NetComm®
Broadband Solutions

User Guide

NCT1000 & NCT1020
IP DSLAM

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PART I QUICK START: INTRODUCTION & INSTALLATION

The NCT-1000 & NCT-1020 are IP DSLAMs designed for MTU/MDU/MHU applications. They provide data, voice, and video services over existing copper telephone wires. Carriers and service providers can utilize the NCT-1000/NCT-1020 to offer high-speed Internet access to tenants of high-rise buildings without rewiring the building. By using Digital Subscriber Line technology, the NCT-1000/NCT-1020 provides a cost-effective and scalable infrastructure to meet the requirements of a wide range of building tenants.

The NCT-1000/NCT-1020 allows multiple interchangeable DSL channel units to coexist in the same shelf and it has up to two 10/100/1000M WAN Ethernet ports to concentrate the traffic on an IP network. This makes the NCT-1000/NCT-1020 a flexible solution for deployment in high-rise buildings, communities, campuses, or hospitals.

Chapter 1 System Description

1.1 Features

The NCT-1000/NCT-1020 DSL Access Concentrator includes the following features:

- 10/100/1000 Mbps Ethernet WAN interfaces (for 1000Mbps – optical interface available)
- 802.1d Spanning Tree Algorithm
- 802.1p Priority Queuing (2 priority queues) for QoS
- 802.1q Tagged VLAN
- 802.3ad Link Aggregation to provide load sharing and fail over protection
- Broadcast storm control
- Suitable for MTU/MDU/MHU applications, and for co-location application in the central office
- Shelf extension via an Ethernet interface
- MAC filtering (up to 5 MAC addresses) & IP filtering (up to 5 IP addresses) for security
- IGMP snooping for multicast services
- PPPoE & Web authentication pass-through
- Remote configuration backup/restoration and firmware upgrade
- Local management via the console port
- Supports SNMP, and Telnet for network management
- Management tools: MCID* and optional CT-NM plus**
- POTS Splitter shelf for voice service is available
- Compatible ADSL and SHDSL modems/routers are available
- 19-inch Rack-mountable
- Easy installation/configuration/maintenance

* MCID (Management Craft Interface Device) is a GUI management tool. It is put on the CD-ROM along with the AMCU package.

** CT-NM Plus: Node Topology Management System.

1.2 xDSL CPEs

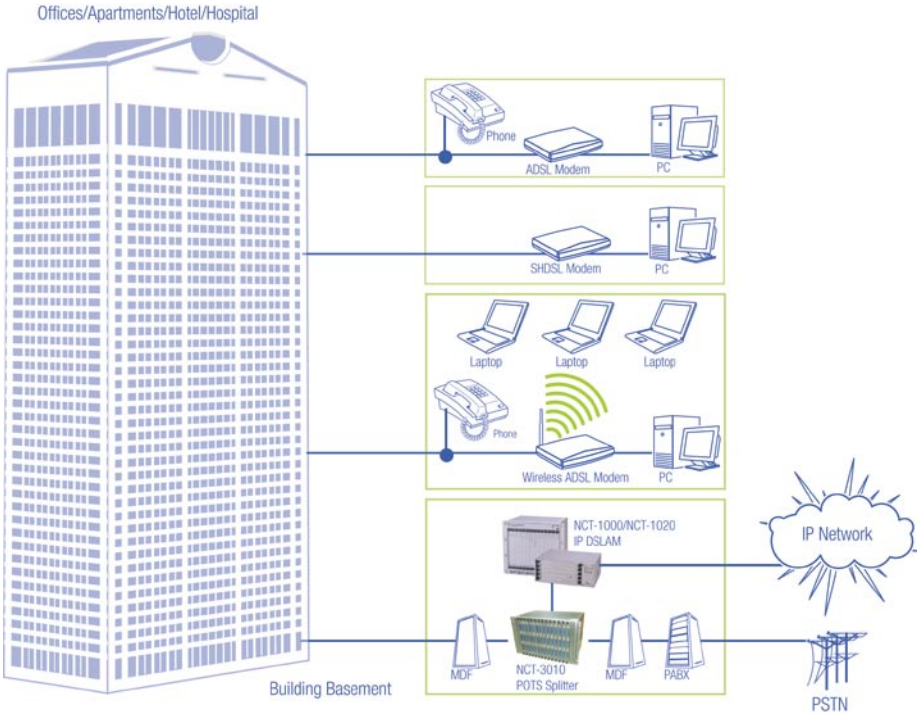
There are several types of NetComm's xDSL CPEs, which meet the different demands of CPE users.

Note: ***For more information on the xDSL CPEs, please visit www.netcomm.com.au***

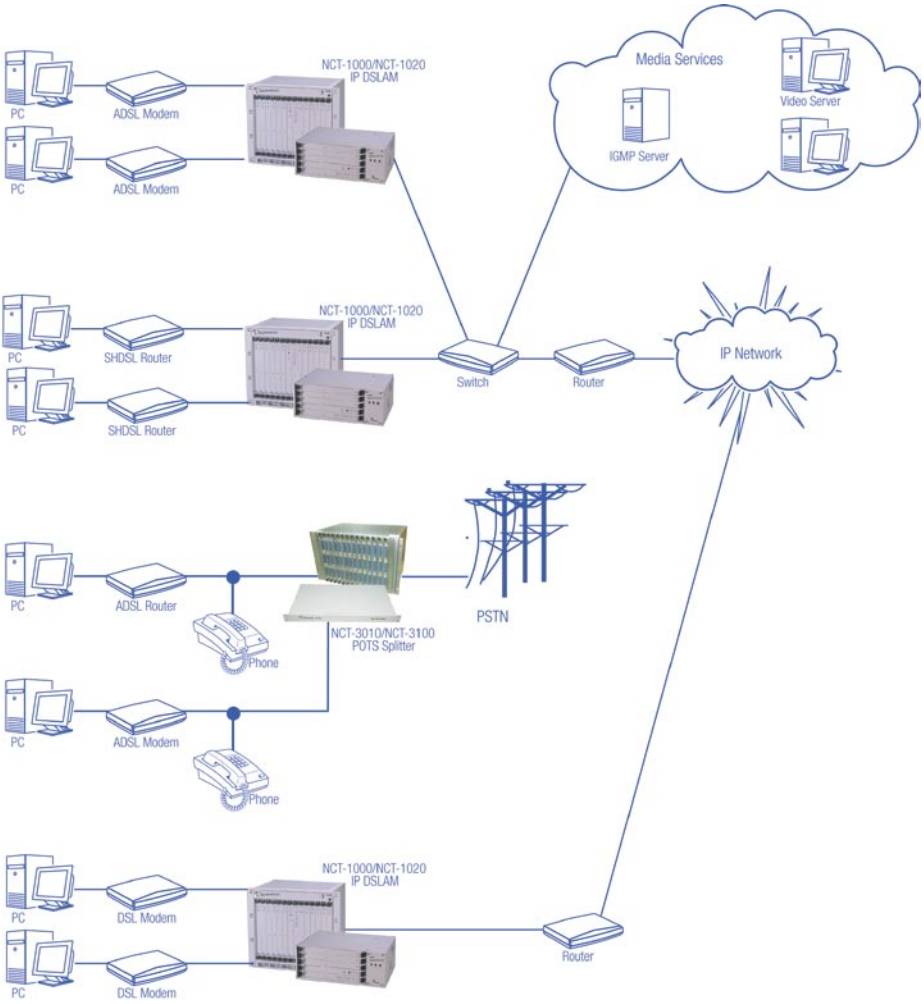
1.3 Applications

The NCT-1000/1020 IP DSLAMs support ADSL/SHDSL interfaces. Via the Ethernet WAN port, the NCT-1000/1020 IP DSLAMs can be connected to a TDM or an IP network through a router or a switch. Besides IGMP snooping for multi-cast video service, the NCT-1000/1020 IP DSLAMs also supply 802.1p Priority Queuing for the purpose of QoS (Quality of Service).

Application 1



Application 2



1.4 Functionality

NCT-1000/NCT-1020 System

19-inch rack-mounted chassis

14 slots for NCT-1000

- 2 slots for the Control Unit and the Ethernet Switch Unit
- 12 slots for channel units

5 slots for NCT-1020

- 2 slots for the Control Unit and the Ethernet Switch Unit
- 3 slots for the channel units

Module Cards and Channel Unit

The NCT-1000/1020 system supports the following modules: AMCU, AES-G, AAT24A and AST24B. A fully equipped NCT-1000/NCT-1020 must contain one control unit (AMCU) and one line interface (AES-G) unit, and may additionally contain up to twelve/three channel units.

AMCU (Main Control Unit)

The AMCU provides services such as the operation, configuration, and administration of the system. It **must** be installed in slot 7 of the NCT-1000 or in slot 4 of the NCT-1020.

AES-G (Ethernet Switch Unit)

The AES-G is an Ethernet Switch Unit installed in slot 8 of the NCT-1000 or in slot 5 of the NCT-1020. It provides packet switching functions.

AAT24A (ADSL 1 Channel Unit)

The AAT24A is a 24-port ADSL line interface unit.

AST24B (ADSL 2+ Channel Unit)

The AST24B is a 24-port ADSL 2+ interface unit.

1.5 Management

The NCT-1000/1020 supports Telnet, and SNMP management. It also supports Console functions via the AMCU RS-232 port.

Management Protocols

NCT-1000/1020 supports the following management protocols.

- SNMP agent with MIBs provided.
- Console management (command line interface)
- TFTP for configuration backup/restoration and software upgrade

Management Interfaces

Ethernet port: Network management for Telnet, and SNMP

RS-232 port: Local management for CLI

Chapter 2 Installation

2.1 Unpacking

Please unpack your NCT-1000 or NCT-1020 package.

If any of the items are missing or damaged, please contact NetComm immediately.

2.2 Chassis

The NCT-1000/NCT-1020 can be installed in a standard 19-inch rack. A fully equipped NCT-1000 contains one control unit (AMCU), one Ethernet Switch Unit (AES-G) and up to twelve channel units. A fully equipped NCT-1020 contains one control unit (AMCU), one Ethernet Switch Unit (AES-G) and up to three channel units.

The chassis dimensions are:

NCT-1000: 436.8 mm (W) x 440 mm (H) x 310 mm (D)

NCT-1020: 436.8 mm (W) x 171 mm (H) x 310 mm (D)

2.2.1 Front Panel

There are three LED indicators provided on the upper right of the front panel.

Their functions are described below.

PWR A: lights (green) when -48VDC is connected from the POWER A power connector.

PWR B: lights (green) when -48VDC is connected from POWER B power connector.

FAN ALM: lights (red) when one or more of the three fans in the fan tray fails.

The following figures detail the NCT-1000 and NCT-1020 front panels.

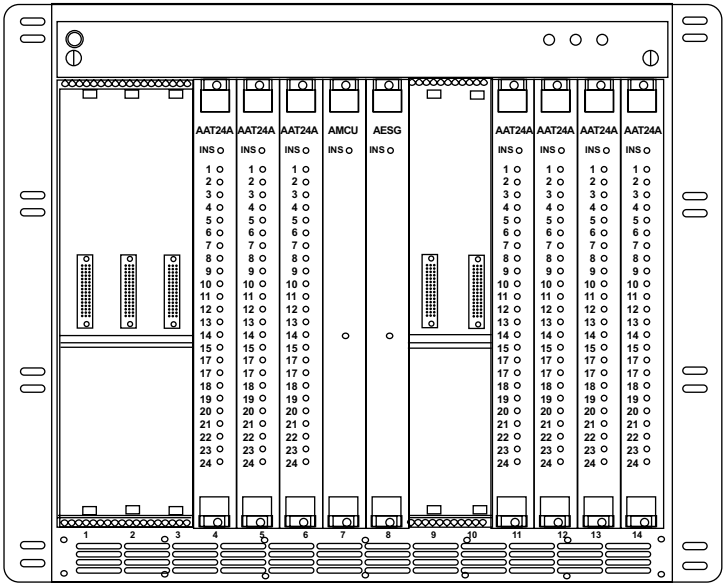


Figure 1-1 Front View of the NCT-1000 Chassis

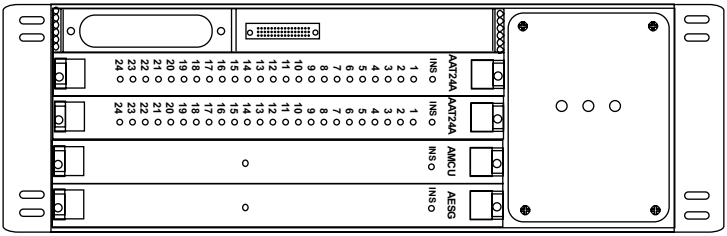


Figure 1-2 Front View of the NCT-1020 Chassis

2.2.2 Rear Panel

The rear components of the NCT-1000 and NCT-1020 are exactly the same, except they are located in different positions. Before you connect any of the components, make sure you read the label and connect to the correct positions. The external clock connectors are reserved only.

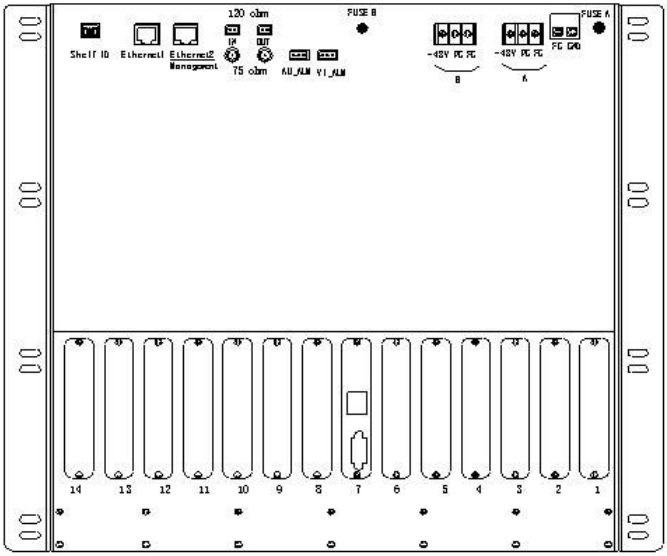


Figure 1-3 Rear View of the NCT-1000 Chassis

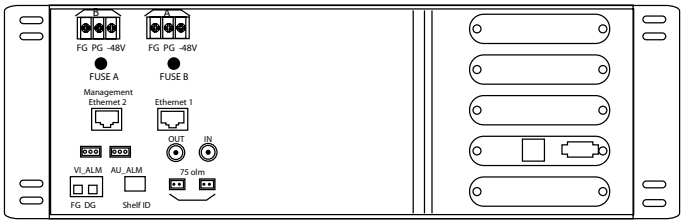


Figure 1-4 Rear View of the NCT-1020 Chassis

CHASSIS ID DIP SWITCH

This DIP switch is reserved only and please fix the settings to ON.

Office Alarm Connectors

There are two office alarm connectors, labeled AU_ALM and VI_ALM.

AU_ALM: Audible alarm connector, to connect to an external device that will close the circuit loop for an external audible alarm trigger when an error occurs in the system.

VI_ALM: Visible alarm connector, to connect to an external device that will close the circuit loop for an external visible alarm trigger when an error occurs in the system.

Power Supply Connectors

Warning: ***For initial setup, before you supply power to the shelf, it is suggested not to insert any card into the shelf. Only insert the card after the shelf power connectors are appropriately assembled, and the power LED should be lit green.***

There are two DC-48V power source inputs, labeled A and B. You can verify the power states of these two power sources (connected or disconnected) from the front panel LED indicators, PWRA and PWRB.

The power supply connectors can connect to the DC input or connect to the AC input with an additional AC/DC power supply.

PG PIN: Connect to ground of **+48VDC** power supply source (positive polarity).

-48VDC PIN: Connect to **-48VDC** power supply source (negative polarity).

FG PIN: Connect to **Earth ground**.

Note: ***The pin location sequence on the power connectors for the CT-1020 and CT-1000 are different. From left to right, the NCT-1020 power connector pin signals are FG, PG, -48V; the CT-1000 are: -48V, PG, FG.***

Power Ground & Frame Ground (GND/FG)

The Power Ground (PG) and Frame Ground (GND) are provided.

Fuses: FUSE A & FUSE B

FUSE A and FUSE B are used to guarantee that the system power is supplied appropriately via the power connectors. When an over-current condition occurs, the fuse will blow. When it happens, the maintenance personnel should replace the defective fuse.

The fuse for the NCT-1020 is 10A and for the NCT-1000 is 20A.

2.2.3 Fan Tray

Both the NCT-1000 and NCT-1020 have a fan tray for cooling. The fan tray of the NCT-1020 has one fan, which is located behind the LED indicator panel. The fan tray of the NCT-1000 has three fans and it is mounted at the top of the chassis.

The NCT-1000 fan tray is installed on the upper part of the chassis as follows. On either side of the fan tray, a screw is located to fix the fan tray to the chassis.

The NCT-1020 fan tray is installed on the right side of the chassis as follows. On either side of the fan tray, two screws are located to fix the fan tray to the chassis.

2.3 Install the Card

1. Insert the card into the shelf and tighten its screws of the card.

2. Connect the centronic-50 cable to the card and drive the screws of bracket on the centronic-50 cable tightly with shelf. If you want to replace the card on shelf, you only need to remove the card and re-insert the card into the same slot. It is not necessary to remove the centronic-50 cable, already fixed to the shelf.

Note: ***If the port link is unstable or fails, check to ensure that the rear panel bracket is fixed.***

2.4 AMCU

The AMCU deals with the operations, administration, maintenance and provisioning of the NCT-1000/1020 DSL concentrator. It is installed in Slot 7 in a CT-1000 or Slot 4 in a NCT-1020.

AMCU has one RJ-45 Ethernet connector for Telnet, and SNMP managements, and one RS-232 console port (DB9 connector) for CLI.

AMCU has an ACO (Alarm Cut Off) button on the front panel to process audible alarm cut off.

LED Indicator		Function
INS	**Green**	It indicates that the unit is ready to provide service. Normally a few seconds after insertion this LED should light up.
	Off	The unit is not ready for service.
Alarm	**Red**	It indicates an alarm is occurring.
	Off	No alarm is detected.
ACO	**Yellow**	It indicates the ACO function is enabled.
	Off	The ACO button is not enabled.
ACO	**Push Button**	It is used to stop the audible alarm.
ACT	**Green**	It indicates that data is being transmitted or received over the LAN.
	Off	No data is being transmitted or received over the LAN.
COL	**Yelow**	It indicates a LAN collision is occurring.
	Off	No LAN collision.

Table 1-2 AMCU Faceplate

2.4.1 AMCU Rear Connectors

The AMCU provides a 9-pin RS232 console port and an RJ45 LAN port on the back plate.

Console port: To connect the IP DSLAM to a console PC with a standard VT-100 emulation program.

Locate a crossover DB9 to DB9 RS232 cable. Plug one end of the DB9 connector into the AMCU console port and the other end into the console PC.

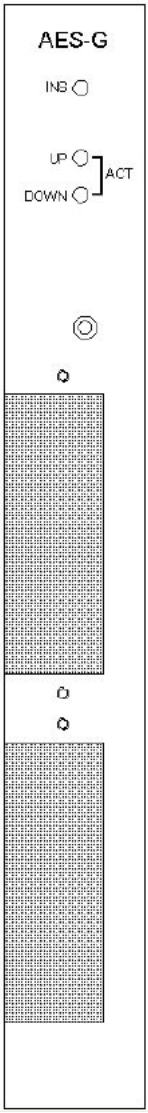
LAN port: This is used to connect the IP DSLAM to an Ethernet device, which may be a workstation, hub, or PC.

To connect to a hub, prepare a straight-through RJ45 cable. To connect to a PC, prepare a crossover RJ45 cable. Plug one end of the RJ45 connector to the AMCU LAN port and the other end to the Ethernet device.

2.5 AES-G

The AES-G is an Ethernet Switch Unit installed in slot 8 in a NCT-1000 or in slot 5 in a NCT-1020. It supports packet switching functions.

The AES-G provides two Gigabit uplink modules, each with an uplink port. The uplink ports can either be equipped with a 10/100/1000BASE-T (electrical interface), 1000Base-SX (optical), or 1000BASE-LX (optical) connector.

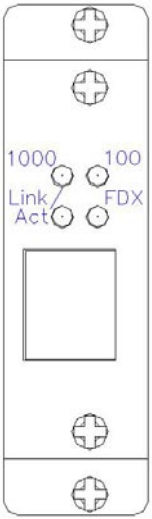


LED Indicator		Function
INS	Green	Indicates the unit has been provisioned to serve
	Off	AESG is out of service.
UP ACT	Green	Ethernet link is established (labeled Ethernet 1 on the shelf rear panel)
	Flash	Indicates there is data over the upstream Ethernet interface.
	Off	Upstream Ethernet link is not established.
DOWN ACT	Green	Downstream Ethernet link (labeled Ethernet 2 on the shelf rear panel) is established.
	Flash	Indicates there is data over the downstream Ethernet interface
	Off	Ethernet link is not established.

Table 1-3 AES-G Faceplate

2.5.1 Uplink Electrical Module

The following picture and table explain the faceplate of the Gigabit Ethernet Uplink Electrical Module (1000BASE-TX). The module is equipped with a Gigabit Ethernet Uplink port.

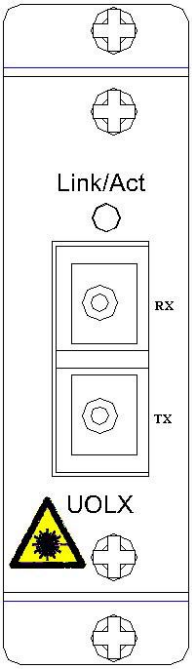


LED	Color	Mode	Function
1000	Green	On	Uplink operating at 1000 Base-T.
		Off	Uplink operating below 1000 Base-T.
100	Green	On	Uplink operating at 100 Base-T.
		Off	Uplink not operating at 100 Base-T.
			(Note if the 1000 Base-T & 100 Base-T
			LEDS are both off, then the uplink is operating at 10 Base-T)
Link/Act	Green	Flash	Data transmitting or receiving over uplink.
		On	an uplink connection is established.
		Off	No uplink connection is established.
FDX	Green	On	Uplink operating in full-duplex mode.
		Off	Uplink operating in half-duplex mode.

2.5.2 Uplink Optical LX Module

The following picture and table explain the faceplate of the Gigabit Ethernet Uplink Optical Module1000BASE-LX). The module is equipped with a Gigabit Ethernet Uplink port. This is for single mode fibre optic cabling.

There are two ports. RX receives the interface and TX transmits the interface.



LED	Color	Mode	Function
Link/Act	Green	Flash	Data transmitting or receiving over uplink.
		On	An uplink connection is established.
		Off	No uplink connection is established.

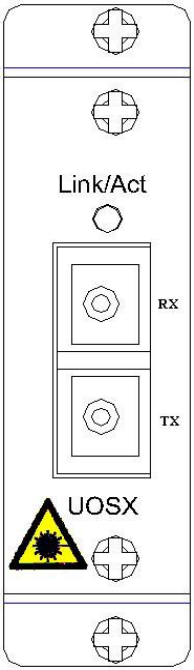
Transmitter Optical Specifications			
Parameter	Min	Typ.	Max
Output Optical Power*	-9dBm	-	-3dBm
Extinction Ratio	9dB	-	-
Center Wavelength ()	1260nm	1310nm	1360nm
Receiver Optical Specifications			
Sensitivity	-	-	-20dBm
Maximum Input Power	-3dBm	-	-
Center Wavelength ()	1270nm	1310nm	1360nm

*output power is coupled into a 9/125nm single-mode fiber.

2.5.3 Uplink Optical SX Module

The following picture and table explain the faceplate of the Gigabit Ethernet Uplink Optical Module (1000BASE-SX). The module is equipped with a Gigabit Ethernet Uplink port. This is for multiple mode fibre optic cabling.

There are two ports. RX receives the interface and TX transmits the interface.



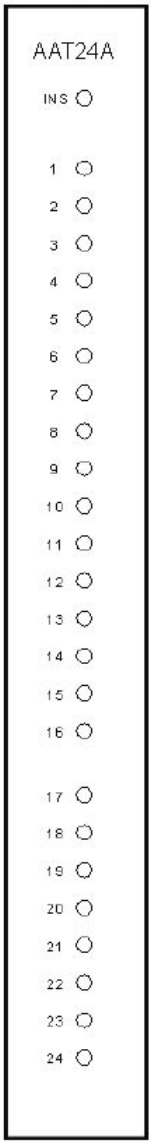
LED	Color	Mode	Function
Link/Act	Green	Flash	Data transmitting or receiving over uplink.
		On	An uplink connection is established.
		Off	No uplink connection is established.

Transmitter Optical Specifications			
Parameter	Min	Typ.	Max
Output Optical Power	-9.5dBm	-	-4dBm
Extinction Ratio	9dB	-	-
Center Wavelength ()	820nm	-	860nm
Receiver Optical Specifications			
Maximum Input Power	-17dBm	-23dBm	-
Center Wavelength ()	820nm	-	860nm

2.6 AAT24A

The AAT24A is a 24-port ADSL line interface unit. Each ADSL port supports one virtual channel (VC). An ADSL port has a maximum Downstream transmission rate of up to 11 Mbps with increments of 32 Kbps and a maximum Upstream transmission rate of up to 864 kbps. ADSL supports a maximum distance of 4 km over 0.65 mm.

