



DIGITAL ATM Modular Interface

DELHA-UA User's Guide

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This manual explains how to install the DELHA-UA into a DIGITAL interface module or standalone hub, describes the DELHA-UA features, and outlines the specifications for this DIGITAL Asynchronous Transfer Mode (ATM) High Speed Interface Module (HSIM).

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Application of Council Directive(s): **89/336/EEC**
73/23/EEC

Manufacturer's Name: **Cabletron Systems, Inc.**

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Conformance to Directive(s)/Product Standards: **EC Directive 89/336/EEC**
EC Directive 73/23/EEC
EN 55022
EN 50082-1
EN 60950

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.

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Full Name

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PREFACE

Welcome to the *DIGITAL ATM Modular Interface DELHA-UA User's Guide*. This guide provides the following information:

- Describes DELHA-UA features.
- Explains how to install the DELHA-UA into a DIGITAL interface module or standalone device.
- Outlines specifications for the DIGITAL Asynchronous Transfer Mode (ATM) High Speed Interface Module (HSIM).

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

USING THIS GUIDE

Read through this manual completely to familiarize yourself with its content and to gain an understanding of the features and capabilities of the DELHA-UA.



This guide refers to the DELHA-UA as an HSIM (High Speed Interface Module).

This guide is for DIGITAL 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

This guide is organized as follows:

Chapter 1, **Introduction**, describes DELHA-UA features.

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

Chapter 3, Local Management, describes how to use the DELHA-UA Local Management screens to configure the DELHA-UA for connection to an ATM network.

Chapter 4, DIAGNOSTIC LEDs, describes how to use the DELHA-UA LEDs to monitor HSIM performance and status.

Appendix A, DELHA-UA Specifications, describes environmental specifications and safety requirements for the DELHA-UA.

Appendix B, APIM Specifications, describes specifications and features for each of the APIMs available for the DELHA-UA.

DOCUMENT CONVENTIONS

Throughout this guide, the following symbols are used to call attention to important information.



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



Caution symbol. Contains information essential to avoid damage to the equipment.



Electrical Hazard Warning symbol. Warns against an action that could result in personal injury or death 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.
<i>italic type</i>	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).
<i>x</i>	A lowercase italic <i>x</i> indicates the generic use of a letter (e.g., <i>xxx</i> indicates any combination of three alphabetic characters).
<i>n</i>	A lowercase italic <i>n</i> indicates the generic use of a number (e.g., 19 <i>nn</i> 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.

RELATED DOCUMENTATION

Use the following manuals to supplement the procedures and other technical data provided in this guide.

Cabletron Systems *ATM Technology Guide*

Cabletron Systems *Cabling Guide*



The documentation for the interface module or standalone device in which the DELHA-UA will be installed will also assist you in the installation and setup of the DELHA-UA.



For additional information on ATM technology, visit the ATM Forum's web site at www.atmforum.com.

CORRESPONDENCE

Documentation Comments

If you have comments or suggestions about this manual, send them to DIGITAL Network Products:

Attn.:	Documentation Project Manager
E-MAIL:	doc_quality@lkg.mts.dec.com

World Wide Web

To locate product-specific information, refer to the DIGITAL Network products Home Page on the World Wide Web at the following locations:

North America:	http://www.networks.digital.com
Europe:	http://www.networks.europe.digital.com
Asia Pacific:	http://www.networks.digital.com.au

GETTING HELP



Contact your DIGITAL representative for technical support. Before calling, have the following information ready:

- 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.)
- 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.)

SAFETY

OVERVIEW

Any warning or caution that appears in this manual is defined as follows:

	WARNING	Warns against an action that could result in equipment damage, personal injury, or death.
	VORSICHT	Warnt den Benutzer vor Aktionen, die das Gerät beschädigen, Personen verletzen oder sogar zum Tot führen könnten.
	DANGER	Déconseille à l'utilisateur d'exécuter une action pouvant entraîner des dommages matériels, corporels voire même la mort.
	AVISO	Previene contra una acción que podría dañar el equipo, provocar daños personales o la muerte.
	CAUTION	Contains information essential to avoid damage to the equipment.
	ACHTUNG	Liefert wichtige Informationen, um einen Geräteschaden zu vermeiden.
	ATTENTION	Informations indispensables permettant d'éviter les dommages matériels.
	PRECAUCIÓN	Contiene información esencial para evitar daños al equipo.

SAFETY REQUIREMENTS

The warnings or cautions that must be observed for the hardware described in this manual are listed below in English, German, French, and Spanish.



WARNING	Only qualified personnel should install or service this unit.
VORSICHT	Diese Einheit darf nur von qualifizierten Fachleuten installiert oder gewartet werden.
DANGER	L'installation et la maintenance de cet appareil sont réservées à un personnel qualifié.
AVISO	Sólo el personal cualificado debe instalar o dar mantenimiento a esta unidad.



WARNING	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.
VORSICHT	Stellen Sie sicher, daß das Netzkabel gezogen wird und nur diejenigen Schrauben entfernt werden, die zum Abnehmen des Gehäuses notwendig sind. Andernfalls besteht Elektroschockgefahr.
DANGER	Pour retirer le couvercle du châssis, vérifiez que vous avez débranché le cordon d'alimentation et que vous avez uniquement retiré les vis nécessaires. Respectez ces consignes de sécurité pour éviter les risques d'électrocution.
AVISO	Asegúrese de retirar el cable de alimentación y SÓLO los tornillos que se requieren para retirar la cubierta del chasis. Si no se cumple con estos requisitos, se podrían provocar electrochoques.



WARNING	Ensure that the chassis cover is in place before reconnecting the power cord.
VORSICHT	Das Gehäuse sollte ordnungsgemäß angebracht sein, bevor das Netzkabel wieder angeschlossen wird.
DANGER	Avant de rebrancher le cordon d'alimentation, vérifiez que le couvercle du châssis est bien en place.
AVISO	Asegúrese de que la cubierta del chasis esté en su sitio antes de volver a conectar el cable de alimentación.



CAUTION	Ensure that the pins align with the connector to prevent bending the pins. Failure to do so can damage the products.
ACHTUNG	Achten Sie darauf, daß der Stecker gerade am Anschluß ausgerichtet ist und die Steckernadeln nicht verbogen werden. Andernfalls könnten die Produkte beschädigt werden.
ATTENTION	Assurez-vous que les broches du module sont alignées avec le connecteur, afin d'éviter de les tordre et d'endommager les appareils.
PRECAUCIÓN	Asegúrese de que las patillas se alineen con el conector para evitar que se doblen, ya que de lo contrario podría deteriorar los productos.



CAUTION	By changing the status of the ILMI, ALL SVCs currently configured on the DELHA-UA will be lost.
ACHTUNG	Eine Statusänderung von ILMI führt zum Verlust ALLER Switched Virtual Channels (SVCs), die gegenwärtig auf dem DELHA-UA konfiguriert sind.
ATTENTION	En cas de modification du statut de l'appareil ILMI, tous les canaux SVC (Switched Virtual Channels) actuellement configurés sur le DELHA-UA seront perdus.
PRECAUCIÓN	Al cambiar el estado del ILMI, TODOS los SVC que estén configurados actualmente en el DELHA-UA se perderán.



CAUTION	These products 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 this equipment.
ACHTUNG	Diese Produkte sind für statische Entladungen empfindlich. Benutzen Sie deshalb ein Antistatikarmband, und beachten Sie während dieses Verfahrens alle Vorsichtsmaßnahmen. Bei Nichtbeachtung könnte das Gerät beschädigt werden.
ATTENTION	Ces produits sont sensibles à l'électricité statique. Portez un bracelet anti-statique et observez les règles de sécurité pendant cette procédure, sinon vous risqueriez d'endommager l'appareil.
PRECAUCIÓN	Estos productos son sensibles a las descargas de electricidad estática. Utilice una muñequera antiestática y observe las normas de seguridad de manipulación de dispositivos con electricidad estática durante este procedimiento. No hacerlo podría resultar en daños para el módulo.



<p>CAUTION</p>	<p>Do not perform the following steps unless the Bandwidth Allocation Mode Warning screen is fully understood. All LAN Emulation Clients (LECs) and Permanent Virtual Channels (PVCs) configured on the DELHA-UA will be lost. With Bandwidth Allocation Mode on, the DELHA-UA does not support Switched Virtual Channels (SVCs) or LAN Emulation.</p>
<p>ACHTUNG</p>	<p>Folgende Schritte sollten erst dann durchgeführt werden, wenn die Warnanzeige in bezug auf den Bandbreitenzuteilungsmodus (Bandwidth Allocation Mode Warning) vollständig verstanden wurde. Alle LAN Emulation Clients (LECs) und Permanent Virtual Channels (PVCs), die auf dem DELHA-UA konfiguriert sind, gehen verloren. Der Bandbreitenzuteilungsmodus auf dem DELHA-UA unterstützt keine Switched Virtual Channels (SVCs) oder LAN-Emulation.</p>

ATTENTION	<p>Avant d'exécuter la procédure suivante, assurez-vous d'avoir bien compris l'écran Bandwidth Allocation Mode Warning. Tous les clients d'émulation LAN (LEC) et les Permanent Virtual Channels (PVC) configurés sur le DELHA-UA seront perdus. En effet, si le mode Bandwidth Allocation est actif, le DELHA-UA ne prend en charge ni les Switched Virtual Channels (SVC), ni l'émulation LAN.</p>
PRECAUCIÓN	<p>No lleve a cabo los siguientes pasos a no ser que haya comprendido perfectamente la pantalla Bandwidth Allocation Mode Warning (de aviso del modo de asignación del ancho de banda). Todos los clientes de emulación de LAN (LEC, Lan Emulation Client) y los canales virtuales permanentes (PVC, Permanent Virtual Channel) configurados en el DELHA-UA se perderán. Si el modo de asignación de ancho de banda (Bandwidth Allocation Mode) está activado, el DELHA-UA NO no soporta los canales virtuales conmutados (SVC, Switched Virtual Channel) ni la emulación de LAN.</p>



CAUTION	In the following step, ensure that the standoff on the device align with the standoff screw holes on the HSIM to prevent bending pins.
ACHTUNG	Achten Sie beim folgenden Schritt darauf, daß die Abstandsschrauben am Gerät gerade an den zugehörigen Löchern am HSIM ausgerichtet sind, damit die Nadeln nicht verbogen werden.
ATTENTION	Dans la procédure suivante, assurez-vous que les séparateurs de l'appareil sont alignés avec les orifices de vissage du HSIM pour éviter de tordre les broches.
PRECAUCIÓN	En el siguiente paso, asegúrese de que los separadores del dispositivo estén bien alineados con los orificios de los tornillos del HSIM para evitar doblar las patillas.

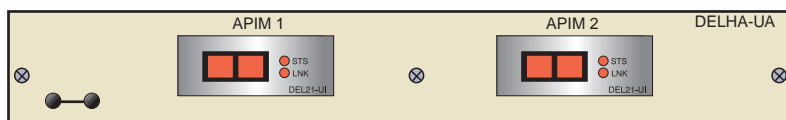


CAUTION	The DEL67-UI does not use Cell Payload Scrambling. Scrambling must be disabled on any DS3 device connected to the DEL67-UI.
ACHTUNG	Der DEL67-UI benutzt kein Cell Payload Scrambling. Die Scrambling-Funktion muß auf allen DS3-Geräten, die mit dem DEL67-UI verbunden sind, deaktiviert sein.
ATTENTION	Le DEL67-UI n'utilise pas le Cell Payload Scrambling. Cette fonctionnalité doit être désactivée sur tous les DS3 connectés au DEL67-UI.
PRECAUCIÓN	El DEL67-UI no utiliza Cell Payload Scrambling. Por tanto, esta funcionalidad deberá estar desactivada en todos los dispositivos DS3 conectados al DEL67-UI.

CHAPTER 1

INTRODUCTION

This chapter provides a brief overview of the DELHA-UA and provides information on obtaining additional help from your DIGITAL service representative.



LKG-10984a-98A

Figure 1-1 DELHA-UA

1.1 OVERVIEW

The DELHA-UA extends the functionality of the DIGITAL interface module or standalone device to include remote uplink capability. It allows remote connectivity using ATM technology.

Two APIMs can be installed in the DELHA-UA to provide redundant ATM links from the HSIM to a switched ATM network. There are a variety of APIMs that allows 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 DELHA-UA 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) for SVC signaling specification.

1.1.1 ATM Port Interface Modules (APIMs)

The DELHA-UA supports two DIGITAL APIMs for ATM connectivity and redundancy. You can install APIMs into the DELHA-UA for the interface of your choice. 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 available for the DELHA-UA.

