



DYNAMIX 2400A

IP DSLAM



User's Manual

ABOUT THIS MANUAL

This section guides you on how to use the manual effectively. The manual contains information needed to install, configure, and operate the Dynamix 2400A IP DSLAM. The summary of this manual is as follows:

Chapter 1: Introduction

Introduce the main feature, specification and application of Dynamix 2400A.

Chapter 2: Getting Started

Provide outlooks, operation instructions to ensure working properly.

Chapter 3: Factory Default setting

Detail parameters and port explanation.

Chapter 4: CLI (Command Line Interface) management

Commands, operation instructions, software upload, alarm management, all system configurations.

Chapter 5: Quick start

Introduce how to configure the Dynamix 2400A and make it work basically.

Chapter 6: Troubleshooting

Describe how to recover the system operation from each symptom.

Contents

| | |
|--|-----------|
| Chapter 1. Introduction | 6 |
| 1.1 Overview | 6 |
| 1.2 Features | 6 |
| 1.3 Specifications | 7 |
| 1.3.1 Hardware Specifications | 7 |
| 1.3.2 Software Specifications | 7 |
| 1.3.3 Mechanical Specifications | 9 |
| 1.3.4 Environmental | 9 |
| 1.4 Application | 10 |
| Chapter 2. Getting Started | 10 |
| 2.1 Hardware Outlook | 10 |
| 2.1.1 Front Panel | 10 |
| 2.1.2 Rear Panel | 13 |
| 2.2 Hardware Installation | 14 |
| 2.2.1 Unpacking | 14 |
| 2.2.2 Location and Placement | 15 |
| 2.2.3 Restricted Access Location | 15 |
| 2.2.4 Installation Procedures | 16 |
| 2.2.5 Power-up & Initialization | 16 |
| Chapter 3. Factory Default Settings | 17 |
| 3.1 IP Parameter | 17 |
| 3.2 RS-232 Port | 17 |
| 3.3 SNMP Community Strings | 17 |
| 3.4 Password | 17 |
| 3.5 ADSL Port | 18 |
| 3.6 Ethernet Port | 19 |
| 3.7 Others | 19 |
| Chapter 4. CLI Management | 20 |
| 4.1 CLI (Command Line Interface) Port Operation | 20 |
| 4.1.1 Telnet Connection | 20 |
| 4.1.2 RS-232 Port Connection | 21 |
| 4.2 Dynamix 2400A CLI Command Operation | 22 |
| 4.2.1 User Privilege | 22 |
| 4.2.2 Help Usage | 22 |
| 4.2.3 Dynamix 2400A All Command | 22 |
| 4.3 Dynamix 2400A Command - Master Node | 23 |
| 4.3.1 System | 23 |
| 4.3.2 Software Download/Upload | 23 |
| 4.3.3 ATM Setting | 24 |
| 4.3.4 Line Configuration | 25 |
| 4.3.5 Alarm Management | 28 |
| 4.3.6 Packet Filtering | 30 |
| 4.3.7 Forwarding Table | 31 |
| 4.3.8 Ethernet Phy Configuration | 32 |
| 4.3.9 Port Security | 32 |
| 4.3.10 Broadcast Control | 33 |
| 4.3.11 Trunking | 33 |
| 4.3.12 Port Mirroring | 33 |
| 4.3.13 Group (supported on software version 1.10.0 up) | 34 |
| 4.3.14 Spanning Tree Protocol | 34 |
| 4.3.15 IGMP Snooping | 35 |
| 4.3.16 QoS | 35 |
| 4.3.17 SNMP | 36 |
| 4.3.18 OAM | 36 |

| | |
|---|-----------|
| 4.3.19 ADSL Port Miscellaneous..... | 36 |
| 4.4 Dynamix 2400A Command-Slave Node | 38 |
| Chapter 5. Quick start | 39 |
| 5.1 Configure the parameters of ATM profile..... | 39 |
| 5.1.1 Configure the profile name..... | 39 |
| 5.1.2 Configure the encapsulation type..... | 39 |
| 5.1.3 Configure the priority of PVC..... | 39 |
| 5.1.4 Configure the vpi and vci value of the PVC | 39 |
| 5.1.5 Configure the QoS value..... | 39 |
| 5.1.6 Active the atm profile users defined | 40 |
| 5.1.7 Apply the user-defined profile to the specified node and port | 40 |
| 5.2 Configure the parameters of line profile | 40 |
| 5.2.1 Configure the line profile name | 40 |
| 5.2.2 Configure the line service type | 40 |
| 5.2.3 Configure the maximum data rate | 40 |
| 5.2.4 Apply the user-defined line profile to specified node and port..... | 40 |
| 5.3 Save the configuration | 41 |
| Chapter 6. Troubleshooting | 42 |

Figure List

| | |
|--|----|
| FIGURE 1-1 NETWORK DIAGRAM..... | 6 |
| FIGURE 2-1 DYNAMIX 2400A FRONT PANEL..... | 7 |
| FIGURE 2-2 Dynamix 2400A FRONT PANEL INTERFACES..... | 8 |
| FIGURE 2-3 Dynamix 2400A LED INDICATORS..... | 9 |
| FIGURE 2-4 Dynamix 2400A REAR PANEL..... | 10 |
| FIGURE 2-5 ADSL INTERFACE..... | 11 |
| FIGURE 5-1 THE STATUS OF ATU-R..... | 50 |

Table List

| | |
|---|----|
| TABLE 2-1 DIP SWITCH SETTINGS FOR DIFFERENT BOX ID..... | 8 |
| TABLE 2-2 LED DESCRIPTIONS..... | 10 |
| TABLE 2-3 PIN ASSIGNMENT OF ADSL INTERFACE..... | 12 |
| TABLE 6-1 Q&A..... | 53 |

Chapter 1. Introduction

This chapter will provide a brief introduction to Dynamix 2400A IP DSLAM.

1.1 Overview

The Dynamix 2400A is the most compact IP DSLAM (IP based DSL Access Multiplexer) that offers the functionality and cost effective architecture - meeting the increasing demands for broadband services.

- **Compact & Cost Effective:** Dynamix 2400A is a 1U height 19" pizza box with 24 ports ADSL and build-in POTS splitters. It's the most compact and cost effective IP DSLAM solution with reliable product quality.
- **Selectable AC/DC Dual Mode Power:** Both 100~240V AC and -48V DC input are available and selectable in the Dynamix 2400A. In any case, Dynamix 2400A can fulfill field power requirement - discarding the worries of operators on power related factors.
- **Flexible Design for Uplink & Subtending:** Six ports of 10/100 Base-T are available in the Dynamix 2400A, and are flexible for uplink and subtending interfaces. 802.3ad port trunking is supported to provide more bandwidth for the uplink. Via the subtending interfaces, multiple Dynamix 2400A's can be connected by the star or daisy chain architecture to form as a single 120 ports DSLAM. Only single IP address is required to manage the cascading devices.
- **Full Ethernet Switch Features:** Dynamix 2400A builds in a high performance Ethernet switch to provide a full set of Ethernet switch functions including 802.1d, 802.1q, 802.1p, 802.3ad, and IGMP snooping.
- **Element Management System:** Dynamix 2400A EMS has powerful SNMP-based network management software that offers convenience when remotely configuring parameters, updating system status, displaying alarm events, or monitoring and diagnosing the Dynamix 2400A.

1.2 Features

- **ADSL Interface:** Each Dynamix 2400A provides 24 ADSL interfaces.
- **PSTN Interface:** Each ADSL line can simultaneously carry ADSL signal and analog voice. A Dynamix 2400A IP DSLAM has built-in splitters to separate/combine ADSL signals and analog voice. The analog voice can come in or out of a Dynamix 2400A via PSTN interface.
- **Ethernet Interface:** Each Dynamix 2400A unit provides seven Fast Ethernet interfaces: two for uplink, four for subtending and one for in-band management.
- **Stackable:** Dynamix 2400A provides stackable features for up to 5 units. The whole system can be managed through a single IP. It offers the flexibility in configurations and facilitates users' effort in managing the whole system.