The AAT24A LEDs indicate the status of the AAT24A as detailed below:

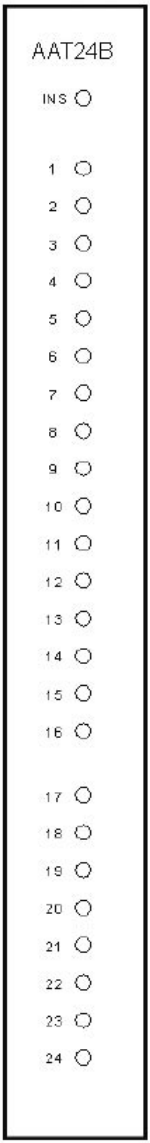


LED Indicator		Function
INS	Green	At least one of the ports is configured and in service.
	On	No port is configured.
1 to 24	Green on	The port is provisioned and the connection to the remote CPE is in link mode.
	Green blinking	The port is provisioned and the link to the remote CPE is training.
	Red on	The port is provisioned but the link to the remote CPE is not established.
	Yellow blinking	The port is in loopback.
	Off	The port is not provisioned or a malfunction has occurred.

2.7 AAT24B

The AAT24B is a 24-port ADSL 2+ line interface unit. Each ADSL port supports two virtual channels (VCs). An ADSL port has a maximum Downstream transmission rate of up to 24 Mbps and Upstream up to 2 Mbps. The AAT24B has a Centronic 50-pins connector male to connect to the NCT-3010/NCT0-3100 ADSL POTS splitter.

The AAT24B LEDs indicate the status of the AAT24B as detailed below:



LED Indicator		Function
INS	Green	At least one of the ports is configured and in service.
	On	No port is configured.
1 to 24	Green on	The port is provisioned and the connection to the remote CPE is in link mode.
	Green blinking	The port is provisioned and the link to the remote CPE is training.
	Red on	The port is provisioned but the link to the remote CPE is not established.
	Yellow blinking	The port is in loopback.
	Off	The port is not provisioned or a malfunction has occurred.

2.8 Using the Cores

Three cores (one white square and two black round) are enclosed in the NCT-1000/1020 IP DSLAM package box, and one core (black round) is enclosed in the package box for the Gigabit Ethernet Electrical Module. These cores are required for safety purposes to avoid magnetic interence. Before connecting the cables, apply the cores as instructed below.

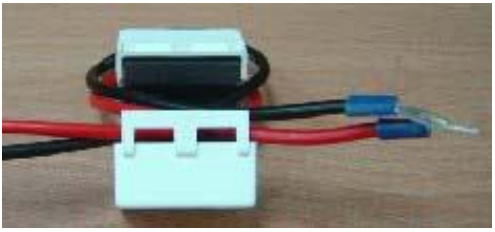
Note that the core should be attached to the cable, close to the NCT-1000/1020. The core requirements at the other end of the cable will depend on the device that NCT-1000/1020 will be connected to.

Applying the Core to the DC wires

The power adapter core is white, and square in shape.

STEP 1 Select the place on the cable where you will attach the core. The core should be placed near the AC/DC power supply, approximately 5-6cm away.

STEP 2 Loop the cable around the core as follows.



STEP 3 Lock the core by fastening the clip.

Applying the core to the Gigabit Ethernet cable

The core for Gigabit Ethernet cable is black and round in shape.

STEP 1 Select the place on the cable where you will attach the core. The core should be placed near the NCT-1000/1020 IP DSLAM, about 1-2 cm.

STEP 2 Loop the cable around the core twice, as displayed below.

STEP 3 Lock the core by fastening the clip. The following picture shows the RJ45 core.

Applying the core to the RJ21 connector (male Telco 50) cable

Both the telco-50 cable for the channel card and Gigabit Ethernet cable need a core. The correct core is round and black.

STEP 1 Select the place on the cable where you will attach the core. The core should be placed about 1-2cm from the telco-50 connector.

STEP 2 Put the core around the cable as follows.

STEP 3 Lock the core by fastening the clip. Use Electrical Tape to wrap the core in case the core is loose. The following displays the finished core application for the telco 50 cable.

2.9 Connecting AC/DC Power Supply

Note: ***If the power supply malfunctions, discontinue its operation. Remove it from the power supply shelf on the rack, by removing the screws at the bottom of the shelf, and replace the power supply with another one. More installation details are provided in the Appendix.***

Note: ***The rear power terminal has a plastic protection cover which must be installed.***

The IP DSLAM supports dual DC–48V ports. If an AC power source is required, an AC/DC power supply tray is provided. The power supply tray can hold up to two power supplies, for single or dual power supply source systems.

The IP DSLAM features load-sharing and power redundancy, which prevents the system from going down, such as in the case of an unexpected power supply failure. Each power supply is capable of running the system by itself. In case of power supply failure, the redundancy can be restored by swapping out the failed power supply. Removal or replacement of the power supply will not affect the service.

To connect power to the shelf, follow the procedures below. The procedures for the NCT-1000 and NCT-1020 are explained in separate sections. It is suggested that the AC/DC power supply and the NCT-1000/1020 are 1U apart, to allow appropriate heat dissipation.

Caution: ***The input power switch is adjustable for high or low AC voltages. To use the power supply, an appropriate voltage must be selected, to be compatible with your field application. Make sure that the power switch is set to the correct voltage, before applying your field application. The setup switch is located on the side of the power supply.***

2.9.1 Connecting the NCT-1000 Power Supply

The IP DSLAM can have a single or dual power source. For a single power source system, the shelf holds one power supply, and it holds two power supplies for a dual power supply source system. To assembly the power supply, two power cords are supplied with the package. One is the DC wire for connecting the NCT-1000 to the power supply. The other is the AC-to-DC power cord for connecting the power supply to the AC power source.

To connect the power supply, complete the following steps:

STEP 1: Assemble the power supply shelf onto the rack. The following picture shows the dual power supply shelf.

STEP 2: Use the DC wire to connect the NCT-1000 to the power supply, and prepare a frame ground wire for earth ground. This wire is optional. Connect to one of the power terminals for a single power supply system or both terminals for dual power supply systems.

Connection On the NCT-1000

PG: Connect to the **(DC) Positive connector** of the power supply.

-48V: Connect the **(DC) Negative connector** of the power supply.

FG: Connect to the **earth ground**.

Connection on the power supply:

POS(+): Connect the positive power lead to the positive terminal marked POS(+).

NEG(-): Connect the negative power lead to the terminal marked NEG(-).

Warning: The power connectors must be connected correctly.

STEP 3: Connect the AC source

Use the AC power cord (one end with power plug and one end with three wires) to connect to the power source.

Connection on the power supply

Connect the three wires of the cable to the power supply as follows.

L terminal of the power-supply: Connect to the Blue wire.

N terminal of the power-supply: Connect to the Brown wire.

FG terminal of the power-supply: Connect to the Green-Yellow wire.

Connection to Power source

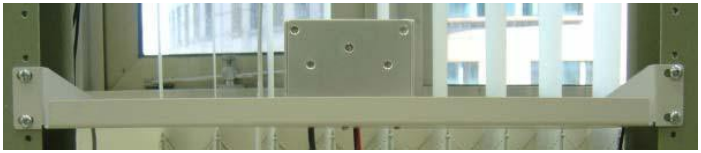
Connect the power plug to the power source.

STEP 4: Turn on the power for the system. The corresponding power LED on the front-panel will light up. If it is a single power system, only the connected power terminal LED will light up. If it is a dual power supply system, both of the LEDs should light up.

2.9.2 Connecting the NCT-1020 Power Supply

The IP DSLAM can have a single or dual power source. The shelf can hold up to two power supplies for a dual power supply source system.

STEP 1: Assemble the power supply shelf onto the rack. The following picture shows the power supply shelf.



STEP 2: Use the DC wire to connect the NCT-1020 to the power supply, and prepare a frame ground wire for earth ground. This wire is optional.

Connect one of the power terminals for a single power supply system or both terminals for a dual power supply system.

Connection on the NCT-1020

PG: Connect to the **(DC) Positive connector** of the power supply.

-48V: Connect the **(DC) Negative connector** of the power supply, marked -48V.

FG: Connect to the **earth ground**.

Connection on the Power supply:

+V: Connect the positive power lead to the positive terminal marked +V.

-V: Connect the negative power lead to the terminal marked –V.

Warning: ***The power connectors must be connected correctly. One connector should be connected to the negative terminal on both the shelf and power supply; the other should be connected to the positive terminal on both the shelf and power supply.***

STEP 3: Connect the AC source

To connect to the power source, use the AC power cord (one end with power plug and one end with three wires).

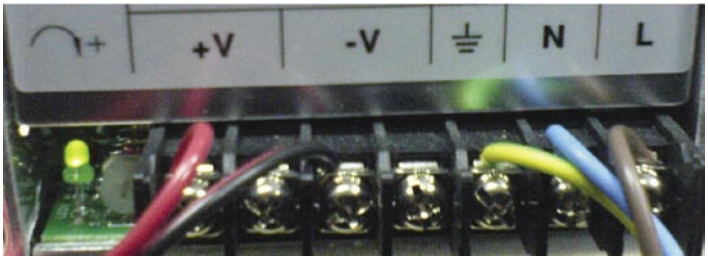
Connection on the power supply

Use the AC power cord (the end with three wires) to connect to the power supply as follows.

L terminal of the power-supply: Connect to the Blue wire.

N terminal of the power-supply: Connect to the Brown wire.

FG terminal of the power-supply: Connect to the Green-Yellow wire.



Connection to Power source

Connect the power plug to the power source.

STEP 4: Turn on the power for the system. The corresponding power LED on the front-panel will light up. If it is a single power system, only the connected power terminal LED will light up. If it is a dual power supply system, both of the LEDs should light up.

2.10 System Installation

2.10.1 Setting up a DSL Concentrator

Before installation, ensure all cards are inserted in the correct position and fit into the chassis. Then complete the following procedures to install a DSL Concentrator.

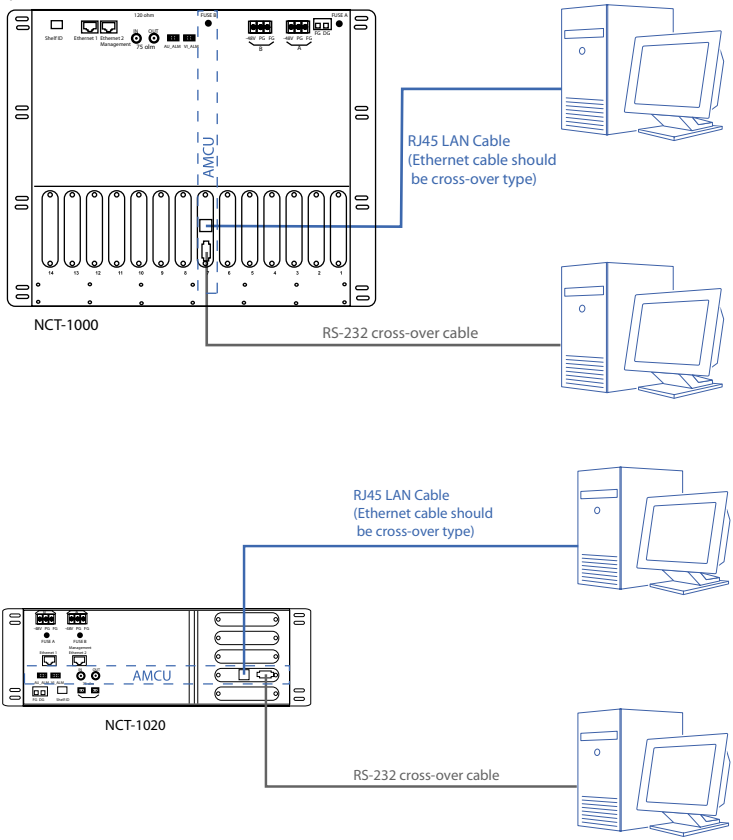


Figure 2-1 Setting Up A Chassis

STEP 1: Use a DB9 connection cable to connect the PC COM port to the AMCU console port.

STEP 2: Make sure the chassis ID DIP switch is set to “all on”.

STEP 3: Use an RJ45 connection cable to connect the LAN and the AMCU LAN port for remote SNMP configuration.

STEP 4: Connect the office alarm connectors to an external visible or audible alarm device (if required).

STEP 5: Connect either or both of the two -48VDC power connectors to the power source.

2.10.2 Setting up the Connection

Set up the network as shown in the figure below.

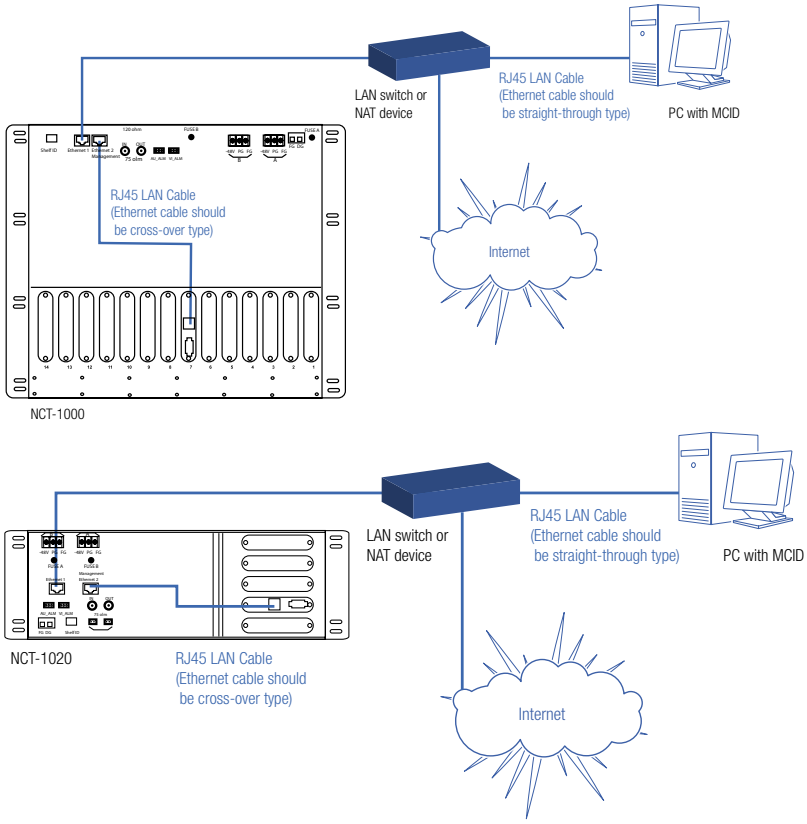


Figure 2-4 NCT-1000/1020 simple Connection

You have to use the Ethernet port (Ethernet 1 or Ethernet 2) that is on the rear panel of the NCT-1000/1020 shelf to connect to a router via an RJ45 straight-through cable.

2.10.3 Setting up Network Management

The following diagram shows the network management.

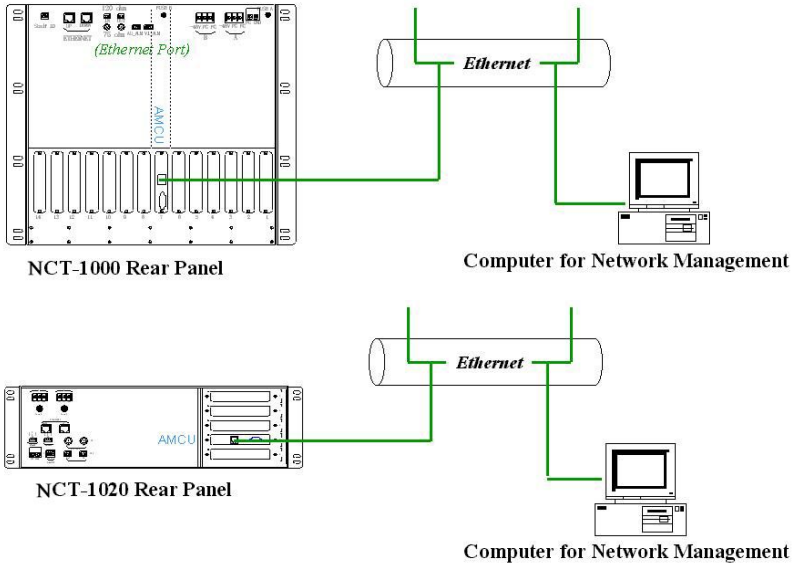


Figure 2-5 Network Management

You can connect the AMCU Ethernet port and the computer together for management over the Ethernet network. After finishing the connection, make sure that the IP address of your computer for network management and the IP address of the AMCU are in the same network segment. The factory-defaulted IP address for the AMCU is 172.16.7.100 and subnet 255.255.0.0

The IP address of AMCU can be checked through the console via CLI command “show mcu config”.

Chapter 3 Initial Setup

You can use the Command Line Interface (CLI) to configure the IP DSLAM via the Console port. The default IP address is 172.16.7.100/16.

Initial configuration of the IP DSLAM must be performed from the console port.

Before configuring the DSLAM, prepare a PC running a standard VT-100 terminal emulation program, such as HyperTerminal and Telix. Use a DB9 null modem cable to connect the AMCU Console port and the PC COM port.

When you make changes to the DSL Concentrator, it is necessary to save the changes to the AMCU flash memory. Changes are temporarily saved in the AMCU RAM until they are saved, and will be lost after the system restarts. To keep the configuration, you should save them to the AMCU flash memory.

3.1 Console Session Parameters

This section introduces the two most commonly used VT-100 emulation programs: Telix and HyperTerminal, and describes the necessary parameters for their operation. If your VT-100 program is neither, use the HyperTerminal parameters.

First, run the VT-100 program and set the session parameters as follows:

Baud rate: 38400 bps

Parity: none

Data bits: 8

Stop bit: 1

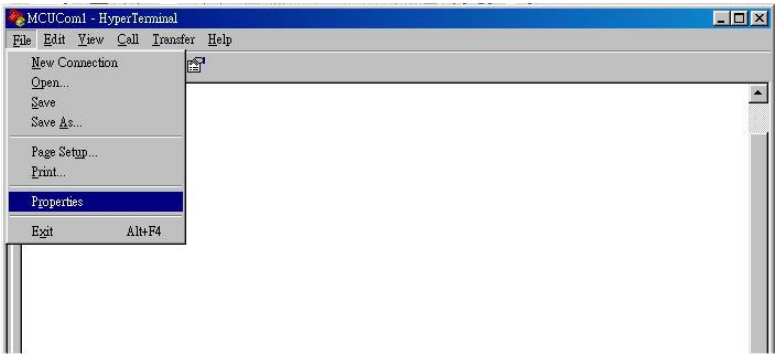
Flow control: none

HyperTerminal Instructions

HyperTerminal is provided with Windows 98/ME/2000. If you use HyperTerminal, use the following procedures:

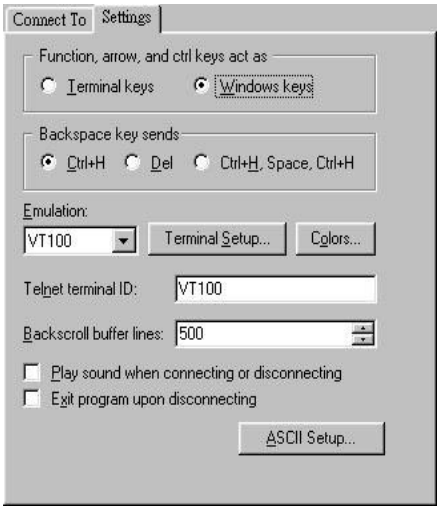
STEP 1: Activate the HyperTerminal window after the baud rate, parity, data bit, stop bit, flow control bit are set up.

STEP 2: Click **File>Properties** to access the **Properties** window.



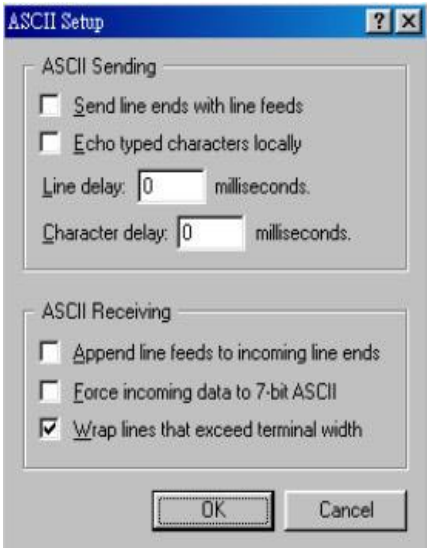
STEP 3: Click the Settings tab on the Properties window. On the new window, select the following parameters and then click the ASCII Setup button.

- Set **Function, arrow, and ctrl keys acts as** field as **Windows keys**
- Set **Backspace key send** field to **Ctrl+H**
- Select **Emulation** field to **VT-100**



STEP 4: Select the following parameters on the ASCII Setup window and click OK.

- **Wrap lines that exceed terminal width**



3.2 Login

To login to the console you will be required to enter a password. Only a Super user password will be accepted. The default username password is:

Login: root

Password: root

3.3 System Initial Commands

In the console mode, the user can type ? at the prompt to display all of the console commands. An example or simple description is given for the command that helps you to use the command.

The default IP address 172.16.7.100 is pre-configured for the device. If it doesn't fit your application, change it. This IP address is used to start the telnet, and SNMP to configure and maintain the DSL Concentrator.

Add a save note: to use the altered changes, save them to the flash with the save command. If the altered changes are not saved, next time when the device is rebooted, the original configurations on the flash will be applied.

Some functions of console commands are explained in Table 3-1 below. Refer to Appendix H for more detailed commands.

Table 3-1 Console Command List

Command	Function
?	To display the command list
dslam> show sys user	Show user accounts
dslam> show sys clock	To display the AMCU time
dslam> show sys version	To show firmware version of all cards
dslam> show aa24 config slot port	To get the Cannel Unit version
dslam> show mcu config	To display the current IP address/subnet mask - To display the management gateway
dslam(config-mcu)# ip-address set ip-address mask	To set a new IP address/subnet mask
dslam(config-mcu)#default-gateway set ip-address	To set a management gateway
dslam(config-mcu)#default-gateway remove	To delete a management gateway
dslam(config)# reload mcu	To reboot AMCU
dslam(config)# reload cu slot	To reset the appointed channel unit
dslam(config)# save	To save all settings to flash
dslam(config)# load-default { sys | cu slot }	To load the system default settings

3.4 AMCU Management IP Address

The default IP address and subnet mask are 172.16.7.100 and 255.255.0.0 respectively. You can type the following commands to display the IP address and subnet mask:

```
dslam>show mcu config
```

To change the IP address and the subnet mask of MCU, type the following command:

```
dslam(config-mcu)#ip-address set ip-address mask
```

For example, if you want to change the IP address and subnet mask to 192.168.1.1 and 255.255.255.0. Then type

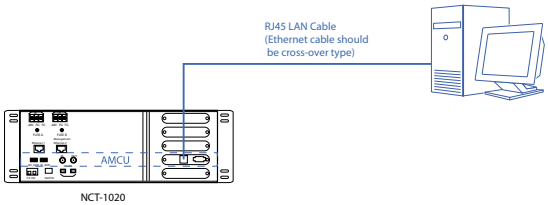
```
dslam(config-mcu)#ip-address set 192.168.1.1 255.255.255.0
```

PART II SNMP MANAGEMENT

The following chapters explain the procedures for managing the IP concentrator using SNMP management.

Chapter 4 MCID Introduction

The MCID (Management Craft Interface Device) software provides a Graphical User Interface (GUI), which can be used to configure, maintain, and operate a NCT-1000/1020 across a LAN. The MCID is able to control all the installed cards. You can use the LAN port on the chassis rear panel to access the MCID and configure the device.



4.1 Minimum Requirements

To install the MCID, your workstation should meet the following minimum requirements:

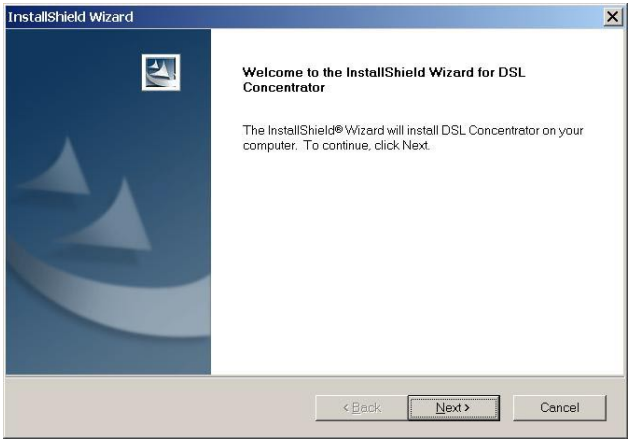
CPU:	Celeron 900 or above
RAM:	256 MB
OS:	Win 2000 professional (administrator or power user privileges)
Display resolution:	1024 x 768
Font:	Small fonts

4.2 MCID Installation

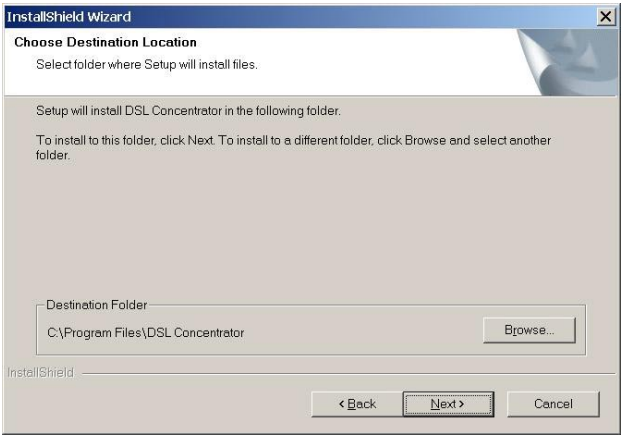
To install the NCT-1000/1020 MCID software, complete the following steps:

STEP 1: Insert the compact disk with the NCT-1000/1020 MCID software into your workstation's CD-ROM drive.

