VHSIM2-A6DP
User's Guide

ENTERASYS

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ELECTRICAL HAZARD: Only qualified personnel should perform installation procedures.

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Order Number: 9032825-02 August 2000

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SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

THE APIM-29, APIM-29LR, VAPIM-39, AND VAPIM-39LR ARE ATM PORT INTERFACE MODULES THAT USE CLASS 1 LASER TRANSCEIVERS. READ THE FOLLOWING SAFETY INFORMATION BEFORE INSTALLING OR OPERATING THESE MODULES.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).

- IEC Publication 825 (International Electrotechnical Commission).

- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

LASER RADIATION AND CONNECTORS

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55×10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is
0.8 W cm^{-2} or $8 \times 10^3 \text{ W m}^2$ sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

DECLARATION OF CONFORMITY

Application of Council Directive(s):	**89/336/EEC** **73/23/EEC**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**35 Industrial Way** **PO Box 5005** **Rochester, NH 03867**
European Representative Name:	**Mr. Jim Sims**
European Representative Address:	**Enterasys Networks Ltd.** **Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG14 2PZ, England**
Conformance to Directive(s)/Product Standards:	**EC Directive 89/336/EEC** **EC Directive 73/23/EEC** **EN 55022** **EN 55024** **EN 60950** **EN 60825**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial** **or Light Industrial Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

Manufacturer	Legal Representative in Europe
Mr. Tom Whissel	Mr. Jim Sims
—————————————————	—————————————————
Full Name	Full Name
Compliance Engineering Manager	President - E.M.E.A.
—————————————————	—————————————————
Title	Title
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—————————————————	—————————————————
Location	Location

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About This Guide

Welcome to the Enterasys Networks **VHSIM2-A6DP User's Guide**. This manual provides the following information:

• Describes VHSIM2-A6DP features

• Explains how to install the VHSIM2-A6DP in Enterasys interface module or standalone device

• Outlines specifications for the Enterasys Asynchronous Transfer Mode (ATM) Very High Speed Interface Module (VHSIM)

The VHSIM2-A6DP provides additional connectivity/functionality to various Enterasys interface modules and standalone devices by providing redundant uplinks to networks using Asynchronous Transfer Mode (ATM).

WHO SHOULD USE THIS GUIDE

This guide is for Enterasys service personnel and qualified customer maintenance personnel who are familiar with installing networking systems and have a working knowledge of ATM networks and LAN Emulation, and for system managers and others who perform network management tasks.

STRUCTURE OF THIS GUIDE

Read through this guide completely to familiarize yourself with its content and to gain an understanding of the features and capabilities of the VHSIM2-A6DP.

This guide is organized as follows:

Chapter 1, **Introduction**, outlines the contents of this manual, describes VHSIM2-A6DP features and concludes with a list of related manuals.

Chapter 2, **Installation**, describes how to install ATM Port Interface Modules (APIMs and VAPIMs) into the VHSIM2-A6DP. This chapter also explains how to install a VHSIM2-A6DP into an interface module or a standalone device.

Chapter 3, **Local Management**, describes how to use the VHSIM2-A6DP Local Management screens to configure the VHSIM2-A6DP for connection to an ATM network.

Chapter 4, **LANVIEW LEDs**, describes how to use the VHSIM2-A6DP LEDs to monitor VHSIM performance and status.

Appendix A, **VHSIM2-A6DP Specifications**, describes environmental specifications and safety requirements for the VHSIM2-A6DP.

Appendix B, **APIM and VAPIM Specifications**, describes specifications and features for each of the APIMs and VAPIMs available for the VHSIM2-A6DP.

RELATED MANUALS

Use the following Enterasys Networks manuals to supplement the procedures and other technical data provided in this manual.

*   *ATM Technology Guide*

*   *Cabling Guide*

> **NOTE:** The documentation for the interface module or standalone device in which the VHSIM2-A6DP will be installed will also assist you in the installation and setup of the VHSIM2-A6DP.

The manuals referenced above can be obtained on the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

http://www.enterasys.com/

> **NOTE:** For additional information on ATM technology, visit the ATM Forum's web site at www.atmforum.com
>
> All documentation for SecureFast VLAN Manager software can be found on the VLAN Manager CD-ROM.

DOCUMENT CONVENTIONS

The following conventions are used throughout this document:

NOTE: Calls the reader's attention to any item of information that may be of special importance.

TIP: Conveys helpful hints concerning procedures or actions.

CAUTION: Contains information essential to avoid damage to the equipment.

ELECTRICAL HAZARD: Warns against an action that could result in personal injury or death due to an electrical hazard.

bold type	Bold type denotes text that the user should highlight or input on a screen. Bold type is also used for emphasis and cross references to other sections and titles of this manual.
RETURN	Indicates either the ENTER or RETURN key, depending on your keyboard.
ESC	Indicates the keyboard Escape key.
SPACE bar	Indicates the keyboard space bar key.
BACKSPACE	Indicates the keyboard backspace key.
arrow keys	Refers to the four keyboard arrow keys.
[-]	Indicates the keyboard – key.
DEL	Indicates the keyboard delete key.
italic type	Italic type emphasizes important information, indicates variables, and indicates titles of referenced documents.
n.nn	A period in numerals signals the decimal point indicator (e.g., 1.75 equals one and three fourths).

x   A lowercase italic *x* indicates the generic use of a letter (e.g., *xxx* indicates any combination of three alphabetic characters).

n   A lowercase italic *n* indicates the generic use of a number (e.g., 19*nn* indicates a four-digit number in which the last two digits are unknown).

[ ]   In the Local Management screens, brackets indicate that a value may be entered or selected.

1

Introduction

This chapter provides a brief overview of the VHSIM2-A6DP and provides information on obtaining additional help from Enterasys Networks.

Figure 1-1   VHSIM2-A6DP
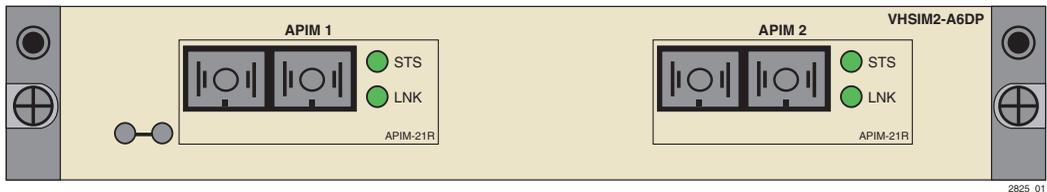
> **NOTE:** Unless noted otherwise, all Enterasys Networks APIMs and VAPIMs available for the VHSIM2-A6DP are referred to as "APIMs" in this document.

1.1   OVERVIEW

The VHSIM2-A6DP extends the functionality of the Enterasys Networks interface module or standalone device to include remote uplink capability. It allows remote connectivity using ATM technology.

Two APIMs can be installed in the VHSIM2-A6DP to provide redundant ATM links from the VHSIM2-A6DP to a switched ATM network. Enterasys Networks provides a variety of APIMs that allow the user to select the type of configuration that best meets the network requirements. If port redundancy is not a requirement, then only one APIM needs to be installed.

The VHSIM2-A6DP supports two types of Virtual Channels: Permanent Virtual Channels (PVCs), and Switched Virtual Channels (SVCs), which are compliant with the ATM Forum's User-Network-Interface (UNI 3.0, UNI 3.1 and UNI 4.0) for SVC signaling specification.

1.1.1 ATM Port Interface Modules (APIMs and VAPIMs)

The VHSIM2-A6DP supports two Enterasys Networks APIMs for ATM connectivity and redundancy. APIMs for any interface can be installed into the VHSIM2-A6DP. The two APIMs installed may be of any combination of physical layer cable type and bandwidth. For example, the APIM installed in slot 1 could support Twisted Pair cable and provide 155 Mbps of bandwidth, while the APIM installed in slot 2 could support Coaxial cable and provide 45 Mbps of bandwidth. Appendix B details all of the APIMs and VAPIMs available for the VHSIM2-A6DP.

1.1.2 MIB Support

For additional information on how to extract and compile individual MIBs, refer to the Release Notes, or contact Enterasys Networks for technical support. Refer to Section 1.2 for details.

1.1.3 LANVIEW Diagnostic LEDs

Enterasys Networks provides a visual diagnostic and monitoring system called LANVIEW. The VHSIM2-A6DP LANVIEW LEDs help to quickly identify transmit/receive and link status.

1.2   GETTING HELP

For additional support related to the product or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/
Phone	(603) 332-9400
Internet mail	support@enterasys.com
FTP	ftp://ftp.enterasys.com
Login	*anonymous*
Password	*your email address*

To send comments or suggestions concerning this document, contact the Technical Writing Department via the following email address: **TechWriting@enterasys.com**

Make sure to include the document Part Number in the email message.

Before contacting Enterasys Networks, have the following information ready:

- Your Enterasys Networks service contract number

- A description of the failure

- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)

- The serial and revision numbers of all involved Enterasys Networks products in the network

- A description of your network environment (layout, cable type, etc.)

- Network load and frame size at the time of trouble (if known)

- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)

- Any previous Return Material Authorization (RMA) numbers

2

Installation

This chapter contains instructions for the following tasks:

- Unpacking the VHSIM2-A6DP (Section 2.1)
- Installing APIMs (Section 2.2)
- Installing a VHSIM2-A6DP (Section 2.4)

To install the VHSIM2-A6DP and APIMs, the following tools are required:

- Antistatic wrist strap (provided with the 6C105 chassis or standalone device)
- Phillips screwdriver

2.1 UNPACKING THE VHSIM2-A6DP

Unpack the VHSIM2-A6DP as follows:

> ⚠️ **CAUTION:** The VHSIM2-A6DP and the host module or device are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the VHSIM2-A6DP, the host module, or device.

1. Remove the shipping box material covering the VHSIM2-A6DP.
2. Carefully remove the module from the shipping box. Leave the module in its non-conductive bag until you are ready to install the module.
3. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).
4. After removing the module from its non-conductive bag, visually inspect the device. If you notice any signs of damage, contact Enterasys Networks immediately. Refer to Section 1.2.

2.2   INSTALLING APIMs

NOTE: To install VAPIMs, refer to Section 2.3.

ELECTRICAL HAZARD: Only qualified personnel should install or service this unit.

To install an APIM into the VHSIM2-A6DP, proceed as follows:

1. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).

2. Remove and save the faceplate screws attaching the faceplate to the VHSIM2-A6DP. See Figure 2-1. Remove the VHSIM2-A6DP faceplate.

3. Remove and save the three screws from the VHSIM2-A6DP standoffs. Remove the APIM coverplate.

Figure 2-1   Removing the APIM Coverplate

Standoff
Screws

APIM
Coverplate

Faceplate
Screws
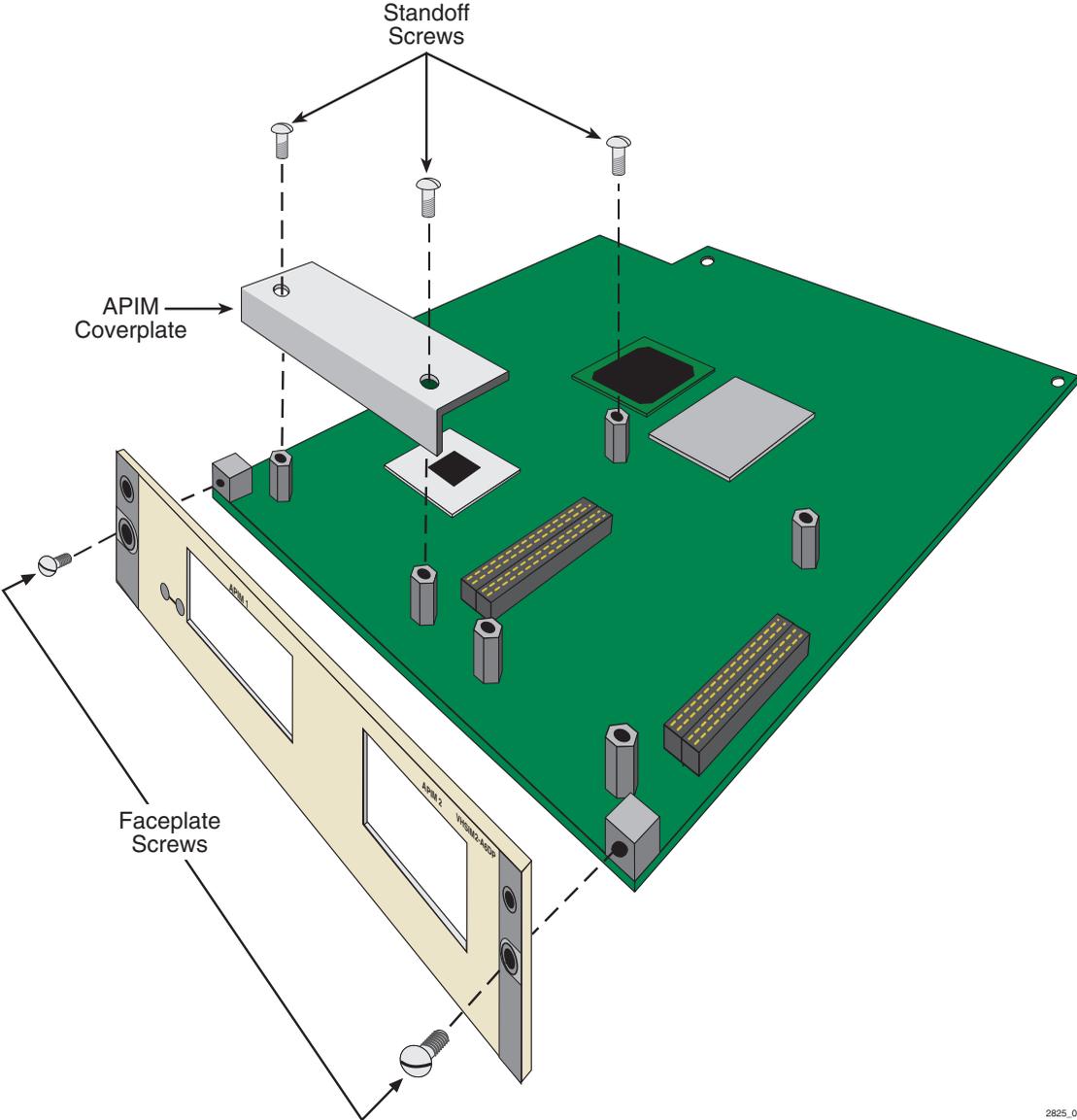
2825_02

4. Align the APIM connector with the VHSIM2-A6DP connector pins as shown in Figure 2-2.

> ⚠️ **CAUTION:** Ensure that the APIM connector aligns with the VHSIM2-A6DP connector pins to prevent bending the pins. This can damage both the VHSIM2-A6DP and the module.

Figure 2-2   Installing an APIM
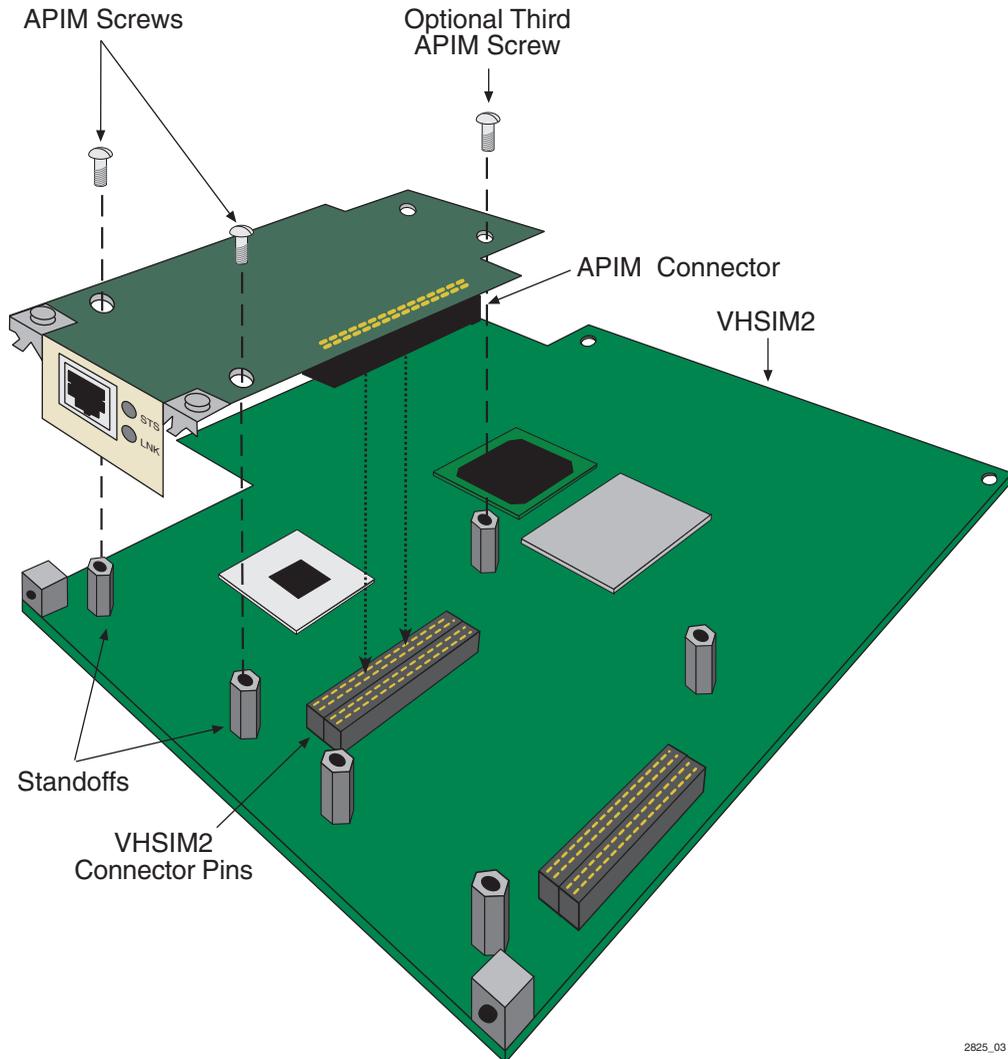
5. Press down firmly on the APIM until the pins slide all the way into the connector. Ensure the APIM sits flush on the standoffs. If the APIM does not sit flush with the standoffs, ensure that the pins have been inserted into the correct connector on the VHSIM2-A6DP. Refer to Figure 2-2.

6. Secure the APIM with the screws saved in step 3. The screw used to attach the rear of the APIM to the standoff is optional, and is not necessary for proper installation. Refer to Figure 2-2.

7. Reattach the faceplate to the VHSIM2-A6DP using the three screws saved in step 2.

2.3   INSTALLING VAPIMs

ELECTRICAL HAZARD: Only qualified personnel should install or service this unit.

To install a VAPIM into the VHSIM2-A6DP, proceed as follows:

1. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).

2. Remove and save the faceplate screws attaching the faceplate to the VHSIM2-A6DP. See Figure 2-3. Remove the VHSIM2-A6DP faceplate.

