



DIGITAL MultiSwitch 700EX

DLE02-MA/DLE52-MA Interface Modules User's Guide

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This guide describes how to use the DIGITAL DLE02-MA and DLE52-MA interface modules.

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Application of Council Directive(s): **89/336/EEC**
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Conformance to Directive(s)/Product Standards: **EC Directive 89/336/EEC**
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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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PREFACE

Welcome to the *DIGITAL MultiSwitch 700EX DLE02-MA/DLE52-MA Interface Modules User's Guide*. This guide describes the DEL02-MA and DLE52-MA interface modules and provides information concerning network requirements, installation, troubleshooting, and the use of Local Management.



Depending on the firmware version used in the DLE02-MA or the DLE52-MA, some features described in this document may not be supported. Refer to the Release Notes shipped with the device to determine which features are supported.

USING THIS GUIDE

This guide provides preliminary information that will aid in using this guide, lists technology and user guides that may help the user to set up and manage the DEL02-MA and DLE52-MA interface modules, and gives instructions on how to get help from your DIGITAL representative.

Read through this guide completely to understand the DLE02-MA and DLE52-MA, modules' features, capabilities, and Local Management functions.

A general working knowledge of Fast Ethernet and IEEE 802.3 type data communications networks and their physical layer components is helpful when using these devices.



In this guide, the DLE02-MA and DLE52-MA interface modules are referred to as either the DLE02-MA or the DLE52-MA or the modules. When differences between the modules are described, they will be referred to by name.

STRUCTURE OF THIS GUIDE

This guide is organized as follows:

Chapter 1, **Overview**, describes the features of the DEL02-MA and DLE52-MA interface modules.

Chapter 2, **Network Requirements**, outlines the network requirements that must be met before installing the DEL02-MA and DLE52-MA interface modules into the DLM6C-AA MultiSwitch 700 chassis.

Chapter 3, **Installation**, provides instructions on how to install the module in the chassis and connect segments to the device.

Chapter 4, **Troubleshooting**, details the DEL02-MA and DLE52-MA interface modules LANVIEW LEDs that enable quick diagnosis of network/operational problems.

Chapter 5, **Local Management: Overview, Setup, and Chassis Management**, describes how to access Local Management and use the Local Management screens to manage the DEL02-MA and DLE52-MA interface modules and DLM6C-AA chassis.

Chapter 6, **Local Management: Module Navigation**, describes how to navigate and manage the DEL02-MA and DLE52-MA interface modules in the module selections of Local Management.

Chapter 7, **Network Tools**, describes the use of this management tool for the DEL02-MA and DLE52-MA interface modules.

Appendix A, **Specifications**, contains information on functionality and operating specifications, connector pinouts, environmental requirements, and physical properties.

Appendix B, **Switch Settings, Upgrades, and Installations**, describes how to set the Mode Switches, and gives information on upgrading the DEL02-MA and DLE52-MA interface modules.

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 due to an electrical hazard.

RELATED DOCUMENTATION

The following manuals may help the user to set up and manage the DEL02-MA and DLE52-MA interface modules:

SmartTrunk User's Guide

Cabletron Systems Ethernet Technology Guide

Cabletron Systems Cabling Guide

DIGITAL MultiSwitch 700 DLM6C-AA Overview and Setup Guide

DIGITAL MultiSwitch 700 Port Based VLAN User's Guide

DIGITAL ATM Modular Interface DELHA-UA User's Guide

DIGITAL Fast Ethernet Interface Module DELHE-UA User's Guide

*DIGITAL Gigabit 1000BaseSX/LX Modular Interface
DELHG-UA/DELHL-UA User's Guide*

DIGITAL Gigabit Ethernet Interface Module DELVM-UA User's Guide

Preface

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

<http://www.networks.digital.com>

CORRESPONDENCE

Documentation Comments

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

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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 Tod 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	Failure to observe static safety precautions could cause damage to the DLE02-MA and the DLE52-MA. Follow static safety handling rules and wear the antistatic wrist strap provided with the DLM6C-AA chassis. Do not cut the non-conductive bag to remove the module. Damage could result from sharp objects contacting the board or components.
	VORSICHT	Die Mißachtung der statischen Vorsichtsmaßnahmen kann Beschädigungen des DLE02-MA und des DLE52-MA hervorrufen. Befolgen Sie die Anweisungen zur statischen Sicherheit und tragen Sie das Antistatikarmband, das mit dem DLM6C-AA-Gehäuse geliefert wird. Schneiden Sie den isolierenden Beutel nicht auf, um das Modul zu entnehmen. Board oder Komponenten könnten sonst von scharfen Gegenständen beschädigt werden.