1.1.2 MIB Support

For additional information on how to extract and compile individual MIBs, refer to the Release Notes.

1.1.3 Diagnostic LEDs

The DELHA-UA diagnostic LEDs help to quickly identify transmit/receive and link status.

CHAPTER 2

INSTALLATION

This chapter contains instructions for the following tasks:

- Unpacking the HSIM (Section 2.1)
- Installing APIMs (Section 2.2)
- Installing an HSIM (Section 2.3)

To install the HSIM and APIMs, the following tools are required:

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

2.1 UNPACKING THE HSIM

Unpack the HSIM as follows:



These products 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 this equipment.

1. Remove the shipping box material covering the HSIM.
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 your DIGITAL customer service representative immediately.

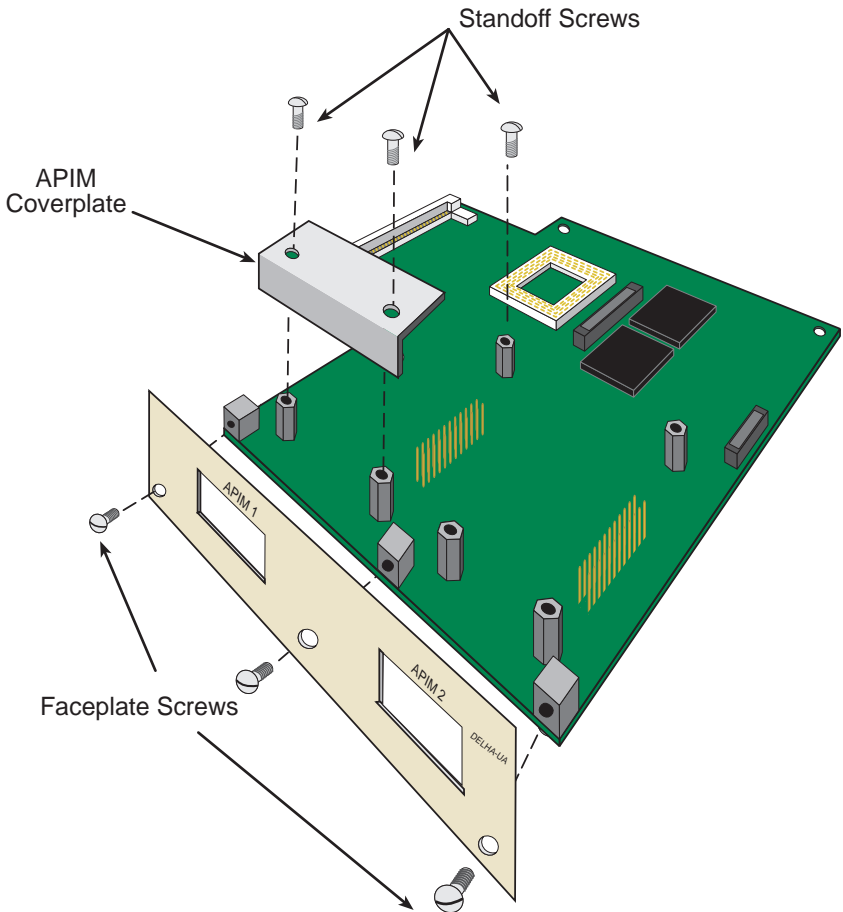
2.2 INSTALLING APIMs



Only qualified personnel should install or service this unit.

To install an APIM into the DELHA-UA, proceed as follows:

1. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).
2. Remove and save the three faceplate screws attaching the faceplate to the HSIM. See [Figure 2-1](#). Remove the HSIM faceplate.



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Figure 2-1 Removing the APIM Coverplate

3. Remove and save the three screws from the HSIM standoffs. Remove the APIM coverplate.
4. Insert the APIM connector into the HSIM connector pins. See [Figure 2-2](#).

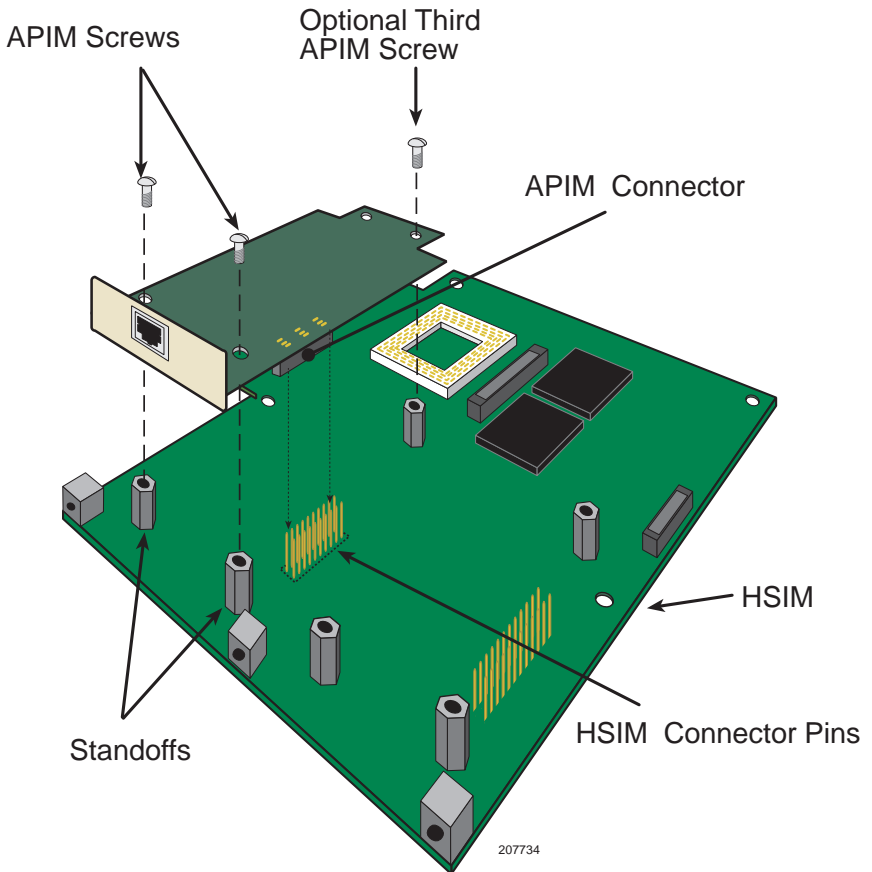


Figure 2-2 Installing an APIM



Ensure that the APIM connector aligns with the HSIM connector pins to prevent bending the pins. This can damage both the HSIM and the module.

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.
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 HSIM using the three screws saved in [step 2](#).

2.3 INSTALLING AN HSIM



Only qualified personnel should install or service this unit.

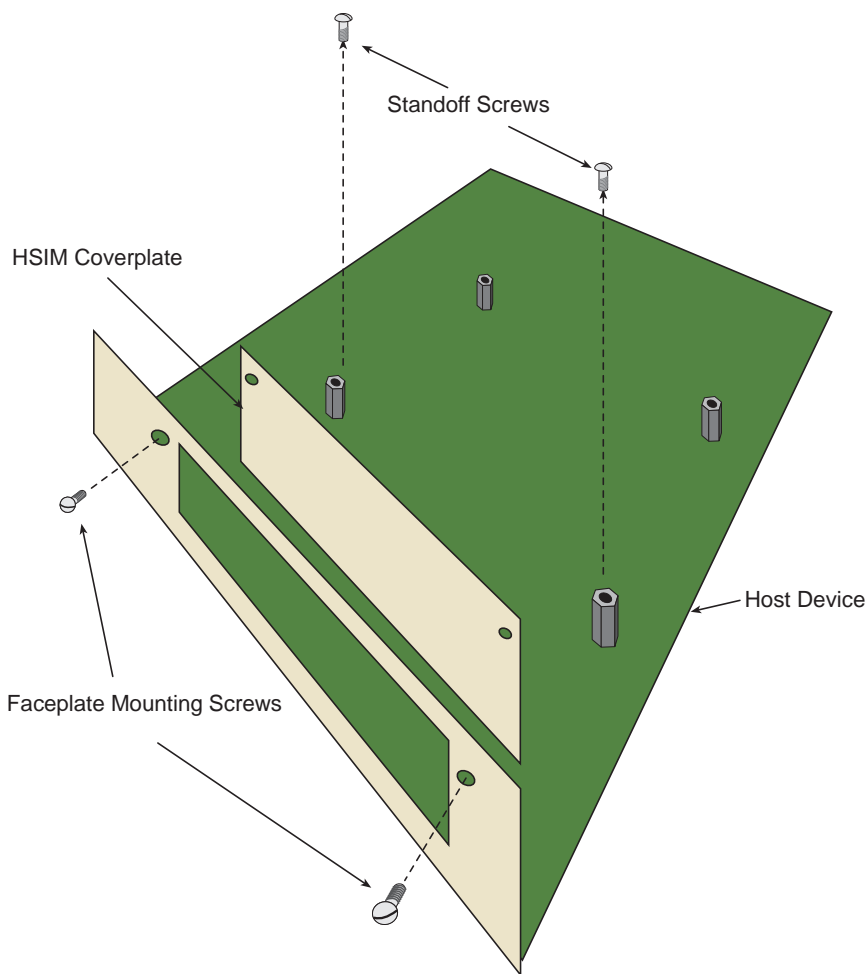
You can install an HSIM into any DIGITAL device that supports HSIM technology (e.g., DLM42-MA, DLE32-MA). Refer to the release notes for the version of firmware running on the DIGITAL device to ensure that the DELHA-UA is supported. The following subsections provide generic instructions for installing a DELHA-UA in a module or in a standalone device.

2.3.1 Installing an HSIM in an Interface Module

To install a DELHA-UA into a module that supports HSIM 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 HSIM coverplate and remove the coverplate. See [Figure 2-3](#).

6. Remove and save the two standoff screws. See [Figure 2-3](#)



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Figure 2-3 Removing the HSIM Coverplate

7. Place the HSIM behind the module faceplate. See Figure 2-4.

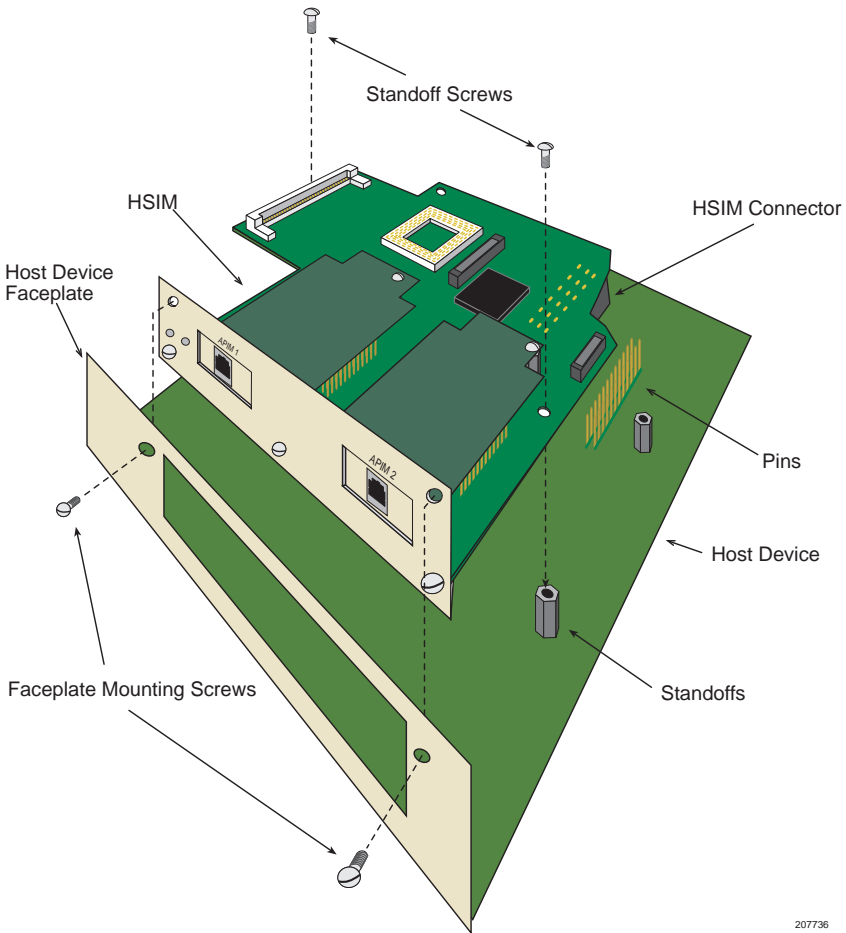


Figure 2-4 Installing the DELHA-UA



Ensure that the HSIM connector aligns with the HSIM connector pins to prevent bending the pins. Failure to do this can damage both the HSIM and the module.

