuration → Port Agent ID on Main Menu to open the xDSL Port Agent ID List Dialog as shown in Figure 4-85. Table 4-55 depicts the related parameters. To modify the
- Step 2 Click and highlight a row and click 'Modify' button to modify the Agent Remote ID.

Figure 4-85 xDSL Port Agent ID List Dialog

| Slot LC1 | ▼ Port: | <ali> 🔻</ali> | | | | |
|-----------|----------|---------------|--|---|-----------------|---|
| | No. | | Slot-Port | Agent Circuit ID | Agent Remote ID | |
| 1 | | LC1-1 | | IP_DSLAM-100.168.3.31-00:00:00:00:00 atm 1/1 | | |
| 2 | | LC1-2 | | IP_DSLAM-100.168.3.31-00:00:00:00:00 atm 1/2 | | |
| } | | LC1-3 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/3 | | |
| | | LC1-4 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/4 | | |
| ; | | LC1-5 | | IP_DSLAM-100.168.3.31-00:00:00:00:00 atm 1/5 | | |
| 6 | | LC1-6 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/6 | | |
| | | LC1-7 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/7 | | - |
| 3 | | LC1-8 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/8 | | |
| 1 | | LC1-9 | | P_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/9 | | |
| 0 | | LC1-10 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 1 | | LC1-11 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 2 | | LC1-12 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 3 | | LC1-13 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 4 | | LC1-14 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/1 | | |
| 5 | | LC1-15 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 16 LC1-16 | | LC1-16 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 17 L | | LC1-17 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 18 101 | | LC1-18 | | IP_DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/1 | | |
| 9 10 | | LC1-19 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/1 | | |
| 0 | | LC1-20 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | |
| 1 | | LC1-21 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | - |
| 2 | | LC1-22 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | _ |
| 3 | | LC1-23 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/2 | | |
| 4 | | LC1-24 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | _ |
| 5 | | LC1-25 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | |
| 6 | | LC1-26 | | IP DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | |
| 7 | | LC1-27 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/2 | | - |
| 8 | | LC1-28 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | _ |
| 9 | | LC1-29 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/2 | | - |
| 0 | | LC1-30 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/3 | | |
| n | LC1-31 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/3 | | - | |
| 2 | | LC1-32 | | P DSLAM-100.168.3.31-00:00:00:00:00:00 atm 1/3 | | |
| 3 | LC1-33 | | IP DSLAM-100.168.3.31-00:00:00:00:00 atm 1/3 | | _ | |
| 4 | 4 LC1-34 | | IP DSLAM-100.168.3.31-00.00:00:00:00 atm 1/3 | | | |
| 35 101.35 | | LC1-35 | | IP. DSI AM-100 168 3 31-00:00:00:00:00:00 atm 1/3 | | |

| Field | Description | |
|------------------------|--|--|
| Table List | | |
| No, | This indicates the number of Table List. | |
| Slot-Port | This indicates the slot-port address. | |
| Agent Circuit ID | This indicates the agent circuit ID of the specified xDSL subscriber. Its format is as follows. "NE-InbandIP-userSrcMAC atm slot-port:VPI.VCI" | |
| Agent Remote ID | This indicates the agent remote ID of the specified xDSL subscriber. It is an ASCII string of up to 63 characters. | |
| Function Button | · | |
| Refresh | Click this button to refresh the Port Agent ID List. | |
| Modify | Click this button to modify the selected xDSL port's agent ID. | |
| Commit | Click this button to apply the setting to NE. | |
| Export | Click this button to save the contents of xDSL Port Agent ID List to the AMS client. | |

Table 4-55xDSL Port Agent IDs Dialog Description

4.13 NE Fast Provision Management

This section describes the NE Fast Provision functions as follows. Through this function, you are able to efficiently apply the profiles to a mass of xDSL subscriber ports.

- xDSL Interface and VC-VLAN Fast Provisioning
- Multicast Service Fast Provisioning

4.13.1 xDSL Interface and VC-VLAN Fast Provisioning

The AMS provides a fast provision function that helps you to build-up the principal connection setting of interface ports in fast and efficient way. Through this function, you can apply the xDSL profile and VC-to-VLAN setting to a mass of xDSL subscriber interfaces simultaneously, instead of configuring the individual subscriber interfaces one by one.

Follow the subsequent procedure to configure the xDSL interface and VC-VLAN fast provision. As the configurations are not exact the same for the RFC2684 bridged mode and routed mode on the ADSL and SHDSL interface ports, please note the various alternatives in **Step 2**.

- Step 1 Click Configuration → Fast Provision → Port & VC-to-VLAN on Main Menu to open the xDSL Port & VC-to-VLAN Fast Provision Dialog.
- Step 2 ADSL port and VC-VLAN fast provision in RFC2684 bridged mode: Use the Type combo-box to select the board type of line card as 'ADSLx48 Board' and use the RFC2684 Mode combo-box to select the mode as 'Bridged'. The ADSL Port & VC-to-VLAN Fast Provision – bridged mode Dialog appears as shown in Figure 4-86. Table 4-56 depicts related parameters.

Or

Step 2 SHDSL port and VC-VLAN fast provision in RFC2684 bridged mode: Use the Type combo-box to select the board type of line card as 'SHDSLx48 Board' and use the RFC2684 Mode combo-box to select the mode as 'Bridged'. The SHDSL **Port & VC-to-VLAN Fast Provision – bridged mode Dialog** appears as shown in Figure 4-87. Table 4-56 depicts related parameters.

 Step 2 ADSL port and VC-VLAN fast provision in RFC2684 routed mode: Use the Type combo-box to select the board type of line card as 'ADSLx48 Board' and use the RFC2684 Mode combo-box to select the mode as 'Routed'. The ADSL Port & VC-to-VLAN Fast Provision – routed mode Dialog appears as shown in Figure 4-88. Table 4-56 depicts related parameters.

Or

Or

 Step 2 SHDSL port and VC-VLAN fast provision in RFC2684 routed mode: Use the Type combo-box to select the board type of line card as 'SHDSLx48 Board' and use the RFC2684 Mode combo-box to select the mode as 'Routed'. The SHDSL Port & VC-to-VLAN Fast Provision – routed mode Dialog appears as shown in Figure 4-89. Table 4-56 depicts related parameters.



As the configuration parameters are different for the ADSL and SHDSL interface port, the operator MUST be careful not to apply the ADSL-related profile to the SHDSL interface port and vice versa.



The Service Type Control (STC) must be enabled to make the setting of **VPI** (Start, Increment) and **VCI** (Start, Increment) take effect.

Figure 4-86 ADSL Port & VC-to-VLAN Fast Provision – bridged mode

| Configuration > Fast Provision > Port/VC-To-VLAN | | | | |
|---|--|--|--|---|
| Slot: LC1 💌 T | D LC4 Type: ADSLx48 Board | ▼ F | RFC2684 Mode: bridged | • |
| -Port Setting | | Channel S | letting | |
| Admin State: Wireless Function: Line Profile: PM Threshold: Traffic Policing: | Enable On none rone rone v | O Disable o Off Details Details Details | VPI: Star VCI: | t Increment 0 * 0 * 32 * 1 * 1 * 1 * |
| -IP Traffic Profile | IP Traffic Profile: 1 | - 802.1P | User Priority. | 0 |
| -MAC Limit | MAC Count 1 | Service Ty Service IP Cou Static II | pe i Type: nt P'S Base Address: | PPPoE |
| | | List | | |



| Configuration > Fast Provision > Port/VC-To-VLAN | | | | |
|--|--|--|--|--|
| Slot: LC1 V To LC4 V Type: SHDSLx48 Board | RFC2684 Mode: bridged | | | |
| Port Setting | Channel Setting | | | |
| Admin State: © Enable O Disable Line Profile: none V PM Threshold: none V Details Details | Start Increment VPI: 0 m 0 m VCI: 32 m 1 m VLAN ID: 1 m 1 m PVC / Port 1 m 1 m Continuous VLAN ID: 1 1 | | | |
| IP Traffic Profile | [802.1P | | | |
| IP Traffic Profile: 1 Details | User Priority: 0 | | | |
| ISP Server | Service Type | | | |
| MAC Count | Service Type: PPPoE IP Count Static IP's Base Address: 0.0.0 | | | |
| | st | | | |

Figure 4-88 ADSL Port & VC-to-VLAN Fast Provision – routed mode

| | Configu | uration > Fast Provision > Port/VC-To-VLAN | |
|---|--|--|---|
| Slot: LC1 🔻 To | LC4 Type: ADSLx48 Board | RFC2684 Mode: routed |] |
| Port Setting | | Channel Setting | |
| Admin State: Wireless Function: Line Profile: PM Threshold: Traffic Policing: | Enable On none none Tone | Disable Start Increment Image: Off VPI: 0 mm 0 mm Details VCI: 22 mm 1 mm Details PVC / Port 1 mm 1 mm | |
| iP Traffic Profile —— | IP Traffic Profile: 1 Details | User Priority: | |
| MAC Limit | ISP Server Name: Details | Service Type: IP Count: Static IP's Base Address: 00000 | |
| | | List | |

| Slot: LC1 V | To LC4 Type: SHUSLX48 Board | RFC2684 Mode: [[routed Channel Setting |
|--|--|---|
| Admin State: Line Profile: PM Threshold: | Enable O Disable Details none Otalis | Start Increment VPI: 0 = 0 = VCI: 32 = 1 = PVC / Port 1 = 1 = |
| IP Traffic Profile | | 802.1P |
| | IP Traffic Profile: | User Priority: |
| MAC Limit | | Service Type |
| | ISP Sever Name: Details | Service Type: PPPoE IP Count: Static IP's Base Address: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |

Figure 4-89 SHDSL Port & VC-to-VLAN Fast Provision – routed mode

Table 4-56 xDSL Port & VC-to-VLAN Fast Provision Description

| Field | Description |
|---------------------------|--|
| Module Criteria (Function | n Button) |
| Slot | This indicates the beginning location of line card to perform fast provision |
| То | This indicates the end location of line card to perform fast provision |
| Туре | Use this combo-box to select the board type of line card. ('ADSLx48 Board' or 'SHDSLx48 Board') |
| RFC2684 Mode | Use this combo-box to select the RFC 2684 encapsulation mode ('Bridged' or 'Routed') |
| Function Button | |
| List | Click to launch the xDSL Fast Provision List dialog as shown in Figure 4-91. |
| Port Setting | |
| Admin State | It specifies the administrative state. ('Enable' or 'Disable') |
| Wireless Function | It specifies to enable or disable the wireless AP on the remote CPE (This function only works for the certified CPE) |
| Line Profile | Use this combo-box to select the line profile. (xDSL Profile) |
| PM Threshold | Use this combo-box to select the PM threshold profile. |
| Traffic Policing | Use this combo-box to select the Traffic Policing profile. |
| [Only for the ADSL port] | |

| Field | Description |
|---|---|
| Channel Setting | |
| Start – Identify the number of start | ing value. |
| Increment – Identify the number to | be increment if more then one PVCs / Port is defined. |
| VPI (Start, Increment) | It specifies the VPI value of PVCs. Use the Start combo-box to select the beginning VPI value and use the Increment combo-box to select the increments between two consecutive PVCs on the same xDSL port. |
| VCI (Start, Increment) | It specifies the VCI value of PVCs. Use the Start combo-box to select the beginning VCI value and use the Increment combo-box to select the increments between two consecutive PVCs on the same xDSL port. |
| VLAN ID (Start, Increment) | It specifies the VLAN ID value of corresponding VC-to-VLAN connections. Use the Start combo-box to select the beginning VLAN-ID value and use the Increment combo-box to select the increments between two consecutive xDSL port. |
| | Note that the setting takes effect only when Continuous VLAN ID is checked. |
| PVCs / Port | It specifies the number of PVCs to be applied to each xDSL port. |
| Continuous VLAN ID | Check to enable the setting of VLAN ID combo-box to take effect. |
| IP Traffic Profile | |
| IP Traffic Profile | This specifies the IP Traffic Profile of corresponding VC-to-VLAN connection. |
| Details | Click to view the details of selected IP Traffic Profile. |
| 802.1P | |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| ISP Server [only for RFC2 | 684 routed mode] |
| ISP Server Name | It specifies the ISP server name as specified in Section 4.9.2 'ISP Information for IP over ATM' |
| MAC Limit [only for RFC] | 2684 bridged mode] |
| MAC Count | It specifies the number of subscriber's MACs allowed for the corresponding VC-to-VLAN connection. |
| Service Type | |
| Service Type | This specifies the service type to be allowed on the PVC of individual subscriber. The following three service types are supported now. PPPoE DHCP Static IP |
| IP Count [only for DHCP/ Static IP Service] | This indicates the number of IP to be allowed while 'DHCP' or 'Static IP' service type is selected |
| Static IP's Basic Address [only for Static IP Service] | This specifies the base of the IP address if the service type is Static IP |

Table 4-56 xDSL Port & VC-to-VLAN Fast Provision Description (Continued)



Step 3 To inspect the details of miscilleus profiles to be applied, click the Detail button on the dialog as shown in Figure 4-86 ~ Figure 4-89. Figure 4-90 shows an example of IP Traffic Profile.

Figure 4-90 xDSL Port & VC-to-VLAN Fast Provision – IP Traffic Profile Dialog

| ADSL IP Traffic Profile | | × |
|----------------------------|--------------------|---|
| Profile Information | | |
| Name: | 1 | |
| -IP CoS Setting | | |
| Downstream Priority Queue: | low | • |
| Downstream Rate (Kbps): | 320 | |
| Upstream Rate (Kbps): | <no limit=""></no> | • |
| Broadcast Control | | |
| Downstream Broadcast: | forward | • |
| | Close | |

Step 4 Click 'List' button to launch the xDSL Fast Provision List dialog as shown in Figure 4-91 which summarizes what you set via the xDSL Port & VC-to-VLAN Fast Provision dialog. Figure 4-91 depicts the list of subscriber ports you wish to apply to. If you do no want to apply the setting to any port or PVC, just remove it from the List Table by clearing the corresponding check-box.

Table 4-57 depicts the related parameters.

Step 5 Click '**Start**' button to apply the given setting to all ports in the List Table. The checks are removed when the setting is successfully applied. Click '**Stop**' to stop the fast provisioning immediately if you want.

| | Status | Slot | Port | VPI | VCI | VLAMSP |
|----------------------|--------|------|---------|-----|-----|--------|
| Rent Cotting | r | LC1 | Port 1 | | | |
| Administrative State | Ľ | | | 0 | 32 | 1 |
| Enable | V | LC1 | Port 2 | | | |
| Line Profile | Ľ | | | 0 | 32 | 1 |
| | r | LC1 | Port 3 | | | |
| PM Threshold Profile | r | | | 0 | 32 | 1 |
| | r | LC1 | Port 4 | | | |
| Traffic Policing | r | | | 0 | 32 | 1 |
| | r | LC1 | Port 5 | | | |
| | r | | | 0 | 32 | 1 |
| | r | LC1 | Port 6 | 10 | | |
| | r | | | 0 | 32 | 1 |
| Encapsulation Mode | | LC1 | Port 7 | | | |
| bridged | r | | | 0 | 32 | 1 |
| User Priority | Ľ | LC1 | Port 8 | | | |
| 0 | r | | | 0 | 32 | 1 |
| IP Traffic Profile | r | LC1 | Port 9 | | | |
| 1 | r | | | 0 | 32 | 1 |
| MAC Count Limit | | LC1 | Port 10 | | | |
| 1 | | | | 0 | 32 | 1 |
| | | 101 | Port 11 | | | |

Figure 4-91 xDSL Fast Provision List Dialog

(a) List Dialog for the ADSL port in the RFC2684 bridged mode

| | No. | Slot-Port | VPI | VCI | VLAN / ISP | Base IP / Count | | Go |
|--------------------------|-----|-----------|-------|-----|------------|-----------------|---|-----------|
| Port Setting | 1 | LC1-1 | | | | | | <u></u> |
| Administrative State | | | 0 | 32 | cwfu-try | 0.0.1.1/1 | | Ston |
| enable | 2 | LC1-2 | | | | | | Stob |
| CIIIMIC | | | 0 | 32 | cwfu-try | 0.0.1.2/1 | | |
| Lino Drofilo | 3 | LC1-3 | | | | | | |
| | | | 0 | 32 | cwfu-try | 0.0.1.3 / 1 | | |
| | 4 | LC1-4 | | | | | | |
| NUT 1 110 CI | | | 0 | 32 | cwfu-try | 0.0.1.4 / 1 | _ | |
| PM Inresnold Profile | 5 | LC1-5 | | | | | - | |
| | | | 0 | 32 | cwfu-try | 0.0.1.5 / 1 | - | |
| Traffic Policing Profile | 6 | LC1-6 | | | | 004614 | - | |
| | 7 | 1047 | U | 32 | CWTU-Try | 0.0.1.6/1 | | |
| | ' | LU1-7 | | 27 | oute to . | 0047/4 | | |
| | 0 | 104.0 | U | 32 | CWIU-UY | 0.0.1.7 / 1 | | |
| VC-to-VLAN | 0 | LU1-8 | 0 | 32 | ciarfu try | 0019/1 | | |
| | a | 101.0 | 0 | JZ | Cwid-dy | 0.0.1.071 | | |
| Administrative State | | LC I-5 | 0 | 32 | ciafu try | 0010/1 | | |
| enable | 10 | LC1-10 | | | chiady | 0.0.1.071 | | |
| | 10 | 201 10 | 0 | 32 | cwfu-trv | 0.0.1.10/1 | | |
| Encapsulation Mode | 11 | LC1-11 | | | | | | |
| routed | | | 0 | 32 | cwfu-try | 0.0.1.11/1 | | |
| Heer Driesite | 12 | LC1-12 | | | | | | |
| | | | 0 | 32 | cwfu-try | 0.0.1.12/1 | | |
| 0 | 13 | LC1-13 | | | | | | |
| IP Traffic Profile | | | 0 | 32 | cwfu-try | 0.0.1.13/1 | | |
| | 14 | LC1-14 | | | | | | |
| BC_alob | | | 0 | 32 | cwfu-try | 0.0.1.14 / 1 | | |
| MAC Count Limit | 15 | LC1-15 | | | | | | |
| 4 | | | 0 | 32 | cwfu-try | 0.0.1.15/1 | | |
| | 16 | LC1-16 | 10.11 | | 200 | | | Export |
| Service Type | | 1.04.43 | 0 | 32 | cwfu-try | 0.0.1.16 / 1 | ļ | |
| Static IP | 17 | LC1-17 | | | | 0.0447/4 | ſ | Class IVI |
| prate in | | | U | 32 | cwfu-try | 0.0.1.17/1 | - | Ciuse [X] |

(b) List Dialog for the ADSL port in the RFC2684 routed mode

| | Status | Slot | Port | VPI | VCI | VLAMSP |
|------------------------------------|--------|-------|---------|-----|-----|--------|
| | r | LC12 | Port 1 | | 16 | |
| | r | | | 0 | 32 | 1 |
| Port Setting | r | LC12 | Port 2 | | | |
| Administrative State | r | | | 0 | 32 | 1 |
| Enable | r | LC12 | Port 3 | | | |
| Line Profile | r | | | o | 32 | 1 |
| 2wlpia001 | r | LC12 | Port 4 | Ĩ. | | |
| PM Threshold Profile | r | | | o | 32 | 1 |
| | r | LC12 | Port 5 | | | |
| | r | | | 0 | 32 | 1 |
| | r | LC12 | Port 6 | | | |
| 2000 - 201 - 200 | r | | | o | 32 | 1 |
| 년 VC-10-VLAN Encansulation Mode | V | LC12 | Port 7 | | | |
| bridged | V | | | 0 | 32 | 1 |
| User Priority | V | LC12 | Port 8 | | | |
| 0 | r | | | o | 32 | 1 |
| IP Traffic Profile | r | LC12 | Port 9 | | | |
| lptid01 | r | | | 0 | 32 | 1 |
| MAC Count Limit | r | LC12 | Port 10 | | | |
| 1 | r | | | o | 32 | 1 |
| | | 1.012 | Port 11 | | | |

Figure 4-91 xDSL Fast Provision List Dialog (Continued)

(c) List Dialog for the SHDSL port in the RFC2684 bridged mode

| | Status | Slot | Port | VPI | VCI | VLAN/ISP |
|------------------------------------|--------|------|---------|-----|-----|----------|
| | | LC12 | Port 1 | | | |
| | r | | | 0 | 32 | 1 |
| Port Setting | | LC12 | Port 2 | | | |
| Administrative State | | | | 0 | 32 | 1 |
| Enable | r | LC12 | Port 3 | | | |
| Line Profile | r | | | 0 | 32 | 1 |
| | | LC12 | Port 4 | | | |
| PM Threshold Profile | | | | 0 | 32 | 1 |
| | r | LC12 | Port 5 | | | |
| | | | | 0 | 32 | 1 |
| | V | LC12 | Port 6 | | | |
| | | | | 0 | 32 | 1 |
| ⊴ VC-To-VLAN Enconculation Mode | | LC12 | Port 7 | | | 1 |
| routed | | | | 0 | 32 | 1 |
| User Priority | | LC12 | Port 8 | | 1 | 1 |
| 0 | | | | 0 | 32 | 1 |
| IP Traffic Profile | | LC12 | Port 9 | - | | |
| lptid0 | | | | 0 | 32 | 1 |
| ISP Name | | LC12 | Port 10 | | | |
| CHT-Hinet | | | | 0 | 32 | 1 |
| | | 1 | | | | - |

(d) List Dialog for the SHDSL port in the RFC2684 routed mode

Table 4-57 xDSL Fast Provision List Dialog Description

| Field | Description |
|--|--|
| Condition | |
| Port Setting – Check to allo VC-to-VLAN – Check to allo | we the correspondent setting to be applied to the ports in List Table. Now the correspondent setting to be applied to the ports in List Table. |
| Administrative State | This specifies the administrative state. (enable or disable) |
| Line Profile | This specifies the line profile. (xDSL Profile) |
| PM Threshold Profile | This specifies the PM threshold profile. |
| Traffic Policing Profile [Only for the ADSL port] | This specifies the Traffic Policing profile. [Only for the ADSL port] |
| Encapsulation Mode | This specifies the RFC2684 encapsulation mode of corresponding PVC. |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| IP Traffic Profile | This specifies the IP traffic profile of corresponding VC-to-VLAN connection. |
| MAC Count Limit | It specifies the number of subscriber's MACs allowed for the corresponding VC-to-VLAN connection. [only for RFC2684 bridged mode] |
| Service Type | This specifies the service type of corresponding VC-to-VLAN connection. The following three service types are supported now. PPPoE DHCP Static IP |
| ISP Name | It indicates the ISP server name as specified in Section 4.9.2 'ISP Information for IP over ATM'. |
| List Table | |
| No. | This indicates the serial number of entry of the List Table. |
| Status | This specifies whether to apply this PVC/Port setting to NE. Un-check this check-box makes the AMS not apply this PVC/Port setting to NE. |
| Slot-Port | This specifies the location of subscriber port. |
| VPI | This specifies the VPI value of PVC. |
| VCI | This specifies the VCI value of PVC. |
| VLAN / ISP | This specifies the VLAN ID (in RFC2684 bridged mode) or ISP name (in RFC2684 routed mode) of corresponding VC-to-VLAN connection. |
| Base IP / Count | This specifies the IP Base address and count of IP address of corresponding VC-to-VLAN connection. It applies whenever the Service Type Control is enabled and Static IP or DHCP is selected |
| Function Button | |
| Start | Click this button to start fast provisioning. |
| Stop | Click this button to force the fast provision terminating. |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of xDSL Fast Provision List to the Personal Computer. |
| Close | Exit this xDSL Fast Provision List Dialog. |

4.13.2 Multicast Service Fast Provisioning

The multicast service fast provision function helps you to build-up the multicast connection and the associated service profile efficiently.

Follow the subsequent procedures to configure the multicast service fast provision.

Step 1 Click Configuration → Fast Provision → Multicast Channel on Main Menu to open the xDSL Multicast Channel Fast Provision Dialog, as shown in Figure 4-92 and Table 4-58 depicts the related parameters.

In Figure 4-92, it is noted that two individual tabs (Multicast Service Profile and MAC Limit) are provides to set the Multicast Service Fast Provision related parameters. Click either one tab to launch the corresponding dialog to configure the parameters. Figure 4-92 and Figure 4-93 show the corresponding configuration Dialog. As to the description of the configuration parameters, please refer to Table 4-58.

Figure 4-92 xDSL Multicast Channel Fast Provision – Multicast Service Profile Dialog

| | From | | To | |
|-----------------|------------------|--------|-----------|--------|
| Shelf | 1 | ~ | 1 | Ŧ |
| Slot | LC1 | • | LC1 | • |
| Туре | DAS-4192 ADS | Lx48 B | oard | - |
| VPI | 0 | • | | |
| VCI | 32 | - | | |
| VLAN ID | 1 | - | | |
| Admin State | • Enable | | C Disable | |
| lulticast Servi | ce Profile MAC | Limit | | |
| Profile | | | • | Show |
| | | | | |
| | | L | ist | Cancel |

Figure 4-93 xDSL Multicast Channel Fast Provision – MAC Limit Dialog

| | From | | To | |
|-----------------|------------------|------------|---------|---|
| Shelf | 1 | - 1 | | Ŧ |
| Slot | LC1 | • LC | 1 | • |
| Туре | DAS-4192 ADS | .x48 Board | | |
| VPI | 0 | • | | |
| VCI | 32 | - | | |
| VLAN ID | 1 | Ē | | |
| Admin State | • Enable | 0 | Disable | |
| lulticast Servi | ce Profile MAC L | imit | | |
| Stream Co | unt | 1 | • | |
| | | | | |
| | | | _ | |

| Field | Description |
|---|--|
| Ethernet over ATM | |
| Shelf | This specifies the shelf ID. |
| Slot | It specifies the slot range. |
| Туре | It specifies the LC board type. |
| VPI | It specifies the VPI value. |
| VCI | It specifies the VCI value. |
| VLAN ID | It specifies the VLAN ID value. |
| Admin State | It specifies the administrative state of these multicast channels. |
| Multicast Service Profile I Show – Click this button to Profile | Dialog display the details of multicast service profile collocated. It specifies the Multicast Service Profile |
| MAC Limit Dialog | |
| Stream Count | This specifies the allowed number of concurrent multicast streams to be forwarded via each VC-to-VLAN connection. |

Table 4-58 xDSL Multicast Channel Fast Provision Description

Step 2 Click 'List' button to launch the **xDSL Multicast Channel Fast Provision List** dialog. Figure 4-94 summarizes what you set via the **xDSL Multicast Channel Fast Provision** dialog. As shown in Figure 4-94, it depicts the list of subscriber ports you wish to apply to. If you do not want to apply the setting to any port in the list table, just clear the corresponding check-box

Table 4-59 depicts the related parameters.

Step 3 Click '**Go**' button to apply the given setting to all ports listing in the List Table. The checks are removed when the setting is successfully applied. Click '**Stop**' to stop the fast provision immediately if you want.

Figure 4-94 xDSL Multicast Channel Fast Provision List Dialog

| | | No. | Slot-Port | | Go |
|---------------------------|---|-----|-----------|---------|-----------------|
| | | 1 | LC1-1 | | |
| 0/32 | | 2 | LC1-2 | | Salact All |
| /LAN ID | | 3 | LC1-3 | | Select All |
| | | 4 | LC1-4 | | [|
| | | 5 | LC1-5 | | Deselect Al |
| dministrative State | | 6 | LC1-6 | | |
| wahlo | | 7 | LC1-7 | | Stop |
| enable | | 8 | LC1-8 | | |
| iteam Count Limit | | 9 | LC1-9 | | |
| | | 10 | LC1-10 | | |
| | Image: A start and a start | 11 | LC1-11 | | |
| Aulticast Service Profile | | 12 | LC1-12 | | |
| IT200-per-month | | 13 | LC1-13 | | |
| | | 14 | LC1-14 | | |
| | | 15 | LC1-15 | | |
| | | 16 | LC1-16 | | |
| | 2 | 17 | LC1-17 | | Exp <u>o</u> rt |
| | 2 | 18 | LC1-18 | | |
| | | 19 | LC1-19 | | |
| | Image: A start and a start and a start a st | 20 | LC1-20 | - | Close [V] |

Г

| Field | Description |
|---------------------------|---|
| Condition | |
| VPI / VCI | This specifies the VPI / VCI value of corresponding PVC. |
| VLAN ID | This specifies the VLAN ID value of corresponding VC-to-VLAN connection. |
| Administrative State | This specifies the admin state of corresponding VC-to-VLAN connection |
| Stream Count Limit | This specifies the allowed number of multicast streams to be forwarded via each VC-to-VLAN connection. |
| Multicast Service Profile | This specifies the multicast service profile. |
| List Table | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This specifies the location of subscriber port. |
| Function Button | |
| Go | Click this button to start fast provisioning. |
| Select All | Click this button to select all rows from List Table. |
| Deselect All | Click this button to deselect all rows from List Table |
| Stop | Click this button to force the fast provision terminating. |
| Export | Click this button to save the contents of xDSL Multicast Channel Fast Provision List to the Personal Computer. |
| Close | Exit the xDSL Multicast Channel Fast Provision List Dialog. |

Table 4-59 xDSL Multicast Channel Fast Provision List Dialog Description

4.14 NE SNMP Management

SNMP (Simple Network Management Protocol) is an application-layer protocol that facilitates the exchange of management information between a NE and AMS server. SNMP enables the administrators to manage the NE by the AMS server. In the term of SNMP, the NE plays the role of SNMP agent and the AMS server serves as the SNMP server. This section describes how to configure the SNMP on the NE.