DANGER	La non observation des précautions relatives à l'électricité statique peut endommager les appareils DLE02-MA et DLE52-MA. Respectez toutes les précautions relatives à l'électricité statique et portez le bracelet antistatique fourni avec le châssis DLM6C-AA. Ne coupez pas le sac non-conducteur pour retirer le module. Les objets pointus pourraient endommager la carte ou les composants.
AVISO	No observar las precauciones de seguridad contra la electricidad estática puede provocar daños al DLE02-MA y al DLE52-MA. No deje de observar las normas de seguridad de manipulación de dispositivos con electricidad estática, y siempre lleve la muñequera antiestática que se suministra con el chasis del DLM6C-AA. No corte la bolsa no conductora para sacar el módulo. Podría deteriorar la tarjeta o los componentes con el instrumento afilado utilizado para hacerlo.

	CAUTION	To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors. Ensure that the top plastic locking tab lines up with the desired slot number located on the front panel of the chassis. Refer to Figure 3-1.
	ACHTUNG	Achten Sie im folgenden Schritt darauf, daß das Modul gerade eingeführt und richtig mit den Anschlüssen auf der Rückseite verbunden wird, um Beschädigungen dieser Anschlüsse zu vermeiden. Stellen Sie sicher, daß die obere Plastikschließklappe gerade an der gewünschten Steckplatznummer vorne am Gehäuse ausgerichtet ist (siehe Abbildung 3-1).
	ATTENTION	Pour éviter d'endommager les connecteurs de fond de panier dans la procédure suivante, assurez-vous que le module n'est pas inséré de travers et engagez correctement les connecteurs de fond de panier. Vérifiez que la languette de verrouillage supérieure en plastique est alignée avec le numéro d'emplacement désiré situé sur le panneau avant du châssis. Voir Figure 3-1.
	PRECAUCIÓN	Para evitar deteriorar los conectores del panel posterior en el siguiente paso, asegúrese de que el módulo se deslice sin torcerse y quede enganchado correctamente en los conectores del panel posterior. Asegúrese de que la pestaña de bloqueo superior de plástico se alinea con el número del zócalo deseado ubicado en la parte frontal del chasis. Consulte la Figura 3-1.

CAUTION	Do NOT disable or alter the settings of the COM port while operating the current Local Management (LM) connection through a terminal. Altering the COM port settings disconnects the LM terminal from the port, and ends the LM session. If the DLE02-MA or DLE52-MA was previously assigned a valid IP address, reenter LM by establishing a Telnet connection to the device. If the device does not have a valid IP address and the COM port has been disabled or the settings changed, reset NVRAM on the DLE02-MA or DLE52-MA (refer to Appendix B) to reestablish COM port communication.
ACHTUNG	Sie dürfen die COM-Port-Einstellungen NICHT abschalten oder ändern, während die aktuelle LM-Verbindung (Local Management) über ein Terminal besteht. Das Ändern der COM-Port-Einstellungen trennt das LM-Terminal vom Port und beendet die LM-Sitzung. Wenn dem DLE02-MA/DLE52-MA zuvor eine gültige IP-Adresse zugewiesen wurde, gehen Sie wieder zu LM, indem Sie eine Telnet-Verbindung zum Gerät herstellen. Wenn das Gerät keine gültige IP-Adresse hat und der COM-Port abgeschaltet wurde oder wenn die Einstellungen geändert wurden, führen Sie einen NVRAM-Reset auf dem DLE02-MA/DLE52-MA durch (siehe Anhang B), um die COM-Port-Kommunikation wiederherzustellen.

ATTENTION	NE PAS désactiver ou modifier les paramètres du port COM pendant la connexion Local Management (LM) via un terminal. La modification des paramètres du port COM entraîne la déconnexion du terminal LM de son port, et termine la session LM. Si une adresse IP valable a été attribuée à l'appareil DLe02-MA/DLE52-MA, repassez en LM en établissant une connexion Telnet. Si l'appareil ne dispose pas d'une adresse IP valable et que le port COM a été désactivé ou ses paramètres modifiés, réinitialisez la NVRAM sur le DLE02-MA/DLE52-MA (voir Annexe B) pour rétablir la communication sur le port COM.
PRECAUCIÓN	NO desactive ni cambie los parámetros del puerto COM mientras esté operando la conexión actual de gestión local Local Management (LM) a través de un terminal. Si lo hace, se desconectará el terminal LM del puerto, y se terminará la sesión de LM. Si previamente se había asignado al DLE02-MA/DLE2-MA una dirección de IP válida, vuelva a entrar en LM estableciendo una conexión Telnet con el dispositivo. Si el dispositivo no tiene una dirección de IP válida y el puerto COM se ha desactivado o se han cambiado sus parámetros, deberá reiniciar la memoria NVRAM del DLEHF-MA (consulte el Apéndice B) para restablecer las comunicaciones del puerto COM.