3. Remove and save the three screws from the VHSIM2-A6DP standoffs. Remove the APIM coverplate.

Figure 2-3   Removing the APIM Coverplate

Standoff
Screws

APIM
Coverplate

APIM 1

APIM 2

VHSIMG-A6DP

Faceplate
Screws
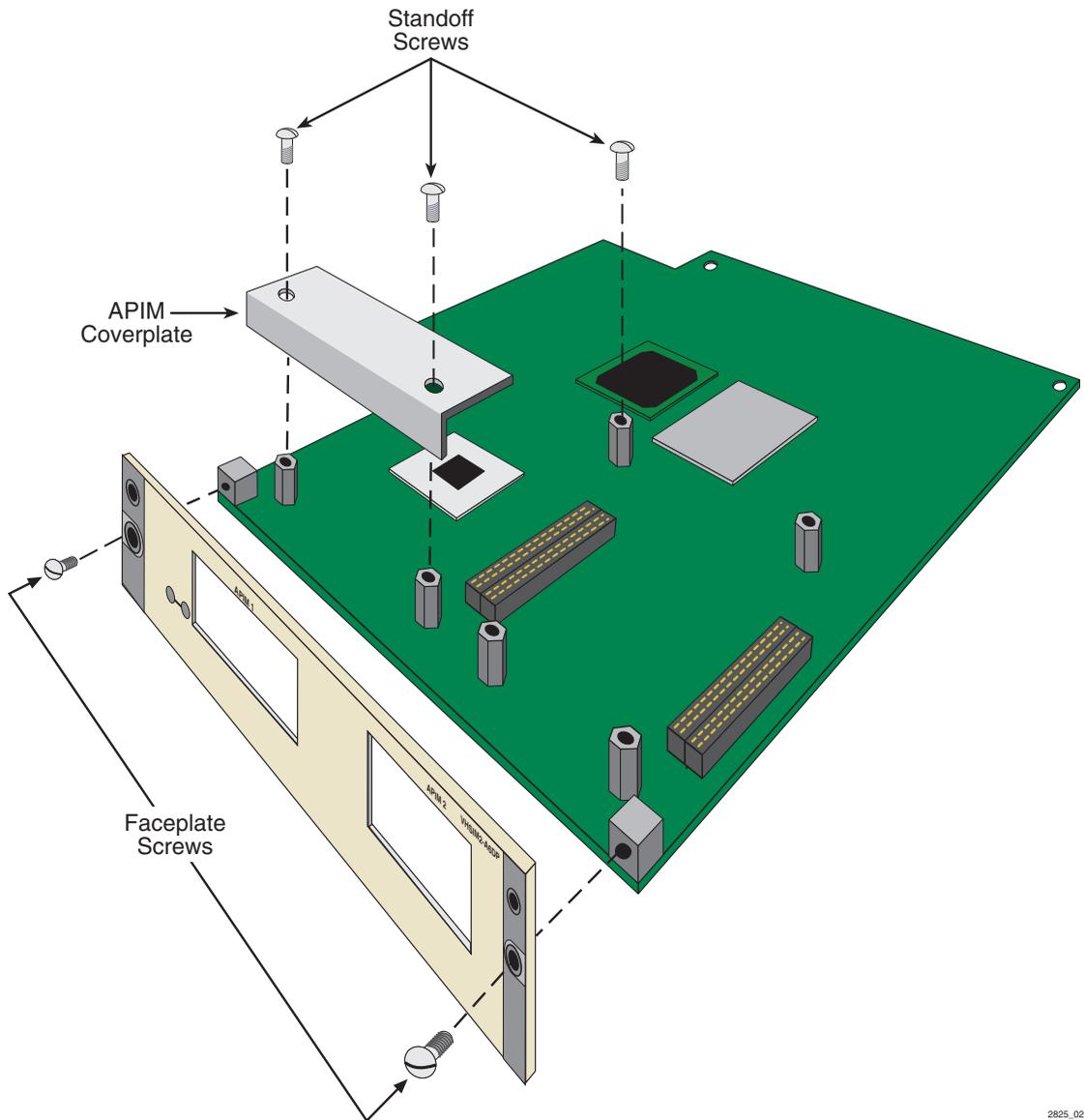
2825_02

4. Align the VAPIM connectors into the VHSIM2-A6DP connectors as shown in Figure 2-4.

⚠️ **CAUTION:** Ensure that the VAPIM connectors align with the VHSIM2-A6DP connectors to prevent bending the pins. This can damage both the VHSIM2-A6DP and the module.

Figure 2-4   Installing a VAPIM
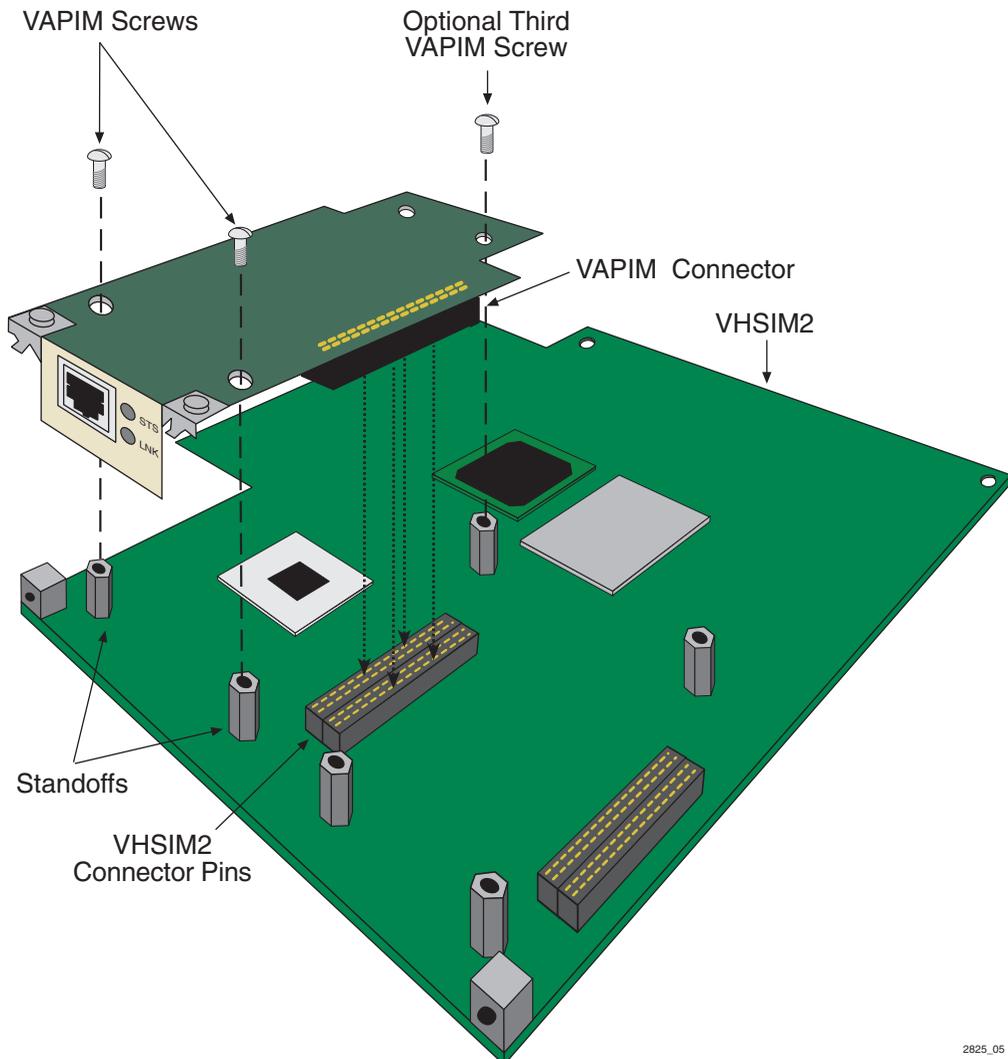
5. Press down firmly on the VAPIM until the pins slide all the way into the connector. Ensure the VAPIM sits flush on the standoffs.

6. Secure the VAPIM with the screws saved in step 3. The screw used to attach the rear of the VAPIM to the standoff is optional, and is not necessary for proper installation. Refer to Figure 2-4.

7. Reattach the faceplate to the VHSIM2-A6DP using the three screws saved in step 2.

2.4   INSTALLING A VHSIM

⚠ **ELECTRICAL HAZARD:** Only qualified personnel should install or service this unit.

You can install a VHSIM in any Enterasys Networks device that supports VHSIM2-A6DP technology (e.g., 2E252-25, 6E252-17). Refer to the release notes for the version of firmware running on the Enterasys Networks device to ensure that the VHSIM2-A6DP is supported. The following subsections provide generic instructions for installing an VHSIM2-A6DP in a module or in a standalone device.

2.4.1   Installing a VHSIM2-A6DP in an Interface Module

To install an VHSIM2-A6DP in a module that supports VHSIM2-A6DP technology proceed as follows:

1. Disconnect all cables from the interface module. Note the ports to which these cables attach.

2. Attach the antistatic wrist strap (refer to the instructions outlined on the antistatic wrist strap package).

3. Unlock the top and bottom plastic locking tabs of the module faceplate.

4. Slide out the module, and place it on its side with the internal components facing up.

5. Remove and save the two faceplate mounting screws securing the VHSIM2-A6DP coverplate and remove the coverplate. See Figure 2-5.

6. Remove and save the two standoff screws. See Figure 2-5.

Figure 2-5   Removing the VHSIM Coverplate
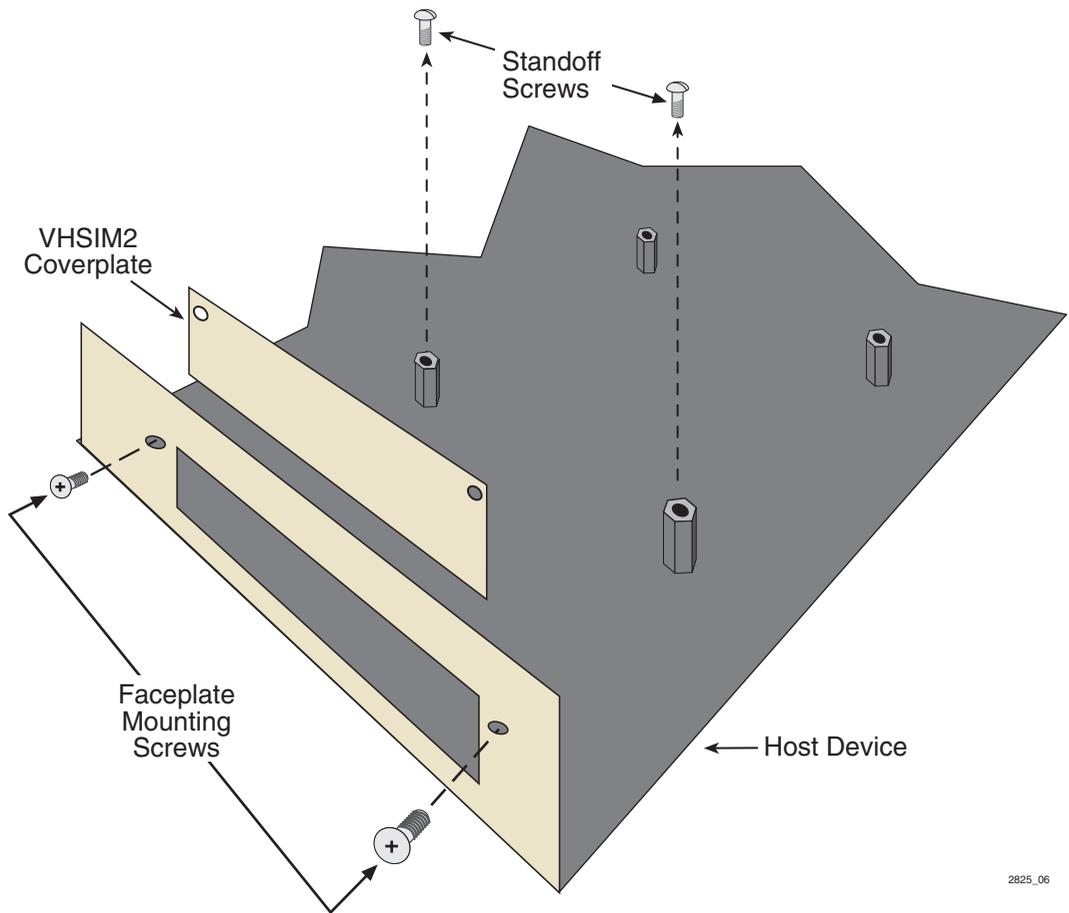
Place the VHSIM behind the module faceplate. See Figure 2-6.

Figure 2-6   Installing the VHSIM2-A6DP
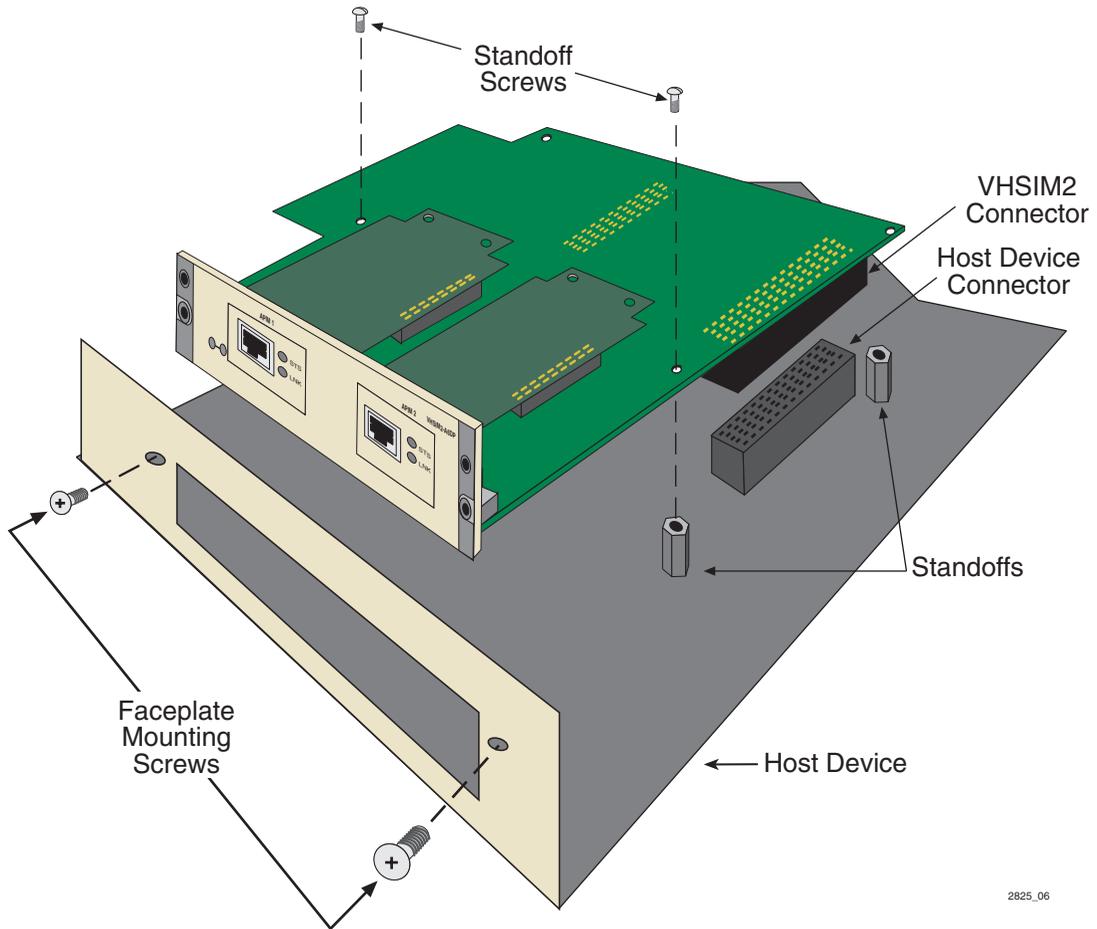
7. Align the connectors of the VHSIM2-A6DP into the host device connector pins on the module as shown in Figure 2-6.

> ⚠️ **CAUTION:** Ensure that the VHSIM2-A6DP connectors align with the host device connector pins to prevent bending the pins. This can damage both the VHSIM2-A6DP and the module.

8. Press down firmly on the back of the VHSIM2-A6DP until the pins slide all the way into the connector holes.

9. Secure the VHSIM2-A6DP to the faceplate using the two screws saved in step 5.

> ⚠️ **CAUTION:** In step 10 ensure that the standoffs on the interface module align with the standoff screw holes on the VHSIM2-A6DP to prevent bending the pins.

10. Secure the VHSIM2-A6DP to the standoffs with the two screws saved in step 6.

11. Reinstall the interface module in the chassis.

12. Reattach the network cabling to the interface module.

13. Refer to Chapter 3 for instructions on configuring the VHSIM2-A6DP using Local Management.

2.4.2   Installing a VHSIM2-A6DP in a Standalone Device

To install a VHSIM2-A6DP into a standalone device that supports VHSIM2-A6DP technology, perform the following steps:

1. Power down the device and remove the power cord.

2. Disconnect all cables from the device. Note the ports to which these cables attach.

> ⚡ **ELECTRICAL HAZARD:** Ensure that you remove the power cord and ONLY the screws required to remove the chassis cover. Failure to comply could result in an electric shock hazard.

3. Attach the antistatic wrist strap (refer to the instructions outlined on the antistatic wrist strap package).

4. Remove the device chassis cover (refer to your specific device documentation for instructions on removing the device chassis cover).

5. Remove and save the two faceplate mounting screws securing the VHSIM2-A6DP coverplate and remove the coverplate as shown back in Figure 2-5.

6. Remove and save the two standoff screws as shown back in Figure 2-5.

7. Place the VHSIM2-A6DP behind the device faceplate as shown back in Figure 2-6.

8. Insert the connectors of the VHSIM2-A6DP into the host device connector pins on the device.

⚠️ **CAUTION:** In step 8, ensure that the standoffs on the device align with the standoff screw holes on the VHSIM2-A6DP to prevent bending the pins.

9. Press down firmly on the back of the VHSIM2-A6DP until the pins slide all the way into the connector holes.

10. Secure the VHSIM2-A6DP to the faceplate using the screws saved in step 5.

11. Secure the VHSIM2-A6DP to the standoffs using the screws saved in step 6.

⚡ **ELECTRICAL HAZARD:** Ensure that the chassis cover is in place before reconnecting the power cord.

12. Reattach the chassis cover to the device, reconnect the power cord, and reconnect the device to your network.

13. Refer to Chapter 3 for instructions on configuring the VHSIM2-A6DP using Local Management.

3

Local Management

This chapter explains how to perform the following tasks:

- How to view current ATM connections.

- Configure Permanent Virtual Channels (PVCs).

- Configure LAN Emulation Clients (LECs).

- View Emulated LAN (ELAN) properties.

- Perform searches of the VHSIM2-A6DP LEC ARP Cache.

- Create traffic profiles that may be assigned to LECs and PVCs.

- Configure the APIMs installed in the VHSIM2-A6DP for redundancy.

- Configure operating parameters for Switched Virtual Channels (SVCs) and optional LAN Emulation Services using Local Management.

- Enable and configure LANE Services, allowing the VHSIM2-A6DP to perform as a LAN Emulation Configuration Server (LECS), LAN Emulation Server (LES), and a Broadcast and Unknown Server (BUS).

> **NOTE:** When installed, the VHSIM2-A6DP provides additional Local Management features. These features are accessed by entering Local Management of the host interface module or standalone device. Refer to the host device user's guide to establish a Local Management connection.
>
> Some screens described in this chapter may not yet be supported by the VHSIM2-A6DP. Refer to the Release Notes to verify which screens are supported.

The following must be completed before configuring the VHSIM2-A6DP through Local Management:

- Installation of an APIM in the VHSIM2-A6DP. Refer to Chapter 2 for instructions.

- Installation of the VHSIM2-A6DP in the host interface module or standalone device with the host device operational. Refer to Chapter 2 for instructions.

- Configuration and proper connection of a Local Management terminal to the host interface module or standalone device in which the VHSIM2-A6DP resides.

3.1 USING LOCAL MANAGEMENT SCREENS

Section 3.1.1 through Section 3.1.3 describe Local Management screen elements, keyboard conventions and how to navigate through the Local Management screens of the VHSIM2-A6DP.

3.1.1 Local Management Screen Elements

There are five types of screens used in Local Management: password, menu, configuration, status, and warning screens. Each type of screen can consist of one to five basic elements, or fields. Since the top part of the screen contains the same type of information (the name of the screen, the switch model number, the firmware revision, and the BOOT PROM revision), it is not shown in the following descriptions of the screens. Only the lower portion of each screen is shown. The cutaway line can be seen in Figure 3-1. The name of the screen is in the figure title for each screen. Figure 3-1 shows an example of the fields in a screen. A description of each field follows the figure.

> **NOTE:** The following definitions apply to most Local Management screens. Exceptions to these definitions may occur in the Local Management screens of some devices.

Figure 3-1   Example of a Local Management Screen

Event Message Field

See Note

Selection/Toggle Fields

Input Field

Display Field

```
Event Message Line        XXXXX-XX LOCAL MANAGEMENT


Device Name:XXXXX-XX                    Flash Image Revision: XX.XX.XX
Slot Number:X                          BOOTPROM Revision: XX.XX.XX


     Redundancy Status: [Enabled]

     Primary port:  1              Active port:  1

     Activation of redundant port: [Automatic]

     Revert to Primary port:  [Automatic]

     Periodic test status:  [Enabled]    Periodic test time 01:00.00

     Result of previous test:  [ ] No test performed since system startup

     TEST PORTS NOW                   RESET TO FACTORY DEFAULTS



        SAVE                          EXIT     RETURN
```

Command Fields

NOTE:
This shows the location of the cut away that is used in most of the screen graphics in this document. The top portion on the screen is cut away to eliminate repeating the same information in each graphic. The screen title is contained in its figure title.