Beware of the SNMP community setting, this will affects the communication between the AMS AMS server and NE, re-login the NE if the SNMP community has been modified.

4.14.1 Configuring the SNMP Trap Manager

SNMP Trap Manager records the hosts (any SNMP server, like LCT, AMS Server, and so on) to be notified whenever the NE encounters abnormalities. When a trap condition happens to the NE, the NE sends the corresponding SNMP trap message to the hosts (SNMP server) specified in the SNMP Manager IP Address List.

Follow the subsequent procedures to configure the NE's SNMP Manager.

Step 1 Click System→SNMP Configuration → SNMP Trap Host on Main Menu to open the SNMP Trap Host List Dialog as shown in Figure 4-95. Table 4-60 depicts the related parameters.

Figure 4-95 NE SNMP Trap Host IP Address List Dialog

Table 4-60 NE SNMP Trap Host IP Address List Dialog Description

| Field | Description |
|-----------------|--|
| List Table | |
| IP address | This specifies the IP address (Server / Host IP) of SNMP Manager. Valid values: Any valid class A/B/C address |
| Trap Community | This specifies the SNMP trap community of NE (Send Trap). Valid values: String of up to 20 characters and any combination of printable characters $(^A - ^Z), ^a - ^Z), ^a - ^2, ^0, - ^2), ^{-2}, ^{(a)}).$ |
| Trap Version | This specifies the SNMP Trap version. Valid values: SNMP v2c |
| Status | This specifies the status of entry, either "Enabled" or "Disabled". |
| Function Button | |
| Refresh | Click this button to refresh the SNMP Trap Host List. |
| Add | Click this button to create a new SNMP Manager (Trap) IP Address. |
| Delete | Select a trap community from the list table to remove. |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of NE SNMP Manager IP Address List to the AMS client. |

Step 2 Click '**Add**' button to create a new trap receiver host with community, while to remove the trap receiver, click and highlight a host in the list and click '**Delete**' button, as shown in Figure 4-96. Table 4-60 depicts the related parameters.

| Figure 4-96 | Add NE SI | NMP Trap | Host IP | Address | Dialog |
|-------------|-----------|----------|---------|---------|--------|
|-------------|-----------|----------|---------|---------|--------|

| D Add Snmp Trap | Configuration | × |
|---------------------------|---------------|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| Trap Host: | 0 0 0 | |
| | | |
| Community: | netman | • |
| Tran Version [.] | v2c | • |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | OK Cancel | |

4.14.2 Configuring the SNMP Community

The SNMP community is a string representing the password to access the MIB of NE with the associated privilege. The NE supports two levels of privilege (Permission) as follows.

- Read / Write / Create Allow the SNMP server to read and write all objects in the MIB, as well as the community strings.
- Read-only Only allow the SNMP server to read all objects in the MIB except the community strings.



The community string definitions on your AMS server must match at least one of those community string definitions on the NE. Otherwise, the AMS server is not allowed to access the NE.

Follow the subsequent procedures to configure the NE's SNMP Community.

Step 1 Click System→ SNMP Configuration→ SNMP Community on Main Menu to open the NE SNMP Community List Dialog as shown in Figure 4-97 and Table 4-61 depicts the related parameters.

| | System > SNMP Configuration > SNMP C | ommunity |
|----------------|--------------------------------------|------------|
| SNMP Community | Access Permission | Status |
| netman | Read & Write | Enable |
| public | Read Only | Enable |
| | | |
| | Refresh Add Modify Delete Com | mit Export |

Table 4-61NE SNMP Community List Dialog Description

| Field | Description | |
|-----------------|---|--|
| List Table | | |
| SNMP Community | This indicates the case-sensitive SNMP community name. | |
| Read & Write | This indicates the permission level, either "read only" or "read & write", | |
| Status | This specifies the status of entry, either "Enabled" or "Disabled". | |
| Function Button | | |
| Refresh | Click this button to refresh the NE SNMP Community List Dialog | |
| Add | Click this button to create a new SNMP community of NE. | |
| Modify | Select a SNMP community to modify. | |
| Delete | Select a SNMP community to remove. | |
| Commit | Click this button to apply the setting to NE. | |
| Export | Click this button to save the contents of NE SNMP Community List to the AMS client. | |

Step 2 Click 'Add' button to create a new SNMP community strings, while to remove the SNMP community strings, click and highlight a community in the list and click 'Delete' button, as shown in Figure 4-98 and Table 4-62 depicts the related parameters.

| D Add Snmp Community (| Configuration | × |
|------------------------|---------------|---|
| -Snmp Community Infor | mation | |
| Community Name: | Rearl Only | |
| i crimission. | | |
| | OK Cancel | |

Figure 4-98 Add NE SNMP Community Dialog

Table 4-62 Add NE SNMP Community Dialog Description

| Field | Description |
|----------------|--|
| Community Name | This indicates the case-sensitive SNMP community name. |
| | Valid values: String of up to 20 characters and any combination of printable characters ('A' - 'Z', 'a' - 'z', '0' - '9', '-', '_', '@'). |
| Permission | This indicates the permission level. |
| | Valid values: "read only" or "read & write" |

4.15 NE Date and Time Management

AMS Client can synchronization and adjust the date and time from AMS Server to NE, the date and time of NE gives right information for alarm occurred time.

Follow the subsequent procedures to configure the NE system time.

- Step 1 Click Configuration → NE Management → System Time on Main Menu to open the NE System Time Dialog as shown in Figure 4-99. Table 4-63 depicts the related parameters.
- **Step 2** Click '**Modify**' button to change the NE system time as shown in Figure 4-100. Table 4-63 depicts the related parameters.

| | c | configuration ≻ System Time |
|---|----------------|---------------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Date: | 2007-04-15 |
| | Time: | 01:28:45 |
| | Up Time: | 3 hours, 25 minutes, 41 seconds |
| | TimeZone(GMT): | 8 |
| | | Modify |
| 1 | 1 | |
| | | |
| | | |
| | | |
| | | |
| | | |

Figure 4-100 NE System Time Setting Dialog

| Date: | 2007-04-12 |
|----------------|--------------|
| | (yyyy-mm-dd) |
| Time: | 02:18:41 |
| | (hh:mm:ss) |
| FimeZone(GMT): | 8 * |

Table 4-63 NE System Time Dialog Description

| Field | Description | |
|-----------------------------------|--|--|
| Date / Time / Up Time / Time Zone | | |
| Date / Time | This indicates the current NE date and time. | |
| Up Time | This indicates the period since the NE is rebooted last. | |
| Time Zone (GMT) | This indicates the time differences between the Greenwich Mean Time and the local time. | |
| Function Button | | |
| ОК | Click this button to apply the modification to NE. | |

4.15.1 DNS Server Setting

The DNS Server is used for the resolution of domain name. In other words, the DNS replies the corresponding IP address to the URL.

Follow the subsequent procedures to configure the DNS Server.

Click Configuration \rightarrow NE Management \rightarrow DNS Servers on **Main Menu** to open the **NE DNS** Server Setting Dialog as shown in Figure 4-101 and Table 4-64 depicts the related parameters.

Figure 4-101 DNS Server Setting Dialog

| -DNS Server Information | | | | |
|-------------------------|----------|--------|----|--|
| The First Server: 0 | 0 | .0 | 0 | |
| The Second Server. 0 | 0 | .0 | 0 | |
| The Third Server: 0 | 0 | .0 | .0 | |
| | | | | |
| Refres | h Submit | Commit | | |

Table 4-64 DNS Server Setting Dialog Description

| Field | Description | |
|-------------------------------|--|--|
| DNS Server Information | | |
| The First Server | This specifies the first DNS server IP address. | |
| The Second Server | This specifies the second DNS server IP address. | |
| The Third Server | This specifies the third DNS server IP address. | |
| Function Button | | |
| Refresh | Click this button to refresh the DNS Server Setting Dialog | |
| Submit | Click this button to apply the setting to NE. | |
| Commit | Click this button to apply the setting to NE. | |

4.15.2 Time Server Setting

Follow the subsequent procedures to configure the time servers.

Step 1 Click Configuration \rightarrow NE Management \rightarrow Time Servers on Main Menu to open the Time Setting Status Dialog as shown in Figure 4-102 and Table 4-65 depicts the related parameters.

Figure 4-102 NE Time Server Setting Dialog

| Configuration > Time Server | | | | |
|-----------------------------|-----------------------|--|--|--|
| Time Server Information | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Network Timi | ng Protocol: SNTP 🗸 | | | |
| | | | | |
| Update Perio | t: 12 hour 0 minute | | | |
| | Status | | | |
| | | | | |
| The First Sen | er: Not Set | | | |
| The Second S | erver: Not Set | | | |
| | | | | |
| The Third Ser | ver: Not Set | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Гг | | | | |
| | Refresh Submit Commit | | | |

Table 4-65NE Time Server Setting Dialog Description

| Field | Description |
|-------------------------------|--|
| DNS Server Information | |
| Network Timing Protocol | This indicates the current network time protocol, SNTP or None. |
| Update Period | This indicates the time period between two consecutive synchronizations of the NE's local time with the time server's. |
| The First Server | This indicates the first time server the NE tries to synchronize with. |
| The Second Server | This indicates the second time server the NE tries to synchronize with. |
| The Third Server | This indicates the third time server the NE tries to synchronize with. |
| Function Button | |
| Refresh | Click this button to refresh the NE Time Server Setting Dialog. |
| Submit | Click this button to apply the setting to NE. |
| Commit | Click this button to apply the setting to NE. |



The NE will synchronize its local time with the first time server's time as a top priority. If the first time server fails to respond, the NE tries to synchronize it's local time with the second and third time server's time in sequence.

4.16 System Backup and Restore

System backup/restore function contains three parts,

- Export NE Configuration To AMS Client
- Local storage of NE configuration

• NE configuration backup/restore to/from the AMS Server

4.16.1 Export NE Configuration To AMS Client

Follow the subsequent procedures to save the NE configuration to the local AMS client.

- Step 1 Click the 'Export' button whenever it appears in the function menu to open the Export Data To File Dialog as shown in Figure 4-103. Table 4-66 depicts the related parameters.
- Step 2 Press the 'Browse' button to choose the target directory to save the exported file.

Figure 4-103 Export Data To File Dialog

| D Export Data To | File | | × |
|------------------|-----------------------------------|-----------------|--------|
| | ltem | Value | 5 |
| Title | | NE Backup Files | |
| Location | | BCD3_7F | |
| NE | | 10.12.3.112 | |
| User | | root | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| File Directory | CIAMS Client Windows)evport file) | | Browse |
| The Directory. | | | Diowse |
| File Name: | NewFile.xls | | |
| File Format: | Microsoft Excel File (*.xls) | • | |
| | 🗹 Append 🗌 Overwrite | | |
| | | | |
| | ОК | Cancel | |

Table 4-66 Export Data To File Dialog Description

| Field | Description |
|----------------|--|
| Export To File | |
| File Directory | This specifies the target directory to save the exported file. |
| File Name | This specifies the file name of the exported file to be saved. |
| File Format | This specifies the file format of the exported file to be saved. |

4.16.2 Local Storage of NE configuration

Follow the subsequent procedures to save the NE configuration to the flash of NE.

Click Maintenance \rightarrow Commit on **Main Menu** to open the **Commit Confirm** Dialog to save the NE configuration to the flash of NE as shown in Figure 4-104

Figure 4-104 NE Write Flash Confirm Dialog

| Maintenance > Commit | | | |
|----------------------|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | This *Commit" button is used to save configurations | | |
| | in the memory to flash in order not to lose them when device gets reboot. This action will take several secs. | | |
| | | | |
| | | | |
| | | | |
| | cummit | | |
| | | | |
| | | | |
| | | | |
| | | | |

4.16.3 NE Configuration Backup and Restore

The AMS supports for backing up the NE configuration information to the AMS Server hard disk or tape as a file format, and support restoration of backuped file to NE on demand.

With NE configuration backup and restoration function, it enables an operator to backup NE configuration at any time and provide operator to assign periodically automatic backup purpose.

NE Configuration Backup/Restoration on Demand

Follow the subsequent procedure to backup and restore the configuration data file of NE to AMS server through FTP.

- Step 1 Click Maintenance → NE Backup & Restore on Main Menu to open the NE Configuration Backup & Restore Dialog as shown in Figure 4-105. Table 4-67 depicts the related parameters.
- Step 2 To backup the configuration file, click 'Backup' button to launch the NE Backup File Dialog as shown in Figure 4-106 and Table 4-68 depicts the related parameters.
 Please input a valid administrative level username/password and give your backup file a file name.
- Step 3 To restore the configuration file, choose the target file from the backup file directory, then click 'Restore' button to launch the NE Restore File Dialog as shown in Figure 4-107. Table 4-68 depicts the related parameters
- **Step 4** After restoring the configuration data, it is noted that the NE needs to be rebooted to make the configuration data take effect.



You can also select and highlight the NE from the **NE Network Tree Map** (Figure 3-8) to progress the NE configuration Backup & Restore by right click of pop-up menu, NE Management \rightarrow NE Backup & Restore.



Figure 4-105 NE Configuration Backup & Restore File List Dialog

 Table 4-67
 NE Configuration Backup & Restore File List Dialog Description

| Field | Description |
|-----------------|--|
| List Table | |
| No. | This indicates the serial number of entry of the list table. |
| Time | This indicates the date when the NE configuration data is saved to the AMS server. |
| Backup Files | This indicates the filename of the backuped NE configuration data. |
| Function Button | |
| Refresh | Click this button to refresh the NE Configuration Backup & Restore List. |
| Backup | Start to backup the configuration data file of NE by saving it as the specified file on the local AMS server |
| Delete | Click this button to remove the selected backup files. |
| Restore | Start to restore the configuration of NE by sending the specified NE configuration file to NE from the local AMS server via FTP. |
| Export | Click this button to save the contents of NE Configuration Backup & Restore Dialog to the AMS client. |

Figure 4-106 NE Backup File Dialog

| Backup File | |
|-------------|--|
| FTP Login | |
| User Name: | |
| Password: | |
| File Name: | |
| | |

Table 4-68

NE Backup File Dialog Description

| Field | Description | |
|-------------|---|--|
| FTP Login | | |
| User Name | Fill the administrative level username of FTP. | |
| Password | Fill the comparative password of the administrative level username. | |
| Backup File | | |
| File Name | This indicates the filename of the backuped NE configuration data. | |

Figure 4-107 NE Restore File Dialog

| Restore | <u>×</u> |
|----------------|----------|
| Restore File | |
| FTP Login | |
| User Name: | |
| Restore Cancel | |

NE Configuration Periodical Backup/Restoration

Follow the subsequent procedure to perform periodical backup/restoration of the configuration data file of NE to/from the AMS server through FTP.

- Step 1Click Maintenance \rightarrow NE Auto Backup on Main Menu to open the NE Auto Backup
Dialog as shown in Figure 4-108. Table 4-69 depicts the related parameters.
- **Step 2** After restoring the configuration data, it is noted that the NE needs to be rebooted to make the configuration data take effect.

| Figure 4-108 | NE Configuration Auto Backup Dialog |
|---------------------------|-------------------------------------|
| 1 iguie 4 -100 | NE Configuration Auto Backup Dialog |

| Check the NE auto-backup, it will backup NE configuration files to ".\NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday NE auto-commit Everyday Refresh Submit | Check the NE auto-backup, it will backup NE configuration files to ".\NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday 0 NE auto-commit Everyday 0 Refresh Submit | | | |
|--|---|--|--|---|
| Check the NE auto-backup, it will backup NE configuration files to ".\NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday 0 NE auto-commit Everyday 0 Refresh Submit | Check the NE auto-backup, it will backup NE configuration files to ".NEBackup110.12.3.112/cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday NE auto-commit Everyday Refresh Submit | | | |
| Check the NE auto-backup, it will backup NE configuration files to ".NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday NE auto-commit Everyday Refresh Submit | Check the NE auto-backup, it will backup NE configuration files to ".NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday 0 • NE auto-commit Everyday 0 • | | | |
| Check the NE auto-backup, it will backup NE configuration files to ".NEBackup\10.12.3.112\cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday NE auto-commit Everyday Refresh Submit | Check the NE auto-backup, it will backup NE configuration files to ".NEBackup110.12.3.112/cfg" on the server on the schedule time. Weekday Hour NE auto-backup Everyday 0 • NE auto-commit Everyday 0 • Refresh Submit | | | |
| Weekday Hour NE auto-backup Everyday 0 NE auto-commit Everyday 0 | Weekday Hour NE auto-backup Everyday 0 NE auto-commit Everyday 0 Refresh Submit | Check the NE auto-back ".\NEBackup\10.12.3.11 | up, it will backup NE c 2\cfg" on the server or | onfiguration files to h the schedule time. |
| NE auto-backup Everyday 0 NE auto-commit Everyday 0 Refresh Submit | NE auto-backup Everyday NE auto-commit Everyday Refresh Submit | | Weekday | Hour |
| □ NE auto-commit Everyday □ ■ | □ NE auto-commit Everyday | 🗌 NE auto-backup | Everyday 👻 | 0 💌 |
| Refresh Submit | Refresh Submit | 🗌 NE auto-commit | Everyday 👻 | 0 . |
| | | Re | fresh Submit |] |
| | | | | |
| | | | | |

Table 4-69NE Configuration Auto Backup Dialog Description

| Field | Description |
|-----------------|--|
| List Table | |
| Weekday-/Hour | This specifies the time when to perform automatically backup/restoration |
| NE auto-backup | Check the checkbox to enable the AMS server to automatically backup the NE configuration to AMS server everyday or every week. |
| NE auto-commit | Check the checkbox to enable the AMS server to automatically restore the NE configuration everyday or every week. |
| Function Button | |
| Refresh | Click this button to refresh the NE Configuration Auto Backup Dialog |
| Submit | Click this button to apply the setting to AMS server. |

4.17 NE Maintenance

AMS supports the NE firmware and NE inventory management as follows.

- NE Inventory Information
- NE Firmware Upgrade
- SHDSL LC Firmware Upgrade
- NE Boot Partition
- Reset the Unit

4.17.1 NE Inventory Information

Follow the subsequent procedure to display the inventory information of NE software/ hardware version, card serial number, card type and so on

- **Step 1** Click Status \rightarrow Inventory on **Main Menu** to open the **Inventory** information table as shown in Figure 4-109 and. Table 4-70 depicts the related parameters.
- **Step 2** Select a slot and click '**Details**' button to view the detailed inventory information of the card Figure 4-110 and Table 4-70 depicts the related parameters.

Figure 4-109 Inventory Information List

| | | | | Stat | us > Inventory | | | |
|-----|------|------------------------|------------------------|------------------------------|------------------|------------------|---------------------|---------------------|
| No. | Slot | Planned Type | Online Type | System Up Time | Software Version | Hardware Version | Serial Number | Image File |
| 1 | LC1 | DAS-4192 ADSLx48 Board | DAS-4192 ADSLx48 Board | 1 days, 16 hours, 50 minute. | 6.5.7_2.4.0 | MLA2031-V2 | MLA2031-8169S009044 | mla2031 fw.enc |
| 2 | LC2 | DAS-4192 ADSLx48 Board | DAS-4192 ADSLx48 Board | 5 days, 23 hours, 43 minute. | 6.5.7_2.4.0 | MLA2031-V2 | MLA2031-8169S009024 | mla2031 fw.enc |
| 3 | LC3 | DAS-4192 ADSLx48 Board | DAS-4192 ADSLx48 Board | 5 days, 23 hours, 42 minute. | . 6.5.7_2.4.0 | MLA2031-V2 | MLA2031-8169S009005 | mla2031 fw.enc |
| | LC4 | DAS-4192 ADSLx48 Board | DAS-4192 ADSLx48 Board | 5 days, 23 hours, 42 minute. | . 6.5.7_2.4.0 | MLA2031-V2 | MLA2031-8169S009042 | mla2031 fw.enc |
| 5 | NC | DAS-4192 Network Board | DAS-4192 Network Board | 5 days, 23 hours, 45 minute. | . 1.0S1.0@R3927 | MCI2031-V3 | MCI2031-8169S008995 | opCodeA::am0031.enc |
| | | | | | | | | |
| | | | | Refresh | Details Export | | | |

Figure 4-110 Inventory Information Details

| | Value |
|------------------|---------------------------------|
| No. | 4 |
| Slot | LC4 |
| Planned Type | DAS-4192 ADSLx48 Board |
| Online Type | DAS-4192 ADSLx48 Board |
| System Up Time | 0 hours, 17 minutes, 43 seconds |
| Software Version | 6.5.7_2.4.0 |
| Hardware Version | MLA2031-V2 |
| Serial Number | MLA2031-1201203102 |
| Image File | mla2031 fw.enc |

| Field | Description |
|------------------------|---|
| List Table | |
| No. | This indicates the serial number of entry of the list table. |
| Slot | This indicates the location of board. |
| Planned Type | This indicates the board type planned to be equipped to the slot of DAS4 Series IP-DSLAM. If the planned type is mismatched (removed or type error) with online type detected from the system, the board mismatch alarm message will be reported. |
| Online Type | This indicates the observed board type of the card module in the slot (current type) |
| System Up Time | This indicates the period since the card is rebooted last. |
| Software Version | This indicates the software version running on the card. |
| Hardware Version | This indicates the hardware version of the card. |
| Serial Number | This indicates the hardware serial number of the card. |
| Image File | This indicates the file name of software running on the card. |
| Function Button | |
| Refresh | Click this button to refresh the Inventory Information List |
| Details | Click this button to view the details of selected profile. |
| Export | Click this button to save the contents of Inventory Information to the AMS Client |
| Close | Exit the Inventory Information Details Dialog. |

 Table 4-70
 Inventory Information Description

4.17.2 NE Firmware Upgrade

AMS server provides the "NE Firmware Upgrade" dialog to upgrade the NC firmware image to NE through FTP.

The features of NE firmware upgrade are lists as follow:

- GUI base upgrade from remote AMS Client
- Support successful message and upgrade checksum to prevent mismatch data
- Service will not be interrupt during NE software upgrade until next reset

Follow the subsequent procedure to upgrade the NC firmware image. It is noted that the NC needs to be rebooted to execute the new image.

- **Step 1** Click Maintenance → Firmware Upgrade on **Main Menu** to open the **Firmware Upgrade** Dialog as shown in Figure 4-111. Table 4-71 depicts the related parameters.
- Step 2 Click 'Browse' button to choose the suitable firmware image file from host directory.
- Step 3 Click 'Upgrade' button to process.
- **Step 4** Reset the NC to execute the upgraded firmware.



Make sure the source image file that you select is accordant to the NE model, else the NE may not run well with the upgraded firmware image after rebooting.

| ETP Login | Maintenance > Firmware Upgrade |
|---------------------|--|
| , i , cogn | User Name: Password: |
| Local Firmware File | |
| | File Name: Browser NE Model: |
| NE Boot Partition | Backup & Restore Partition: opCodeA: |
| | Next Time Boot Partition: OpCodeA Change |
| | Upgrade |

Table 4-71 NE Firmware Upgrade Dialog Description

| Field | Description |
|----------------------------|---|
| FTP Login | |
| User Name | This indicates the user name of FTP to access the NE with administrator right. |
| Password | This indicates the password of FTP to access the NE with administrator right. |
| Local Firmware File | |
| File Name | Click the 'Browse' button to select a file of NC firmware or an ADSL LC firmware from your local host. |
| NE Model | This indicates the model name of the NE |
| Firmware Type | This indicates the firmware type for upgrade. |
| Firmware Version | This indicates the firmware version for upgrade. |
| NE Boot Partition (also re | fer to NE Boot Partition) |
| Backup / Restore Partition | This specifies the boot partition where the upgraded file to be placed to or backup from. |
| Current Boot Partition | This specifies the current boot partition. |
| Next Time Boot Partition | This indicates the partition of NE for next booting. Click 'Change' button to change boot partition. |
| Function Button | |
| Upgrade | Start to upgrade the NC/ADSL LC firmware image of NE by sending the specified file on the local AMS server through FTP. |

4.17.3 SHDSL LC Firmware Upgrade

AMS will provides the "NE SHDSL Firmware Upgrade" dialog to upgrade the SHDSL LC firmware image to NE through FTP in the future release.

4.17.4 NE Boot Partition

As the NE needs to be rebooted to execute the new image running on NC, follow the subsequent procedure to select boot partition when the NC reboots.

- Step 1 Click Maintenance → NE Boot Partition on Main Menu to open the NE Boot Partition Dialog as shown in Figure 4-112.and Table 4-72 depicts the related parameters.
- **Step 2** Select the boot partition form 'Next Time Boot Partition' field to decide the booting image the NE will run whenever it is rebooted.

Figure 4-112 NE Firmware Boot Partition Dialog

| Maintenance > NE Boot Partition | |
|-----------------------------------|---|
| | |
| | |
| | |
| | |
| | |
| Boot Partition- | 1 |
| | |
| | |
| Current Boot Partition: opCodeA | |
| Next Time Boot Partition: opCodeB | |
| opCodeB | |
| | |
| Refresh Submit Commit | |
| | |
| | |
| | |
| | |
| | |
| | |

 Table 4-72
 NE Firmware Boot Partition Dialog Description

| Field | Description |
|--------------------------|---|
| Current Boot Partition | This indicates the current boot partition. |
| Next Time Boot Partition | Use this combo-box to select the next boot partition. |
| Function Button | |
| Refresh | Click this button to refresh the NE Firmware Boot Partition Dialog |
| Submit | Click this button to apply the setting to NE |
| Commit | Click this button to apply the setting to NE |

4.17.5 Reset the Unit

AMS supports to reset the NC, LC, xDSL subscriber port and NE.

Reset the NE

Follow either one of the subsequent procedures to reset the NE.

Procedure 1

Click Maintenance \rightarrow Reset NE on **Main Menu** to open the **Reset NE Dialog** as shown in Figure 4-114

Or

Procedure 2

- **Step 1** Position the mouse cursor over the "NE frame" and then press the right mouse button to bring out the menu as shown in Figure 4-113.
- Step 2 Select the 'Reset NE' option to launch the **Reset NE Dialog** as shown in Figure 4-114.



Figure 4-113 Illustration of resetting the NE

Figure 4-114 Reset NE Dialog

| Maintenance > Reset NE | |
|--|--|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| This reset action will take several minutes. | |
| | |
| | |
| | |
| Reset NE | |
| | |
| | |
| | |
| | |
| | |
| | |

Reset the NC

Follow the subsequent procedure to reset the NC.

- **Step 1** Position the mouse cursor over an "NC object" and then press the right mouse button to bring out the menu as shown in Figure 4-115.
- Step 2 Select the 'Reset' option to launch the **Reset Card Dialog** as shown in Figure 4-116.

Figure 4-115 Illustration of resetting the NC




Reset the LC

Follow the subsequent procedure to reset LC.

- **Step 1** Position the mouse cursor over a "LC object" and then press the right mouse button to bring out the menu as shown in Figure 4-117 or in Figure 4-118.
- **Step 2** Select the 'Reset Card' or 'Reset SHDSL Card' option to launch the **Reset Card Dialog** as shown in Figure 4-119.