- **Network Management:** Dynamix 2400A provides complete network management solutions. Users can manage systems in various ways:
- **On-site management:**
 - > *RS-232: Dynamix 2400A provides on-site system configuration via an RS-232 serial interface.*
- **Remote management:**
 - > *EMS (Element Management System): Dynamix 2400A supports the complete EMS management including five major functions, FCAPS (Fault management, Configuration, Accounting, Performance and Security).*
 - > *Telnet: Dynamix 2400A supports management via telnet from remote site.*
- **Remote Software Upgrade**

1.3 Specifications

1.3.1 Hardware Specifications

| | |
|--------------------------------|---|
| ADSL Interface | One 50-pin Champ connector for 24 ADSL subscriber lines on Dynamix 2400A Noise Compensation: Scramble, FEC, Interleave Support Interleave, Fast channel optional Error Rate: less than 10^{-7} in 6dB Margin |
| POTS Splitter Interface | One 50-pin Champ connector for 24 POTS output on Dynamix 2400A |
| Ethernet Interface | Built-in 6-port 10/100BASE-TX Fast Ethernet switch, two for uplink, and four for subtending |
| Console Interface | One RS-232 for out-band CLI management and one port of 10/100BASE-TX for in-band telnet management |
| Reset | Momentary push button switch |
| Status indicators | LEDs for activity, connectivity and alarm for each DSL ports |
| Power Interface | Optional AC Input Power feed with 100 ~ 240V, 50/60Hz or DC Input Power feed with -48V |
| Power Consumption | 40 W max. |

1.3.2 Software Specifications

ADSL-

| | |
|----------------------|--|
| ADSL Standard | Compliant with ANSI T1.413-Issue 2, ITU G.992.1 (G.dmt), G.992.2 (G.lite), and G.994.1 (G.hs) |
| ADSL speed | Up to 8Mbps downstream and 1Mbps upstream at G.dmt mode Up to 1.536Mbps downstream and 512kbps upstream at G.lite mode |
| ADSL features | Support Rate adaptation per port at configured speed in the granularity of 32Kbps Layer 2 insulation between ADSL ports VLAN based on port, port: VLAN = N: 1 IGMP snooping |
| ATM features | Complies with ITU-T Rec. I.361 UNI cell format Supports UNI 3.1/4.0 PVC Integrated ATM AAL5 Supports 4 PVCs per subscriber line Supports ATM QoS - UBR (now) -CBR -VBR-rt -VBR-nrt |

Data Encapsulation formats

RFC 1483/2684 (bridge mode) multi
protocol encapsulation over ATM AAL5
PPPoE forwarding

Performance Monitoring

Pattern:

- Accumulated
- Current
- Interval: 15-minute intervals
- History: 24-hour intervals

Dynamix 2400A supports the following
statistics on the ADSL side:

- Accumulated, Interval, and History
 - los_signal
 - los_frame
 - los_power
 - los_link
 - error_second
 - trans_block
 - receiv_block
 - corr_block
 - uncorr_block
 - FEC
 - CRC error Hec error

Current

channelBitrDS
noiseMarginDS
outPowerDS
lineAttenuDS
 maxAttainRateDS
channelBitrUS
noiseMarginUS
outPowerUS
lineAttenUS
 maxAttainRateUS
CurrentRateUS
 PreCurrentRateDS
 PreCurrentRateUS
interDelayDS
interDelayUS
bastTransRateDS
bestTransRateUS

Ethernet

Ethernet Standard

Complies with: IEEE802.3 Ethernet IEEE802.3u Fast Ethernet
IEEE802.3x Flow Control IEEE802.3ad Link Aggregation (static)
IEEE802.1d Spanning Tree Protocol IEEE802.1p Priority Queue
IEEE802.1q VLAN tag(8 level priority)

Ethernet Feature

Packet Filter base on port
Packet Filter base on MAC
Broadcast Storm Control
Port provisioning, status monitor and traffic statistics
Port Mirroring
Up to 1024 active VLANs

Network Protocol

IETF RFC 768 UDP (User Datagram Protocol) IETF RFC 783 TFTP (Trivial File Transfer Protocol) IETF RFC 791 IP (Internet Protocol) IETF RFC 792 ICMP (Internet Control Message Protocol) IETF RFC 793 TCP (Transmission Control Protocol) IETF RFC 826 ARP (Address Resolution Protocol) IETF RFC 951,1542 BootP (Bootstrap Protocol) IETF RFC 854,855 Telnet Protocol

Humidity: 10% ~90% (non-condensing)

Performance Monitoring Dynamix 2400A supports the following statistics on the trunk side:
- Number of packets sent
- Number of packets received
- Number of packets lost
- Number of octets send
- Number of octets received

OAM

Management Interface EMS, and CLI(Command Line Interface) management interface for FCAPS functions(Fault-management, Configuration, Accounting, Performance, and Security) OAM support EOC and AOC

Network Management Manage all subtended IP DSLAM as one single NE, the equipment support SNMP v2c. MIB support:
- RFC1213 MIB-II
- RFC1213 SNMPv2 MIB
TFTP firmware upgrade and remote configuration backup and restore
TELNET server for remote management
Configuration download/upload

Security Access control list, password protected system management terminal

1.3.3 Mechanical Specifications

Form Factor 19" rack-mount
Dimensions (WxDxH) 440mm x 290mm x 44mm
Fan 2 ball-bearing 60x60x20mm fans
Weight 4.5Kg

1.3.4 Environmental

Operating Temperature: -5 ~ +50°C
Humidity: 10% ~90% (non-condensing)
Storage Temperature: -10 ~ +85°C
Humidity: 10% ~90% (non-condensing)

1.4 Application

Dynamix 2400A, as Figure 1-1, allows Carriers and Service Providers to offer high-speed data and voice services to areas served through the existing copper wires. These solutions offer the best cost/ effective performance for Carriers and Service Provide when providing broadband access to Internet for MTU/MDU/MHU applications such as Building / Hotel / Hospital / School etc

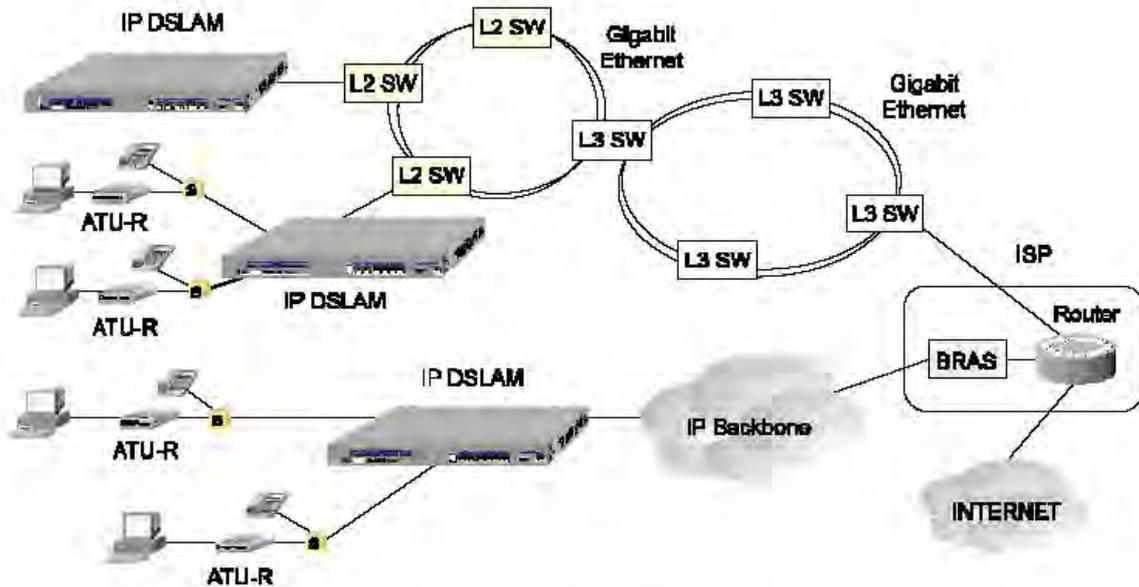


FIGURE 1-1 NETWORK DIAGRAM

Chapter 2. Getting Started

This chapter gives an overview of the Dynamix 2400A unit first, followed by a comprehensive description of the hardware installations involved.

2.1 Hardware Outlook

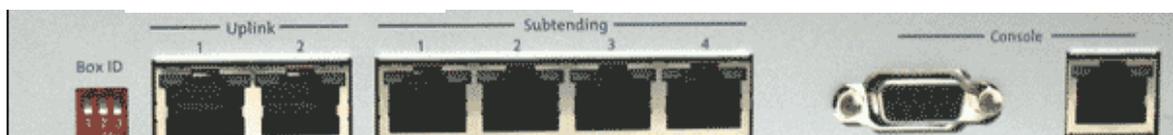
2.1.1 Front Panel

DYNAMIX 2400A unit includes 24-port built-in Splitter ADSL module and 6-port Fast Ethernet Switch in one 1U pizza box. There are 2 Champ connectors on the rear view: one for 24-port ADSL line and the other for 24-port POTS. 10/100 Base-T Fast Ethernet interfaces are provided on front view for two-port up-link connection and four-port subtending connection, as Figure 2-1.



indicators of ADSL Ports

Up Link Ports 4x10/100 Base-T RS Console and Ethernet



identification 2 x Up Link Port

4x 10/100 Base-T

Console RS-232 Ethernet Console

Reset: Reset button is for users to re-start the system, by pressing the button for more than six seconds or, to restore the system configuration back to the factory default.