STEP 2: Open the **MCID folder** and run **setup.exe**

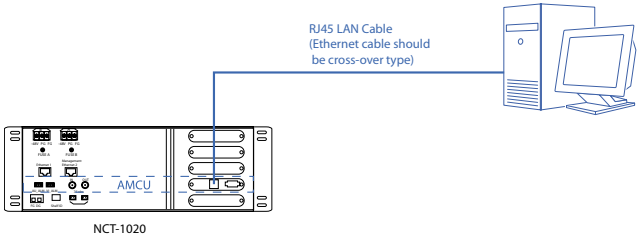


STEP 3: Select the Destination Folder using the **Browse** button, and click **Next** to continue, when the screen displays as below:



STEP 3: A shortcut icon for the NCT-1000/1020 MCID will be established on your desktop as shown below. Click the icon to start the CID. The next section explains the login procedure.

4.3 Login to the NCT-1000/1020



STEP 1: Use a crossover RJ45 LAN cable to connect the MCID terminal to the LAN port on the UMCU of the NCT-1000/1020.

STEP 2: Double click the **MCID** icon on the desktop to display the login menu.

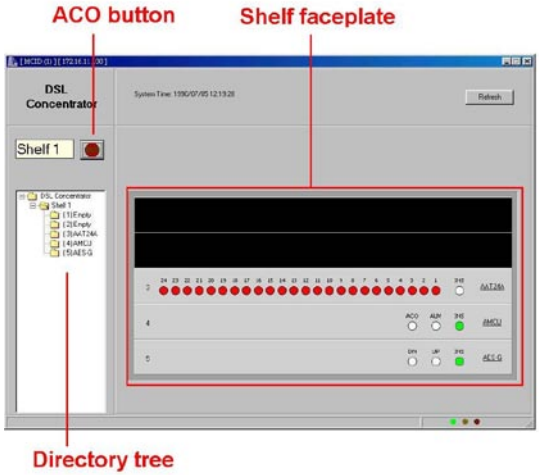
Enter the following information:

- IP Address (default = 172.16.7.100)
- Get Community (default = public)
- Set Community (default = private)

STEP 3: Click **Start CID** to enter the login screen of the device. Enter the **Username** (default = root) and **Password** (default = root) and click on the **Login** button.

4.4 CID Main Menu

After login the screen will display as below. The figure below has labels for the location of the ACO button, shelf faceplate, and directory tree. The faceplate displays the installed units and their LED status.



The main screen includes the following information:

Items	Functions
Directory Tree	The directory tree shows all the units that are connected to the shelf.
Units	It displays the units that are installed in the shelf.
On-screen	At the bottom-right of the screen, the command processing indicators state is indicated by the use of three different colors: successful (green), processing (yellow), or failure (red). These indicators apply to every action, operation, or configuration that is processed by the MCID, such as when you click on a toolbar button, change a setting, or refresh the screen.
Green	The green indicator always lights when the MCID is in its normal state. It is off when a command is under process, and it lights up again when a command is successfully accomplished.
Yellow	The yellow indicator blinks when the MCID is accessing or communicating with the device, or when the MCID is processing a command.
Red	The red indicator lights up when the command that you performed fails.

The unit's faceplate color can reflect the state using the following colors:

Dark: not existing

Gray: plugged-in to the shelf, but not configured

Light gray: plugged-in to the shelf, and configured

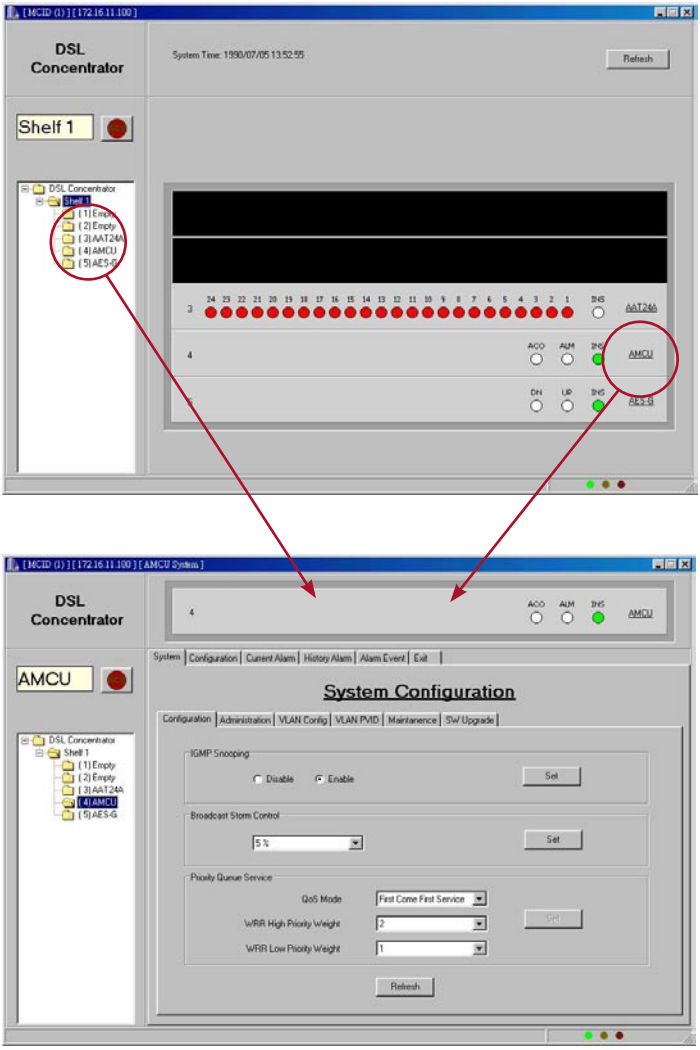
Red: Card Mismatch

Alarm Cut Off

The **Alarm Cut Off (ACO)** button  , is located below the **SYSTEM** button. It is used to stop the audio alarm physically connected to the chassis.

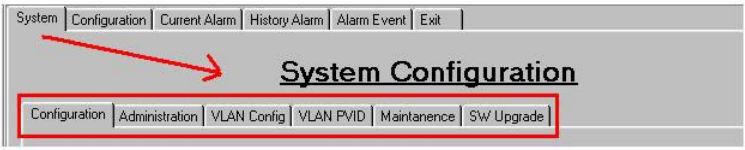
Chapter 5 AMCU

To access the AMCU main control unit, select AMCU from the directory tree or click AMCU from the faceplate. The screen will display as below. A graphical display of the status of each port is shown on the right hand side of the menu tree. The following diagram illustrates how to display the AMCU configuration screen for a NCT-1020. The NCT-1000 has similar steps, but the screen is different.



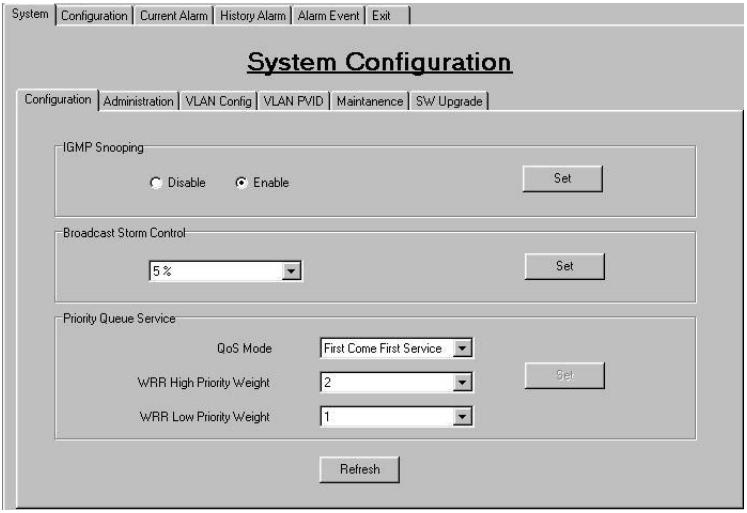
5.1 System

The sections that follow are accessed from the system screen of the AMCU main control unit.



5.1.1 Configuration

The **Configuration** tab configures IGMP Snooping, Broadcast Control, and Priority Queue Service.



IGMP Snooping

Note: ***If you want to connect the ASTU card, set the IGMP Snooping to Enable (default setting) first.***

ASTU supports private VLAN or private/tagged VLAN simultaneously. AAT24A supports either private or tagged VLAN. Please DO NOT switch the VLAN mode while the ASTU card is connected as this will cause an unpredictable operational problem.

The default of IGMP Snooping is enabled. To disable it, choose **Disable** and click **Set** to apply the setting.

IGMP (Internet Group Membership Protocol) is a protocol used by IP hosts to report their multicast group memberships to any immediately neighboring multicast routers. Enabling IGMP snooping allows the ports to detect IGMP queries and report packets and manage IP multicast traffic through the IP DSLAM to avoid traffic flooding.

Broadcast Storm Control

Broadcast storms may break down your network traffic. To avoid the broadcast storms from blocking your network traffic, you can configure this field by choosing any option among 5% to 25%.

When broadcast storms are discovered, the broadcast storm packets can be filtered by percentage. For example, the option 10% is selected. It means 10% of the broadcast storm packets will be allowed for the network while the rest (90%) will be dropped. This allows the device to receive the broadcast storm packets and simultaneously process other packets sent by different hosts.

To disable broadcast storm control, choose Off and click Set to apply the setting.

Priority Queue Service

Note: ***The QoS function works under tagged based VLAN mode. Also note, ASTU supports private VLAN or private/tagged VLAN simultaneously. AAT24A supports either private or tagged VLAN. Please DO NOT switch the VLAN mode while the ASTU card is connected. That will cause an unpredictable operational problem.***

QoS Mode: The QoS mode configures the sequence of the packets to be transmitted. There are two priority queues – high and low. Queue is the packet pool that collects or holds the packets to be transmitted. Each packet is assigned with a priority queen (options 1 to 7). The QOS specifies the sequence to process these waiting packets. There are three QoS modes:

First Come First Service: The sequence of packets sent depends on the arriving order.

All High Before Low: The packets in the high priority queue are always sent before those in the low priority queue.

Weighted Round Robin: (WRR) Options (1-7) represent the number of the high priority packets sent before the low priority packets. Use the following diagram for example, option 5 is chosen in the WRR High Priority field, and option 2 is chosen in the WRR Low Priority field. Then, in the high queue, five Packets “A, B, C, D, E” are sent prior to the packets in the low queue. After the five packets are sent, two packets “A and B” will be sent. The rest of the packets are processed in the same way.

WRR High Priority Weight: This field only works when Weighted Round Robin is selected from the QoS Mode field.

WRR Low Priority Weight: This field only works when Weighted Round Robin is selected from the QoS Mode field.

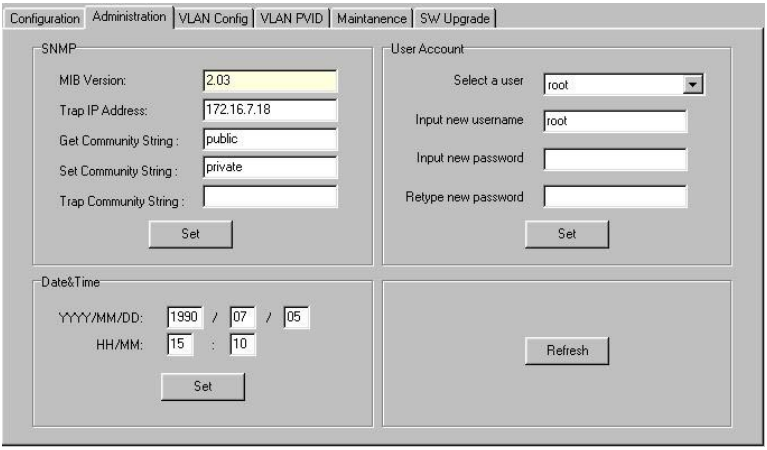
Note: ***For more details about vlan, refer to section 5.1.3. The QoS is only configurable in the tagged vlan.***

8021P Priority QoS High Priority Queue mapping

The selected 0~7 numbers will be mapped to high priority. Multiple numbers can be chosen. If a packet is received with the priority queue, it will be processed by mapping to the priority queue table. For example, numbers 0, 4, 5, 6, are chosen in this field. If the packet was already given the priority queue, 0, and it will be sent to the high priority queue because number 0 is in the selected priority queue table. If the packet’s priority is 2, then it will be forwarded to the low priority queue because the number 2 is not in the table.

5.1.2 Administration

To access the configuration screen, click on the Configuration tab, and the screen will display as below:



SNMP

The following parameters can be configured, click on the Set button to update settings:

MIB Version: Displays the MIB version of the SNMP.

Trap IP address: Sets up the IP address to which the CID will send a TRAP.

Get Community String: Enter a string for accessing CID GET functions. The system default is public.

Set Community String: Enter a string for accessing CID SET functions. The system default is private.

Trap Community String: Enter a string for accessing CID functions for setting Traps.

User Account

The User Account screen is used to set up the user name and password. There are five user accounts that can be set up to access the system. Among the five users, one is the super user, who has the authority to configure, change parameters, monitor, and read the performance and status of the system.

The other four are Users that can read the status and parameters as well as display the system performance statistics. A User has read-only access. To set up a password complete the following fields, and then press the Set button:

Select a user: Select root to set up an administrator's account or User to set a user's account.

Input new user name: Type the username.

Input new Password: Type the password.

Retype new password: Re-type the password.

The default user name and password of the administrator is root and root. Only the super user can add or modify a user account. Note that a correct capitalization of letters should be used during logging on. User names cannot be repeated.

The default user name and password are as follows:

root/root	(Read/write access)
user2/guest	(Read-only)
user3/guest	(Read-only)
user4/guest	(Read-only)
user5/guest	(Read-only)

Date & Time

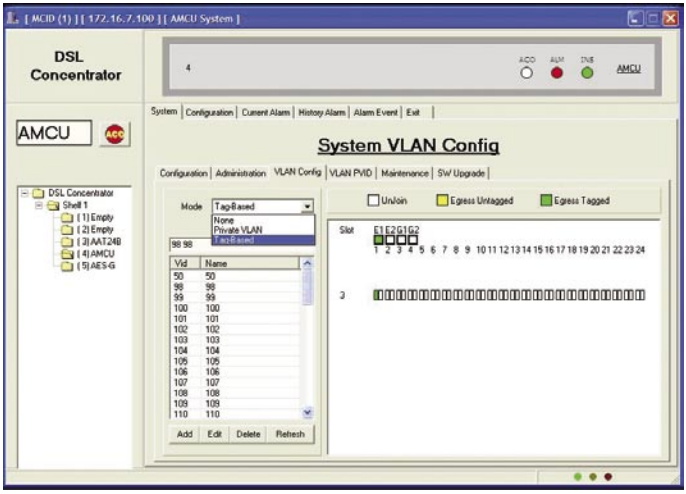
Enter the date using the YYYYY/MM/DD format or the time using the HH/MM format and then click on the Set button.

5.1.3 VLAN Configuration

Note: ***ASTU supports private VLAN or private/tagged VLAN simultaneously.***

The AAT24A and AAT24B both support either private or tagged VLAN. Please DO NOT switch the VLAN mode while the ASTU card is connected. Doing so will cause an unpredictable operational problem.

The VLAN Config tab configures the VLAN settings. Processing of the VLAN settings may take a few minutes to accomplish. During the process, your GUI screen may appear frozen. Please wait for a few minutes for the VLAN configuration to be submitted. The more the channel cards that are installed on the shelf, the slower the process will run.



A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain. It allows you to isolate network traffic, so only members of the VLAN can receive traffic from the same VLAN members. Creating a VLAN from a switch is logically equivalent to reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still physically plugged into the same switch. The NCT-1000/1020 supports private and tagged-based (802.1Q) VLANs.

VLAN Modes

There are three VLAN modes:

None: The VLAN is disabled. All ADSL ports can share resources (data).

Private VLAN: All ADSL ports are separated from each other. They could not share data.

Tagged VLAN (up to 600 groups)Tagged-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different IP DSLAM venders. IEEE 802.1Q VLAN uses a technique to insert a “tag” into the Ethernet packets. Tag contains a VLAN Identifier (VID) that indicates the VLAN numbers. Packets are only shared among group members. A single ADSL port can be joined to different VLAN groups. Packets can go among members of the same VLAN group.

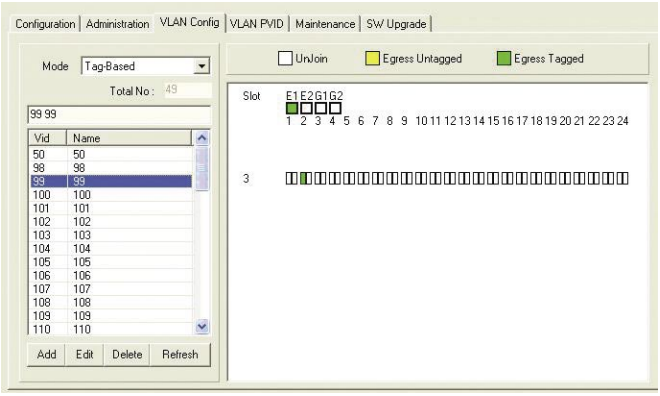
Outgoing Packets for tag-based VLAN

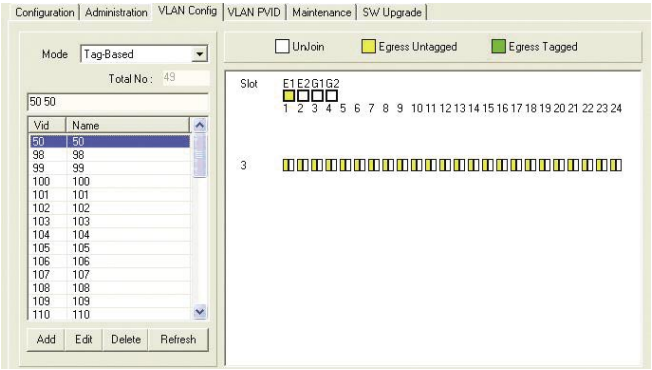
There are three types of outgoing Tag-based VLAN packets. In a VLAN entry, white means the port is not joined to any group. Yellow means the port is set to Egress Untagged. Green means the port is joined to Egress Tagged.

UnJoin: The slot or port is not joined to a VLAN group. It presents in a white box.

Egress Untagged: The outgoing packets of the port will not carry a tag. The port/slot shows yellow.

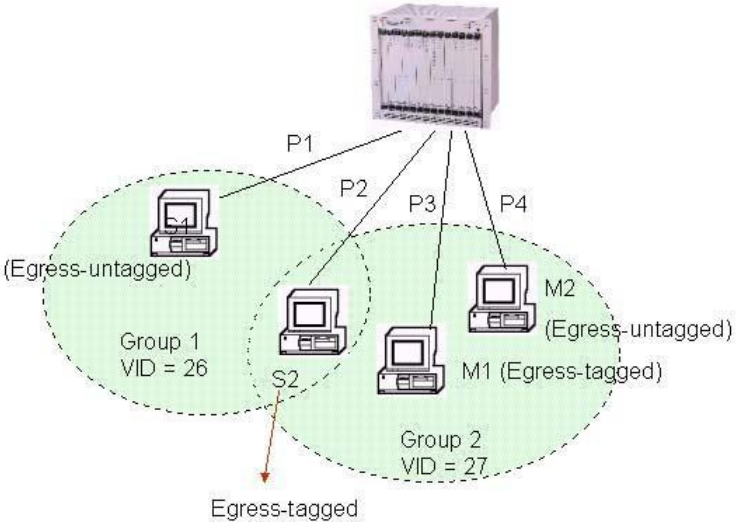
Egress Tagged: The outgoing packets of the port will carry a tag. The port/slot shows green.



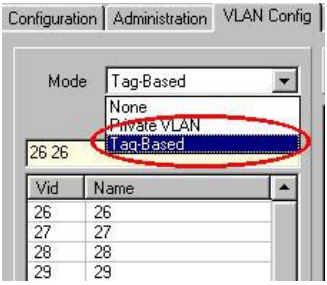


Tag-based VLAN

In the application below, there are four ADSL ports (node). A node can exist among different VLAN groups. For example, S2 in the following diagram belongs to both Group 1 and Group 2. Others nodes' VLAN type depends on their field application, which can be Egress-Tagged and Egress-Untagged.



STEP 1: Select **Tag-Based** from the VLAN Mode field.

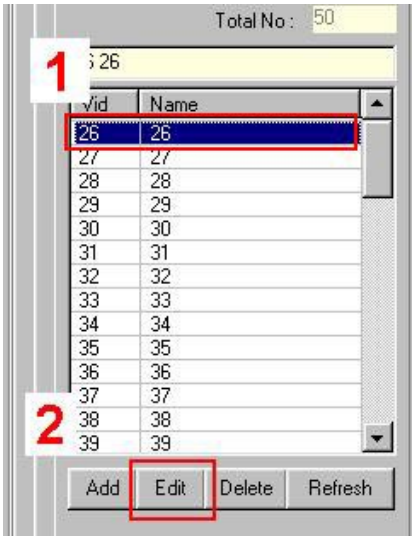


STEP 2: A "Change VLAM Mode OK" combo box pops up. Click **OK** to close it.

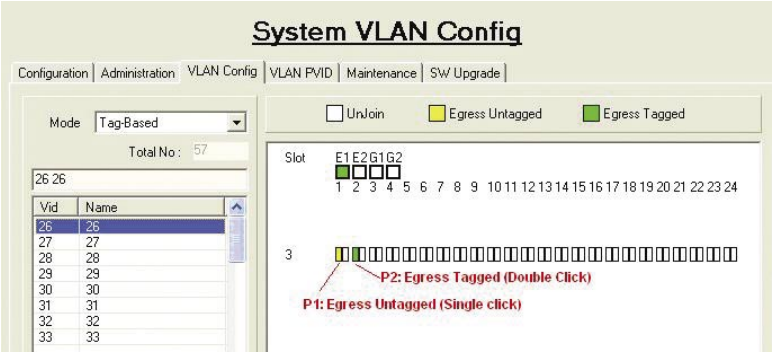
STEP 3: By factory default, the VID numbers are auto-created by the system, starting from number 2. Each slot has 24 VIDs. The default VID for each AAT24A is listed below.

Slot number	Reserved VID number
1	2 - 25
2	26- 49
3	50- 73
4	74- 97 (not available for 1020)
5	98 – 122 (not available for 1020)
6	123 – 146
7	For AMCU (PVID not available)
8	For AESG (PVID not available)
9	147- 170
10	171 – 194
11	195 – 218
12	219- 242

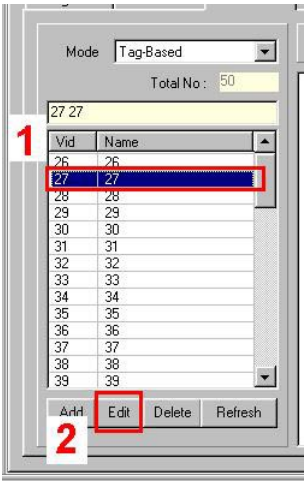
STEP 4: Configure Group 1 (the VID is 26). Choose VID 26, and click **Edit**.



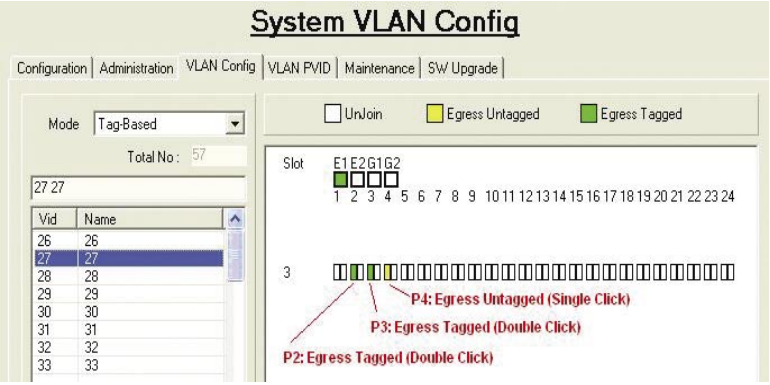
STEP 5: On the right side of the screen, for Egress Untagged port, single click the port (yellow), and for the Egress Tagged port, double click it (green). In this case, Port 1 is Egress Untagged, so click it once, and port 2 is Egress Tagged, so click it twice. When the set up is complete, click **Set** to apply. A "set ok" combo box should display. Click **OK** to close it.



STEP 6: Continue to configure Group 2 (the VID is 26). Choose VID 27, and click **Edit**.



STEP 7: In this case, Port 2 and Port 3 are Egress tagged, so click it twice, and port 4 is Egress untagged, so click it once. When the set up is complete, click **Set** to apply.

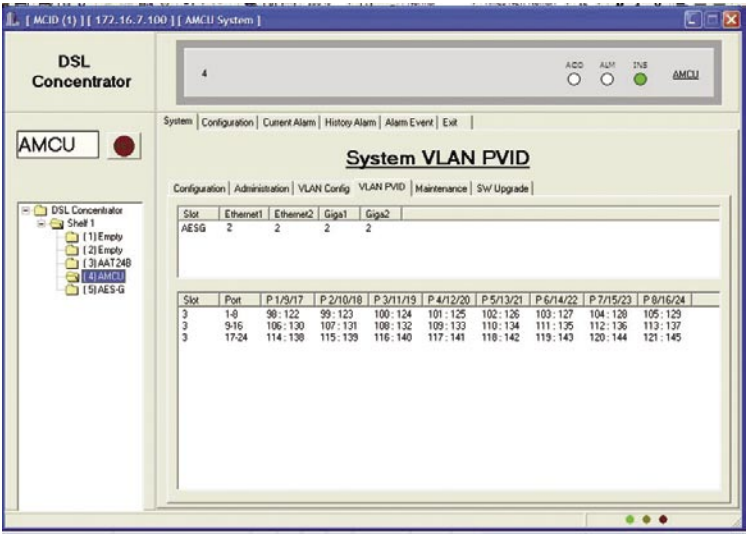


STEP 8: The setup is complete.

5.1.4 VLAN PVID

The VLAN PVID displays the tag-based VLAN. In a tagged VLAN application, if untagged packets are received, they will be forwarded by mapping the port VID number. The VID number is configured on the VLAN PVID tab. If the VID number is not on the VID entry list, the packets will be dropped.