8. Insert the connector of the HSIM into the HSIM connector pins on the module.

9. Press down firmly on the back of the HSIM until the pins slide all the way into the connector holes.
10. Secure the HSIM to the faceplate using the two screws saved in [step 5](#).



In the following step, ensure that the standoffs on the interface module align with the standoff screw holes on the HSIM to prevent bending pins.

11. Secure the HSIM to the standoffs with the two screws saved in [step 6](#).
12. Reinstall the interface module in the chassis.
13. Reattach the network cabling to the interface module.
14. Refer to [Chapter 3](#) for instructions on configuring the DELHA-UA using Local Management.

2.3.2 Installing an HSIM in a Standalone Device

To install an HSIM into a standalone device that supports HSIM 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.



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 HSIM coverplate and remove the coverplate as shown back in [Figure 2-3](#).

6. Remove and save the two standoff screws as shown back in [Figure 2-3](#).
7. Place the HSIM behind the device faceplate as shown back in [Figure 2-4](#).
8. Insert the connector of the HSIM into the HSIM connector pins on the device.



In the following step, ensure that the standoffs on the device align with the standoff screw holes on the HSIM to prevent bending the pins.

9. Press down firmly on the back of the HSIM until the pins slide all the way into the connector holes.
10. Secure the HSIM to the faceplate using the screws saved in [step 5](#).
11. Secure the HSIM to the standoffs using the screws saved in [step 6](#).



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 DELHA-UA using Local Management.

CHAPTER 3

LOCAL MANAGEMENT

This chapter explains the following:

- 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 DELHA-UA LEC ARP Cache.
- Configure bandwidth allocation for PVCs.
- Configure the APIMs installed in the DELHA-UA 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 DELHA-UA to perform as a LAN Emulation Configuration Server (LECS), LAN Emulation Server (LES), and a Broadcast and Unknown Server (BUS).



When installed, the DELHA-UA 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.

The following must be completed before configuring the DELHA-UA through Local Management:

- Installation of an APIM in the DELHA-UA. Refer to [Chapter 2](#) for instructions.
- Installation of the DELHA-UA in the host interface module or standalone device with the host device operational. Refer to [Chapter 2](#) for instructions.



If the DELHA-UA will be installed in a network using LAN Emulation, and the LANE Services option of the DELHA-UA will not be used, the DELHA-UA must have access to a LAN Emulation Server (LES), Broadcast and Unknown Server (BUS), and a LAN Emulation Configuration Server (LECS).

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

3.1 USING LOCAL MANAGEMENT SCREENS

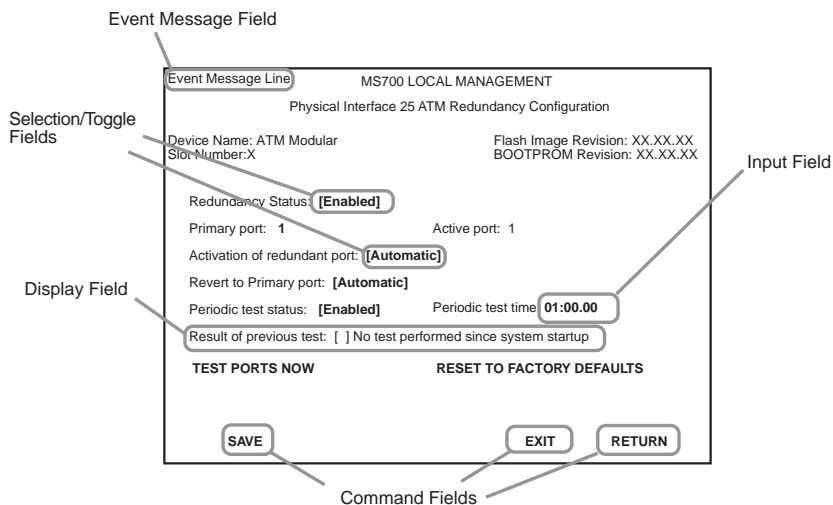
Section 3.1.1 through Section 3.1.3 describe Local Management screen elements, keyboard conventions and how to navigate through the Local Management screens of the DELHA-UA.

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. Figure 3-1 shows an example of the fields in a screen. A description of each field follows the figure.



The following definitions apply to most DIGITAL Local Management screens. Exceptions to these definitions may occur in the Local Management screens of some DIGITAL devices.



Examples

Figure 3-1 Example of a Local Management Screen

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.



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

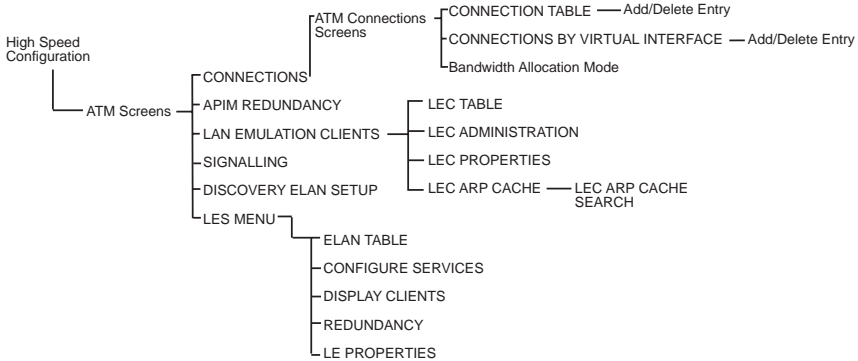
All key names appear in this manual as capital letters. For example, the Enter key appears as ENTER and the Backspace key appears as BACKSPACE. Table 3-2 explains the keyboard conventions used in this manual as well as the key functions.

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 DELHA-UA 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 DELHA-UA Local Management screens.



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Figure 3-2 DELHA-UA Local Management Screen Hierarchy

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.

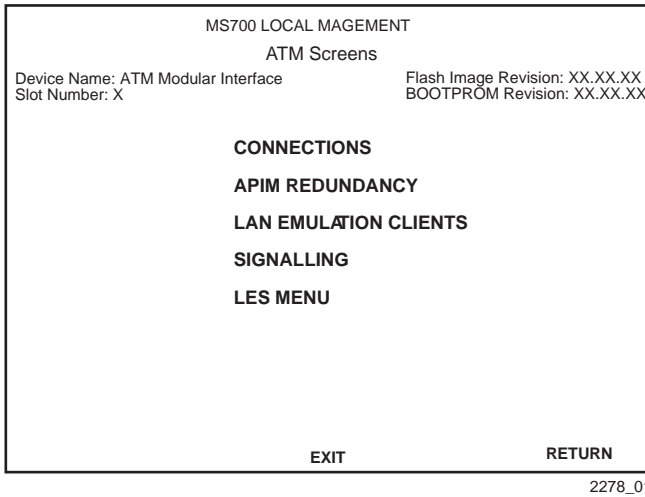


The user can also exit Local Management screens by pressing ESC twice. This exit method does not warn about unsaved changes and all unsaved changes will be lost.

3. Exit from DELHA-UA 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 DELHA-UA ATM SCREEN

To access the DELHA-UA ATM screen from an interface module (e.g., DEL32-MA) 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 DELHA-UA ATM screen displays. See [Figure 3-3](#).



2278_01

Figure 3-3 DELHA-UA ATM Screen

The DELHA-UA ATM screen displays up to six menu items for configuration and monitoring of the DELHA-UA. The following list explains each of the DELHA-UA ATM screen fields:

CONNECTIONS

This menu item opens the ATM Connections screen. This screen is used to view the current configured virtual connections (PVCs and SVCs) of the DELHA-UA and to view the ATM connections by virtual interface. The ATM Connections screen also provides access to the Add/Delete Entry screen, which is used to add, modify, or delete PVCs. It also allows the user to set the Bandwidth Allocation Mode to on or off. For details, refer to [Section 3.3](#).

ATM PORT REDUNDANCY

This menu item displays the ATM Redundancy Configuration screen. This screen is used to set an APIM installed in the DELHA-UA as the primary port, to set how the redundant port is activated, when the primary port is reverted to active status, to set the time when the DELHA-UA tests the redundancy of the APIMs, and to view the results of these tests. For details, refer to [Section 3.7](#).

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 3.8](#).

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 DELHA-UA, 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 3.13](#).

LES MENU

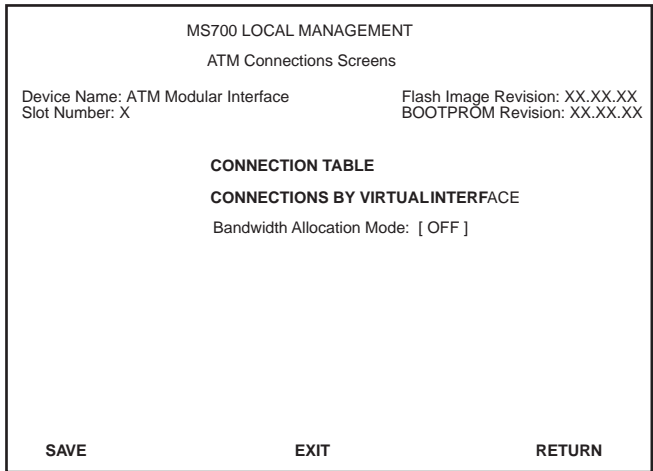
This menu item opens the LANE Services Properties screen. This screen is used to enable or disable optional LAN Emulation Services, and provides access to further configure LANE Services. For details, refer to [Section 3.14](#).

3.3 ATM CONNECTIONS SCREEN

The ATM Connections screen allows the user to open the ATM Connections Setup screen, the ATM Connection Setup by Virtual Interface screen, and to set the Bandwidth Allocation Mode to on or off.

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 DELHA-UA ATM screen.
2. Press ENTER, the ATM Connections screen, [Figure 3-4](#), displays.



2077_33

Figure 3-4 ATM Connections Screen

The following list explains each of the ATM Connections screen fields:

CONNECTION TABLE

This menu item, when selected, opens the ATM Connections Setup screen. This screen is used to view all current ATM connections. This screen also provides access to the Add/Delete Entry screen, which allows the user to create, modify, or delete PVCs.

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 for each LAN Emulation Client (LEC) on a LEC-by-LEC basis. This screen also provides access to the Add/Delete Entry screen, which allows the user to create, modify, or delete PVCs.

Bandwidth Allocation Mode (Toggle)

This field toggles between ON and OFF. The default setting is OFF. If the Bandwidth Allocation Mode field is set to ON, all PVCs created via Local/Remote Management are able to be given a percentage of available bandwidth determined by the user. With the Bandwidth Allocation Mode set to ON, Switched Virtual Channels (SVCs) and LAN Emulation

Services ARE NOT supported. When the Bandwidth Allocation Mode feature is first turned on, all LECs, PVCs and SVCs are deleted.

Section 3.21, provides details on how to configure the DELHA-UA for this type of operation. If the default setting of OFF will be kept, proceed Section 3.4.

SAVE (Command)

This command saves any changes made to the Bandwidth Allocation Mode field.

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 DELHA-UA. 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.

MS700 LOCAL MANAGEMENT						
Physical Interface 25 ATM Connection Setup						
Device Name: ATM Modular Interface			Flash Image Revision: XX.XX.XX			
Slot Number: X			BOOTPROM Revision: XX.XX.XX			
ATM Port Current Connections: 30			[Page 1 of 4]			
IF	PORT	VPI	VCI	Encapsulation Type	Status	ATM Address(ESI)
25	0	0	5	UNI	Enabled	
25	0	0	16	ILMI	Enabled	
31	1	0	25	LANE Control	Enabled	00-00-1D-XX-XX-XX
32	1	0	26	LANE Control	Enabled	00-00-1D-XX-XX-XX
34	1	0	998	LANE Control	Enabled	00-00-1D-XX-XX-XX
36	1	0	999	LANE Control	Enabled	00-00-1D-XX-XX-XX
38	1	0	1000	LANE Control	Enabled	00-00-1D-XX-XX-XX
40	1	0	1001	VC Mux 802.3 Bdg	Enabled	00-00-1D-XX-XX-XX
ADD/DELETE		PREVIOUS		NEXT		EXIT RETURN

2077_02

Figure 3-5 ATM Connection Setup Screen



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 3.13), will always display on the ATM Connection Setup screen.

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

ATM Port Current Connections (Read-Only)

Displays the number of current connections on the DELHA-UA.

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.

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. If this connection is an SVC, the switch port number is assigned to the LEC that 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.

VCI (Read-Only)

Displays the Virtual Channel Identifier of the connection. This field reads between 0 and 1019.

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 Bridged** - 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.