CAUTION	If the COM port is reconfigured without a valid IP address set on the module or chassis, the message shown in Figure 6-6 displays. Do not continue unless you fully understand the outcome of this action. If the Warning screen displays, continue on to step 4, otherwise, proceed to step 5.
ACHTUNG	Wenn der COM-Port rekonfiguriert wird, ohne daß auf dem Modul oder dem Gehäuse eine gültige IP-Adresse eingestellt ist, wird die in Abbildung 6-6 gezeigte Meldung angezeigt. Arbeiten Sie nicht weiter, bevor Sie die Auswirkungen dieser Aktion vollständig verstanden haben. Wenn der Warnbildschirm angezeigt wird, machen Sie mit Schritt 4 weiter, sonst mit Schritt 5.
ATTENTION	Si le port COM est reconfiguré sans adresse IP valable pour le module ou le châssis, le message de la Figure 6-6 s'affiche. Ne continuez pas sans avoir bien compris les conséquences de votre action. Si l'écran d'avertissement s'affiche, passez à la procédure 4, sinon passez à la procédure 5.
PRECAUCIÓN	Si se reconfigura el puerto COM sin haber definido una dirección de IP válida en el módulo o el chasis, aparecerá el mensaje mostrado en la Figura 6-6. No continúe a no ser que entienda perfectamente las consecuencias de esta acción. Si aparece la pantalla de aviso (Warning), vaya al paso 4, de lo contrario vaya al paso 5.

CAUTION	Exiting without saving causes the message "NOT SAVED -- PRESS SAVE TO KEEP CHANGES" to display. Exiting without saving causes all edits to be lost.
ACHTUNG	Beenden ohne Speichern verursacht die Meldung "NOT SAVED -- PRESS SAVE TO KEEP CHANGES" (Nicht gespeichert – Drücken Sie Save/Speichern, um die Änderungen zu speichern). Durch Beenden ohne Speichern gehen alle durchgeführten Änderungen verloren.
ATTENTION	Si vous sortez sans enregistrer, le message "NOT SAVED -- PRESS SAVE TO KEEP CHANGES" (Non enregistré – Appuyez sur SAVE pour conserver les modifications) s'affiche. Toutes vos modifications seront perdues.
PRECAUCIÓN	Si sale sin guardar, aparecerá el mensaje "NOT SAVED -- PRESS SAVE TO KEEP CHANGES" (NO SE HA GUARDADO – PULSE GUARDAR PARA CONSERVAR LOS CAMBIOS). Si sale sin guardar se perderán todos los cambios.

CAUTION	When the COM port is configured to perform the UPS application, all future Local Management connections must be made by establishing a Telnet connection to the module. Ensure that the module has a valid IP address before saving changes to the COM port application. If the module does not have a valid IP address and the changes are saved, refer to Appendix B for instructions on clearing NVRAM in order to reestablish COM port communications.
ACHTUNG	Wenn der COM-Port für die Ausführung der UPS-Anwendung konfiguriert ist, müssen alle zukünftigen Local-Management-Verbindungen durchgeführt werden, indem eine Telnet-Verbindung zum Modul aufgebaut wird. Stellen Sie sicher, daß das Modul eine gültige IP-Adresse hat, bevor Sie Änderungen in der COM-Port-Anwendung speichern. Wenn das Modul keine gültige IP-Adresse hat und die Änderungen gespeichert wurden, finden Sie im Anhang B Anleitungen zum Löschen des NVRAM, um die COM-Port-Kommunikationen wiederherzustellen.
ATTENTION	Lorsque le port COM est configuré pour une application UPS, toute future connexion Local Management doit se faire en établissant une connexion Telnet. Assurez-vous que le module possède une adresse IP valable avant d'enregistrer les modifications apportées au port COM. Si le module n'est pas doté d'une adresse IP valable et que les modifications sont enregistrées, reportez-vous à l'annexe B pour apprendre comment initialiser la NVRAM avant de rétablir des communications COM.