BOX ID: Dynamix 2400A supports configuration for stacking up to five units. In a stackable system, each unit can be identified by a box ID, configurable via the DIP switch on the front panel. The unit with BOX ID being 1 will be the primary node, and BOX ID of 2 to 5 being the secondary nodes. Table 2-1 shows the corresponding setting of DIP switches for different BOX ID.

| BOX ID | Functionality | DIP Switch Setting |
|--------|-------------------------|---|
| 1 | Primary ADSL IP DSLAM |  |
| 2 | Secondary ADSL IP DSLAM |  |
| 3 | Secondary ADSL IP DSLAM |  |
| 4 | Secondary ADSL IP DSLAM |  |
| 5 | Secondary ADSL IP DSLAM |  |

TABLE 2-1 DIP SWITCH SETTINGS FOR DIFFERENT BOX ID

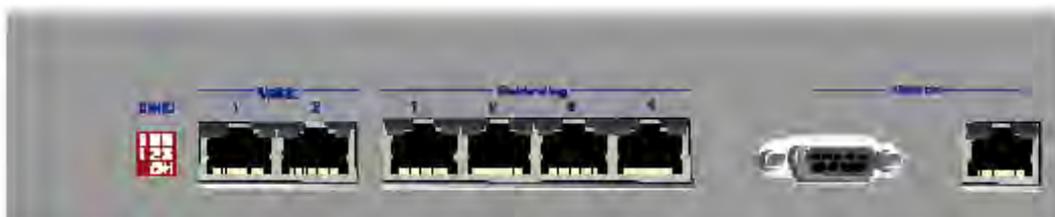


FIGURE 2-2 Dynamix 2400A FRONT PANEL INTERFACES

Uplink Interface: Each Dynamix 2400A unit provides two 10/100 BASE-TX Fast Ethernet ports as the uplink interfaces, as Figure 2-2. In stackable configurations, the primary unit uses its uplink interfaces to connect to the IP network. The secondary units use their uplink interfaces to connect to the primary unit. Each Dynamix 2400A unit also supports IEEE 802.3ad on the two-uplink interfaces, which provide 200 Mbps bandwidth for uplink access.

Subtending Interface: Each Dynamix 2400A unit provides four 10/100 BASE-TX Fast Ethernet ports as the subtending interfaces, as Figure 2-2. The primary Dynamix 2400A connects to the secondary using the subtending ports.

A secondary Dynamix 2400A can also connect to other secondary Dynamix 2400A via its subtending interfaces.

Same as the uplink interfaces, the four subtending interfaces support IEEE 802.3ad with two configurations. Users can enable trunking of the first and second subtending ports, and / or of the third and fourth subtending interfaces.

RS-232 Console: Each Dynamix 2400A supports one standard DB-9 RS-232 serial interface for console management.

In-band Management Interface: Dynamix 2400A provides one 10/100 BASE-TX Fast Ethernet interface for in-band management. With the interface, users can manage a system remotely by Telnet or EMS.

LED Indicators: Each Dynamix 2400A system indicates its current status on the front panel via numerous LEDs, as shown in Figure 2-3, and Table 2-2 describes the meaning of each LED.



FIGURE 2-3 Dynamix 2400A LED INDICATORS

| LED | Color | Status | Functional Description |
|---|-------|--------|---|
| OK (Power Indicator) | Green | On | During the system starts and normal afterwards |
| | | Off | No power |
| Alarm (Alarm Indicator) | Red | On | The system has alarms |
| | | Off | There is no alarm |
| ADSL (ADSL interface indicator) | Green | Off | After system starts, the ADSL interface does not connect to any ADSL modem |
| | | Flash | The ADSL interface is undergoing the training stage with the connected ADSL modem |
| | | On | The ADSL interface is in Showtime stage |
| Left LED on an Ethernet interface | Green | On | The Ethernet interface is running at 100 Mbps |
| | | Off | The Ethernet interface is running at 10 Mbps |
| Right LED on an Ethernet interface | Green | On | The interface is up |
| | | Flash | The interface is transmitting or receiving traffic |
| | | Off | The interface is not connected |

TABLE 2-2 LED DESCRIPTIONS

2.1.2 Rear Panel



FIGURE 2-4 Dynamix 2400A REAR PANEL

ADSL Interfaces: Each Dynamix 2400A provides a 50-pin CHAMP connector for connection to ADSL modems. The 50-pin ADSL interface is used to connect to each Subscriber. Please refer to Figure 2-5 and Table 2-3 below for a detail description.

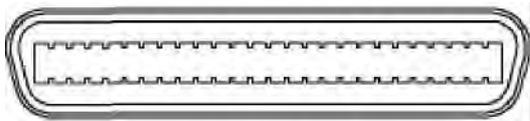


FIGURE 2-5 ADSL INTERFACE

| PIN# | Usage | PIN# | Usage |
|------|----------------|------|----------------|
| 1 | ADSL loop#1-T | 26 | ADSL loop#1-R |
| 2 | ADSL loop#2-T | 27 | ADSL loop#2-R |
| 3 | ADSL loop#3-T | 28 | ADSL loop#3-R |
| 4 | ADSL loop#4-T | 29 | ADSL loop#4-R |
| 5 | ADSL loop#5-T | 30 | ADSL loop#5-R |
| 6 | ADSL loop#6-T | 31 | ADSL loop#6-R |
| 7 | ADSL loop#7-T | 32 | ADSL loop#7-R |
| 8 | ADSL loop#8-T | 33 | ADSL loop#8-R |
| 9 | ADSL loop#9-T | 34 | ADSL loop#9-R |
| 10 | ADSL loop#10-T | 35 | ADSL loop#10-R |
| 11 | ADSL loop#11-T | 36 | ADSL loop#11-R |
| 12 | ADSL loop#12-T | 37 | ADSL loop#12-R |
| 13 | ADSL loop#13-T | 38 | ADSL loop#13-R |
| 14 | ADSL loop#14-T | 39 | ADSL loop#14-R |
| 15 | ADSL loop#15-T | 40 | ADSL loop#15-R |
| 16 | ADSL loop#16-T | 41 | ADSL loop#16-R |
| 17 | ADSL loop#17-T | 42 | ADSL loop#17-R |
| 18 | ADSL loop#18-T | 43 | ADSL loop#18-R |
| 19 | ADSL loop#19-T | 44 | ADSL loop#19-R |
| 20 | ADSL loop#20-T | 45 | ADSL loop#20-R |
| 21 | ADSL loop#21-T | 46 | ADSL loop#21-R |
| 22 | ADSL loop#22-T | 47 | ADSL loop#22-R |
| 23 | ADSL loop#23-T | 48 | ADSL loop#23-R |
| 24 | ADSL loop#24-T | 49 | ADSL loop#24-R |
| 25 | | 50 | |

TABLE 2-3 PIN ASSIGNMENT OF ADSL INTERFACE

The 50-pin cable is not provided in the Dynamix 2400A accessory package. You may use either a cable with RJ-21 connector on both ends or a RJ-21 on one end and open strips on the other.

- **PSTN Interface:** Dynamix 2400A provides a 50-pin, CHAMP connector as the PSTN interface for connecting to PSTN network, as Figure 2-4.
- **AC Power:** Dynamix 2400A uses built-in power supply, and supports 100-240VAC, as Figure 2-4.
- **DC Power:** Dynamix 2400A built-in power supply also supports DC.

2.2 Hardware Installation

2.2.1 *Unpacking*

Inspect the contents of the package upon receipt. Make sure that all items listed below are complete. If there are missing items/parts, please contact your local dealer for assistance. The Dynamix 2400A packaging includes:

- **Dynamix 2400A x 1**
- **Power core x 1**
- **Accessory pouch (includes screw, mounting brackets, and CD) x 1**

Minimum Configuration / PC Requirement

- **10/100 BaseTx Ethernet Interface**
- **RS-232 DB9 console port (or other kind of ports could convert to DB9 type)**

Prerequisite of PC: TCP/IP Protocol

To ensure smooth configuration, TCP/IP protocols must be installed on PC before it is connected to the LAN port of Dynamix 2400A. Please refer to the PC user's manual for the installation and configuration procedures of TCP/IP protocol.

Required Information

The following information should be obtained from an ISP or company server for the configuration of Dynamix 2400A IP DSLAM.

- **IP Address**
- **Subnet mask**
- **Default gateway**

Optional information you need when setting up your network

- **DNS IP Address**

The following information should be planned before installation if need.

- **VPI/VC1**

2.2.2 Location and Placement

Determine the location and placement planned for the Dynamix 2400A unit. Be sure to consider space, rack size, power, telephone outlets, ventilation, temperature, humidity, lighting and other system usage requirements.

Items of Consideration

- **Mounting location must allow proper airflow through and around the chassis.**
- **The unit and its contents must be protected from weather or other environmental damage**
- **Mounting must not create obstruction, physical hindrance or safety hazard for personnel. Floor mounted racks must be bolted to the floor or other bracing so that installation of Concentrator chassis does not create the possibility of rack falling over due to a high center of gravity. In some locations, earthquake or other bracing is required by local ordinances.**
- **Power requirements must not overload. The table below shows the power requirements of the Dynamix 2400A.**

| | | |
|-----------------|-------------------|--------------|
| AC Input | Input Voltage | 100~240VAC |
| | Frequency | 47~63 Hz |
| DC Input | Input Voltage | -48 ~ -42VDC |
| | Power Consumption | 40 W (max) |

Always keep the ambient temperature and humidity in the range described below:

| | |
|----------------------------------|-----------------------|
| Temperature for Operation | -5 ~ 50 °C |
| Temperature for Storage | -10 ~ 85 °C |
| Relative Humidity | 10~90% non-condensing |

2.2.3 Restricted Access Location

Access must only be limited to SERVICE PERSONNEL via controlled access (such as a locked cage or other means). It is to ensure that unauthorized personnel do not have access to, and are not presented with a hazard to this equipment.

2.2.4 Installation Procedures

1. Remove the Dynamix 2400A from the box.
2. The Dynamix 2400A can be placed on a table surface for small size services. It is recommended to install the unit in a 19' or 23" rack if multiple boxes are used together.
3. Install rack bracket on the unit using the mounting screws provided. 4.