UNI and ILMI connections display the following values in the Encapsulation Type field:

UNI (User to Network Interface)

ILMI (Integrated Local Management Interface)

Status (Read-Only)

Displays the operational status of the Virtual Channel Connection (VCC). This field will display “Enabled” or “Disabled”.

ATM Address (ESI) (Read-Only)

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

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 DELHA-UA 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.

ADD/DELETE (Command)

Used to access the Add/Delete Entry screen. The Add/Delete Entry screen allows the user to create, modify, or delete PVCs. To access this screen, refer to [Section 3.5](#).

3.5 ADD/DELETE ENTRY SCREEN

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

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 3-6](#), displays.

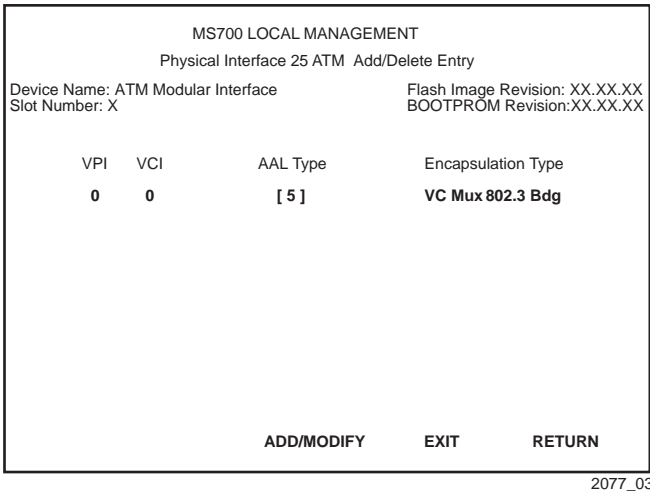


Figure 3-6 Add/Delete Entry Screen

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 DELHA-UA uses AAL 5.

Encapsulation Type (Toggle)

Displays the type of data encapsulation that the DELHA-UA 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.

ADD/MODIFY (Command)

Used to add the PVC, or the modified PVC, to the DELHA-UA connection table.

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 DELHA-UA connection table.

3.5.1 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.



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 32–1019.
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.

3.5.2 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.

3.5.3 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.



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

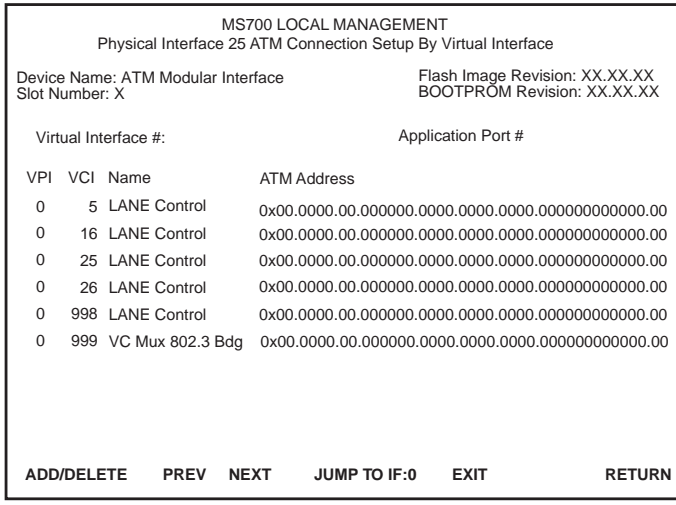
3. Use the arrow keys to highlight the **DELETE** command.
4. Press ENTER. The “PVC DELETED” message displays at the top of the screen indicating that Local Management has deleted the PVC.

3.6 ATM 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 DELHA-UA on a LEC-by-LEC basis. This screen can also display individual PVCs that have been setup on the DELHA-UA. PVCs will display one at a time, because they are considered individual Virtual Interfaces.

To access the ATM 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 Setup by Virtual Interface screen, [Figure 3-7](#), displays.



2077_96

Figure 3-7 ATM Connection Setup by Virtual Interface Screen

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

Virtual Interface # (Read-only)

Displays the virtual interface number that this LEC or PVC has been assigned by the DELHA-UA. Each LEC and PVC configured on the DELHA-UA is automatically assigned a virtual interface number once the LEC or PVC is activated by Local/Remote Management. [Section 3.10](#) provides instructions on creating LECs via Local Management. [Section 3.5](#) provides instructions on creating PVCs via Local Management.



Section 3.4 also provides instructions on how to view all PVCs that have been created via Local/Remote Management.

If the DELHA-UA is installed in an interface module (e.g., DLE32-MA) these values may differ. This is because all MultiSwitch 700 interface modules have a virtual “host” port that is used for distributed management purposes.

Application Port # (Read-only)

Displays the application port number that this connection (LEC or PVC) has been assigned by the DELHA-UA. Each connection configured on the DELHA-UA is automatically assigned an application port number once the connection is activated by Local/Remote Management.

Section 3.10 provides instructions on creating LECs using Local Management.

VPI (Read-only)

Displays the VPI of each connection that this LEC/PVC is currently supporting.

VCI (Read-only)

Displays the VCI of each connection that this LEC/PVC is currently supporting.

Name (Read-only)

Displays the type of connection that this LEC/PVC is currently supporting. If the current Virtual Interface being displayed is a LEC, this field displays “LANE”, signifying that this is a LAN Emulation SVC. If the Virtual Interface being displayed is a PVC, this field displays either “VC Mux 802.3 Bdg” or “LLC Encapsulation”. “VC MUX 802.3 Bdg” signifies that this PVC is using VC Based Multiplexing for Bridged Protocols as defined by the IETF RFC 1483. “LLC Encapsulation” signifies that this PVC is using Logical Link Control for Bridged Protocols as defined by the IETF RFC 1483.

ATM Address (Read-only)

Displays the ATM address that each connection has been assigned by the LAN Emulation Server (LES).

ADD/DELETE (Command)

Used to access the Add/Delete Entry screen. The Add/Delete Entry screen allows the user to create, modify, or delete PVCs. To access this screen, refer back to [Section 3.5](#).

JUMP TO IF: (Command)

Used to specify which virtual interface is to be viewed immediately.

NEXT (Command)

Allows the user to view the next valid virtual connection currently operating on the DELHA-UA.

PREV (Command)

Allows the user to view the previous valid virtual connection currently operating on the DELHA-UA.

3.6.1 Using the JUMP TO IF: Command

To specify which virtual interface (PVC or LEC) to jump to, proceed as follows:



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 3.9](#).

1. Use the arrow keys to highlight the **JUMP TO IF:** command.
2. Using the number keys, enter the number of the virtual interface.
3. Press ENTER. All current connections for that virtual interface display on the screen.

3.7 ATM REDUNDANCY CONFIGURATION SCREEN

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

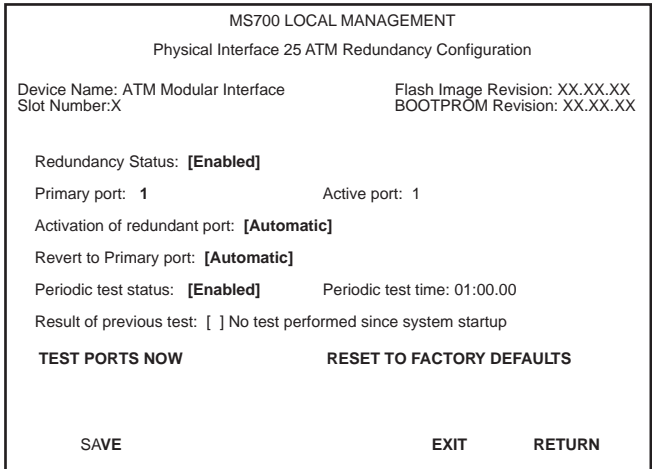
- To enable or disable the automatic redundancy check feature of the DELHA-UA.
- Set which port (APIM) is the primary port of the DELHA-UA.
- To set the DELHA-UA to either automatically activate the redundant port if a problem is detected with the primary port, or to wait until the user performs this task manually.
- To set the DELHA-UA 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 DELHA-UA will test the redundancy status of the APIMs installed in the DELHA-UA.
- View the results of ATM port redundancy tests.
- Set the interval at which the DELHA-UA will perform ATM port redundancy tests.
- Test the ports manually, without having to wait for the periodic test time to elapse.
- Reset all configurations in the ATM Redundancy Configuration screen to their factory default settings.



There **MUST** be two APIMs installed in the DELHA-UA 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 ATM screen.
2. Press ENTER. The ATM Redundancy Configuration screen, [Figure 3-8](#), displays.



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Figure 3-8 ATM Redundancy Configuration Screen

The following list explains each ATM Redundancy Configuration screen field:

Redundancy Status (Toggle)

Used to enable or disable the ATM port redundancy feature of the DELHA-UA. 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 DELHA-UA will be the primary port. Entering 1 in this field signifies that the APIM in slot APIM 1 on the DELHA-UA will be the primary port. Entering 2 signifies that the APIM in slot APIM 2 on the DELHA-UA 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 DELHA-UA. 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 DELHA-UA 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 DELHA-UA 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 DELHA-UA. 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 DELHA-UA will perform ATM port 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.).



To test the inactive port, the active port must be temporarily disabled for approximately 2 seconds.

Result of previous test (Read-Only)

Displays the results of the last redundancy test performed by the DELHA-UA. This field displays one of the following values in front of the test results:

- **[A]** – The test was automatically performed at the time of day set in the Periodic test time field.
- **[M]** – The test was manually performed by using the TEST PORTS NOW command located at the bottom of the screen.



Some test results may display a “bad port” 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 DELHA-UA or an APIM has a hardware failure, it will be reflected in their LEDs. Refer to [Chapter 4](#) for details. A “bad port” message only indicates that the port may not be used for redundancy.

TEST PORTS NOW (Command)

Used to instruct the DELHA-UA to perform an ATM port redundancy test immediately. When the test is completed, the results are displayed in the Result of previous test field.

RESET TO FACTORY DEFAULTS (Command)

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

SAVE (Command)

Used to save all changes to memory.

3.7.1 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.

3.7.2 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 APIM1 of the DELHA-UA. Entering **2** signifies APIM2 of the DELHA-UA.
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.

3.7.3 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 APIM1 of the DELHA-UA. Entering **2** signifies APIM2 of the DELHA-UA.



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.

3.7.4 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**).



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.

3.7.5 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**).



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.

3.7.6 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.

3.7.7 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



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.

3.7.8 Using the TEST PORTS NOW Command

To force the DELHA-UA 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 DELHA-UA performs the redundancy test, and displays the results in the Result of previous test field.



Using the TEST PORTS NOW command will cause the active port to be disabled for up to 2 seconds.

3.7.9 Using the RESET TO FACTORY DEFAULTS Command

To reset all the values of the ATM 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.

3.8 ATM LEC SCREEN

The ATM LEC screen contains four 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 ATM LEC 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 ATM LEC screen, **Figure 3-9**, displays.

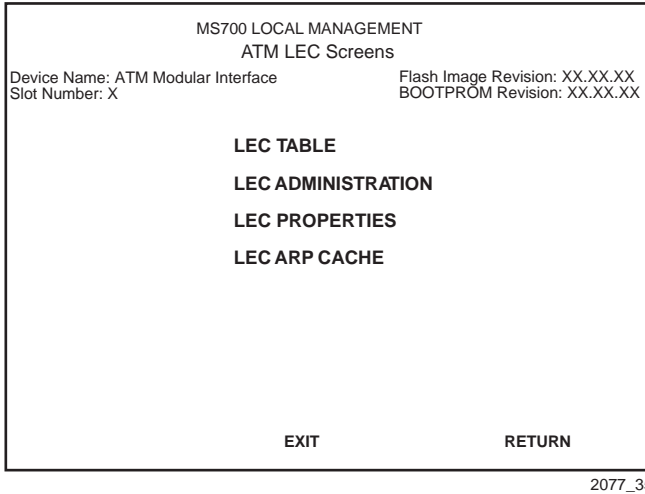


Figure 3-9 ATM LEC Screen

The following list explains each of the menu items on the ATM LEC screen:

LEC TABLE

This menu item opens the ATM LEC Table screen. This screen is a read-only screen used to view all LECs currently configured on the DELHA-UA.

LEC ADMINISTRATION

This menu item opens the ELAN Administration screen. This screen is used to create, modify, and delete LAN Emulation Clients. This procedure may be performed automatically by the DELHA-UA, or manually by the user.

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.

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 DELHA-UA. This screen also allows the user to search the DELHA-UA 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.

3.9 ATM LEC TABLE SCREEN

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

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

1. Use the arrow keys to highlight the **LEC TABLE** menu item on the ATM LEC screen.
2. Press ENTER. The ATM LEC Table screen, [Figure 3-10](#), displays.