The following screen displays an example of the AAT28B VLAN PVID interface:



Slot: This lists the slot number of the AESG Gigabit ports (1 or 2), and AAT24A/AAT24B.

Part: This lists the port range: Ports 1-8, Ports 9-16, and Ports 17-24.

P1/9/17 – P8/16/24: This lists the ports and their corresponding PVIDs. For example, in the above table, the first eight (1-8) ports for AESG in slot 3 ranges from 98 to 105 for their first VC, and 122 to 129 for the second VC.

5.1.5 Maintenance

The Maintenance tab maintains the following functions:

Please Select Card

This field resets the card that is chosen. To do this, select a **Card Type** and then click the **Reset** button.

Start VLAN ID

In a tag-based VLAN, each channel of the AAT24A card is reserved with 24 ID numbers. The blank in this field is used to enter the start number for the ID. The default is 2, and it means the preset ID numbers for slot 1 for 2 to 25. Accordingly, ID numbers 26 to 49 are for slot 2, and 50 to 73 are for slot 3.

For the AAT24B card, each unit channel is reserved with 48 ID numbers because each of its port supports two virtual channels (VCs). By default, its Start VLAN ID is 2, and it means the preset number for slot 1 is from 2 to 49. Accordingly, ID numbers from 50 to 97 are for slot 2 and 98 to 145 are for slot 3 etc.

System-Wise

Reset System: Click this button to reset the system.

Load Default: Click this button to load the system default settings.

Save Config: Click this button to save the current configuration to the AMCU flash.

Refresh: Click this button to refresh the screen.

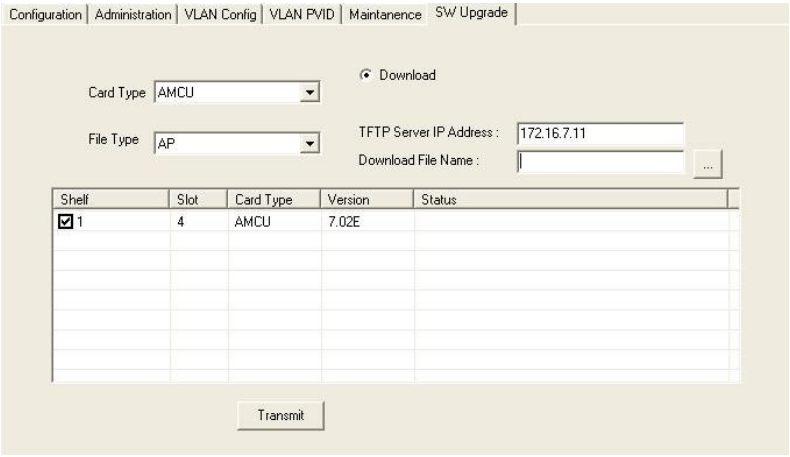
5.1.6 System Software upgrade

To upgrade the system software, click on the **SW Upgrade** tab. The screen will display as below.

Important Rules for NCT1000 / NCT1020 Firmware Upgrade

1. ***Keep the TFTP sever and the MCID management software running for performing firmware upgrade.***
2. ***The firmware upgrade sequence MUST be: AAT24A / AAT24B first, AES-G card 2nd and then AMCU the last.***
3. ***For downgrade, need to use "chkfile 0" to disable check file function by telneting into the IP DSLAM.***

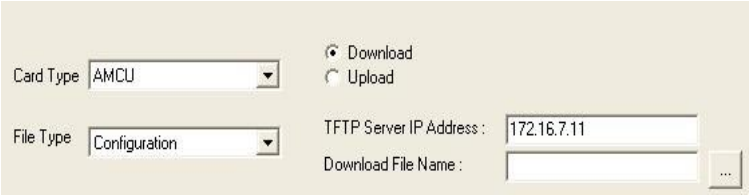
Different units support different types of software upgrades. An explanation follows below.



Card Type: Select a card type.

File Type: The following types of file are supported.

- **AP:** This file, called AP (Application Program), is supported by all of the different cards.
- **IMG:** This file, called Image (Image of flash memory), is supported by all of the different cards except for the AMCU card.
- **Boot:** This file, called Boot (Boot program), is only supported by the AMCU card.
- **Configuration:** The configuration file is only supported by the AMCU card (Configuration can be downloaded and uploaded).
- **Web FS:** Reserved only



Download/Upload: Select Download or Upload. The Upload item only appears when Configuration is chosen for the File Type.

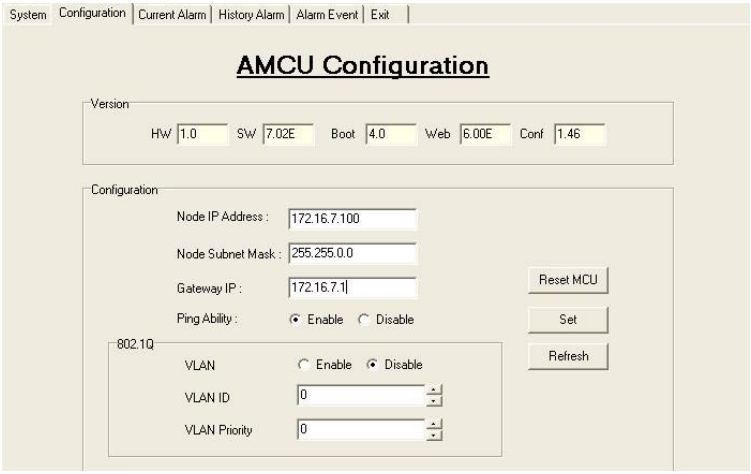
TFTP Server IP Address: Enter the TFTP server IP address.

Download File name: Enter the file name, or click the button field to locate the file.

5.2 AMCU Configuration

Click on the **Configuration** tab to display the AMCU configuration screen below.

The fields and buttons are as follows:



Version

The Version field displays the AMCU hardware version, software version, boot version, Web version, and configuration version.

Configuration

Node IP Address: The IP address of the node.

Node Subnet Mask: The subnet mask of the node.

Gateway IP: The gateway IP Address

Ping Ability: Enable allows ping test to be performed; Disable disallows ping tests.

Reset MCU: Reboots the AMCU.

Set: Sets the current parameters for the MCU

Refresh: Refresh the screen to the values set before this screen was entered.

802.1Q

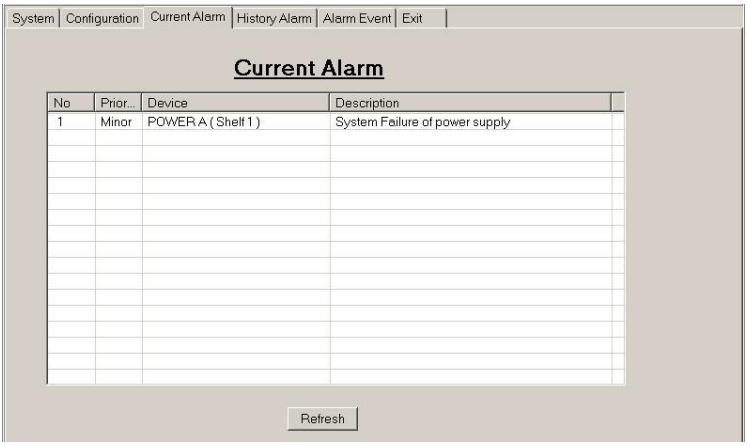
VLAN: Set to enable or disable

VLAN ID: The available values for the VLAN ID are 1~4095.

VLAN Priority: Enter a value fro 0~7 (7 is the highest priority)

5.3 Current Alarm

This screen displays any alarms that are currently occurring, displaying the following information:



No: This represents the sequence number.

Priority: Major, Minor.

Device: The Shelf/Unit/Port where the alarm occurred.

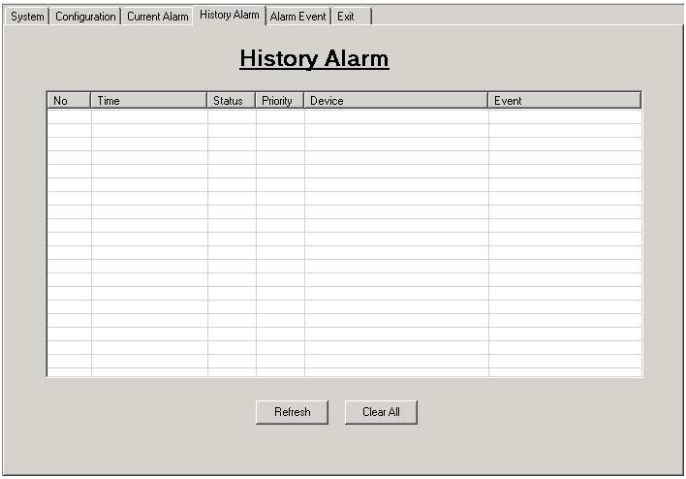
Description: Description of the alarm (this software version will display an event when a card is removed).

Office Alarm: Select Enable or Disable to enable/disable the office alarm.

Refresh: Clicking this button will refresh the screen and re-establish what alarms are currently occurring.

5.4 History Alarm

This screen displays any alarms that have occurred. Displaying the following information:



No: This represents the sequence number.

Time: The date and time of the alarm is displayed.

Status: Either Occur or Clear will be displayed in this box.

Priority: Major, Minor.

Device: The Shelf/Unit/Port where the alarm occurred.

Event: Description of the alarm (this software version will display an event when a card is removed).

Refresh: Clicking this button will refresh the screen and re-establish what alarms are currently occurring.

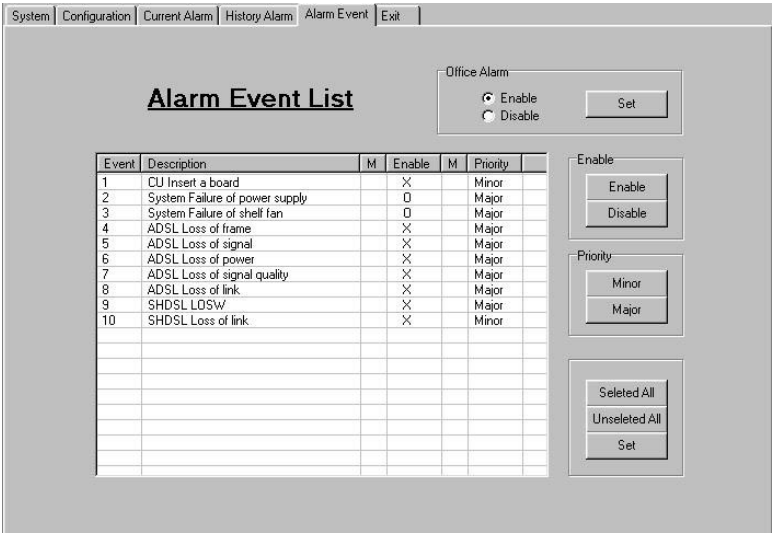
Clear All: Clicking this button will clear all information about alarms that have previously occurred.

5.5 Alarm Event

The Alarm Event tab configures the alarm report and the alarm severity.

The alarms will be displayed in the Current Alarm and History Alarm tabs when they occur.

Note: ***Among the alarms, the ADSL Loss of signal quality is reserved only.***



Office Alarm

To enable the alarm report function, choose Enable and click the Set button. To disable it, choose Disable and click Set.

Enable To enable the individual alarm, select it by clicking it once, and click the Enable button. You can select all the alarms by clicking the Select All button. The enabled alarms will be reported when they take place. If the alarm is not selected, it won't be reported. All the alarms are enabled by factory default.

Priority There are two severity levels: major and minor. The alarm types and their severity level are listed in the following table. To change the alarm severity level, choose the alarm and click Major or Minor.

To apply the setting, click the Set button.

Item	Description	Severity Level
1	CU Insert a board	Minor
2	System Failure of power supply	Major
3	System Failure of shelf fan	Major
4	ADSL Loss of frame	Major
5	ADSL Loss of signal	Major
6	ADSL Loss of power	Major
7	ADSL Loss of signal quality	Major
8	ADSL loss of link	Major
9	SHDSL LOSW (Loss of Signalling Word)	Major
10	SHDSL Loss of link	Minor

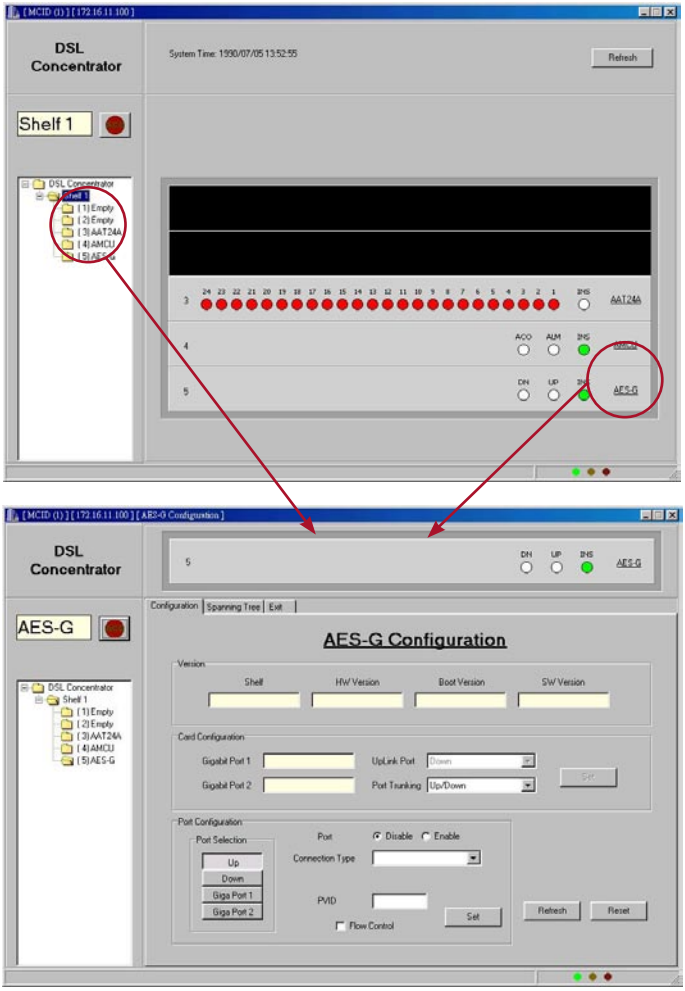
5.6 Exiting the AMCU

Click this tab to exit the AMCU.

Chapter 6 AES-G

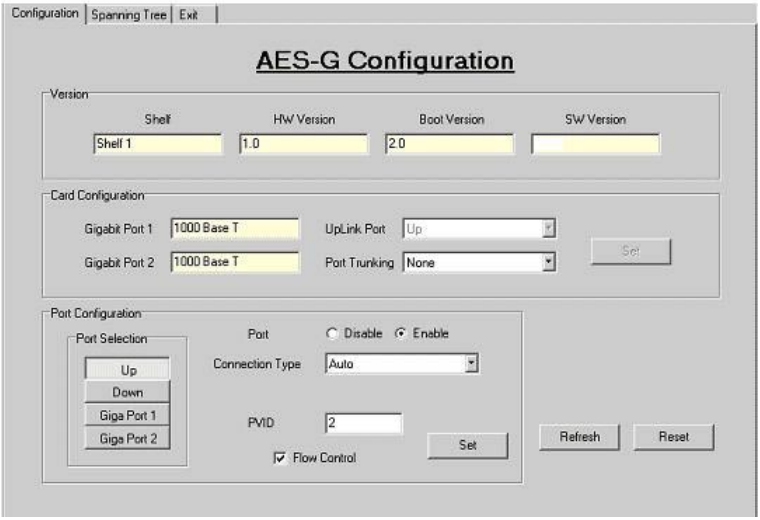
To access the AES-G screen, click **AES-G** from the directory tree or click AES-G from the faceplate. A graphical display of the status of each port is shown on th right hand side of the menu tree.

The following diagram illustrates how to display the AES-G configuration screen for a NCT-1020. The NCT-1000 has similar steps, but the screen is different.



6.1 Configuration

The screen will display as below, with the following parameters:



Version

Shelf: Displays the shelf number

HW Version: Displays the hardware version

Boot Version: Displays the boot version

SW Version: Displays the software version

Card Configuration

Uplink port: An uplink port can be specified when the VLAN mode is set to Private. When the VLAN mode is set to Tag-based or disabled, the uplink port is not configurable because it is auto-learned.

Port Trunking: If port trunking is enabled, the uplink ports (Ethernet 1 & Ethernet 2, or Gigabit port 1 & Gigabit port 2) can be combined onto an aggregate link to increase the bandwidth of a network connection or ensure fault recovery.

Port Configuration

Port Selection: There are four ports: Up, Down, Giga Port 1 and Giga Port 2.

Select the port and configure the following parameters.

Port: Select enable or disable port

Connection type: Select a connection type- Auto, 10M full duplex, 10M half duplex, 100M full duplex, 100M half duplex, 1000M full duplex, and 1000M half duplex.

Flow Control: Check this box to activate the flow control. Flow control enables the connected ports to control traffic rates during congestion. If one port experiences congestion and cannot receive any more traffic, it notifies the other port to stop transmitting until the condition clears.

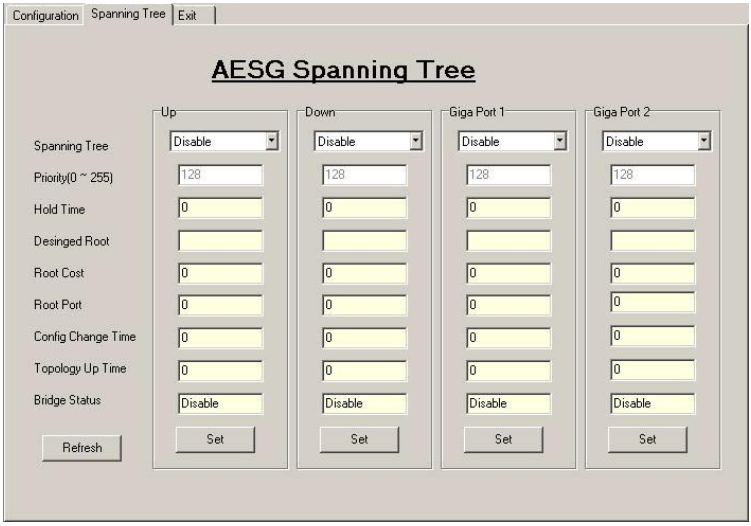
Buttons

Reset button: to reset the unit

Refresh button: to refresh the screen.

6.2 Spanning Tree

The Spanning Tree tab displays the spanning tree parameters of the uplink ports- UP (labeled Ethernet 1 on the shelf rear panel), Down (labeled Ethernet 2 on the shelf rear panel), Giga ports1 and Giga Port 2. It also allows enabling or disabling each port individually.



The following two parameters are used to configure the spanning tree functions.

Click the Set button below to apply the settings.

Spanning Tree: Choose Disable to close the spanning tree function; choose Enable to allow it.

Priority (0-255): When the spanning tree is enabled, type a value (0-255) to specify the spanning tree priority.

The following information is displayed on the screen:

Hold Time: The minimum interval between the transmissions of consecutive Configuration BPDUs (STP packets).

Designed Root: The priority and MAC address of the device in the Spanning Tree that this switch has accepted as the root device.

Root Cost: The path cost from the root port on this switch to the root device.

Root Port: The number of the port on this switch that is closest to the root. This switch communicates with the root device through this port. If there is no root port, then this switch has been accepted as the root device of the Spanning Tree network.

Config Change Time: The number of times the Spanning Tree has been reconfigured.

Topology Up Time: The time since the Spanning Tree was last reconfigured.

Bridge Status: This field indicates the status of the bridge- disable, blocking, listening, learning, and forwarding.

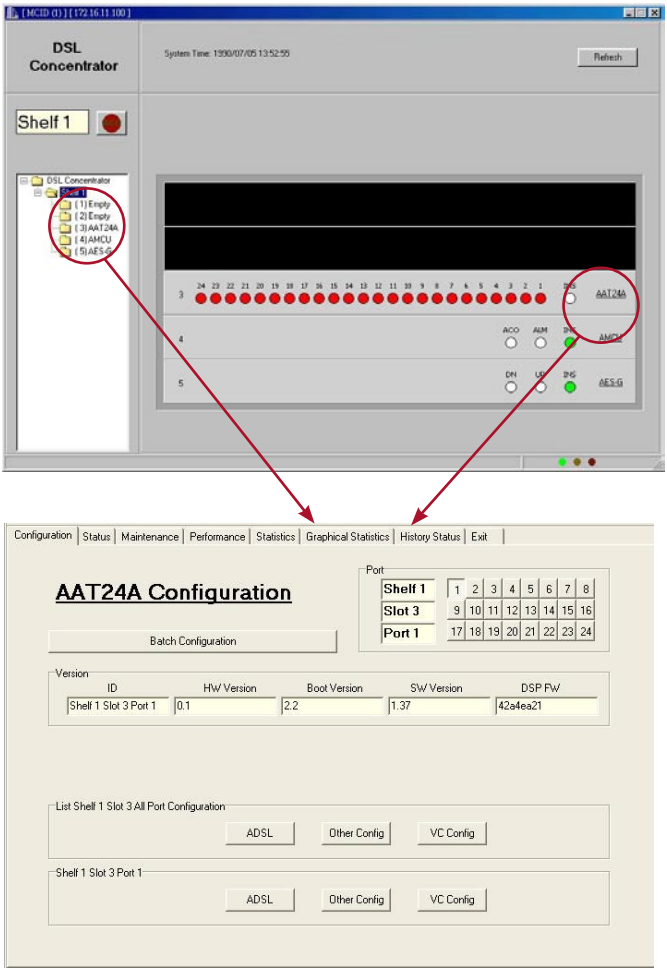
6.3 Exiting the AES-G

Click the Exit tab to exit this unit.

Chapter 7 AAT24A

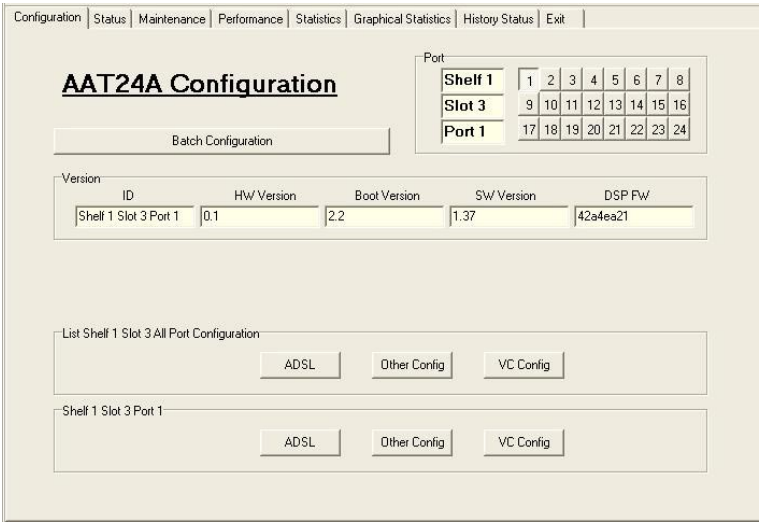
To access the AES-G screen, click **AAT2A** from the directory tree or click **AAT24A** from the faceplate. A graphical display of the status of each port is shown on the right hand side of the menu tree.

The following diagram illustrates how to display the AAT24A configuration screen for a NCT-1020. The NCT-1000 has similar steps, but the screen is different.



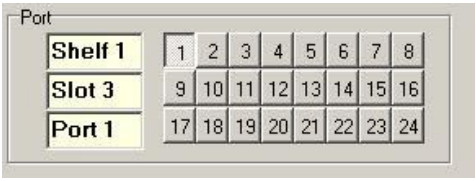
7.1 Configuration

To access the configuration screen, click on the **Configuration** tab, the screen will display as below:



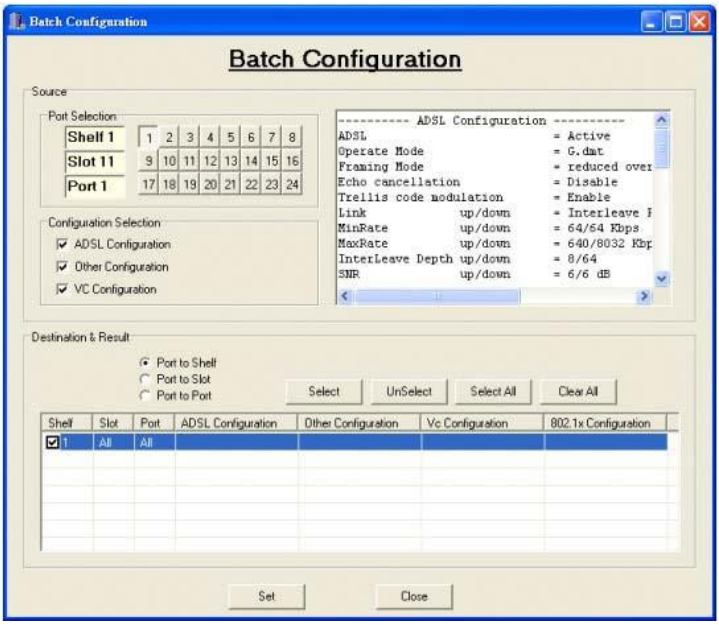
7.1.1 Port Information

This section of the screen displays the shelf number, the slot number and the port number that is currently selected.



7.1.2 Batch Configuration

Batch configuration allows the configuration of a port to be applied to other ports on the same slot, ports of another slot, or port to shelf. Note the following parameters:



Source

Port Selection: Select the source port

Configuration Selection: These fields allow you to select what types of configurations will be transferred to the other ports – you can check the boxes to select the following configuration items: ADSL configuration, Other configuration, VC configuration. These items are explained in more detail in their respective sections that follow.