Place the unit in the rack (19 inch or 23 inch) and install mounting screws.

The holes in the rack bracket of a Dynamix 2400A unit are placed per Notes industry standards. Different types of racks require different mounting screws, so customer will have to prepare for screws according to its own customer need.

5. Connect subtending ports to another IP DSLAM using a UTP Category-5 cable. This cable fulfills the connection between IP DSLAMs for either star or daisy chain purpose (up to 5 units).
6. Connect Uplink port to other WAN device, such as Ethernet switch or router for WAN service.
7. Connect ADSL ports (subscriber ports) to user's lines: Use 50-pin Champ cable (known as Centronic cable or Telco cable) to make a connection between IP DSLAM and each ADSL line.
8. Connect PSTN ports to exchange server or PABX.
9. Connect AC/DC Power Supply. Before connecting AC/DC power, and please be sure the WAN Ethernet port and ADSL ports are properly connected.

2.2.5 Power-up & Initialization

Before operating Dynamix 2400A, please check WAN Ethernet port and subscribe port are properly connected to the right device.

1. Plug in power cable to initialize the IP DSLAM.
2. You will then hear fans start running.
3. LED indicator (PWR) on the front panel of IP DSLAM automatically will on while power provision is normal and if the initialization process is not properly completed, the Alarm LED will light up.
4. Wait for a few seconds for the IP DSLAM to complete initialization.
5. After initialization, CLI will ask user to input username and password for identification. [Dynamix 2400A IP DSLAM User Manual](#) (Default username and password for administrator are both "**admin**".)

Chapter 3. Factory Default Settings

This section introduces the factory default of Dynamix 2400A. The user has to be familiar with this section before setting the Dynamix 2400A.

3.1 IP Parameter

- **IP address: 192.168.1.1**
- **Subnet mask: 255.255.255.0**
- **Default Gateway: 192.168.1.254**

3.2 RS-232Port

- **Baud Rate: 9600 bps**
- **Data bits: 8**
- **Parity: none**
- **Stop bit: 1**
- **Flow control: none**

3.3 SNMP Community Strings

- **Get: public**
- **Set: private**
- **Trap: public**

3.4 Password

- **User:**
 - > **User name: *user***
 - > **Password: *1234***

- **Administrator:**
 - > **User name: *admin***
 - > **Password: *admin***

3.5 ADSL Port

- Line profile, Alarm profile, ATM profile number: 1
- MacBoundEnable, AlarmTrapMask, PmReset, IsolateEnable, AlarmReset, Security function: disable
- Line profile:

| | |
|-------------------|--------------------------------------|
| LineProfileName | _ |
| Service Type | Automatic |
| Framing Mode | Single latency with reduced overhead |
| NTR | Disable |
| Trellis Mode | Enable |
| DownStream Path | Interleaved |
| UpStream Path | Interleaved |
| DnTargetSNRMargin | 6 |
| DnMaxSNRMargin | 31 |
| DnMinSNRMargin | 0 |
| DnMaxTxRate | 8160 |
| DnMinTxRate | 1 |
| DnLineDelay | 24 |
| UpTargetSNRMargin | 6 |
| UpMaxSNRMargin | 31 |
| UpMinSNRMargin | 0 |
| UpMaxTxRate | 896 |
| UpMinTxRate | 1 |
| UpLineDelay | 24 |

Alarm Profile:

| | |
|-----------------|---|
| profName | - |
| DnLOFSThreshold | 0 |
| DnLOSSThreshold | 0 |
| DnLPRSThreshold | 0 |
| DnESThreshold | 0 |
| UpLOFSThreshold | 0 |
| UpLOSSThreshold | 0 |
| UpLPRSThreshold | 0 |
| UpESThreshold | 0 |
| UpLOLSThreshold | 0 |
| UpFECThreshold | 0 |
| UpCRCThreshold | 0 |
| DnFECThreshold | 0 |
| DnCRCThreshold | 0 |

ATM Profile:

In each ATM profile, it has four connection means that it supports four different PVC, the default values of each connection are the same. The table below will show the entries in connection 1 of the ATM profile 1 only.

| ***** Connection 1 ***** | |
|----------------------------|-------------|
| AdsiMode | bridge mode |
| VPI | 0 |
| VCI | 35 |
| EncapsulationMethod | llc-snap |
| BitRateMode | ubr |
| PCR | 3600 |
| VBRSCR | 0 |
| VBRBT | 0 |
| VLAN | 1 |
| Pri | 0 |

3.6 Ethernet Port

All Ethernet Ports, including downstream, upstream, and management ports, are (10/100, Full/Half Duplex) Auto-negotiation. The other settings are listed below:

- **Port State:** Enabled
- **IEEE802.3ad:** Disabled
- **IEEE802.1d:** Disabled
- **IEEE802.1q Tagged VLAN:** Disabled
- **IGMP Snooping:** Enabled (IGMP Timer: 26000 centi-seconds)

3.7 Others

- **MAC filter:** Disabled
- **Port Security:** Disabled
- **STP:** Disabled
- **QoS:** FCFS
- **Group ID:** group0
- **Date:** 1070/01/01 - 00:00:00

Chapter 4. CLI Management

This chapter mainly introduces how to use CLI (Command Line Interface) to set and manage Dynamix 2400A, including how to operate CLI, use CLI to set the command, supervise the performance, and manage the system.

4.1 CLI (Command Line Interface) Port Operation

This session mainly introduce how to operation the CLI port. There are two ways to connect the CLI port. One is using the Telnet in Ethernet network, and the other is using VT-100 terminal on RS-232 port.

4.1.1 Telnet Connection

1. Be sure in advance to have Ethernet Network Card on your computer and have TCP/IP protocol installed on it.
2. Use the Ethernet Cable to connect management port of Dynamix 2400A with PC Network Adapter.

You can use the Ethernet Cable accompanied with Dynamix 2400A or your own Ethernet Cable to connect your PC. Because Dynamix 2400A supports the auto-crossover, you don't have to worry if the Ethernet Cable is direct or not. However, be sure to check the Ethernet Cable is well.

3. Change the IP address of PC to 192.168.1.2, and subnet mask to 255.255.255.0.

Because the factory default of IP address is 192.168.1.1, be sure to check if the IP address is changed to 192.168.1.2, and subnet mask is 255.255.255.0, or other IP addresses belong to the same network. You can log in to Dynamix 2400A, change the IP address and subnet mask to the new value you want to use later, and, therefore, you can **telnet** the remote Dynamix 2400A to do the settings and managements.

4. Save configuration.

5. Reboot your PC

Please reboot your PC to let the network parameter can operate normally.

6. Start Telnet

- a. In the Windows menu <Start>, click <Command>.
- b. In the Command window, key *Telnet*, and click <OK>.
- c. In the Telnet window, click <Connect>, and choose <Remote System>.
- d. In the Connect window, key 192.168.1.1 in domain name: Connect Port: Telnet (Don't Change), Term Type : vt100 (Don't Change), and click <Connect>.

7. Log in to Dynamix 2400A

```
Wait for command (Login:) popup. Login:
(please key the factory default) admin Password:
(please key the factory default) admin Login
successful ADSLIPDSLAM#
```

If you see the above message, it represents you have logged in to the CLI command successfully.

4.1.2 RS-232 Port Connection

1. Be sure to check your PC to have RS-232 port and have installed HyperTerminal software (HyperTerminal is the software of Windows. If you don't have it, please refer to the Windows Installation User Manual. Skip this topic.)
2. Use the RS-232 Console Cable to connect the RS-232 port of Dynamix 2400A and your PC.
3. Set Hyper Terminal
 - a. Please refer to Windows User Manual about Hyper Terminal.
 - b. According to Dynamix 2400A factory default, set the HyperTerminal parameters as below:
 - . **Baud Rate:** 9600 bps
 - . **Data bits: 8**
 - **Parity:** none
 - . **Stop bit: 1**
 - **Flow control:** none
4. Please power up or reboot Dynamix 2400A.

Hyper Terminal will display that Dynamix 2400A is powering up and doing the self-test. Please don't operate during this period.
5. Log in to Dynamix 2400A

Wait for command (Login:) popup. Login:
(please key the factory default) **admin**
Password: (please key the factory default)
admin Login successful ADSLIPDSLAM#

If you see the above message, it represents you have logged in to the CLI command successfully.

4.2 DYNAMIX 2400A CLI Command Operation

4.2.1 User Privilege

In order to both have convenience and safety in management, Dynamix 2400A provides two kinds of privilege. One is "User", and the other is "Administrator":

- **"User"**: have the privilege to query system setting and performance monitoring, but doesn't have privilege to change system setting or get further information.
- **"Administrator"**: have all privileges to control or view the system. Be sure to keep the password secretly to maintain the security of Dynamix 2400A.

4.2.2 Help Usage

- Under the command of Dynamix 2400A, if you type "help", it will list the detailed explanation of how to use help.
- **ADSL IP DSLAM# help**
- Under the command of Dynamix 2400A, if you type "?", it will show all of the usable commands and description.
- **ADSL IP DSLAM# ?J**
- Under the command of Dynamix 2400A, if you are unfamiliar with the syntax of command, you can type "?" after command. ADSL IP DSLAM will suggest how to use this command. As for "show" command, if you want to know how to use this command, you can type command like below:
- **ADSL IP DSLAM# show ?**
- Under the command of Dynamix 2400A, if you don't know the exact spelling of commands, TAB key will help you to find the most possible command.