MS700 LOCAL MANAGEMENT						
Physical Interface 25 ATM LEC Table						
Device Name: ATM modular Interface			Flash Image Revision: XX.XX.XX			
Slot Number: X			BOOTPROM Revision: XX.XX.XX			
All values correspond with the lecStatusTable of the ATM Forum LEC MIB.						
IF	Port	LEC Index	ID	ELAN Name	LEC State	
25	29	1	0	Ctron1	Operational	
						EXIT
						RETURN

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Figure 3-10 ATM LEC Table Screen

The following list explains each of the ATM 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 3.6).

Port

Displays the application port number this has LEC has been dynamically assigned.

LEC ID (Read-Only)

Displays the Index of the LEC. This value was dynamically assigned by the LES to specifically identify this LEC.

ELAN Name (Read-Only)

Displays the name assigned to the Emulated LAN (ELAN) by the user in the ELAN Administration screen (Section 3.10) 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:



In most cases, the initialization process occurs very rapidly, and the following initialization states, with the exception of “operational”, may not display.

- **initialState** - While in initialState 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.
- **lecsConnect** - During the lecsConnect 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, is assigned the name of the ELAN it will join, 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 initialRegistration phase.
- **initialRegistration** - The initialRegistration 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.
- **busConnect** - While in the busConnect 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.

3.10 LEC ADMINISTRATION SCREEN

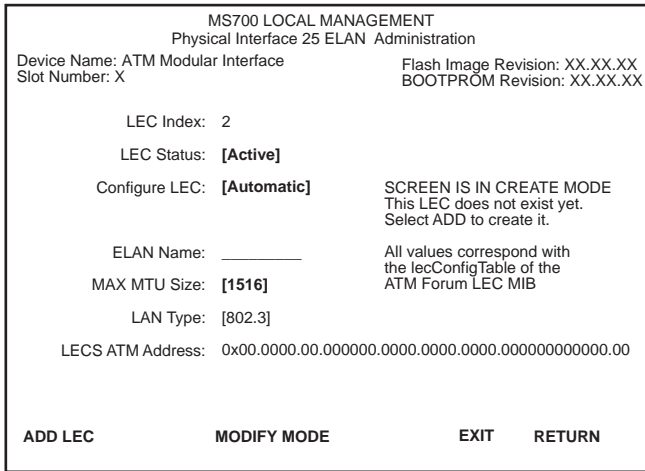


Although the following screen reads “ELAN ADMINISTRATION” this screen is used for LAN Emulation Client (LEC) Administration. In this section, the screen is referred to as the “LEC Administration screen”.

The LEC Administration screen is used to add/modify or delete LAN Emulation Clients (LECs). New LECs can be configured by the user, or this function can be performed automatically by the DELHA-UA.

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 ATM screen.
2. Press ENTER; the LEC Administration screen, [Figure 3-11](#), displays.



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Figure 3-11 LEC Administration Screen

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

LEC Index (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 while in CREATE MODE. This field is used to enter the index of the LEC that will be 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 3.10.1](#).

Configure LEC (Toggle)

Used to specify if the LEC is created manually by the user, or automatically by the DELHA-UA. This field toggles between Automatic and Manual. For instructions on how to configure the LEC automatically and manually, refer to [Section 3.10.2](#) and [Section 3.10.3](#).

ELAN Name (Modifiable)

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



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.

MAX MTU Size (Toggle)

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

LAN Type (Read-Only)

Displays the type of ELAN that this LEC joins. This field is read-only and displays 802.3, which is the only type of ELAN currently supported.



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, it is not possible to enter the LES ATM Address, as the DELHA-UA learns the address dynamically from the LECS.

LES ATM Address (Modifiable)

Displays the address of the LAN Emulation Server with which the LEC registers. If the LEC is configured manually, the LES ATM Address must be entered in this field manually.



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, it is not possible to enter the LECS ATM Address, as the DELHA-UA learns the address dynamically from the LES.

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 which the LEC will connect, the address must be entered in this field.

ADD LEC (Command)

Used to add the LEC to the DELHA-UA LEC Index. This command is only available if the screen is in CREATE MODE.

DELETE (Command)

Only displays if a valid LEC Index has been entered in the LEC Index field. This command deletes the LEC from the DELHA-UA 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

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.

3.10.1 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.



To discover the Index of the LEC that will be modified, refer to [Section 3.9](#).

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

3.10.2 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 **Configure LEC** field.
3. Use the SPACE bar to toggle between the options until **Automatic** displays.
4. 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.
5. 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.
6. 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 DELHA-UA.

3.10.3 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 **Configure LEC** field.
3. Use the **SPACE** bar to toggle between the options until **Manual** displays.



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.

4. 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.
5. Use the arrow keys to highlight the **MAX MTU Size** field.
6. Use the **SPACE** bar to toggle between the options until the appropriate MTU size displays.
7. Use the arrow keys to highlight the **LES ATM Address** field.
8. Enter the LES ATM Address in the field. Ensure that a valid ATM address is used.
9. 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 DELHA-UA LEC Index.

3.10.4 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.



To discover the Index of the LEC to be modified, refer to [Section 3.9](#).

3. Enter the LEC Index of the LEC to be modified.
4. Use the arrow keys to highlight the **Configure LEC** field.
5. Use the SPACE bar to toggle between the options until the appropriate mode displays.
6. If the LEC will be modified manually, perform the following substeps:



Substeps **a** through **d** are optional, and are not necessary to modify the LEC 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 appropriate MTU size displays.
 - e. Use the arrow keys to highlight the **LES ATM Address** field.
 - f. Enter the LES ATM Address in the field. Ensure that a valid ATM address is used.
7. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER. The modified LEC is now entered into the DELHA-UA LEC Index.

3.10.5 Deleting an Existing LEC

To delete an existing LEC, perform the following steps:

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



To discover the Index of the LEC that is to be deleted, refer to [Section 3.9, ATM LEC Table Screen](#).

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.

3.11 ELAN PROPERTIES SCREEN

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

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

1. Use the arrow keys to highlight the **LEC PROPERTIES** menu item of the ATM LEC screen.
2. Press ENTER; the ELAN Properties screen, [Figure 3-12](#), displays.

- join
- initialRegistration
- busConnect
- operational



Section 3.9 provides definitions for the possible states of the LEC State field.

Status (Read-Only)

Displays the current status of the LEC. This field displays either “active” or “notinservice”. The LEC will continue to display “notinservice” if it detects that ILMI, UNI, or both have not become operational. Once both UNI and ILMI are operational, the LEC will join an ELAN. If the LEC remains in the “notinservice” state, check on the status of ILMI and UNI by opening the Signalling screen, described in Section 3.13.

LANE Version (Read-Only)

Displays the current version of LAN Emulation being used. This field reads [1.0] only.

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.



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 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 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.

NEXT (Command)

Used to scroll to the screen that displays the properties of the next ELAN configured for the DELHA-UA. To go to the next screen use the arrow keys to highlight the **NEXT** command and press ENTER. The next screen displays.

PREV (Command)

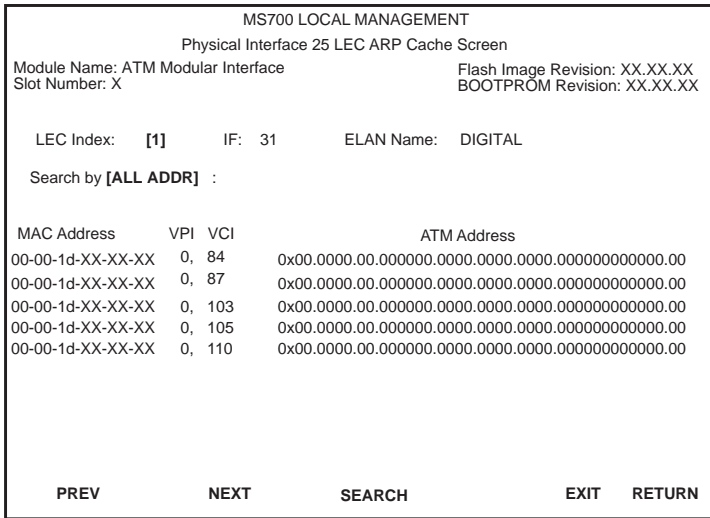
Used to scroll to the previous screen. To go to the previous screen use the arrow keys to highlight the **PREV** command and press ENTER. The previous ELAN Properties screen displays.

3.12 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 ATM LEC screen.
- 2. Press ENTER, the LEC ARP Cache screen, **Figure 3-13**, displays.



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Figure 3-13 LEC ARP Cache Screen

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.

ELAN Name (Read-Only)

Displays the name of the ELAN to which this LEC is attached.

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.

MAC Address (Read-Only)

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

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)

Used to open the LEC ARP Cache Search screen. To open this screen, use the arrow keys to highlight the **SEARCH** command and press ENTER. Proceed to the following section.

3.12.1 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 blank field to the right of the **Search By** field.
6. Enter the search term. If the **Search By** field has been kept at the default setting of ALL ADDR, enter one of the following items:
 - an ATM address
 - a VPI, VCI pair
 - a MAC address

If a specific search term has been entered in the Search By field, enter the type of search term that has been selected.

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

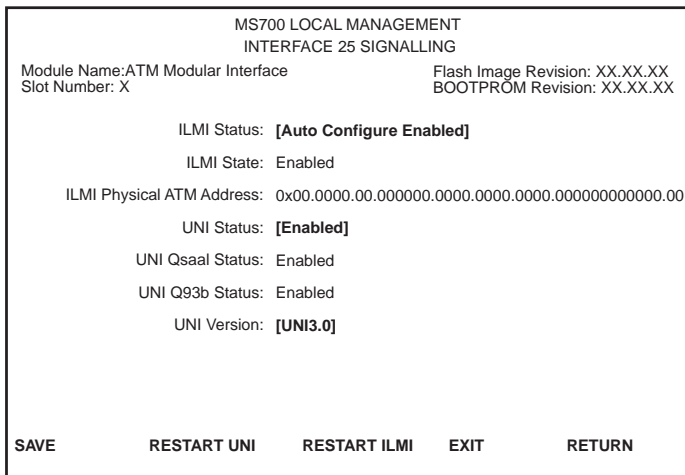
When the search is completed, the screen refreshes with the results of the search.

3.13 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 DELHA-UA, to disable ILMI and UNI, and to restart ILMI and UNI.

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

- Use the arrow keys to highlight the **SIGNALLING** menu item of the ATM Screen.
- Press ENTER; the Signalling screen, [Figure 3-14](#), displays.



2077_06

Figure 3-14 Signalling Screen

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 3.13.1](#).

ILMI State (Read-Only)

This read-only field displays the current status of the ILMI. For the DELHA-UA to function properly this field should read “Enabled” if the ILMI Status field is set to “AutoConfig Enabled” or “Enabled”.

ILMI Physical ATM Address (Read-Only)

For the DELHA-UA to support SVCs this must be a read-only field that displays the physical ATM address of the DELHA-UA. 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 3.13.3](#).

UNI Qsaal Status (Read-Only)

This read-only field displays the current UNI Qsaal status. If the DELHA-UA 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 DELHA-UA. This field is modifiable if signalling is enabled manually by the user. In autoconfigure mode the DELHA-UA uses either UNI 3.0 or UNI 3.1, depending on the version of UNI being used by the ATM switch to which the DELHA-UA 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 3.13.4](#).

RESTART ILMI (Command)

Used to restart the ILMI. For instructions on how to restart the ILMI, refer to [Section 3.13.5](#).

3.13.1 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 until the option **Enabled** displays.



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 DELHA-UA will be lost.



In **Enabled** mode, the user can force the DELHA-UA 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.

3.13.2 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.



Before completing the following step, ensure that this caution is fully understood. By disabling the ILMI, **ALL** SVCs currently configured on the DELHA-UA will be lost.

If the ILMI is disabled, and no ATM address is assigned in the ILMI Physical address field, the DELHA-UA 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.

3.13.3 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.



Before completing the following step, ensure that this caution is fully understood. By disabling UNI, **ALL** SVCs currently operating on the DELHA-UA will be lost.

If UNI is disabled, the DELHA-UA 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.

3.13.4 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 DELHA-UA will be lost.

2. Press ENTER. UNI is restarted.

3.13.5 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.



Before completing the following step, ensure that this caution is fully understood. By restarting ILMI, **ALL** SVCs currently operating on the DELHA-UA will be lost.

2. Press ENTER. The ILMI is restarted.

3.14 ENABLING LANE SERVICES



The following section describes how to enable the LANE Services option of the DELHA-UA. The LANE Services Properties screen, shown in this section, is described in [Section 3.20](#).