Destination and result:

Select the location of the ports to receive the configuration:

Port to Shelf: All ports of the shelf. All ports of all slots with the same card type will receive the configuration

Port to Slot: All ports of another slot. You may select which slots will receive the configuration, but all ports of that slot will receive the configuration.

Port to Port: Ports on the same slot. You may select which ports will receive the configuration.

Buttons

Select: Selects the currently highlighted port/shelf to receive the configuration Unselect: Deselects the currently highlighted port/shelf to receive the configuration

Select All: Selects all ports/slots to receive the configuration

Clear All: Deselects all ports/slots to receive the configuration

Set: Sets the current parameters and starts the transfer of configuration (progress will be indicated in the lower-middle panel of the screen).

Close: Closes the current screen

7.1.3 Version

This section of the screen displays version information:

ID: The shelf and unit number

HW Version: hardware version

Boot Version: boot version

SW Version: software version

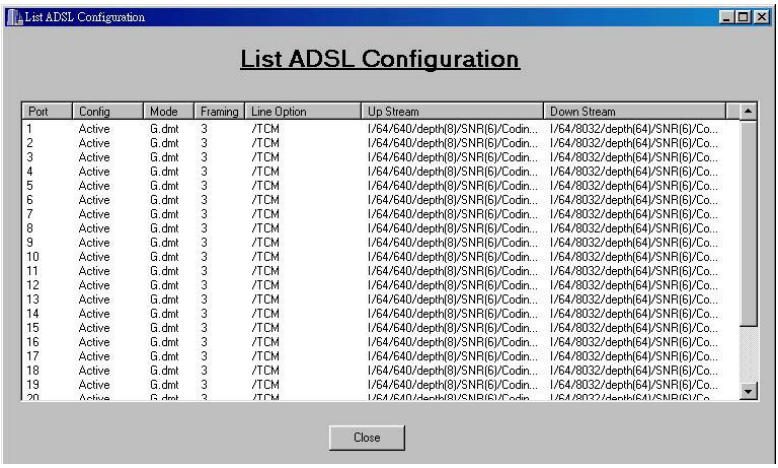
DSP FW: The Digital Signaling Processor's firmware

7.1.4 List Slot Configuration

In the "List Shelf Slot x All Port Configuration" field (slot x means the slot number of the unit), select ADSL, Other configuration, or VC Config to display the configurations or status of the unit.

List ADSL Configuration

Clicking the **ADSL** button on the main screen accesses this screen.



This screen displays the following information:

Port — Port numbers from 1-24

Config — "Config" indicates that the ADSL port can train with CPE, "Unconfig" indicates that the ADLS port can't train with CPE Mode Displays the ADSL mode; T1.413, G.dmt, G.lite, Auto (This option can auto detect T1.413, G.dmt, and G.lite standards.)

Framing — 0: Full overhead with sync control

1: Reduced overhead with sync control-Mode 1

2: Reduced overhead with sync control-Mode 2

3: Reduced overhead with sync control-Mode 3

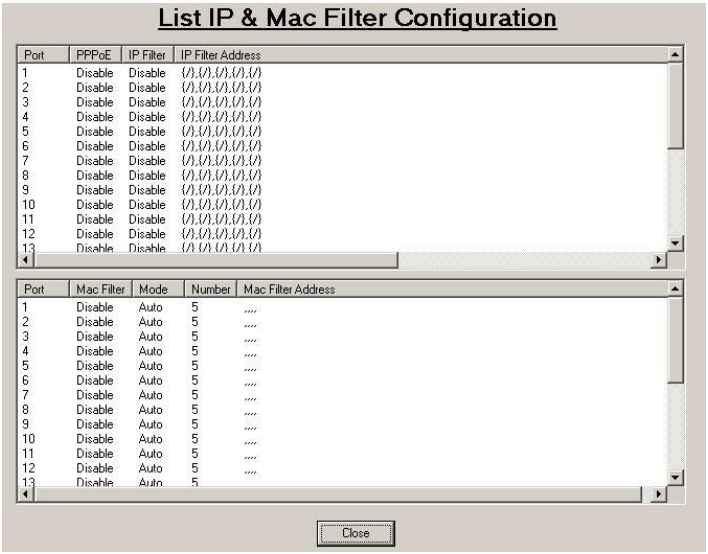
Line Option — Displays the line options in the following order (TC) Trellis code modulation, (EC) Echo Cancellation, (FDC) Frequency domain qualification, a dash (/) indicates that the item is not selected

Upstream — Displays all currently selected options in the following order: Link type, Min data Rate (Kbps), Max data rate (Kbps); max interleave delay, SNR margin (dB).

Downstream — Displays all currently selected options in the following order: Link type, Min data Rate (Kbps), Max data rate (Kbps), max interleave delay, SNR margin (dB).

Other Configuration

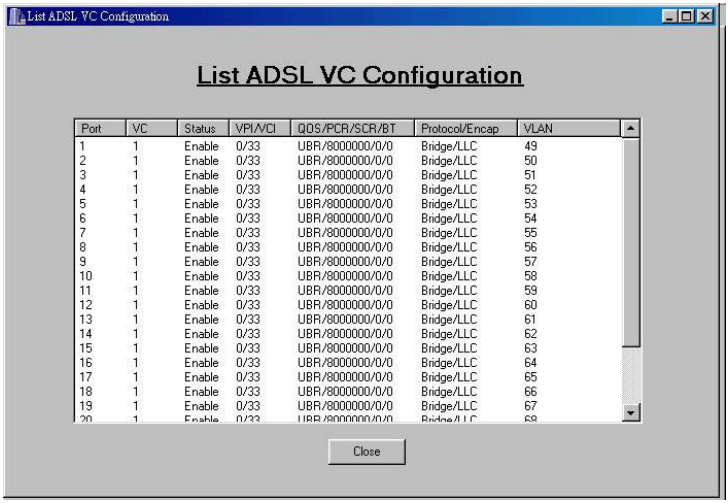
This screen displays the following information:



Port	PPPoE
Port Number	PPPoE filter is enabled or disabled to filter PPPoE packets
IP Filter	IP Filter is enabled or disabled
IP Filter Address	IP filters for each port using the following format {IP address/Subnet}. The filters are displayed from priority 1 (displayed first) through to priority 5.
Mac Filter	Indicates whether the MAC filter (source MAC) is enabled or disabled
Mode	Indicates whether the MAC filter is operating under Automatic Learning (MAC addresses of newly connected devices can be automatically detected) or Fixed mapping
Number	The number of permissible Source MAC addresses
Mac Address	Source MAC address for the filter

List VC Configuration

This screen displays the following information:



Port: lists ports 1-24

VC: lists VCs (one available per port for this software release)

Status: Indicates whether the port is enabled or disabled.

VPI/VCI: Current VPI/VCI values.

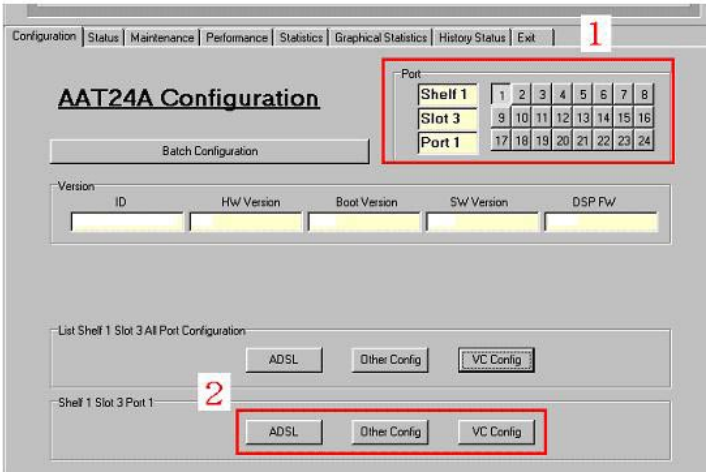
QOS/PCR/SCR/BT: Lists current values

Protocol/Encap: Lists current protocol/encapsulation values

VLAN: indicates whether the 802.1Q standard is enabled or disabled, and displays the current VLAN ID. To understand the parameters further, see the VC configuration details below.

7.1.5 Port Configuration

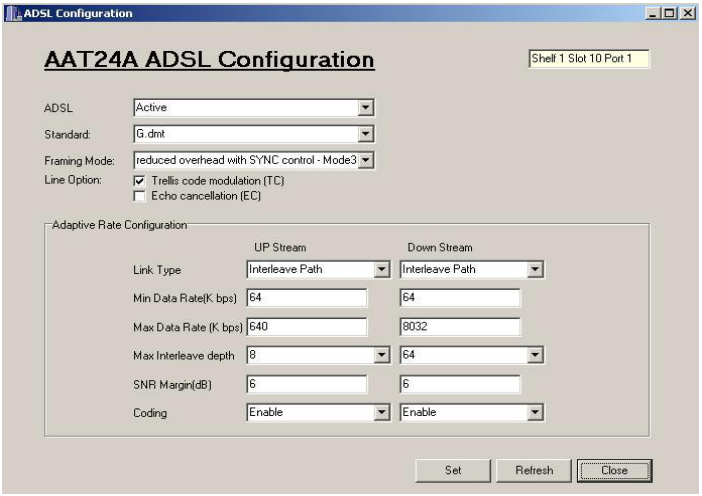
To configure a port, select the port and then click on the ADSL, Other Config, or VC Config button.



ADSL Configuration

Pressing the ADSL button on the main screen accesses this screen:

From this screen the items below can be configured. Click on the Set button to update parameters, the Refresh button to return to the previously set parameters, or the Close button to close the screen.



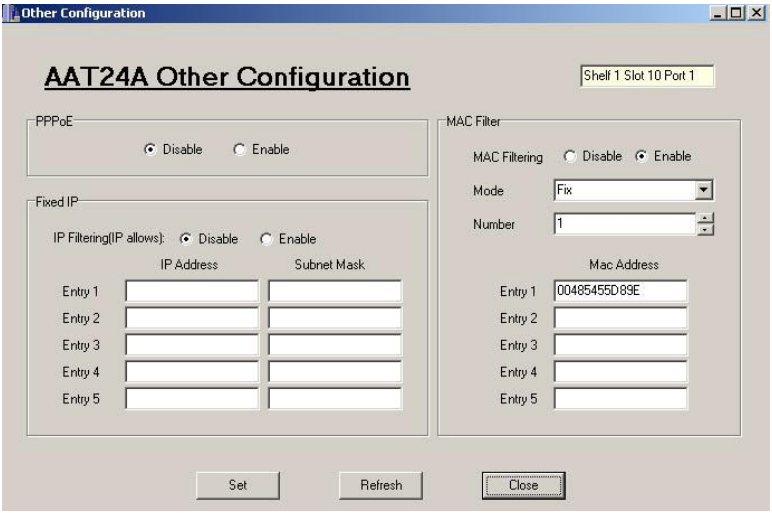
ADSL	Active: Enable the ADSL service
	Deactive: Disable the ADSL service
Standard	Select the ADSL standard: T1.413, G.dmt, G.lite, Auto (This option can auto detect T1.413, G.dmt, and G.lite standards.).
Framing Mode	Select from the following framing modes:
	Full overhead with sync control Reduced overhead with sync control-Mode 1 Reduced overhead with sync control-Mode 2 Reduced overhead with sync control-Mode 3
Line Option	Select the line option:
	(TC) Trellis code modulation
	(EC) Echo Cancellation

Adaptive Rate Configuration:

Upstream	Configure the upstream settings:
	Link Type: Interleave path/ Fast path
	Minimum data rate for upstream: 64Kbps
	Maximum data rate for upstream: 1024 Kbps
	Max Interleave depth: (values = 2, 4, 8, 16, 32, 64) Defines the mapping (relative spacing) between subsequent input bytes at the interleave input and their placement in the bit stream at the interleave output.
	SNR Margin (dB): The amount of increase in received noise in dB relative to the noise power that produces a BER of 1.0E-7. The SNR Margin ranges from 0 dB to 15 dB.
	Coding: This enables/disables Reed-Solomon coding at the ADSL link, it is recommended to maintain the default enable value.
Downstream	Configure the downstream settings:
	Link Type: Interleave path/ Fast path
	Minimum data rate for upstream/ downstream: 64 Kbps
	Maximum data rate for upstream/ downstream: 16352 Kbps
	Max Interleave depth: (values = 2,4,8,16,32,64) Defines the mapping (relative spacing) between subsequent input bytes at the interleave input and their placement in the bit stream at the interleave output.
	SNR Margin (dB): The amount of increase in received noise in dB relative to the noise power that produces a BER of 1.0E-7. The SNR Margin ranges from 0 dB to 15 dB.
Coding:	This enables/disables Reed-Solomon coding at the ADSL link, it is recommended to maintain the default enable value.

Other Configuration

From this screen the items below can be configured. Click on the Set button to update parameters, the Refresh button to return to the previously set parameters, or the Close button to close the screen.



PPPoE

Enable or disable PPPoE filter

Fixed IP

IP Filtering: Enable or disable IP Filtering.

Entry 1-5: There are five entries (priority 1 to 5). Insert the IP address and subnet mask. Only the packets from those IP addresses can be forwarded, others will be filtered. When there is more than one entry, to delete the entries, delete the latter one first.

MAC Filter

MAC Filtering: Enables or disables the function.

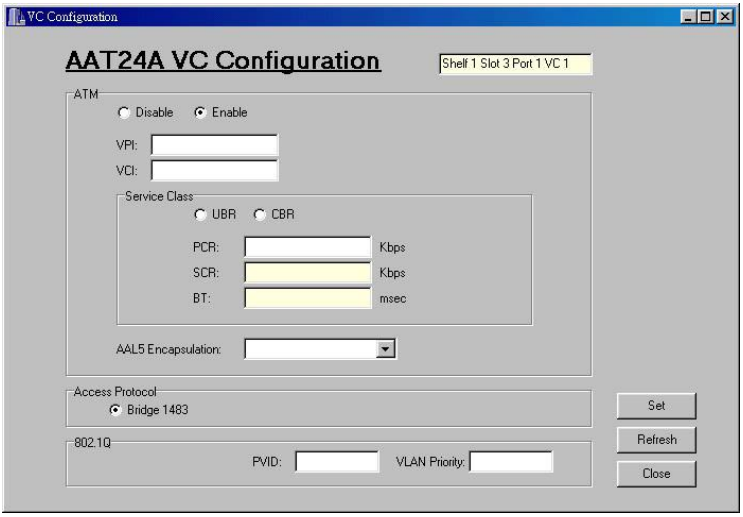
Mode: Select Auto -Automatic Learning (MAC addresses of newly connected devices can be automatically detected) or Fix - Fixed mapping.

Number: The number of permissible MAC addresses

Mac Address Entry 1-5: Enter the MAC address for the filter

VC Configuration

From this screen the items below can be configured. Click on the Set button to update parameters, the Refresh button to return to the previously set parameters, or the Close button to close the screen.



ATM

Disable/Enable: You can click either Disable or Enable to turn on or turn off the virtual channel.

VPI: The Virtual Path Identifier (VPI) is part of the cell header for the cells that are transferred over this connection. The VPI value ranges from 0 to 255.

VCI: The Virtual Channel Identifier (VCI) is part of the cell header for the cells that are transferred over this connection. If you are configuring multiple VCs, enter the number of respective VC in this field. The VCI ranges from 0 to 1023.

Note that a VPI of 0 and a VCI of 0 is not permissible.

Service class

UBR: Unspecified Bit Rate. No limit has been specified for the information rate. Enter a PCR value when this field is selected.

CBR: Constant Bit Rate. A constant rate has been specified for the flow of information. Enter a PCR value when this field is selected.

The following introduces the PCR, SCR, and BT that are required when a different service class is selected.

PCR (Kbps): The Peak Cell Rate is the maximum number of bits per second transmitted over this connection. This is determined by the minimum intercellular spacing in seconds, which is the time interval from the first bit of one cell to the first bit of the next cell. The PCR actual range is from 384Kbps to 12000 Kbps.

SCR (Kbps): Not used at this time.

BT (msec): Not used at this time.

AAL5 Encapsulation: Supports LLC encapsulation

Access Protocol

Supports RFC1483 Bridge.

802.1Q

These two parameters are added to the untagged packets that are received over the ADSL port. In 802.1Q tagged VLAN mode, an untagged packet will be inserted with the selected priority queue (1-7) when it passes through the NCT-1000/1020.

PVID: Add a VLAN ID for the untagged packets. The available values for the VLAN ID are 1~4095.

VLAN Priority: Priority level of the untagged packets (0 to 7). Numbers 0-3 have low priority, and numbers 4-7 have higher priority.

Note: ***The equipment (a router or switch) connected to the NCT-1000/1020 rear Ethernet should also support and enable the 802.1Q.***

7.2 Status

To access the Status screen, click on the **Status** tab, the screen will display as below, and includes the following information (Click the **Reset** button to reset the fields):

Status: displays idle, training, data, failure, and linked status

Attainable Rate (Kbps): displays calculated maximum attainable rate

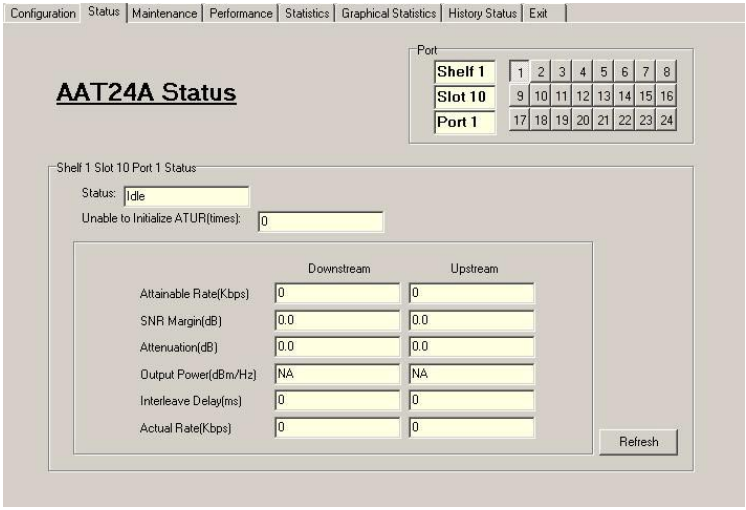
SNR Margin (dB): displays the signal-to-noise-ratio margin

Attenuation (dB): displays the attenuation

Output Power (dBm/Hz): displays the output power

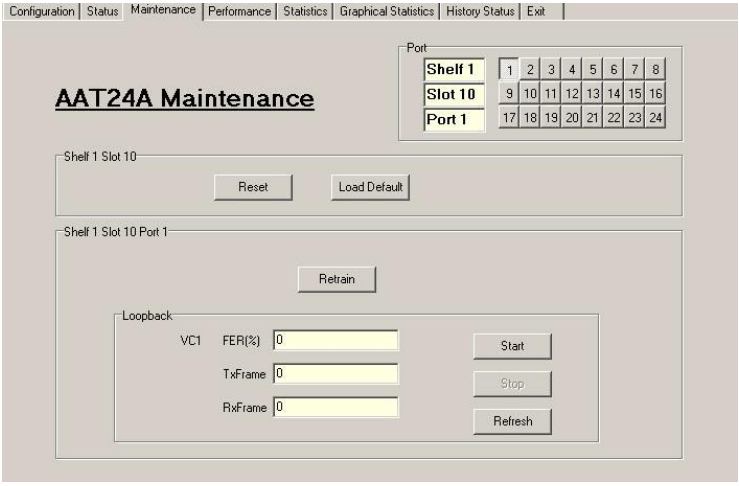
Interleave Delay (ms): displays the interleave delay

Actual Rate (kbps): displays the actual rate



7.3 Maintenance

To access the Maintenance screen, click on the **Maintenance** tab, the screen will display as below:



The Reset button can be used to reset the unit.

The Load Default button can be used to reload the default parameters for the unit.

The Retrain button can be used to re-train the port's ADSL line link (default train rate is 640/8032 Kbps).

Loopback Test: you can click Start to perform an ATM OAM F5 loopback or click Stop to stop the loopback test.

FER (Frame Error Rate): displays the frame error rate as a percentage.

TxFrame: counts the number of frames transmitted.

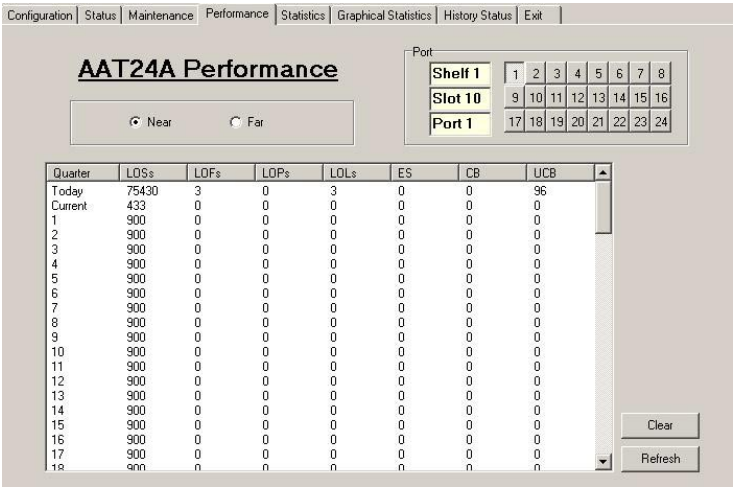
RxFrame: counts the number of frames received.

The **Refresh** button refreshes the above statistics.

7.4 Performance

In the Performance Statistics screen, you can view the ADSL current status, ADSL performance, and VC data transmission statistics. To access the **Performance** screen, click on the Performance tab, the screen will display as below. Click on the **Near** button to display the near-end statistics, the **Far** button to display the far-end statistics, the **Clean** button to clear the statistics, or the **Refresh** button to refresh the statistics.

The error statistics are calculated in a 15-min interval. Up to 96 quarters or one day is recorded. The following parameters are accumulated.



LOS (Loss of Signal): The cumulative statistics of Loss of Signal failure since last reset.

LOF (Loss of Framing): The cumulative statistics of Loss of Framing since last reset.

LOP (Loss of Power): The cumulative statistics of the lower power level since last reset.

LOL (Loss of Link): The cumulative statistics of both LOS and LOF since last reset.

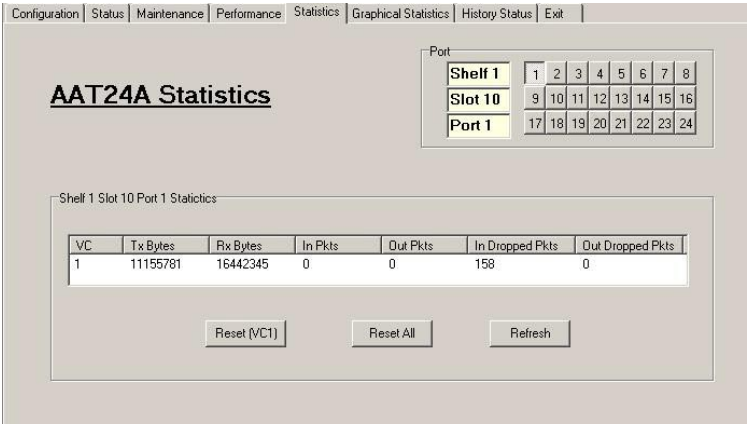
ES (Errored Seconds): The cumulative statistics of Errored Seconds since last reset.

CB: The cumulative statistics of Corrected Block since last reset.

UCB: The cumulative statistics of Un-corrected block since last reset.

7.5 Statistics

To access the Statistics screen, click on the **Statistics** tab, and the following screen will display.



Click on the **Reset** button to reset the currently selected VC. Click on **Reset All** to reset all VCs. Select **Refresh** to refresh the statistics. The following statistics are displayed:

VC: The currently selected VC

Tx Bytes: Transmitted bytes: The bytes in total that were successfully transmitted via the monitored port since the IP DSLAM was powered on.

Rx Bytes: Received bytes: The bytes in total that were received successfully via the monitored port since the IP DSLAM was powered on.

In Pkts: The number of packets received.

Out Pkts: The number of packets sent.

Inbound dropped packets: The received packets that were dropped.

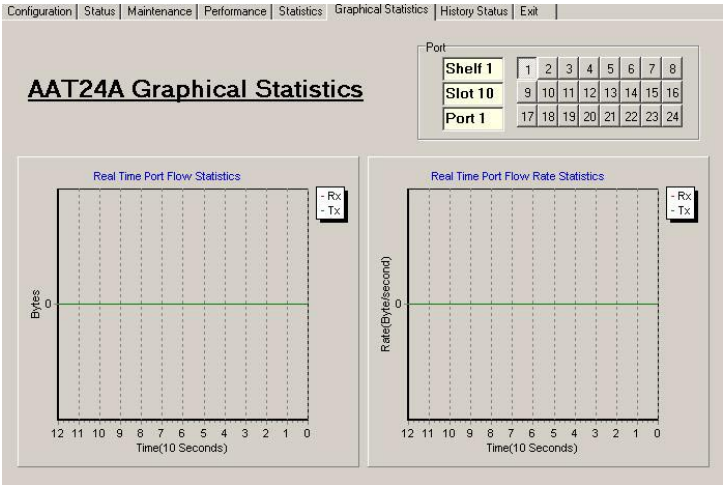
Outbound Dropped packets: The transmitted packets that were dropped or failed to transmit.