4.2.3 Dynamix 2400A All Command

All Dynamix 2400A commands and descriptions are listed below.

- **"ADSL IP DSLAM#"** is the command hints that user is in root directory.
- **The way to set command is directly type the command and its parameters after "ADSL IP DSLAM#"**. For example, if user want to show system date, he can type command as below:
- **ADSL IP DSLAM# show dateJ**
- **ADSL IP DSLAM#** (will return the system date and time)
- **If the command has parameter like <xxx>, it represents this parameter has to be provided by user.**
- **If the parameter has sign "|", it represents this parameter has multiplechoices. The user has to choose the desired parameter from one of them.**
<node_id>: the node_id represents which one in Dynamix 2400A Stacks. The user can find the BOX ID in the front panel and the ID is the same of node_id.

<interface_id>: the interface_id represent the Ethernet port in the front panel

| Function | Ethernet port ID | Interface ID |
|------------|------------------|------------------|
| Uplink | Ethernet Port 1 | interface id = 1 |
| Uplink | Ethernet Port 2 | interface id = 2 |
| Subtending | Ethernet Port 1 | interface id = 3 |
| Subtending | Ethernet Port 2 | interface id = 4 |
| Subtending | Ethernet Port 3 | interface id = 5 |
| Subtending | Ethernet Port 4 | interface id = 6 |
| Management | Ethernet Port 1 | interface id = 7 |

<port_id>: The port_id represents the ADSL ports of Dynamix 2400A.

For example, port_id=5 is represented the 5th port of ADSL.

4.3 Dynamix 2400A Command - Master Node

4.3.1 System

System level commands allow users to configure system related parameters such as date/time, IP settings, etc. They also include commands for saving configurations, restoring to factory defaults, verifying connectivity, etc. Users can also verify corresponding settings using "show" commands at system level

| Command | Description |
|-----------------------------|---|
| date <yyyy/mm/dd-hh:mm:ss> | Sets the date and time of Dynamix 2400A |
| show date | Displays the data and time of Dynamix 2400A |
| ping <ip-address> | Network connection test. Verifies if Dynamix 2400A can reach the specified IP address |
| Factory-reset | Recovers the factory default configuration file and then restarts the system |
| save configuration | Store the configuration file |
| reboot node <node_id> all | Restarts the specified node of Dynamix 2400A or all the system |
| Show version node <node_id> | Shows the version of hardware, software, boot, and system build date/time |
| ip address <ip-address> | Sets the IP address of the system |
| ip subnetmask <ip-address> | Sets the subnet mask of the system |
| ip defaultgw <ip-address> | Sets the IP address of default gateway of the system |
| show ip interface | Shows the ip address, net mask, and default gateway |
| Logout | Logs out the system |
| user password | Sets the password of the Administrator |
| user change admin/user | Changes the authority of Dynamix 2400A |
| show system | Displays information about system time, node number, version, and Mac information |
| show system status | Displays information of slave nodes |

4.3.2 Software Download/Upload

DYNAMIX 2400A employs TFTP mechanisms to perform software upgrade as well as configuration download and upload. The relevant commands are as follows:

| Command | Description |
|---|--|
| Dldimg node <node_id all> tftp <ip-address> <filename> | Downloads software from remote side via TFTP protocol. It can select one specified node or all nodes to upgrade. |
| Dldcfg tftp <ip-address> <filename> | Downloads configuration from remote side via TFTP protocol |
| Uldicfg tftp <ip-address> <filename> | Uploads configuration to remote side via TFTP protocol |

4.3.3 ATM Setting

This section describes how to configure ATM related settings on Dynamix 2400A systems through a set of ATM profiles. In Dynamix 2400A systems, each ATM profile contains parameters such as VPI/VCI, VLAN mapping, priority, QoS, and encapsulation method. By configuring parameters of ATM profiles with different values, users can thereafter apply appropriate profiles to ADSL ports respectively to offer distinct services. The commands are thus organized as configuring profiles, applying profiles to ADSL ports and finally viewing profile contents.

Note that for those ports already associated with particular profiles, change of the profile contents will take effect after apply command is executed.

Profile Configuration

The following table lists the commands existed in ATM profile.

| Command | Description |
|---|--|
| profile <profile-num> atm profile-name <name> | Sets the name to the specified ATM profile |
| Profile <profile-num> atm set connection <con-num> encap-method llc vc | Sets the encapsulation method of the ADSL port on the specified ATM profile. 1: LLC/SNAP; 2: VC/Multiplexing |
| Profile <profile-num> atm set connection <con-num> atm-pvc-conf priority <value> | Sets the CoS priority of the specified PVC connection of the ADSL port on the specified ATM profile. The CoS value is from 0 to 7. |
| Profile <profile-num> atm set connection <con-num> atm-pvc-conf vlan <vlan-id> (1~4094) | Sets the VLAN ID mapping of the specified PVC connection of the ADSL port on the specified ATM profile |
| profile <profile-num> atm set connection <con-num> atm-pvc-conf vpi <value> vci <value> | Sets the VPI/VCI value of the specified PVC connection of the ADSL port on the specified ATM profile (vpi: 0~255; vci: 0~65530) If vpi vci = 0 0, ignore |
| profile <profile-num> atm set connection <con-num> atm-qos cbr pcr <value> | Sets the PCR value of the specified PVC connection of the ADSL port on the specified ATM profile |
| profile <profile-num> atm set connection <con-num> atm-qos ubr | Sets the UBR value of the specified PVC connection of the ADSL port on the |
| | specified ATM profile |
| profile <profile-num> atm set connection <con-num> atm-qos vbr_rt pcr <value> scr <value> bt <value> | Sets the VBR_RT value of the specified PVC connection of the ADSL port on the specified ATM profile |

After specifying the various parameters for a particular profile, it is necessary to commit the changes in order to make the settings effective. Please remember to save configuration or whole changes will disappear after rebooting.

| Command | Description |
|--|--|
| Profile <profile-num> atm apply | Commits the changes made on the particular ATM profile |

Set the Profile to ADSL Port

For each ADSL port, to complete ATM related configurations, users will apply the desired ATM profile to the port using the following command:

| Command | Description |
|--|---|
| adl node <node_id> port <port_id> apply atm-profile <profile-num> | Sets the ATM profile to the specified ADSL port on the specified node of Dynamix 2400A system |

View Profile Contents and Port Association

For viewing the settings of an ATM profile and port-profile association, two commands are available:

| Command | Description |
|---|--|
| show atm-profile <profile-num> | Displays the specified ATM profile |
| show adl node <node_id> port <port-number> | Displays the status of the ADSL port on the specified node of Dynamix 2400A system |

4.3.4 Line Configuration

ADSL related settings are similarly arranged through various line profiles. Each profile allows the specifications of ADSL line parameters such as service type, framing mode, NTR, and trellis mode. Note for those ports that are already associated with particular profile, changes on specific profiles will be applied to associate ports immediately.

Profile Configuration

The following table lists the command for configuring parameters of an ADSL line profile.

| Command | Description |
|--|--|
| profile <profile-num> line profile-name <name> | Specifies the line profile name |
| profile <profile-num> line basic service-type <auto/g.dmt/g.lite/ T1-41312> | Sets service type of the ADSL port on a specified line profile |
| profile <profile-num> line basic framing-mode full/reduced-mode1/reduced- mode2 | Sets framing mode of the ADSL port on a specified line profile |
| profile <profile-num> line basic ntr disable enable | Sets NTR of the ADSL port on a specified line profile |
| profile <profile-num> line basic trellis-mode disable enable | Sets trellis mode of the ADSL port on a specified line profile |

| | |
|--|--|
| profile <profile-num> line basic downstream-path fast interleave | Sets downstream path of the ADSL port on a specified line profile |
| profile <profile-num> line basic upstream-path fast interleave | Sets upstream path of the ADSL port on a specified line profile |
| profile <profile-num> line snr max-snr-margin downstream <value> | Sets downstream maximum SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line snr max-snr-margin upstream <value> | Sets upstream maximum SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line snr min-snr-margin downstream <value> | Sets downstream minimum SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line snr min-snr-margin upstream <value> | Sets upstream minimum SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line snr target-snr-margin downstream <value> | Sets downstream target SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line snr target-snr-margin upstream <value> | Sets upstream target SNR margin of the ADSL port on a specified line profile |
| profile <profile-num> line linedelay downstream <value> | Sets downstream interleave delay of the ADSL port on a specified line profile |
| profile <profile-num> line linedelay upstream <value> | Sets upstream interleave delay of the ADSL port on a specified line profile |
| profile <profile-num> line max-tx-rate downstream <value> | Sets downstream maximum transmit rate of the ADSL port on a specified line profile |
| profile <profile-num> line max-tx-rate upstream <value> | Sets upstream maximum transmit rate of the ADSL port on a specified line profile |
| profile <profile-num> line min-tx-rate downstream <value> | Sets downstream minimum transmit of the ADSL port on a specified line profile |
| profile <profile-num> line min-tx-rate upstream <value> | Sets upstream minimum transmit of the ADSL port on a specified line profile |

Set the Profile to ADSL Port

For each ADSL port, to complete the line related configurations, users shall apply the desired line profile to the port using the following command:

| Command | Description |
|---|---|
| adl node <node_id> port <port_id> apply line-profile <profile-num> | Sets the ADSL line profile to the specified ADSL port on the specified node of Dynamix 2400A system |

View Profile Contents and Port Association

For viewing the settings of a line profile and port-profile association, following commands are available:

| Command | Description |
|---|--|
| show line-profile <profile-num> | Displays the specified ADSL line profile |
| Show adl node <node_id> port <port-number> | Displays the status of the ADSL port on the specified node of Dynamix 2400A system |

4.3.5 Alarm Management

Dynamix 2400A constantly monitors system status and notifies users abnormal conditions accordingly. For each ADSL port, users need to configure a set of threshold values above which alarms will be raised. These thresholds are specified in alarm profiles with each profile indicating different alarm levels. Similar to line profiles, changes made on a specific profile will be effective toward the associated ADSL ports immediately.