The DELHA-UA **MUST** be connected to an ATM switch before LANE Services can be enabled.

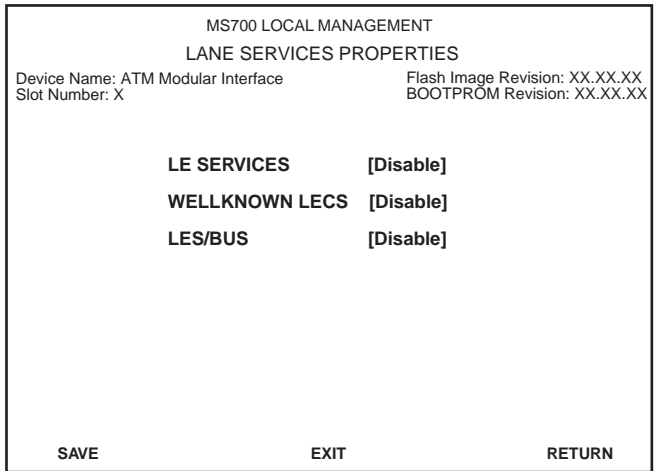
The DELHA-UA provides the option of configuring the device to perform LANE Services. With this option enabled, the DELHA-UA not only performs its switching functions as an ATM uplink device, but also acts as a LAN Emulation Configuration Server (LECS), a LAN Emulation Server (LES) and Broadcast and Unknown Server (BUS). This option is disabled by default. To enable LANE Services, perform the following steps:

1. Use the arrow keys to highlight the **LES MENU** menu item from the ATM Screen.
2. Press ENTER. The LANE Properties screen, [Figure 3-15](#), displays.



When LANE Services are disabled, the LES MENU menu item opens the LANE Services Properties screen, as shown in [Figure 3-15](#). This screen is used to enable LANE Services.

If LANE Services have already been enabled, the LES MENU item will open the LANE Services Configuration screen, as described in [Section 3.15](#).



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Figure 3-15 LANE Services Properties Screen

3. Use the arrow keys to highlight the **LE SERVICES** field.
4. Press the SPACE bar to toggle the field until **Enabled** displays.
5. Use the arrow keys to highlight the **WELLKNOWN LECS** field.
6. Press the SPACE bar to toggle the field until **Enabled** displays.
7. Use the arrow keys to highlight the **LES/BUS** field.
8. Press the SPACE bar to toggle the field until **Enabled** displays.



Before performing the following the step ensure that the following configuration does NOT exist:

If the DELHA-UA is attached to the ATM network, ensure that there is NOT another device acting as the Wellknown LECS. In this firmware release, the DELHA-UA must be the wellknown LECS for LANE Services to function. Network problems will occur if two devices attempt to function as the Wellknown LECS.

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

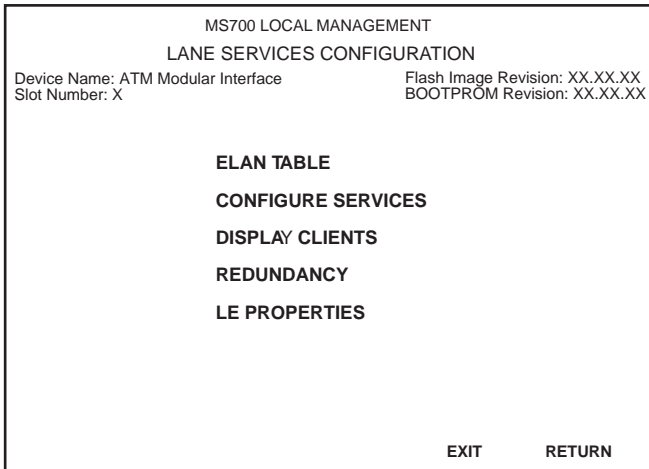
10. Press ENTER. The message “SET STATUS ACTIVE” displays at the top of the screen, indicating LANE Services have become operational.
11. Use the arrow keys to highlight the **RETURN** command at the bottom of the screen.
12. Press ENTER. The LANE Services Configuration Menu screen displays. Proceed to the following section.

3.15 LANE SERVICES CONFIGURATION MENU SCREEN

The LANE Services Configuration Menu screen provides five menu items that open screens used for configuring LANE Services for the DELHA-UA.

To access the LANE Services Configuration screen for a DELHA-UA that has already had LANE Services enabled perform the following steps:

1. Use the arrow keys to highlight the **LES MENU** menu item from the ATM Screen.
2. Press ENTER. The LANE Services Configuration screen, [Figure 3-16](#), displays.



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Figure 3-16 LANE Services Configuration Menu Screen

The following list describes each field of the LANE Services Configuration Menu screen:

ELAN TABLE

This menu item opens the ELAN Table screen. This screen displays all of the ELANs that the DELHA-UA is supporting, the LAN Type being emulated, the Max MTU Size, and the LES ATM Address of each ELAN. For details, refer to [Section 3.16](#).

CONFIGURE SERVICES

This menu item opens the LANE Services Configuration screen. This screen is used to create new ELANs that will be supported by the DELHA-UA. This screen also allows the deletion of existing ELANs that the DELHA-UA is supporting. For details, refer to [Section 3.17](#).

DISPLAY CLIENTS

This menu item opens the Client Info screen. This screen is used to view all LECs that are attached to the ELANs the DELHA-UA supports. These LECs are viewed on an ELAN by ELAN basis. For details, refer to [Section 3.18](#).

REDUNDANCY

This menu item opens the LANE 1.0 Established Service Redundancy screen. This screen is used when there are multiple DELHA-UAs in the network. This screen allows the user to configure LANE Services to perform actively on the network (primary mode) or to act as redundant LANE services. In redundant mode, the DELHA-UA will not begin performing LANE Services until it senses that the primary DELHA-UA has gone down. Specific DELHA-UAs may be grouped together, and the order in which these devices will come on-line if others fail may be specified. For details, refer to [Section 3.19](#).

LE PROPERTIES

This screen is used to enable or disable LANE Services. For details, refer to [Section 3.20](#).

3.16 ELAN TABLE SCREEN

The ELAN Table screen is used to view all ELANs that LANE Services of the DELHA-UA is currently supporting.

Access the ELAN Table screen from the LANE Services Configuration Menu screen by performing the following steps:

1. Use the arrow keys to highlight the **ELAN TABLE** menu item.
2. Press ENTER. The ELAN Table screen, [Figure 3-17](#), displays.

MS700 LOCAL MANAGEMENT ELAN Table			
Device Name: ATM Modular Interface		Flash Image Revision: XX.XX.XX	
Slot Number: X		BOOTPROM Revision: XX.XX.XX	
ELAN Name	MTU SIZE	LAN TYPE	LES Address
DIGITAL1	1516	802.3	0x00.0000.00.000000.0000.0000.0000.000000000000.00
DIGITAL2	1516	802.3	0x00.0000.00.000000.0000.0000.0000.000000000000.00
DIGITAL3	1516	802.3	0x00.0000.00.000000.0000.0000.0000.000000000000.00
[ON THIS DEVICE] PREV NEXT EXIT RETURN			

Figure 3-17 ELAN Table Screen

The following list describes each field of the ELAN Table screen:

ELAN Name (Read-only)

Displays the name of each ELAN that the DELHA-UA is currently supporting. To create ELANs, refer to [Section 3.17](#).

MTU SIZE (Read-only)

Displays 1516. This is the only MTU size currently supported by the DELHA-UA.

LAN TYPE (Read-only)

Displays 802.3. This is the only type of LAN Emulation supported by the DELHA-UA.

LES Address (Read-only)

Displays the ATM Address of the LES that has been assigned to each ELAN.

ON THIS DEVICE (Toggle)

Used to toggle between **ON THIS DEVICE** and **ON THIS LECS**. In this release, toggling this field will result in the same information being displayed on the screen, although not in the same order.

NEXT (Command)

This command, if applicable, opens the next series of ELANs supported by the DELHA-UA. Execute the command by using the arrow keys to highlight the **NEXT** command and pressing ENTER. The next group of ELANs displays.

PREV (Command)

This command, if applicable, opens the previous series of ELANs supported by the DELHA-UA. Execute the command by using the arrow keys to highlight the **PREV** command and pressing ENTER. The previous group of ELANs displays.

3.17 LANE SERVICES CONFIGURATION SCREEN

The LANE Services Configuration screen is used to create or delete ELANs that LANE Services of the DELHA-UA will support.

Access the LANE Services Configuration screen from the LANE Services Configuration Menu screen by performing the following steps:

1. Use the arrow keys to highlight the **CONFIGURE SERVICES** menu item.
2. Press ENTER. The LANE Services Configuration screen, [Figure 3-18](#), displays.

```
MS700 LOCAL MANAGEMENT
LANE SERVICES CONFIGURATION
Device Name: ATM Modular Interface      Flash Image Revision: XX.XX.XX
Slot Number: X                          BOOTPROM Revision: XX.XX.XX

LECS ATM Address:
LES/BUS ATM Address:

CREATING an ELAN on LOCAL LECS
ELAN Name:
MTU Size: 1516
LAN Type: 802.3

SAVE          DELETE          EXIT          RETURN
```

Laneserv

Figure 3-18 LANE Services Configuration Screen

The following list describes each field of the LANE Services Configuration screen:

LECS ATM Address (Read-only)

Remains blank until either a valid ELAN is created and saved, or a valid ELAN name is entered in the ELAN name field. When one of these tasks is performed, the field reads “Not Available”. In future revisions, this value will change.

LES/BUS ATM Address (Read-only)

Remains blank until either a valid ELAN is created and saved, or a valid ELAN name is entered in the ELAN name field. When one of these tasks are performed, the ATM Address that LANE Services of the DELHA-UA is using for its LES/BUS pair displays.

ELAN Name (Modifiable)

Used to enter the name of the ELAN that is to be created or deleted. A name of up to 32 characters may be used.

MTU SIZE (Read-only)

This field, although selectable, may not be changed from the value of 1516. This is the only MTU size currently supported by the DELHA-UA.

LAN TYPE (Read-only)

This field, although selectable, may not be changed from the value of 802.3. This is the only LAN type currently supported by the DELHA-UA.

SAVE (Command)

Used to create the new ELAN.

DELETE (Command)

Used to delete the ELAN that is entered in the ELAN Name field.

3.17.1 Creating an ELAN

To create a new ELAN, perform the following steps:

1. Use the arrow keys to highlight the **ELAN Name** field.
2. Enter a name for the ELAN that is no more than 32 characters in length.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The event message line reads “LES_CONFIG SAVED OK” and the LES/BUS ATM Address field refreshes with a valid ATM Address displayed, indicating that the ELAN has been created.

3.17.2 Deleting an ELAN

To delete an ELAN that has already been created, perform the following steps:

1. Use the arrow keys to highlight the **ELAN Name** field.
2. Enter the name of a valid ELAN and press ENTER.
3. If a valid ELAN name was entered, the LES ATM Address field will display the appropriate ATM address.
4. Use the arrow keys to highlight the **DELETE** command at the bottom of the screen.
5. Press ENTER. The event message line displays “LES_DELETE SAVED OK” and the LES/BUS ATM Address field refreshes with “Not Available” displayed, indicating that the ELAN was deleted.

Attached LECs This ELAN (Read-only)

Displays the total number of LECs that are attached to the ELAN specified in the ELAN Name field.

Attached LECs This Server (Read-only)

Displays the total number of LECs that are currently attached to the DELHA-UA on ALL configured ELANs that it is supporting via LANE Services.

LEC ID (Read-only)

Displays the Index of each LEC on the specified ELAN.

LECS (Read-only)

Currently displays only (0, 0). In future revisions, this value will change.

LES (Read-only)

Displays the VPI, VCI pair of the Control Direct VCC that each LEC has with the LES.

LEC ATM Address (Read-only)

Displays the ATM Address that the LEC has been assigned by LANE Services of the DELHA-UA.

NEXT (Command)

This command, if applicable, opens the next series of LECs supported by the ELAN. Execute the command by using the arrow keys to highlight the **NEXT** command and pressing ENTER. The next group of LECs displays.

PREV (Command)

This command, if applicable, opens the previous series of LECs supported by the ELAN. Execute the command by using the arrow keys to highlight the **PREV** command and pressing ENTER. The previous group of LECs displays.

3.19 LANE 1.0 ESTABLISHED SERVICE REDUNDANCY SCREEN

The LANE 1.0 Established Service Redundancy screen is used to configure LANE Services for primary or redundant services. If there are multiple DELHA-UAs on the network, one DELHA-UA may be configured to provide LANE Services. If this DELHA-UA fails, or loses connection to the network, a DELHA-UA that has been configured for redundant LANE Services will become operational, allowing for minimal downtime of services. Certain HSIMs may also be assigned to specific groups, and the order in which each HSIM will become active may also be specified. This allows for a highly robust and pre-determined activation of LANE Services should network problems arise.