28251_08

The following list explains each of the Local Management fields:

Event Message Field
This field briefly displays messages that indicate if a Local Management procedure was executed correctly or incorrectly, that changes were saved or not saved to Non-Volatile Random Access Memory (NVRAM), or that a user did not have access privileges to an application.

> **NOTE:** Only the password, configuration and status screens have event message fields.

Table 3-1 describes the most common event messages. Event messages related to specific Local Management applications are described with those applications throughout this manual.

Table 3-1   Event Messages

Message	What it Means
SAVED OK	One or more fields were modified, and saved to NVRAM.
NOT SAVED--PRESS SAVE TO KEEP CHANGES	Attempting to exit the LM screen after one or more fields were modified, but not saved to NVRAM.
NOTHING TO SAVE	The SAVE command was executed, but nothing was saved to NVRAM.

Display Fields
Display fields cannot be edited. These fields may display information that never changes, or information that may change as a result of Local Management operations, user selections and configurations, or network monitoring information. In the screens shown in this guide, the characters in the display fields are in plain type (not bold). In the field description, the field is identified as being "read-only".

Input Fields
Input Fields require the entry of keyboard characters. IP addresses, subnet mask, default gateway and device time are examples of input fields. In the screens shown in this guide, the characters in the input fields are in bold type. In the field description, the field is identified as being "modifiable".

Selection/Toggle Fields
Selection/Toggle fields provide a series of possible values. Only applicable values appear in a selection field. In the screens shown in this guide, the selections display within brackets and in bold type. In the field description, the field is identified as being either "selectable" when there are more than two possible values, or "toggle" when there are only two possible values.

Command Fields
Command fields are located at the bottom of Local Management screens. Command fields are used to exit Local Management screens, save Local Management entries, or navigate to another display of the same screen. In the screens shown in this guide, the characters in this field are all upper case and in bold type. In the field description, the field is identified as being a "command" field.

3.1.2 Local Management Keyboard Conventions

All key names appear in this manual as capital letters. For example, the Enter key appears as ENTER and the Backspace key appears as BACKSPACE. Table 3-2 explains the keyboard conventions used in this manual as well as the key functions.

Table 3-2 Keyboard Conventions

Key	Function
ENTER Key and RETURN Key	These are selection keys that perform the same Local Management function. For example, "Press ENTER" means that you can press either ENTER or RETURN, unless this manual specifically instructs you otherwise.
SPACE Bar and BACKSPACE Key	These keys cycle through selections in some Local Management fields. Use the SPACE bar to cycle forward through selections and use the BACKSPACE key to cycle backward through selections.
Arrow Keys	These are navigation keys. Use the UP-ARROW, DOWN-ARROW, LEFT-ARROW, and RIGHT-ARROW keys to move the screen cursor. For example, "Use the arrow keys" means to press whichever arrow key moves the cursor to the desired field on the Local Management screen.

3.1.3 Navigating Local Management Screens

The VHSIM2-A6DP Local Management application consists of a series of menu screens. Navigate through Local Management by selecting items from the menu screens. Figure 3-2 shows the hierarchy of the VHSIM2-A6DP Local Management screens.

Figure 3-2   VHSIM2-A6DP Local Management Screen Hierarchy
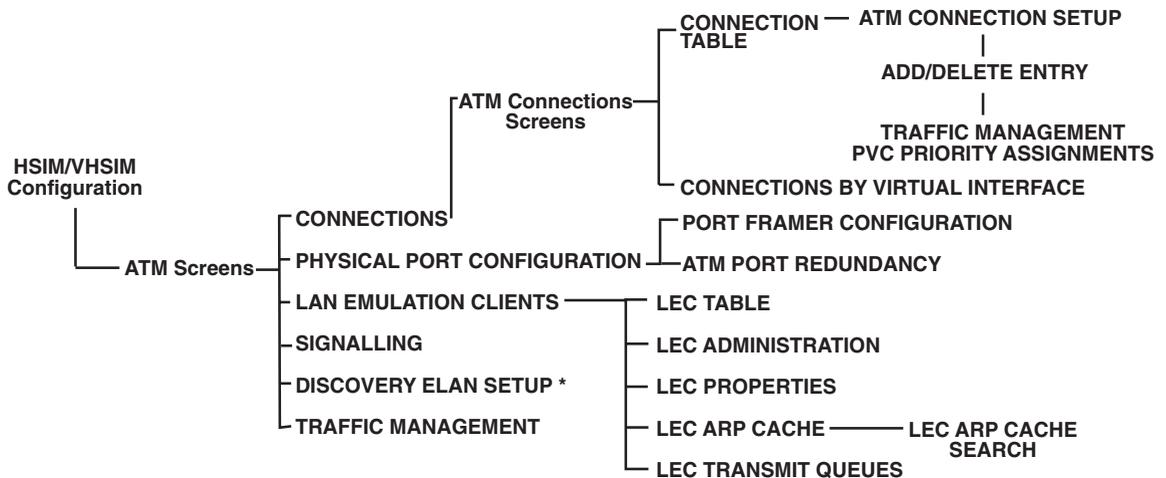
* The Discovery ELAN Setup Menu item will display only if the host device has been set to operate as a SecureFast switch.

28251_09

3.1.3.1 Selecting Local Management Menu Screen Items

Select items on a menu screen by performing the following steps:

1. Use the arrow keys to highlight a menu item.

2. Press ENTER. The selected Local Management screen displays.

3.1.3.2 **Exiting Local Management Screens**

There are two ways to exit Local Management (LM).

Using the EXIT Command

To exit an LM screen using the **EXIT** command, proceed as follows:

1. Use the arrow keys to highlight the **EXIT** command at the bottom of the Local Management screen.

2. Press ENTER. The Password screen displays and the session ends.

Using the RETURN Command

1. Use the arrow keys to highlight the **RETURN** command at the bottom of the Local Management screen.

2. Press ENTER. The previous screen in the Local Management hierarchy displays.

> **NOTE:** The user can also exit Local Management screens by pressing ESC twice. This exit method does not warn about unsaved changes and all unsaved changes will be lost.

3. Exit from VHSIM2-A6DP Local Management by repeating steps 1 and 2 until the Main Menu screen displays.

4. Use the arrow keys to highlight the **RETURN** command at the bottom of the Main Menu screen.

5. Press ENTER. The Password screen displays and the session ends.

3.2   ACCESSING THE VHSIM2-A6DP ATM SCREEN

To access the VHSIM2-A6DP ATM screen in a standalone device (e.g., 2E42-27), navigate through the Local Management screens until the High Speed Configuration screen displays. Select **VHSIM2-A6DP CONFIGURATION** from the High Speed Configuration screen and press ENTER. The VHSIM2-A6DP ATM screen displays. See Figure 3-3.

To access the VHSIM2-A6DP ATM screen from an interface module (e.g., 6E132-25) navigate through the Local Management screens until the Module Specific Configuration Menu screen displays. Select **HIGH SPEED CONFIGURATION** from the Module Specific Menu screen and press ENTER. The VHSIM2-A6DP ATM screen displays. See Figure 3-3.

Figure 3-3   VHSIM2-A6DP ATM Screen


```
                    CONNECTIONS

                    PHYSICAL PORT CONFIGURATION

                    LAN EMULATION CLIENTS

                    SIGNALLING

                    TRAFFIC MANAGEMENT

                    DISCOVERY ELAN SETUP




              EXIT                          RETURN
```

28251_10
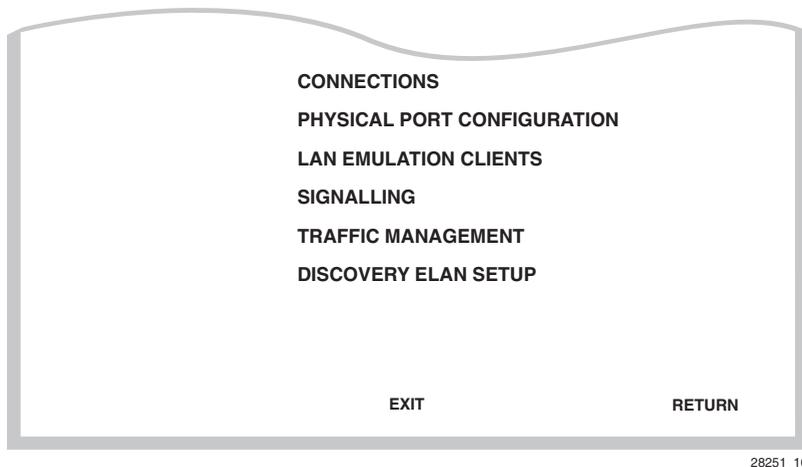
The VHSIM2-A6DP ATM screen displays up to six menu items for configuration and monitoring of the VHSIM2-A6DP. The following list explains each of the VHSIM2-A6DP ATM screen fields:

CONNECTIONS

This menu item opens the ATM Connections screen. This menu screen is used to view the current configured virtual connections (PVCs and SVCs) of the VHSIM2-A6DP and to view the ATM connections by virtual interface. The ATM Connections screen provides access to the Traffic Management PVC Priority Assignments or the Add/Delete Entry screen, depending on the operational mode of the device. These screens are used to add, modify, or delete PVCs. When the operational mode of the device is set to 802.1Q, the Traffic Management PVC Priority Assignments screen displays. When the operational mode of the device is set to SecureFast, the Add/Delete Entry screen displays. For details, refer to Section 3.3.

NOTE: The **Add/Delete Entry** screen will display only if the host device has been set to operate as a SecureFast switch. Refer to the Local Management chapter of the host device for instructions on configuring the host device for this type of operation.

PHYSICAL PORT CONFIGURATION

This menu item displays the Physical Port Configuration Menu screen. This screen provides two menu items that allow the user to configure the physical ports of the VHSIM2-A6DP. For details, refer to Section 3.8.

LAN EMULATION CLIENTS

This menu item displays the ATM LEC screen. This screen contains multiple options for performing tasks related to the creation and maintenance of LAN Emulation Clients (LECs) and Emulated LANs (ELANs). For details, refer to Section 3.11.

SIGNALLING

This menu item opens the Signalling screen. This screen is used to view the current version of User-Network Interface (UNI) being used by the VHSIM2-A6DP, the current state of the Integrated Local Management Interface (ILMI) and provides the options of restarting the UNI and the ILMI. For details, refer to Section 3.17.

TRAFFIC MANAGEMENT

This menu item opens the Traffic Management Descriptor Profiles screen. This screen is used to create a new traffic descriptor, give it a name, select a traffic category, and designate the traffic rate for the new traffic descriptor. For details, refer to Section 3.18.

NOTE: The **DISCOVERY ELAN SETUP** menu item will display only if the host device has been set to operate as a SecureFast switch. Refer to the Local Management chapter of the host device for instructions on configuring the host device for this type of operation.

DISCOVERY ELAN SETUP

This menu item opens the Discovery ELAN Setup screen, only when the operational mode is set to SecureFast. This screen is used to enable or disable the default ELAN that is created when the VHSIM2-A6DP is first initialized in SecureFast mode. This screen also is used to enable or disable any additional discovery ELANs (up to 16) that the VHSIM2-A6DP will belong to on the SecureFast network. For details, refer to Section 3.19.

3.3 ATM CONNECTIONS SCREEN

The ATM Connections screen allows the user to open the ATM Connections Setup screen, and the ATM Connection Setup by Virtual Interface screen.

To access the ATM Connections screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **CONNECTIONS** menu item of the VHSIM2-A6DP ATM screen.

2. Press ENTER, the ATM Connections screen, Figure 3-4, displays.

Figure 3-4   ATM Connections Screen


```
                    CONNECTION TABLE

                    CONNECTIONS BY VIRTUAL INTERFACE




        SAVE                   EXIT                   RETURN
```
2825_11
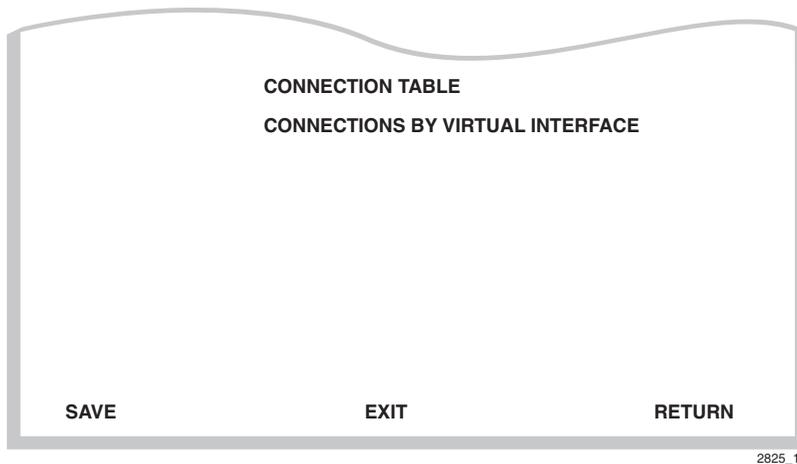
The following list explains each of the ATM Connections screen fields:

CONNECTION TABLE
This menu item opens the ATM Connection Setup screen. This screen is used to view all current ATM connections. This screen also provides access to the Traffic Management PVC Priority Assignments and the Add/Delete Entry screens, which allow the user to create, modify, or delete PVCs. The Traffic Management PVC Priority Assignments screen is only available when the device is configured for 802.1Q. The Add/Delete Entry screen is only available when the device is configured for SecureFast. For the ATM Connection Setup screen, refer to Section 3.4.

> **NOTE:** The **Add/Delete Entry** screen will display only if the host device has been set to operate as a SecureFast switch. Refer to the Local Management chapter of the host device for instructions on configuring the host device for this type of operation.

CONNECTIONS BY VIRTUAL INTERFACE

This menu item, when selected, opens the ATM Connection Setup by Virtual Interface screen. This screen is used to view all current connections (PVCs and SVCs) on an interface-by-interface basis. Refer to Section 3.7.

3.4   ATM CONNECTION SETUP SCREEN

The ATM Connection Setup screen is used to view the current configured virtual connections, (PVCs and SVCs) on the VHSIM2-A6DP. This screen also allows the user to access the Add/Delete Entry screen, which is used to create, modify, or delete PVCs.

To access the ATM Connection Setup screen from the ATM Connections screen, perform the following steps:

1. Use the arrow keys to highlight the **CONNECTION TABLE** menu item on the ATM Connections screen.

2. Press ENTER. The ATM Connection Setup screen, Figure 3-5, displays.

Figure 3-5   ATM Connection Setup Screen

```
 Total Bandwidth Available: 155 Mbps
 ATM Port Current Connections: 30                                    [Page 1 of 4]

                                                        TRAFFIC
 IF   PORT VPI   VCI   Encapsulation Type  ATM Address (ESI)  CATEGORY  RATE    INDEX
 25    0    0     5    UNI                                    UBR       155 Mbs   1
 25    0    0    16    ILMI                                   UBR       155 Mbs   1
 31    1    0    25    LANE Control        00-00-1D-XX-XX-XX  UBR       155 Mbs   1
 32    1    0    26    LANE Control        00-00-1D-XX-XX-XX  UBR       155 Mbs   1
 34    1    0   998    LANE Control        00-00-1D-XX-XX-XX  UBR       155 Mbs   1
 36    1    0   999    LANE Control        00-00-1D-XX-XX-XX  UBR       155 Mbs   1
 38    1    0  1000    LANE Control        00-00-1D-XX-XX-XX  UBR       155 Mbs   1
 40    1    0  1001    VC Mux 802.3 Bdg    00-00-1D-XX-XX-XX  UBR       155 Mbs   1


      ADD/DELETE      PREVIOUS  NEXT           EXIT               RETURN
```

28252_12

NOTE: The first two connections shown in Figure 3-5 (with VPI, VCI values of 0, 5 and 0, 16 respectively) represent UNI and ILMI. These two connections, even if they are disabled in the Signalling screen (Section 3.17), will always display on the ATM Connection Setup screen.

The following list explains each of the ATM Connection Setup screen fields:

Total Bandwidth Available (Read-Only)

Shows the resources the current APIM has available for the assignment of PVCs and their associated traffic descriptors. If there are no PVCs configured, the maximum bandwidth the active APIM supports is displayed. For example, an APIM-21 will display 155 Mbps. As PVCs with traffic descriptors are assigned, their rate is subtracted from the total.

ATM Port Current Connections (Read-Only)

Displays the number of current connections on the VHSIM2-A6DP.

IF (Read-Only)

Represents the virtual MIB-II interface on which this Virtual Channel (VC) was created. This field can represent both Switched Virtual Channels (SVCs), and Permanent Virtual Channels (PVCs). These virtual MIB-II interfaces will also display on the Switch Configuration screen of the host device. If the status of a PVC is down, an asterisk (*) appears to the left of the IF field next to the PVC that is down, and the message "* Operational Status for the indicated connection(s) is 'down'." will appear at the bottom of the screen.

PORT (Read-Only)

Displays the application port on which the PVC or SVC resides. Once a PVC is created, it is dynamically assigned a switch port number. This port number then may be assigned to an 802.1Q or SecureFast VLAN, depending on the operational mode of the host device. If this connection is an SVC, the switch port number is assigned to the LEC to which this SVC belongs. The UNI and ILMI connections will display "0".

VPI (Read-Only)

Displays the Virtual Path Identifier of the connection. This field reads 0 or 1 (currently, only 0 and 1 are supported).

VCI (Read-Only)

Displays the Virtual Channel Identifier of the connection. This field reads between 32 and 4095.

Encapsulation Type (Read-Only)

Displays the type of Encapsulation being used to switch Ethernet frames to ATM cells. The three possible options for this field are as follows:

- **LANE -** VC Based Multiplexed 802.3 LAN Emulation. This method is specified by the ATM Forum LAN Emulation specification. This option is available for SVCs only.

- **VC Mux 802.3 Bdg -** VC Based Multiplexing for Bridged Protocols as defined by the IETF RFC 1483. This encapsulation type is for PVCs only.

- **LLC Encapsulated -** Logical Link Control for Bridged Protocols as defined by the IETF RFC 1483. This encapsulation type is for PVCs only.

> **NOTE:** UNI, ILMI and SecureFast connections display the following values in the Encapsulation Type field:
>
> UNI (User to Network Interface)
>
> ILMI (Integrated Local Management Interface)
>
> ATM VC SVC APP (SecureFast network connections)

ATM Address (ESI) (Read-Only)
Displays the MAC Address of the device to which the SVC or PVC is currently connected (End System Indentifier). This identifies the devices with which the VHSIM2-A6DP is currently communicating. The UNI and ILMI connections will not display any value in this field.

Traffic Category (Read-Only)
Displays the traffic category of the assigned index.

Rate (Read-Only)
Displays the traffic rate of of the assigned index, rounded to Mbps.

Index (Read-Only)
Displays the traffic index assigned to each specific PVC.

ADD/DELETE (Command)
Used to provide access to the Traffic Management PVC Priority Assignments or the Add/Delete Entry screens, which are used to add, modify, or delete PVCs. If the device is in 802.1Q operational mode, the Traffic Management PVC Priority Assignments screen will display when the ADD/DELETE key is pressed. To access this screen, refer to Section 3.6. If the device is in SecureFast mode, the Add/Delete Entry screen will display when the ADD/DELETE key is pressed. To access this screen, refer to Section 3.6.

PREVIOUS (Command)
Used to scroll to the previous screen. To go to the previous screen use the arrow keys to highlight the **PREVIOUS** command and press ENTER. The previous screen of current connections displays.

NEXT (Command)
Used to scroll to the next screen if the VHSIM2-A6DP has more connections than can fit on the first screen. To go to the next screen use the arrow keys to highlight the **NEXT** command and press ENTER. The next screen of current connections displays.

3.5   TRAFFIC MANAGEMENT PVC PRIORITY ASSIGNMENTS

The **Traffic Management PVC Priority Assignments** screen is only accessible if the operational mode of the board is 802.1Q Switching. If the board is in SecureFast mode, the Add/Delete Entry screen used for configuring PVCs will be displayed, instead of the Traffic Management PVC Priority Assignments screen.

The Traffic Management PVC Priority Assignments screen allows up to eight VPI, VCI, Traffic descriptor groups to be assigned to one Virtual Port when the board is in 802.1Q SWITCHING MODE. Each of the VPI, VCI, Traffic descriptor groups in the Virtual Port will be assigned to a specific virtual queue. If the board is in SecureFast mode, the user will be limited to creating only one PVC per Virtual Port.