Profile Configuration

The following table lists the command for configuring parameters of an alarm profile.

| Command | Description |
|--|--|
| <code>profile <profile-num> alarm profile-name <name></code> | Specifies the alarm profile name |
| <code>profile <profile-num> alarm lofs-threshold downstream <value></code> | Sets downstream lofs threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm lofs-threshold upstream <value></code> | Sets upstream lofs threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm loss-threshold downstream <value></code> | Sets downstream loss threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm loss-threshold upstream <value></code> | Sets upstream loss threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm lprs-threshold downstream <value></code> | Sets downstream lprs threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm lprs-threshold upstream <value></code> | Sets upstream lprs threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm es-threshold downstream <value></code> | Sets downstream error-second threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm es-threshold upstream <value></code> | Sets upstream error-second threshold of the ADSL port on a specified alarm profile |
| <code>profile <profile-num> alarm lols-threshold upstream <value></code> | Sets upstream lols threshold of the ADSL port on a specified alarm profile |

Set the Profile to ADSL Port

Next, users need to apply an appropriate alarm profile to an ADSL port using the following command.

| Command | Description |
|--|---|
| <code>adl node <node_id> port <port_id> apply alarm-profile <profile-num></code> | Sets the Alarm profile to the specified ADSL port on the specified node of Dynamix 2400A system |

View Profile Contents and Port Association

Az settings of an alarm profile and port-profile association, following commands are available:

| Command | Description |
|---|--|
| <code>show alarm-profile <profile-num></code> | Displays the specified Alarm profile |
| <code>show adl node <node_id> port <port-number></code> | Displays the status of the ADSL port on the specified node of Dynamix 2400A system |

Display Alarm Status

To get alarm status of each node, user could use the following command.

| Command | Description |
|--|--|
| <code>show node <node_id> alarm-log current history</code> | Displays current alarm or history alarm of a specific node |

Clear Alarm

Users could remove an alarm entry from the current or history log. Dynamix 2400A provides users options for clearing alarms on a node basis or on an ADSL port basis. The commands are as follows:

| Command | Description |
|--|---|
| <code>clear alarm-log current node <node_id></code> | Clears current alarm log of a specific node |
| <code>clear alarm-log current node <node_id> port <port_id></code> | Clears current alarm log of an ADSL port |
| <code>clear alarm-log history node <node_id></code> | Clears history alarm log of a specific node |
| <code>clear alarm-log history all</code> | Clears history alarm log of all nodes |
| <code>adl node <node_id> port <port_id> alarm reset</code> | Clears current alarm log of an ADSL port |

Alarm Mask

By default, Dynamix 2400A sends out SNMP traps to element management systems in case of any abnormal conditions. If users prefer not to receive the trap notification on specific ADSL ports or vice versa, including both threshold and CRC/FEC alarms, alarm trap masks should be enabled accordingly using the following command:

| Command | Description |
|---|---|
| <code>adl node <node_id> port <port_id> alarm-trap-mask disable enable</code> | Disables or enables the alarm trap function on an ADSL port |

4.3.6 Packet Filtering

Packet filtering refers to the functionality of filtering frames whose destination MAC matches those pre-specified on the ingress port. It allows service providers the authority to reject certain incoming packets.

Dynamix 2400A supports packet filtering on ADSL ports as well as the uplink and subtending interfaces. The available commands for specifying or removing a MAC entry from the filtering database are as listed. Users can also view the current filter entries on the system using the "show" command.

| Command | Description |
|--|---|
| packet-filter add node <node id> interface <interface_id> entry 1 2 3 4 5 mac <mac-address> | Sets the Destination MAC address filter function on Ethernet ports (for versions 1.09.xx and lower only) |
| packet-filter add node <node_id> interface entry(entry-id) mac <macaddr> | Sets the Destination MAC address filter function on Ethernet port. For software versions 1.10.0 and up only, (entry id: 1~35, MAC address format: xx: xx: xx: xx: xx: xx) |
| packet-filter add node <node id> port <port_id> entry 1 2 3 4 5 mac <macaddr> | Sets the Source MAC address filter function on ADSL ports |
| packet-filter delete node <node_id> interface <interface id> entry 1 2 3 4 5 | Removes the above filtering MAC address on Ethernet ports (for versions 1.09.xx and lower only) |
| packet-filter delete node <node_id> interface entry <entryid> | Removes the above filtering MAC address on Ethernet port. (For software versions 1.10.0 and up only) |
| packet-filter delete node <node id> port <port_id> entry 1 2 3 4 5 | Removes the above filtering MAC address on ADSL ports |
| show packet-filter node <node_id> interface <interface_id> | Displays the MAC address filtering entry of the MAC learning table of the Ethernet module on specified node of Dynamix 2400A system |
| show packet-filter node <node_id> port <port_id> | Displays the MAC address filtering entry of the MAC learning table of the ADSL module on specified node of Dynamix 2400A system |

4.3.7 Forwarding Table

Each Dynamix 2400A system forwards packets between uplink, subtending interfaces, and ADSL ports based on entries in its forwarding table. In addition to automatic learning of destination addresses from incoming packets, Dynamix 2400A allows users to insert or remove static entries from its forwarding table, during this time, automatic learning function will be disabled.

| 1 | Command | Description |
|---|---|---|
| | mac-address-table add node <node_id> static interface <interface_id> entry 1 2 3 4 5 mac <mac-address> | Adds static MAC address to Ethernet port mapping in MAC learning table on the Ethernet module of the specified node of Dynamix 2400A system. The maximum entries for each Ethernet port are five. |
| | mac-address-table add node <node_id> static port <port_id> entry 1 2 3 4 5 mac <mac-address> | Adds static MAC address to ADSL port mapping in MAC learning table on the Ethernet module of the specified node of Dynamix 2400A system. The maximum entries for each ADSL port are five. |
| | mac-address-table delete node <node_id> static interface <interface id> entry 1 2 1 3 4 5 | Removes the above static MAC address configuration on Ethernet ports |
| | mac-address-table delete node <node_id> static port <port_id> entry 1 2 3 4 5 | Removes the above static MAC address configuration on ADSL ports |

The static entries will remain valid in the database unless users remove them explicitly. Dyanmix 2400A, on the other hand, clears the entries learned automatically whenever the entries are not accessed in a certain aging time. The default value of the aging time is at 300 seconds. Users can change the aging time via the following command:

| Command | Description |
|--|---|
| mac-address-table node <node_id> aging-time <value> | Sets the aging time of the MAC learning table of Ethernet module of the specified node on the MULTIM system. If aging time set is 0, it will disable the aging function, and the scope of value is from 10 to 99. |

4.3.8 Ethernet Phy Configuration

This section describes configurations of Ethernet Phy: auto negotiation mode and speed. Users can also decide whether to enable/disable the flow control on an interface, as well as whether to enable/disable an interface.

| Command | Description |
|---|---|
| ethernet node <node_id> interface <interface_id> disable enable | Enables or disables the Ethernet port |
| ethernet node <node_id> interface <interface_id> alarm_mask disable enable | Enables or disables the alarm mask |
| ethernet node <node_id> interface <interface_id> duplex auto 10full 10half 100full 100half | Sets the speed, duplex mode of the Ethernet port on the specified node of Dynamix 2400A system |
| ethernet node <node_id> interface <interface_id> flowcontrol disable enable | Enables or disables the flow control of the Ethernet port on the specified node of Dynamix 2400A system |
| ethernet node <node_id> interface <interface_id> security disable enable | Enables or disables the MAC learning function of the Ethernet module on the specified node of Dynamix 2400A system. If security function is enabled, it will drop all packets with unknown source MAC, on the other hand security function can be disabled. |
| show ethernet node <node_id> interface <interface_id> | Displays the Ethernet interface configuration. |

4.3.9 Port Security

Port security is a feature for handling packets from unknown sources. Recall that Dynamix 2400A will insert new entries into the forwarding table whenever packets from unknown sources arrive. With the port security feature, packets arriving interfaces with unknown source MAC address will be discarded.

| Command | Description |
|---|---|
| ethernet node <node_id> interface <interface_id> security disable enable | Enables or disables the MAC learning function of the Ethernet module on the specified node of Dynamix 2400A system. If security function is enabled, it will drop all packets with unknown source MAC, on the other hand security function can be disabled. |