Access the LANE 1.0 Established Service Redundancy screen from the LANE Services Configuration Menu screen by performing the following steps:

1. Use the arrow keys to highlight the **REDUNDANCY** menu item.
2. Press ENTER. The LANE 1.0 Established Service Redundancy screen, [Figure 3-20](#), displays.

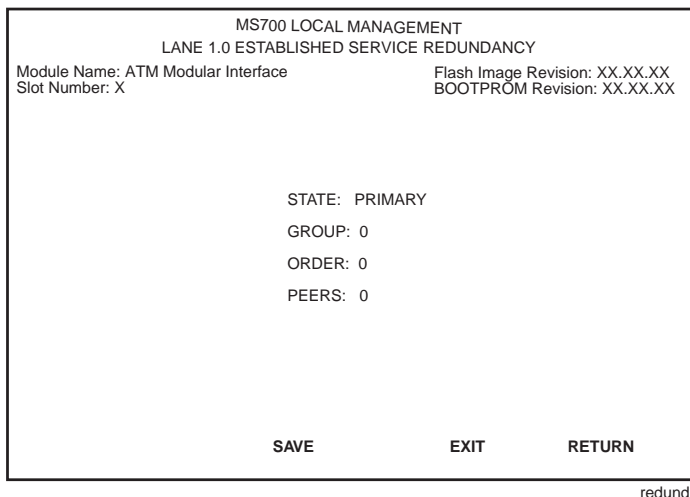


Figure 3-20 LANES 1.0 Established Service Redundancy Screen

The following list describes each field of the LANE 1.0 Established Service Redundancy screen:

STATE (Read-only)

Displays Primary or Redundant. If there is only one DELHA-UA with LANE Services enabled on the network, or there is no connection to the network, this field displays “Primary”. If there is a DELHA-UA present on the network with LANE Services enabled, this field will display “Redundant”.

GROUP (Modifiable)

Has an acceptable range of 1 through 9. The Group field is used to specify which group of DELHA-UAs this particular HSIM will belong to. For example, with multiple DELHA-UAs running LANE Services on the network, it is possible to have 3 DELHA-UAs belong to group 1 and 2 DELHA-UAs belong to group 2, etc.

ORDER (Modifiable)

Has an acceptable range of 1 through 9. This field is used to specify in what order DELHA-UAs set as redundant LANE Servers will become operational if the primary DELHA-UA fails. The redundant HSIM set as order 2 would be the first device to become operational if the primary DELHA-UA failed.

PEERS (Modifiable)

Used to specify how many DELHA-UAs are part of the group specified in the Group field.

SAVE (Command)

Used to save all changes to memory.

3.19.1 Creating a Redundant LANE Services Group

To create a redundant LANE Services group, proceed as follows:

1. Use the arrow keys to highlight the **GROUP** field.



These instructions assume that the other DELHA-UA on the network is the primary provider of LANE Services.

2. Enter the group value that has been assigned to the primary DELHA-UA (value must be between 1 and 9) and press ENTER.
3. Use the arrow keys to highlight the **ORDER** field.
4. Enter an order value (must be between 1 and 9) and press ENTER. If, for example, this DELHA-UA is to become operational if the primary DELHA-UA fails, enter 2 in this field.
5. Use the arrow keys to highlight the **PEERS** field. Enter the total number of DELHA-UAs that will be a part of the group number specified in the **GROUP** field and press ENTER. For example, if only this DELHA-UA and the primary DELHA-UA are to be part of this group, enter 2 in this field.



The host device will reboot after all changes are saved.

6. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
7. Press ENTER. The changes are saved to memory and the host device reboots.

3.20 LANE SERVICES PROPERTIES SCREEN

The LANE Services Properties screen provides three toggle fields that allow the user to enable or disable certain advanced LANE Services properties.

To access the LES Menu screen from the ATM screen, perform the following steps:

1. Use the arrow keys to highlight the **LES MENU** menu item of the ATM Screen.
2. Press ENTER. The LANE Services Properties screen, [Figure 3-21](#), displays.

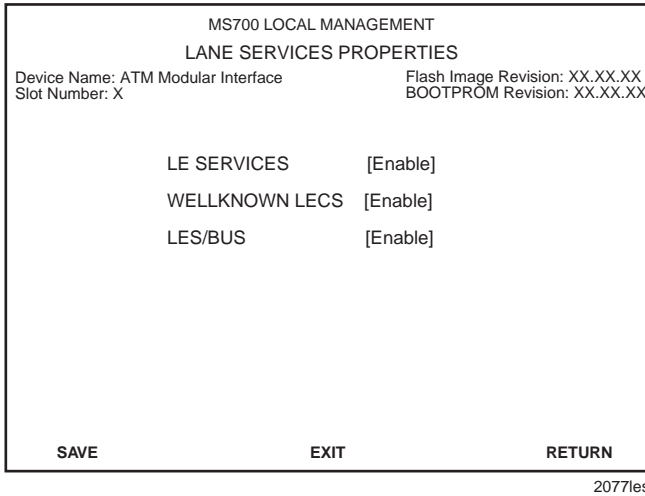


Figure 3-21 LANE Services Properties Screen

The definitions for the LANE Services Properties screen fields are as follows:

LE SERVICES (Toggle)

Used to toggle between Enabled and Disabled. This field must be enabled for the other two fields on this screen (WELLKNOWN LECS and LES/BUS) to be enabled. If this field is disabled, any changes to the two other fields on this screen cannot be saved. To change the status of this field, refer to [Section 3.20.1](#).

WELLKNOWN LECS (Toggle)

Used to toggle between Enabled and Disabled. This field, when enabled, allows all the DELHA-UA, in addition to its ATM uplink capabilities, to perform as a wellknown LAN Emulation Configuration Server for the network.

LES/BUS (Toggle)

Used to toggle between Enabled and Disabled. This field, when enabled, allows the DELHA-UA to, in addition to its ATM uplink capabilities, function as a LAN Emulation Server, and Broadcast and Unknown Server.

3.20.1 Changing the Status of the LE SERVICES Field

To enable or disable the LE SERVICES field, proceed as follows:

1. Use the arrow keys to highlight the **LE SERVICES** field.
2. Press the SPACE bar to toggle between the options until the appropriate mode displays (**Enabled** or **Disabled**).
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The changes are saved to memory.

3.20.2 Changing the Status of the WELLKNOWN LECS Field

To enable or disable the Wellknown LECS field, proceed as follows:

1. Ensure that the **LE SERVICES** field is enabled.



The LE SERVICES field **MUST** be enabled to change the status of the WELLKNOWN LECS field.



Before performing the following steps ensure that the following configuration does NOT exist:

If the DELHA-UA is attached to the ATM network, ensure that there is NOT another device acting as the Wellknown LECS. In this firmware release, the DELHA-UA must be the wellknown LECS for LANE Services to function. Network problems will occur if two devices attempt to function as the Wellknown LECS.

2. Use the arrow keys to highlight the **WELLKNOWN LECS** field.
3. Press the SPACE bar to toggle between the options until the appropriate mode displays (**Enabled** or **Disabled**).
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
5. Press ENTER. The changes are saved to memory.

3.20.3 Changing the Status of the LES/BUS Field

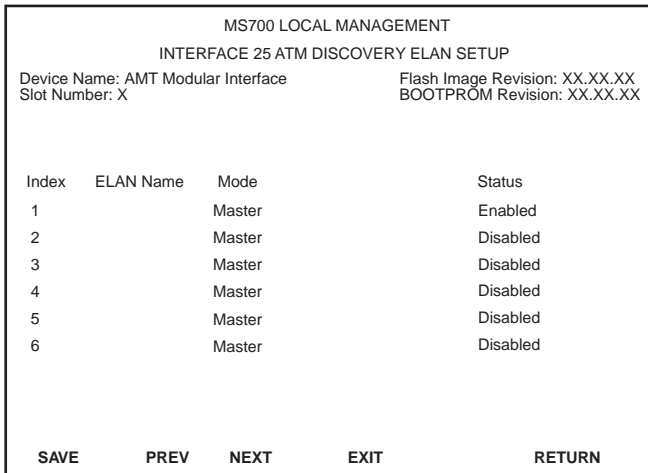
To enable or disable the LES/BUS field, proceed as follows:

1. Ensure that the **LE SERVICES** field is enabled.



The **LE SERVICES** field **MUST** be enabled to change the status of the LES/BUS field.