To enter the Traffic Management PVC Priority Assignments screen, go to the **CONNECTION TABLE** screen (**ATM CONNECTION SETUP** screen) and choose the **ADD/DELETE** option.

The Traffic Management PVC Priority Assignments Screen displays. See Figure 3-6.

Figure 3-6   Traffic Management PVC Priority Assignments Screen


```
                          PVC Vport:  [ NEW VPORT: 32 ]
             Number of Virtual Queues: [ 1 ]
                           AAL Type: [ 5 ]
                   Encapsulation Type: [ VC Mux 802.3 Bdg ]

      Virtual                   Profile   Profile              Traffic
      Queue     VPI   VCI       Index     Name                 Category
        0                        [ 1 ]    Default UBR descriptor   UBR



        SAVE                                        EXIT    RETURN
```
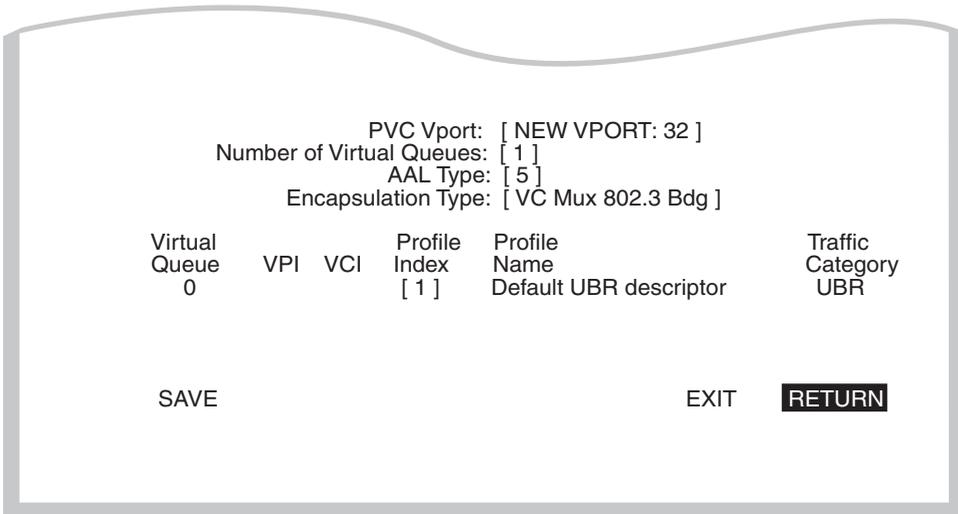
28251_39

PVC Vport (Modifiable)

Automatically displays the next available PVC Vport (Virtual Port) for configuration. This field displays the first unconfigured Virtual Port on the device as the default. The first unconfigured Virtual Port is always displayed as "NEW VPORT:n", where n is the next available Virtual Port. There is only one Virtual Port accessible at any one time. Once this Virtual Port is configured, the next unconfigured Virtual Port is displayed. Using the SPACE bar or BACKSPACE keys will show currently configured Virtual Ports.

Number of Virtual Queues (Modifiable)

Up to 8 virtual queues per Virtual Port (virtual queue 0 - 7) can be listed. The default number of virtual queues per Virtual Port is 1. The number of queues may be changed by using the SPACE bar, BACKSPACE key, or typing the number of queues desired. If a value entered is larger than the number of queues supported on the platform, then a message stating the total number of queues supported is displayed across the top of the screen, and the previously displayed queue count is re-displayed. As the number of virtual queues is increased or decreased, it will cause the display in the table below to change accordingly. The field is one based for the users' ease of reference, but the number of queues displayed in the table are zero based. For example, if the user is on a new Virtual Port and enters 3 into the number of virtual queue field, virtual queues 0-2 will appear in the table.

AAL Type (Read-Only)

Displays the ATM Adaptation Layer (AAL) being used by the PVC. The VHSIM2-A6DP only supports AAL Type 5 (AAL 5).

Encapsulation Type (Toggle)

Displays the type of data encapsulation that the VHSIM2-A6DP can use to perform LAN to ATM translation. This field toggles between the following options:

- **VC Mux 802.3 Bdg -** VC Based Multiplexing for Bridged Protocols as defined by the IETF RFC 1483.

- **LLC Encapsulated -** Logical Link Control for Bridged Protocols as defined by the IETF RFC 1483.

Encapsulation is set per Virtual Port on this screen. All PVCs on a particular Virtual Port must have the same type of encapsulation.

Virtual Queue (Read-Only)

Displays the virtual queues for logical ports. It is zero based like the Ethernet 802.1p Configuration screens. For example, if 8 is selected in the number of virtual queues fields, then virtual queues 0 - 7 will be displayed. The default value is 1, to display 1 virtual queue.

VPI (Modifiable)
Used to enter the Virtual Path Identifier of the PVC. The available choice for this field is 0 or 1.

VCI (Modifiable)
Used to enter the Virtual Channel Identifier of the PVC. The available range for this field is 32 through 4095. If an entered VCI value is reserved or out of range, the appropriate message will be displayed. If the VCI field is left blank, then an error message will display which states the VCI is out of range.

> **NOTE:** The user must configure one VPI, VCI field per virtual queue displayed. VPIs and VCIs must be unique to the physical port.

Profile Index (Modifiable)
Displays the profile index number of the preconfigured default traffic descriptors (1 - 9) and any user configured traffic descriptors. Traffic descriptors are assigned in the Traffic Management screen. This field initially displays a default value of 1 for the default UBR descriptor.

Profile Name (Read-Only)
The user-defined profile name corresponding to the selected profile index number is displayed.

Traffic Category (Read-Only)
The traffic category corresponding to the selected profile index number is displayed.

SAVE (Command)
Used to save a newly configured Virtual Port or to make modifications to a previously saved Virtual Port. Using SAVE causes the Virtual Port to first be deleted, if it previously existed, then recreated with the values displayed on the screen. Once the SAVE is completed a message stating the result will be displayed. If the Virtual Port was created successfully, the message "VPort HAS BEEN CREATED" will be displayed momentarily, and the next unconfigured (NEW VPORT) will be displayed. If the Virtual Port could not be created then an appropriate message will be displayed.

DELETE (Command)
This option only appears if a Virtual Port has been previously configured. This command deletes the displayed PVC Vport from the VHSIM2-A6DP connection table. Use the SPACE bar or the BACKSPACE key to step through existing Virtual Ports.

3.5.1   Adding Traffic Management PVC Priority Assignments

To add an entry to the PVC Priority Assignments, perform the following steps:

1. Use the arrow keys to highlight the **PVC Vport field**. Choose the PVC Vport desired by either pressing the SPACE bar, the BACKSPACE key, or by entering the number of the Virtual Port you wish to display. Press ENTER to continue to the next field.

> **NOTE:** Only an existing Virtual Port can be chosen for modification. If creating a new Virtual Port, the user can only configure the current "New Vport:N" displayed. A user can not select a vport # for a new vport.

2. Use the arrow keys to highlight the **Number of Virtual Queues** field. Use the SPACE bar, BACKSPACE key, or type the number of queues desired. The user will have the option of creating up to 8 virtual queues per Virtual Port (virtual queue 0 - 7). If the user enters a value larger than the number of queues supported on the platform then a message stating the number of queues supported is displayed across the top of the screen, and the previously displayed queue count is re-displayed. As the number of virtual queues is increased or decreased, it will cause the number of queues displayed in the table below to change accordingly. The field is one based for the users ease of reference, but the number of queues displayed in the table and in the mib are zero based. For example, if the user is on a new Virtual Port and enters 3 into the number of virtual queue field, virtual queues 0-2 will appear in the table below with no PVCs configured and default profile indexes of 1 for each queue.

3. The AAL Type field may be skipped over with no change. It will always be 5.

4. Use the arrow keys to highlight the **Encapsulation Type** field and press the SPACE bar to toggle to the appropriate Encapsulation Type. Either VC Mux 802.3 Bdg or LLC Encapsulated can be chosen.

> **NOTE:** Since encapsulation is set per Virtual Port, all PVCs on a particular Virtual Port must have the same type of encapsulation.

5. Use the arrow keys to highlight the **VPI** field and enter 0 or 1, or an error message will be displayed. If the VPI field is left blank, it defaults to the value of zero.

6. Use the arrow keys to highlight the **VCI** field. Use the numeric keys to enter a VCI value from 32 through 4095. If a VCI value is entered which is out of range, reserved, or the field is left blank, the appropriate message will be displayed when the field is exited. If the VCI field is left blank, it defaults to zero, a reserved value.

> **NOTE:** The VCI values 0 through 31 are reserved for ATM Forum use only.

7. Use the arrow keys to highlight the **Profile Index** field. Use the SPACE bar or the BACKSPACE key, or enter a valid profile index number to change the field. One profile index can be set for each virtual queue, VPI, VCI group. Any profile indexes which are accessible from the TRAFFIC MANAGEMENT screen can be utilized. If the user tries to save a Virtual Port which has a traffic descriptor configured that has a traffic rate of zero, an error message will be shown stating the index has a rate of zero and that the Virtual Port was not created.

8. Use the arrow keys to highlight the SAVE command. Press ENTER. The message "VPORT HAS BEEN CREATED" appears at the top of the screen indicating that Local Management has added the Virtual Port. If there are problems creating the Virtual Port, the error message may contain details.

If all the available Virtual Ports are configured (128 total), a message will be displayed across the top of the screen stating there are no more unconfigured Virtual Ports, and the first configured Virtual Port will be displayed.

> **NOTE:** With the firmware revision shipped with this VHSIM2-A6DP, and previous versions as noted in their Release Notes, all Virtual Ports and their associated PVCs are stored in NVRAM, so will not be lost if the board is powered down or reset (either a hard or soft reset).

3.5.2   Modifying an Entry (Vport)

To modify an existing entry (Vport), perform the following steps:

1.   Use the arrow keys to highlight the **PVC VPort** field.

2.   Select the VPport value of the existing PVC to be modified.

3.   Use the arrow keys to highlight any of the other field(s), and modify the field(s) as in the above procedure (Section 3.5.1) as desired.

4.   Use the arrow keys to select the SAVE command.

5.   Press ENTER. The message "VPORT HAS BEEN CREATED" displays at the top of the screen indicating that Local Management has modified the Virtual Port. This procedure causes the whole Virtual Port to first be deleted and then re-created to the specifications entered on the screen.

3.5.3   Deleting an Entry (Vport)

To delete an entry (Vport), perform the following steps:

1.   Use the arrow keys to highlight the **PVC Vport** field, and enter the number of the existing Virtual Port to be deleted.

> **NOTE:** The DELETE command appears only if a valid Virtual Port has been entered in the PVC Vport field. When a previously configured Virtual Port is displayed the DELETE option will appear at the bottom of the screen. The DELETE option allows the user to DELETE the entire Virtual Port only.

2.   Use the arrow keys to select the DELETE command.

3.   Press ENTER. The message "VPORT HAS BEEN DELETED" displays at the top of the screen indicating that Local Management has deleted the Virtual Port.

3.5.4   Traffic Management PVC Priority Assignments Screen Example

Figure 3-7   Example Traffic Management PVC Priority Assignments Screen

```
                              PVC Vport:  [ 3 ]
                  Number of Virtual Queues:  [ 3 ]
                              AAL Type:  [ 5 ]
                     Encapsulation Type:  [ VC Mux 802.3 Bdg ]

        Virtual                  Profile    Profile                      Traffic
        Queue      VPI   VCI     Index      Name                         Category
          0         0    50      [  1 ]     Default UBR descriptor        UBR
          1         0    51      [ 33 ]     CBR 10 Meg                    CBR
          2         0    52      [ 3 4 ]    CBR 15 Meg                    CBR


        SAVE      DELETE                          EXIT           RETURN
```
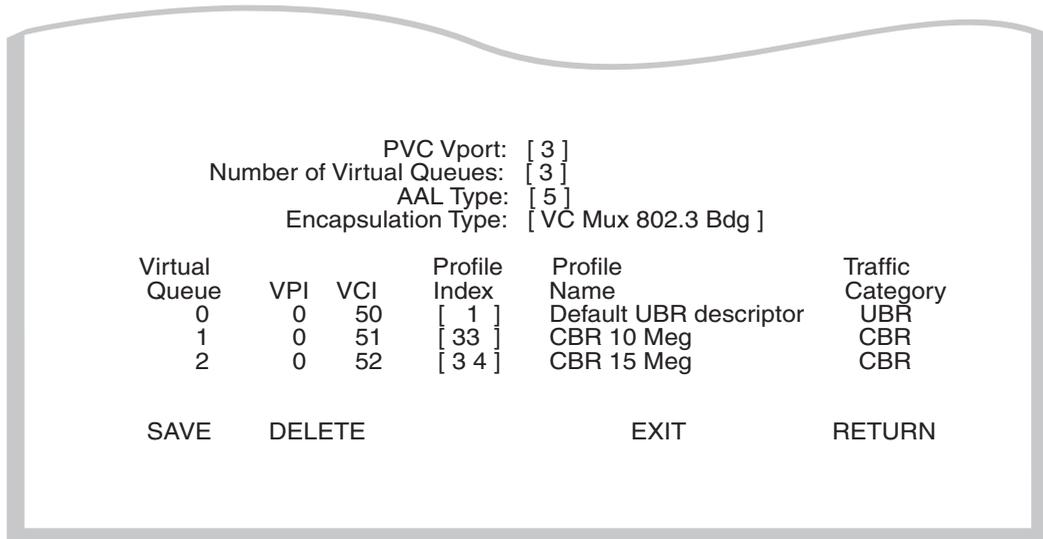
28251_36

The user has two boards connected to an ATM switch and each configured as above. The ATM switch is configured properly for all three PVCs. A server is in board A and a client in board B. Traffic will traverse between the two boards according to the rules defined in the 802.1P Priority Transmit Queue Mapping table. If the client server traffic is assigned to have a priority of 1 on each board, then the traffic between the client and server will traverse between the two boards on the PVC 0,50. If the client server traffic had been configured on each board to have a priority of 6 associated with it then all traffic between the client and server would be going across the ATM cloud on PVC 0,52.

The statistics this traffic creates will appear on the INTERFACE STATISTICS screen as well as the SWITCH STATISICS screen displayed as interface 32. The statistics shown will however be a combined total of all of the PVCs configured for the interface (Virtual Port) displayed, not for a specific PVC on that Virtual Port.

3.6   ADD/DELETE ENTRY SCREEN

The Add/Delete Entry screen is used to create, modify, or delete PVCs.

> **NOTE:** The **Add/Delete Entry** screen will display only if the host device has been set to operate as a SecureFast switch with the VHSIM2-A6DP installed. Refer to the Local Management chapter of the host device for instructions on configuring the host device for this type of operation.

To access the Add/Delete Entry screen from the ATM Connection Setup screen perform the following steps:

1. Use the arrow keys to highlight the **ADD/DELETE** command at the bottom of the ATM Connection Setup screen.

2. Press ENTER, the Add/Delete Entry screen, Figure 3-8, displays.

Figure 3-8   Add/Delete Entry Screen


```
    VPI   VCI   AAL Type        Encapsulation Type

     0     0     [ 5 ]          [VC Mux 802.3 Bdg]




            ADD/MODIFY                      EXIT        RETURN
```

The following list explains each Add/Delete Entry screen field:

VPI (Modifiable)
Used to enter the Virtual Path Identifier of the PVC. The available range for this field is 0 or 1, with a default value of 0.

VCI (Modifiable)
Used to enter the Virtual Channel Identifier of the PVC. The available range for this field is 32 through 1019.

AAL Type (Read-Only)

Displays the ATM Adaptation Layer (AAL) being used by the PVC. The VHSIM2-A6DP uses AAL 5.

Encapsulation Type (Toggle)

Displays the type of data encapsulation that the VHSIM2-A6DP will use to perform LAN to ATM translation. This field toggles between the following options:

- **VC Mux 802.3 Bdg -** VC Based Multiplexing for Bridged Protocols as defined by the IETF RFC 1483.

- **LLC Encapsulated -** Logical Link Control for Bridged Protocols as defined by the IETF RFC 1483.

Traffic Profile Index (Selectable)

Used to enter the profile index number to be added to the PVC. The descriptor profile is displayed next to it.

Total Bandwidth Available (Read-Only)

Shows the resources the current APIM has available for the assignment of PVCs and their associated traffic descriptors. If there are no PVCs configured, the maximum bandwidth the active APIM supports is displayed. For example, an APIM-21 will display 155 Mbps. As PVCs with traffic descriptors are assigned, their rate is subtracted from the total.

ADD/MODIFY (Command)

Used to add the PVC, or the modified PVC, to the VHSIM2-A6DP connection table. The command is only available if a PVC has been entered.

DELETE (Command)

Displays only if a valid VPI/VCI pair of an existing PVC has been entered in the respective fields of the Add/Delete Entry screen. This command deletes the PVC from the VHSIM2-A6DP connection table.

3.6.1   Adding an Entry (PVC)

To add an entry (PVC), perform the following steps:

1. Use the arrow keys to highlight the **VPI** field and enter 0 or 1.

> **NOTE:** The VCI values 0 through 31 are reserved for ATM Forum use only.

2. Use the arrow keys to highlight the **VCI** field and enter a VCI value from 32 to 4095.

3. Use the arrow keys to highlight the **Encapsulation Type** field and press the SPACE bar until the appropriate Encapsulation Type displays.

4. Use the arrow keys to highlight the **ADD/MODIFY** command.

5. Press ENTER. The "PVC HAS BEEN CREATED" message appears at the top of the screen indicating that Local Management has added the PVC.

3.6.2   Modifying an Entry (PVC)

To modify an existing entry (PVC), perform the following steps:

1. Use the arrow keys to highlight the **VPI** field, and enter the VPI value of the existing PVC to be modified.

2. Use the arrow keys to highlight the **VCI** field, and enter the VCI value of the existing PVC to be modified.

3. Use the arrow keys to highlight the **Encapsulation Type** field and press the SPACE bar until the appropriate Encapsulation Type displays.

4. Use the arrow keys to select the **ADD/MODIFY** command.

5. Press ENTER. The "PVC HAS BEEN CREATED " message displays at the top of the screen indicating that Local Management has modified the PVC.

3.6.3   Deleting an Entry (PVC)

To delete an entry (PVC), perform the following steps:

1. Use the arrow keys to highlight the **VPI** field and enter the VPI.

2. Use the arrow keys to highlight the **VCI** field and enter the VCI.

> **NOTE:** The **DELETE** command appears only if a valid VPI and VCI of an existing PVC has been entered in their respective fields.

3. Use the arrow keys to highlight the **DELETE** command.

4. Press ENTER. The "PVC DELETED" message displays at the top of the screen indicating that Local Management has deleted the PVC.

3.7   ATM CONNECTION SETUP BY VIRTUAL INTERFACE SCREEN

The ATM Connection Setup by Virtual Interface screen is used to view all current connections for each LAN Emulation Client (LEC) that has been configured on the VHSIM2-A6DP on a LEC-by-LEC basis. This screen will also display PVCs that have been set up on the VHSIM2-A6DP. PVCs will display one at a time in Secure Fast Mode, because they are considered individual Virtual Interfaces. However, the PVCs will be displayed grouped by interface number in the 802.1Q mode.

To access the ATM Connection Setup By Virtual Interface screen, perform the following steps:

1. Use the arrow keys to highlight the **CONNECTIONS BY VIRTUAL INTERFACE** menu item on the ATM Connections screen.

2. Press ENTER. The ATM Connection Setup By Virtual Interface screen, Figure 3-9, displays.

Figure 3-9   ATM Connection Setup By Virtual Interface Screen
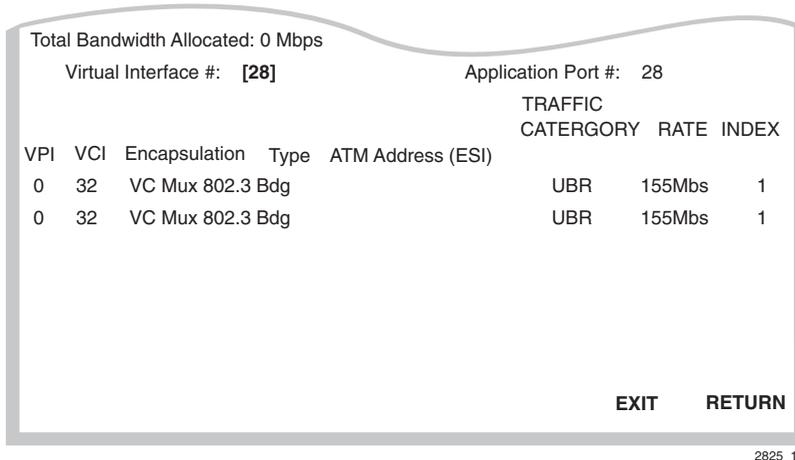
```
Total Bandwidth Allocated: 0 Mbps
    Virtual Interface #:   [28]              Application Port #:   28
                                             TRAFFIC
                                             CATERGORY   RATE  INDEX
VPI  VCI  Encapsulation   Type  ATM Address (ESI)
 0   32   VC Mux 802.3 Bdg                      UBR      155Mbs    1
 0   32   VC Mux 802.3 Bdg                      UBR      155Mbs    1




                                             EXIT      RETURN
```
2825_14

The following list explains each of the ATM Connection Setup By Virtual Interface screen fields:

Total Bandwidth Allocated (Read-Only)
Shows the resources the current APIM has available for the assignment of PVCs and their associated traffic descriptors. If there are no PVCs configured, the maximum bandwidth that the active APIM supports is displayed. For example, an APIM-21 will display 155 Mbps. As PVCs with traffic descriptors are assigned, their rate is subtracted from the total.