Figure 4-117 Illustration of resetting an ADSL LC





Figure 4-118 Illustration of resetting a SHDSL LC

Figure 4-119 Reset Card Dialog



Reset the xDSL Subscriber Port

Follow the subsequent procedure to reset a port.

- **Step 1** Position the mouse cursor over a "port object" and then press the right mouse button to bring out the menu as shown in Figure 4-121.
- Step 2 Select the 'Reset Port' option to launch the **Reset Line Dialog** as shown in Figure 4-121



Figure 4-120 Illustration of resetting a xDSL Subscriber Port

Figure 4-121 Reset xDSL Subscriber Line Dialog



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Chapter 5 Performance Management Functions

This chapter provides a general performance management overview and features of AMS. It contains concepts used in the network and service management for the NE.

This chapter contains the following sections:

- Performance Management General Functions
- Performance Management Features
- xDSL Line Status Diagnosis
- xDSL Line Current Performance Monitor
- xDSL Line Current Performance Information
- xDSL Line Historical Performance Information
- GE Interface Performance Statistics

5.1 Performance Management General Functions

Performance management provides functions to evaluate and report on the behavior of telecommunication equipment and the effectiveness of the network or NEs. Its role is to gather statistical data for the purpose of monitoring and correcting the behavior and effectiveness of the network to aid in planning and analysis.

An operator can search and monitoring performance data or performance log files of a selected NE. The performance record is classified into 15-min performance data and 24- hour performance data from which operator may perform analysis or evaluation accordingly.

Setup of Threshold Profile

AMS supports to configure the xDSL subscriber line performance threshold profile for both CO and CPE side as depicted in Section 4.7.

Scope of Performance Management on xDSL Subscriber Interface

AMS supports to gather the xDSL subscriber line performance information as follows.

- **PM Periodic for xDSL / GE:** Near End (CO) current 15 minutes/ 1 day/ previous 1 day, Far End (RT) current 15 minutes/ 1 day/ previous 1 day.
- **PM Parameter for ADSL:** LOS (Loss of Second), ES (Errored Second), SES (Severely Errored Second), UAS (Unavailable Second), Tx Cell, Rx Blocks, Tx Blocks, correct Blocks, uncorrected Blocks, full initialization count, Code Violation on both CO and RT side, and more.
- **PM Parameter for SHDSL:** LOSW (Loss of Second Word), ES (Errored Second), SES (Severely Errored Second), UAS (Unavailable Second), Tx Cell on both CO and RT side, and more.

Scope of Performance Management on GE Network Interface

AMS supports to gather the GE Network interface performance information such as unicast packets, non-unicast packets, error packets, and discarded packets for both incoming and outgoing direction on demand.

Traffic Statistics Function

The performance information is able to retrieve the Tx/Rx traffic data, which include raw data on GE Network interface in packets and ADSL/SHDSL subscriber interface in cells.

Monitor xDSL Operation Status

The AMS supports to retrieve the following status parameter of xDSL interface.

- ADSL Operation Status Parameter: For both downstream and upstream supports SNR margin, line attenuation, output power, current rate, interleaving delay, attainable rate, previous rate, channel characteristics per sub-carrier, quiet line noise PSD per sub-carrier, Corrected block, Uncorrected block, and CRC.
- SHDSL Operation Status Parameter: For both downstream and upstream supports SNR margin, current rate, line attenuation, output power, and CRC.

5.2 Performance Management Features

AMS provides the function of Performance Management (PM) that periodically receives and indicates the PM to the NEs. The performance parameters included Loss of Signal seconds (LOS), far-end and near-end Errored Second (ES), Severely Errored Second (SES), Unavailable Second (UAS) and etc. Those parameters help the operator to analysis the network performance in ADSL/SHDSL, and Network uplink interfaces.

The features of performance management functions include the following:

- Viewing performance management on Network interface and xDSL subscriber interfaces
- Support monitoring on subscriber operation status
- The analysis result can be displayed and printed in graphical or tabular formats, the performance value in able to export in ASCII format.

5.3 xDSL Line Status Diagnosis

The AMS supports the following five xDSL line status related diagnosis functions.

- xDSL Port Rate Status
- ADSL Loop Bits Allocation Monitoring
- Loop Monitoring
- Loop Diagnosis (DELT <Dual-Ended Line Test>)
- Loop SELT Test (Single End Loop Test)

5.3.1 xDSL Port Rate Status

Follow the subsequent procedure to monitor the ADSL current rate status.

- Step 1 Click Status \rightarrow xDSL Port Rate Status \rightarrow on Main Menu to open the xDSL Port Rate Dialog as shown in Figure 5-1.
- Step 2 Select the port to show its current xDSL port rate status. It is noted that the loop parameters of ADSL port and SHDSL port are different. Depending on the port you select, either the ADSL Port Rate Status Dialog or SHDSL Port Rate Status Dialog appears. Figure 5-1shows the ADSL Port Rate Status Dialog and Table 5-1 depicts the corresponding parameter descriptions. As to the SHDSL Port Rate Status Dialog, it is shown in Figure 5-2. The corresponding descriptions are depicted in Table 5-2.

| Figure 5-1 | ADSL Port Rate Status Dialog |
|------------|------------------------------|
|------------|------------------------------|

| Item | Downstream | Upstream |
|-------------------------|---------------|----------|
| urrent Tx Rate (Kbps) | 2054 | 516 |
| evious 1x Rate (Rbps) | 0 | 0 |
| Italinable Rate (Rops) | 28992 | 1334 |
| vik margin (ub) | 32.1 | 29.0 |
| tertuation (db) | 10.0 | 12.0 |
| tarlasva Dalav (mean) | -10.2 | 0 |
| ata Block Length (byte) | 60 | 15 |
| ne Standard | G9925.annex.4 | |
| ower Management Mode | Manual | |
| nwer State | 10 | |
| | | |
| | | |

Table 5-1

ADSL Port Rate Status Dialog Description

| Field | Description |
|--------------------------|--|
| List Table | |
| Slot-Port | This specifies the location of ADSL port |
| Current Tx Rate (Kbps) | This indicates the current DS/US transmit rate in unit of Kbps. (in the current show-time) |
| Previous Tx Rate (Kbps) | This indicates the previous DS/US transmit rate in unit of Kbps. (in the last show-time) |
| Attainable Rate (Kbps) | This indicates the DS/US attainable rate in unit of Kbps. |
| SNR Margin (dB) | This indicates the DS/US SNR margin in unit of dB. |
| Attenuation (dB) | This indicates the DS/US attenuation in unit of dB. |
| Output Power (dBm) | This indicates the DS/US output power in unit of dBm. |
| Interleave Delay (msec) | This indicates the DS/US interleave delay whenever the line is in the interleaved mode. |
| Data Block Length (byte) | This indicates the DS/US ADSL data block length in unit of octet. |
| Line Standard | This indicates the adopted for the current ADSL connection. |
| Power Management Mode | This indicates the power management mode, either manual or. Automatic. |
| Power State | This indicates the power management state of this subscriber port per ITU-T 992.3. |

| Field | Description |
|-----------------|---|
| Function Button | |
| Refresh | Click this button to refresh the specified threshold value. |
| Transit to L0 | Click this button to force the power management state to L0 per ITU-T 992.3. |
| Transit to L2 | Click this button to set the power management state to L2 per ITU-T 992.3. |
| Transit to L3 | Click this button to set the power management state to L3 per ITU-T 992.3. |
| Export | Click this button to save the contents of ADSL Port Rate Status List to the AMS client |

Table 5-1 ADSL Port Rate Status Dialog Description (Continued)



Please refer to ITU-T 992.3 for the details of state transition among the power management state L0, L2 and L3.

Figure 5-2 SHDSL Port Rate Status Dialog

| Status > xDSL Port Rate Status | |
|----------------------------------|---------|
| Slot: LC12 Port: Port 25 | |
| Item | Value |
| urrent Tx Rate (Kbps) | 2312 |
| ttainable Rate (Kbps) | 2312 |
| < Mode | |
| FUC Current SNR Margin (dB) | 0 |
| FUC Current SNR Attenuation (dB) | 17 |
| TUR Current SNR Margin (dB) | 0 |
| TUR Current SNR Attenuation (dB) | ļ0 |
| | |
| | Refresh |

| Field | Description |
|--------------------------------------|---|
| List Table | |
| Slot-Port | This specifies the location of SHDSL port |
| Current Tx Rate (Kbps) | This indicates the current DS/US transmit rate in unit of Kbps. (in the current show-time) |
| Attainable Rate (Kbps) | This indicates the DS/US attainable rate in unit of Kbps. |
| Tx Mode | This indicates the transmission mode, either 'Annex A' or 'Annex B'. |
| STUC Current SNR Margin (dB) | This indicates the DS SNR margin in unit of dB. |
| STUC Current SNR Attenuation (dB) | This indicates the DS SNR attenuation in unit of dB. |
| STUR Current SNR Margin (dB) | This indicates the US SNR margin in unit of dB. |
| STUR Current SNR Attenuation (dB) | This indicates the US SNR attenuation in unit of dB. |
| Function Button | |
| Refresh | Click this button to refresh the specified threshold value. |
| Export | Click this button to save the contents of ADSL Current Rate Status List to the AMS client. |

Table 5-2 SHDSL Port Rate Status Dialog Description

5.3.2 ADSL Loop Bits Allocation Monitoring

The bit allocation monitoring function allows the operator to observe the number of bits carried on each tone of ADSL line in show-time.

Follow the subsequent procedure to monitor the bit allocation status on the specified ADSL connection.

- Step 1Click Status \rightarrow xDSL Bits Allocation on Main Menu to open the ADSL Loop Bit
Allocation Status Dialog as shown in Figure 5-3.
- **Step 2** Select the port to show its **bit allocation status** as shown in Figure 5-3. Table 5-3 depicts the related parameters.
- Step 3 Click the Graph button to show the corresponding 2D graph as shown in Figure 5-4.

| Slot: LC2 Port Port 48 | | | |
|--------------------------|-----------------|-------------------|------|
| Tone | Upstream (Bits) | Downstream (Bits) | |
|) | 0 | 0 | |
| | 0 | 0 | 1004 |
| | 0 | 0 | |
| 1 | 0 | 0 | 2 |
| | 0 | 0 | |
| | 0 | 0 | |
| | 0 | 0 | |
| · | 0 | 0 | |
| | 1 | 0 | |
| | 5 | | |
| 4 | 2 | 0 | |
| 2 | | 0 | |
| 2 | 6 | 0 | |
| 4 | 6 | 0 | |
| 5 | 6 | 0 | |
| 6 | 7 | 0 | |
| 7 | 7 | - | |
| 8 | 7 | 0 | |
| 3 | 7 | 0 | |
| 0 | 8 | 0 | |
| 1 | 8 | 0 | |
| 2 | 8 | 0 | |
| 3 | 8 | 0 | |
| 4 | 7 | 0 | |
| 5 | 7 | 0 | |
| 6 | 6 | 0 | |
| 27 | 6 | 0 | |
| 28 | 5 | 0 | |
| 29 | 3 | 0 | |
| 30 | 3 | 0 | |
| 11 | 1 | 0 | |
| 32 | 0 | 0 | |
| 33 | 0 | 0 | |
| 34 | 0 | 0 | |
| 35 | 0 | 0 | |
| 36 | 0 | 0 | - |

Figure 5-3 ADSL Loop Bit Allocation Status Dialog

Table 5-3 ADSL Bit Allocation Status Dialog Description

| Field | Description |
|-------------------|---|
| List Table | |
| Slot-Port | This specifies the location of ADSL port |
| Tone | This indicates number of tone index. |
| Upstream (Bits) | This indicates the upstream bit allocation of the specified tone. |
| Downstream (Bits) | This indicates the downstream bit allocation of the specified tone. |
| Function Button | |
| Refresh | Click this button to refresh the bit allocation list table. |
| Export | Click this button to save the contents of ADSL Bit Allocation Status List to the AMS client. |
| Graph | Click this button to display the graph for the bit allocation. |



Figure 5-4 **Graph of Bit Allocation**



5.3.3 Loop Monitoring

The loop monitoring function provides the records of ADSL loop characteristics measured during the last training. It is noted that the measured results are only available in the show-time.

- Click Maintenance → ADSL Loop Monitoring on Main Menu to open the ADSL Loop Step 1 Monitoring Dialog.
- Step 2 Select the port to show its loop characteristic as shown in Figure 5-5. Table 5-4 depicts the related parameters.
- Step 3 Press Start button to get starting.
- Step 4 Click Graph button to open the Graph of Loop Monitoring - Magnitude Dialog as shown in Figure 5-6.
- Step 5 In the Graph of Loop Monitoring – Magnitude Dialog, click Magnitude tab to view the magnitude of transfer function per tone as shown in Figure 5-6 Or In the Graph of Loop Monitoring – Magnitude Dialog, click Quiet Line PSD tab to view the Quiet Line PSD per tone as shown in Figure 5-7

NOTE

Please refer to ITU-T 992.3 for the details of loop monitoring parameters.



In comparison with the DELT, the ADSL loop is not corrupted whenever the operator performs the loop monitoring function.

| | Maintenance > ADSL Loo | p Monitoring | | |
|---------------------------|------------------------|-----------------|-----|----------------|
| Slot: LC2 V Port: Port 48 | ▼ | | | |
| Ctatue: Queence | | | | |
| Juicess | | | | Start |
| Reason for Failure: | | | | (Constant) |
| | | | | Cancel |
| | | | | |
| | | | | |
| Magnitude Quiet Line PSD | | | | |
| Tope | Linstream (dB) | Downstream (dB) | | |
| 1 | -24.5 | -78.0 | | |
| | -71.6 | -38.0 | 333 | |
| | NA | -39.3 | | |
| | NA | -40.8 | | |
| | NA | -45.2 | | |
| | -68.6 | -45.2 | | |
| | -19.0 | -45.2 | | |
| | -8.8 | -45.2 | | |
| | -0.3 | -48.6 | | |
| | 2.4 | -48.6 | | |
|) | 3.0 | -48.6 | | |
| | 3.5 | -45.2 | | |
| 2 | 3.7 | -45.2 | | 1000000000 |
| 3 | 4.0 | -48.6 | | Graph |
| 4 | 4.0 | -45.2 | | 1.1.611.02.011 |
| 5 | 3.7 | -48.6 | | Export |
| 3 | 3.4 | -51.6 | | |
| 7 | 3.0 | -48.6 | | |
| 3 | 2.3 | -48.6 | | |
| 9 | 1.5 | -48.4 | | |
|) | 0.7 | -49.0 | | |
| 1 | -0.1 | -43.6 | | |
| 2 | -1.0 | -41.1 | | |
| 3 | -2.0 | -39.8 | | |
| 4 | -2.6 | -40.0 | | |
| 5 | -3./ | -35.8 | | |
| | -4.0 | -33.5 | | |
| / | -5.4 | -30.7 | | |
| 8 | -6.3 | -29.0 | | |
| 3 | -7.0 | -20.4 | | |
|) | -1.1 | -24.0 | | |

Figure 5-5 ADSL Loop Monitoring Dialog

Table 5-4 ADSL Loop Monitoring Dialog Description

| Field | Description |
|---|---|
| List Table | |
| Slot-Port | This specifies the location of ADSL port |
| Status | This indicates the status of the loop monitoring. |
| Reason for Failure | This indicates the result of failure case. |
| Magnitude Dialog (The ma | agnitude of ADSL line transfer function) |
| Tone | This indicates the serial number of tone. |
| Upstream (dB) | This indicates the magnitude of transfer function per tone of the upstream channel. |
| Downstream (dB) | This indicates the magnitude of transfer function per tone of the downstream channel. |
| Quiet Line PSD Dialog (PSD of Quiet Line Noise) | |
| Tone | This indicates the serial number of tone. |
| Upstream (dB) | This indicates the quiet line noise PSD per tone of the upstream channel. |
| Downstream (dB) | This indicates the quiet line noise PSD per tone of the downstream channel. |
| Function Button | |
| Start | Click this button to start the loop monitoring function. |
| Graph | Click this button to display the resultant graph of loop monitoring. |
| Export | Click this button to save the contents of xDSL Loop Monitoring List to the AMS client. |
| Cancel | Stop the ADSL Loop Monitoring process. |



Figure 5-6 Graph of Loop Monitoring – Magnitude Dialog

Figure 5-7 Graph of Loop Monitoring – Quiet Line Noise PSD Dialog



5.3.4 Loop Diagnosis (DELT <Dual-Ended Line Test>)

The DELT loop diagnosis function provides mechanism to measure the ADSL loop quality. This action will interrupt the ADSL connection. However, more detailed inform are gathered in comparison with the aforementioned loop monitoring function.

- Step 1 Click Maintenance → ADSL Loop Diagnosis on Main Menu to open the ADSL Loop Diagnosis Dialog as shown in Figure 5-8.
- **Step 2** Select the port to show its **Loop Diagnosis** as shown in Figure 5-8. Table 5-5 depicts the related parameters.
- Step 3 Press Start button to get starting.
- Step 4 Click Magnitude button to view the magnitude of transfer function per tone. And click Graph button to show the graph of the Magnitude of transfer function as shown in Figure 5-9

Or

Click **Quiet Line PSD** button to view the Quiet Line Noise PSD per tone. And click **Graph** button to show the graph of the Quiet Line Noise PSD per tone as shown in Figure 5-10

Or

Click **SNR** button to view the SNR per tone. And click **Graph** button to show the graph of the SNR per tone as shown in Figure 5-11



In comparison with the loop monitoring function, the ADSL loop is corrupted whenever the operator performs the DELT.

Figure 5-8 ADSL Loop Diagnosis Dialog

| | | Maintenance > ADSL Loop Diagno | sis | |
|----------------------------|--------------------|---------------------------------------|-----------|-----------------|
| Slot: LC2 - | Port Port 48 💌 | | | |
| Line Profile: | 2 | | ▼ Details | Start |
| Status: | Success | | | Otan |
| Reason for Failure: | | | | Cancel |
| Rate Magnitude | Quiet Line PSD SNR | · · · · · · · · · · · · · · · · · · · | | |
| Attainable Data (bush) | ltem | Downstream | Upstream | |
| Attainable Rate (bps) | | 26916000 | 1264000 | |
| Signal Attenuation (0.1dB) | | 0 | 0 | |
| SNR Margin (0.1dB) | | 60 | 0 | |
| Tx Power (0.1dBm) | | 123 | 123 | |
| | | | | Graph Export |

Table 5-5

ADSL Loop Diagnosis Dialog Description

| Field | Description |
|----------------------------|--|
| List Table | |
| Slot-Port | This specifies the location of ADSL port |
| Line Profile | Use this combo-box to select the line profile to test. |
| Status | This indicates the status of the DELT. |
| Reason for Failure | This indicates the result of failure case. |
| Rate Dialog | |
| Attainable Rate (bps) | This displays the attainable rate of DELT. |
| Loop Attenuation (0.1dB) | This displays the loop attenuation of DELT. |
| Signal Attenuation (0.1dB) | This displays the signal attenuation of DELT. |
| SNR Margin (0.1dB) | This displays the SNR margin value of DELT. |
| Tx Power (0.1dB) | This displays the transmit power value of DELT. |

| Field | Description | | | | |
|--|---|--|--|--|--|
| Magnitude Dialog (The ma | gnitude of ADSL line transfer function) | | | | |
| Tone | This indicates the number of the tone. | | | | |
| Upstream (dB) | This indicates the magnitude of transfer function per tone of the upstream channel. | | | | |
| Downstream (dB) This indicates the magnitude of transfer function per tone downstream channel. | | | | | |
| Quiet Line PSD Dialog (PS | SD of Quiet Line Noise) | | | | |
| Tone | This indicates the serial number of the tone. | | | | |
| Upstream (dB) | This indicates the quiet line noise PSD per tone of the upstream channel. | | | | |
| Downstream (dB) | This indicates the quiet line noise PSD per tone of the downstream channel. | | | | |
| SNR Dialog | | | | | |
| Tone | This indicates the number of the tone. | | | | |
| Upstream (dB) | This indicates the upstream SNR of the specified tone. | | | | |
| Downstream (dB) | This indicates the downstream SNR of the specified tone. | | | | |
| Function Button | | | | | |
| Start | Click this button to start the DELT function. | | | | |
| Graph | Click this button to display the result graph of DELT. | | | | |
| Export | Click this button to save the results of ADSL Loop Diagnosis (DELT) to the AMS client | | | | |
| Cancel | Stop the ADSL Loop Diagnosis (DELT) process. | | | | |

Table 5-5 ADSL Loop Diagnosis Dialog Description (Continued)



Please refer to ITU-T 992.3 for the details of loop diagnostics (DELT) parameters.



'Upshift Noise Margin', 'Downshift Noise Margin', 'Upshift Time' and 'Downshift Time' are only applied to the Rate Mode 'Adaptive at Run-Time'.

Figure 5-9 Graph of DELT result – Magnitude





Figure 5-10 Graph of DELT result – Quiet Line PSD

Figure 5-11 Graph of DELT result – SNR



5.3.5 Loop SELT Test (Single End Loop Test)

The SELT loop function diagnosis function is to estimate the distance of the DSL connection from the NE to the subscriber's location without connecting a subscriber device.

- Step 1 Click Maintenance → ADSL Loop SELT Test on Main Menu to open the ADSL Loop SELT Test Dialog as shown in Figure 5-12.
- **Step 2** Select the port to show its **ADSL Loop SELT Test** as shown in Figure 5-12 and Table 5-6 depicts the related parameters.
- Step 3 Press Start button to get starting.

| it LC2 | t Port 48 💌 | | |
|--|-----------------|------|------|
| Status: | succeeded | | |
| Reason for Failure | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | N | | |
| stResult | | | |
| ist Result | | | |
| st Result | | | |
| ist Result | | | |
| ist Result | 28 AWG | | |
| ist Result | 26 AW/G | | |
| ist Result Cable Type: Reach Length (ft.): | 28 AWG 10659 | | |
| ist Result Cable Type: Reach Length (ft.): | 28 AWG 10659 | | |
| ist Result Cable Type: Reach Length (ft.): | 26 AWG 10659 | | |
| ist Result Cable Type: Reach Length (ft.): | 26 AWG 10659 | | |
| ist Result Cable Type: Reach Length (ft.): | 26 AWG 10659 | | |

Figure 5-12 ADSL Loop SELT Test

Table 5-6 ADSL Loop SELT Test Dialog Description

| Field | Description |
|------------------------|--|
| List Table | |
| Slot-Port | This specifies the location of ADSL port |
| Status | This indicates the status of the SELT. |
| Reason for Failure | This indicates the result of failure case. |
| Test Result | |
| Cable Type | This displays the estimated cable type. |
| Reach Length (ft.) | This displays the estimated cable length. |
| Function Button | |
| Start | Click this button to start the SELT. |
| | |



Please refer to ITU-T 992.3 for the details of SELT.

5.4 xDSL Line Current Performance Monitor

Follow the subsequent procedure to monitor the current xDSL line performance via 2D graph..

- Step 1 Click Performance → xDSL Current Performance Monitor on Main Menu to open the xDSL Current Performance Monitor Dialog.
- Step 2 Select the port to show its current 2D xDSL performance graph. It is noted that the performance data of ADSL port and SHDSL port are different. Depending on the port you select, either the ADSL Current Performance Monitor Dialog or SHDSL Current Performance Monitor Dialog appears as shown in Figure 5-13 and Figure 5-14, respectively. Table 5-7depicts the corresponding parameter descriptions.

| Slot LC1 Port Port 45 Time Interval: 15 Min Polling Period (sec): 5 Hit -ATUC ADSL Performance LOSs (sec): 0 Polling SESs (sec): 0 Polling VASs (sec): 0 Polling ESs (sec): 0 Polling ATUR Folling Folling LOSs (sec): 0 Polling ESs (sec): 0 Polling | | | | | | | | | | | | |
|---|---|---|--|--|--|--|--|--|--|--|--|--|
| ATUC ADSL Performance LOSs (seo): 0 Polling Polling SESs (sec): 0 Polling Polling ATUR Polling LOSs (sec): 0 Polling Polling ESs (sec): 0 Polling Polling | Slot: LC1 Port: | rt 46 ▼ Time Interval: 15 Min ▼ Polling Period (sec): 5 | | | | | | | | | | |
| LOSS (Sec): 0 Polling ESS (Sec): 0 Polling VASS (Sec): 0 Polling ATUR LOSS (Sec): 0 Polling ESS (Sec): 0 Polling ESS (Sec): 0 Polling ESS (Sec): 0 Polling ESS (Sec): 0 Polling | ATUC | ADSL Performance | | | | | | | | | | |
| LOSs (sec): 0 Polling ESs (sec): 0 Polling VASs (sec): 0 Polling ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling ESs (sec): 0 Polling ESs (sec): 0 Polling | | 1 | | | | | | | | | | |
| LOSs (sec): 0 Polling ESs (sec): 0 Polling ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling | | | | | | | | | | | | |
| ESs (sec): 0 Polling UASs (sec): 0 Polling ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling | LOSs (sec): 0 | | | | | | | | | | | |
| SESs (sec): 0 Polling UASs (sec): 0 Polling ATUR | ESs (sec): 0 🗌 🗌 Pollin | a | | | | | | | | | | |
| UASs (sec): 0 Polling ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling SESs (sec): 0 Polling UASs (sec): 0 Polling | SESs (sec): 0 | 3 | | | | | | | | | | |
| ATUR ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling SESs (sec): 0 Polling USS (sec): 0 Polling | LIASs (sec): D D D Pollin | | | | | | | | | | | |
| ATUR ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling SESs (sec): 0 Polling HASC (coc): 0 Polling | | | | | | | | | | | | |
| ATUR LOSs (sec): 0 Polling ESs (sec): 0 Polling SESs (sec): 0 Polling | | Value | | | | | | | | | | |
| LOSs (sec): 0 Polling ESs (sec): 0 Polling SESs (sec): 0 Polling | - ATI IR- | | | | | | | | | | | |
| LOSS (sec): 0 Polling ESS (sec): 0 Polling SESS (sec): 0 Polling | inon. | | | | | | | | | | | |
| LOSS (sec): 0 Polling ESS (sec): 0 Polling SESS (sec): 0 Polling | | | | | | | | | | | | |
| ESs (sec): 0 Polling SESs (sec): 0 Polling | LOSs (sec): 0 🗌 Pollin | | | | | | | | | | | |
| SESs (sec): 0 Polling | | | | | | | | | | | | |
| SESs (sec): 0 Polling | | | | | | | | | | | | |
| | SESs (sec): 0 | a | | | | | | | | | | |
| | UASs (sec): 0 | J Time | | | | | | | | | | |
| | | | | | | | | | | | | |
| ATUCLOSS — ATUCLOSS — ATUCLOSS — ATUCLOSS — ATURLOSS — ATURLOSS — ATURLOSS — ATURLOSS — ATURLOSS | | ATUR.USS ATUR.ESS ATUR.SESS ATUR.USS ATUR.ESS ATUR.SESS | | | | | | | | | | |

Figure 5-13 ADSL Current Performance Monitor Dialog

Figure 5-14 SHDSL Current Performance Monitor Dialog



| Field | Description |
|----------------------|---|
| List Table | |
| Slot-Port | This indicates the location of the ADSL port. |
| Time Interval | This indicates the unit of time interval on the x-axis of the displayed 2D graph. Either 15-miniute or 1-Day. |
| Polling Period (sec) | This specifies the period between the AMS server to consecutively poll the current PM data. |
| LOSs (sec) | This indicates the count of Loss of Signal Second during the current accumulated period. |
| ESs (sec) | This indicates the count of Error Second during the current accumulated period. |
| SESs (sec) | This indicates the count of Severely Error Second during the current accumulated period. |
| UASs (sec) | This indicates the count of Unavailable Error Second during the current accumulated period. |
| Function Button | |
| Refresh | Click this button to refresh the List Table. |
| Start Polling | Click this button to start to poll the NE. |

Table 5-7 ADSL/SHDSL Current Performance Monitor Dialog Description

5.5 xDSL Line Current Performance Information

Follow the subsequent procedure to obtain data for evaluating the current xDSL line performance.