7.6 Graphical Statistics

To access the Graphical Statistics screen, click on the **Graphical Statistics** tab, the screen will display as below, including the following information:

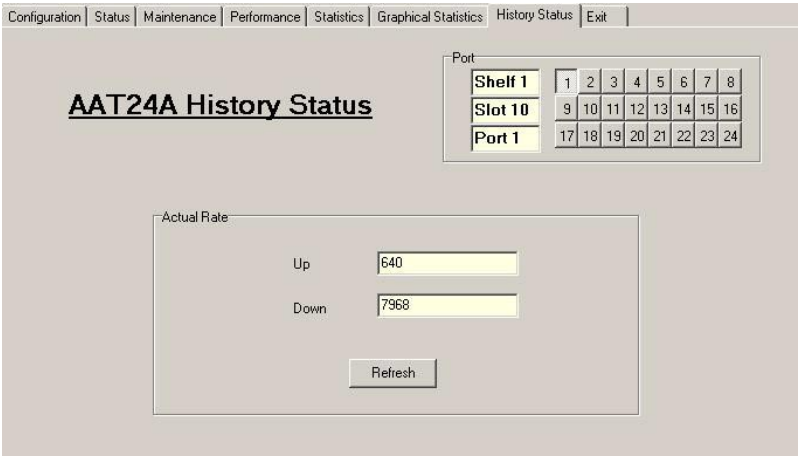
Port flow Statistics: Shows the number of RX/TX bytes in 10 second blocks

Port flow rate Statistics: Shows the rate of RX/TX bytes/per second in 10-second blocks



7.7 History Status

If the line rate has been changed, the previous train rate will be displayed on this screen. It may display N/A after the system is rebooted.



7.8 Exiting the AAT24A

To exit the unit interface, click on the **Exit** tab.

Chapter 8 Configuring the ASTU

Note: ***ASTU supports private VLAN inherently and tagged VLAN enabled by port base. AAT24A supports either private or tagged VLAN for all the system. Please DO NOT switch the VLAN mode while the ASTU card is connected. That will cause an unpredictable operational problem.***

The ASTU is an eight-port SHDSL line interface unit. Each port can support up to eight virtual channels (VCs).

8.1 Configuring the ASTU

Click the ASTU faceplate to access the ASTU Configuration screen as shown below.

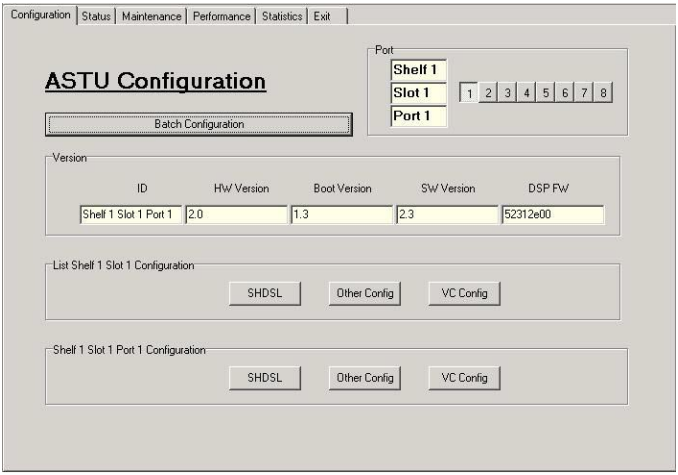


Figure 8-1 ASTU Configuration Screen

The screen includes the following information:

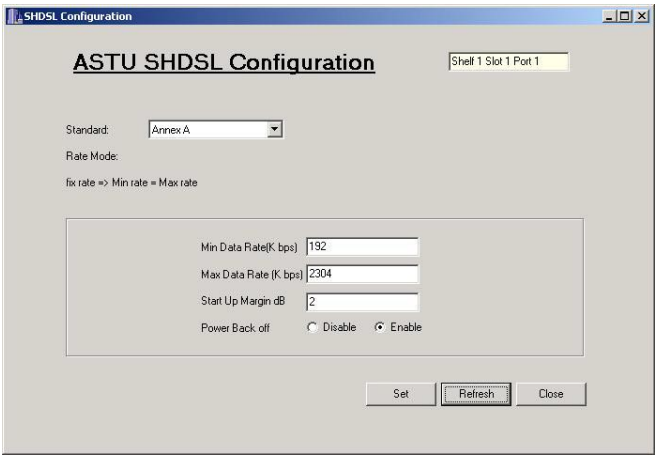
ASTU details: ID (the chassis and the slot the ASTU resides), Hardware version, software version, and the DSP code.

Ports 1 to 8: To configure a port, and display the port configuration status.

8.1.1 Configuring the SHDSL Interface

You can configure each port on the ASTU Configuration screen. To configure a port, click the **SHDSL** button to display the ASTU Port Configuration screen. You can configure the following parameters from the screen.

In the SHDSL Interface field, you can configure the standard and rate mode.



They are explained below:

Standard: Supports ANNEX A and ANNEX B

Min Data Rate Kbps: It is the minimum data rate for the SHDSL line. The minimum available value is 64.

Max Data Rate Kbps: It is the maximum data rate for the SHDSL line. The maximum available value is 2304.

Start Up Margin dB: The available ranges from 0-15 dB. The ASTU uses this value when training with the STU-R.

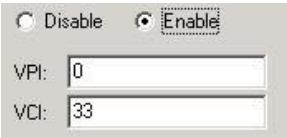
Power Back off: The default is Enable. If enabling this function, the ASTU will auto-adjust the output power according to the distance of the SHDSL line.

8.1.2 Configure Virtual Channel

In the Virtual Channel field of the ASTU Port Configuration screen, you can configure the parameters for the ATM virtual channel. The ASTU can support up to eight virtual channels. To configure the virtual channel, click VC Config.

In the ASTU VC Configuration screen, it allows you to configure the following parameters:

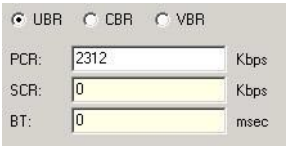
Disable/Enable: You can click either Disable or Enable to turn on or turn off the virtual channel.



VPI: The Virtual Path Identifier (VPI) is part of the cell header for the cells that are transferred over this connection. The VPI value ranges from 0 to 255.

VCI: The Virtual Channel Identifier (VCI) is part of the cell header for the cells that are transferred over this connection. If you are configuring multiple VCs, enter the number of respective VC in this field. The VCI ranges from 33 and 65535.

Service class



There are three service classes.

UBR: Unspecified Bit Rate. No limit has been specified for the information rate. Enter a PCR value when this field is selected.

CBR: Constant Bit Rate. A constant rate has been specified for the flow of information. Enter a PCR value when this field is selected.

VBR: Variable Bit Rate. A specified throughput capacity is provided, but data is not sent evenly. Enter a value for PCR, CBR, and UBR when this field is selected.

The following introduces the PCR, SCR, and BT that are required when a different service class is selected.

PCR (Kbps): the Peak Cell Rate is the maximum number of bits per second transmitted over this connection. This is determined by the minimum intercellular spacing in seconds, which is the time interval from the first bit of one cell to the first bit of the next cell. The PCR ranges from 64 to 2312.

SCR (Kbps): for VBR only. This is the rate at which cells are transmitted over this connection. The rate is counted in bits per second. Note that 64 < SCR < PCR

BT (msec): for VBR only. This is the maximum number of cells that are sent at the peak rate. The number of cells is counted in milli-seconds.

AAL5 Encapsulation: Supports LLC.

Access Protocol: Supports RFC1483 Bridge

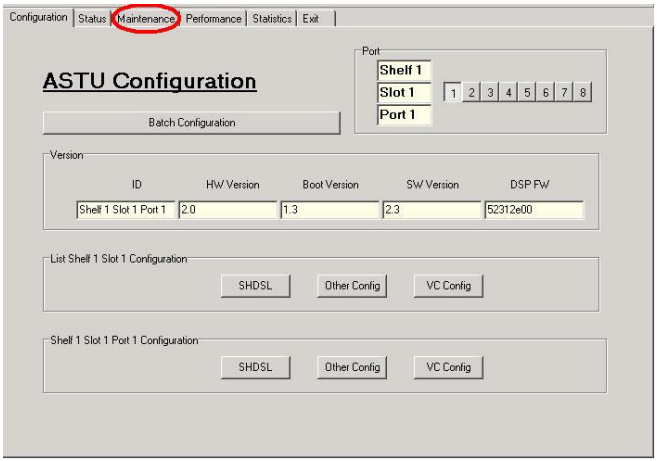
8.2 Maintaining the ASTU

To maintain the ASTU,

STEP 1: Click **ASTU** from the main menu to display the ASTU Configuration screen.

STEP 2: On the ASTU Configuration screen, select **Maintenance** to enter the ASTU Maintenance screen.

An alternative to entering this screen is to enter the Maintenance item from the main menu. Select a unit from the Monitor Maintenance item field.



The Maintenance screen is shown below:

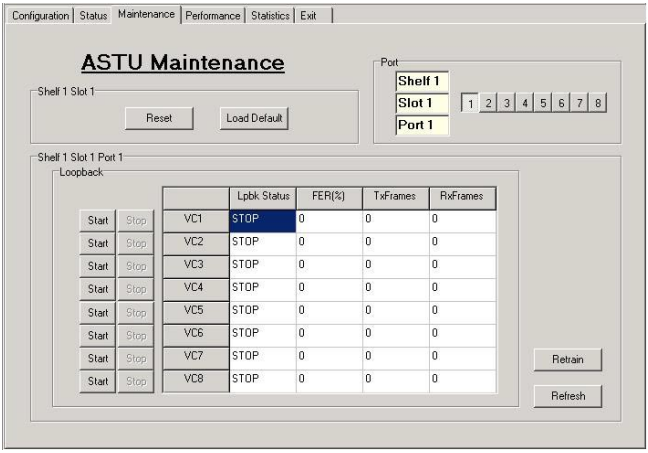


Figure 8-2 ASTU Maintenance Screen

In the ASTU Maintenance screen, eight SHDSL ports are listed. Each port has eight selectable virtual channels (VC).

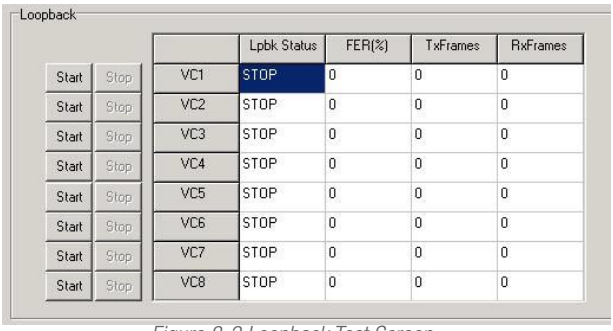


Figure 8-3 Loopback Test Screen

It includes the following parameters:

Loopback : you can click Start to perform an ATM OAM F5 loopback or click Stop to stop the loopback test.

FER (Frame Error Rate): displays a frame error rate.

TxFrame: counts the transmitted frame.

RxFrame: counts the received frame.

8.2.1 Viewing SHDSL Current Status

To display the ADSL current status of a port, click Status, then click the required port. The details are shown below.

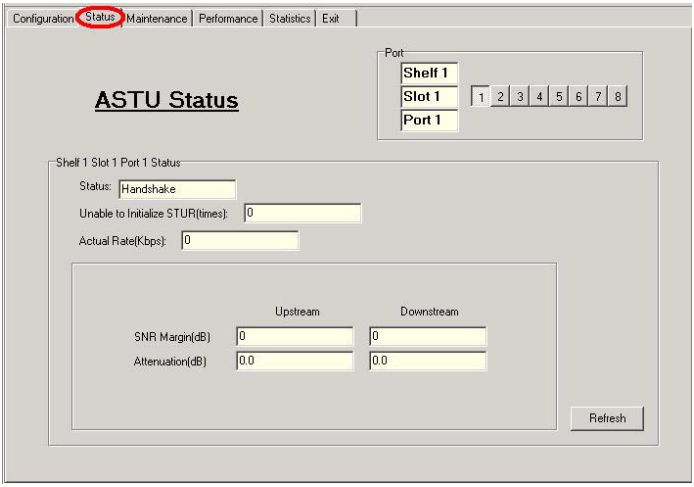


Figure 8-4 SHDSL Current Status Screen

Status: displays SHDSL line such as handshake, idle, etc.

Unable to initialize STUR: displays the times unable to train STUR

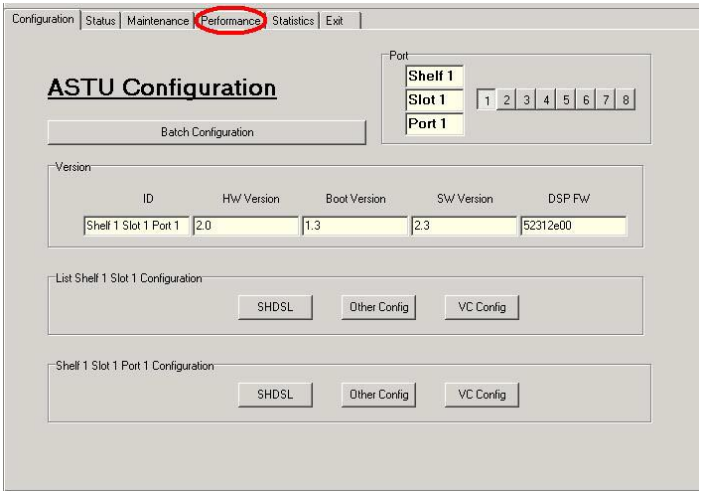
SNR Margin (dB): displays the noise margin

Attenuation (dB): displays the attenuation

Actual Rate (Kbps): displays the actual rate

8.2.2 Viewing SHDSL Performance

To display the SHDSL performance of each port, click Performance. Then, click the required port.



Details are shown below.

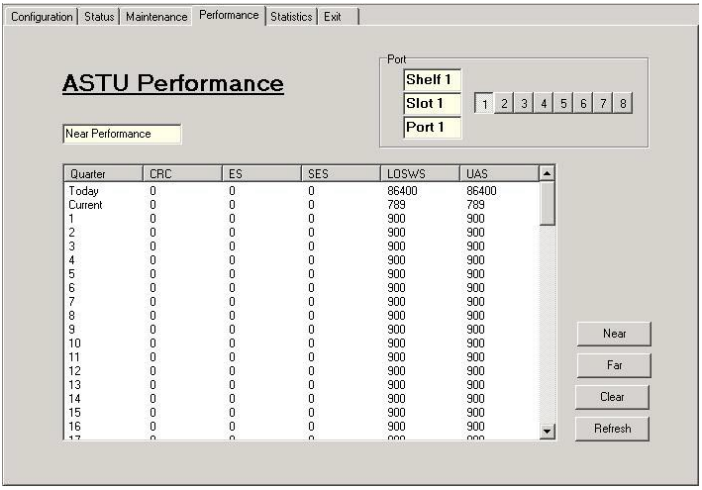


Figure 8-5 SHDSL Performance Screen

The screen shows the near end performance statistics of the port. The error statistics are calculated in a 15-min interval. Up to 96 quarters or one day is recorded. The following parameters are accumulated.

CRC: The cumulative statistics of CRC error seconds for the current 15 minutes or 1 day

ES: (Errored Seconds) The cumulative statistics of Errored Seconds for the current 15 minutes or 1 day

SES: (Severely Errored Seconds) The cumulative statistics of Severely Errored Seconds for the current 15 minutes or 1 day

LOSWS: (Loss Of Sync Word Second) The cumulative statistics of Loss of Sync Word Second when there is Loss of Signal for the current 15 minutes or 1 day

UAS: (Unavailable Seconds) The cumulative statistics of Unavailable Seconds for the current 15 minutes or 1 day

8.2.3 Viewing VC Data Transmission Statistics

To display the VC data transmission statistics of each port, click statistics. Then, click the required port.

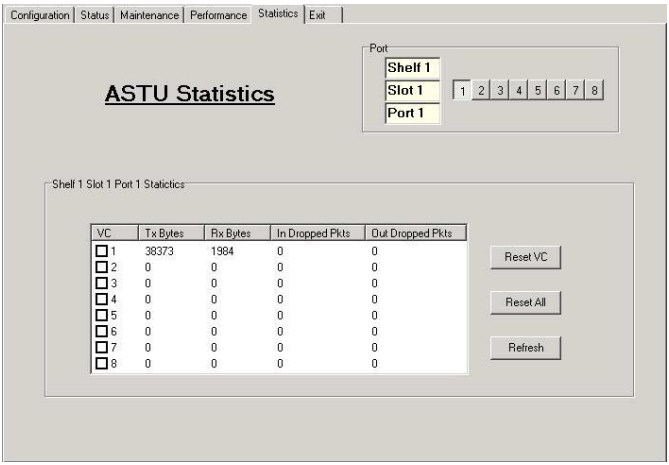


Figure 8-6 SHDSL VC Transmission Statistics Screen

Reset VC: Click the Reset button to clear the statistics

Tx bytes: The transmitted bytes in total that were successfully transmitted via the monitored port since the DSL Concentrator was powered on.

Rx bytes: The received bytes in total that were received successfully via the monitored port since the DSL Concentrator was powered on.

In dropped pkts: The received packets that were dropped.

Out dropped pkts: The transmitted packets that were dropped or failed to transmit.

Chapter 9 Troubleshooting/FAQ

Login deny	1. Password incorrect. The password is case sensitive; make sure you entered the password in the correct case, or try the following default setting: Default user name: root Default password: root 2. Someone is already operating the equipment. The following message will be displayed on your screen. One user (xxx.xxx.xxx.xxx) has been already on line. Your connection is rejected!
Replacing AMCU	Do not unplug other units while maintaining the AMCU. When a new AMCU is replaced, the new AMCU will restore the configuration from the AESG and the channel unit. This process takes about three minutes. To keep the configuration, you must save the configuration into the system flash memory after the AMCU finishes restoration, or the configuration will be lost after the system is rebooted.
Replacing AESG	Do not unplug the AMCU while you replace AESG. The AMCU will automatically set up the new AESG according to the configurations saved.
Replacing the channel units	Do not unplug the AMCU while you replace the channel units. The AMCU will automatically set up the new channel unit according to the configurations saved.
Replacing the power supply	If the IP DSLAM is powered via dual power supplies, removal or maintenance of one of the power supplies will not affect the system operation. The replacement of the malfunctioning power supply is described in Appendix F of the User Guide on the CD-ROM.
Power LED off	Check the power supply connection. Replace the power supply.
System Down & no LED display	Check the power supply connection. Check Fuse A/Fuse B on the rear panel of the shelf. Replace the fuse if necessary (10A for the NCT-1020; 20A for the NCT-1000).
System hang with front panel LED on	Turn off the power and turn it on again to reset the system. After the system starts up and becomes stable, then try to log into the system again.

Q1. What if the shelf status window is flashing or appears blank when I access the SHELF page in my browser?

A1. To correctly display the shelf status complete the following steps:

Step 1: Close and exit your browser

Step 2: Restart your browser and select **TOOLS>INTERNET OPTIONS**. (make sure you do not log back into your device)

Step 3: Delete temporary files and clear history by clicking on the **DELETE FILES** and **CLEAR HISTORY** button (button locations are indicated in the figure below) and when prompted for confirmation, select **YES**

Step 4: Log back into your system and the problem should be resolved.

Q2. What if the appearance or tables or other information has formatting or other problems.

A2. Follow the steps as outlined in A1 above to remedy this problem.

Q3. I am using Windows XP and I get a message “no Java support”

A3a. Windows XP does not provide pre-installed JAVA support, in order to install Java go to the following website, download and install Java (note Windows 2000, Me, 98 already have Java pre-installed):

ftp://ftp.ntust.edu.tw/windows/java/msjavx86.exe

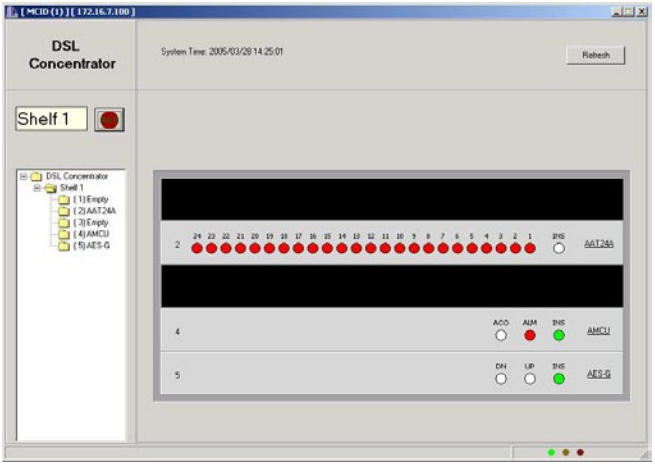
Q4. Our IP DSLAM uses a dual AC/DC power supply system. I found that one of the power supplies failed, and wish to replace it. Will this affect the service?

A4. No, replacing one of the power supplies won’t affect the service. You can refer to the Appendix F for details on the replacement procedure.

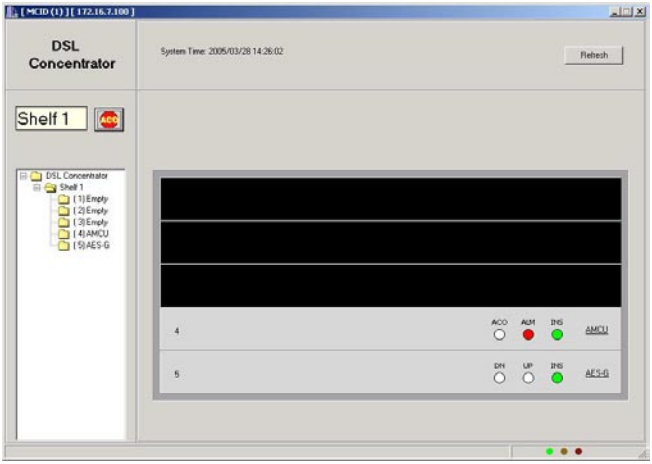
Q5 “Why does the Channel Unit (xDSL card) show red color while installing the Channel Unit on NCT-1000/1020 shelf?”

CID Interface

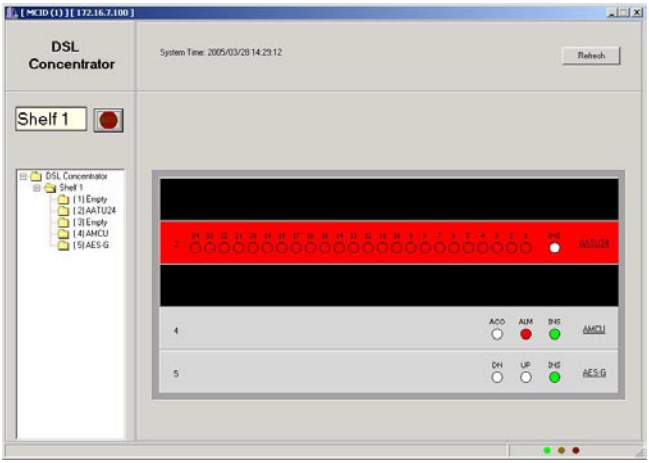
1. This screenshot shows the NCT-1000/1020 in normal mode.



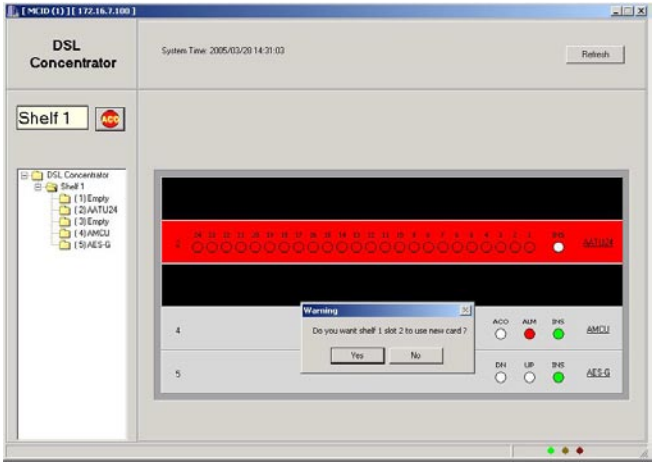
2. After you unplug the CU card (AAT24A), the following screen will be displayed.



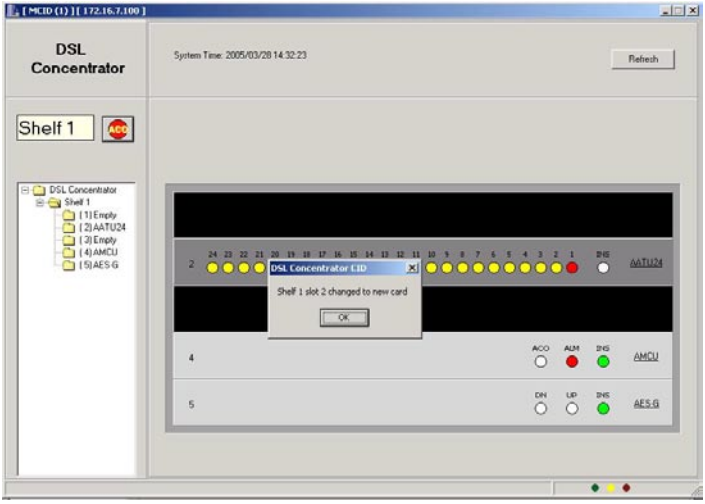
3. When you plug a different type of CU card (AATU24), the screen will change to an alarm mode as shown here.



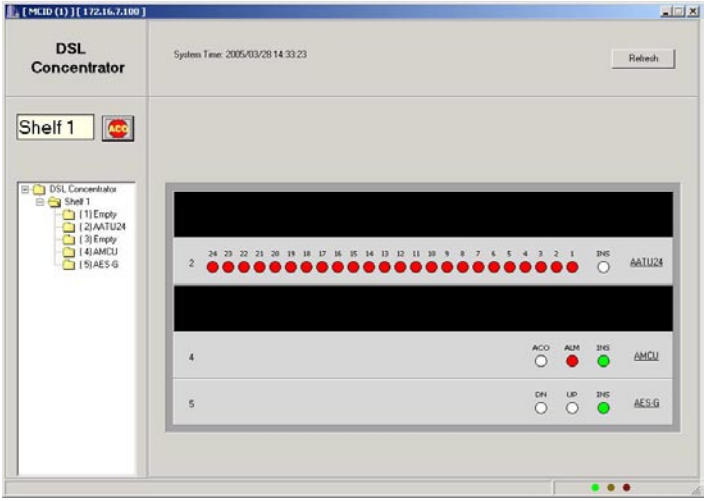
4. In this mode, you have to confirm the CU card by clicking on the area of the "red" CU card as shown above by the blue arrow, (i.e. AATU24 as per our example above). Click the "**Yes**" button.