4.3.10 Broadcast Control

To prevent excessive broadcast traffic from impacting the system performance, Dynamix 2400A will only allow certain rate of broadcast packets into a system. Users can thus configure and view the rate limit on a node basis via the following command.

| Comand | Description |
|---|---|
| broadcast-control node <node_id> <value> | Sets the broadcast storm control on specified node of Dynamix 2400A system. The unit is packet/ second. If the set value is more than 0, the Dynamix 2400A switch will only allow 5% of bandwidth for broadcast traffic, while ADSL allows the value packet/sec. of bandwidth for broadcast traffic. Setting this value to 0 disables the broadcast tone control. |
| show broadcast-control node <node_id> | Displays the broadcast-control configuration for specified node |

4.3.11 Trunking

Dynamix 2400A supports IEEE 802.3ad on Ethernet interfaces for redundancy and load sharing. Three options are available: two uplink interfaces, subtending interface 1 and 2, subtending interface 3 and 4. The commands for configuring trunks and viewing the trunking related configurations are as follows:

| Command | Description |
|--|---|
| trunk node <node_id> subtending interface-group <1 2 > disable enable | Enables or disables the trunking function of the subtending Ethernet port 1 & 2 and the subtending Ethernet port 3 & 4 on the specified node of Dynamix 2400A system. |
| trunk node <node_id> uplink disable enable | Enables or disables the trunking functions of the two uplink Ethernet ports on the specified node of Dynamix 2400A system |
| show trunk-group node <node_id> subtending | Displays the subtending trunk information of specified node |
| show trunk-group node <node_id> uplink | Displays the uplink trunk information of specified node |

4.3.12 Port Mirroring

Port mirroring allows users to monitor the incoming/outgoing packets on a particular Ethernet interface (target) from another Ethernet interface (destination). The commands are as follows:

| Command | Description |
|--|--|
| port-mirroring node <node_id> disable | Disables the port mirroring function of the Ethernet port |
| port-mirroring node <node_id> target | Sets the port mirroring function. Use |
| <interface_id1> destination <interface_id2> | port <interface_id2> to monitoring the port <interface_id1>. |
| show port-mirroring node <node_id> | Displays the port-mirroring information of specified node |

4.3.13 Group (supported on software version 1.10.0 up)

Dynamix 2400A provides user to configure group identifier. If several master IP DSLAMs connect to the same switch without the group identifier, their own slave IP DSLAMs will become confuse as to which to recognize as their master.

| Command | Description |
|--------------------------|---|
| group description | Specifies the description of a group |
| group id | Specifies the identity of a group (ID is a unique word shorter than 6 characters) |
| show group info | Displays the group information |

4.3.14 Spanning Tree Protocol

Dynamix 2400A supports IEEE 802.1D Spanning Tree Protocol (STP). The available commands for configuring related timers and priorities are listed in the following table.

| Command | Description |
|---|--|
| spanning-tree node <node_id> disable enable | Enables or disables the Spanning Tree Protocol (STP) on the specified node of Dynamix 2400A system |
| spanning-tree node <node_id> forward-time <seconds> | Sets the forward time of the STP on the specified node of Dynamix 2400A system. The unit is second. (4~30 seconds) |
| spanning-tree node <node_id> hello-time <seconds> | Sets the hello time of the STP on the specified node of Dynamix 2400A system. The unit is in second. (1~10 seconds). |
| spanning-tree node <node_id> max-age <seconds> | Sets the maximum aging time of the STP on the specified node of Dynamix 2400A system. The unit is second. (6~40 seconds) |
| spanning-tree node <node_id> bridge-priority <value> | Sets the bridge priority of the STP on the specified node of Dynamix 2400A system. (1~65535) |
| spanning-tree node <node_id> interface <interface_id> priority <value> | Sets the Ethernet interface priority of the STP on the specified node of Dynamix 2400A system. (1~255) |
| spanning-tree node <node_id> interface <interface_id> cost <value> | Sets the Ethernet interface cost of the STP on the specified node of Dynamix 2400A system |
| spanning-tree node <node_id> port <port_id> priority <value> | Sets the ADSL port priority of the STP on the specified node of Dynamix 2400A system. (1~255) |
| spanning-tree node <node_id> port <port_id> cost <value> | Sets the ADSL port cost of the STP on the specified node of Dynamix 2400A system |
| show spanning-tree node <node_id> | Displays the status of the Spanning Tree Protocol on the specified node of Dynamix 2400A system |
| show spanning-tree node <node_id> interface <interface_id> | Displays the status of the specified Ethernet interface of the STP on the specified node of Dynamix 2400A system |
| show spanning-tree node <node_id> port <port_id> | Displays the status of the specified ADSL port of the STP on the specified node of Dynamix 2400A system |

4.3.15 IGMP Snooping

DYNAMIX 2400A supports IGMP snooping for enhancing the performance on handling multicast traffic. Users can enable/disable the feature and viewing the corresponding status via the following commands.

| Command | Description |
|--|---|
| igmp node <node_id> disable enable | Enables or disables the IGMP Snooping on the specified node of DYNAMIX 2400A system |
| igmp node <node_id> agetimer <agetimer> | Sets the IGMP Protocol aging time on the specified node of DYNAMIX 2400A system |
| show igmp node <node_id> | Displays the IGMP status on the specified node of DYNAMIX 2400A system |

4.3.16 QoS

DYNAMIX 2400A provides QoS handling via priority queues and scheduling. Two priority queues are available and packets in these queues are treated differently according to the scheduling mechanism (first come first serve, strict priority or weighted round robin). For weighted round robin scheduler, users will need to specify the weight of each priority queue accordingly. The following table lists the related commands.

| Command | Description |
|---|--|
| qos node <node_id> mode fcs sp wrr | Sets the QoS mode on the specified node of DYNAMIX 2400A system. FCFS(first come first serve), SP(strict priority); and WRR(weighted round robin scheduling) |
| qos node <node_id> wrr bandwidth <weight_H> <weight_L> | Sets the weight value of high priority and low priority when the system uses WRR method. The weight value is from 1 to 7. |
| qos node <node_id> cos-map <queue-number > <priority> | Sets the CoS value to high or low priority queue mapping |
| show qos node <node_id> wrr bandwidth cos-map | Displays the status of QoS on specified node of DYNAMIX 2400A system |

4.3.17 SNMP

SNMP configurations concern the SNMP community for read-only and read-write, trap server IP address and trap port. The corresponding commands are as follows:

| Command | Description |
|---|--|
| snmp set community <string> privilege read-only read-write | Sets the privilege of the SNMP community of DYNAMIX 2400A system |
| snmp trap entry(1-5) ip-address <ip-address> | Sets IP address of SNMP trap |
| snmp trap entry(1-5) <entry-number> port <value> | Sets the UDP port number of SNMP trap |
| show snmp | Displays the information of SNMP |

4.3.18 OAM

DYNAMIX 2400A provides users capabilities to verify the ATM layer connectivity of a link via ATM F4/F5 loop test. For each of the test, the procedures are to first enable the F4 or F5 test on a port by configuring desired PVC, and then read out the test result using the following commands.

| Command | Description |
|--|--|
| oam node <node_id> port <port_id> vpi <vpi> vci <vci> F4 looptest | Enables OAM F4 function of the specified ADSL port on the specified node of DYNAMIX 2400A system |
| oam node <node_id> port <port_id> vpi <vpi> vci <vci> F5 looptest | Enables OAM F5 function of the specified ADSL port on the specified node of DYNAMIX 2400A system |
| oam node <node_id> port <port_id> loopresult | Reads the OAM loop test result |

4.3.19 ADSL Port Miscellaneous

This section lists commands for several features not yet mentioned. In particular, DYNAMIX 2400A supports additional ADSL features such as the limiting the number of devices on an ADSL port, bundling MAC addresses on an ADSL port, port security and port isolation.

MAC Count

The command for limiting the number of allowable MAC addresses on an ADSL port is as follows.

| Command | Description |
|---|--|
| adl node <node_id> port <port_id> mac count <number> | Specifies the maximum device behind the specified port on the specified node. (1~10) |

MAC Bound

The command for enabling / disabling the bundle of learned MAC addresses on a particular ADSL port is listed in the following. This command should be collocated with Mac Count command, when MAC Bound is enabled and MAC Count number is 5, DYNAMIX 2400A will remain the top 5 MAC address in ARP table and drop the others, so the incoming traffic came from un-bundled sources (not top 5 MAC address) will be discarded.

| Command | Description |
|---|---|
| <code>adl node <node_id> port <port_id> mac bound disable enable</code> | Enables or disables the Mac bundle for the specified port on the specified node |

Port Security

Similar to port security feature on Ethernet interfaces, users can also enable / disable the security functionality on an ADSL port.

| Command | Description |
|--|--|
| <code>adl node <node_id> port <port_id> security disable enable</code> | Enables or disables the port security for the specified port on the specified node |

Port Bundle IP (supported on software versions 1.10.0 up)

With port bundle IP feature, it only allows entry and interface for arriving packets with specific IP. Packets with unknown IPs are discarded.

| Command | Description |
|--|---|
| <code>adl node <node_id> port <port_id> bundleip <ip_address></code> | Specifies the bundle IP of a specific ADSL port. Note: IP 0.0.0.0 indicates disable this function |