- Step 1Click Performance \rightarrow xDSL Current Performance on Main Menu to open the xDSL
Current Performance Dialog.
- Step 2 Select the port to show its current performance information. It is noted that the performance data of ADSL port and SHDSL port are different. Depending on the port you select, either the ADSL Current Performance Dialog or SHDSL Current Performance Dialog appears. Figure 5-15shows the ADSL Current Performance Dialog and Table 5-8 depicts the corresponding parameter descriptions. As to the SHDSL Current Performance Dialog, it is shown in Figure 5-16. The corresponding descriptions are depicted in Table 5-9.

| | | | ATUR Valid Interval: 24 | | | |
|----------------|---------------|---|---|---|--|---|
| | | | Valid Interval: 24 | | | |
| | | | Valid Interval: 24 | | | |
| | | | | | | |
| | | | Invalid Interval: 0 | | | |
| Current 15 Min | Current 1 Day | Previous 1 Day | Item | Current 15 Min | Current 1 Day | Previous 1 Da |
| 2 | 1940 | N/A | Time Elapsed (sec) | 340 | 21940 | N/A |
| 0 | | 0 | LOSs (sec) | 0 | 0 | 0 |
| 0 | | 0 | ESs (sec) | 0 | 0 | 0 |
| 0 | | 0 | SESs (sec) | 0 | 0 | 0 |
| 0 | | 0 | UASs (sec) | 0 | 0 | 0 |
| 0 | | 0 | CVs | 0 | 0 | 0 |
| 0 | | 0 | TxBlks | 0 | 0 | 0 |
| 0 | | 0 | RxBlks | 0 | 0 | 0 |
| 0 | | 0 | CrtBlks | 0 | 0 | 0 |
| 0 | | 0 | UncrtBlks | 0 | 0 | 0 |
| 0 | | 0 | | 11 | 1 | du . |
| 0 | | 0 | | | | |
| 0 | | 0 | | | | |
| 0 | | 0 | | | | |
| | | 21940 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 21940 IVA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 2/340 N/A 0 0 | 21940 IVIA 0 0 | 2/14/U N/A Initial Expendices/ 34/U 2/14/U 0 0 0 2/14/U 2/14/U 2/14/U 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< td=""></td<> |

Figure 5-15 ADSL Current Performance Dialog

Description Field List Table Slot-Port This indicates the location of the ADSL port. Auto-Refresh Check the check-box to auto-refresh this dialog. Refresh period (sec) This specifies the period between the AMS server to consecutively refresh the current performance data. Valid Intervals The number of previous 15-minute intervals in the list table for which data was collected. Invalid Intervals The number of intervals in the range from 0 to the value of "Valid Intervals" for which no data is available. This object will typically be zero except in cases where the data for some intervals are not available. Time Elapsed (sec) This indicates the time elapsed in the current 15-miniute interval. LOSs (sec) This indicates the count of Loss of Signal Second during the current accumulated period. ESs (sec) This indicates the count of Error Second during the current accumulated period. SESs (sec) This indicates the count of Severely Error Second during the current accumulated period. UASs (sec) This indicates the count of Unavailable Error Second during the current accumulated period. Tx Cells (sec) This indicates the transmitted number of ATM cells and net data rate during the current accumulated period. Rx Cell (sec) This indicates the received number of ATM cells and net data rate during the current accumulated period. CVs This indicates the count of Code Violation during the current accumulated period. This indicates the total number of full initializations (successful and Inits failed) attempted on the lineduring the current accumulated period. InitOKs This indicates the total number of successful full initializations during the current accumulated period. A failed full initialization is when show time is not reached at the end of the full initialization procedure, e.g., when: • A CRC error is detected. • A time-out occurs. Unexpected message content is received. TxBlks This indicates the transmitted number of FEC block during the current accumulated period. **RxBlks** This indicates the received number of FEC block during the current accumulated period. CrtBlks This indicates the count of all blocks received with errors that were corrected during the current accumulated period. UncrtBlks This indicates the count of all blocks received with uncorrectable errors during the current accumulated period. **Function Button** Refresh Click this button to refresh the List Table.

Table 5-8 ADSL Current Performance Dialog Description

| | Performance ≻ xDSL Current Performance | | | | | | | |
|---------------------------|--|-------------------------|----------------|--------------------|----------------|---------------|----------------|--|
| | + [Port 20] - [] | Itus Dofraah, Dafraah I | | | | | | |
| | | Aluo-Reliesh Reliesh i | renou (sec). | | | | | |
| -SHDSL Current Performanc | e | | | | | | | |
| L STUC | | | | STUR | | | | |
| Valid Interval: | | | | Valid Interval: | | | | |
| | | | | | | | | |
| Invalid Interval: | | | | Invalid Interval: | | | | |
| Fam | Current 15 Min | Current 1 Day | Previous 1 Day | T tem | Ourrent 15 Min | Current 1 Day | Previoue 1 Day | |
| Time Elapsed (sec) | 0 | 0 | N/A | Time Elapsed (sec) | 0 | 0 | N/A | |
| ESs (sec) | 0 | 0 | 0 | ESs (sec) | 0 | 0 | 0 | |
| SESs (sec) | 0 | 0 | 0 | SESs (sec) | 0 | 0 | 0 | |
| UASs (sec) | 0 | 0 | 0 | UASs (sec) | 0 | 0 | 0 | |
| LOSWs (sec) | 0 | 0 | 0 | LOSWs (sec) | 0 | 0 | 0 | |
| CRCs | 0 | 0 | 0 | CRCs | 0 | 0 | 0 | |
| | | | | | | | | |
| | | | F | Refresh | | | | |

Figure 5-16 SHDSL Current Performance Dialog

Table 5-9 SHDSL Current Performance Dialog Description

| Field | Description | | | | |
|----------------------|--|--|--|--|--|
| List Table | | | | | |
| Slot-Port | This indicates the location of the ADSL port. | | | | |
| Auto-Refresh | Check the check-box to auto-refresh this dialog. | | | | |
| Refresh period (sec) | This specifies the period between the AMS server to consecutive refresh the current performance data. | | | | |
| Valid Intervals | The number of previous 15-minute intervals in the list table for which data was collected. | | | | |
| Invalid Intervals | The number of intervals in the range from 0 to the value of "Valid Intervals" for which no data is available. This object will typically be zero except in cases where the data for some intervals are not available. | | | | |
| Time Elapsed (sec) | This indicates the time elapsed in the current 15-miniute interval. | | | | |
| ESs (sec) | This indicates the count of Error Second during the current accumulated period. | | | | |
| SESs (sec) | This indicates the count of Severely Error Second during the current accumulated period. | | | | |
| UASs (sec) | This indicates the count of Unavailable Error Second during the current accumulated period. | | | | |
| LOSWs (sec) | This indicates the count of LOSW second during the current accumulated period. | | | | |
| CRCs (sec) | This indicates the count of the SHDSL CRC anomalies occurring during the current accumulation period. | | | | |
| Function Button | | | | | |
| Refresh | Click this button to refresh the List Table | | | | |

5.6 xDSL Line Historical Performance Information

Follow the subsequent procedure to obtain data for evaluating the history xDSL line performance.

- Step 1Click Performance \rightarrow xDSL History performance on Main Menu to open the xDSL
History Performance Dialog.
- Step 2 Select the port to show its current performance information. It is noted that the performance data of ADSL port and SHDSL port are different. Depending on the port you select, either the ADSL History Performance Dialog or SHDSL History Performance Dialog appears. Figure 5-17 shows the ADSL History Performance Dialog and Table 5-10 depicts the corresponding parameter descriptions. As to the SHDSL History Performance Dialog, it is shown in Figure 5-18. The corresponding descriptions are depicted in Table 5-11.
- Step 3 Depending on the port you select, click the 'Graph' button to show the corresponding ADSL/SHDSL History Performance Diagram. Figure 5-19 shows the ADSL History Performance Diagram as an example.

| Slot: LC1 | • | Port: Port 1 | • | | | | | | | |
|--------------|--------|--------------|-----------|------------|------------|---------|---------|-----|-------|-------------|
| Create Time | Side | LOSs (sec) | ESs (sec) | SESs (sec) | UASs (sec) | TxCells | RxCells | CVs | Inits | FailedInits |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | 12 | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | . ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午. | ATUR | 0 | 0 | 0 | 0 | | | 0 | | |
| 2007/4/2 下午. | . ATUC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007/4/2 下午 | ATUR | n | n | n | 0 | | 12 | 0 | | |

Figure 5-17 ADSL History Performance Dialog

| Field | Description | | | | |
|------------------------|---|--|--|--|--|
| List Table | | | | | |
| Create Time | This indicates the time when the xDSL historical PM is recoreded. | | | | |
| Side | This indicates the location where the PM parameters are observed. (Either central side(CO) or remote side(RT)) | | | | |
| LOSs (sec) | This indicates the count of Loss of Signal Second during the indicated period. | | | | |
| ESs (sec) | This indicates the count of Error Second during the indicated period. | | | | |
| SESs (sec) | This indicates the count of Severely Error Second during the indicated period. | | | | |
| UASs (sec) | This indicates the count of Unavailable Error Second during the indicated period. | | | | |
| Tx Cells / Rate | This indicates the transmitted number of ATM cells and net data rate during the indicated period. | | | | |
| Rx Cell / Rate | This indicates the received number of ATM cells and net data rate during the indicated period. | | | | |
| CVs | This indicates the count of Code Violation during the indicated period. | | | | |
| Inits | This indicates the total number of full initializations (successful and failed) attempted on the lineduring the current accumulated period. | | | | |
| FailedInits | This indicates the total number of failed full initializations during the indicated period. A failed full initialization is when showtime is not reached at the end of the full initialization procedure, e.g., when: A CRC error is detected. A time-out occurs. Unexpected message content is received. | | | | |
| Function Button | | | | | |
| Refresh | Click this button to refresh the xDSL History Port Selection Dialog. | | | | |
| Export | Click this button to save the contents of ADSL History PM to the AMS client. | | | | |
| Graph | Click this button to draw the 2D diagram. | | | | |

Table 5-10 ADSL History Performance Dialog Description

Figure 5-18 SHDSL History Performance Dialog

Table 5-11 SHDSL History Performance Dialog Description

| Field | Description | | | | |
|-----------------|---|--|--|--|--|
| List Table | | | | | |
| ESs | This indicates the count of Error Second during the indicated period. | | | | |
| SESs | This indicates the count of Severely Error Second during the indicated period. | | | | |
| UASs | This indicates the count of Unavailable Error Second during the indicated period. | | | | |
| LOSWs | This indicates the count of LOSW second during the indicated period. | | | | |
| CRCs | This indicates the count of the SHDSL CRC anomalies occurring during the current accumulation period. | | | | |
| Function Button | | | | | |
| Refresh | Click this button to refresh the xDSL History Port Selection Dialog. | | | | |
| Export | Click this button to save the contents of SHDSL History PM to the AMS client. | | | | |
| Graph | Click this button to draw the 2D diagram. | | | | |



Figure 5-19 ADSL History Performance Diagram

5.7 GE Interface Performance Statistics

Follow the subsequent procedure to obtain data for evaluating the GE interface performance.

Click Performance \rightarrow Trunk Performance Statistics on **Main Menu** to open the **Trunk Port PM** Dialog as shown in Figure 5-20. Table 5-12 depicts the related parameters.

| | Performance > Trunk Performance Statistics | | | | | | | | | |
|-------|--|-----------|-----------------|---------------------|-------------------|-------------------|-------------|--|--|--|
| Port: | Port OE 1 👻 | | | | | | | | | |
| | Side | Octets | Unicast Packets | Non-Unicast Packets | Discarded Packets | Erroneous Packets | PAUSE Frame | | | |
| IN | 1 | 255149037 | 13787266 | 444459 | 404320 | 196 | 0 | | | |
| OUT | 1 | 12615723 | 1527837 | 8082 | 0 | 0 | 396 | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Figure 5-20 Trunk PM Statistics Dialog

Table 5-12Trunk PM Dialog Description

| Field | Description |
|---------------------|--|
| List Table | |
| Side | This indicates the IN(ingress direction)/OUT(egress direction) where the performance parameters are observed |
| Octets | This indicates the numbers of incoming/outgoing octets via the specified GE port. |
| Unicast Packets | This indicates the numbers of incoming/outgoing unicast packets via the specified GE port. |
| Non-Unicast Packets | This indicates the numbers of incoming/outgoing non-unicast packets via the specified GE port. |
| Discarded Packets | This indicates the numbers of incoming/outgoing discarded packets on the specified GE port per RFC1213. |
| Erroneous Packets | This indicates the numbers of incoming/outgoing erroneous packets on the specified GE port per RFC1213. |
| PAUSE Frame | This indicates the numbers of incoming/outgoing IEEE 802.3x pause frames on the specified GE port. |
| Function Button | |
| Refresh | Click this button to refresh the List Table |
| Export | Click this button to save the contents of Trunk Port PM to the AMS client. |

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Chapter 6 Fault Management Functions

This chapter provides a general fault management overview and the corresponding AMS operational procedure.

6.1 Fault Management General Function

AMS supports the following fault management functions.

Alarm Definition Management

Through alarm definition management, operator can define (modify) the alarm severely level or even mask the particular alarm item, alarm definition is in profile form applied to every registered NEs.

Alarm Categories (Severity)

AMS collect and display the several categories of alarm and event message from the managed NEs in real-time, alarm categories defined as below:

- Critical alarm
- Major alarm
- Minor alarm
- Warning alert

Alarm Display

• Visible alarm – When any fault is encountered, it wills change icons in the network map and shelf view. AMS provided alarms/warnings information in the text form and indicated alerted by the alarm indications table with on-line logging capability to have total alarm visible of all NEs under it management, and prompt the EMS operator if there is an incoming alarm.

Alarm Trigger and Retrieving

- Alarm generated against the network is classified (such as Critical, Major, Minor, and Warning)
- Alarm filtering function is provided for the history alarms/warnings with categories, managed resources, location, severity type, and date-time of occurrences.
- Trouble shooting and trouble clearing functions are provided.
- The fault administrator functions are provided for the fault report, analysis, and storage rule, fault log and historical database and correction command in sequentially.
- Recognize all incoming alarm reports and correlate them according to the network layer (location) perspectives. The trail identifier of the effected trail has to be combined with the correlated alarms.

Alarm Information Storage in the Database

Every current and history alarms/warnings are stored in AMS Server database including categories, managed resources, location, originator type (slot-port), severity type, time of occurrences (received date and time, cleared date and time) and alarm description.

Alarm Processing

- All fault alarms due to the NE or environment are processed.
- Physical class include alarms occurred on GE interface, ADSL and SHDSL Line interface (Near end and Far end).
- Performance alarm includes threshold, performance degradation, excess of available resources, and congestion.

Fault Active and History Management

Every active and history alarms are stored in the database. The AMS supports to report them to operators in the form of statistic table. The operator can also retrieve the following fault

information via AMS client when required.

- Active alarms with it's severity
- Historical alarms with it's severity
- Summary of alarms with it's severity

Alarm List Sorting and Filtering Function

AMS supports the sorting of all alarm generated by selected object in alarm list form. It cover both active and historical alarms/events received from NE. The alarm list provides sufficient information such as location, NE name, NE object, alarm types, alarm severity, day and time of occurrence and so on.

Alarm Synchronization

AMS Client support alarm synchronizes to make the alarm information consistent between NE and AMS Server.

Fault Acknowledge

AMS Client support fault acknowledge function for operator annotate on active alarm list.

Fault Notification (To be released in the future)

Notification function offer the escalation of alarm to operator via sending E-mail, the trigger threshold can be configurable.

OAM Cell Test Function

F5 OAM End-to-End or Segment-to-Segment are support to verify the connection of PVC on subscribe side.

Ping and SNMP Test

AMS Client provides ping and SNMP diagnosis test to check the corresponding NE and path health, and notifies the result to the operator.

Subscriber MAC Collection

The AMS Client supports collection and displaying source MAC addresses information on a per subscriber port and ATM PVC basis.

xDSL Interface Fault Collection

The AMS Client supports collection and displaying of maintenance signal alarms/events such as LPR, LOS, LOF, and Link up/down for ADSL, LOS, LOF, and LOSW and Link up/down for SHDSL during data connections.

6.2 Overview of Environment Fault

AMS Client provides fault determination on environment and network; AMS Client is capable to display real-time status (Shelf view, Network view) and highlight the faults instantly in visible or audible notification.

6.2.1 Location and NE Status

Operator can view NE from Node List Box or Container Box, the icon colors present the alarm status of manage Location and NE, table below describes the meaning of possibility status.

| Symbol | (White) | (Green) | (Yellow) | (Orange) | (Red) |
|-------------|--------------------------|---------------------------------|-------------------------------|-------------------------------|----------------------------------|
| Description | Location in normal state | Location contains warning alert | Location contains minor alarm | Location contains major alarm | Location contains critical alarm |

Table 6-1 Location Alarm Status Symbol

Table 6-2 NE Alarm Status Symbol

| Symbol | 🕅 DAS4672 / 📮 DAS4192 (Green) | 巓 / 🚍 (Blue) | 🙀 / 🚍 (Yellow) |
|-------------|-------------------------------|----------------------------|-------------------------|
| Description | NE in normal state | NE contains warning alert | NE contains minor alarm |
| Symbol | Mi / Horange) | 🏹 / 🚍 (Red) | 🌃 / 🔁 (? Sign) |
| Description | NE contains major alarm | NE contains critical alarm | NE model mismatch |
| Symbol | 🕅 / 🔀 (X Sign) | | |
| Description | NE disconnected | | |

6.2.2 Shelf and Card Module Status

The shelf view represents the shelf and card module working status. The table below describes the meaning of each sign display on the shelf and card module object.

Table 6-3 Shelf and Card Module Status Symbol

| Shelf Card Module Symbol | (Grey) | ? | × |
|-----------------------------|--|--|---|
| Description | Normal Sign Shelf or Card module in normal status | ? Sign The define shelf/card module did not consist with actual module plugged in the NE | X Sign The shelf/card module is fail or define shelf/card module is not exist in the NE |

6.2.3 Subscriber Port and Trunk GE Port Status

The shelf view also represents the subscriber port and trunk GE port working status. The table below describes the meaning of each sign display on the shelf and card module object.

Table 6-4 Subscriber Port and Trunk GE Port Status Symbol

| Symbol | (Green) | (Blue) | O (Yellow) |
|-------------|---------------------------|------------------------------|---------------------------|
| Description | Port in normal state | Port contains warning alert | Port contains minor alarm |
| Symbol | Orange) | (Red) | |
| Description | Port contains major alarm | Port contains critical alarm | |

6.3 Alarm Data Handling

AMS allowed operator to define the alarm severity, polling time, and setup alarm notification criteria.

6.3.1 AMS Server SNMP Polling Time

Follow the subsequent procedure to configure the SNMP auto polling time between AMS Server and NE.

Click Tool \rightarrow NE Poll Settings on Main Menu to open the NE Poll Settings Dialog as shown in Figure 6-1. Table 6-5 depicts the related parameters.

Figure 6-1 NE Poll Setting Dialog

| D NE Poll Settings | × |
|-------------------------|---|
| -NE Poll Settings | |
| Poll Interval (minute): | |
| OK Close | |

Table 6-5 NE Poll Setting Dialog Description

| Field | Description |
|------------------------|--|
| NE Poll Settings | |
| Poll Interval (minute) | This indicates the interval between the AMS server polls the NE. |
| Function Button | |
| ОК | Click this button to apply the modification to NE. |

6.3.2 Alarm Synchronization

The communication link between the AMS server and NE may be break due to miscellaneous reason. Whenever the communication between the AMS and NE recovers, the operator should synchronize the alarm information of NE to make the alarm information consistent between the AMS server and NE.

Follow the subsequent procedure to perform the aforementioned task.

Click Maintenance \rightarrow Sync NE on Main Menu to Sync NE.

6.3.3 Alarm Severity Definition

AMS supports the alarm definition profile to define the alarm properties, such as alarm severity and suppressed of dependency. The operator is able to customize their alarm definition and apply it to all registered NEs.

Please refer to Section 4.7.7 for the modification of alarm severity.

6.3.4 Alarm Notification

Alarm notification supports operator to define notification report (escalation) by sending an E-mail to responder. Operator can choose the alarm types and threshold of continuous period of NE to trigger the report sending.

Follow the subsequent procedure to perform the aforementioned task.

- Step 1 Click IP DSLAM Manager → Applications → Administration Tools → Policies on Network Management Sub-window and click right mouse button to bring out the pop-up menu as shown in Figure 6-2.
- Step 2Select the Add Policy to open the Add Policy Details dialog as shown in Figure 6-3.
Table 6-6 depicts the related parameters.

Figure 6-2 Pop-Up Menu



Figure 6-3 Add Policy Details Dialog

| D-Link AddPolicy De | tails | × |
|---------------------|-------------------|---|
| Add Policy | | |
| Select Policy | EscalationPolicy | |
| Instance Name | EscalationPolicy1 | |
| | Add Close Help | |

| Field | Description |
|------------------------|--|
| Add Policy | |
| Select Policy | This indicates the category of policy. |
| Instance Name | This indicates the name of policy to be applied. |
| Function Button | |
| Add | Click this button to add a new profile. |
| Close | Click this button to close Add Policy Details Dialog |
| Help | Click this button to open the help documents. |

Table 6-6 Add Policy Details Dialog Description

6.4 Alarm Digital Input Function

NOTE

The NE support up to four digital input alarm relay facility, it has ability to connect to the third party equipment such as DC circuit breaker, rack temperature, fan status, UPS system or other equipment support alarm relay indicate output.

The relay input management allows the operator to define the alarm relay input and inspect the status of digital input that has used to connect to NE. Please see "*System Installation Guide*" for the definition. Once the normal status of input signal is different from the current status, the NE will launch an "abnormal status" alarm of the specified relay input to AMS server.

Follow the subsequent procedure to manage the relay input.

- Step 1Click Configuration \rightarrow Relay Input on Main Menu to open the NE Relay Input
Dialog as shown in Figure 6-4. Table 6-7 depicts the related parameters.
- **Step 2** Select a row and click '**Modify**' button to modify the setting of the relay input port as shown in Figure 6-5. Table 6-8 depicts the related parameters.

Please refer to Section 4.7.7 for the modification of alarm severity.

Figure 6-4 NE Relay Input List Dialog

| | | Configuration | n > Relay Input | |
|------------|------------------|----------------|-----------------|----------------|
| No. | Name | Current Status | Normal Status | Severity |
|) 1 | alarm1 | Open | Open | Normal |
| 0 2 | Not_Defined | Disable | Disable | |
| 03 | Not Defined | Disable | Disable | |
| 0 4 | Not Defined | Disable | Disable | |
| | Critical Major | Mage | Warning | |
| | Critical 🌙 Major | 🥥 Minor | Warning | Normal Oisable |
| | | Refresh Modify | Commit Export | |

Table 6-7 NE Relay Input List Dialog Description

| Field | Description |
|-----------------|---|
| List Table | |
| No. | This indicates the index of alarm relay input port. |
| Name | This indicates the name of replay input port. |
| Current Status | This indicates the current status of the specified relay input port. |
| Normal Status | This indicates the normal status of the specified relay input port that configured by operator. |
| Severity | This indicates the alarm severity while the status is abnormal. |
| Function Button | |
| Refresh | Click this button to refresh the List Table |
| Modify | Click this button to modify the parameters of selected replay input port. |
| Commit | Click this button to apply the setting to NE. |
| Export | Click this button to save the contents of NE Relay Input List to the AMS client. |

| lormal Stat | us | |
|--------------|------------------------------|--|
| Number: | 1 | |
| Name: | alarm1 | |
| | | |
| | | |
| elay Input : | Setting | |
| elay Input : | ⊖ Disable ⊖ Close ● Open | |

Figure 6-5 Modify NE Relay Input Dialog

Table 6-8 Modify NE Relay Input Dialog Description

| Field | Description |
|---------------------|--|
| Normal Status | |
| Number | This indicates the index of alarm relay input port. |
| Name | This gives a meaningful name to the specified relay input port. |
| Relay Input Setting | |
| Disable | Check this radio button to disable the specified relay input port. |
| Close | Check this radio button to define normal status of the specified relay input port to be "Close". I.e. the NE launches the corresponding SNMP trap whenever the external circuit is an opened circuit. |
| Open | Check this radio button to define normal status of the specified relay input port to be "Open". I.e. the NE launches the corresponding SNMP trap whenever the external circuit is a closed circuit. |

6.5 View and Analysis of Alarms

The AMS enable operator to identify faults or alarms generated by a NE. Whenever a fault occurs on a managed object in the network, the presence of an alarm will depict on the network objects.

The AMS processes supports the incoming alarm reports and supports to sort them by severity priority. Hence the operator can rapidly identify the alarm report he concerns.

Active alarm, history alarm, and summary alarm event display processing with location, NE name, NE object, alarm types, alarm severity, and timestamp of occurrence, received, and cleared.

6.5.1 Active Alarm Status

The real-time alarm monitoring can alert the operator the network faults. Levels of severity will prompt for proper handlings. With precise fault analysis, the operator can better pinpoint the trouble spots and work for speedy recovery.