Virtual Interface # (Selectable)

Displays the virtual interface number that this LEC or PVC has been assigned by the VHSIM2-A6DP. Each LEC and PVC configured on the VHSIM2-A6DP is automatically assigned a virtual interface number once the LEC or PVC is activated by Local/Remote Management. In SecureFast mode, each LEC and PVC is an entry in the MIB-II interface table. In 802.1Q mode, each port is an entry in the MIB-II interface table. Section 3.13 provides instructions on creating LECs via Local Management. Section 3.6 provides instructions on creating PVCs via Local Management.

> **NOTE:** Section 3.4 also provides instructions on how to view all PVCs that have been created via Local/Remote Management.
>
> The Virtual Interface # and Application Port # fields may be assigned the same value, but the two fields are unrelated.

Application Port # (Read-only)

Displays the application port number that this interface has been assigned by the VHSIM2-A6DP. Each interface configured on the VHSIM2-A6DP is automatically assigned an application port number once the connection is activated by Local/Remote Management. Section 3.13 provides instructions on creating LECs using Local Management.

VPI (Read-only)

Displays the VPI of each connection that this interface is currently supporting.

VCI (Read-only)

Displays the VCI of each connection that this interface is currently supporting.

Encapsulation Type (Read-only)

Displays the type of data encapsulation chosen for the displayed VCI.

ATM Address (ESI) (Read-only)

Displays the MAC Address of the device to which the SVC or PVC is currently connected (End System Indentifier). This identifies the devices with which the VHSIM2-A6DP is currently communicating. The UNI and ILMI connections will not display any value in this field.

Traffic Category (Read-Only)

Displays the traffic category of the assigned index.

Rate (Read-Only)

Displays the traffic rate of of the assigned index, rounded to Mbps.

Index (Read-Only)
Displays the traffic index assigned to each specific PVC.

NEXT (Command)
Allows the user to view the next page of information for the current virtual interface, if there are more lines of connection information than will fit on the screen.

PREV (Command)
Allows the user to view the previous page of information for the current virtual interface, if there are more lines of connection information than will fit on the screen.

3.7.1   Selecting a Virtual Interface

To specify which virtual interface to jump to, proceed as follows:

NOTE: Refer to the following sections to identify the virtual interface number that has been assigned to each PVC and LEC respectively:

For PVCs, refer to Section 3.3.

For LECs, refer to Section 3.12.

1. Use the arrow keys to highlight the **Virtual Interface #:** field.

2. Using the number keys, enter the number of the virtual interface.

NOTE: The user may also press the SPACE bar or BACKSPACE key to scroll through the virtual interfaces one at a time.

3. Press ENTER. All current connections for that virtual interface display on the screen.

3.8 PHYSICAL PORT CONFIGURATION MENU SCREEN

The Physical Port Configuration Menu screen contains two menu items that allow the user to access the Port Framer Configuration screen and the ATM Port Redundancy Configuration screen.

To access the Physical Port Configuration Menu screen, perform the following steps:

1. Use the arrow keys to highlight the **PHYSICAL PORT CONFIGURATION** menu item from the ATM Screen.

2. Press ENTER. The Physical Port Configuration Menu screen, Figure 3-10, displays.

Figure 3-10   Physical Port Configuration Menu Screen
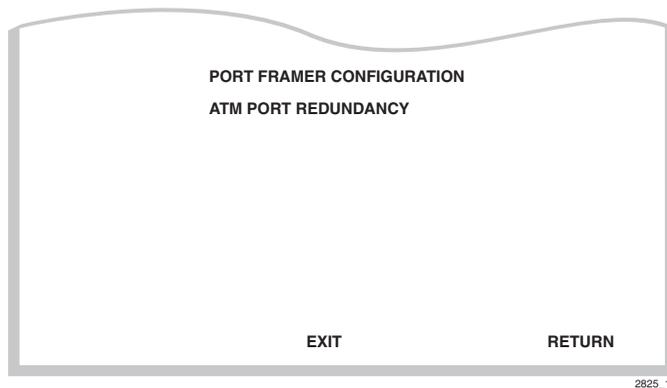
The following list explains each of the Physical Port Configuration Menu screen fields:

PORT FRAMER CONFIGURATION
This menu item opens the Port Framer Configuration Screen. This screen is used to enable or disable ATM statistics and alarms, and to specify, if applicable, the transmission type of the APIM. For details, refer to Section 3.9.

ATM PORT REDUNDANCY
This menu item opens the ATM Port Redundancy Configuration screen. This screen is used to configure the APIMs for redundancy in the event the primary APIM becomes disabled. For details, refer to Section 3.10.

3.9   PORT FRAMER CONFIGURATION SCREEN

The Port Framer Configuration screen is used to enable or disable ATM statistics and alarms, and to specify, if applicable, the transmission type that the APIM will use (SONET or SDH). The Port Framer Configuration screen allows these configurations to be performed on both the primary and redundant APIMs.

To access the Port Framer Configuration screen, perform the following steps:

1. Use the arrow keys to highlight the **PORT FRAMER CONFIGURATION** menu item from the Physical Port Configuration Menu screen.

2. Press ENTER. The Port Framer Configuration screen, Figure 3-11, displays.

Figure 3-11   Port Framer Configuration Screen


```
                    Physical Port:                                    [1]
                    ATM Port Type: ATM IF: 155Mbps, SONET/SDH, OC-3, MMF, SC

                        Statistics:                              [ OFF ]
                           Alarms:                               [ OFF ]
                       Idle Cells:                        [ UNASSIGNED ]
          Cell Payload Scrambling:                               [ ON  ]
                Transmission Type:                           [ SONET ]


        SAVE                       EXIT                         RETURN
```
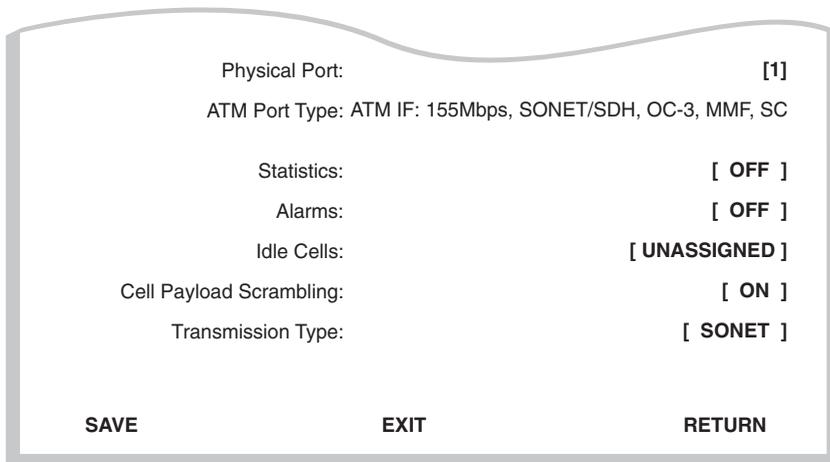
                                                                    28251_16

The following list explains each of the Port Framer Configuration screen fields.

Physical Port (Toggle)
This field is used to select which APIM to be configured. This field toggles between 1 (APIM 1) and 2 (APIM 2).

ATM Port Type (Read-Only)

Displays the type of APIM installed in the VHSIM2-A6DP. This field displays all important information about the APIM. For example, the ATM Port Type field in Figure 3-11 is defined as follows:

- 155 Mbps signifies the amount of bandwidth the APIM supports.

- SONET/SDH displays the two transmission types that the APIM supports.

- OC-3 signifies the class of ATM service the APIM provides.

- MMF signifies that this APIM supports multimode fiber optic cabling.

- SC signifies that the APIM has SC style connectors to attach the physical cabling.

For details on the available APIMs, refer to Appendix B.

Statistics (Toggle)

This field toggles between OFF and ON. The default setting for this field is OFF.

Alarms (Toggle)

This field toggles between OFF and ON. The default setting for this field is OFF.

Idle Cells (Toggle)

Toggles between UNASSIGNED and OFF. The default setting for this field is UNASSIGNED.

Cell Payload Scrambling (Toggle)

Toggles between ON and OFF. The default setting for this field is ON.

Transmission Type (Toggle)

Depending on the APIMs installed, this field may display one of the following options:

- SONET

- SDH

- TAXI

- DS3

- STS3

> **NOTE:** The Transmission Type field is a only a toggle field for specific Enterasys APIMs.

SAVE (Command)

This command saves all changes to memory.

3.9.1　Configuring an APIM

To configure an APIM to use custom settings, perform the following steps:

1. Use the arrow keys to highlight the **Physical Port** field.

2. Press the SPACE bar to select APIM 1 (**[1]**) or APIM 2 (**[2]**).

3. Use the arrow keys to highlight the **Statistics** field.

4. Press the SPACE bar to toggle between **OFF** and **ON** until the desired setting displays.

5. Use the arrow keys to highlight the **Alarms** field.

6. Press the SPACE bar to toggle between **OFF** and **ON** until the desired setting displays.

7. If the APIM being configured supports SONET or SDH perform the following substeps:

    a. Use the arrow keys to highlight the **Transmission Type** field.

    b. Press the SPACE bar to toggle between **SONET** and **SDH** until the desired setting displays.

8. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.

9. Press ENTER. The changes are saved to memory.

3.10　ATM PORT REDUNDANCY CONFIGURATION SCREEN

The ATM Port Redundancy Configuration screen allows the user to perform the following tasks:

• To enable or disable the automatic redundancy check feature of the VHSIM2-A6DP.

• Set which port (APIM) is the primary port of the VHSIM2-A6DP.

• To set the VHSIM2-A6DP to either automatically activate the redundant port if a problem is detected with the primary port, or to wait until the user performs this task manually.

• To set the VHSIM2-A6DP to either automatically reactivate the primary port after any problems have been resolved, or to wait until the user performs this task manually.

• Set the time at which the VHSIM2-A6DP will test the redundancy status of the APIMs installed in the VHSIM2-A6DP.

• View the results of APIM redundancy tests.

• Set the interval at which the VHSIM2-A6DP will perform APIM redundancy tests.

• Test the ports manually, without having to wait for the periodic test time to elapse.

• Reset all configurations in the ATM Port Redundancy Configuration screen to their factory default settings.

> **NOTE:** There MUST be two APIMs installed in the VHSIM2-A6DP to make the redundancy feature available.

To access the ATM Port Redundancy Configuration screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **ATM PORT REDUNDANCY** menu item from the Physical Port Configuration Menu screen.

2. Press ENTER. The ATM Port Redundancy Configuration screen, Figure 3-12, displays.

> **NOTE:** The ATM Port Redundancy Configuration screen refreshes approximately every 3 seconds.

Figure 3-12   ATM Port Redundancy Configuration Screen

Redundancy Status: **[Enabled]**

Primary port: **1**   Active port: 1

Activation of redundant port: **[Automatic]**

Revert to Primary port: **[Automatic]**

Periodic test status: **[Enabled]**   Periodic test time: **01:00.00**

Port Usability Status: No test performed since system startup

TEST PORTS NOW   **RESET TO FACTORY DEFAULTS**

SAVE   **EXIT**   **RETURN**
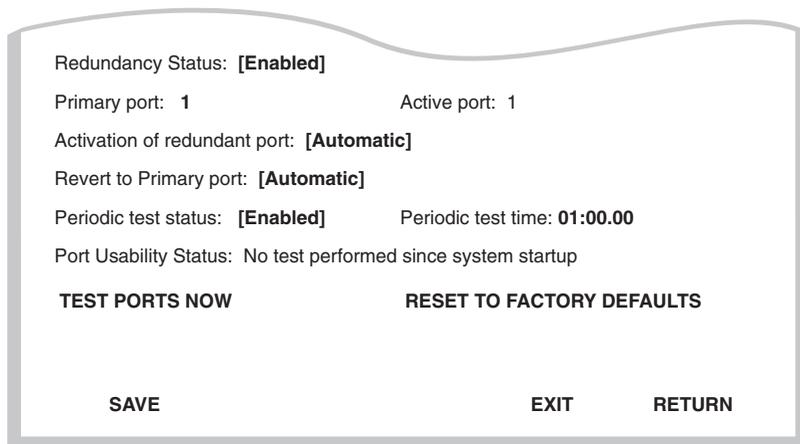
2825_17

The following list explains each ATM Port Redundancy Configuration screen field:

Redundancy Status (Toggle)
Used to enable or disable the APIM redundancy feature of the VHSIM2-A6DP. This field toggles between Enabled and Disabled. The default value of this field is Enabled.

Primary Port (Modifiable)

Used to determine which APIM installed in the VHSIM2-A6DP will be the primary port. Entering 1 in this field signifies that the APIM in slot APIM 1 on the VHSIM2-A6DP will be the primary port. Entering 2 signifies that the APIM in slot APIM 2 on the VHSIM2-A6DP will be the primary port. The default setting for this field is 1.

Active Port (Modifiable)

Displays which APIM is currently acting as the active port for the VHSIM2-A6DP. The Active port field displays 1 or 2. This field may be configured manually to "1" or "2", however, it is possible this value may change if the Activation of redundant port or Revert to primary port fields are set to "Automatic".

Activation of redundant port (Toggle)

Used to configure how the VHSIM2-A6DP will activate the redundant port if a problem arises with the primary port. The field toggles between Automatic and Manual. The default setting for this field is Automatic.

Revert to Primary port (Toggle)

Used to configure how the VHSIM2-A6DP will reactivate the primary port once any problems have been resolved. This field toggles between Automatic and Manual. The default setting for this field is Automatic.

Periodic test status (Toggle)

Used to enable or disable the redundancy test feature of the VHSIM2-A6DP. This field toggles between Enabled and Disabled. The default setting for this field is Enabled.

Periodic test time (Modifiable)

Allows the user to set the time of day that the VHSIM2-A6DP will perform APIM redundancy tests. The default setting for this field is 01:00.00 (1:00 A.M.). The available range for this field is 00:00.00 (12:00 A.M.) to 23:59.59 (11:59:59 P.M.).

Port Usability Status (Read-Only)

Displays the current status of redundant ports of the VHSIM2-A6DP.

> **NOTE:** Some status results may display a "port unusable" message. This does NOT necessarily indicate a hardware failure. This test result may be due to no link to the APIM, faulty cabling, etc. If the VHSIM2-A6DP or an APIM has a hardware failure, it will be reflected in their LEDs. Refer to Chapter 4 for details. A "port unusable" message only indicates that the port may not be used for redundancy.

TEST PORTS NOW (Command)

Used to instruct the VHSIM2-A6DP to perform an APIM redundancy test immediately. When the test is completed, the results are displayed in the Port Usability/Status field.

RESET TO FACTORY DEFAULTS (Command)

Used to reset all the fields in the ATM Port Redundancy Configuration screen to their default settings.

SAVE (Command)

Used to save all changes to memory.

3.10.1 Setting the Redundancy Status

To set the Redundancy Status, perform the following steps:

1. Use the arrow keys to highlight the **Redundancy Status** field.

2. Press the SPACE bar to toggle between the choices until the appropriate mode displays (**Enabled** or **Disabled**).

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.2 Setting the Primary Port

To set the Primary port, perform the following steps:

1. Use the arrow keys to highlight the **Primary port** field.

2. Enter 1 or 2. Entering **1** signifies APIM 1 of the VHSIM2-A6DP. Entering **2** signifies APIM 2 of the VHSIM2-A6DP.

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.3 Setting the Active Port

To set the Active port, perform the following steps:

1. Use the arrow keys to highlight the **Active port** field.

2. Enter 1 or 2. Entering **1** signifies APIM 1 of the VHSIM2-A6DP. Entering **2** signifies APIM 2 of the VHSIM2-A6DP.

> **NOTE:** This field may be configured manually to "1" or "2", however, it is possible this value may change if the Activation of redundant port or Revert to primary port fields are set to "Automatic".

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.4 Setting the Activation of Redundant Port Field

To set the Activation of redundant port field (automatic or manual), perform the following steps:

1. Use the arrow keys to highlight the **Activation of redundant port** field.

2. Press the SPACE bar to toggle between the choices until the appropriate mode displays (**Automatic** or **Manual**).

> **NOTE:** If the Activation of redundant port field is set to Manual, the redundant port must be activated by the user via Local/Remote Management.

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.5 Setting the Revert to Primary Port Field

To set the Revert to Primary port field (Automatic or Manual), perform the following steps:

1. Use the arrow keys to highlight the **Revert to Primary port** field.

2. Press the SPACE bar to toggle between the choices until the appropriate mode displays (**Automatic** or **Manual**).

NOTE: If the Revert to Primary port field is set to Manual, the primary port must be re-activated by the user via Local/Remote Management.

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.6 Setting the Periodic Test Status Field

To enable or disable the Periodic test status feature, perform the following steps:

1. Use the arrow keys to highlight the **Periodic test status** field.

2. Press the SPACE bar to toggle between the choices until the appropriate mode displays (**Enabled** or **Disabled**).

3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes are saved to memory.

3.10.7 Setting the Periodic Test Time

To change the Periodic test time field from the default value of 01:00.00 (1:00 A.M.), perform the following steps:

1. Use the arrow keys to highlight the **Periodic test time** field.

2. Enter the time in this format: HH:MM.SS

NOTE: When entering the time in the Periodic test time field, separators between hours, minutes, and seconds must be added. For example, to set the Periodic test time to 12:00 P.M. (Noon), type "12:00.00" in the Periodic test time field.

3. Press ENTER to set the test time entered in the Periodic test time field.

4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

5. If the time entered is a valid format, the Event Message Line at the top of the screen displays "SAVED OK". If the entry is not valid, Local Management does not alter the current value and refreshes the Periodic test time field with the previous value.

3.10.8 Using the TEST PORTS NOW Command

To force the VHSIM2-A6DP to perform a redundancy test immediately, perform the following steps:

1. Use the arrow keys to highlight the **TEST PORTS NOW** command.

2. Press ENTER. The VHSIM2-A6DP performs the redundancy test, and displays the results in the Port Usability/Status field.

3.10.9 Using the RESET TO FACTORY DEFAULTS Command

To reset all the values of the ATM Port Redundancy Configuration screen to the factory default values, perform the following steps:

1. Use the arrow keys to highlight the **RESET TO FACTORY DEFAULTS** command.

2. Press ENTER. All configurable options on this screen are reset to their default values.

3.11 LAN EMULATION CLIENTS SCREEN

The LAN Emulation Clients screen contains five menu items that open Local Management screens used to create, maintain, and monitor LAN Emulation Clients (LECs). It also may be used to search the ARP cache for specific MAC addresses.

To access the LAN Emulation Clients screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **LAN EMULATION CLIENTS** menu item.