2. Use the arrow keys to highlight the **LES/BUS** field.
3. Press the **SPACE** bar to toggle between the options until the appropriate mode displays (**Enabled** or **Disabled**).
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
5. Press **ENTER**. The changes are saved to memory.



```
MS700 LOCAL MANAGEMENT
INTERFACE 25 ATM DISCOVERY ELAN SETUP
Device Name: AMT Modular Interface      Flash Image Revision: XX.XX.XX
Slot Number: X                          BOOTPROM Revision: XX.XX.XX

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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Figure 3-22 ATM Discovery ELAN Setup Screen

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 DELHA-UA.

ELAN Name (Modifiable)

Used to enter the name of the discovery ELAN that the DELHA-UA will join when the discovery ELAN becomes enabled.

Mode (Toggle)

Used to toggle between “Master” and “Slave”. When the DELHA-UA is configured to be in “Master” mode, it will accept connections from all other DELHA-UAs in the Discovery ELANs it belongs to. When the DELHA-UA is configured to be in “Slave” mode, it will only accept connections from other DELHA-UAs configured to be in “Master” mode.

Status (Toggle)

Used to toggle between Enabled and Disabled. The Status field is used to direct the DELHA-UA 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.

3.20.4 Assigning the DELHA-UA to a Discovery ELAN

To assign the DELHA-UA 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 DELHA-UA will connect.



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**).



To prevent the DELHA-UA from joining the ELAN immediately, set the Status field to **“Disabled”**. To instruct the DELHA-UA 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.

3.21 USING THE BANDWIDTH ALLOCATION MODE FEATURE

The DELHA-UA provides a feature that allows the user to create PVCs, and configure each PVC to be guaranteed a set amount of bandwidth, up to the amount of bandwidth that the APIM provides.



Up to 1020 PVCs may be created using the Bandwidth Allocation feature. However, ensure that the total amount of bandwidth provided by the APIM is not exceeded.

For example, a DELHA-UA with a DEL22-UI installed provides 155 Mbps of bandwidth. The Bandwidth Allocation Mode feature could allow the user to create 2 PVCs. The first PVC could be guaranteed 100 Mbps of the available bandwidth. The second PVC could be guaranteed the remaining 55 Mbps of bandwidth. Up to 1020 PVCs may

be created using the Bandwidth Allocation feature. However, ensure that the total amount of bandwidth provided by the APIM is NOT exceeded.



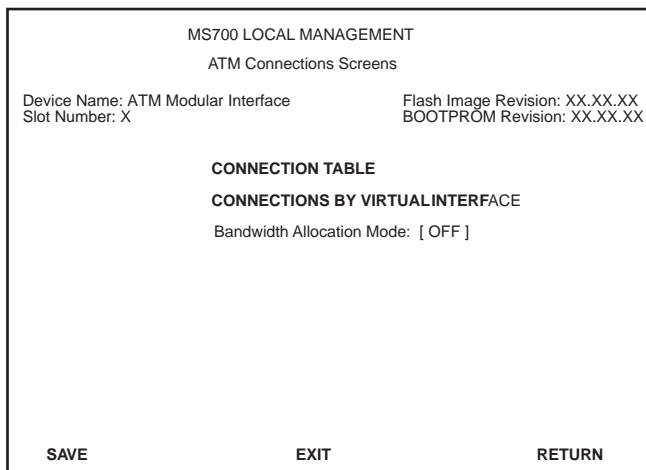
If the DELHA-UA has 2 APIMs installed that do not support the same amount of bandwidth, for example a DEL21-UI (155 Mbps, primary port) and a DEL67-UI (45 Mbps, redundant port), all PVCs will have their bandwidth allocation reduced to fit the requirements of the DEL67-UI if the primary DEL21-UI fails.

The following sections provide instructions on how to configure the DELHA-UA using the Bandwidth Allocation Mode feature.

3.22 ENABLING THE BANDWIDTH ALLOCATION MODE FEATURE

To enable the Bandwidth Allocation Mode feature, perform the following steps:

1. Use the arrow keys to highlight the **CONNECTIONS** menu item from the ATM screen.
2. Press ENTER. The ATM Connections screen, [Figure 3-23](#), displays.



2077_33

Figure 3-23 ATM Connection Screen

3.23 CREATING PVCs WITH THE BANDWIDTH ALLOCATION MODE ENABLED

After the Bandwidth Allocation Mode has been enabled and saved, Local Management returns the user to the ATM Connections screen; refer to [Figure 3-23](#). To create PVCs using the Bandwidth Allocation Mode, perform the following steps:

1. From the ATM Connection screen, use the arrow keys to highlight the **CONNECTION TABLE** field.
2. Press ENTER. The ATM Connection Setup screen, [Figure 3-25](#), displays.

MS700 LOCAL MANAGEMENT							
Physical Interface 25 ATM Connection Setup							
Device Name: ATM Modular Interface				Flash Image Revision: XX.XX.XX			
Slot Number: X				BOOTPROM Revision: XX.XX.XX			
ATM Port Current Connections: 2						[Page 1 of 1]	
IF	PORT	VPI	VCI	Encapsulation Type	Status	ATM Address(ESI)	BW (Mbps)
25	0	0	5	ILMI	Disabled		0
25	0	0	16	UNI	Disabled		0
27	1	0	34	LLC Encapsulated	Enabled	00-00-1D-XX-XX-XX	100
28	1	0	36	VC MUX 802.3 Bdg	Enabled	00-00-1D-XX-XX-XX	25

PREVIOUS NEXT ADD/DELETE EXIT RETURN

2077_40

Figure 3-25 ATM Connection Setup Screen

3.23.1 ATM Connection Setup Screen Fields



The first two connections shown in [Figure 3-25](#) (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 3.13](#)), will always display on the ATM Connection Setup screen.

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

ATM Port Current Connections (Read-Only)

Displays the number of current connections on the DELHA-UA.

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.

PORT (Read-Only)

Displays the application port (APIM) 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. 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.

VCI (Read-Only)

Displays the Virtual Channel Identifier of the connection. This field reads between 0 and 1019.

Encapsulation Type (Read-Only)

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

- **VC Mux 802.3 Bridged** - 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.



UNI and ILMI connections display the following values in the Encapsulation Type field:

UNI (User to Network Interface)

ILMI (Integrated Local Management Interface)

ATM Address (ESI) (Read-Only)

Displays the MAC Address of the device to which the PVC is currently connected (End System Identifier). This identifies the devices to which the DELHA-UA is currently communicating. The UNI and ILMI connections will not display any value in this field.

BW (Mbps) (Read-Only)

Displays the total amount of bandwidth assigned to this PVC.

Status (Read-Only)

Displays the operational status of the PVC. This field displays “Enabled” or “Disabled”.

PREV (Command)

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

NEXT (Command)

Used to scroll to the next screen if the DELHA-UA 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.

ADD/DELETE (Command)

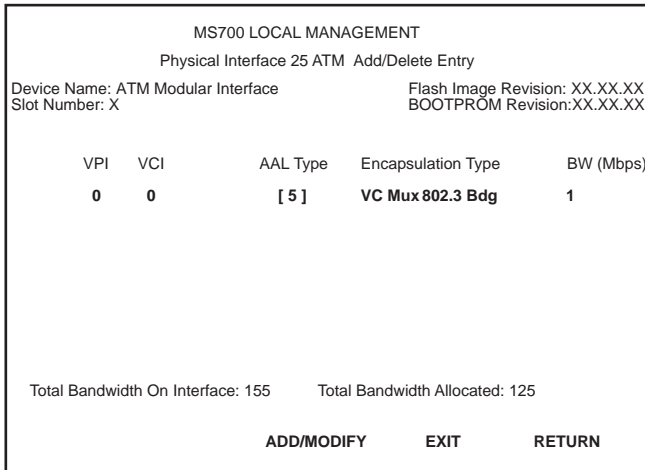
Used to open the Add/Delete Entry screen. The Add/Delete Entry screen allows the user to create or delete PVCs.

3.24 THE ADD/DELETE ENTRY SCREEN

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

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 3-26**, displays.



2077_41

Figure 3-26 Add/Delete Entry Screen

The following list defines the fields of the Add/Delete Entry screen:

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 DELHA-UA uses AAL 5.

Encapsulation Type (Toggle)

Displays the type of data encapsulation that the DELHA-UA 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.

BW (Mbps) (Modifiable)

Used to set the amount of bandwidth that will be assigned to this PVC.

Total Bandwidth On Interface (Read-Only)

Displays the total amount of bandwidth that the port (APIM) provides.

Total Bandwidth Allocated (Read-Only)

Displays the total amount of bandwidth that has already been allocated to existing PVCs. These PVCs may be viewed in the ATM Connection Setup screen. Refer to [Figure 3-25](#).

ADD/MODIFY (Command)

Used to add the PVC, or the modified PVC, to the DELHA-UA connection table.

DELETE (Command)

Displays only if a valid VPI/VCI pair has been entered in the VPI and VCI fields of the Add/Delete Entry screen. This command deletes the PVC from the DELHA-UA connection table.

3.24.1 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.



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 32–1019.
3. Use the arrow keys to highlight the **Encapsulation Type** field and press the SPACE bar until the appropriate Encapsulation Type displays.



The DELHA-UA will not allow any PVCs to be created if the desired bandwidth entered in the **BW (Mbps)** field exceeds the available bandwidth of the APIM.

4. Use the arrow keys to highlight the **BW (Mbps)** field. Enter the total amount of available bandwidth that you wish to allocate to this PVC.
5. Use the arrow keys to highlight the **ADD/MODIFY** command.
6. Press ENTER. The “PVC HAS BEEN CREATED ” message displays at the top of the screen indicating that Local Management has added the PVC.

3.24.2 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 to be changed.
2. Use the arrow keys to highlight the **VCI** field and enter the VCI value to be changed. Acceptable values are 32 through 1019.
3. Use the arrow keys to highlight the **Encapsulation Type** field and press the SPACE bar until the appropriate Encapsulation Type displays.



The DELHA-UA will not allow any PVCs to be created if the desired bandwidth entered in the **BW (Mbps)** field exceeds the available bandwidth of the APIM.

4. Use the arrow keys to highlight the **BW (Mbps)** field. Enter the total amount of available bandwidth to be allocated to this PVC.
5. Use the arrow keys to select the **ADD/MODIFY** command.
6. Press ENTER. The “ENTRY DELETED” then “ENTRY ADDED” messages display at the top of the screen indicating that Local Management has modified the PVC.

3.24.3 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 of the PVC to be deleted.
2. Use the arrow keys to highlight the **VCI** field and enter the VCI of the PVC to be deleted.
3. Use the arrow keys to highlight the **DELETE** command.
4. Press ENTER. The “ENTRY DELETED” message displays at the top of the screen indicating that Local Management has deleted the PVC.



The **DELETE** command displays only if a valid VPI and VCI have been entered in their respective fields.

CHAPTER 4

DIAGNOSTIC LEDs

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



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 DELHA-UA LEDs

Refer to Table 4-1 and Table 4-2 for a description of HSIM and APIM LEDs.

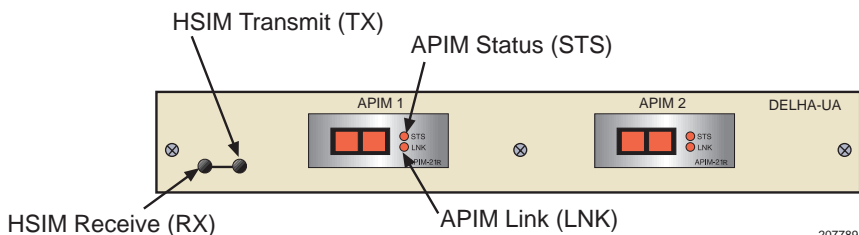


Figure 4-1 DELHA-UA and APIM LEDs

Table 4-1 HSIM LEDs

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



All APIMs 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 your DIGITAL service representative.
	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 your DIGITAL service representative.

APPENDIX A

DELHA-UA SPECIFICATIONS

This appendix describes environmental specifications and safety requirements for the DELHA-UA. Cabletron Systems 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, EN 60950, IEC 950, and 73/23/EEC
Electromagnetic Compatibility (EMC):	FCC Part 15, VCCI V-3, EN 55022, CSA C108.8, EN 50082-1, 89/336/EEC, AS/NZS 3548

APPENDIX B

APIM SPECIFICATIONS

This appendix provides specifications for DIGITAL ATM Port Interface Modules (APIMs).

B.1 DEL21-UI 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

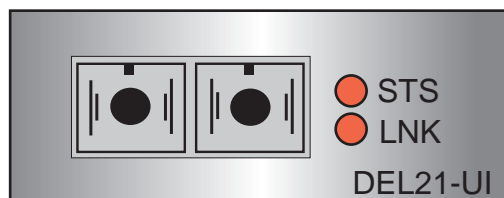


Figure B-1 DEL21-UI

B.2 DEL29-UI 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

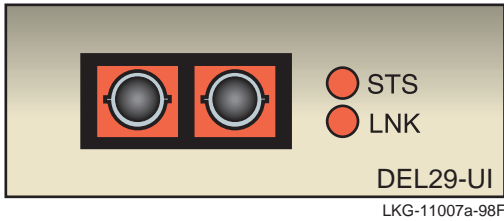
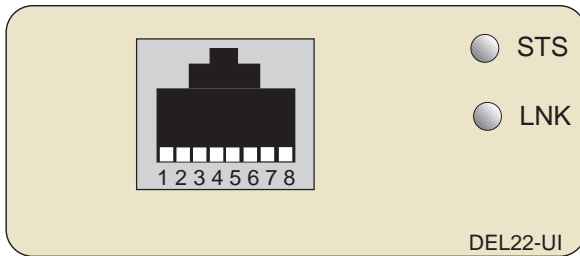


Figure B-2 DEL29-UI

B.3 DEL22-UI SPECIFICATIONS

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

The DEL22-UI 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-3** shows the pin assignments for the DEL22-UI.



- | | |
|---------------|--------------|
| 1. Transmit + | 5. N/A |
| 2. Transmit - | 6. N/A |
| 3. N/A | 7. Receive + |
| 4. N/A | 8. Receive - |

142912

Figure B-3 DEL22-UI Pin Assignments

B.4 DEL67-UI SPECIFICATIONS

Physical Interface:	DS3
Media Type:	75 Ohm Coaxial Cable
Data Rate:	45 Mbps
Connector Type:	BNC
Typical Link Distance:	136 Meters



The DEL67-UI does not use Cell Payload Scrambling. Scrambling must be disabled on any DS3 device connected to the DEL67-UI.

The DEL67-UI 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.

The DEL67-UI is shipped with the following default jumper settings:

- Receive channel jumper - grounded
- Transmit channel jumper - not grounded

Figure B-4 shows the location and default setting of each jumper. Refer to Figure B-4 if you need to change the jumper settings to properly connect the DEL67-UI to another DS3 device.

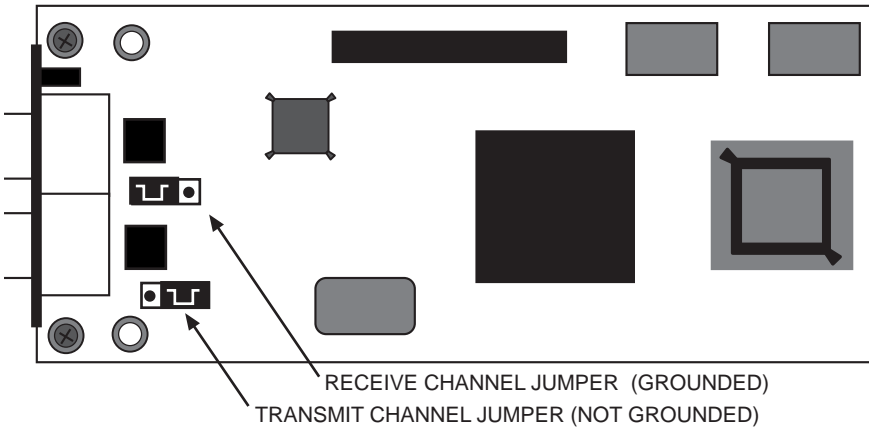


Figure B-4 DEL67-UI Default Jumper Settings

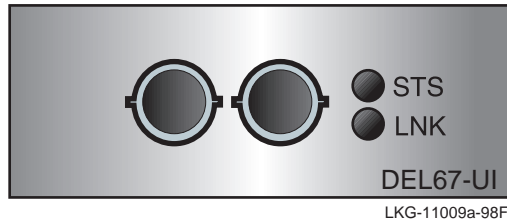


Figure B-5 DEL67-UI

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digital