Follow the subsequent procedure to observe the current node specific, card specific or port specific alarm information.
| Step 1 | Click \rightarrow Fault \rightarrow Active Alarm List on Main Menu to open the Node-Active Alarm |
|--------|--|
| | List dialog, or alternatively put the mouse on the NE frame region (Figure 3-9) and |
| | click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow Active |
| | Alarm List to open the Node-Active Alarm List dialog as shown in Figure 6-6. Table |
| | 6-9 depicts the definition of fields. |
| Or | |
| Step 1 | Put the mouse on the card module region (Figure 3-9) and click right mouse button to |
| | bring out the pop-up menu, select the Alarm \rightarrow Active Alarm List to open the |
| | Card-Active Alarm List dialog as shown in Figure 6-7. Table 6-9 depicts the |
| | definition of fields. |
| Or | |
| Step 1 | Put the mouse on a specific xDSL/GE port and click right mouse button to bring out the |
| - | pop-up menu, select the Alarm \rightarrow Active Alarm List to open the Port-Active Alarm |
| | List dialog as shown in Figure 6-8. Table 6-9 depicts the definition of fields. |
| | I |

Figure 6-6 Node-Active Alarm List Dialog

| | Fault > Active Alarm List | | | | | | | | | |
|----------|---------------------------------|---------------|-------|------------------------|------------------------------|--|--|--|--|--|
| 🏠 Node i | Alarms | | | | Total 196 From 126 To 175 | 5 Page Length 50 👻 🕼 🚺 🕖 | | | | |
| Status | Failure Object | Group | Owner | Occur Date 🔺 | Receive Date | Message | | | | |
| Warning | 10.12.3.112_LC3_Port35_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:51 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port5_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:38 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port13_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:43 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port6_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:39 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port25_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:47 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port7_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:39 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port33_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:51 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port8_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:39 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port42_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:55 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port9_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:40 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port37_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:53 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port10_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:41 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port29_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:49 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC3_Port12_DISABLED | 10.12.3.112 | | 2007/4/24 AM09?13:11 | Tue Apr 24 09:48:42 CST 2007 | The port is disabled | | | | |
| Major | 10.12.3.112 | 10.12.3.112 | | 2007-04-19 PM 05:20:39 | Thu Apr 19 17:20:14 CST 2007 | Node failure. This probably means one or more inte | | | | |
| Minor | 10.12.3.112_LC1_Port25_NO_PEER | . 10.12.3.112 | | 1970/1/15 AM10時48:20 | Thu Apr 26 11:27:35 CST 2007 | NO_PEER_DETECTED (G.997.1 Line Initialization F | | | | |
| Warning | 10.12.3.112_LC1_Port47_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:42 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port32_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:37 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port48_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:43 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port44_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:41 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port1_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:26 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port46_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:42 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port22_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:34 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port45_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:41 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port23_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:35 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port41_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:40 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port14_DISABLED | 10.12.3.112 | | 1970/1/15 AM10時00:00 | Thu Apr 26 11:27:31 CST 2007 | The port is disabled | | | | |
| Minor | 10.12.3.112_LC1_Port36_NO_PEER | . 10.12.3.112 | | 1970/1/15 AM10?48:20 | Thu Apr 26 11:27:38 CST 2007 | NO_PEER_DETECTED (G.997.1 Line Initialization F | | | | |
| Minor | 10.12.3.112_LC1_Port42_NO_PEER. | . 10.12.3.112 | | 1970/1/15 AM10?48:20 | Thu Apr 26 11:27:40 CST 2007 | NO_PEER_DETECTED (G.997.1 Line Initialization F | | | | |
| Minor | 10.12.3.112_LC1_Port35_NO_PEER | . 10.12.3.112 | | 1970/1/15 AM10?48:20 | Thu Apr 26 11:27:38 CST 2007 | NO_PEER_DETECTED (G.997.1 Line Initialization F | | | | |
| Minor | 10.12.3.112_LC1_Port18_NO_PEER | . 10.12.3.112 | | 1970/1/15 AM10?46:40 | Thu Apr 26 11:27:33 CST 2007 | NO_PEER_DETECTED (G.997.1 Line Initialization F | | | | |
| Warning | 10.12.3.112_LC1_Port17_DISABLED | 10.12.3.112 | | 1970/1/15 AM10?00:00 | Thu Apr 26 11:27:32 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.112_LC1_Port11_DISABLED | 10.12.3.112 | | 1970/1/15 AM10?00:00 | Thu Apr 26 11:27:30 CST 2007 | The port is disabled | | | | |

Figure 6-7 Card-Active Alarm List Dialog

| Device | Page | | | | | | | | | |
|---|----------------------------------|-------------|-------|------------------------|------------------------------|------------------------------------|--|--|--|--|
| | Fault > Active Alarm List | | | | | | | | | |
| د المراجع | | | | | | | | | | |
| Status | Failure Object | Group | Owner | Occur Date 🔺 | Receive Date | Message | | | | |
| Minor | 10.12.3.111_LC12_Port48_NOPEER | 10.12.3.111 | | 2000/10/10 AM08時03:25 | Mon Apr 30 19:19:19 CST 2007 | No peer detected | | | | |
| Minor | 10.12.3.111_LC12_Port42_NOPEER | 10.12.3.111 | | 2000/10/10 AM08時03:24 | Mon Apr 30 19:19:18 CST 2007 | No peer detected | | | | |
| Minor | 10.12.3.111_LC12_Port24_NOPEER | 10.12.3.111 | | 2000/10/10 AM08時03:24 | Mon Apr 30 19:19:15 CST 2007 | No peer detected | | | | |
| Major | 10.12.3.111_LC12_HW_INFO_INV | 10.12.3.111 | | 2000/10/10 AM08時02:43 | Mon Apr 30 19:19:10 CST 2007 | Hardware serial or version invaild | | | | |
| Warning | 10.12.3.111_LC12_Port22_DISABLED | 10.12.3.111 | | 2000/10/10 AM080 02:38 | Mon Apr 30 19:19:14 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.111_LC12_Port26_DISABLED | 10.12.3.111 | | 2000/10/10 AM080 02:38 | Mon Apr 30 19:19:15 CST 2007 | The port is disabled | | | | |
| Warning | 10.12.3.111_LC12_Port4_DISABLED | 10.12.3.111 | | 2000/10/10 AM080 02:38 | Mon Apr 30 19:19:11 CST 2007 | The port is disabled | | | | |

Figure 6-8 Port-Active Alarm List Dialog

| | | | I | ault > Active Alarm List | | |
|---------------|----------------|-------|-------|--------------------------|-------------------|--------------|
| | | | | | | |
| 👔 LC12_Port 2 | 5 Alarms | | | Total 0 From | 0 To 0 Page Lengt | h 25 💌 🕢 🐼 🐼 |
| Status | Failure Object | Group | Owner | Occur Date 🔺 | Receive Date | Message |

| Field | Description | | | |
|------------------------|--|--|--|--|
| Function Button | | | | |
| Total. | This indicates the total number of active alarms. | | | |
| From | This indicates the beginning serial number of active alarm to be shown on the list | | | |
| То | This indicates the end serial number of active alarm to be shown on the list | | | |
| Page Length | This indicates the total number of active alarms shown on the list. | | | |
| List Table | | | | |
| Status | This indicates the severity of the specified alarm/event. | | | |
| Failure Object | This indicates the location of alarm/event. It also describes the alarm in brief. | | | |
| Group | This indicates the IP address of NE. | | | |
| Owner | This indicates the responder assigned to handle this alarm. | | | |
| Occur Date | This indicates the time when the indicated alarm/event occurs at the NE. | | | |
| Receive Date | This indicates the time when the indicated alarm/event received by the AMS Server. | | | |

 Table 6-9
 Active Alarm List Dialog Description

Step 2 Put the mouse on one of the following tabs and click left mouse button to sort the active alarms accordingly. Figure 6-9 shows an example of sorting the active alarms by the failure object.

This indicates the description of alarm.

• Status

Message

- Failure Object
- Group
- Owner
- Occur Date
- Receive Date
- Message

Step 3Select an alarm/event from the List Table and click the right mouse button to open the
Pop-Up Menu as shown in Figure 6-10. Table 6-10 depicts the related parameters

Step 4 Click '**Detail**' button on the **Function Menu** to view the detail of a specific event as shown in Figure 6-11. Table 6-11 depicts the related parameters

Figure 6-9 Illustration of Sorted Node-Active Alarm List Dialog

| Device | Page | | | | | | | | | | | | | | |
|----------|---------------------------|-----------------------|-------------|-------|------------------------|-----|-------------|----------|--------|---------|-------------|---------|--------|---------|------------|
| | Fault > Active Alarm List | | | | | | | | | | | | | | |
| 👔 Node . | Alarms | Total 195 From | n 🗌 1 | т | o 25 | | Page Length | 25 | - | | | | | | |
| Statue | r I | Failure Object 💌 | Group | Owner | Occur Date | Ť | | Receiv | o Dote | . 1 | | | hio | eness | |
| Major | 10.12.3.11 | 2 | 10.12.3.112 | Owner | 2007-04-19 PM 05:20:39 | Thu | Apr 1 | 9 17:20: | 14 CE | T 2007 | Node failur | e. This | probab | ly mea | ns one of |
| Warning | 10.12.3.11 | 2 LC1 Port10 DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 19 CS | ST 2007 | The port is | disable | t | | |
| Warning | 10.12.3.11 | 2_LC1_Port11_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mol | n Apr 3 | 0 15:32 | 19 CS | 3T 2007 | The port is | disable | ł | | |
| Warning | 10.12.3.11 | 2_LC1_Port12_DISABLED | 10.12.3.112 | | 1970/1/12 PM01255:00 | Mor | n Apr 3 | 0 15:32 | 19 CS | ST 2007 | The port is | disable | d | | |
| Warning | 10.12.3.11 | 2_LC1_Port13_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55.00 | Mor | Apr 3 | 0 15:32 | 20 CS | GT 2007 | The port is | disable | d | | |
| Warning | 10.12.3.11 | 2_LC1_Port14_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 20 CS | ST 2007 | The port is | disable | đ | | |
| Warning | 10.12.3.11 | 2_LC1_Port15_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | Apr 3 | 015:32 | 20 C8 | ST 2007 | The port is | disable | đ | | |
| Warning | 10.12.3.11 | 2_LC1_Port16_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Moi | n Apr 3 | 015:32 | 20 C8 | GT 2007 | The port is | disable | d | | |
| Warning | 10.12.3.11 | 2_LC1_Port17_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 20 CS | GT 2007 | The port is | disable | t | | |
| Minor | 10.12.3.11 | 2_LC1_Port18_NO_PEER | 10.12.3.112 | | 1970/1/12 PM02?43:20 | Mo | n Apr 3 | 0 15:32 | 20 C8 | GT 2007 | NO_PEER | DETEC | TED (| 9.997.1 | Line Initi |
| Warning | 10.12.3.11 | 2_LC1_Port19_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mor | n Apr 3 | 015:32 | 21 C8 | GT 2007 | The port is | disable | t | | |
| Minor | 10.12.3.11 | 2_LC1_Port1_NO_PEER | 10.12.3.112 | | 1970/1/12 PM02?43:20 | Mo | n Apr 3 | 0 15:32 | 17 08 | ST 2007 | NO_PEER | DETEC | TED (| 9.997.1 | Line Initi |
| Warning | 10.12.3.11 | 2_LC1_Port20_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 015:32 | 21 C8 | GT 2007 | The port is | disable | d . | | |
| Warning | 10.12.3.11 | 2_LC1_Port21_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Moi | n Apr 3 | 0 15:32 | 21 C8 | GT 2007 | The port is | disable | d | | |
| Warning | 10.12.3.11 | 2_LC1_Port22_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 21 C8 | GT 2007 | The port is | disable | b | | |
| Warning | 10.12.3.11 | 2_LC1_Port23_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 21 C8 | 6T 2007 | The port is | disable | b | | |
| Minor | 10.12.3.11 | 2_LC1_Port24_NO_PEER | 10.12.3.112 | | 1970/1/12 PM02時43:20 | Moi | n Apr 3 | 0 15:32 | 21 C8 | ST 2007 | NO_PEER | DETEC | TED (| 9.997.1 | Line Initi |
| Warning | 10.12.3.11 | 2_LC1_Port26_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Moi | n Apr 3 | 0 15:32 | 22 08 | GT 2007 | The port is | disable | đ | | |
| Warning | 10.12.3.11 | 2_LC1_Port27_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 015:32 | 22 C8 | GT 2007 | The port is | disable | d | | |
| Minor | 10.12.3.11 | 2_LC1_Port28_NO_PEER | 10.12.3.112 | root | 1970/1/12 PM02?43:20 | Moi | n Apr 3 | 0 15:32 | 22 08 | ST 2007 | NO_PEER | DETEC | TED (| 9.997.1 | Line Initi |
| Minor | 10.12.3.11 | 2_LC1_Port29_NO_PEER | 10.12.3.112 | | 1970/1/12 PM02?45:00 | Mol | n Apr 3 | 0 15:32 | 22 C8 | GT 2007 | NO_PEER | _DETEC | TED (| 9.997.1 | Line Initi |
| Minor | 10.12.3.11 | 2_LC1_Port2_NO_PEER | 10.12.3.112 | | 1970/1/12 PM02時43:20 | Moi | n Apr 3 | 0 15:32 | 17 08 | GT 2007 | NO_PEER | DETEC | TED (| 9.997.1 | Line Initi |
| Warning | 10.12.3.11 | 2_LC1_Port30_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mol | n Apr 3 | 0 15:32 | 22 C8 | GT 2007 | The port is | disable | đ | | |
| Warning | 10.12.3.11 | 2_LC1_Port31_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mo | n Apr 3 | 0 15:32 | 22 08 | 6T 2007 | The port is | disable | d | | |
| Warning | 10.12.3.11 | 2_LC1_Port32_DISABLED | 10.12.3.112 | | 1970/1/12 PM01?55:00 | Mor | n Apr 3 | 0 15:32 | 23 C8 | GT 2007 | The port is | disable | b | | |
| | | | | | | | | | | | | | | | |

Figure 6-10 Active Alarm List Dialog - Pop-Up Menu

| Fault > Active Alarm List | | | | | | | | | |
|---------------------------|-------------------------------------|---------------|-------|----------------------------------|------------------------------|------------------------------------|--|--|--|
| 👔 Node / | larms | | | Total | 195 From 1 To 50 | Page Length 50 🔻 🚳 🚳 🕢 🚺 | | | |
| Status | Failure Object | Group | Owner | Occur Date 🔺 | Receive Date | Message | | | |
| Warning | 10.12.3.112_LC4_Port14_DISABLED | 10.12.3.112 | | 2007/4/30 PM118 25:20 | Mon Apr 30 15:32:33 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port12_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25:20 | Mon Apr 30 15:32:33 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port23_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port46_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25:20 | Mon Apr 30 15:32:37 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port43_DISABLED | 10.12.3.112 | | 2007/4/30 PM118 25:20 | Mon Apr 30 15:32:37 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port45_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25:20 | Mon Apr 30 15:32:37 CST 2007 | The port is disabled Dear Up | | | |
| Warning | 10.12.3.112_LC4_Port44_DISABLED | 10.12.3.112 | | 2007/4/30 PM118 25:20 | Mon Apr 30 15:32:37 OCT 2007 | The pertie disabled Menu | | | |
| Warning | | | | 2007/4/30 PM11時2 5 ⁰⁷ | Mon Apr 30 15:32:30 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port23_DISABLED | 10.12.3.112 | | 2007/4/30 PM118925: Details | Mon Apr 30 15:32:28 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port2_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25: Delete | Mon Apr 30 15:32:25 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port24_DISABLED | 10.12.3.112 | | 2007/4/30 PM118 25: Clear | Mon Apr 30 15:32:29 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port4_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25: | Mon Apr 30 15:32:26 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port27_DISABLED | 10.12.3.112 | | 2007/4/30 PM118925: | Mon Apr 30 15:32:29 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port26_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25: UnPick | Mon Apr 30 15:32:29 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port30_DISABLED | 10.12.3.112 | | 2007/4/30 PM118925: Annotate | Mon Apr 30 15:32:29 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port37_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時26:07 | Mon Apr 30 15:32:30 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port31_DISABLED | 10.12.3.112 | | 2007/4/30 PM118925:07 | Mon Apr 30 15:32:29 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port19_DISABLED | 10.12.3.112 | | 2007/4/30 PM11時25:07 | Mon Apr 30 15:32:28 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC2_Port33_DISABLED | 10.12.3.112 | | 2007/4/30 PM118 25:07 | Mon Apr 30 15:32:30 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_RelayInputCard_RelayIn. | . 10.12.3.112 | | 2007/4/30 PM11時24:24 | Mon Apr 30 15:32:38 CST 2007 | The alarm relay port is disabled | | | |
| Warning | 10.12.3.112_RelayinputCard_Relayin | . 10.12.3.112 | | 2007/4/30 PM118924:24 | Mon Apr 30 15:32:38 CST 2007 | The alarm relay port is disabled | | | |
| Major | 10.12.3.112_NC_HW_INFO_INV | 10.12.3.112 | | 2007/4/30 PM11?25:32 | Mon Apr 30 15:32:37 CST 2007 | Hardware serial or version invaild | | | |
| Warning | 10.12.3.112_LC4_Port9_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:32 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port21_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port22_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port25_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port24_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port1_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:31 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port26_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port3_DISABLED | 10.12.3.112 | | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:31 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port27_DISABLED | 10.12.3.112 | root | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:34 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_I.C4_Port5_DISABLED | 10123112 | | 2007/4/30 PM11225 20 | Mon Apr 30 15:32:32 CST 2007 | The port is disabled | | | |
| Warning | 10.12.3.112_LC4_Port28_DISABLED | 10.12.3.112 | root | 2007/4/30 PM11?25:20 | Mon Apr 30 15:32:35 CST 2007 | The port is disabled | | | |

| Field | Description |
|------------------------|---|
| Function Button | |
| Details | Click this button to display the detail information of the specified alarm. |
| Delete | Click this button to delete the selected object. |
| Clear | Click this button to delete the selected object. |
| Pick Up | Click this button to let the operator be in charge of this alarm. Once the operator picks up the alarm, the operator's account name will appear in the corresponding owner field of the Active Alarm List Dialog . |
| UnPick | Click this button to release the operator from handling this alarm. As a result, the corresponding owner field becomes blank. |
| Annotate | Click this button to make notes to the alarm/event. |

Table 6-10 Active Alarm List Dialog - Pop-Up Menu Description

Figure 6-11 Detailed Alarm Dialog

| lessage: | Node failure. This prot | oably means one | or more inter | aces have failed. | |
|----------------|-------------------------|-----------------|---------------|------------------------------|-------|
| ailure Object: | 10.12.3.112 | | Source: | 10.12.3.112 | |
|)wner: | | | Category: | Topology | |
| reated: | Thu Apr 19 17:20:14 C | ST 2007 | Modified: | Thu Apr 19 17:20:39 CST 2007 | |
| Froup: | 10.12.3.112 | Severity: | Majo | r Previous Severity: | Minor |
| | | | | | |
| | | | | | |
| Annotation fo | r this alarm | | | | |
| Annotation fo | r this alarm———— | | | | |

| | • | | |
|---------------------------|---|--|--|
| Field | Description | | |
| Alarm Information | | | |
| Message | This indicates the description of alarm. | | |
| Failure Object | This indicates the location of alarm/event. It also describes the alarm in brief. | | |
| Source | This indicates the IP address of NE. | | |
| Owner | This indicates the responder assigned to handle this alarm. | | |
| Category | This indicates the alarm type | | |
| Created | This indicates the time when the indicated alarm/event received by the AMS Server. | | |
| Modified | This indicates the time when the indicated alarm/event was picked up or annotated by the operator | | |
| Group | This indicates the IP address of NE. | | |
| Severity | This indicates the severity of the specified alarm/event. | | |
| Previous Severity | This indicates the previous severity of the specified alarm/event. | | |
| History for this alarm | This indicates the history of this alarm | | |
| Annotation for this alarm | This indicates the noted information. | | |
| Function Button | | | |
| Pick Up | Click this button to let the operator be in charge of this alarm. Once the operator picks up the alarm, the operator's account name will appear in the corresponding owner field of the Active Alarm List Dialog . | | |
| Annotate | Click this button to make notes to the alarm/event. | | |
| Delete | Click this button to delete the selected object. | | |
| Clear | Click this button to delete the selected object. | | |
| Close | Click this button to close Detailed Alarm Dialog. | | |

Table 6-11Detailed Alarm Dialog Description

6.5.2 History Alarm Status

AMS server stores all the received alarms and is capable to provide historical alarm data for further analysis. For every alarm, AMS will generate the historical alarm details to present network status.

Follow the subsequent procedure to observe the historical node specific, card specific or port specific alarm information.

| Step 1 | Click \rightarrow Fault \rightarrow History Alarm List on Main Menu to open the Node-History Alarm List dialog, or alternatively put the mouse on the NE frame region (Figure 3-9) and click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow History Alarm List to open the Node-History Alarm List dialog as shown in Figure 6-12. Table 6-12 depicts the definition of fields. |
|--------|--|
| Or | • |
| Step 1 | Put the mouse on the card module region (Figure 3-9) and click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow History Alarm List to open the Card-History Alarm List dialog. |
| Or | |
| Step 1 | Put the mouse on the a specific xDSL/GE port and click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow History Alarm List to open the Port-History Alarm List dialog. |

Figure 6-12 History Alarm List

| t Node Events | | | Total 3719 From 1 To 25 Page Length 25 | |
|---------------|------------------------|-----------------------|---|--|
| Status | Source | Occur Time 🔺 | Message | |
| Clear | 10.12.3.112_LC2_Port11 | 1970/1/25 AM08時20:00 | Clear Loss of signal | |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM08時20:00 | NO_PEER_DETECTED (0.997.1 Line Initialization Failure | |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM07時33:20 | CPE loss of power | |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM07時20:00 | Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時40:00 | Clear Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM040 40:00 | Clear Port is under training | |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Clear CPE loss of power | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Clear NO_PEER_DETECTED (G.997.1 Line Initialization Failu | |
| Warning | 10.12.3.112_LC1_Port25 | 1970/1/17 AM040 23:20 | Port is under training | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/16 PM08時56:40 | Clear Loss of signal | |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/16 PM08時56:40 | NO_PEER_DETECTED (G.997.1 Line Initialization Failure | |
| | 10.12.3.112_LC1_Port25 | 1970/1/16 PM08時08:20 | CPE loss of power | |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/16 PM070956:40 | Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時51:40 | Clear Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時51:40 | Clear Port is under training | |
| Warning | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時35:00 | Port is under training | |
| Clear | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?15:05 | Clear Loss of signal | |
| Minor | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?15:05 | NO_PEER_DETECTED (G.997.1 Line Initialization Failure | |
| Clear | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?14:30 | Clear NO_PEER_DETECTED (G.997.1 Line Initialization Failu | |
| Minor | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?14:30 | Loss of signal | |
| Clear | 10.12.3.112_LC1_Port25 | 2007/4/30 PM11?30:21 | Clear Loss of Frame | |
| Clear | 10.12.3.112_NC_GE2 | 2007/4/30 PM11?24:24 | Clear GE port is disabled | |
| Warning | 10.12.3.112_NC_GE2 | 2007/4/30 PM 11?24:24 | GE port is disabled | |
| | 10.10.0 M 0 0 0 0 | 2007/4/20 AM09222:10 | Olean OE northin disabled | |

Table 6-12 History Alarm List Description

| Field | Description |
|-------------------|--|
| Function Button | |
| Total. | This indicates the total number of historical alarms. |
| From | This indicates the beginning serial number of historical alarm to be shown on the list |
| То | This indicates the end serial number of historical alarm to be shown on the list |
| Page Length | This indicates the total number of historical alarms shown on the list. |
| Alarm Information | |
| Status | This indicates the severity of the specified alarm/event. |
| Source | This indicates the IP address of NE. |
| Occur Time | This indicates the time when the indicated alarm/event occurs at the NE. |
| Message | This indicates the description of alarm. |

Step 2 Put the mouse on one of the following **tabs** and click left mouse button to sort the historical alarms accordingly. Figure 6-13 shows an example of sorting the active alarms by the status.

- Status
- Source
- Occur Time
- Message
- **Step 3** Select an alarm/event from the List Table and click the right mouse button to open the **Pop-Up Menu** as shown in Figure 6-14.

Step 4 Click '**Detail**' button on the **Function Menu** to view the detail of a specific event as shown in Figure 6-15. Table 6-13 depicts the related parameters.

| Fault > History Alarm List | | | | | | | |
|----------------------------|------------------------|------------------------|---|--|--|--|--|
| + Node Events | Tc | otal 3597 From 1 | Fo 25 Page Length 25 🔻 🚳 🍩 🕢 | | | | |
| Status 🔺 | Source | Occur Time | Message | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/23 PM02?40:00 | Clear ADSL2/ADSL2+ Power State transfers to L3 by CO side | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/13 AM04?33:20 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port23 | 1970/1/3 PM02?06:40 | Clear Port is not configured | | | | |
| Clear | 10.12.3.112_LC1_Port10 | 1970/1/2 AM11?01:40 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port39 | 1970/1/3 AM02?08:20 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/6 PM12?43:20 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port46 | 1970/1/4 PM09?01:40 | Clear The port is disabled | | | | |
| Clear | IF-10.12.3.112 | 2007-04-26 PM 03:14:22 | Interface clear. | | | | |
| Clear | 10.12.3.112_LC1_Port28 | 1970/1/6 PM06?10:00 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port40 | 1970/1/3 PM02?06:40 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/10 AM06?35:00 | Clear Loss of signal | | | | |
| Clear | 10.12.3.112_LC1_Port10 | 1970/1/3 AM02?08:20 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port22 | 1970/1/2 PM05?05:00 | Clear Port is not configured | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/22 PM06?46:40 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/6 AM09?01:40 | Clear Loss of signal | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/13 AM04?50:00 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port22 | 1970/1/1 PM02?53:20 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port41 | 1970/1/6 AM07?45:00 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/10 AM06?35:00 | Clear Port is under training | | | | |
| Clear | 10.12.3.112_LC1_Port41 | 1970/1/12 PM01?55:00 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port28 | 1970/1/2 AM11?50:00 | Clear Loss of signal | | | | |
| Clear | 10.12.3.112_LC1_Port2 | 1970/1/6 AM11?36:40 | Clear Port is not configured | | | | |
| Clear | 10.12.3.112_LC1_Port20 | 1970/1/3 AM02?08:20 | Clear The port is disabled | | | | |
| Clear | 10.12.3.112_LC1_Port41 | 1970/1/3 PM02?06:40 | Clear Port is not configured | | | | |
| Clear | 10.12.3.112 LC1 Port1 | 1970/1/3 AM02?08:20 | Clear Port is not configured | | | | |

Figure 6-13 Illustration of Sorted Node-History Alarm List Dialog

Figure 6-14 History Alarm List Dialog - Pop-Up Menu

| + Node Events | | | Total 3719 From 1 To 25 Page Length 26 💌 💷 🕢 |
|---------------|------------------------|-------------------------|---|
| Status | Source | Occur Time 🔺 | Message |
| Clear | 10.12.3.112_LC2_Port11 | 1970/1/25 AM08時20:00 | Clear Loss of signal |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM088 20:00 | NO_PEER_DETECTED (G.997.1 Line Initialization Failure |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM07時33:20 | CPE loss of power |
| Minor | 10.12.3.112_LC2_Port11 | 1970/1/25 AM07時20:00 | Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時40:00 | Clear Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時40:00 | Clear Port is under training |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Clear CPE loss of power |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Clear NO_PEER_DETECTED (G.997.1 Line Initialization Failu |
| Warning | 10.12.3.112_LC1_Port25 | 1970/1/17 AM04時23:20 | Port is under training |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/16 PM08時56:40 | Clear Loss of signal Henu |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/16 PM08時56:40 | NO_PEER_DETECTED (G.997.1 Line Initialization Failure |
| | 10.12.3.112_LC1_Port25 | 1970/1/16 PM080 08:20 | CPE loss of power |
| Minor | 10.12.3.112_LC1_Port25 | 1970/1/16 Details Alt-D | Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時51:40 | Clear Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時51:40 | Clear Port is under training |
| Warning | 10.12.3.112_LC1_Port25 | 1970/1/15 PM03時35:00 | Port is under training |
| Clear | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?15:05 | Clear Loss of signal |
| Minor | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?15:05 | NO_PEER_DETECTED (G.997.1 Line Initialization Failure |
| Clear | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?14:30 | Clear NO_PEER_DETECTED (G.997.1 Line Initialization Failu |
| Minor | 10.12.3.112_LC1_Port1 | 2007/5/1 AM01?14:30 | Loss of signal |
| Clear | 10.12.3.112_LC1_Port25 | 2007/4/30 PM11?30:21 | Clear Loss of Frame |
| Clear | 10.12.3.112_NC_GE2 | 2007/4/30 PM11?24:24 | Clear GE port is disabled |
| Warning | 10.12.3.112_NC_GE2 | 2007/4/30 PM 11?24:24 | GE port is disabled |
| Olean | 10.12.3.112 NC GE2 | 2007/4/30 AM09?23:10 | Clear GE port is disabled |

| Index | 35438 | |
|----------------|----------------------------|--|
| Severity | Minor | |
| Message | Loss of signal | |
| Category | LOS | |
| Domain | | |
| Network | | |
| Node | 10.12.3.112 | |
| Failure Object | 10.12.3.112_LC1_Port25_LOS | |
| Source | 10.12.3.112_LC1_Port25 | |
| Help URL | | |
| Date/Time | 1970/1/16 PM07時56:40 | |
| Group Name | 10.12.3.112 | |
| IP DSLAM EMS | I CT1176973771515 | |

Figure 6-15 Event Details

Table 6-13 Event Details Description

| Field | Description |
|-------------------|--|
| Alarm Information | · |
| Index | This indicates a unique ID of generated event. |
| Severity | This indicates the severity of the specified alarm/event. |
| Message | This indicates the description of alarm. |
| Category | This indicates the alarm type |
| Domain | This indicates any domain-specific information based on physical location, functional categorization, or logical categorization of the source of the event. |
| Network | This indicates the network to which the source of the event belongs is specified here. |
| Node | This indicates the IP address of NE. |
| Failure Object | This indicates the location of alarm/event. It also describes the alarm in brief. |
| Source | This indicates the location of alarm/event |
| Help URL | This indicates the URL of the help document related to the event, which is reached through the "Help" button at the bottom of the event details sheet. |
| Date/Time | This indicates the time when the indicated alarm/event occurs at the NE. |
| Group Name | This indicates a group name, based on which events are grouped in the client. In other words, the group name of the event under which there are one or many events grouped together. |
| IP DSLAM EMS | This indicates a unique location ID to which the source of the event belongs. |

6.5.3 History Alarm Statistics

History alarm statistics function collect the total alarms occurred on particular object in severity, it helps operator to analysis the fault easier.

Follow the subsequent procedure to observe the historical node specific, card specific or port specific alarm statistics.

Click \rightarrow Fault \rightarrow History Alarm Statistics on **Main Menu** to open the **Node-History Alarm List** dialog, or alternatively put the mouse on the NE frame region (Figure 3-9) and click right mouse button to bring out the pop-up menu, select the **Alarm** \rightarrow **History Alarm** Statistics to open the **Node- History Alarm** Statistics **List** dialog as shown in Figure 6-16. Table 6-14 depicts the definition of fields.

Or

Put the mouse on the card module region (Figure 3-9) and click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow History Alarm Statistics to open the **Card-History Alarm** Statistics **List** dialog.

Or

Put the mouse on the a specific xDSL/GE port and click right mouse button to bring out the pop-up menu, select the Alarm \rightarrow History Alarm Statistics to open the **Port-History Alarm** Statistics List dialog.