5. Click OK

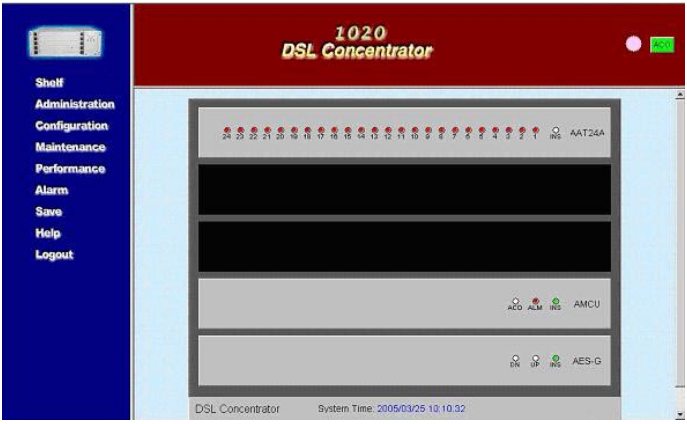


6. The final status will be ok, and the card type will change to the newly inserted one.



Web Interface

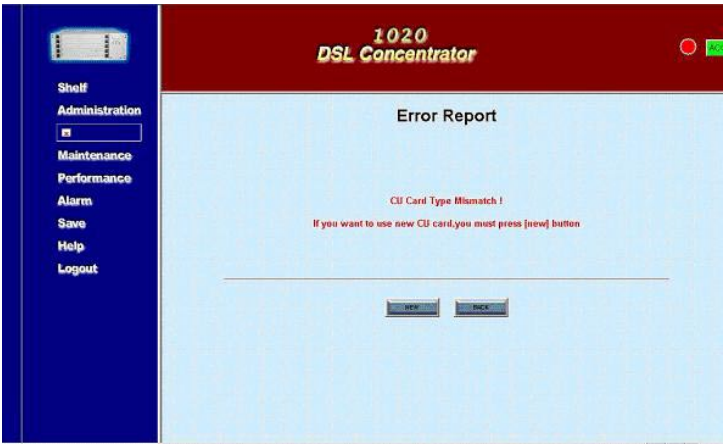
1. This screenshot shows the NCT-1000/1020 in normal mode.



2. After you unplug the CU card (AAT24A), the following screen will be displayed.

3. When you plug a different type of CU card (AATU24), the screen will change to an alarm mode as shown here.

4. In this mode, you have to confirm the CU card by clicking the “red” CU card. Click the “NEW” button to continue.



5. After you Click the “NEW” button, it will start reconfirm.

6. The final status will be ok, and the card type will change to the newly inserted one.

PART III APPENDICES

Appendix A Specifications

WAN Interface

10/100 Base-T/TX	2 fixed ports, RJ-45 connector, auto MDIX
1000 Base –T	1 ~ 2 optional ports, RJ-45 connector, auto MDIX
1000 Base-SX	1 ~ 2 optional ports, SC connector *
1000 Base-LX	1 ~ 2 optional ports, SC connector *

Chassis

NCT-1000	10U high chassis with 14 slots:
	1 management, 1 Ethernet switch, and 12 DSL cards
NCT-1020	4U high chassis with 5 slots:
	1 management, 1 Ethernet switch, and 3 DSL cards

Card type

AMCU	Management card
AES-G	Ethernet switch card with 2 optional GE uplink modules
AAT24A	ADSL 24-port card
AST24B	ADSL 2+ 24-port card *

Standards

IEEE 802.1d	Spanning Tree Algorithm
IEEE 802.1p	Priority Queuing
IEEE 802.1q	Tagged VLAN
IEEE 802.1x	Port Authentication *
IEEE 802.3	10 Base -T
IEEE 802.3ab	1000 Base-T
IEEE 802.3ad	Link Aggregation
IEEE 802.3u	100 Base-TX
IEEE 802.3x	Flow control
IEEE 802.3z	1000 Base-SX*, 1000 Base-LX*

Appendix B Pin Assignments

AMCU RS232 DB9 Console Port

Pin	Function	Pin	Function
1	DCD	6	DSR
2	RD	7	RTS
3	TD	8	CTS
4	DTR	9	RI
5	GND		

AMCU RJ45 LAN Port

Pin	Function	Pin	Function
1	TX+	5	-
2	TX-	6	RX-
3	RX+	7	-
4	-	8	-

AAT24A/AAT24B Pin Assignments

The AAT24A/AAT24B access port is a Centronic-50P male ADSL-interface connector. The port number assignment of the connector from up to down is listed below.

Pin#	Name	Pin#	Name
1	RING1	26	TIP1
2	RING2	27	TIP2
3	RING3	28	TIP3
4	RING4	29	TIP4
5	RING5	30	TIP5
6	RING6	31	TIP6
7	RING7	32	TIP7
8	RING8	33	TIP8
9	RING9	34	TIP9
10	RING10	35	TIP10
11	RING11	36	TIP11
12	RING12	37	TIP12
13	RING13	38	TIP13
14	RING14	39	TIP14
15	RING15	40	TIP15
16	RING16	41	TIP16
17	RING17	42	TIP17
18	RING18	43	TIP18
19	RING19	44	TIP19
20	RING20	45	TIP20
21	RING21	46	TIP21
22	RING22	47	TIP22
23	RING23	48	TIP23
24	RING24	49	TIP24
25	-	50	-

Appendix C NCT-3100 ADSL POTS Splitter Cabling

The purpose of this guide is to provide an easy way to connect the cables between the AAT24A/AAT24B and NCT-3100 POTS splitter. Before connecting the cables, make sure that you have the following accessories.

NCT-3100 ADSL POTS SPLITTER

The function of the NCT-3100 ADSL POTS splitter is to separate the voice signal and the ADSL signal form the traditional phone line. There are three Centronics-50 female connectors on the rear panel, which are named Phone, Line, and ADSL respectively.

Phone: Connect to the PSTN.

Line: Connect to the phone line.

ADSL: Connect to the AAT24A/ AAT24B

CENTRONICS-50 CABLE

One NCT-3100 ADSL POTS splitter needs two Centronics-50 male cables. One is for the connection between PSTN and the Phone port of the NCT-3100 splitter; the other is for the connection between the phone line and the Line port of the NCT-3100 splitter.

Centronics 50 to LINE port cable - Wire Arrangement

(Cable Length: 6 meters)

Pin	Wire	Function	Pin	Wire	Function
1	White-Blue	Port1_Ring	26	Blue-White	Port1_Tip
2	White-Orange	Port2_Ring	27	Orange-White	Port2_Tip
3	White-Green	Port3_Ring	28	Green-White	Port3_Tip
4	White-Brown	Port4_Ring	29	Brown-White	Port4_Tip
5	White-Gray	Port5_Ring	30	Gray-White	Port5_Tip
6	Red-Blue	Port6_Ring	31	Blue-Red	Port6_Tip
7	Red-Orange	Port7_Ring	32	Orange-Red	Port7_Tip
8	Red-Green	Port8_Ring	33	Green-Red	Port8_Tip
9	Red-Brown	Port9_Ring	34	Brown-Red	Port9_Tip
10	Red-Gray	Port10_Ring	35	Gray-Red	Port10_Tip
11	Black-Blue	Port11_Ring	36	Blue-Black	Port11_Tip
12	Black-Orange	Port12_Ring	37	Orange-Black	Port12_Tip
13	Black-Green	Port13_Ring	38	Green-Black	Port13_Tip
14	Black-Brown	Port14_Ring	39	Brown-Black	Port14_Tip
15	Black-Gray	Port15_Ring	40	Gray-Black	Port15_Tip
16	Yellow-Blue	Port16_Ring	41	Blue-Yellow	Port16_Tip
17	Yellow-Orange	Port17_Ring	42	Orange-Yellow	Port17_Tip
18	Yellow-Green	Port18_Ring	43	Green-Yellow	Port18_Tip
19	Yellow-Brown	Port19_Ring	44	Brown-Yellow	Port19_Tip
20	Yellow-Gray	Port20_Ring	45	Gray-Yellow	Port20_Tip
21	Purple-Blue	Port21_Ring	46	Blue-Purple	Port21_Tip
22	Purple-Orange	Port22_Ring	47	Orange-Purple	Port22_Tip
23	Purple-Green	Port23_Ring	48	Green-Purple	Port23_Tip
24	Purple-Brown	Port24_Ring	49	Brown-Purple	Port24_Tip
25	Purple-Gray	-	50	Gray-Purple	-

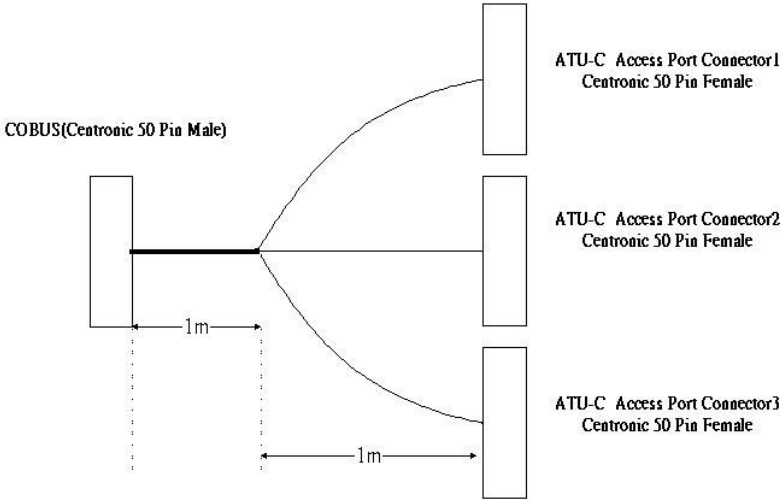
Centronics 50 to PHONE port cable - Wire Arrangement

(Cable Length: 6 meters)

Pin	Wire	Function	Pin	Wire	Function
1	White-Blue	Port1_Ring	26	Blue-White	Port1_Tip
2	White-Orange	Port2_Ring	27	Orange-White	Port2_Tip
3	White-Green	Port3_Ring	28	Green-White	Port3_Tip
4	White-Brown	Port4_Ring	20	Brown-Whit	Port4_Tip
5	White-Gray	Port5_Ring	30	Gray-White	Port5_Tip
6	Red-Blue	Port6_Ring	31	Blue-Red	Port6_Tip
7	Red-Orange	Port7_Ring	32	Orange-Red	Port7_Tip
8	Red-Green	Port8_Ring	33	Green-Red	Port8_Tip
9	Red-Brown	Port9_Ring	34	Brown-Red	Port9_Tip
10	Red-Gray	Port10_Ring	35	Gray-Red	Port10_Tip
11	Black-Blue	Port11_Ring	36	Blue-Black	Port11_Tip
12	Black-Orange	Port12_Ring	37	Orange-Black	Port12_Tip
13	Black-Green	Port13_Ring	38	Green-Black	Port13_Tip
14	Black-Brown	Port14_Ring	39	Brown-Black	Port14_Tip
15	Black-Gray	Port15_Ring	40	Gray-Black	Port15_Tip
16	Yellow-Blue	Port16_Ring	41	Blue-Yellow	Port16_Tip
17	Yellow-Orange	Port17_Ring	42	Orange-Yellow	Port17_Tip
18	Yellow-Green	Port18_Ring	43	Green-Yellow	Port18_Tip
19	Yellow-Brown	Port19_Ring	44	Brown-Yellow	Port19_Tip
20	Yellow-Gray	Port20_Ring	45	Gray-Yellow	Port20_Tip
21	Purple-Blue	Port21_Ring	46	Blue-Purple	Port21_Tip
22	Purple-Orange	Port22_Ring	47	Orange-Purple	Port22_Tip
23	Purple-Green	Port23_Ring	48	Green-Purple	Port23_Tip
24	Purple-Brown	Port24_Ring	49	Brown-Purple	Port24_Tip
25	Purple-Gray	-	50	Gray-Purple	-

COBUS to ATU-C Cable

The COBUS side is connected to the NCT-3100 ADSL port. The ATU-C side is connected to the NCT-1000/ NCT-1020 AAT24A/AAT24B card.



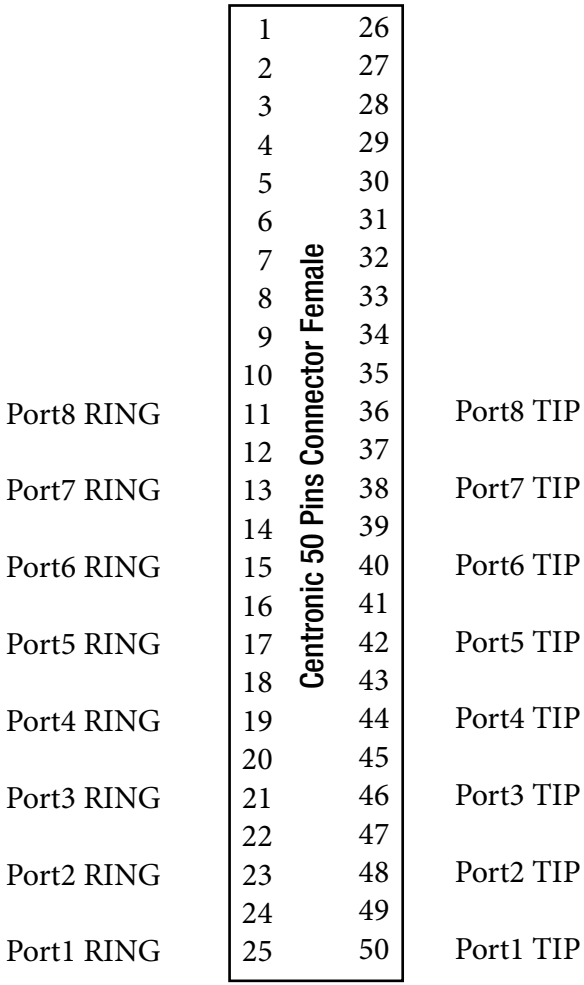
COBUS Side Connector – Pin Assignment

(Centronics 50 male connector, labeled "A")

Pin	Function	Pin	Function
1	Port1_Ring	26	Port1_Tip
2	Port2_Ring	27	Port2_Tip
3	Port3_Ring	28	Port3_Tip
4	Port4_Ring	29	Port4_Tip
5	Port5_Ring	30	Port5_Tip
6	Port6_Ring	31	Port6_Tip
7	Port7_Ring	32	Port7_Tip
8	Port8_Ring	33	Port8_Tip
9	Port9_Ring	34	Port9_Tip
10	Port10_Ring	35	Port10_Tip
11	Port11_Ring	36	Port11_Tip
12	Port12_Ring	37	Port12_Tip
13	Port13_Ring	38	Port13_Tip
14	Port14_Ring	39	Port14_Tip
15	Port15_Ring	40	Port15_Tip
16	Port16_Ring	41	Port16_Tip
17	Port17_Ring	42	Port17_Tip
18	Port18_Ring	43	Port18_Tip
19	Port19_Ring	44	Port19_Tip
20	Port20_Ring	45	Port20_Tip
21	Port21_Ring	46	Port21_Tip
22	Port22_Ring	47	Port22_Tip
23	Port23_Ring	48	Port23_Tip
24	Port24_Ring	49	Port24_Tip
25	-	50	-

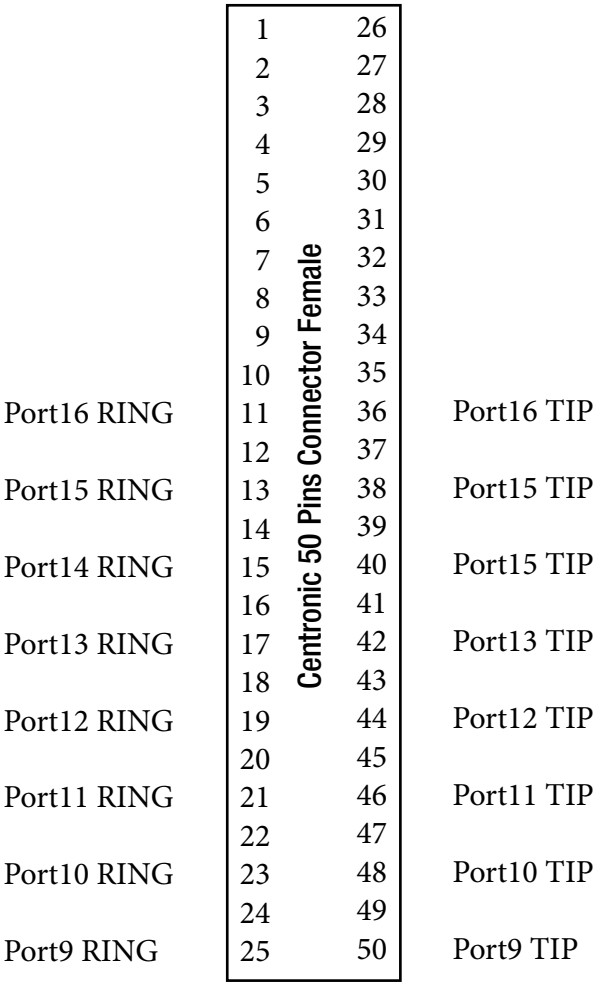
ATU-C Side Access Port Connector 1– Pin Assignment

This connector is 50-pin Centronics female connector and labeled “B”.



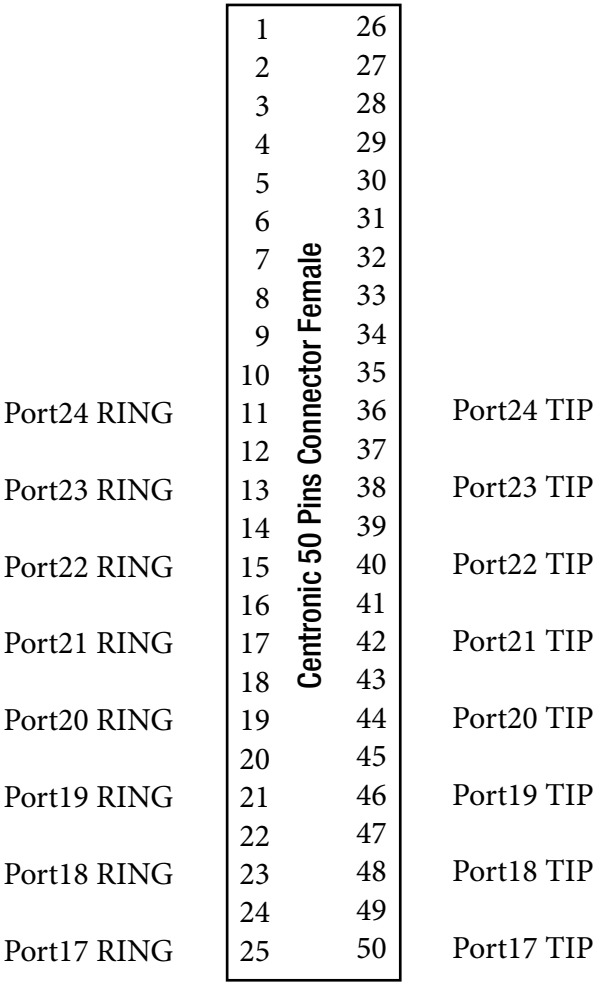
ATU-C Side Access Port Connector 2 - Pin Assignment

This connector is 50-pin Centronics female connector and labeled “C”.



ATU-C Side Access Port Connector 3– Pin Assignment

This connector is 50-pin Centronics female connector and labeled “D”.



Appendix D NCT-3010 ADSL POTS Splitter Cabling

The purpose of this guide is to explain how to connect cables between the AAT24A/AAT24B and the NCT-3010 POTS splitter. Before connecting the cables, make sure that you have the items listed below.

NCT-3010 ADSL POTS SPLITTER

The function of the NCT-3010 ADSL POTS splitter is to separate the voice signal and the ADSL signal on a traditional phone line. There are three female connectors on the front panel, which are named Phone, Line, and ADSL respectively.

Line: Connect to the phone line (at user's site).

ADSL: Connect to the AAT24A/ AAT24B.

Phone: Connect to the PSTN.

CENTRONICS-50 CABLE

One NCT-3010 ADSL POTS splitter needs two Centronics-50 male cables. One is for the connection between PSTN and the Phone port of the NCT-3010 splitter; the other is for the connection between the phone line and the Line port of the NCT-3010 splitter.

COBUS to ATU-C CABLE

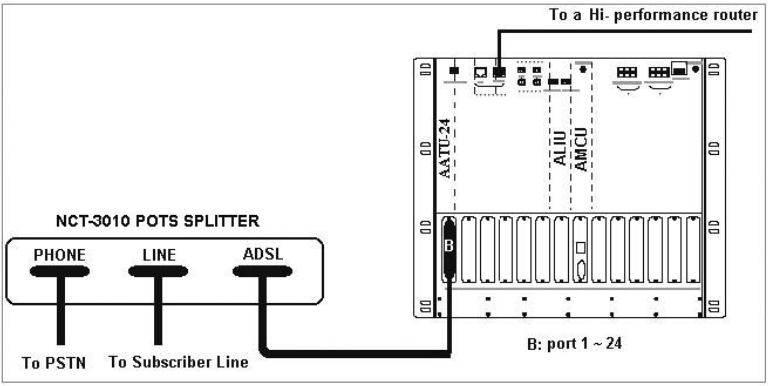
The COBUS to ATU-C cable is used for the connection between the NCT-3010 POTS splitter and the DSL concentrator. This cable provides two Centronic-50 connectors named A and B. Connector A is male; B is female.

Connector A: Connect to the ADSL port of the splitter.

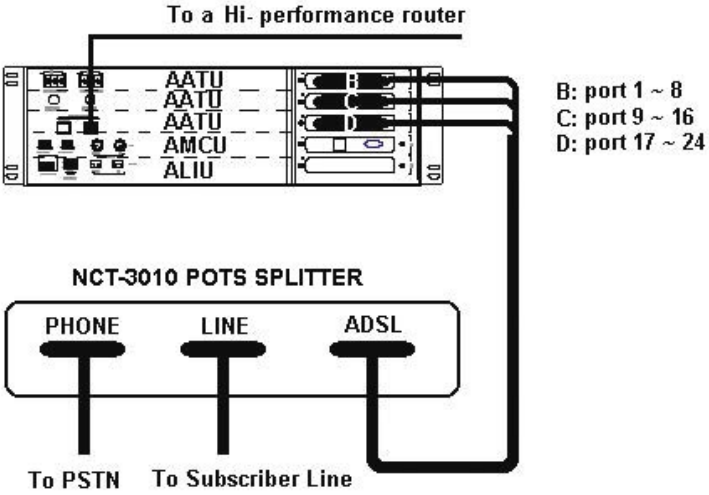
Connector B: Provide the 1-24 ADSL lines.

The following diagrams show the physical cable connections between the NCT-3010 ADSL POTS splitter and the AAT24A/AAT24B on the NCT-1000/1020 DSL concentrator.