Port Isolation

Port isolation prevents traffic from an ADSL user being forwarded to another ADSL user. The command for the feature is as listed

| Command | Description |
|---|---|
| <code>adl node <node_id> port <port_id> isolation disable enable</code> | Enables or disables the port isolation for the specified port on the specified node |

Show

To view the aforementioned ADSL port settings, users will use the same "show" command as reading the other ADSL information.

| Command | Description |
|---|--|
| <code>show adl node <node_id> port <port_id></code> | <i>Displays</i> the information of ADSL port miscellaneous |

4.4 DYNAMIX 2400A Command - Slave Node

As a DYNAMIX 2400 system may include slave nodes in subtending fashions, this section lists commands available on a slave node. Specifically, from a slave node console, users can view the current setting and performance statistics. Most of the configurations need to be made from the master node of the system.

| Command | Description |
|--|--|
| logout | Logs out the system |
| user password | Sets the password of the User |
| show mynode igmp | Displays IGMP configurations |
| show mynode interface <interface_id> | Displays Ethernet interface information of a specific interface |
| show mynode interface <interface_id> statistics | Displays Ethernet interface statistics information of a specific interface |
| show mynode mac-address-table interface <interface_id> | Displays static MAC address table of a specific Ethernet interface |
| show mynode mac-address-table port <port_id> | Displays static MAC address table of a specific ADSL port |
| show mynode packet-filter interface | Displays filter MAC address of switch chip |
| show mynode packet-filter interface port <port_id> | Displays filter MAC address of a specific ADSL port |
| show mynode adl port <port_id> | Displays ADSL port information |
| show mynode adl port <port_id> pm current | Displays current PM of a specific ADSL port |
| show mynode adl port <port_id> pm interval <interval_index> | Displays interval PM of a specific ADSL port |
| show mynode adl port <port_id> pm history <day_index> | Displays history PM of a specific ADSL port |
| show mynode port-mirroring | Displays port-mirroring related configurations |
| show mynode qos cos-map | Displays CoS mapping |
| show mynode qos mode | Displays QoS mode |
| show mynode qos wrr bandwidth | Displays WRR weights of the two CoS priority queue |
| show mynode spanning-tree | Displays Spanning Tree Protocol configurations |
| show mynode spanning-tree interface | Displays STP configurations of a specific Ethernet interface |
| show mynode spanning-tree port | Displays STP of a specific ADSL port |
| show mynode | Displays one's own node information |
| show version | Displays version information |
| show mynode status | Displays one's own node current status. (This command will only be supported from software version 1.10.0 up.) |
| group id | Specifies the identity of a group (ID is a unique word shorter than 6 characters) |
| show group info | Displays the group information |

Chapter 5. Quick start

Users can load the default profile to their own environments if there were not any specific parameters used. Just plug the necessary wire and cable between the devices.

The following are the basic procedures for configuring essential specific parameter applied for user's ADSL service. Users do not need to configure the parameter if there was the same as the default value and users do not want to change it.

5.1 Configure the parameters of ATM profile

5.1.1 Configure the profile name

profile <profile-num> **atm profile-name** <name>

Ex: # **profile 10 atm profile-name myatmprofile**

5.1.2 Configure the encapsulation type

profile <profile-num> **atm set connection** <con-num> **encap-method llc | vc**

Ex: #**profile 10 atm set connection 1 encap-method llc**

Note:

Since every one line supports 4 connections in Dynamix 2400A. Users can configure the connection number from 1 to 4 in different values or just configure only 1 of them and ignore the others.

5.1.3 Configure the priority ofPVC

profile <profile-num> **atm set connection** <con-num> **atm-pvc-conf priority** <value>

Ex: #**profile 10 atm set connection 1 atm-pvc-conf priority 0**

5.1.4 Configure the vpi and vci value of the PVC

profile <profile-num> **atm set connection** <con-num> **atm-pvc-conf vpi** <value> **vci** <value>

Ex: #**profile 10 atm set connection 1 atm-pvc-conf vpi 0 vci 35**

5.1.5 Configure the QoS value

profile <profile-num> **atm set connection** <con-num> **atm-qos ubr**

or

profile <profile-num> **atm set connection** <con-num> **atm-qos cbr pcr** <value>

or

profile <profile-num> **atm set connection** <con-num> **atm-qos vbr_rt pcr** <value> **scr** <value> **bt** <value>

Ex: #**profile 10 atm set connection 1 atm-qos ubr**

5.1.6 Active the atm profile users defined

profile <profile-num> atm apply

Ex: #profile 10 atm apply

5.1.7 Apply the user-defined profile to the specified node and port

adl node <node_id> port <port_id> apply atm-profile <profile-num>

Ex: #adl node 1 port 4 apply atm-profile 10

5.2 Configure the parameters of line profile

5.2.1 Configure the line profile name

profile <profile-num> line profile-name <name>

Ex: #profile 10 line profile-name mylineprofile

5.2.2 Configure the line service type

profile <profile-num> line basic service-type <auto/g-dmt/g-lite/ T1-41312>

Ex: #profile 10 line basic service-type g-lite

5.2.3 Configure the maximum data rate

profile <profile-num> line max-tx-rate downstream <value> profile <profile-num> line max-tx-rate upstream <value>

Ex: #profile 10 line max-tx-rate downstream 512 #profile 10 line max-tx-rate upstream 64

5.2.4 Apply the user-defined line profile to specified node and port

adl node <node_id> port <port_id> apply line-profile <profile-num>

Ex: #adl node 1 port 4 apply line-profile 10

5.3 Save the configuration

Save all the configurations by: **save**
configuration Ex: #save configuration

After all the configurations we have done, we check the activating profile in the ATU-R, as Figure 5-1

```

System  WAN Config  LAN Config  Misc  Debug
      >> System Status <<
      System Uptime
      0:01:05:23

ADSL Line state:
Connection Mode:  G.Lite
Startup Attempts: 2 times
      SHOWTIME
      -UpStream-      -DownStream-
Data rate:         64          512      kbps
SNR Margin:       31.0        38.3      dB
Attenuation:      4.0          0.0       dB
Latency mode:    INTERLEAVED  INTERLEAVED
Error Seconds:    1          3
Loss of Signal:  1          1
Loss of Frame:   0          0
CRC Errors:      0          0
Model Number:    S1510 AE
Firmware Ver:   T94L013.00_3.1.1212a

      Return

<TAB> Move highlight bar.  <ENTER> Submit.
    
```

Figure 5-1 The status of ATU-R

The data rate of both upstream and down stream are applied, as well, the connection mode is G.lite as we configured before.

Chapter 6. Troubleshooting

In this chapter, some frequently encountered questions and their corresponding suggestions, as Table 6-1, are listed for troubleshooting purposes. If the problems or symptoms persist, please contact your local distributor for technical assistance. Do not attempt to dismantle or rewire any parts of the DYNAMIX 2400A on your own, doing so may cause harm and void the warranty of your product.

| Problems | Solutions |
|---|---|
| None of the LED(s) are on | 1. Check power provision and all cable connections. 2. If all LEDs remain off, contact technical support. |
| The ADSL port LED(s) are on, but data can not be transmitted | 1. Check if all cables are properly connected. 2. Check the PVC (VPI/VCI) settings in CPE side. Please refer to Chapter 3 for default settings. 3. Ping the DYNAMIX 2400A from the user's computer. 4. If you cannot ping, connect the ADSL modem or router to another port on DYNAMIX 2400A. If the ADSL modem or router works with a different port, then there may be a problem with the original port. Contact for technical support. 5. If connection to a different port still does not work, try a different ADSL modem or router with the original port. 6. If the problem still remains unsolved, contact technical support. |
| Cannot access the ADSL IP DSLAM via the console port | 1. Check if the DYNAMIX 2400A is connected to your computer's serial port. 2. Check if the communication program is configured correctly. (Parameters are 9600-8-N-1-N) 3. If the problem remains unsolved, contact technical support. |
| Configuration settings do not take effect after reboot | 1. Use the command: "save configuration " to write your configurations into memory before you reboot the DYNAMIX 2400A . 2. Some configured settings can not be activated until it is applied to the node and port, please refer to chapter 4. 3. If the above corrective action doesn't work, contact technical support |
| The SNMP manager server can not get information from ADSL IP DSLAM | 1. Check and confirm if the community in the DYNAMIX 2400A matches the SNMP server's community. 2. Check if the VLAN ID is set. 3. If the above corrective actions don't work, contact technical support. |
| Cannot remote telnet into the ADSL IP DSLAM via ADSL port | 1. Make sure that telnet sessions are not more than 3. The DYNAMIX 2400A will accept up to three telnet sessions at a time. 2. Ping the DYNAMIX 2400A from your computer. If you are able to ping the DYNAMIX 2400A but still unable to telnet, contact your local distributor. If you cannot ping the DYNAMIX 2400A, check the IP address on both DYNAMIX 2400A and your computer. Make sure that both IP addresses are located in the same subnet. If you want to assign your computer and DYNAMIX 2400A at different network segments, please make sure that your ADSL modem supports RFC 2684 bridge to translate LAN IP to WAN IP - DYNAMIX 2400A supports RFC1483 Bridge mode only. 3. If the above corrective actions don't work, contact for technical support. |
| Forgot the password | Press the reset button on the front panel of DYNAMIX 2400A . This restores the MUTIN back to its default value. |