Figure 6-16 History Alarm Statistics List Dialog

| Fault > History Alarm Statistics | | | |
|----------------------------------|----------------|-----|--|
| Port | Statistics | | |
| LC1-1 | 60 | | |
| LC1-2 | 51 | 193 | |
| LC1-3 | 24 | | |
| LC1-4 | 24 | | |
| LC1-5 | 22 | | |
| LC1-6 | 22 | | |
| LC1-7 | 22 | | |
| LC1-8 | 22 | | |
| LC1-9 | 22 | | |
| LC1-10 | 22 | | |
| LC1-11 | 22 | | |
| LC1-12 | 22 | | |
| LC1-13 | 22 | | |
| LC1-14 | 24 | | |
| LC1-15 | 24 | | |
| LC1-16 | 22 | | |
| LC1-17 | 22 | | |
| LC1-18 | 121 | | |
| LC1-19 | 22 | | |
| I C1-20 | 22 | | |
| 101-21 | 22 | | |
| 1 C1-22 | 22 | | |
| 1 C1+23 | 22 | | |
| 1 C1-24 | 121 | | |
| 101-25 | 211 | | |
| 1.01-26 | 22 | | |
| 1 C1-27 | 22 | | |
| 101-28 | 69 | | |
| I C1-29 | 69 | | |
| 101-30 | 32 | | |
| 10.3 | 22 | | |
| 101-32 | 22 | | |
| 101-33 | 22 | | |
| 1 C1-34 | 22 | | |
| 101-35 | 40 | | |
| 1 C1 36 | 43 | | |
| 1 C1 37 | 70 99 | | |
| 1 C1 39 | 22 30 | | |
| 101.39 | 22 | | |
| 101-40 | 22 | | |
| 10140 | 22 | | |
| | 100 | | |
| LCI-42 | 105 | | |
| | Refresh Export | | |

Table 6-14 History Alarm Statistics List Description

| Field | Description |
|-------------------|--|
| Alarm Information | |
| Port | This indicates the location where the alarm occurred. |
| Statistics | This indicates the number of alarms/event occurred on the indicated port. |
| Function Button | |
| Refresh | Click this button to refresh the List Table. |
| Export | Click this button to save the contents of History Alarm Statistics to the AMS client. |

6.6 NE Hardware Status Diagnosis

In the hardware monitoring list dialog, you can monitor the temperature and voltage status of any specific card module.

Step 1 Click Status → Hardware Monitoring on Main Menu to open the Hardware Monitoring List Dialog as shown in Figure 6-17. Table 6-15 depicts the related parameters.

| Temp | erature Hig | h Threshold: | | 95 | | |
|-------|-------------|---|---------------|-----------------|---------------|----------------|
| Temp | erature Lov | v Threshold: | | 5 | | Subm |
| □ At | uto-Refresh | Period(sec): | | 15 | | J |
| No. | Slot | Name | Current Value | Reference Value | Threshold-Low | Threshold-High |
| 1 | LC1 | Voltage sensor1 (0.01 voltage) | 1184 | 1200 | 1087 | 1318 |
| 2 | LC1 | Voltage sensor2 (0.01 voltage) | 118 | 120 | 107 | 131 |
| 3 | LC1 | Voltage sensor3 (0.01 voltage) | 177 | 180 | 163 | 197 |
| 4 | LC1 | Voltage sensor4 (0.01 voltage) | 314 | 320 | 288 | 351 |
| 5 | LC1 | Voltage sensor5 (0.01 voltage) | 0 | 0 | 0 | 0 |
| 6 | LC1 | Voltage sensor6 (0.01 voltage) | 146 | 150 | 135 | 163 |
| 7 | LC1 | Voltage sensor7 (0.01 voltage) | 249 | 250 | 227 | 275 |
| 8 (| LC1 | Voltage sensor8 (0.01 voltage) | 314 | 320 | 288 | 351 |
| 9 | LC1 | Temperature sensor1 (1 degree centigrade) | 35 | 0 | 5 | 95 |
|) 10 | LC1 | Temperature sensor2 (1 degree centigrade) | 35 | 0 | 5 | 95 |
| 11 | LC1 | Temperature sensor3 (1 degree centigrade) | 33 | 0 | | 95 |
|) 12 | LC1 | Temperature sensor4 (1 degree centigrade) | 30 | 0 | <u></u> | 95 |
|) 13 | LC4 | Voltage sensor1 (0.01 voltage) | 1171 | 1200 | 1087 | 1318 |
| 14 | LC4 | Voltage sensor2 (0.01 voltage) | 117 | 120 | 107 | 131 |
| 15 | LC4 | Voltage sensor3 (0.01 voltage) | 177 | 180 | 163 | 197 |
|) 16 | LC4 | Voltage sensor4 (0.01 voltage) | 309 | 320 | 288 | 351 |
| 17 | LC4 | Voltage sensor5 (0.01 voltage) | 0 | 0 | 0 | 0 |
|) 18 | LC4 | Voltage sensor6 (0.01 voltage) | 148 | 150 | 135 | 163 |
|) 19 | LC4 | Voltage sensor7 (0.01 voltage) | 249 | 250 | 227 | 275 |
| 20 | LC4 | Voltage sensor8 (0.01 voltage) | 312 | 320 | 288 | 351 |
| 21 | LC4 | Temperature sensor1 (1 degree centigrade) | 41 | 0 | 5 | 95 |
| 22 | LC4 | Temperature sensor2 (1 degree centigrade) | 40 | 0 | 5 | 95 |
| 23 | LC4 | Temperature sensor3 (1 degree centigrade) | 37 | 0 | | 95 |
| 24 | LC4 | Temperature sensor4 (1 degree centigrade) | 32 | 0 | 222 | 95 |
| 25 | NC | Voltage sensor1 (0.01 voltage) | 248 | 250 | 225 | 275 |
| 26 | NC | Voltage sensor2 (0.01 voltage) | 124 | 150 | 113 | 136 |
| 27 | NC | Voltage sensor3 (0.01 voltage) | 178 | 180 | 163 | 197 |
| 28 | NC | Voltage sensor4 (0.01 voltage) | 325 | 330 | 299 | 361 |
| 29 | NC | Temperature sensor1 (1 degree centigrade) | 39 | 0 | 5 | 95 |
| 30 | NC | Temperature sensor2 (1 degree centigrade) | 35 | 0 | 5 | 95 |
| 31 | NC | Temperature sensor3 (1 degree centigrade) | 31 | 0 | | 95 |
| 32 | Fan | Fan1 Rotation Speed (rpm) | 3510 | 0 | 2880 | 4320 |
| 33 | Fan | Fan2 Rotation Speed (rpm) | 3510 | 0 | 2880 | 4320 |
|) 34 | Fan | Fan Module Voltage (0.01 voltage) | 494 | 500 | 452 | 548 |

Figure 6-17 Hardware Monitoring List Dialog

 Table 6-15
 Hardware Monitoring List Dialog Description

| Field | Description |
|----------------------|---|
| List Table | |
| No. | This indicates the serial number of entry of the List Tale. |
| Slot | This indicates the location of line card or other card model. |
| Name | This indicates the name of sensor. |
| Current Value | This indicates the current value of the specified sensor. |
| Reference Value | This indicates the normal value of the specified sensor. |
| Threshold – Low/High | This indicates the low-high threshold value of the specified sensor. |
| Function Button | |
| Submit | Click this button to apply the setting to NE. |
| Refresh | Click this button to refresh the table list. |
| Export | Click this button to save the contents of Hardware Monitoring List to the AMS client. |

The AMS supports the following xDSL service status related diagnosis functions.

- Bridge Filtering Database
- VLAN Membership
- xDSL MAC Spoofing Statu
- Multicast Channel Status
- Multicast Group Membership

6.7.1 Bridge Filtering Database

The filtering database (FDB) displays the status of MAC address recorded in the line card on a per PVC basis.

Click Status \rightarrow Bridge Filtering Database on **Main Menu** to open the **Filtering Database Entry** List Dialog as shown in Figure 6-18. Table 6-16 depicts the related parameters.

Figure 6-18 Bridge Filtering Database Entry List Dialog

| Port 43 | VPI | VCI 35 35 | MAC Address 00-00-00-00-00-00 00-00-00-00-00-0a | Status mgmt-förbid learned-unique |
|---------------------------|-----|-----------------|---|---|
| Slot-Port 8 3 8 3 8 | VPI | VCI 35 35 | MAC Address 00-00-00-00-00-00 00-00-00-00-00-0a | Status mgmt-forbid learned-unique |
| 3 8 3 8 | | 35 35 | 00-00-00-00-00-00 00-00-00-00-00-0a | mgmt-forbid learned-unique |
| 3 8 | | 35 | 00-00-00-00-00-0a | learned-unique |
| | | | | |
| | | | A | |
| | | | | γQ. |

Table 6-16

Bridge Filtering Database Entry List Dialog Description

| Field | Description | |
|-------------|--|--|
| List Table | | |
| No. | This indicates the serial number of entry of the List Table. | |
| Slot-Port | This indicates the location of xDSL port. | |
| VPI | This indicates the VPI of the specified entry. | |
| VCI | This indicates the VCI of the specified entry. | |
| MAC Address | This indicates the MAC address of the specified entry. | |

| Field | Description |
|------------------------|--|
| Status | This indicates the reason the MAC address appears in this entry. The definitions of status are as follows. |
| | • Learned-unique: It indicates the MAC address is dynamically learned by the NE and is an unique one. |
| | • Learned-spoofed-inactive: It indicates the MAC address is dynamically learned by the NE and but already appears on some other subscriber port of the NE. Hence, the NE does not forward this subscriber's upstream Ethernet frame of the identical source MAC address. |
| | • Mgmt-permit: It indicates the MAC address is manually set for the NE to forward the upstream Ethernet frame of the identical source MAC address. |
| | • Mgmt-forbid: It indicates the MAC address is manually set for the NE to drop the upstream Ethernet frame of the identical source MAC address. |
| Function Button | |
| Refresh | Click this button to refresh the list table. |
| Export | Click this button to save the contents of Filtering Database Entry List to the AMS client. |

Table 6-16 Bridge Filtering Database Entry List Dialog Description (Continued)

6.7.2 VLAN Membership

The VLAN membership displays the list of xDSL ports belonging to a VLAN of particular VLAN ID.

Click Status \rightarrow VLAN Membership on Main Menu to open the VLAN Membership List Dialog as shown in Figure 6-19. Table 6-17 depicts the related parameters.



Figure 6-19 VLAN Membership List Dialog

| Field | Description | |
|------------------------|---|--|
| List Table | | |
| Slot | This indicates the location of line card. | |
| Port-List | This indicates the location of xDSL port. The blue point indicates that the corresponding port is a member port of a VLAN of the specified VLAN ID. | |
| VLAN ID | This specifies the VLAN ID of the VLAN to show its members ports. Change the VLAN ID by clicking VLAN ID value with left button on mouse. | |
| Function Button | | |
| Refresh | Click this button to refresh the VLAN Membership List Dialog | |
| Export | Click this button to save the contents of VLAN Membership List to the AMS client. | |

Table 6-17 VLAN Membership List Dialog Description

6.7.3 xDSL MAC Spoofing Status

The xDSL MAC Spoofing displays the duplicate MAC address from two or more individual xDSL subscriber ports.

Click Status \rightarrow MAC Spoofing Status on **Main Menu** to open the **MAC Spoofing Status List** Dialog as shown in Figure 6-20. Table 6-18 depicts the related parameters.

Figure 6-20 MAC Spoofing Status List Dialog

| Status > MAC Spoofing Status | | | | | |
|------------------------------|-----------|---------|--------|-------------|--------|
| Spoofed MAC Address: | none | • | | | |
| No. | Slot-Port | VPI | VCI | MAC Address | Status |
| | | | | | |
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| | | | | | |
| | | Refresh | Export | | |

| Field | Description | |
|------------------------|--|--|
| Spoofed MAC Address | This displays the current spoofed MAC address. | |
| List Table | | |
| No. | This indicates the serial number of entry of the List Table. | |
| Slot-Port | This indicates the location of xDSL port where the spoofed MAC address is observed. | |
| VPI | This indicates the VPI of the PVC where the spoofed MAC address is observed. | |
| VCI | This indicates the VCI of the PVC where the spoofed MAC address is observed. | |
| MAC Address | This indicates the spoofed MAC address | |
| Status | This indicates the current status of the recorded MAC address. The definition of possible statuses is as follows. | |
| | • Learned-unique: It indicates the MAC address is dynamically learned by the NE and is an unique one. | |
| | • Learned-spoofed-inactive: It indicates the MAC address is dynamically learned by the NE and but already appears on some other subscriber port of the NE. Hence, the NE does not forward this subscriber's upstream Ethernet frame of the identical source MAC address. | |
| Function Button | | |
| Refresh | Click this button to refresh the Spoofed MAC Address list. | |
| Export | Click this button to save the contents of Spoofed MAC Address List to the AMS client. | |

Table 6-18 MAC Spoofing Status List Dialog Description



Whenever the NE detects spoofed MAC address, the NE launches a SNMP traps to the SNMP trap managers as specified by the procedure in Section 4.14.1 "Configuring the SNMP Trap Manager".

6.7.4 Multicast Channel Status

Whenever the subscriber clicks his remote controller to watch a TV channel transmitted via the ADSL line, the set-top-box sends the corresponding IGMP report packet. The NE inspects the received IGMP report packet to check whether its multicast IP hits the associated multicast service profile (MSP) or not. If the multicast IP hits the associated MSP, the NE forwards the IGMP packet. In the meantime, the NE also records the multicast IP in the **Multicast Channel Status List** s shown in Figure 6-21. Refer the related information to the section "Multicast Service Profile" in Section 4.7.5.

Click Status \rightarrow Multicast Channel Status on **Main Menu** to open the **Multicast Channel Status** List Dialog as shown in Figure 6-21. Table 6-19 depicts the related parameters.



 Table 6-19
 Multicast Channel Status List Dialog Description

| Field | Description | |
|------------------------|--|--|
| List Table | | |
| No. | This indicates the serial number of entry of the List Table. | |
| Slot-Port | This indicates the location of xDSL port. | |
| Multicast TV Channel | This indicates that recorded multicast channel group IP address which the NE has received the corresponding IGMP report (Join) packet. | |
| Status | This indicates the current status of the multicast channel group. The definition of possible statuses is as follows. | |
| | • Active: The NE received the subscriber's IGMP report. | |
| | • Poll: The NE does not receive the subscriber's IGMP report which responds to the IGMP server/proxy's IGMP query packet. | |
| | • Idle: The NE retries to query the subscriber for "IGMP Robustness retry" times, but it does not get the response. In fact, the LCT will not show the entries of status equal to Idle. | |
| Function Button | | |
| Slot | Use this combo-box to select the line card. | |
| Port | Use this combo-box to select the xDSL port. | |
| Refresh | Click this button to refresh the multicast channel status. | |
| Export | Click this button to save the contents of Multicast Channel Status List to the AMS client. | |

6.7.5 Multicast Group Membership

The multicast group membership list displays the list of xDSL subscriber ports from which the NE has received the IGMP report (Join) packets to join a particular multicast TV channel. In other

word, the multicast group membership list shows the xDSL member ports of a particular multicast TV Channel.

Click Status \rightarrow Multicast Group Membership on **Main Menu** to open the **Multicast Group Membership List** Dialog as shown in Figure 6-22. Table 6-20 depicts the related parameters.



Figure 6-22 Multicast Group Membership List Dialog

 Table 6-20
 Multicast Group Membership List Dialog Description

| Field | Description | |
|-----------------|---|--|
| Group IP | Use this list to select the multicast IP (TV Channel) to display its members. | |
| Last Reporter | This indicates the last xDSL subscriber launches an IGMP report to join the specified multicast TV channel. Its representation includes the location of the subscriber as well as its IP address. | |
| Member Count | This indicates the number of xDSL subscribers currently join the specified multicast TV channel. | |
| Up Time (sec) | This indicates the time period since the NE received the first IGMP report to join the specified multicast TV channel. | |
| List Table | | |
| Slot | This indicates the location of line card. | |
| Port-List | This indicates the port list number. The blue point means that the specified port is a member of the specified multicast channel. | |
| Function Button | | |
| Refresh | Click this button to refresh the multicast group membership list. | |
| Export | Click this button to save the contents of Multicast Group Membership List to the Personal AMS client. | |

6.8 LACP/RSTP Current Status Diagnosis

This section contains the following two subsections.

- LACP Diagnosis
- RSTP Diagnosis

6.8.1 LACP Diagnosis

Follow the subsequent procedures to view the current LACP status of trunk port.

- Step 1 Click Status \rightarrow LACP Status on Main Menu to open the LACP Status Dialog. Figure 6-23 shows the LACP Status Dialog.
- **Step 2** Click the **NC-GE1** or **NC-GE2** button on the **LACP Status Dialog** to view the corresponding LACP status on the specific trunk port. Table 6-21 depicts the related parameters.

Figure 6-23 LACP Status Dialog

| Status > LACP Status | | | |
|--|---------------|----------------|--|
| LACP Administrative State | | | |
| Administrative State: Di | sable | | |
| NC-GE1 NC-GE2 | NC-GE1 NC-GE2 | | |
| | Item | Current Status | |
| Aggregator ID | | | |
| Actor System Priority | | | |
| Actor System ID | | | |
| Actor Key | | | |
| Actor Port Priority | | | |
| Actor Port ID | | | |
| Actor Operation State | | | |
| Partner System Phonity | | 5 5 | |
| Partner Key | | | |
| Partner Port Priority | | | |
| Partner Port ID | | | |
| Partner Operation State | | | |
| | | | |
| Operation State: A: Active LACP, C: Collection Enabled, D: Distribution Enabled, E: Expired, F: Defaulted Partner Information, G: Aggregable, S: IN_SYNC, T: Short Timeout | | | |
| | Refresh | Export | |

Table 6-21 LACP Status Dialog Description

| Field | Description | |
|-------------------------|--|--|
| LACP Administrative | | |
| Administrative State | This indicates the current setting of the LACP on the trunk port. | |
| NC - GE1/NC - GE2 (Tab) | | |
| Aggregator ID | It indicates the ID of aggregation group which the port belongs to. | |
| Actor System Priority | It indicates the system priority configured for the LACP running on the NE. | |
| Actor System ID | It indicates a 6-octet unique system ID for the LACP running on the NE. It is the MAC address of one of the GE port. | |
| Actor Key | It indicates a 2-octet operational Key value of the GE port for the LACP running on the NE. | |

| Field | Description | |
|-------------------------|--|--|
| Actor Port Priority | It indicates a 2-octet port priority configured for the LACP running on the NE. | |
| Actor Port ID | It indicates the port ID for the LACP running on the NE. | |
| Actor Operation State | It indicates the current port status of the LACP on the NE per the IEEE 802.3 Annex 30C.6. A: lacpActivity, T: lacpTimeout(1), G: aggregation(2), S: synchronization(3), C: collecting(4), D: distributing(6) | |
| | D: distributing(5), E: defaulted(6) | |
| | E: expired(7) | |
| Partner System Priority | It indicates the system priority of the peer LACP partner. | |
| Partner System ID | It indicates a 6-octet unique system ID of the peer LACP partner. | |
| Partner Key | It indicates a 2-octet operational Key value of GE port of the peer LACP partner. | |
| Partner Port Priority | It indicates a 2-octet GE port priority of the peer LACP partner. | |
| Partner Port ID | It indicates the port ID of GE port of the peer LACP partner. | |
| Partner Operation State | It indicates the current GE port status of the peer LACP partner per the IEEE 802.3 Annex 30C.6. | |
| | A: lacpActivity, | |
| | T: lacpTimeout(1), | |
| | G: aggregation(2), S: symphronization(2) | |
| | S. synchronization(5), C: collecting(A) | |
| | D: distributing(5) | |
| | F' defaulted(6) | |
| | E: expired(7) | |
| Function Button | | |
| Refresh | Click this button to refresh the LACP Status dialog. | |
| Export | Click this button to save the contents of the LACP Status dialog to the AMS client. | |

Table 6-21 LACP Status Dialog Description (Continued)

6.8.2 RSTP Diagnosis

The AMS supports to show the bridge status and port status of RSTP.

RSTP – Bridge Status

Follow the subsequent procedures to view the current RSTP-Bridge status.

Click Status \rightarrow RSTP Status on **Main Menu** to open the **RSTP–Bridge Status Dialog** as shown in Figure 6-24. Table 6-22 depicts the related parameters.

Figure 6-24 RSTP – Bridge Status Dialog

| Status > RSTP Status | | |
|---------------------------------------|-----------------------------------|--|
| RSTP Status: Disable | Version: RSTP | |
| Bridge NC-GE1 NC-GE2 | | |
| Item | Configured Value / Current Status | |
| Bridge ID | 0×8000-00:43:01:02:03:04 | |
| Configured Priority | 32768 | |
| Configured Bridge Max Age (sec) | 22 | |
| Configured Bridge Hello Time (sec) | 2 | |
| Configured Bridge Forward Delay (sec) | 15 | |
| Configured Tx Hold Count (sec) | 5 | |
| Time Since Last Topology Change | u nours, U minutes, U seconds | |
| Topology Change Count | | |
| Designated Koot ID | 0x8000-00(43(01)02(03)04 | |
| Root Cost | U | |
| Root Port | | |
| Current Max Age (sec) | 20 | |
| Current Removed Delau (coc) | 15 | |
| | | |
| | Refresh Export | |

Table 6-22 RSTP – Bridge Status Dialog Description

| Field | Description | |
|--|--|--|
| RSTP Status | This indicates the enable/disable the RSTP function at GE ports. | |
| Version | This indicates the RSTP version the NE runs. | |
| Bridge (Tab) | | |
| Bridge ID | It indicates a unique 8-octet bridge ID which consists of a 2-octet Bridge Priority and a 6-octet MAC address. | |
| Configured Priority | It indicates the configured 2-octet bridge priority. | |
| Configured Bridge Max Age (sec) | It indicates the configured maximum age of STP/RSTP. | |
| Configured Bridge Hello Time (sec) | It indicates the configured amount of time between the transmission of configuration bridge PDUs by this node on any port when it is the root of the spanning tree or trying to become so. | |
| Configured Bridge Forward Delay (sec) | It indicates the configured time value that controls how fast a port changes its spanning state when moving towards the Forwarding state. | |
| Configured Bridge Tx Hold Count (sec) | It indicates the configured Bridge Tx Hold Count. | |
| Time Since Last Topology Change | It indicates the time since last topology change. | |
| Topology Change Count | It indicates the count of topology changes. | |
| Designated Root ID | It indicates the Root Bridge ID once the RSTP selects a bridge as a root bridge. | |
| Root Cost | It indicates the total cost from the NE to the root bridge. | |
| Root Port | It indicates the port toward the root bridge | |
| Current Max Age (sec) | It indicates the Max Age determined by RSTP. | |
| Current Hello Time (sec) | It indicates the Hello Time determined by RSTP. | |
| Current Forward Delay (sec) | It indicates the Forward Delay determined by RSTP. | |

Table 6-22 RSTP – Bridge Status Dialog Description(Continued)

| Field | Description | |
|-----------------|---|--|
| Function Button | | |
| Refresh | Click this button to refresh the RSTP – Bridge Status Dialog. | |
| Export | Click this button to save the contents of the RSTP - Bridge Status Dialog to the AMS Client. | |

RSTP – Port GE1/Port GE2 Status

Follow the subsequent procedures to view the current RSTP- Port GE1/Port GE2 status.

- Step 1 Click Status \rightarrow RSTP Status on Main Menu to open the RSTP Status Dialog as shown in Figure 6-24.
- Step 2 Click the NC-GE1 or NC-GE2 button on the RSTP Status Dialog to open the RSTP –Port GE1/Port GE2 Status Dialog as shown in Figure 6-25. Table 6-23 depicts the related parameters.

Figure 6-25 RSTP –Port GE1/Port GE2 Status Dialog

| Status > RSTP Status | | |
|--------------------------------|-----------------------------------|--|
| RSTP Status: Disable | Version: RSTP | |
| Bridge NC-GE1 NC-GE2 | | |
| Item | Configured Value / Current Status | |
| Port ID | 0×7001 | |
| Enable State | Enable | |
| Priority | 112 | |
| Configured Path Cost | 10 | |
| Configured Edge Port | Yes | |
| Configured Point-to-Point Link | Auto | |
| Current Operation State | broken | |
| Forward Transitions | U | |
| Current Path Cost | | |
| Current Luge Foft State | 165 | |
| DesignatedRoot | 165 0v0000.00:00:00:00 | |
| DesignatedCost | 0 | |
| DesignatedCost | 0 0×0000.00:00:00:00:00 | |
| DesignatedDet | 0.7004 | |
| | | |
| | Refresh Export | |

 Table 6-23
 RSTP –Port GE1/Port GE2 Status Dialog Description

| Field | Description |
|---------------------------|---|
| RSTP Status | This indicates the enable/disable the RSTP function at GE ports. |
| Version | This indicates the RSTP version the NE runs. |
| Port GE 1 / Port GE 2 (Ta | b) |
| Port ID | It indicates the port ID the GE port. |
| Enable State | It indicates the current RSTP enabled/disabled status of the GE port. |
| Priority | It indicates the configured port priority the GE port. |
| Configured Path Cost | It indicates the configured path cost of the GE port. |

| Field | Description |
|--------------------------------------|--|
| Configured Edge Port | It indicates whether the GE port is configured as Edge Port or not. |
| Configured Point-to-Point Link | It indicates the configured status of the LAN segment attached to this GE port. Yes: It indicates that this port should always be treated as if it is connected to a point-to-point link. No: It indicates that this port should be treated as having a shared media connection Auto-detection: It indicates that this port is considered to have a point-to-point link if it is an Aggregator and all of its members are aggregatable, or if the MAC entity is configured for full duplex operation, either through auto-negotiation or by management means. |
| Current Operation State | It indicates the current operation state of GE port. |
| Forward Transitions | It indicates the number of times this port has transitioned from the Learning state to the Forwarding state. |
| Current Path Cost | It indicates the configured numerical path cost of the GE port. |
| Current Edge Port State | It indicates whether the GE port is edge port or not. |
| Current Point-to-Point Link State | It indicates whether the GE port connects with point-to-point link or not. |
| Designated Root | It indicates the unique Bridge Identifier of the Bridge recorded as the Root in the Configuration BPDUs transmitted by the designated Bridge for the segment to which the port is attached. |
| Designated Cost | It indicates the path cost of the Designated Port of the segment connected to this port. This value is compared to the Root Path cost field in received bridge BPDUs |
| Designated Bridge | It indicates the Bridge Identifier of the bridge which this port considers to be the Designated Bridge for this port's segment. |
| Designated Port | The Port Identifier of the port on the Designated Bridge for this port's segment. |
| Function Button | |
| Refresh | Click this button to refresh the RSTP – Port GE1/Port GE2 Status Dialog. |
| Export | Click this button to save the contents of the RSTP – Port GE1/Port GE2 Status Dialog to the AMS Client. |

Table 6-23 RSTP –Port GE1/Port GE2 Status Dialog Description (Continued)

6.9 Network Diagnosis

The AMS supports to check the connection between the NE and xDSL subscriber.. The AMS also supports the network related diagnosis functions to check the connection between the NE and AMS server/client as follows.

- Subscriber Port OAM Loopback Diagnosis
- Ping
- Telnet
- Check SNMP Connection

6.9.1 Subscriber Port OAM Loopback Diagnosis

The information flow F5 is used for segment or End-to-End management at the virtual channel

(VC) level. AMS Client supports the F5 End-to-End and Segment Loopback OAM fault management on the ATM PVC of subscriber interface.

Follow the subsequent procedure to perform the OAM F5 End-to-End and Segment loopback diagnosis function to check the connection between the NE and xDSL subscriber.

- Step 1Click Configuration \rightarrow VC to VLAN on Main Menu to open the VC to VLAN Dialog;
select a xDSL subscriber port in VC to VLAN List dialog as shown in Figure 4-62.
- Step 2 Click the VC OAM Test button to launch the OAM Cell Test Dialog as shown in Figure 6-26. Table 6-24 depicts the related parameters. At the completion of the OAM F5 test process, a Message Dialog appears to indicate the results as shown in Figure 6-27.