PRECAUCIÓN	Cuando el puerto COM está configurado para la aplicación UPS, todas las conexiones de gestión local (LM, Local Management) deberán realizarse estableciendo una conexión Telnet con el módulo. Asegúrese de que el módulo tiene una dirección de IP válida antes de guardar los cambios en la aplicación del puerto COM. Si el módulo no tiene una dirección de IP válida y se han guardado los cambios, consulte el Apéndice B para obtener instrucciones sobre el borrado del contenido de la memoria NVRAM para restablecer las comunicaciones del puerto COM.
CAUTION	Clearing NVRAM will result in the loss of all user-entered parameters. Do not proceed unless you completely understand this procedure.
ACHTUNG	Das Löschen des NVRAM führt zum Verlust aller vom Benutzer eingegebenen Parameter. Arbeiten Sie nicht weiter, bevor Sie dieses Verfahren vollständig verstanden haben.
ATTENTION	Si vous réinitialisez la NVRAM, tous les paramètres utilisateur seront perdus. N'exécutez donc cette procédure qu'en parfaite connaissance de cause.
PRECAUCIÓN	El borrado del contenido de la memoria NVRAM provocará la pérdida de todos los parámetros introducidos por el usuario. No continúe a no ser que comprenda totalmente este procedimiento.

CAUTION	If the DLE2X-MA and the DLE3X-MA are being bridged to an FDDI ring IP Fragmentation should be enabled. If IP Fragmentation is disabled, all FDDI frames that exceed the maximum Ethernet frame size will be discarded.
ACHTUNG	Wenn DLE2X-MA und DLE3X-MA per Bridge an einen FDDI-Ring angeschlossen werden, sollte IP-Fragmentierung aktiviert werden. Wenn IP-Fragmentierung deaktiviert wird, werden alle FDDI-Frames, die die maximale Ethernet-Frame-Größe überschreiten, verworfen.
ATTENTION	Si les appareils DLE2X-MA et DLE3X-MA sont reliés (pontage) sur un anneau FDDI, la fragmentation IP doit être active. Dans le cas contraire, toutes les frames FDDI dépassant la taille maximum des frames Ethernet seront ignorées.
PRECAUCIÓN	Si los DLE2X-MA y DLE3X-MA se están puentando a un anillo FDDI, la fragmentación de IP (IP Fragmentation) deberá estar activada. Si está desactivada todos los marcos FDDI que superen el tamaño máximo de marco de Ethernet se desecharán.

CHAPTER 1

OVERVIEW

The DLE02-MA and the DLE52-MA, shown in Figure 1-1, are Ethernet/Fast Ethernet interface modules for the DLM6C-AA chassis. The DLE02-MA has 24 RJ45 switched ports. The DLE52-MA has 16 RJ45 switched ports and 1 slot for an optional High Speed Interface Module (HSIM) or Very High Speed Interface Module (VHSIM).

The DLE02-MA and the DLE52-MA can be used to connect individual high-bandwidth user devices, such as workstations, or to provide a central switching point for multiple 10/100 Mbps Fast Ethernet segments. The optional HSIMs provide high speed uplinks to other networking technologies such as Gigabit Ethernet, Fast Ethernet, Fiber Distributed Data Interface (FDDI), Wide Area Network (WAN) and Asynchronous Transfer Mode (ATM). HSIMs also provide additional Fast Ethernet ports in varying media types. The optional VHSIMs provide very high speed uplinks to networking technologies such as ATM and Gigabit Ethernet.