2. Press ENTER. The LAN Emulation Clients screen, Figure 3-13, displays.

Figure 3-13   LAN Emulation Clients Screens Menu

LEC TABLE

LEC ADMINISTRATION

LEC PROPERTIES

LEC ARP CACHE

LEC TRANSMIT QUEUES

EXIT   RETURN

2825_18
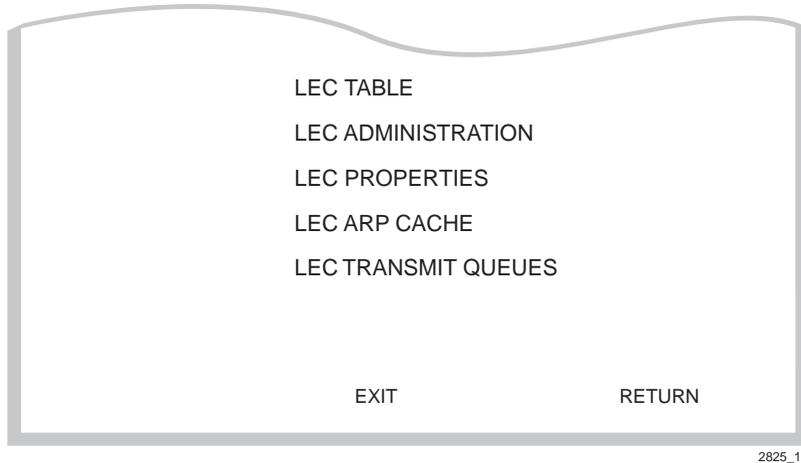
The following list explains each of the menu items on the LAN Emulation Clients screen:

LEC TABLE
This menu item opens the LEC Table screen. This screen is a read-only screen used to view all LECs currently configured on the VHSIM2-A6DP. Refer to Section 3.12.

LEC ADMINISTRATION
This menu item opens the ELAN Administration screen. This screen is used to create, modify, and delete LAN Emulation Clients. Refer to Section 3.13.

LEC PROPERTIES
This menu item opens the ELAN Properties screen. The ELAN Properties screen is a read-only screen that allows the user to view current information on multiple LAN Emulation components. Refer to Section 3.14.

LEC ARP CACHE
This menu item opens the LEC ARP Cache screen. This screen is used to view the ARP Cache of the LECs configured on the VHSIM2-A6DP. This screen also allows the user to search the VHSIM2-A6DP LEC ARP Cache for a specific MAC Address VPI, VCI or ATM address. If a match is found, the screen displays the LEC to which the search term is bound, the MAC address, the name of the ELAN to which the LEC belongs, and the VPI, VCI, and ATM address used by the LEC to connect to the listed ELAN. In addition, the screen displays the MIB-II interface and LEC index of the MAC address for which the search was performed. Refer to Section 3.15.

LEC TRANSMIT QUEUES
This menu item opens the Traffic Management LEC Priority Queues screen. This screen is used to assign 802.1P priorities to a LEC.

Refer to Section 3.16.

3.12 LEC TABLE SCREEN

The LEC Table screen is a read-only screen that is used to view the status of all LECs currently configured on the VHSIM2-A6DP.

To access the LEC Table screen from the LAN Emulation Clients screen, perform the following steps:

1. Use the arrow keys to highlight the **LEC TABLE** menu item on the LAN Emulation Clients screen.

2. Press ENTER. The LEC Table screen, Figure 3-14, displays.

Figure 3-14   LEC Table Screen

All values correspond with the lecStatusTable of the ATM Forum LEC MIB.

IF	Port	Index	LEC ID	Ver	ELAN ID	ELAN Name	LEC State
25	29	1	0	2.0	0	Ctron1	Operational

EXIT   RETURN

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The following list explains each of the LEC Table screen fields:

IF (Read-Only)
Displays the MIB-II Interface that this LEC has been assigned dynamically. The value assigned to this field is necessary when using the ATM Connection Setup by Virtual Interface screen (Section 3.7).

Port (Read-Only)
Displays the application port number this has LEC has been dynamically assigned.

Index (Read-Only)
Displays the Index of the LEC.

LEC ID (Read-Only)
This value is dynamically assigned by the LES to uniquely identify this LEC.

Ver (Read-Only)
Displays the version of LAN Emulation (LANE) that the LEC is currently using.

ELAN ID (Read-Only)
This value is dynamically assigned by the LES to uniquely identify this ELAN.

ELAN Name (Read-Only)
Displays the name assigned to the Emulated LAN (ELAN) by the user in the LEC Administration screen (Section 3.13) or by the LECS.

LEC State (Read-Only)
Displays the current state of the LEC. The LEC goes through a series of initialization phases, which may result in this field displaying different states as the initialization process proceeds. The possible states are as follows:

> **NOTE:** In most cases, the initialization process occurs very rapidly, and the following initialization states, with the exception of "Operational", may not display.

- **Initial State -** While in Initial State the LEC receives two types of configuration parameters:

  - From the User: LECS ATM Address, ELAN Name, MTU Size, and LAN Type.

  - From the ATM Switch: The ATM Address of the switch.

- **LECS Connect -** During the LECS Connect phase, the LEC establishes a Configuration Direct VCC with the LECS.

- **Configure -** The Configure phase is where the LEC discovers the LES before going on to the join phase.

• **Join -** During the Join phase, the LEC establishes a Control Direct VCC with the LES. After this connection is made, the LEC is assigned a LEC ID, the name of the ELAN it will join, and is notified of the maximum frame size allowed on the ELAN and the LAN type that is being emulated (IEEE 802.3). The initialization process then proceeds to the Initial Registration phase.

• **Initial Reg. -** The Initial Registration phase is used by the LEC to confirm that its MAC Address(es) is unique before becoming fully operational on the network. During this phase, the LEC may also register any additional unicast LAN destinations and Route Descriptors.

• **BUS Connect -** While in the BUS Connect phase, the LEC connects to the Broadcast and Unknown server (BUS). At the end of this phase, the LEC has a BUS Multicast Send VCC and a BUS Multicast Forward VCC with the BUS. Once these VCCs have been created, the LEC becomes operational on the network.

• **Operational -** The LEC is now fully configured, and is switching traffic.
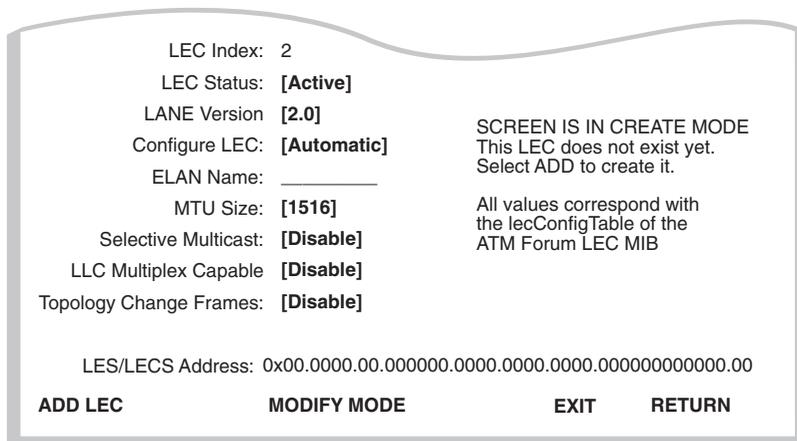
3.13 LEC ADMINISTRATION SCREEN

The LEC Administration screen is used to add, modify and delete LAN Emulation Clients (LECs).

To access the LEC Administration screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **LEC ADMINISTRATION** menu item from the LAN Emulation Clients screen.

2. Press ENTER; the LEC Administration screen, Figure 3-15, displays.

Figure 3-15   LEC Administration Screen


```
                LEC Index:  2
               LEC Status:  [Active]
             LANE Version   [2.0]
            Configure LEC:  [Automatic]           SCREEN IS IN CREATE MODE
               ELAN Name:  _____            This LEC does not exist yet.
                                                 Select ADD to create it.
                MTU Size:  [1516]
                                                 All values correspond with
       Selective Multicast:  [Disable]           the lecConfigTable of the
      LLC Multiplex Capable  [Disable]           ATM Forum LEC MIB
  Topology Change Frames:  [Disable]


      LES/LECS Address:  0x00.0000.00.000000.0000.0000.0000.000000000000.00

   ADD LEC              MODIFY MODE              EXIT       RETURN
```

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Configure LEC (Toggle)

Used to specify if the LEC is configured manually by the user, or automatically by the VHSIM2-A6DP. This field toggles between Automatic and Manual. For instructions on how to configure the LEC automatically and manually, refer to Section 3.13.2 and Section 3.13.3.

ELAN Name (Modifiable)

Used to provide a user-specified ELAN for this LEC to join. This field is modifiable when the LEC is configured in both automatic and manual mode.

> **NOTE:** If the LEC is created manually, the name entered in the ELAN Name field is the ONLY ELAN the LEC will join. The LEC will not take another ELAN name from the LES.

MTU Size (Toggle)

Used to define the maximum MTU size that this LEC allows to be used. This field toggles between [1516], [1580], and [Unspecified], with [1516] being the default value.

Selective Multicast (Toggle)

This field toggles between Disable and Enable, with a default value of Disable. The Selective Multicast field is specific to LANE 2.0, and is not supported if LANE 1.0 is used.

LLC Multiplex Capable (Toggle)

This field toggles between Disable and Enable, with a default value of Disable. The Selective Multicast field is specific to LANE 2.0, and is not supported if LANE 1.0 is used.

Topology Change Frames (Toggle)

This field toggles between Disable and Enable, with a default value of Disable.

> **NOTE:** The LES ATM Address field does not display if the LEC is configured automatically. Instead, the field reads LECS ATM Address. If the LEC is configured automatically, the LES ATM Address is learned dynamically from the LECS.

LES ATM Address (Modifiable)
The address of the LAN Emulation Server with which the LEC registers. If the LEC is configured manually, the LES ATM Address must be supplied by the user.

The following list explains each of the LEC Administration screen fields and commands:

LEC Index (Read-Only/Modifiable)
Used to identify this LEC in the ATM Forum's LEC MIB. This value is provided dynamically and is not modifiable by the user. This field is used to enter the index of the LEC that will be viewed or changed while in MODIFY MODE.

LEC Status (Toggle)
Displays the current status of this LEC. This field displays "active" or "Not In Service". For instructions on changing the LEC status refer to Section 3.13.1.

LANE Version (Toggle)
This field toggles between 2.0 and 1.0 with a default value of 2.0.

Configure LEC (Toggle)
Used to specify if the LEC is configured manually by the user, or automatically by the VHSIM2-A6DP. This field toggles between Automatic and Manual. For instructions on how to configure the LEC automatically and manually, refer to Section 3.13.2 and Section 3.13.3.

ELAN Name (Modifiable)
Used to provide a user-specified ELAN for this LEC to join. This field is modifiable when the LEC is configured in both automatic and manual mode.

> **NOTE:** If the LEC is created manually, the name entered in the ELAN Name field is the ONLY ELAN the LEC will join. The LEC will not take another ELAN name from the LES.

MTU Size (Toggle)
Used to define the maximum MTU size that this LEC allows to be used. This field toggles between [1516], [1580], and [Unspecified], with [1516] being the default value.

Selective Multicast (Toggle)
This field toggles between Disable and Enable, with a default value of Disable. The Selective Multicast field is specific to LANE 2.0, and is not supported if LANE 1.0 is used.

LLC Multiplex Capable (Toggle)
This field toggles between Disable and Enable, with a default value of Disable. The Selective Multicast field is specific to LANE 2.0, and is not supported if LANE 1.0 is used.

Topology Change Frames (Toggle)
This field toggles between Disable and Enable, with a default value of Disable.

> **NOTE:** The LES ATM Address field does not display if the LEC is configured automatically. Instead, the field reads LECS ATM Address. If the LEC is configured automatically, the LES ATM Address is learned dynamically from the LECS.

LES ATM Address (Modifiable)
The address of the LAN Emulation Server with which the LEC registers. If the LEC is configured manually, the LES ATM Address must be supplied by the user.

> **NOTE:** The LECS ATM Address field does not display if the LEC is configured manually. Instead, the field reads LES ATM Address. If the LEC is configured manually, the LECS is not used.

LECS ATM Address (Modifiable)
Displays the ATM address of the LAN Emulation Configuration Server (LECS). It is not necessary to enter the LECS address. Some network configurations, however, may have more than one LECS. To specify which LECS to connect with, the address must be entered in this field.

ADD LEC (Command)
Used to add the LEC to the VHSIM2-A6DP. This command is only available if the screen is in CREATE MODE.

DELETE (Command)
Deletes the LEC from the VHSIM2-A6DP LEC Index. This command is only available if the screen is in MODIFY MODE.

MODIFY MODE (Command)
Allows the modification of all LECs that have been previously configured by putting the LEC Administration screen into MODIFY MODE. This command is only available if the screen is in CREATE MODE.

CREATE MODE (Command)
Allows the creation of new LECs by putting the LEC Administration screen into CREATE MODE. This command is only available when the screen is in MODIFY MODE.

SAVE (Command)
Only displays if the screen is in MODIFY MODE. When performed, all changes are saved to memory.

3.13.1 Changing the LEC Status of an Existing LEC

To change the LEC Status, perform the following steps:

1. Use the arrow keys to highlight the **MODIFY MODE** command at the bottom of the screen and press ENTER.

2. Use the arrow keys to highlight the **LEC Index** field.

> **NOTE:** To discover the Index of the LEC that will be modified, refer to Section 3.12.

3. Enter the Index of the LEC to be modified, and press ENTER.

4. Use the arrow keys to highlight the **LEC Status** field.

5. Use the SPACE bar to toggle between the options (**Active** or **Not In Service**) until the desired option displays.

6. Use the arrow keys to highlight the **SAVE** command and press ENTER. The new LEC Status becomes enabled.

3.13.2 Configuring a New LEC Automatically

To configure a new LEC automatically, perform the following steps:

1. Ensure the LEC Administration screen is in CREATE MODE. If the screen does not display "CREATE MODE", perform the following substeps:

    a. Use the arrow keys to highlight the **CREATE MODE** command at the bottom of the screen.

    b. Press ENTER. The LEC Administration screen, in CREATE MODE, displays.

2. Use the arrow keys to highlight the **LANE Version** field.

3. Press the SPACE bar to toggle between the options (**1.0** or **2.0**) until the desired LANE version displays.

4. Use the arrow keys to highlight the **Configure LEC** field.

5. Press the SPACE bar to toggle between the options until **Automatic** displays.

6. Use the arrow keys to highlight the **ELAN Name** field. Enter a name for the ELAN that is no more than 32 characters in length. This step is optional, and does not have to be performed to configure the LEC automatically.

> **NOTE:** Steps 7 through 12 are not necessary if LANE 1.0 will be used. Although these fields may be enabled, LANE 1.0 does not support the corresponding features.

7. Use the arrow keys to highlight the **Selective Multicast** field.

8. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

9. Use the arrow keys to highlight the **LLC Multiplex Capable** field.

10. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

11. Use the arrow keys to highlight the **Topology Change Frames** field.

12. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

13. Use the arrow keys to highlight the **LECS ATM Address** field. Enter the ATM Address of the LECS. This step is optional, and should be performed only when a specific LECS, out of multiple servers, is desired for this LEC.

14. Use the arrow keys to highlight the **ADD LEC** command at the bottom of the screen and press ENTER. The LEC will now be configured automatically by the VHSIM2-A6DP.

3.13.3 Configuring a New LEC Manually

To configure a new LEC manually, perform the following steps:

1. Ensure the LEC Administration screen is in CREATE MODE. If the screen does not display "CREATE MODE", perform the following substeps:

    a. Use the arrow keys to highlight the **CREATE MODE** command at the bottom of the screen.

    b. Press ENTER. The LEC Administration screen, in CREATE MODE, displays.

2. Use the arrow keys to highlight the **LANE Version** field.

3. Press the SPACE bar to toggle between the options (**1.0** or **2.0**) until the desired LANE version displays.

4. Use the arrow keys to highlight the **Configure LEC** field.

5. Use the SPACE bar to toggle between the options until **Manual** displays.

> **NOTE:** The following step is optional, and does not have to be performed to configure the LEC manually. If an ELAN name is specified, however, the LEC will ONLY join the specified ELAN, and will not accept an ELAN name from the LES.

6. Use the arrow keys to highlight the **ELAN Name** field. Enter a name for the ELAN that is no more than 32 characters in length.

7. Use the arrow keys to highlight the **MAX MTU Size** field.

8. Use the SPACE bar to toggle between the options until the desired MTU size displays.

> **NOTE:** Steps 9 through 14 are not necessary if LANE 1.0 will be used. Although these fields may be enabled, LANE 1.0 does not support the corresponding features.

9. Use the arrow keys to highlight the **Selective Multicast** field.

10. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

11. Use the arrow keys to highlight the **LLC Multiplex Capable** field.

12. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

13. Use the arrow keys to highlight the **Topology Change Frames** field.

14. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

15. Use the arrow keys to highlight the **LES ATM Address** field.

16. Enter the LES ATM Address in the field. Ensure that a valid ATM address is used.

17. Use the arrow keys to highlight the **ADD LEC** command at the bottom of the screen and press ENTER. The manually configured LEC is now entered into the VHSIM2-A6DP LEC Index.

3.13.4 Modifying an Existing LEC

To modify a LEC that has already been created, perform the following steps:

1. Use the arrow keys to highlight the **MODIFY MODE** command and press ENTER.

2. Use the arrow keys to highlight the **LEC Index** field.

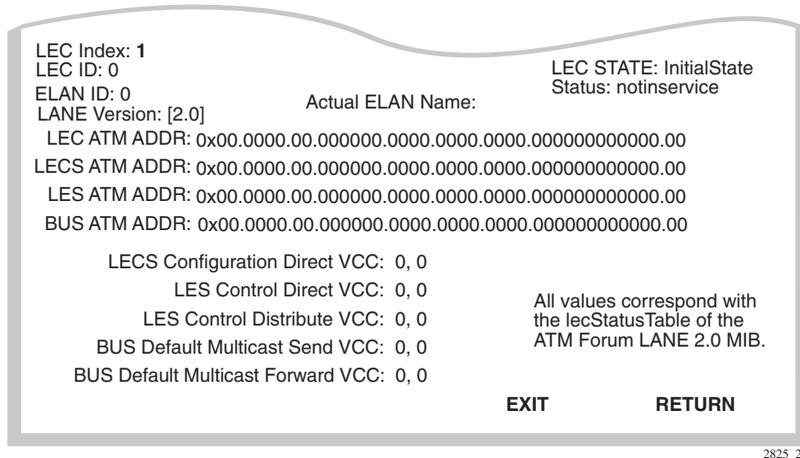> **NOTE:** To discover the Index of the LEC to be modified, refer to Section 3.12.

3. Enter the LEC Index of the LEC to be modified.

4. Use the arrow keys to highlight the **LANE Version** field.

5. Press the SPACE bar to toggle between the options (**1.0** or **2.0**) until the desired LANE version displays.

6. Use the arrow keys to highlight the **Configure LEC** field.

7. Use the SPACE bar to toggle between the options until the appropriate mode displays.

8. If the LEC will be configured manually, perform the following substeps:

> **NOTE:** Substeps a through j are optional, and are not necessary to modify the LEC to be configured manually.

   a. Use the arrow keys to highlight the **ELAN Name** field.

   b. Enter a name for the ELAN that is no more than 32 characters in length.

   c. Use the arrow keys to highlight the **MAX MTU Size** field.

   d. Use the SPACE bar to toggle between the options until the desired MTU size displays.

   e. Use the arrow keys to highlight the **Selective Multicast** field.

   f. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

   g. Use the arrow keys to highlight the **LLC Multiplex Capable** field.

    h. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

    i. Use the arrow keys to highlight the **Topology Change Frames** field.

    j. Press the SPACE bar to toggle between the options (**Enable** or **Disable**) until the desired option displays.

    k. Use the arrow keys to highlight the **LES ATM Address** field.

    l. Enter the LES ATM Address in the field. Ensure that a valid ATM address is used.

9. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The changes will now be written to **NVRAM**, and the LEC will reflect the modifications.

3.13.5 Deleting an Existing LEC

To delete an existing LEC, perform the following steps:

1. Use the arrow keys to highlight the **LEC Index** field.

> **NOTE:** To discover the Index of the LEC that is to be deleted, refer to Section 3.12.

2. Enter the LEC Index of the LEC that will be deleted.

3. Use the arrow keys to highlight the **DELETE** command at the bottom of the screen.

4. Press ENTER. The LEC is deleted.

3.14 LEC PROPERTIES SCREEN

The LEC Properties screen is a read-only screen that is used to view current information on multiple LAN Emulation components.