Figure 6-26 OAM Cell Test Dialog

| 'irtual Channel—— | | |
|-------------------|-------------------|--|
| VPI: | 8 | |
| VCI: | 35 | |
| oopback OAM Cell | Туре | |
| ⊖ Segment | End-to-End O Both | |

Table 6-24 OAM Cell Test Dialog Description

| Field | Description |
|------------------------|--|
| Virtual Channel | |
| VPI/VCI | This indicates the PVC to be tested on the selected xDSL subscriber port. |
| Loopback OAM Cell Ty | ype |
| Segment | Check this radial button to perform the OAM F5 segment loopback test |
| End-to-End | Check this radial button to perform the OAM F5 end-to-end loopback test |
| Both | Check this radial button to perform both the OAM F5 segment and end-to-end loopback test |
| Function Button | |
| Test | Click this button to start the OAM F5 loopback test |
| Cancel | Exit the OAM Cell Test Dialog. |

Figure 6-27 Message Dialog



6.9.2 Ping

AMS supports 'Ping NE' function either from the AMS Client or from the AMS Server.

Ping NE from the AMS Client

Follow the subsequent procedure to use the 'Ping NE' echo to check the NE connection from AMS client.

Click Utility \rightarrow Ping NE from Client on **Main Menu** to open the **Ping NE from Client** Dialog as shown in Figure 6-28. Table 6-25 depicts the related parameters.

Figure 6-28 Ping NE from Client Dialog

| | Utilit | y > Ping NE | from Client | | | | |
|--|-------------|--------------|-------------|------|------|-------|--|
| Pinging 10.12.3.112 with 32 bytes of data: | | | | | | | |
| Reply from 10.12.3.112: bytes=32 time=47ms TTL=64 Reply from 10.12.3.112: bytes=32 time=32ms TTL=64 Reply from 10.12.3.112: bytes=32 time=16ms TTL=64 | | | | | | | |
| Ping statistics for 10.12.3.112: Packets: Sent = 3, Received = 3, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 16ms, Maximum = 47ms, Average = 31ms | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Host: 10.12.3.112 | 🔲 Continual | Repeat time: | 3 | Ping | Stop | Clear | |

Table 6-25

Ping NE from Server Dialog Description

| Field | Description |
|-----------------|---|
| Function Button | |
| Host | This indicates the IP address of NE to ping |
| Continual | Check this check box to ping the NE until the operator clicks the Stop button. |
| Repeat Times | Use this field to specify the number of ICMP ping packets to be launched by the AMS client. Valid value is 1 ~ xxxx. |

| Field | Description |
|-------|-------------------------------|
| Ping | Start sending ICMP packets. |
| Clear | Clear all the result above. |
| Stop | Click to stop pinging the NE. |

Table 6-25 Ping NE from Server Dialog Description(Continued)

Ping NE from the AMS Server

Follow the subsequent procedure to use the 'Ping NE' echo to check the NE connection from AMS server.

Click Utility \rightarrow Ping NE from Server on **Main Menu** to open the **Ping NE from Server** Dialog as shown in Figure 6-29. Table 6-26 depicts the related parameters.

Figure 6-29 Ping NE from Server Dialog

| | Utility > Ping NE from Server | |
|---|----------------------------------|-------|
| Pinging 10.12.3.112 with 32 bytes of data: | | |
| Reply from 10.12.3.112: bytes=32 time=4ms TTL=64 Reply from 10.12.3.112: bytes=32 time=3ms TTL=64 Reply from 10.12.3.112: bytes=32 time=1ms TTL=64 | | |
| Ping statistics for 10.12.3.112: Packets: Sent = 3, Received = 3, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 1ms, Maximum = 4ms, Average = 2ms | | |
| | | |
| | | |
| Host: | 10.12.3.112 Repeat times: 3 Ping | Clear |

Table 6-26

Ping NE from Client Dialog Description

| Field | Description |
|-----------------|---|
| Function Button | |
| Host | This indicates the IP address of NE to ping |
| Continual | Check this check box to ping the NE until the operator clicks the Stop button. |
| Repeat Times | Use this field to specify the number of ICMP ping packets to be launched by the AMS client. Valid value is 1 ~ xxxx. |
| Ping | Start sending ICMP packets. |
| Clear | Clear all the result above. |
| Stop | Click to stop pinging the NE. |

6.9.3 Telnet

The AMS client allows operator to launch a Telnet window in the AMS client environment.

Click Utility \rightarrow Telnet on Main Menu to launch the Telnet window as shown in Figure 6-30.

Figure 6-30 Telnet Pop-up Window

| DAS-4192 Telnet: 10.12 | 3.26 | |
|------------------------|-----------------------------------|----------|
| File Settings | | |
| Login:admin | | <u> </u> |
| Password: | | |
| | | |
| CLI# | | |
| boot-device | - boot de v ice | |
| Config | - configuration management | |
| datetime | - system date and time | |
| diag | - diagnostic function | |
| filesystem | - filesystem | |
| help | - show command help | |
| logout | - log out system | |
| ping | - ping function | |
| reboot | - reboot system | |
| reset | - reset system, line card or port | |
| shdsl-fw-upgrade | - shdsl-fw-upgrade | |
| status | - current status of device | |
| CLI# | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | - |

6.9.4 Check SNMP Connection

Use the 'SNMP Connection' to check whether the connection between NE and AMS server is normal or not.

Click Utility \rightarrow Check SNMP Connection from Sever on **Main Menu** to open the **SNMP Connection** Dialog as shown in Figure 6-31 and Table 6-27 depicts the related parameters.

| NE IP: 10.12.3.112 Result | |
|--|--|
| Result | |
| | |
| Fri Apr 20 21:40:30 CST 2007 Check [10.12.3.112] SNMP Connection: ok | |
| | |
| | |
| | |
| | |
| | |
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| | |
| | |
| | |
| | |
| | |
| | |
| Check Clear | |

Figure 6-31 Check NE SNMP Connection Dialog

Table 6-27

Check NE SNMP Connection Dialog Description

| Field | Description |
|-----------------|---|
| NE | |
| IP | This indicates the IP address of the selected NE. |
| Function Button | |
| Check | Start checking the SNMP connection. |
| Clear | Clear all the result above. |

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Chapter 7 Security Management Functions

This chapter provides a general security management overview and features of AMS. It contains concepts used in the network and service management for the AMS Client.

7.1 Security Management General Functions

Security management is use to provide security mechanisms to make sure secure access to the AMS and the Network, it protects resources and controlling the authorization within the AMS. To provide the system from:

- Unauthorized access to any internal information
- Modification of information
- Disturbance of the functionality

Security feature of AMS assured in every management facility (by the type of implementation), that the security in given on application level, it does not provide globe access in any kind to bypass on operation system.

The security management of AMS configures the operator's managing operations into Network Administrator, Network Manager, or Operator to assure the system security. According to each operating class, the menus provide administrator to re-designed and set the security class flexibly base upon operating environment. All operator password management and operating history, and access history are managed to provide function for searching at corresponding history when required.

Registration and Management Function of Operator

Provides function for registering the actual AMS user with log-in and password (password change allow only for administrator group user to do so) facilities, and assigning the operating class for ensuring appropriate authority to multiple users.

It allow only System Administrator to assign new category (group) of user define as well as create, delete, and modify the users.

Menu Access Authority Setup Function

The menu access authority function allow access in each menu according to their operating class on each of the AMS account user, The AMS manages this by dividing into several operating classes, such as Administrator, Manager, and User. Menu setup can be performed according to each operating class.

User Operation Log Management Function

The operation logging and storing of all security-relevant activities refers to the administrator that allow to tracing every used functions list of corresponding user.

Connection Status Search Function

Displays the status of the account user currently connected to the AMS Server. The AMS Server enables multi Client connection.

Connection Release Function

This function provide administrator to forcefully release the connection of the currently on-line user. After the force connection release, the corresponding operator with AMS connection session will be terminating.

Multiple Level Securities

AMS provides security management function of account user in multiple security levels, operator with different identify provide it own access right, access right are configurable by Administrator class level.

Hierarchic Level Securities

AMS has ability to perform securities of account user in hierarchic level base up on there own location; this provides access right that has to be configurable about topological and function restrictions.

7.2 Security Management General Features

Security management of AMS is architecture and design proposed with incorporate feature to ensure and procure the security of the AMS.

The AMS can create user account with proper privilege, this is the most important task of the system administration, without a valid account, authorization control and hacker attacks will post a big threat of the network security.

The features of performance management functions include the following:

- Support AMS Client, AMS Server, and database security by login username and password
- Without any delay and effect other working process of AMS when it login to server
- Support multiple account user working simultaneously
- Support different categories (groups) of user accounts
- Allowed administrator to add, remove, and modify user authority.
- Support user profile
- Support access right for all user categories
- Support audit trail on all user categories

7.3 Login and Logout

AMS Client provides on-line multiple-user security login to prevent unauthorized account to access AMS network.

Figure 7-1 Login Window

| 9090. | |
|----------|----|
| | |
| Linex ID | |
| | 10 |
| Password | |

The AMS follow the operator's attribute to given their right privileges while login.

7.4 Viewing System User Online List

AMS provide observing and search function of online account operators.

AMS system has ability to display all operator access to the AMS Server. Security management also allow operator to add, remove, and modify operator account.

The user description can also be memo in the comment column, which can be the, full name, telephone number, division, address, NE function menu controlled, and NE location controlled.

AMS has design in Location topological of layer structure; the upper layer location is able to perform all the functions available to the lower layer.

7.5 Operation Privilege

AMS provide function to ensure that only authorized operator are allowed to access all or certain part of management system, several level of access right are provide that ensure that authorized operators are given access to the facilities relevant to there job function.

AMS system has ability to assign the operator in different categories (group), the default known as "Admin" and "User", the privilege of each group can be manually defined.

- There is no limit to the number of AMS operator account that may be registered
- There is no limit to the number of AMS operator group that may be created
- The uppermost class is the Administrator, who can access all the menus of AMS in default

AMS provides access right of an individual by an Administrator who also only right to given the appropriate authorization.

Figure 7-2 Operator Access Control List Window

| D Operations | |
|---|-----------------------------|
| Operation Tree Configuration | |
| The following tree displays the whole hierarchy of operations that | can be authorized for users |
| | |
| elect a tree hode to add an operation under it, click on apply to s | ave changes to server |
| Operations Tree | |
| Operation Tree Root | |
| 🛛 🔲 Administrative Operation | |
| 0 Services | |
| - Clear Discovery | |
| - Start Backup | |
| Resume NMS | |
| O Backup | |
| — 🛄 Auto Database Backup | |
| — 🛄 Database Backup | |
| O SMS | |
| Subscriber Management | |
| Service Management | |
| Inventory Management | |
| - Shutdown Web NMS Server | |
| Configure Log Levels | |
| Runtime Administration | |
| Security Administration | 15 |
| | Add Domovo |
| | |
| | Canaal |
| Ūĸ | |



Access Control authority only be allowed by the Administrator privileges

7.6 Security Level Application

The AMS system will automatically log the operator behavior. This will allowed operator to trace the major activities of the specify user.

After the query request, the system will list in chronological order all user records that will display the user login location, operation and operation elapsed time as shown in Figure 7-3 below.

Figure 7-3 Operator Operation Log List Window

| D Auth Audit : | Screen | | | | <u>×</u> | | | |
|----------------|-----------------------------|-------------------------|--------------|----------------|----------------|--|--|--|
| View Edit | | | | | | | | |
| 🕜 AuthAudit | | Total 74 Displaying | <u>65</u> to | 74 Page Length | | | | |
| User Name | Operation Name | Audit Time | Status | Category | Audited Object | | | |
| root | Authentication : 10.12.1.56 | 2007-01-03 17:31:44.984 | SUCCESS | Authentication | | | | |
| root | Execute Task | 2007-01-03 17:48:08.781 | SUCCESS | Configuration | 10.12.3.97 | | | |
| root | Get Alert Details | 2007-01-03 18:14:34.265 | SUCCESS | Fault | rootlocation | | | |
| root | Get Alert Annotation | 2007-01-03 18:14:34.625 | SUCCESS | Fault | rootlocation | | | |
| root | Get Event Filters | 2007-01-03 18:16:01.453 | SUCCESS | DEFAULT | | | | |
| root | Get Event Filters | 2007-01-03 18:16:01.546 | SUCCESS | DEFAULT | | | | |
| root | Set Event Filters | 2007-01-03 18:16:22.218 | SUCCESS | DEFAULT | | | | |
| root | Set Event Filters | 2007-01-03 18:16:22.421 | SUCCESS | DEFAULT | | | | |
| root | Execute Task | 2007-01-03 18:23:51.265 | SUCCESS | Configuration | 10.12.3.97 | | | |
| root | Execute Task | 2007-01-03 18:23:51.656 | SUCCESS | Configuration | 10.12.3.97 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| • | | | | | | | | |
| | | | | | | | | |
| | | | | | Clear Audit | | | |

The AMS security management trail function include following item:

- Date and Time
- Operation activities
- NE related to the activity
- Operator Name
- Operation category
- Operation audited object

Chapter 8 Subscriber and Service Management Functions

The subscriber management is used to manage subscriber information that uses the xDSL service. Operators can manage it in per port base, all information were stored in AMS Server database and provided in a table form. Export in text format is support.

8.1 Service Management General Function

General functions of service management are described as following:

Subscriber Registration and Management Function

Provides function for registering the subscriber information of subscriber port interface.

Service Ordering and Provisioning

AMS provide service ordering and provisioning in service level, this will allow operator to manage their service to the subscriber under port base.

Service Administration and Assurance

Administration allow operator to activate or de-activation the afford service to subscriber under port base.

8.2 Subscriber Management General Functions

General functions of subscriber management are described as following:

Subscriber Search Function

Search function for operator to find out the subscriber locating, it provide single NE search or entire system search base on subscriber ID or subscriber name, the sub-string search is support.

The list table allow to exporting to ASCII format as well as MS Word.

Figure 8-1 Subscriber Management List Table

| ID: | | | | | | Location: | rootlocati | on_Taiwar | _YangMe | đ | | • |
|-------|---------|------------|----------|-----|-------------|-----------|------------|-----------|---------|----------|-----------|--------|
| Name: | | | | | | NE: | DAS4192 | | | | | • |
| Tel: | | | | | | Shelf: | 1 | | | | | • |
| | Ľ | Subscriber | | | | Slot: | 1 | | | | | • |
| | Ľ | Ordering | | | | Port: | 1 | | | | | • |
| Тс | otal: 0 | From: 1 | To: (|) P | age Length: | 25 🔻 F | Page: 1 | < | | > | >> |] |
| D | Name | Telephone | Location | NE | NE IP Add | r Shelf | Slot | Port | Service | Type Adm | in Status | Link S |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Cross Reference of xDSL Setting Inquiry

The xDSL setting information can be easy to figure out with subscriber management function, to enhance the operator configuring and troubleshooting.

8.3 Creating of Subscriber Service Information

The subscriber data can be store and retrieve from the database of AMS, it allow operator to add / modify / delete the service type and general subscriber information in order to trace in the future.

Figure 8-2 Subscriber Data Window

| ubscriber | | |
|----------------|---------|--|
| Subscriber ID: | | |
| Name: | | |
| Telephone: | | |
| Location: | none | |
| NE: | | |
| Shelf: | | |
| Slot: | | |
| Port: | | |
| | Cancel | |

8.4 Service Management General Function

The service management provides a "Provision", "Administrative", and "Assurance" function control over xDSL port base, the service management control panel helps operator to quickly handle the subscriber port interface and it's relative service information.

Figure 8-3 Service Management Control Panel

| D Service Mana | gement | > |
|----------------|------------------------------------|---|
| Location: | rootlocation_Taiwan_YangMei 🔹 | |
| NE: | DAS4192 |] |
| Shelf: | 1 |] |
| Slot: | LC1 🗸 |] |
| Port: | Port 1 | Ī |
| -VC-VLAN Level | VLAN Multicast | |
| -System Level- | Access Control List VLAN MAC Limit | |
| | Close | |

Chapter 9 General System Management Functions

This chapter provides a general system management overview and features of AMS. It contains concepts used in the network and system management for the AMS Client and AMS Server.

The AMS performs management function of server registration; this includes the SNMP polling period, topology appearance setting, database log management, auto backup period, and NE auto discovery.

9.1 AMS Client Options

Client options covers the communication interval between AMS Server and AMS Client, it allowed operator to manage the reacting time and topology functions.

The Alarm Warning feature assist operator in vision and hearing from AMS when alarm arise, the AMS is support to indicated with colors for different status by GUI interface, any addition and deletion of element or plug-in unit of NE will be automatically detected and reflected in GUI interface.

The Map function provides property of Topology Map boundary and pattern of different Locations.

9.2 System Server Management

AMS server periodically checks the status of all NEs that are registered. This continuously monitors the connection status with NE, and depicts any failure state of the node in the displayed managed Network immediately, and for auto backup, inquires deal from the NE to store in the database, to provide functions for information synchronization with NE and for backup when fault occurs.

This function provides the SNMP polling option, alarm and PM log file size, periodical auto backup feature, Alarm notification setting, and Northbound connection property.

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Appendix A Database Dimension and Handle Time

AMS database has handled four categories of NE's information, Configuration, fault, performance, and security, the dimension of each category is describing as follow.

The below example is taken approximate 300 K subscribers in single database, calculation within 30 days of alarm history, 7 days of performance monitor information, and 20 concurrent operator's log file for 2 months.

Configuration Management / Subscriber Service Management

Dimension of PVC to VLAN mapping is 100 bytes, 300 K subscribers is around 30 MB in total. Dimension of xDSL profile record is 100 bytes, 300 K subscribers is around 30 MB in total.

Other data regarding to configuration management and subscriber service management is around 20 MB.

Total HD space required of CM is taken about 80 MB.

The response times taken for retrieve CM information are around 10 sec. under above condition.

Fault Management

Assume NE generates one alarm from xDSL interface per day, the dimension of single alarm is 180 bytes, and for 300 K subscribers is around 54 MB in total.

Alarm generate up to one month takes around 54 MB times 30 day, the outcome is 1.62 GB in total.

The response time for retrieve history alarm is less then 10 sec. The response time for retrieve current alarm is less then 3 sec.

Performance Management

Assume only 10% of PM information been visited by server and keep in 7 days, each PM is in 60 bytes, for 300 K subscribers is taken around 1.3 GB (300 K x 10% x 60 x 7 x 96)

The response time for retrieve PM table is less then 15 sec.

Security Management

Dimension of one record is 120 bytes, assume 3000 records generate per days, the total add up dimension for 20 user in 2 month is approximate 140 MB.

Total database HD space required for the above circumstance is approximate 3 GB.

The response time for add NE/Operator is less then 5 sec.

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Appendix B Abbreviations and Acronyms

The abbreviations and acronyms used in this document.

| Abbreviations | Full Name |
|---------------|---|
| AAL | ATM Adaptation Layer |
| ADSL | Asymmetric Digital Subscriber Line |
| AIS | Alarm Indication Signal |
| ATM | Asynchronous Transfer Mode |
| ATU-C | ADSL Transceiver Unit at the central office end |
| ATU-R | ADSL Transceiver Unit at the remote end |
| CBR | Constant Bit Rate |
| CV | Coding Violation |
| DSLAM | Digital Subscriber Line Access Multiplexer |
| ES | Error Seconds |
| EOA | Ethernet over ATM |
| GE | Gigabit Ethernet |
| IP | Internet Protocol |
| LOF | Loss of Frame |
| LOS | Loss of Signal |
| LPR | Loss of Power |
| OAM | Operation, Administration, and Maintenance |
| PCR | Peak Cell Rate |
| PSD | Power Spectral Density |
| PVC | Permanent Virtual Channel |
| rtVBR | Real time Variable Bit Rate |
| SCR | Sustainable Cell Rate |
| SNR | Signal-to Noise Ratio |
| SNMP | Simple Network Management Protocol |
| UAS | Unavailable Seconds |
| UBR | Unspecified Bit Rate |
| VC | Virtual Channel |
| VCI | Virtual Channel Identify |
| VCL | Virtual Channel Link |
| VDSL | Very high-speed Digital Subscriber Line |
| VLAN | Virtual Local Area Network |
| VP | Virtual Path |
| VPI | Virtual Path Identifier |
| VTU-O | VDSL Transmission Unit at the Optical network interface |
| VTU-R | VDSL Transmission Unit at the remote end |
| xDSL | ADSL/VDSL |

| Table B-1 | Abbreviations and Acronyms Table | |
|-----------|----------------------------------|--|

Appendix C Alarm Definition

| Table C-1 | Alarm Definition Table | | | | | | |
|-----------|------------------------|--------------------|------------------|---|--|--|--|
| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description | | | |
| All | noEntity | EMPTY | No | Neither plan type nor on-line type configured | | | |
| DAS4192 | | MISSING | Major | CPU Module is off-line | | | |
| | | TEMP | Major | Temperature is over the threshold | | | |
| | CPU Module | VOL | Major | Voltage is below the threshold | | | |
| | | MISMATCH | Major | Planned type and online type are mismatched | | | |
| | | TCA_DHCP_BC | Warning | DHCP broadcast request rate threshold-crossing alert | | | |
| | | MISSING | Major | ADSL module is off-line | | | |
| | | TEMP | Major | Temperature is over the threshold | | | |
| | ADSI Module | VOL | Major | Voltage is below the threshold | | | |
| | ADDE Module | MISMATCH | Major | Planned type and online type are mismatched | | | |
| | | NOT_OPERABLE | Major | ADSL line card is not operable | | | |
| | Daman Madala | MISSING | Major | Power module is off-line | | | |
| | Power Module | NOT_OPERABLE | Major | Power card is not operable | | | |
| | | MISSING | Major | Fan module is off-line | | | |
| | R N 11 | FAN1_SPEED | Major | Fan1 speed is below the threshold | | | |
| | Fan Module | FAN2_SPEED | Major | Fan2 speed is below the threshold | | | |
| | | VOL | Major | Voltage is below the threshold | | | |
| | | ES NE 15 MIN | Minor | 15 min near end ES is over threshold | | | |
| | | SES NE 15 MIN | Minor | 15 min near end SES is over threshold | | | |
| | | UAS NE 15 MIN | Minor | 15 min near end UAS is over threshold | | | |
| | | ES FE 15 MIN | Minor | 15 min far end ES is over threshold | | | |
| | | SES FE 15 MIN | Minor | 15 min far end SES is over threshold | | | |
| | | UAS FE 15 MIN | Minor | 15 min far end UAS is over threshold | | | |
| | | ES NE 1 DAY | Minor | 1 day near end ES is over threshold | | | |
| | | SES NE 1 DAY | Minor | 1 day near end SES is over threshold | | | |
| | | UAS NE 1 DAY | Minor | 1 day near end UAS is over threshold | | | |
| | | ES FE 1 DAY | Minor | 1 day far end ES is over threshold | | | |
| | | SES_FE_1_DAY | Minor | 1 day far end SES is over threshold | | | |
| | | UAS_FE_1_DAY | Minor | 1 day far end UAS is over threshold | | | |
| | ADSL Port | LOS | Minor | Loss of signal | | | |
| | | LOF | Minor | Loss of frame | | | |
| | | LPWR | Warning | CPE loss of power | | | |
| | | GEN_LINE_INIT_FAIL | Minor | Generic line initialization failure | | | |
| | | CONFIG_ERROR | Minor | Line initialization failure - configuration error | | | |
| | | HIGH_BIT_RATE | Minor | Line initialization failure - high bit rate | | | |
| | | COMM_PROBLEM | Minor | Line initialization failure - communication problem | | | |
| | | NO_PEER_DETECTED | Minor | No peer detected | | | |
| | | TRAINING | Warning | Port is under training | | | |
| | | NO_CONFIG | Information | Port is not configured | | | |
| | | PS_L2_MANUAL | Information | ADSL2/ADSL2+ Power State transfers to L2 by manual mode | | | |

Describe all the alarm in the AMS.

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|----------|--------------------|-------------------|------------------|--|
| DAS4192 | | PS_L2_AUTO | Information | ADSL2/ADSL2+ Power State transfers to L2 by automatic mode |
| | ADSL Port | PS_L3_CO | Information | ADSL2/ADSL2+ Power State transfers to L3 by CO side |
| | | PS_L3_CPE | Information | ADSL2/ADSL2+ Power State transfers to L3 by CPE side |
| | | ILLEGAL_IP | Warning | Packets with illegal IP addresses have been dropped |
| | | ILLEGAL_MAC | Warning | duplicated MAC addresses from different line ports are made out |
| | | DISABLED | Information | The port is disabled |
| | | MISSING | Major | GE Port is off-line |
| | | NOT_OPERABLE | Major | GE Port is not operable |
| | GE Port | STP_LEARN | Information | GE port is transited to STP-learnning state |
| | | STP_BLOCK | Information | GE port is transited to STP-blocking state |
| | | DISABLED | Information | GE port is disabled |
| | Alarm Relay Module | MISSING | Major | Alarm relay module is off-line |
| | | MISSING | Major | Alarm relay port is off-line |
| | Alarm Relay Port | RELAY_ABNORMAL | Major | The alarm relay port is under abnormal status |
| | | DISABLED | Information | The alarm repay port is disabled |
| | | MISSING | Major | SHDSL module is off-line |
| | | TEMP | Major Major | Temperature is over the threshold |
| | SHDSL Module | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | Line card is not operable |
| | | TCA_ES_NE_15_MIN | Minor | 15-min near end ES is over the threshold |
| | | TCA_SES_NE_15_MIN | Minor | 15-min near end SES is over the threshold |
| | | TCA_UAS_NE_15_MIN | Minor | 15-min near end UAS is over the threshold |
| | | TCA_CRC_NE_15MIN | Minor | 15-min near end CRC is over the threshold |
| | | TCA_LOSW_NE_15MIN | Minor | 15-min near end LOSW is over the threshold |
| | | TCA_SNR_NE | Minor | Near end SNR margin is over the threshold |
| | | TCA_ATTN_NE | Minor | Near end loop attenuation is over the threshold |
| | | OPI | Information | Operation state change indication |
| | | LOS | Minor | Loss of signal (FOH losd bit) |
| | | SEGA | Minor | Segment anomaly - CRC anomaly (FOH sega bit) |
| | | LPR | Minor | Loss of power - power status (FOH ps bit) |
| | SHDSL Port | SEGD | Minor | bit) |
| | | PBO_NE | Minor | Near end enhanced power back off |
| | | DEVFAULT_NE | Minor | Near end device fault - Diagnostic or self-test fault |
| | | DCCONT_NE | Minor | with span powering |
| | | LOSW_NE | Minor | Near end LOSW failure |
| | | INI_CFG_NE | Minor | Near end indicates Far end not able to support requested configuration |
| | | INI_PROTOCOL_NE | Minor | Near end indicates incompatible protocol used by Far end |
| | | NOPEEK | Minor | No peer detected |
| | | PBO_FE | Minor | Far end enhanced power back off |
| | | DEVFAULT_FE | Minor | self-test fault |
| | | DCCONT_FE | IVIIIIOF | span powering |