Case A: The NCT-1000 IP DSLAM with the NCT-3010 POTS splitter cabling



Case B: The NCT-1020 IP DSLAM with the NCT-3010 POTS splitter cabling



Centronics 50 to LINE port cable - Wire Arrangement

(Cable Length: 6 meters)

Pin	Wire	Function	Pin	Wire	Function
1	White-Blue	Port1_Ring	26	Blue-White	Port1_Tip
2	White-Orange	Port2_Ring	27	Orange-White	Port2_Tip
3	White-Green	Port3_Ring	28	Green-White	Port3_Tip
4	White-Brown	Port4_Ring	29	Brown-White	Port4_Tip
5	White-Gray	Port5_Ring	30	Gray-White	Port5_Tip
6	Red-Blue	Port6_Ring	31	Blue-Red	Port6_Tip
7	Red-Orange	Port7_Ring	32	Orange-Red	Port7_Tip
8	Red-Green	Port8_Ring	33	Green-Red	Port8_Tip
9	Red-Brown	Port9_Ring	34	Brown-Red	Port9_Tip
10	Red-Gray	Port10_Ring	35	Gray-Red	Port10_Tip
11	Black-Blue	Port11_Ring	36	Blue-Black	Port11_Tip
12	Black-Orange	Port12_Ring	37	Orange-Black	Port12_Tip
13	Black-Green	Port13_Ring	38	Green-Black	Port13_Tip
14	Black-Brown	Port14_Ring	39	Brown-Black	Port14_Tip
15	Black-Gray	Port15_Ring	40	Gray-Black	Port15_Tip
16	Yellow-Blue	Port16_Ring	41	Blue-Yellow	Port16_Tip
17	Yellow-Orange	Port17_Ring	42	Orange-Yellow	Port17_Tip
18	Yellow-Green	Port18_Ring	43	Green-Yellow	Port18_Tip
19	Yellow-Brown	Port19_Ring	44	Brown-Yellow	Port19_Tip
20	Yellow-Gray	Port20_Ring	45	Gray-Yellow	Port20_Tip
21	Purple-Blue	Port21_Ring	46	Blue-Purple	Port21_Tip
22	Purple-Orange	Port22_Ring	47	Orange-Purple	Port22_Tip
23	Purple-Green	Port23_Ring	48	Green-Purple	Port23_Tip
24	Purple-Brown	Port24_Ring	49	Brown-Purple	Port24_Tip
25	Purple-Gray	-	50	Gray-Purple	-

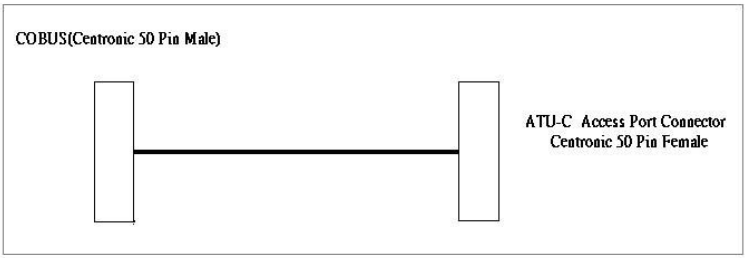
Centronics 50 to PHONE port cable - Wire Arrangement

(Cable Length: 6 meters)

Pin	Wire	Function	Pin Wire	Function	
1	White-Blue	Port1_Ring	26	Blue-White	Port1_Tip
2	White-Orange	Port2_Ring	27	Orange-White	Port2_Tip
3	White-Green	Port3_Ring	28	Green-White	Port3_Tip
4	White-Brown	Port4_Ring	29	Brown-White	Port4_Tip
5	White-Gray	Port5_Ring	30	Gray-White	Port5_Tip
6	Red-Blue	Port6_Ring	31	Blue-Red	Port6_Tip
7	Red-Orange	Port7_Ring	32	Orange-Red	Port7_Tip
8	Red-Green	Port8_Ring	33	Green-Red	Port8_Tip
9	Red-Brown	Port9_Ring	34	Brown-Red	Port9_Tip
10	Red-Gray	Port10_Ring	35	Gray-Red	Port10_Tip
11	Black-Blue	Port11_Ring	36	Blue-Black	Port11_Tip
12	Black-Orange	Port12_Ring	37	Orange-Black	Port12_Tip
13	Black-Green	Port13_Ring	38	Green-Black	Port13_Tip
14	Black-Brown	Port14_Ring	39	Brown-Black	Port14_Tip
15	Black-Gray	Port15_Ring	40	Gray-Black	Port15_Tip
16	Yellow-Blue	Port16_Ring	41	Blue-Yellow	Port16_Tip
17	Yellow-Orange	Port17_Ring	42	Orange-Yellow	Port17_Tip
18	Yellow-Green	Port18_Ring	43	Green-Yellow	Port18_Tip
19	Yellow-Brown	Port19_Ring	44	Brown-Yellow	Port19_Tip
20	Yellow-Gray	Port20_Ring	45	Gray-Yellow	Port20_Tip
21	Purple-Blue	Port21_Ring	46	Blue-Purple	Port21_Tip
22	Purple-Orange	Port22_Ring	47	Orange-Purple	Port22_Tip
23	Purple-Green	Port23_Ring	48	Green-Purple	Port23_Tip
24	Purple-Brown	Port24_Ring	49	Brown-Purple	Port24_Tip
25	Purple-Gray	-	50	Gray-Purple	-

COBUS to ATU-C Cable

The COBUS side is connected to the NCT-3010 ADSL port. The ATU-C side is connected to the NCT-1000/ 1020 AAT24A/AAT24B.



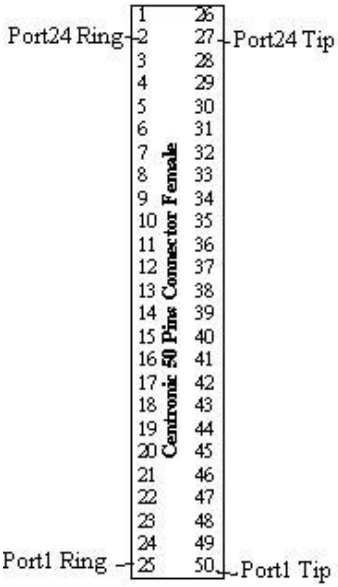
COBUS Side Connector – Pin Assignment

Pin	Function	Pin	Function
1	Port1_Ring	26	Port1_Tip
2	Port2_Ring	27	Port2_Tip
3	Port3_Ring	28	Port3_Tip
4	Port4_Ring	29	Port4_Tip
5	Port5_Ring	30	Port5_Tip
6	Port6_Ring	31	Port6_Tip
7	Port7_Ring	32	Port7_Tip
8	Port8_Ring	33	Port8_Tip
9	Port9_Ring	34	Port9_Tip
10	Port10_Ring	35	Port10_Tip
11	Port11_Ring	36	Port11_Tip
12	Port12_Ring	37	Port12_Tip
13	Port13_Ring	38	Port13_Tip
14	Port14_Ring	39	Port14_Tip
15	Port15_Ring	40	Port15_Tip
16	Port16_Ring	41	Port16_Tip
17	Port17_Ring	42	Port17_Tip
18	Port18_Ring	43	Port18_Tip
19	Port19_Ring	44	Port19_Tip
20	Port20_Ring	45	Port20_Tip
21	Port21_Ring	46	Port21_Tip
22	Port22_Ring	47	Port22_Tip
23	Port23_Ring	48	Port23_Tip
24	Port24_Ring	49	Port24_Tip
25	-	50	-

(Centronics 50 male connector, labeled “A”)

ATU-C Side Access Port Connector 1– Pin Assignment

This connector is 50-pin Centronics female connector and labeled “B”.



Appendix E NCT1000/1020 upgrade procedures

This section is divided into two parts. The first part explains procedures for upgrading the whole system; the second part explains installation of an old card to a new system.

1. Upgrade the whole system

The upgrade sequence should be in the following order: CUs, AESG, and AMCU.

STEP 1: Upgrade all CUs. The CU will reset automatically when completed.

STEP 2: Upgrade the AESG. The AESG will reset automatically when completed.

STEP 3: Upgrade the AMCU. You should upgrade the file system for the homepage first, and then upgrade the application. The AMCU will not reset automatically, you have to reboot it after the two files are upgraded.

When the AMCU starts-up, if the configuration version of the new firmware is the same as the original version, the AMCU will read the configuration stored in flash to initialize the system. While the configuration version of the new firmware is newer, the AMCU will get the configurations from the CUs. Note that if the original version is very old, it may be better to load the system default after each card is upgraded.

2. Insert an old card to a new system

Insert the old card to the system first. If the AMCU cannot recognize the old card, you have to downgrade the whole system to the old version. And then follow step 1 to upgrade to the new version

Appendix F Replacing the AC/DC power supply

To replace the power supply, the manufacturer, or your service provider should provide the new power supply.

CAUTION: The input power switch is adjustable for high or low AC voltages. To use the power supply, an appropriate voltage must be selected, to be compatible with your field application. Make sure that the power switch is set to the correct voltage, before applying your field application. The setup switch is located on the side of the power supply.

Voltage Setup Switch

Single power supply (no power redundancy)

Before using the new power supply, verify that the power supply voltage setting meets your field application.

1. Disconnect the power.
2. Disconnect the AC power line from the shelf rear panel.
3. Remove the malfunctioning power supply from the power supply shelf.
4. Place the new power supply on the power supply shelf. The voltage of the power supply should be set up correctly.
5. Assemble it onto the shelf, from the bottom with four screws.
6. Connect the power connectors to the power terminals on the rear-panel of the shelf as follows:

   Positive connector: Connect to the terminal marked **PG** on the rear-panel.

   Negative connector: Connect to the terminal marked **-48V** on the rear-panel.
7. Connect the power connectors to the Power Supply; connect the positive power lead to the positive terminal marked **POS(+)**, and connect the negative power lead to the terminal marked **NEG(-)**.
8. Turn on the power.

Note: ***The power supply may not vary from the one displayed above.***

Dual Power supply (power redundancy)

A dual AC/DC power supply shelf is provided with the IP DSLAM. The maintenance engineers can maintain one of the power supplies without interruption of the system operation.

1. Disconnect the power of the power supply that fails.
2. Disconnect the AC power line from the shelf rear panel.
3. Remove the malfunctioning power supply from the power supply shelf.
4. Place the new power supply on the power supply shelf. The voltage of the power supply should be set up correctly.
5. Assemble it onto the shelf, from the bottom with four screws.
6. Connect power connectors to the power terminals on the rear-panel of the shelf as follows:

   Positive connector: Connect to the terminal marked **PG** on the rear-panel.

   Negative connector: Connect to the terminal marked **-48V** on the rear-panel.
7. Connect the power connectors to the Power Supply; connect the positive power lead to the positive terminal marked **POS(+)**, and connect the negative power lead to the terminal marked **NEG(-)**.
8. Turn on the power.

Appendix G Power Consumption

	Power Meter(watts)	HP power supply(watts)
1020 shelf	6.82	7.2
1000 shelf	17.2	20.16
AMCU	2.64	2.4
AES-G	4.58	7.2
AAT24A	26.18	27.84
AAT24A(train 24 port)	35.28	36.96

Appendix H CLI Commands

KEY DEFINE

Commands	Function Description
TAB	Completes a partial command name.
?	Lists the keywords or arguments that you must enter next on the command line. (Space between command and question mark.)

SYSTEM MANAGEMENT

dslam> show sys version	Show firmware version of all cards
dslam> show sys clock	Show system time
dslam> show sys snmp	Show the setting of snmp
dslam> show sys alarm { current | history | state } status	Show current/history alarm or enable/disable
dslam> show sys user	Show user accounts
dslam> show sys shelf	Show shelf status
dslam> show sys config	Show system configuration
dslam> show sys vlan { id | list }	Show system vlan setting and list
dslam> show mcu config	Show MCU configuration
dslam> show aa24 config slot port	Show AAT24A configuration
dslam> show aa24 history-status slot port	Show AAT24A history of the port status
dslam> show aa24 perfor slot port { 0 | 1 }	Show AAT24A performance of the port
dslam> show aa24 statis slot port	Show AAT24A statistics of the port
dslam> show aa24 status slot port	Show AAT24A port status
dslam> show aesg config	Show AESG configuration
dslam> show aesg spt interface { 0~3 }	Show AESG spanning-tree status
dslam> ping ip-address	Send four request to another host.
dslam> cmd-history	Command history
dslam> enable	Enter the enable command and password to access privileged EXEC commands. You are in privileged EXEC mode
dslam> exit	Exit to login

SYSTEM CONFIGURATION

dslam(config)# save	Save configuration
dslam(config)# exit	Exit current level commands.
dslam(config)# reload { liu |mcu | sys | cu slot }	System reset or the specified card reset
dslam(config)# load-default	System load default or the specified card load { sys | cu slot } default
dslam(config)# setuser	Add user account. 0 represents super user, { 0~4 } user-name password and 1~4 represents read only user
dslam(config)# snmp	Change snmp community string (get, set, { set-community | get-community | trap) trap-community } set community string
dslam(config)# snmp	Remove snmp community string (get, set, { set-community | get-community | trap) trap-community } remove
dslam(config)# snmp all-community remove	Remove snmp all community string
dslam(config)# trap ip	ip-address Set snmp trap ip address
dslam(config)# trap disable	Remove snmp trap ip address
dslam(config)# alarm event priority	Set alarm event priority with major/minor
dslam(config)# alarm event state	Enable/Disable alarm event state
dslam(config)# officealarm { enable | disable }	Enable/Disable office alarm
dslam(config)# clear-alarm	Clear alarm history
dslam(config)# upload ip-address filename	Upload configuration file to TFTP server
dslam(config)# tftp amcu slot { ap | boot | config | web }	Download the upgrade/configuration file from ip-address filename TFTP server for AMCU card
dslam(config)# tftp aesg slot	Download the upgrade file from TFTP server { ap | image } ip-address filename for AES-G card
dslam(config)# tftp aatu24 slot	Download the upgrade file from TFTP server { ap | image } ip-address filename for AATU24 card
dslam(config)# tftp aat24a slot	Download the upgrade file from TFTP server { ap| image } ip-address filename for AAT24A card
dslam(config)# chkfile { 1 | 0 }	Check/don't check if the file version is legal
dslam(config)# igmp-snooping { enable | disable }	Enable/Disable igmp snooping
dslam(config)# start-vlan-id { 2~3806 }	Set the base of the VLAN id
dslam(config)# vlan add { tag | utag } id{ 2~4094 } slot port	Set the port of the VLAN id to tag or untag

dslam(config)# vlan create id{ 2~4094 } name	Create a VLAN id and name
dslam(config)# vlan del id{ 2~4094 } slot port	Set the port of the VLAN id to unjoined
dslam(config)# vlan { none-vlan | private-vlan | tag-vlan }	Set VLAN mode
dslam(config)# vlan remove id{ 2~4094 }	Remove the VLAN id
dslam(config)# newcard cu slot	Use the command to change card status (if the card mis-match)
dslam(config)# qos-mode	{ first-come-first-service | Set the mode of the QoS all-high-before-low | wrr }
dslam(config)# wrr-hpweight { 1~7 }	Set WRR high priority weight
dslam(config)# wrr-lpweight { 1~7 }	Set WRR low priority weight
dslam(config)# cmd-history	Command history
dslam(config)# cu slot	Enter the CU configuration in the specified slot.
dslam(config)# liu	Enter the AES-G configuration
dslam(config)# mcu	Enter MCU configuration

MCU CONFIGURATION

dslam(config-mcu)# time hour minute month date year	Set the system time and date
dslam(config-mcu)# ip-address	Set the IP address and subnet mask for set ip-address mask remote management
dslam(config-mcu)# ip-address	Remove the IP address and subnet mask remove setting
dslam(config-mcu)#set ip-address management	Set the default gateway for remote default-gateway
dslam(config-mcu)#remove management	Remove the default gateway for remote default-gateway
dslam(config-mcu)# vlan	Set the id and the priority of the VLAN of the id/priority id{ 2~4094 } priority{ 0~7} management interface
dslam(config-mcu)# vlan	Enable/Disable the VLAN of the management { enable | disable } interface
dslam(config-mcu)# ping	MCU will(or won't) reply the echo request { enable | disable } from other host
dslam(config-mcu)# exit	Exit current level commands.
dslam(config-mcu)#cmd-history	Command history

AAT24A Card CONFIGURATION

dslam(config-aat24a-01)#interface number	Enter port configuration
dslam(config-aat24a-01)#clear-perfor	Clear current performance
dslam(config-aat24a-01)#reset-statis	Reset current statistics
dslam(config-aat24a-01)#reload	Reset the AAT24A card
dslam(config-aat24a-01)#cmd-history	Command history
dslam(config-aat24a-01)# exit	Exit current level commands

AAT24A Port CONFIGURATION

dslam(config-aat24a-01/01)#adsl { enable | disable }	Enable/Disable port
dslam(config-aat24a-01/01)#adsl { upstream | downstream} coding { enable | disable }	Enable/Disable ADSL coding
dslam(config-aat24a-01/01)#adsl { upstream | downstream } interleave-depth { 2 | 4 | 8 | 16 | 32 | 64 }	Set ADSL interleave-depth
dslam(config-aat24a-01/01)#adsl { upstream | downstream } link-type { fast | interleave }	Set ADSL link type
dslam(config-aat24a-01/01)# { 64~16352 <Kbps> } max minimum rate { 64~16352 <Kbps> }	Set ADSL downstream maximum and adsl downstream rate min
dslam(config-aat24a-01/01)#adsl upstream rate min { 64~1024 <Kbps> } max rate { 64~1024 <Kbps> }	Set ADSL upstream maximum and minimum
dslam(config-aat24a-01/01)#adsl { upstream | downstream } snr {0~15}	Set ADSL SNR Margin (db)
dslam(config-aat24a-01/01)#adsl echo-cancellation { enable | disable }	Enable/Disable echo-cancellation
dslam(config-aat24a-01/01)#adsl framing { mode0~3 }	Configure framing mode
dslam(config-aat24a-01/01)#adsl std { Gdmt | Glite | T1413 | auto }	Set ADSL standard mode
dslam(config-aat24a-01/01)#adsl trellis-code-modulation { enable | disable }	Enable/Disable trellis-code-modulation

dslam(config-aat24a-01/01)#clear-perfor	Clear current performance of the port
dslam(config-aat24a-01/01)#loopback	Loopback test
dslam(config-aat24a-01/01)#other ip-filter { enable | disable }	Enable/Disable IP filter capability. Only the packets with IP configured in the filter entries are allowed to pass
dslam(config-aat24a-01/01)#other ip-filter { remove | set } ip-address mask	Remove/Set ip-filter setting
dslam(config-aat24a-01/01)#other mac-filter {enable | disable }	Enable/disable mac-filter function
dslam(config-aat24a-01/01)#other mac-filter mode { auto | fix }	Two operation modes in the MAC filter:auto-learning and fixed-mapping. In fixed-mapping mode, the packet with configured MAC is allowed to pass. Otherwise, the MACs allowed to pass are auto learned by passing through sequence.
dslam(config-aat24a-01/01)#other mac-filter number { 1~5 }	The maximum number of MAC address allowed to pass
dslam(config-aat24a-01/01)#other mac-filter { remove | set } mac- address	Remove/set mac-filter setting
dslam(config-aat24a-01/01)#other pppoe-filter { enable | disable }	Enable/Disable PPPOE filter capability. Only PPPOE-encapsulated packets are allowed to pass
dslam(config-aat24a-01/01)#pvc create-vc	Create the ATM PVC
dslam(config-aat24a-01/01)#pvc delete-vc	Delete the ATM PVC
dslam(config-aat24a-01/01)#pvc pcr { 384~12000 }	Specify the peak cell rate(Kbps) of the PVC
dslam(config-aat24a-01/01)#pvc pvid/ priority id{ 2~4094 } priority{ 0~7 }	Set the port VLAN ID and priority
dslam(config-aat24a-01/01)#pvc qos { ubr | cbr }	Specify the QoS type of the PVC
dslam(config-aat24a-01/01)#pvc vpi/vci vpi{ 0~255 } vci{ 0~1023}	Specify the VPI/VCI of the PVC
dslam(config-aat24a-01/01)#reset-statis	Reset current statistics of the port
dslam(config-aat24a-01/01)#retrain	Port retrain
dslam(config-aat24a-01/01)#reload	Reset the AAT24A card
dslam(config-aat24a-01/01)#set-all-ports	The port configuration is set to all ports of the unit
dslam(config-aat24a-01/01)#cmd-history	Command history

dslam(config-aat24a-01/01)#exit	Exit current level commands

AES-G Card CONFIGURATION

dslam(config-aesg-)#port-trunk { disable | giga | up-down }	Select AES-G Port Trunk
dslam(config-aesg-)# uplink { 0<up> | 1<down> | 2<giga port2> | 3<giga port2> }	Select AES-G Uplink Port
dslam(config-aesg-)# interface { 0<up> | 1<down> | 2<giga port2> | 3<giga port2> }	Enter the port configuration
dslam(config-aesg-)# reload	Reset AESG.
dslam(config-aesg-)#cmd-history	Command history
dslam(config-aesg-)# exit	Exit current level

AES-G Port CONFIGURATION

dslam(config-aesg-up)#{ enable | disable }	Enable/Disable port
dslam(config-aesg-up)# type{ auto | fdx100m<100M full duplex> | fdx10m<10M full duplex> | fdx1g <1000M full duplex> | hdx100m<100M half duplex> | hdx10m<10M half duplex> | hdx1g<1000M half duplex> }	Change connection type (includes duplex mode, speed and auto-negotiation capability)
dslam(config-aesg-up)#flow-control { enable | disable }	Enable/Disable flow control capability.
dslam(config-aesg-up)# pvid id{2~4094}	Set the port vlan id
dslam(config-aesg-up)#sptstate enable priority priority{0~255}	Enable and set the priority of spanning-tree
dslam(config-aesg-up)#sptstate disable	Disable the spanning-tree
dslam(config-aesg-up)#cmd-history	Command history
dslam(config-aesg-up)# exit	Exit current level

Appendix I Cable Information

This cable information is provided for your reference only. Please ensure you only connect the appropriate cable into the correct socket on either this product or your computer.

If you are unsure about which cable to use or which socket to connect it to, please refer to the hardware installation section in this manual. If you are still not sure about cable connections, please contact a professional computer technician or NetComm for further advice.

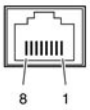
RJ-45 Network Ports

RJ-45 Network Ports can connect any networking devices that use a standard LAN interface, such as a Hub/Switch Hub or Router. Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable to connect the networking device to the RJ-45 Ethernet port. Depending on the type of connection, 10Mbps or 100Mbps, use the following Ethernet cable, as prescribed.

10Mbps: Use EIA/TIA-568-100-Category 3, 4 or 5 cable.

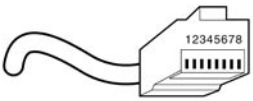
100Mbps: Use EIA/TIA-568-100-Category 5 cable.

Note: ***To prevent loss of signal, make sure that the length of any twisted-pair connection does not exceed 100 metres.***



RJ-45 Connector Pin Assignment	Normal Assignment
1	Input Receive Data +
2	Input Receive Data -
3	Output Transmit Data +
6	Output Transmit Data -
4,5,7,8	Not used

Figure 1



RJ-45 plug attached to cable

Figure 2

Straight and crossover cable configuration

There are two types of the wiring: Straight-Through Cables and Crossover Cables. Category 5 UTP/STP cable has eight wires inside the sheath. The wires form four pairs. Straight-Through Cables has same pinouts at both ends while Crossover Cables has a different pin arrangement at each end.

In a straight-through cable, wires 1,2,3,4,5,6,7 and 8 at one end of the cable are still wires 1~8 at the other end. In a crossover cable, the wires of 1,2,3,6 are reversed so that wire 1 become 3 at the other end of the cable, 2 becomes 6, and so forth.

To determine which wire is wire 1, hold the RJ-45 cable tip with the spring clip facing towards the ground and the end pointing away from you. The copper wires exposed upwards to your view. The first wire on the far left is wire 1. You can also refer to the illustrations and charts of the internal wiring on the following page.

Straight-Through Cabling

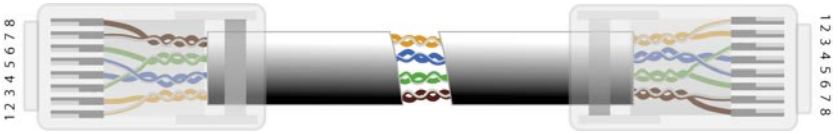


Figure 3

Wire	Becomes
1	1
2	2
3	3
6	6

Cross-Over Cabling

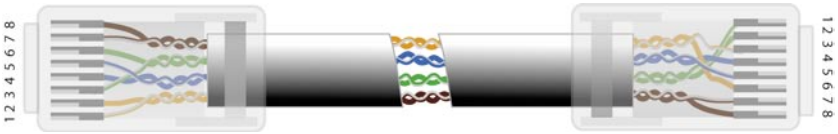


Figure 4

Wire	Becomes
1	3
2	6
3	1
6	2

Note: ***To prevent loss of signal, make sure that the length of any twisted-pair connection does not exceed 100 metres.***

Appendix J Registration and Warranty Information

All NetComm Limited ("NetComm") products have a standard 12 month warranty from date of purchase against defects in manufacturing and that the products will operate in accordance with the specifications outlined in the User Guide. However some products have an extended warranty option (please refer to your packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at:

www.netcomm.com.au

Contact Information

If you have any technical difficulties with your product, please do not hesitate to contact NetComm's Customer Support Department.

Email:	support@netcomm.com.au
Fax:	(+612) 9424-2010
Web:	www.netcomm.com.au

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NetComm Limited reserves the right to change the specifications and operating details of this product without notice. NetComm is a registered trademark of NetComm Limited. All other trademarks are acknowledged the property of their respective owners.

Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings:

(1) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TS008 Standard.

(2) This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACA. These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:

- Change the direction or relocate the receiving antenna.
- Increase the separation between this equipment and the receiver.

- Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
- Consult an experienced radio/TV technician for help.

(3) The power supply that is provided with this unit is only intended for use with this product. Do not use this power supply with any other product or do not use any other power supply that is not approved for use with this product by NetComm. Failure to do so may cause damage to this product, fire or result in personal injury.

Product Warranty

The warranty is granted on the following conditions:

1. This warranty extends to the original purchaser (you) and is not transferable;
2. This warranty shall not apply to software programs, batteries, power supplies, cables or other accessories supplied in or with the product;
3. The customer complies with all of the terms of any relevant agreement with NetComm and any other reasonable requirements of NetComm including producing such evidence of purchase as NetComm may require;
4. The cost of transporting product to and from NetComm's nominated premises is your responsibility; and,
5. NetComm does not have any liability or responsibility under this warranty where any cost, loss, injury or damage of any kind, whether direct, indirect, consequential, incidental or otherwise arises out of events beyond NetComm's reasonable control. This includes but is not limited to: acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, electricity outages, lightning, power surges, or shortages of materials or labour.
6. The customer is responsible for the security of their computer and network at all times. Security features may be disabled within the factory default settings. NetComm recommends that you enable these features to enhance your security.

The warranty is automatically voided if:

1. You, or someone else, use the product, or attempts to use it, other than as specified by NetComm;
2. The fault or defect in your product is the result of a voltage surge subjected to the product either by the way of power supply or communication line, whether caused by thunderstorm activity or any other cause(s);
3. The fault is the result of accidental damage or damage in transit, including but not limited to liquid spillage;
4. Your product has been used for any purposes other than that for which it is sold, or in any way other than in strict accordance with the user manual supplied;
5. Your product has been repaired or modified or attempted to be repaired or modified, other than by a qualified person at a service centre authorised by NetComm; and,
6. The serial number has been defaced or altered in any way or if the serial number plate has been removed.

Limitations of Warranty

The Trade Practices Act 1974 and corresponding State and Territory Fair Trading Acts or legalisation of another Government ("the relevant acts") in certain circumstances imply mandatory conditions and warranties which cannot be excluded. This warranty is in addition to and not in replacement for such conditions and warranties.

To the extent permitted by the Relevant Acts, in relation to your product and any other materials provided with the product ("the Goods") the liability of NetComm under the Relevant Acts is limited at the option of NetComm to:

- Replacement of the Goods; or
- Repair of the Goods; or
- Payment of the cost of replacing the Goods; or
- Payment of the cost of having the Goods repaired.

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