To access the LEC Properties screen from the LAN Emulation Clients screen, perform the following steps:

1. Use the arrow keys to highlight the **LEC PROPERTIES** menu item in the LAN Emulation Clients screen.

2. Press ENTER; the LEC Properties screen, Figure 3-16, displays.

Figure 3-16   LEC Properties Screen

```
LEC Index: 1
LEC ID: 0                                              LEC STATE: InitialState
ELAN ID: 0                                             Status: notinservice
LANE Version: [2.0]          Actual ELAN Name:
 LEC ATM ADDR: 0x00.0000.00.000000.0000.0000.0000.000000000000.00
LECS ATM ADDR: 0x00.0000.00.000000.0000.0000.0000.000000000000.00
 LES ATM ADDR: 0x00.0000.00.000000.0000.0000.0000.000000000000.00
 BUS ATM ADDR: 0x00.0000.00.000000.0000.0000.0000.000000000000.00

        LECS Configuration Direct VCC:  0, 0
             LES Control Direct VCC:  0, 0
            LES Control Distribute VCC:  0, 0          All values correspond with
                                                       the lecStatusTable of the
         BUS Default Multicast Send VCC:  0, 0         ATM Forum LANE 2.0 MIB.
       BUS Default Multicast Forward VCC:  0, 0

                                                EXIT              RETURN
```

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The following list explains each of the LEC Properties screen fields:

LEC Index (Selectable)
Used to identify this LEC both on the VHSIM2-A6DP and in the ATM Forum's LEC MIB.

LEC ID (Read-Only)
Displays the LAN Emulation Client Identifier assigned to this LEC by the LAN Emulation Server when the LEC was created. If the LEC ID field reads "0", it signifies that this LEC is not a member of an emulated LAN, and is not connected to a LAN Emulation Server.

Actual ELAN Name (Read-Only)
Displays the name of the ELAN to which this LEC belongs.

LEC STATE (Read-Only)

Displays the current state that the LEC is in. The possible states are as follows:

- Initial State
- LECS Connect
- Configure
- Join
- Initial Registration
- BUS Connect
- Operational

> Section 3.12 provides definitions for the possible states of the LEC State field.

Status (Read-Only)

Displays the current status of the LEC. This field displays one of the following items:

- Active (LEC is operational)
- Not In Service (LEC is not operational)
- No Link (No connection to the network)
- No ATM Address (ILMI not operating, refer to Section 3.17)
- No UNI (UNI not operating, refer to Section 3.17)

ELAN ID (Read-Only)

Displays the ID that this ELAN was assigned by the LES.

LANE Version (Read-Only)

Displays the LANE version that the LEC is using. This field will display 1.0 or 2.0.

LEC ATM ADDR (Read-Only)

Displays the ATM Address of the LEC.

LECS ATM ADDR (Read-Only)

Displays the ATM address of the LAN Emulation Configuration Server. If this LEC was configured manually, this field can be empty.

LES ATM ADDR (Read-Only)

Displays the ATM Address of the LAN Emulation Server to which the LEC is connected.

BUS ATM ADDR (Read-Only)

Displays the ATM address of the Broadcast or Unknown Server to which the LEC is connected.

LECS Configuration Direct VCC (Read-Only)
Displays the VPI and VCI of the Configuration Direct Virtual Channel Connection (VCC) that the
LEC has with the LECS. This connection is used to obtain LAN Emulation configuration
parameters, and is also used by the LEC to learn the address of the LES.

> **NOTE:** In many ELAN implementations, the LECS Configuration Direct VCC is only
> used temporarily, and the VCC may time out.

LES Control Direct VCC (Read-Only)
Displays the VPI and VCI of the Control Direct Virtual Channel Connection (VCC) that the LEC
has with the LES. This connection is used by the LES and the LEC to distribute control traffic to
all LECs. If this LEC is participating in an ELAN, this connection is mandatory.

LES Control Distribute VCC (Read-Only)
Displays the VPI and VCI of the Control Distribute Virtual Channel Connection (VCC) that the
LEC has with the LES. This optional connection is used by the LES to distribute control traffic to
all LECs.

BUS Default Multicast Send VCC (Read-Only)
Displays the VPI and VCI of the Multicast Send Virtual Channel Connection (VCC) that the LEC
has with the BUS. This connection is used by the LEC and the BUS to send all broadcast
transmissions for address resolution. This connection is also used for unicast and multicast
transmissions, when the destination address is unknown. If this LEC is participating in an ELAN,
this connection is mandatory.

BUS Default Multicast Forward VCC (Read-Only)
Displays the VPI and VCI of the Multicast Forward Virtual Channel Connection (VCC) that the
LEC has with the BUS. This connection is used by the LEC to receive data from the BUS about
address resolution. If this LEC is participating in an ELAN, this connection is mandatory.

3.14.1 Viewing Multiple ELANs

To view additional ELANs, perform the following steps:

1. Use the arrow keys to highlight the **LEC Index** field.

2. Press the SPACE bar to step through all of the LECs currently configured on the
    VHSIM2-A6DP. The user may also enter the numerical LEC index to have the applicable
    ELAN's properties display immediately.

3.15 LEC ARP CACHE SCREEN

The LEC ARP Cache screen is used to view the ATM address, VPI and VCI used to communicate with a MAC address.

To access the LEC ARP Cache screen, perform the following steps:

1. Use the arrow keys to highlight the **LEC ARP CACHE** menu item on the LAN Emulation Clients screen.

2. Press ENTER, the LEC ARP Cache screen, Figure 3-17, displays.

Figure 3-17   LEC ARP Cache Screen


```
    LEC Index:    [1]                              IF:   31

     Search by:  [ALL ADDR]        ELAN Name:    CTRON


    MAC Address    VPI  VCI                  ATM Address
    ff–ff–ff–ff–ff–ff    0,  84     0x00.0000.00.000000.0000.0000.0000.000000000000.00




                      SEARCH                           EXIT    RETURN
```
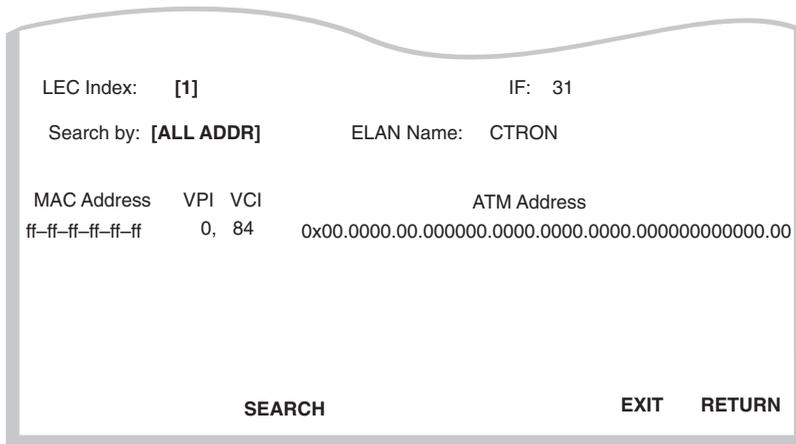
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The following explains each of the LEC ARP Cache screen fields:

LEC Index (Selectable)
Displays the Index of the LEC to which the information displayed on the screen pertains. To select a new LEC Index, use the arrow keys to highlight the **LEC Index** field and press the SPACE bar to step through the available LECs.

IF (Read-Only)
Displays the MIB-II Interface to which the information displayed on the screen pertains.

Search By (Selectable)
Used to step through the following options:

- ALL ADDR (all addresses)

- VPI, VCI (VPI/VCI pair)

- MAC ADDR (MAC address)

- ATM ADDR (ATM address of the LEC)

This field allows the user to specify the way in which the LEC ARP Cache will be searched. The default setting for this field is ALL ADDR.

ELAN Name (Read-Only)
Displays the name of the ELAN to which this LEC is attached.

MAC Address (Read-Only)
Displays the remote MAC address(es) from which this LEC has received responses to LE-ARP requests.

Q# (Selectable)
Displays the selectable number of transmit queues available per port. The default setting is one.

VPI (Read-Only)
Displays the VPI being used by this LEC to contact the MAC/ATM Address pair displayed in the appropriate row.

VCI (Read-Only)
Displays the VCI being used by this LEC to contact the MAC/ATM Address pair displayed in the appropriate row.

ATM Address (Read-Only)
Displays the ATM Address that the LEC uses to create a UNI SVC to deliver frames to the associated MAC address.

PREV (Command)
Used to open the previous series of MAC/ATM Address pairs. To access the previous series of address pairs, highlight the **PREV** command by using the arrow keys and pressing ENTER. The previous series of MAC/ATM address pairs displays.

NEXT (Command)
Used to open the next series of MAC/ATM Address pairs. To access the next series of address pairs, highlight the **NEXT** command by using the arrow keys and pressing ENTER. The next series of MAC/ATM address pairs displays.

SEARCH (Command)

Performs a search of the LEC ARP Cache based on the search term specified in the ADDR or VPI/VCI fields below the Search By field. This command is only available if a valid search term is entered.

3.15.1 Performing a Search

To perform a LEC ARP cache search, perform the following steps:

1. Use the arrow keys to highlight the **LEC Index** field.

2. Use the SPACE bar to move through the available indexes until the appropriate LEC Index displays.

3. Use the arrow keys to highlight the **Search By** field.

4. Press the SPACE bar to toggle through the options until the desired search method displays.

5. Use the arrow keys to move to the field that displays below the **Search By** field.

6. Enter the search term. Depending on the setting of the **Search By** field, enter one of the following items:

   • an ATM address

   • a VPI, VCI pair

   • a MAC address

7. Use the arrow keys to highlight the **SEARCH** command at the bottom of the screen and press ENTER.

When the search is completed, the screen refreshes with the results of the search.

3.16 LEC PRIORITY QUEUES SCREEN

The LEC Priority Queues screen is used to assign up to eight 802.1P priorities to a LEC.

To access the LEC Priority Queues screen from the LAN Emulation Clients menu screen, perform the following steps:

1. Use the arrow keys to highlight the **LEC TRANSMIT QUEUES** menu item of the LAN Emulation Clients screen.

2. Press ENTER. The LEC Priority Queues screen, Figure 3-19, displays.

Figure 3-18   Traffic Managment LEC Priority Queues Screen

```
                        Lec Index:  [ 1 ]
                   Number of Virtual Queues:  [ 8 ]
                        Elan Name:

        Virtual      Profile    Profile                  Traffic
        Queue        Index      Name                     Category

        0            [ 1 ]      Default UBR descriptor   UBR
        1            [ 1 ]      Default UBR descriptor   UBR
        2            [ 1 ]      Default UBR descriptor   UBR
        3            [ 1 ]      Default UBR descriptor   UBR
        4            [ 1 ]      Default UBR descriptor   UBR
        5            [ 1 ]      Default UBR descriptor   UBR
        6            [ 1 ]      Default UBR descriptor   UBR
        7            [ 1 ]      Default UBR descriptor   UBR

        SAVE                               EXIT        RETURN
```

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The following list explains each of the Traffic Management LEC Priority Queues screen fields:

LEC Index (Selectable)
Displays the Index of the LEC to which the information displayed on the screen pertains. To select
a new LEC Index, use the arrow keys to highlight the **LEC Index** field and press the SPACE bar to
step through the available LECs, or enter the number of the Index desired.

Number of Virtual Queues (Selectable)
User may choose up to 8 virtual queues to be assigned to the Lec Index chosen in the previous
field.

Elan Name (Read-Only)
Displays the name of the ELAN associated with the chosen LEC Index.

Virtual Queue (Read-Only)
Displays the virtual queues that the indexes can be assigned to. The number of virtual queues was
chosen in the Number of Queues field.

Profile Index (Selectable)

Displays the index number next to the virtual queue to which it can be assigned. To select a Profile Index, use the arrow keys to highlight the **Profile Index** field and press the SPACE bar to step through the available profiles, or enter the number of the desired profile.

Profile Name (Read-Only)

Displays the Profile Name associated with the displayed Index Profile Number.

Traffic Category (Read-Only)

Displays the traffic category associated with the displayed Profile.

SAVE (Command)

Used to save all changes to memory.

> **NOTE:** The rules defined in the 802.1P Priority Transmit Queue Mapping table to prioritize traffic across SVCs are used when assigning priorities to a LEC.

3.16.1 Assigning Priorities to a LEC

To assign priorities to a LEC, perform the following steps:

1. Use the arrow keys to highlight the **Lec Index** field.

2. Use the SPACE bar to toggle the field to display the desired Lec Index number, or type in the desired Lec Index Number. Press ENTER.

3. Use the arrow keys to highlight the **Number of Virtual Queues** field.

4. Use the SPACE bar to toggle the field to display the desired number of queues, from one to eight.

5. Use the arrow keys to highlight the **Profile Index** field of the first virtual queue displayed.

6. Use the SPACE bar to toggle the options to display the desired Profile Index, or type in the number.

7. Use the arrow keys to highlight the next **Profile Index** field, if more modifications need to be made. Repeat steps 5 and 6 to assign priorities to different LECs.

8. Use the arrow keys to highlight the SAVE command and press ENTER.

9. The priorities are saved.

3.17 SIGNALLING SCREEN

The Signalling screen is used to set the parameters for all SVCs, to view the Integrated Local Management Interface (ILMI) Physical Address, view the current version of UNI being used by the VHSIM2-A6DP, to disable ILMI and UNI, and to restart ILMI and UNI.

To access the Signalling screen from the ATM menu screen, perform the following steps:

1. Use the arrow keys to highlight the **SIGNALLING** menu item on the ATM menu screen.

2. Press ENTER. The Signalling screen, Figure 3-19, displays.

Figure 3-19   Signalling Screen


```
                    ILMI Status:              [Auto Configure Enabled]

                    ILMI State:                              Enabled

  ILMI Physical ATM Address:  0x00.0000.00.000000.0000.0000.0000.000000000000.00

                    UNI Status:                            [Enabled]

              UNI Qsaal Status:                             Disabled

               UNI Q93b Status:                             Disabled

                   UNI Version:                             [UNI3.0]


    SAVE           RESTART UNI        RESTART ILMI     EXIT         RETURN
```
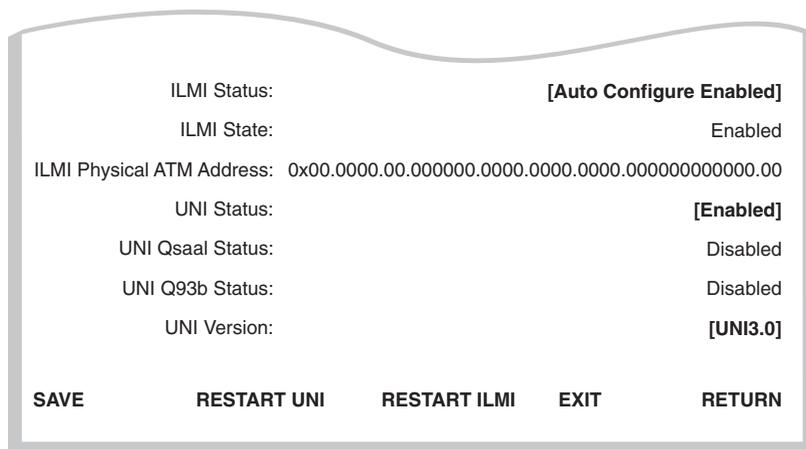
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The following list explains each of the Signalling screen fields:

ILMI Status (Selectable)
Used to enable or disable the ILMI. This field contains the following options: Auto Configure Enabled, Enabled, and Disabled. The default for this field is Auto Configure Enabled. For instructions on how to change the ILMI status, refer to Section 3.17.1.

ILMI State (Read-Only)
This read-only field displays the current status of the ILMI. For ILMI to be operational this field should read "Verifying" if the ILMI Status field is set to "AutoConfig Enabled" or "Enabled".

ILMI Physical ATM Address (Read-Only)

For the VHSIM2-A6DP to support SVCs this must be a read-only field that displays the physical ATM address of the VHSIM2-A6DP. This field may be set if ILMI is disabled.

UNI Status (Toggle)

Displays the current UNI status. This field toggles between Enabled and Disabled. For instructions on how to change the UNI status refer to Section 3.17.3.

UNI Qsaal Status (Read-Only)

This read-only field displays the current UNI Qsaal status. If the VHSIM2-A6DP is connected to an ATM network, this field reads "Enabled". If this field reads "Disabled" ensure that ILMI is in Autoconfigure mode, and that ILMI has an ATM address.

UNI Q93b Status (Read-Only)

This read-only field displays the current UNI Q93b status. If this field reads "Disabled" UNI did not start up correctly, and some UNI services may not be available. If this field remains in a disabled state, check that all appropriate UNI services in the ATM network have been configured properly.

UNI Version (Toggle)

Displays the current version of UNI being used by the VHSIM2-A6DP. This field is modifiable if ILMI is not set to "Auto Configure enabled". In Autoconfigure mode the VHSIM2-A6DP uses either UNI 3.0, UNI 3.1, or UNI 4.0 depending on the version of UNI being used by the ATM switch to which the VHSIM2-A6DP is connected.

SAVE (Command)

Used to save all changes to memory.

RESTART UNI (Command)

Used to restart UNI. For instructions on how to restart UNI, refer to Section 3.17.4.

RESTART ILMI (Command)

Used to restart the ILMI. For instructions on how to restart the ILMI, refer to Section 3.17.5.

3.17.1 Changing the UNI Version

To change the UNI Version perform the following steps:

1. Use the arrow keys to highlight the **ILMI Status** field.

2. Use the SPACE bar to toggle the field until the option **Enabled** displays.

> ⚠️ **CAUTION:** Before completing the following step, ensure that this caution is fully understood. By changing the status of the ILMI, **ALL** SVCs currently configured on the VHSIM2-A6DP will be lost.

> 📝 **NOTE:** In **Enabled** mode, the user can force the VHSIM2-A6DP to use a desired version of UNI, rather than the version of UNI that the ATM switch to which it is connected is currently using.

3. Use the arrow keys to highlight the **UNI Version** field.

4. Press the SPACE bar to toggle between the options until the appropriate version of UNI displays.

5. Use the arrow keys to highlight the **SAVE** command and press ENTER. The changes are saved to memory.

3.17.2 Changing the ILMI Status to Disabled

To change the ILMI status from the default state of **Auto Configure Enabled**, perform the following steps:

1. Use the arrow keys to highlight the **ILMI Status** field.

2. Press the SPACE bar until the option **Disabled** displays.

> ⚠️ **CAUTION:** Before completing the following step, ensure that this caution is fully understood. By disabling the ILMI, **ALL** SVCs currently configured on the VHSIM2-A6DP will be lost.
>
> If the ILMI is disabled, and no ATM address is assigned in the ILMI Physical address field, the VHSIM2-A6DP will no longer support SVCs or LAN Emulation.

3. Use the arrow keys to highlight the **SAVE** command located at the bottom of the screen and press ENTER. The ILMI has been disabled.

3.17.3 Changing the UNI Status

To change the UNI status from the default state of **Enabled**, perform the following steps:

1. Use the arrow keys to highlight the **UNI Status** field.

2. Press the SPACE bar until the option **Disabled** displays.

> ⚠ **CAUTION:** Before completing the following step, ensure that this caution is fully understood. By disabling UNI, **ALL** SVCs currently operating on the VHSIM2-A6DP will be lost.
>
> If UNI is disabled, the VHSIM2-A6DP will no longer support SVCs or LAN Emulation.

3. Use the arrow keys to highlight the **SAVE** command and press ENTER. UNI has been disabled.

3.17.4 Restarting UNI

To restart UNI, perform the following steps:

1. Use the arrow keys to highlight the **RESTART UNI** command located on the bottom of the screen.

> ⚠ Before completing the following step, ensure that this caution is fully understood. By restarting UNI, **ALL** SVCs currently operating on the VHSIM2-A6DP will be lost.

2. Press ENTER. UNI is restarted.

3.17.5 Restarting the ILMI

To restart the ILMI, perform the following steps:

1. Use the arrow keys to highlight the **RESTART ILMI** command located on the bottom of the screen.

> ⚠ **CAUTION:** Before completing the following step, ensure that this caution is fully understood. By restarting ILMI, **ALL** SVCs currently operating on the VHSIM2-A6DP will be lost.

2. Press ENTER. The ILMI is restarted.

3.18 TRAFFIC MANAGEMENT SCREEN

The Traffic Management screen is used to set up profile index traffic descriptors. Once the descriptors are set up, they can be assigned to PVCs created in Connection Setup or LEC Transmit Queue screens.

To access the Traffic Management Descriptor Profiles screen from the ATM menu screen, perform the following steps:

1. Use the arrow keys to highlight the **TRAFFIC MANAGEMENT** menu item of the ATM menu screen.

2. Press ENTER. The Traffic Management Descriptor Profiles screen, Figure 3-20, displays.

Figure 3-20   Traffic Management Descriptor Profiles Screen


```
        Profile Index:          [1]

        Profile Name:           Default UBR descriptor

        Traffic Category:       [ UBR ]

        Traffic Parameters:     Transmit Units: [ Cells/Second ]

        Peak Cell Rate [ PCR ]  366792      Cells/Second




   SAVE   DELETE                                    EXIT  RETURN
```

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The following list explains each of the Traffic Management Descriptor Profiles screen fields:

Profile Index (Selectable)
The index number chosen here is used to create the traffic descriptor. The number chosen must be greater than 32 (1 to 31 is reserved). The default traffic descriptors are displayed as 1 thru 9. The first available new entry is displayed as "NEW ENTRY".