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|----------|--------------|-----------------------|-------------------------|--|
| DAS4192 | | LOSW_FE | Minor | Far end LOSW failure |
| | | INI_CFG_FE | Minor | Far end indicates Near end not able to support requested configuration |
| | SHDSL Port | INI_PROTOCOL_FE | Minor | Far end indicates incompatible protocol used by Near end |
| | | DISABLED | Information | The port is disabled |
| DAS4672 | | MISSING | Maior | CPU Module is off-line |
| DIGIOIZ | | ТЕМР | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | CPU Module | NOT_OPERABLE | Major | CPU card is not operable |
| | | TCA_DHCP_BC | Warning | DHCP broadcast request rate threshold-crossing alert |
| | | STANDBY | Information | Running in standby mode |
| | | HW_VERSION | Major | Hardware version is inconsistent |
| | | SWAP | Information | Standby CPU module has been changed as active. |
| | | MISSING | Major | ADSL module is off-line |
| | | TEMP | Major | Voltage is below the threshold |
| | ADSL Module | VOL | Major | Planned type and online type are |
| | | MISMAICH | | mismatched |
| | | NOT_OPERABLE | Major | Line card is not operable |
| | | MISSING FAN1 SPEED | Major | Fan module is off-line Fan 1 speed is below the threshold |
| | Fan Module | FAN2 SPEED | Major | Fan2 speed is below the threshold |
| | | FAN3_SPEED | Major | Fan3 speed is below the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | ES_NE_15_MIN | Minor | 15 min near end ES is over the threshold |
| | | SES_NE_15_MIN | Minor | 15 min near end SES is over the threshold |
| | | UAS_NE_15_MIN | Minor | 15 min near end UAS is over the threshold |
| | | ES_FE_15_MIN | Minor | 15 min far end ES is over the threshold |
| | | UAS FE 15 MIN | Minor | 15 min far end UAS is over the threshold |
| | | ES NE 1 DAY | Minor | 1 day near end ES is over the threshold |
| | | SES_NE_1_DAY | Minor | 1 day near end SES is over the threshold |
| | | UAS_NE_1_DAY | Minor | 1 day near end UAS is over the threshold |
| | | ES_FE_1_DAY | Minor | 1 day far end ES is over the threshold |
| | | SES_FE_I_DAY | Minor | 1 day far end SES is over the threshold |
| | ADSL Port | LOS | Minor | Loss of signal |
| | 112 02 1 010 | LOF | Minor | Loss of frame |
| | | LPWR | Warning | CPE Loss of power |
| | | GEN_LINE_INIT_FAIL | Minor | Generic line initialization failure |
| | | CONFIG_ERROR | Minor | Line initialization failure - configuration error |
| | | HIGH_BIT_RATE | Minor | Line initialization failure - high bit rate |
| | | COMM_PROBLEM | Minor | problem |
| | | | Warning | No peel delected |
| | | I KAINING | warning | |
| | | NO_CONFIG | Information | ADSI 2/ADSI 2+ Power State transfers to |
| | | PS_L2_MANUAL | Information | ADSL2/ADSL2+ Power State transfers to L2 by manual mode. |
| | | PS_L2_AUTO | Information | L2 by automatic mode. ADSL2/ADSL2+ Power State transfers to |
| | | PS_L3_CO | Information | L3 by CO side ADSI 2/ADSI 2+ Power State transfers to |
| | ADSL Port | PS_L3_CPE | | L3 by CPE side Packets with illegal IP addresses have been |
| | | ILLEGAL_IP | Warning | dropped |
| | | ILLEGAL_MAC | Warning | duplicated MAC addresses from different line ports are made out |
| | | DISABLED | Information | The port is disabled |
| | GE Port | MISSING | Major | GE Port is off-line |
| | | | | |

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|-----------|--------------------|-------------------|--|---|
| DAS4672 | GE Port | NOT_OPERABLE | Major | GE Port is not operable |
| | | STP_LEARN | Information | GE port is transited to STP-learnning state |
| | | STP_BLOCK | Information | GE port is transited to STP-blocking state |
| | | DISABLED | Information | GE port is disabled |
| | Alarm Relay Module | MISSING | Maior | Alarm relay module is off-line |
| | | MISSING | Major | Alarm relay port is off-line |
| | Alarm Relay Port | RELAY_ABNORMAL | Major | The alarm relay port is under abnormal status |
| | | DISABLED | Information | The port is disabled |
| | MISSING | Major | SHDSL module is off-line | |
| | | TEMP | Major | Temperature is over the threshold |
| | SHDSL Module | | Major | Planned type and online type are |
| | | MISMATCH | | mismatched |
| | NOT_OPERABLE | Major | Line card is not operable | |
| | ES_NE_15_MIN | Minor | 15-min near end ES is over the threshold | |
| | | SES_NE_15_MIN | Minor | 15-min near end SES is over the threshold |
| | | UAS_NE_15_MIN | Minor | 15-min near end UAS is over the threshold |
| | | TCA_LOSW_NE_15MIN | Minor | 15-min near end LOSW is over the threshold |
| | | TCA_SNR_NE | Minor | Near end SNR margin is over the threshold |
| | | TCA_ATTN_NE | Minor | Near end loop attenuation is over the threshold |
| | OPI | Minor | Operation state change indication | |
| | | LOS | Minor | Loss of signal (FOH losd bit) Segment anomaly - CRC anomaly (FOH |
| | | SEGA | WIND | sega bit) |
| | | LPR | Minor | Loss of power - power status (FOH ps bit) |
| | | SEGD | Minor | Segment defect - LOSW defect (FOH segd bit) |
| | | PBO_NE | Minor | Near end enhanced power bac koff |
| | SHDSL Port | DEVFAULT_NE | Minor | Near end device fault - Diagnostic or self-test fault |
| SHDSL Pon | | DCCONT_NE | Minor | Near end DC continuity fault - interfere with span powering |
| | | LOSW_NE | Minor | Near end LOSW failure |
| | | INI_CFG_NE | MINOF | support requested configuration |
| | | INI_PROTOCOL_NE | Minor | Near end indicates incompatible protocol used by Far end |
| | | NOPEER | Minor | No peer detected |
| | | PBO_FE | Minor | Far end enhanced power back off |
| | | DEVFAULT_FE | WINDI | self-test fault |
| | | DCCONT_FE | Minor | Far end DC continuity fault - interfere with span powering |
| | | LOSW_FE | Minor | Far end LOSW failure |
| | | INI_CFG_FE | Minor | support requested configuration |
| | | INI_PROTOCOL_FE | Minor | Far end indicates incompatible protocol used by Near end |
| | | DISABLED | Information | The port is disabled |
| | | PWR1_FAIL | Warning | Power1 failed |
| | Chassis | PWR2_FAIL | Warning | Power2 failed |
| | | PWR1_NOT_OPERABLE | Major | Power1 is not operable |
| | | PWR2_NOT_OPERABLE | Major | Power2 is not operable |

Revision History

- 1) Revision Date: 2007/4/26
 - Release version: v1.0.1 Author: William Fu
 - Summary of Change(s):
 (1) Section 4.4 Constructing a NE on AMS Add Figure 4-14 Board Setting Dialog Add a Note to remind to reset ADSL LC after changing the board setting.
 Figure 3-9 Illustration of the NE Frame Region and Card Module Region on NE.
- 2) Revision Date: 2007/4/30

Release version: v1.0.2

Author: William Fu

- Summary of Change(s):
- (1) Section 3.5.3: AMS Management Window Overview Add
 Figure 3-9 Illustration of the NE Frame Region and Card Module Region on NE. for the reference in Section 6.5.1 "Active Alarm Status"
- (2) Section 4.7.7: Alarm Definition Profile Management Extend this section by adding 2 more pictures and corresponding configuration procedure.
- (3) Section 4.9.1: VC-to-VLAN Connection Management Modify Table 4-40 xDSL VC-to-VLAN Setting Description'
- (4) Section 4.13: NE Fast Provision Management: Add this new section Add this new section.
- (5) Chapter 6: Fault Management Functions Add this new chapter.
- (6) "How to" Add new appendix at the end of document.

Quick Configuration Guide for AMS Client

This chapter contains the following "How to" for the operator to be familiar with the DAS4-series product.

- HowTo 1. How to configure to provide a unicast/broadcast and bridged data service on the DAS4 series IP-DSALM
- HowTo 2. How to configure to provide a multicast and bridged data service on the DAS4 series IP-DSALM

HowTo 1. How to configure to provide a unicast/broadcast and bridged data service on the DAS4 series IP-DSALM

Environment



Set Up via AMS client

| Step | Proce back | edure and ex ground, Exa | cample of parameter value (Procedure with blue mple with yellow background) |
|--------|-------------------|---------------------------------------|--|
| Step 1 | Add a | ADSL line prof | ile to system. |
| | Follow profile | w the procedures as by filling the | s in Section 4.7.1 ADSL Profile Management to set the indicated dialogs as follows |
| | Line H | Profile | |
| | 1. | Figure 4-21 | Add ADSL Line Profile- Transmission Rate Dialog |
| | 2. | Figure 4-22 | Add ADSL Line Profile- SNR Margin Dialog |
| | 3. | Figure 4-23 | Add ADSL Line Profile- PSD Dialog |
| | 4. | Figure 4-24 | Add ADSL Line Profile- Power Management Dialog |
| | 5. | Figure 4-25 | Add ADSL Line Profile- INP Dialog |
| | PM T | hreshold Profil | e (optional) |
| | 1. | Figure 4-27 | Add ADSL PM Threshold Profile Dialog |
| | Traffi | c Policing Prof | ile |
| | 1. | Figure 4-39 | Add xDSL IP Traffic Profile Dialog |

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Quick Configuration Guide for AMS Client

| Profile Information | 1 |
|--|---|
| Profile N | lame: profile001 |
| Transmission Ra | te SNR Margin PSD Power Management INP |
| Upstream | Downstream |
| Nominal RCD: | |
| Nominal PSD. | (0.1dPm(Hz)) |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | OK Cancel |
| . Figure 4-24 ADSL Line Profile | Add ADSL Line Profile– Power Management D |
| A. Figure 4-24 ADSL Line Profile Profile Information Profile N: | Add ADSL Line Profile– Power Management D |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: | Add ADSL Line Profile– Power Management D ame: profile001 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Ration Management Mod | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic © Manual |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP le O Automatic © Manual State Transition |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic © Manual State Transition |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & Lo | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic © Manual State Transition ow Rate (Kbps): |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & Lo | Add ADSL Line Profile– Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic Manual State Transition ow Rate (Kbps): |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 | Add ADSL Line Profile- Power Management D ame: profile001 te SNR Margin PSD Power Management INP le O Automatic Manual State Transition ow Rate (Kbps): 29,5 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 L2 State Max Rat | Add ADSL Line Profile- Power Management D ame: profile001 te SNR Margin PSD Power Management INP le O Automatic Manual State Transition ow Rate (Kbps): 29,0 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 | Add ADSL Line Profile- Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic O Automatic Image: Manual State Transition ow Rate (Kbps): 29,0 te (Kbps): 29,0 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N Transmission Rat Management Mod Trigger Criteria of L2 State Min & Lo L2 State Max Rat L0 State Min Tim | Add ADSL Line Profile- Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic Image: Manual State Transition ow Rate (Kbps): 29,0 te (Kbps): 29,0 te to Start Monitoring (sec): 1 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 L0 State Min Tim | Add ADSL Line Profile- Power Management D ame: profile001 te SNR Margin PSD Power Management INP e O Automatic O Automatic Image: Manual State Transition O ow Rate (Kbps): 29,0 te (Kbps): 29,0 |
| Figure 4-24 ADSL Line Profile Profile Information Profile N Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 L2 State Min Tim L2 State Low Rat | Add ADSL Line Profile ame: profile001 te SNR Margin PSD Power Management INP e O Automatic Image: Automatic Image |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 L2 State Max Rat L0 State Min Tim L2 State Low Rat | Add ADSL Line Profile ame: profile001 te SNR Margin PSD Power Management INP e O Automatic Image: Internation ow Rate (Kbps): te (Kbps): 29,0 te to Start Monitoring (sec): te Min Contiguous Time (sec): |
| Figure 4-24 ADSL Line Profile Profile Information Profile N: Transmission Rat Management Mod Trigger Criteria of L2 State Min & L0 L2 State Max Rat L0 State Min Tim L2 State Low Ra CPE L3 State Re | Add ADSL Line Profile ame: profile001 te SNR Margin PSD Power Management INP e O Automatic Image: Image: Automatic Image: Automatic Image: |
| Figure 4-24 ADSL Line Profile Profile Information Profile N Transmission Rat Management Mod Trigger Criteria of L2 State Min & Lo L2 State Max Rat L0 State Min Tim L2 State Low Rat CPE L3 State Re | Add ADSL Line Profile ame: profile001 te SNR Margin PSD Power Management INP e Automatic Image: |

| 5. Figure 4-25 | | | |
|--|--|---|---------------|
| D ADSL Line Profile | | | |
| Profile Monthalion | 2mo: | | |
| Profile N | arrie: profile001 | | |
| Transmission Ra | te SNR Margin | PSD Power Man | agement INP |
| -Upstream | | Downstream | |
| Minimum INF: |) • | Minimum INF: | 0 |
| (9 | wmbol time) | | (symbol time) |
| | , in or annoy | | (Symbol unity |
| | | | |
| Threshold Profi | Ie (optional) | Cancel | : Dialog |
| Threshold Profi | OK le (optional) Add ADSL PM d Profile | Cancel | Dialog |
| Threshold Profi Figure 4-27 ADSL PM Threshole Profile Information- | OK le (optional) Add ADSL PM d Profile | Cancel | Dialog |
| Threshold Profi . Figure 4-27 D ADSL PM Threshol Profile Information- Profile Name: | Ie (optional) Add ADSL PM d Profile | Cancel | Dialog |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: -ATUC (sec) | Ie (optional) Add ADSL PM d Profile | Cancel | Dialog |
| Threshold Profi I. Figure 4-27 D ADSL PM Threshole Profile Information- Profile Name: -ATUC (sec) | OK le (optional) Add ADSL PM d Profile PM | Cancel A Threshold Profile | Dialog |
| Threshold Profi Figure 4-27 ADSL PM Threshole Profile Information- Profile Name: -ATUC (sec) 15Min ES: | OK le (optional) Add ADSL PM d Profile PM 1 | Cancel A Threshold Profile I-Day ES: | Dialog |
| Threshold Profi Figure 4-27 ADSL PM Threshol Profile Information- Profile Name: ATUC (sec) 15Min ES: ADSL PM Threshold Profile Name: | OK le (optional) Add ADSL PM d Profile PM | Cancel A Threshold Profile I-Day ES: I 050 | |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) 15Min ES: SES: | OK le (optional) Add ADSL PM d Profile PM | Cancel A Threshold Profile I-Day ES: SES: | |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) 15Min ES: SES: USES: UAS: | OK le (optional) Add ADSL PM d Profile PM 1 * 1 * | A Threshold Profile | |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) 15Min ES: SES: UAS: -ATUR (sec) | OK le (optional) Add ADSL PM d Profile PM 1 = 1 = 1 = 1 = | A Threshold Profile | |
| Threshold Profi Figure 4-27 ADSL PM Threshole Profile Information- Profile Name: ATUC (sec) SES: SES: UAS: ATUR (sec) ATUR (sec) | OK le (optional) Add ADSL PM d Profile PM 1 * 1 * 1 * | Cancel A Threshold Profile | |
| Threshold Profil Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) SES: SES: UAS: ATUR (sec) 15Min | OK le (optional) Add ADSL PN d Profile PM 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = | Cancel A Threshold Profile I -Day I ES: I SES: I UAS: I -Day I -Day I -Day I -Day I -Day I -Day I -Day I -Day I -Day I - Day I - Day | |
| Threshold Profi Figure 4-27 ADSL PM Threshol Profile Information- Profile Name: ATUC (sec) 15Min ES: UAS: ATUR (sec) 15Min ES: | OK le (optional) Add ADSL PM d Profile PM 1 * 1 * 1 * 1 * | Cancel A Threshold Profile I-Day I ES: I SES: I UAS: I -Day I -Day I -Day I ES: I ES: I -Day I - Day I - Da | |
| Threshold Profi Figure 4-27 ADSL PM Threshole Profile Information- Profile Name: ATUC (sec) SES: UAS: ATUR (sec) ATUR (sec) SES: | OK le (optional) Add ADSL PM d Profile PM 1 * 1 * 1 * 1 * | Cancel A Threshold Profile | |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) 15Min ES: SES: UAS: ATUR (sec) 15Min ES: SES: UAS: | CK le (optional) Add ADSL PN d Profile PM 1 * 1 * 1 * 1 * 1 * | A Threshold Profile A Threshold Profile | |
| Threshold Profi Figure 4-27 ADSL PM Threshol Profile Information- Profile Name: ATUC (sec) 15Min E ES: E SES: UAS: ATUR (sec) 15Min E SES: SES: UAS: | OK Le (optional) Add ADSL PM I Profile PM 1 | A Threshold Profile | |
| Threshold Profi Figure 4-27 ADSL PM Threshold Profile Information- Profile Name: ATUC (sec) ☐ ES: ☑ SES: ☑ UAS: ATUR (sec) ☐ SES: ☑ SES: ☑ SES: ☑ UAS: | OK Le (optional) Add ADSL PN I Profile PM 1 | A Threshold Profile I -Day I ES: I SES: I UAS: UAS: UAS: UAS: | |

| >xDSL IP Traffic Profile Profile Information | |
|--|--------------------|
| Name: | ip-traffic |
| IP CoS Setting | |
| Downstream Priority Queue: | low |
| Downstream Rate (Kbps): | 29,984 |
| Upstream Rate (Kbps): | <no limit=""></no> |
| Broadcast Control | |
| Downstream Broadcast: | forward |

•••

| Please | e see the example s Figure 4-51 | setting as follows. Modify ADSL Port Dialog. | |
|--------|------------------------------------|---|----------|
| D | xDSL Port Setting | | <u>×</u> |
| | Port: | LC1-1 |] |
| | Admin Status: | ● Enable ○ Disable | |
| | Line Profile: | profile001 - | Detail |
| | PM Profile: | none | Detail |
| | Traffic Policing: | none | Detail |
| | Service Type Contr | ol: Disabled | |
| | | | |
| | | | |

| Step 3 | Add an IP traffic profile to system. |
|--------|--|
| | Follow the procedures in 4.7.5 VLAN Profile Management to set the following profiles |
| | IP Traffic Profile |
| | 1. Figure 4-39 Add xDSL IP Traffic Profile Dialog |
| | Example: |
| | Please see the example setting as follows. |
| | 1. Figure 4-39 Add xDSL IP Traffic Profile Dialog |
| | D xDSL IP Traffic Profile |
| | |
| | |
| | Name: ip-traffic |
| | |
| | |
| | |
| | Downstream Priority Queue: |
| | |
| | Downetroom Rate (Khno): |
| | |
| | |
| | Upstream Rate (Kbps): |
| | |
| | - Broadcast Control |
| | |
| | Downstream Broadcast: forward 🗸 |
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| Step 4 | Create a bidirectional PVC between IP-DSLAM and ATU-R |
|--------|--|
| | Follow the procedures in Section 4.9.1 VC-to-VLAN Connection Management to fill the |
| | tollowing dialogs |
| | 2. Figure 4-64 xDSL VC-to-VLAN Setting – 802.10/1P Dialog (only for the RFC2684 |
| | bridged mode) |
| | Figure 4-66 xDSL VC-to-VLAN Setting – MAC Limit Dialog (only for the RFC2684 bridged mode) |
| | 4. Figure 4-68 xDSL VC-to-VLAN Setting – Service Type Dialog |
| | Example: |
| | Please see the example setting as follows. |
| | 1. Figure 4-63 xDSL VC-to-VLAN Setting – IP Traffic Dialog |
| | D Add VC-to-VLAN Configuration |
| | |
| | Slot: |
| | Port: Port 1 |
| | VPI: 0* |
| | VCI: 32 |
| | RFC2684 Mode: vidged |
| | Administrative State: Enable Disable |
| | IP Traffic Profile Service Type 802.1Q / 1P MAC Limit |
| | IP Traffic Profile: ip-traffic 💌 Detail |
| | OK Cancel |
| | |
| | |
| | |
| | |

| . Figure 4-64 xD bridged mode) | SL VC-to-VLAN Setting | g – 802.1Q/1P Dia | log (only for the R |
|---|--|-------------------|---------------------|
| D Add VC-to-VLAN Configur | ation | × | 1 |
| -Virtual Channel | | | |
| Slot: | LC1 | - | |
| Port: | Port 1 | • | |
| VPI: | | 0 * | |
| VCI: | | 32 * | |
| RFC2684 Mode: | bridged | • | |
| Administrative State: | Enable O Disa | able | |
| IP Traffic Profile Servic | e Type 802.1Q/1P MAC | Limit | |
| VIANUS | F | 400 | |
| VLAN ID: | | | |
| Oser Priority: | | | |
| | | | |
| | | | |
| . Figure 4-66 xD RFC2684 bridged 1 | OK Cancel | - MAC Limit Di | alog (only for the |
| . Figure 4-66 xD RFC2684 bridged 1 D Add VC-to-VLAN Configure -Virtual Channel | OK Cancel SL VC-to-VLAN Setting mode) | ; – MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged 1 Add VC-to-VLAN Configure -Virtual Channel Slot: | OK Cancel OSL VC-to-VLAN Setting mode) ation | - MAC Limit Di | alog (only for the |
| - Figure 4-66 xD RFC2684 bridged 1 D Add VC-to-VLAN Configure -Virtual Channel Slot: Port: | OK Cancel OK Cancel OSL VC-to-VLAN Setting mode) ation LC1 Port 1 | ; – MAC Limit Di | alog (only for the |
| - Figure 4-66 xD RFC2684 bridged 1 D Add VC-to-VLAN Configur -Virtual Channel Slot: Port: VPI: | OK Cancel | - MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged 1 Add VC-to-VLAN Configure Virtual Channel Slot: Port: VPI: VCI: | OK Cancel | - MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged 1 Add VC-to-VLAN Configure Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: | OK Cancel | - MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged 1 Add VC-to-VLAN Configure -Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: Administrative State: | OK Cancel | ; – MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged 1 Add VC-to-VLAN Configure Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: Administrative State: IP Traffic Profile Service | OK Cancel VSL VC-to-VLAN Setting mode) stion LC1 Port 1 | ; – MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged I Add VC-to-VLAN Configure Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: Administrative State: | OK Cancel VSL VC-to-VLAN Setting mode) stion LC1 Port 1 Image: Constraint of the state of the | ; – MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged I Add VC-to-VLAN Configure -Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: Administrative State: IP Traffic Profile Service MAC Count: | OK Cancel VSL VC-to-VLAN Setting mode) ation LC1 Port 1 | ; – MAC Limit Di | alog (only for the |
| Figure 4-66 xD RFC2684 bridged I Add VC-to-VLAN Configure Virtual Channel Slot: Port: VPI: VCI: RFC2684 Mode: Administrative State: IP Traffic Profile Service MAC Count: | OK Cancel VSL VC-to-VLAN Setting mode) stion LC1 Port 1 Image: Constraint of the state of the | ; – MAC Limit Di | alog (only for the |

| Slot: LC1 - | |
|--|---|
| Port Port 1 | |
| | |
| VPI: 0 * | |
| VCI: 32 | |
| REC2684 Mode: bridged | |
| | |
| | |
| IP Traffic Profile Service Type 802.1Q/1P MAC Limit | |
| Service Type: | |
| IP Count: 1 | |
| | |
| Static IP's Base Address: 0 .0 .0 .0 | |
| | |
| OK Cancel | |
| | |
| Add VC-to-VLAN Configuration Virtual Channel——————————————————————————————————— | × |
| Slot: | |
| Port: Port1 | |
| | |
| UDL 0 | |
| VPI:U | |
| VCI: | |
| VCI: 32 × | |
| VPI: 0 • VCI: 32 • RFC2684 Mode: bridged • Administrative State: • Enable Obisable | |
| VPI: 0 v VCI: 32 v RFC2684 Mode: bridged v Administrative State: • Enable Disable | |
| VCI: 32 RFC2684 Mode: bridged Administrative State: IP Traffic Profile Service Type 802.1Q / 1P MAC Limit | |
| VCI: 32 RFC2684 Mode: bridged Administrative State: IP Traffic Profile Service Type 802.1Q / 1P MAC Limit Service Type: DHCP | |
| VCI: 32 RFC2684 Mode: bridged Administrative State: IP Traffic Profile Service Type 802.1Q / 1P MAC Limit Service Type: DHCP IP Count: 1 = | |
| VCI: 32 RFC2684 Mode: bridged Administrative State: IP Traffic Profile Service Type 802.1Q / 1P MAC Limit Service Type: DHCP IP Count: 1 = Service Type: 0 = 0 = 0 | |
| VPI: 0 VCI: 32 RFC2684 Mode: bridged Administrative State: • Enable IP Traffic Profile Service Type 802.1Q / 1P MAC Limit Service Type: DHCP IP Count: 1 Static IP's Base Address: 0 | |

| Slot: | LC1 V | |
|--------------------------------|-----------------------|--|
| Port: | Port 1 | |
| VPI: | 0 | |
| VCI: | 32 | |
| RFC2684 Mode: | bridged 👻 | |
| Administrative State: | Enable O Disable | |
| IP Traffic Profile Service Typ | e 802.1Q/1P MAC Limit | |
| Service Type: | Static IP 💌 | |
| IP Count: | 1 * | |
| Static IP's Base Address: | 1.1.1.1 | |
| 0 | Cancel | |

HowTo 2. How to configure to provide a multicast and bridged data service on the DAS4 series IP-DSALM

Environment



Set Up via AMS client

| Step | Procedure and example of parameter value (Procedure with blue background, Example with yellow background) | |
|--------|--|--|
| Step 1 | Add a TV (multicast) channel profile to system. | |
| | Follow the procedures in 4.7.5 VLAN Profile Management to set the following profiles TV Channel Profile 1. Figure 4-39 Add xDSL IP Traffic Profile DialogFigure 4-41 Add xDSL TV Channel Profile Dialog | |
| | Example: Please see the example setting as follows. 1. Figure 4-39 Add xDSL IP Traffic Profile DialogFigure 4-41 Add xDSL TV Channel Profile Dialog Profile Dialog | |
| | D xDSL TV Channel Profile | |
| | Profile ID: | |
| | Name: TV1 | |
| | TV Channel IP Address: 234 .5 .1 .1 | |
| | Priority Queue: | |
| | Downstream Rate (Kbps): 29984 | |
| | OK Cancel | |

| Step 2 | Create a multicast service profile and assign multicast channel profile to a service profile. |
|--------|---|
| | Follow the procedures in 4.7.5 VLAN Profile Management to set the following profiles |
| | Multicast Service Profile |
| | 1. Figure 4-43 Add xDSL Multicast Service Profile Dialog |
| | Example: |
| | Please see the example setting as follows. |
| | I. Figure 4-43 Add xDSL Multicast Service Profile Dialog |
| | |
| | Name: TVg1 |
| | TV Channel |
| | ID Group Profile Name TV Channel IP Address |
| | I TV1 234.5.1.1 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | OK Detail Cancel |
| | |

| Step 3 | Follow step 1~4 in HowTo 1 | |
|--------|--|----------------------|
| Step 4 | Create a mcau (multicast conditional access unit) on xDSL subscriber. | |
| | Follow the procedures in Section 4.11.1 Multicast Channel Configuration to | o fill the following |
| | dialogs | |
| | 1. Figure 4-76 xDSL Multicast Channel Setting Dialog | |
| | Example: | |
| | Please see the example setting as follows. | |
| | 1. Figure 4-76 xDSL Multicast Channel Setting Dialog | |
| | D Multicast Channel | |
| | Ethemet over ATM | |
| | Slot: LC1 💌 | |
| | Port 1 | |
| | | |
| | VPI: 0* | |
| | xct 32 | |
| | | |
| | VLAN ID: 300 | |
| | Administrative Status: | |
| | | |
| | Multicast Service Profile Access Control | |
| | | |
| | | |
| | Profile: TVα1 | |
| | | |
| | | |
| | | |
| | OK Cancel | |
| | | |

Quick Configuration Guide for AMS Client

| Step | Enable IGMP snoopy function on IP-DSLAM. |
|------|--|
| 5 | Follow the procedures in Section 4.11.2 IGMP snooping/IGMP proxy Configuration to fill the following dialogs |
| | 1. Figure 4-77 IGMP Snooping / IGMP Proxy Setting Dialog |
| | Example: Please see the example setting as follows |
| | 1. Figure 4-77 IGMP Snooping / IGMP Proxy Setting Dialog |
| | Device Page |
| | Configuration > IGMP Snooping / IGMP Proxy |
| | Disable IGMP Snooping and IGMP Proxy |
| | Enable IGMP Snooping |
| | IGMP Snooping MAC Aging |
| | Aging Time (sec): |
| | ⊖ Enable IGMP Proxy |
| | IGMP Proxy Parameter |
| | Robustness (Query Retry): 5 |
| | Query Response Interval (sec): |
| | Immediate Leave: |
| | |
| | Refresh Submit Commit |
| | |

| | | Configuration > IGMP Shooping / IGMP Proxy |
|----------|---------------------------------|--|
| -IGMP Sr | nooping / Proxy Setting | |
| | isable IGMP Snooping and IGMP F | тоху |
| O Er | nable IGMP Snooping | |
| | -IGMP Snooping MAC Aging | |
| | | |
| | Aging Time (sec): | 300 |
| | | |
| | | |
|) Er | nable IGMP Proxy | |
| | IGMP Proxy Parameter | |
| | | |
| | Robustness (Query Retry): | 5 |
| | | |
| | Query Response Interval (sec) | 30 × |
| | | |
| | Immediate Leave: | V |
| | | |
| | | |
| | | Refresh Submit Commit |
| | | |