Profile Name (Selectable)
Used to enter a name for the chosen traffic descriptor.

Traffic Category (Selectable)

Used to choose the traffic category for the selected name. UBR (Unspecified Bit Rate) is the default, and the choices are CBR (Constant Bit Rate), nrt-VBR (non real time Variable Bit Rate), and ABR (Available Bit Rate).

For both UBR and CBR, only the PCR (Peak Cell Rate) traffic parameter is displayed.

When nrt-VBR is chosen, the traffic paramenters SCR (sustained cell rate) and MBS (Maximum Burst Size) are displayed, along with PCR, which all need to be configured.

When ABR is chosen, the traffic parameters MCR (Maximum Cell Rate), RIF (Rate Increase Factor), and RDF (Rate Decrease Factor) are displayed, along with PCR, which all need to be configured.

Traffic Parameters: Transmit Units (Selectable)

Used to choose the units of measurement for the profile.

Traffic Parameters: Peak Cell Rate (PCR) (Selectable)

Used to choose the peak cell rate for the profile.

Sustained Cell Rate (SCR) (Selectable)

Used to choose the sustained cell rate for the profile. Only displayed when the traffic category nrt-VBR is chosen.

Maximum Burst Size (MBS) (Selectable)

Used to choose the maximum burst size for the profile. Only displayed when the traffic category nrt-VBR is chosen.

Maximum Cell Rate (MCR) (Selectable)

Used to choose the maximum cell rate for the profile. Only displayed when the traffic category ABR is chosen.

Rate Increase Factor (RIF) (Selectable)

Used to choose the rate increase factor for the profile. Only displayed when the traffic category ABR is chosen.

Rate Decrease Factor (RDF) (Selectable)

Used to choose the rate decrease factor for the profile. Only displayed when the traffic category ABR is chosen.

SAVE (Command)

Used to save all changes to NVRAM.

DELETE (Command)

This command deletes the Profile Index from NVRAM.

3.18.1 Setting up a Descriptor Profile

To set up a descriptor profile, perform the following steps:

1. Use the arrow keys to highlight the **Profile Index** field.Use the space bar to toggle, or enter the number of the index to be described.

2. Use the arrow keys to highlight the **Profile Name** field. Enter the desired name.

3. Use the arrow keys to highlight the **Traffic Category** field. Use the space bar to toggle to select the desired category. The choices are UBR (default), CBR, nrt-VBR, or ABR.

4. Use the arrow keys to highlight the **Transmit Units** field. Use the space bar to toggle to select the desired units of measure. The choices are Cells/Second (default), Mbits/Second, and Kbits/Second.

5. Use the arrow keys to highlight the **Peak Cell Rate (PCR)** field, or other traffic parameters that display, such as SCR, MBS, MCR, RIF, or RDF. Enter the desired numers.

6. Use the arrow keys to highlight the **SAVE** command. Press ENTER to save the new descriptor profile.

3.18.2 Modifying a Descriptor Profile

A descriptor profile can be modified by performing the following steps, as in the procedure in Section 3.18.1.

1. Use the arrow keys to highlight the **Profile Index** field. Use the space bar to toggle, or enter the number of the index to be described.

2. Highlight only the desired parameters to change by using the arrow keys to highlight the field.

3. Once the correct parameters have been changed, use the arrow keys to highlight the SAVE command.

4. Press ENTER and the descriptor profile will be updated and the changes saved.

3.18.3 Deleting a Descriptor Profile

To delete a descriptor profile, perform the following steps:

1. Use the arrow keys to highlight the **Profile Index** field. Choose the number of the index to be deleted. Verify by checking the Profile Name to ensure that the correct profile is chosen to delete.

2. Use the arrow keys to highlight the DELETE command. Press ENTER. The profile will be deleted and will open up the index number for future use.

3.19 DISCOVERY ELAN SETUP SCREEN

The ATM Discovery ELAN Setup screen is displayed only when the host device is configured to operate as a SecureFast switch. Upon first initialization, the VHSIM2-A6DP attempts to contact any other VHSIM2-A6DPs present on the SecureFast network. Once all VHSIM2-A6DPs have discovered each other, they automatically create a default discovery ELAN.

> **NOTE:** If the VHSIM2-A6DP is inserted into a SecureFast network where the default discovery ELAN has already been created, it will be instructed to join this ELAN, rather than create a new discovery ELAN.

All LECs that have been configured on the VHSIM2-A6DP use the discovery ELAN(s) for notification of new LECs joining the discovery ELAN. In this fashion, all LECs are aware of each other on the SecureFast ATM network. The SecureFast network may be further segmented by assigning specific VHSIM2-A6DPs to specific discovery ELANs designated by the user in the Discovery ELAN Setup screen. Up to 16 ELANs may be designated as discovery ELANs, and the VHSIM2-A6DP may belong to any number of these 16 ELANs.

The default ELAN is represented as Index 1 on the ATM Discovery ELAN Setup screen in Figure 3-21.

> **NOTE:** The default ELAN does not have a name assigned to itself.

After this default ELAN is created, the user may set existing ELANs to be discovery ELANS (to a total of 16) and assign the VHSIM2-A6DP to these new discovery ELANs. The ATM Discovery ELAN Setup screen also allows the user to enable or disable each ELAN, as desired.

To access the Discovery ELAN Setup screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **DISCOVERY ELAN SETUP** menu item in the ATM Screen.

2. Press ENTER. The ATM Discovery ELAN Setup screen, Figure 3-21, displays.

> **NOTE:** The **DISCOVERY ELAN SETUP** menu item displays only if the host device has been set to operate as a SecureFast switch.

Figure 3-21   ATM Discovery ELAN Setup Screen

Index	ELAN Name	Mode	Status
1		**Master**	**Enabled**
2		**Master**	**Disabled**
3		**Master**	**Disabled**
4		**Master**	**Disabled**
5		**Master**	**Disabled**
6		**Master**	**Disabled**

SAVE	**PREV**	**NEXT**	**EXIT**	**RETURN**

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The following definitions describe each of the ATM Discovery ELAN Setup screen fields:

Index (Read-only)
Displays the number assigned to this ELAN. A total of 16 discovery ELANs can be assigned to the VHSIM2-A6DP.

ELAN Name (Modifiable)
Used to enter the name of the discovery ELAN that the VHSIM2-A6DP will join when the discovery ELAN becomes enabled.

Mode (Toggle)
Used to toggle between "Master" and "Slave". When the VHSIM2-A6DP is configured to be in "Master" mode, it will accept connections from all other VHSIM2-A6DPs in the Discovery ELANs it belongs to. When the VHSIM2-A6DP is configured to be in "Slave" mode, it will only accept connections from other VHSIM2-A6DPs configured to be in "Master" mode.

Status (Toggle)
Used to toggle between Enabled and Disabled. The Status field is used to direct the VHSIM2-A6DP to either join the specified discovery ELAN (Enabled), or disconnect from the specified discovery ELAN (Disabled).

SAVE (Command)
Used to save all changes to memory.

PREV (Command)
Used to open the previous screen of discovery ELANs. To perform the command, use the arrow keys to highlight the **PREV** command and press ENTER. The previous screen of discovery ELANs displays.

NEXT (Command)
Used to open the next screen of discovery ELANs. To perform the command, use the arrow keys to highlight the **NEXT** command and press ENTER. The next screen of discovery ELANs displays.

3.19.1 Assigning the VHSIM2-A6DP to a Discovery ELAN

To assign the VHSIM2-A6DP to an ELAN, perform the following steps:

1. Use the arrow keys to highlight the **ELAN Name** field.

2. Enter the name of the ELAN to which the VHSIM2-A6DP will connect.

> **NOTE:** The name entered in the **ELAN Name** field MUST be a valid name of an ELAN that is already active on the network if the **Status** field will be set to **Enabled**.

3. Use the arrow keys to highlight the Mode field.

4. Press the SPACE bar to toggle between the options until the desired mode displays (Master or Slave).

5. Use the arrow keys to highlight the **Status** field.

6. Press the SPACE bar until the appropriate mode displays (**Enabled** or **Disabled**).

> **NOTE:** To prevent the VHSIM2-A6DP from joining the ELAN immediately, set the Status field to "**Disabled**". To instruct the VHSIM2-A6DP to join the ELAN, enter this screen and toggle the Status field to "**Enabled**" and proceed to the following step.

7. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.

8. Press ENTER. The changes are saved to memory.

4

LANVIEW LEDs

This chapter describes how to use the LANVIEW LEDs to monitor VHSIM2-A6DP status and diagnose VHSIM2-A6DP problems. Figure 4-1 shows the location of the LANVIEW LEDs (Transmit, Receive, STS and LNK).

> **NOTE:** The terms **flashing**, **blinking**, and **solid** used in the LED definition tables of this chapter indicate the following:
>
> **Flashing** indicates an irregular LED pulse.
>
> **Blinking** indicates a steady LED pulse.
>
> **Solid** indicates a steady LED light. No pulsing.

4.1 VHSIM2-A6DP LEDs

Refer to Table 4-1 and Table 4-2 for a description of VHSIM2-A6DP and APIM/VAPIM LEDs.

Figure 4-1   VHSIM2-A6DP and APIM/VAPIM LEDs
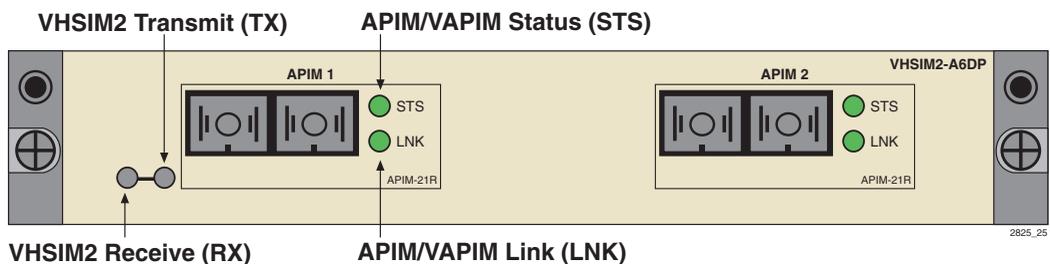
Table 4-1   VHSIM2-A6DP LEDs

LED	Color	Definition
Off	None	No activity.
TX (Transmit)	Green (**Flashing**)	Cells being transmitted.
RX (Receive)	Green (**Flashing**)	Cells being received.

NOTE: All APIMs and VAPIMs share the same LEDs.

Table 4-2   APIM LEDs

LED	Color	Definition
LNK (Link)	Green (**Solid**)	Have link.
	Off	No link.
STS (Status)	Green (**Solid**)	APIM OK.
	Red (**Solid**)	Fault with media. In most cases, the APIM automatically corrects this condition without interrupting operations. If the LED is red and remains red, contact Enterasys Networks. Refer to Section 1.2.
	Red (**Blinking**)	APIM should be replaced. The APIM will still function, but packet switching performance may be affected. If the APIM goes into this LED state, contact Enterasys Networks. Refer to Section 1.1.

A

VHSIM2-A6DP Specifications

This Appendix describes environmental specifications and safety requirements for the VHSIM2-A6DP. Enterasys Networks reserves the right to change these specifications at any time without notice.

A.1 SPECIFICATIONS

Environment

Operating Temperature:	5°C to 40°C (41°F to 104°F)
Storage Temperature:	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity:	5% to 90% (non-condensing)

Regulatory Compliance

Safety:	UL 1950, CSA C22.2 No. 950, 73/23/EEC, EN 60950, IEC 950, EN 60825
Electromagnetic Compatibility (EMC):	FCC Part 15, CSA C108.8, 89/336/EEC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS 3548, VCCI V-3

B

APIM and VAPIM Specifications

This appendix provides specifications for Enterasys Networks APIMs and VAPIMs.

B.1 APIM-21 SPECIFICATIONS

Physical Interface:	OC3
Media Type:	Multimode Fiber
Data Rate:	155 Mbps
Connector Type:	SC
Transmit Power:	-14 db to -18.5 db
Receive Sensitivity:	-14 db to -32.5 db
Loss Budget:	-14 db to -18.5 db
Wavelength:	1270 nm to 1380 nm
Typical Link Distance:	2 km

Figure B-1   APIM-21
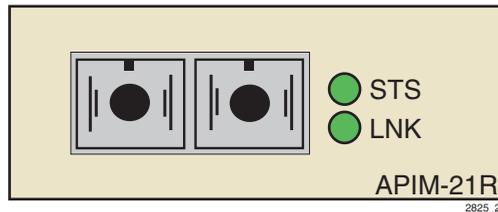
B.2   APIM-29 SPECIFICATIONS

Physical Interface:	OC3
Media Type:	Single Mode Fiber
Data Rate:	155 Mbps
Connector Type:	SC
Transmit Power:	-8 db to -14 db
Receive Sensitivity:	-6 db to -32.5 db
Loss Budget:	-8 db to -24.5 db
Wavelength:	1261 nm to 1360 nm
Typical Link Distance:	25 km

Figure B-2   APIM-29
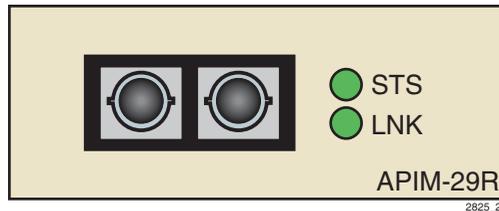
B.3   APIM-29LR SPECIFICATIONS

Physical Interface: OC3

Media Type: Single Mode Fiber

Data Rate: 155 Mbps

Connector Type: SC

Transmit Power: 0 db to -5 db

Receive Sensitivity: -31 db

Loss Budget: -26 db to -31 db

Wavelength: 1280 nm to 1335 nm

Typical Link Distance: 60 km

Figure B-3   APIM-29LR

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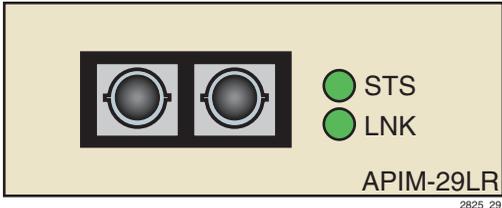
B.4   APIM-22 SPECIFICATIONS

Physical Interface:	STS3
Media Type:	Category 5 Unshielded Twisted Pair
Data Rate:	155 Mbps
Connector Type:	RJ45
Typical Link Distance:	100 Meters

The APIM-22R is considered an *ATM User Device* and therefore has a different signal pin assignment than the *ATM Network Equipment* as specified by the *ATM Forum User-Network Interface (UNI)* specification. Figure B-4 shows the pin assignments for the APIM-22R.

Figure B-4   APIM-22 Pin Assignments
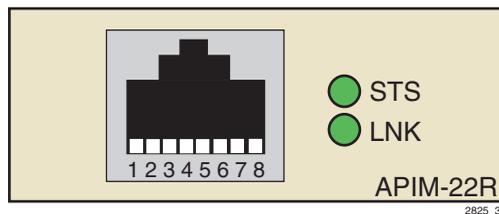
1. Transmit +
2. Transmit -
3. N/A
4. N/A
5. N/A
6. N/A
7. Receive +
8. Receive -

B.5 APIM-67 SPECIFICATIONS

Physical Interface: DS3

Media Type: 75 Ohm Coaxial Cable

Data Rate: 45 Mbps

Connector Type: BNC

Typical Link Distance: 136 Meters

CAUTION: The APIM-67R does not use Cell Payload Scrambling. Scrambling must be disabled on any DS3 device connected to the APIM-67R.

The APIM-67 conforms to the electrical characteristics specified by ANSI T1.404-1989 *Carrier-to-Customer Installation-DS3 Metallic Interface Specification*, Section 5.12 *Grounding Arrangements*. In accordance with this specification, each channel (Transmit and Receive) must be grounded at one end.

Enterasys ships the APIM-67R with the following default jumper settings:

• Receive channel jumper - grounded

• Transmit channel jumper - not grounded

Figure B-5 shows the location and default setting of each jumper. Refer to Figure B-5 if you need to change the jumper settings to properly connect the APIM-67R to another DS3 device.

Figure B-5   APIM-67R Default Jumper Settings

Figure B-6   APIM-67

RECEIVE CHANNEL JUMPER (GROUNDED)
TRANSMIT CHANNEL JUMPER (NOT GROUNDED)
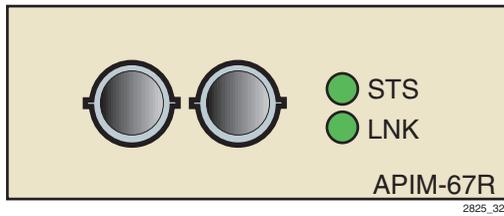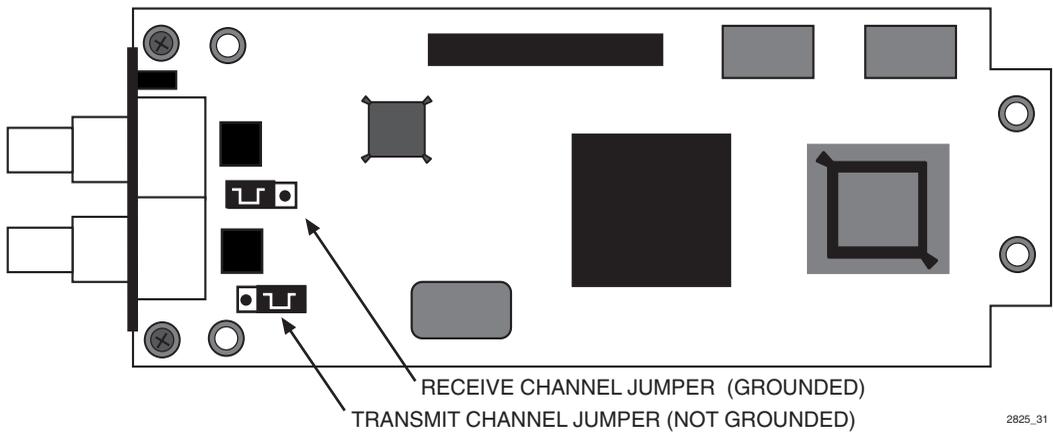
B.6   VAPIM-31 SPECIFICATIONS

Physical Interface: OC12

Media Type: Multimode Fiber

Data Rate: 622 Mbps

Connector Type: SC

Transmit Power: -14 db to -22.5 db

Receive Sensitivity: -14 db to -26 db

Loss Budget: -12 db to -14 db

Wavelength: 1270 nm to 1380 nm

Typical Link Distance: 500 meters

Figure B-7   VAPIM-31
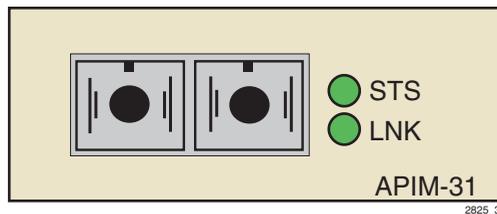
B.7   VAPIM-39 SPECIFICATIONS

Physical Interface: OC12

Media Type: Single Mode Fiber

Data Rate: 622 Mbps

Connector Type: SC

Transmit Power: -8 db to -15 db

Receive Sensitivity: -28 db

Loss Budget: -13 db to -20 db

Wavelength: 1274 nm to 1356 nm

Typical Link Distance: 15 km

Figure B-8   VAPIM-39
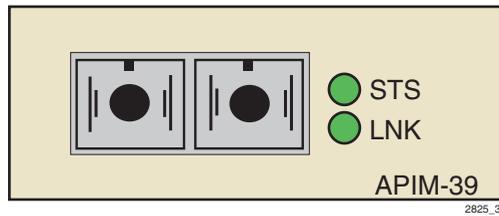
B.8   VAPIM-39LR SPECIFICATIONS

Physical Interface: OC12

Media Type: Single Mode Fiber

Data Rate: 622 Mbps

Connector Type: SC

Transmit Power: +2 db to -3 db

Receive Sensitivity: -34 db to 36 db

Loss Budget: -29 db to -38 db

Wavelength: 1280 nm to 1335 nm

Typical Link Distance: 60 km

Figure B-9   VAPIM-39LR

Index