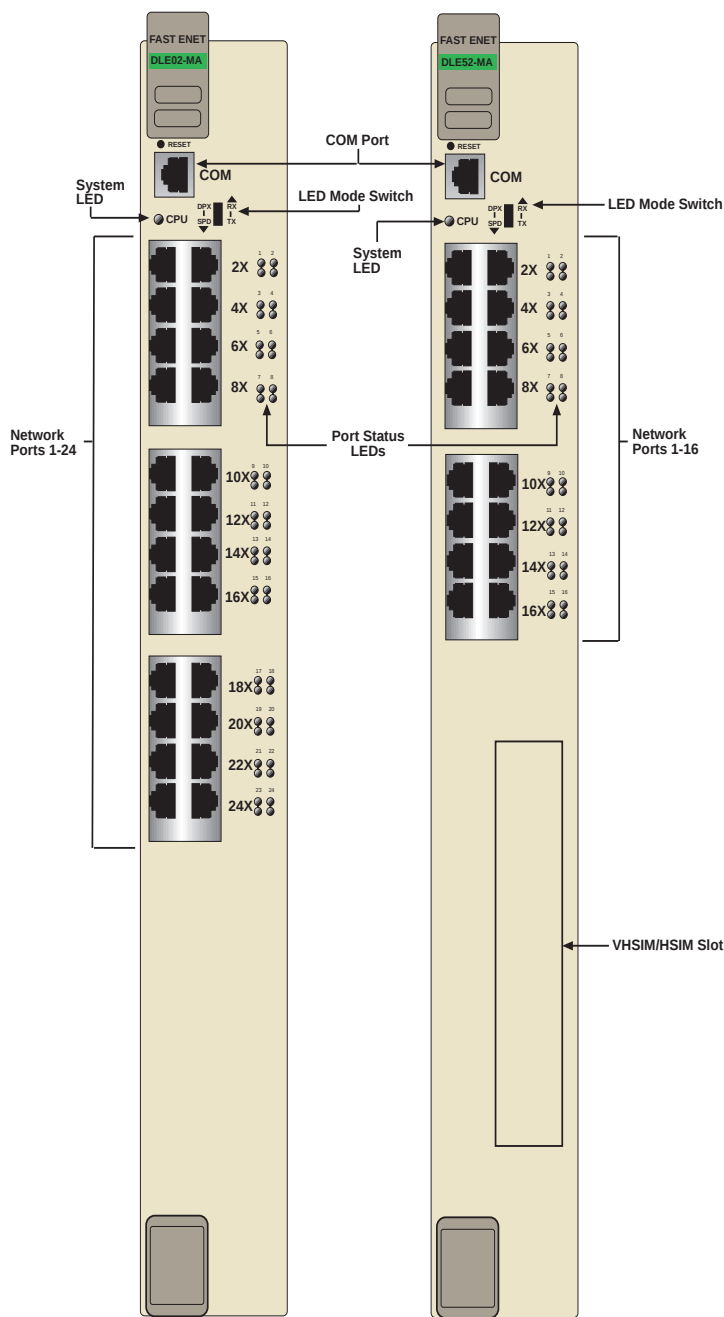


Figure 1-1 The DLE02-MA and DLE52-MA

1.1 CONNECTIVITY

The DLE02-MA and the DLE52-MA connect to Ethernet networks or workstations through the RJ45 ports on the front panel. These ports are IEEE 802.3 10BASE-T and IEEE 802.3u 100BASE-TX compliant. The ports support Category 5 Unshielded Twisted Pair cables with an impedance between 85 and 111 ohms at lengths up to 100 meters. They also support Category 3 for 10 Mbps, but not 100 Mbps.

The DLE52-MA has a slot for an optional HSIM or VHSIM to provide additional connectivity to various networking technologies.

1.2 AUTO-NEGOTIATION

The twisted pair ports on the front panel of the DLE02-MA and the DLE52-MA modules have the ability to auto-negotiate the type of connection required to provide a link to another device. During Auto-Negotiation, two devices automatically exchange information “telling” each other what their operating capabilities are. The Auto-Negotiation feature targets the maximum capabilities that can be reached between the two devices. For example, the DLE02-MA and the DLE52-MA adjust to 100 Mbps when the device on the other end of the connection can also adjust between 10 Mbps or 100 Mbps. If the device on the other end of the connection can only operate at 10 Mbps, then the DLE02-MA and the DLE52-MA adjust to 10 Mbps operation.

When Auto-Negotiation is supported at both ends of a link, the two devices dynamically adjust to full or half duplex operation based on the maximum capability that can be reached between the two devices. If the device connected to the DLE02-MA or the DLE52-MA cannot auto-negotiate, the DLE02-MA and the DLE52-MA interface operates according to the capability of the other device.

1.3 RUNTIME IP ADDRESS DISCOVERY

This feature enables the modules to automatically accept an IP address from a Boot Strap Protocol (BootP) server on the network into NVRAM without requiring a user to enter an IP address through Local Management.

When the modules are connected to the network and powered up, Runtime IP Address Discovery (RAD) checks the modules for an IP

address. If one has not yet been assigned (module and the DLM6C-AA chassis IP address set to 0.0.0.0), RAD checks to see if any of the module interfaces have a link. If so, RAD sends out Reverse Address Resolution Protocol (RARP) and BootP requests to obtain an IP address from a RARP or BootP server on the network.

The RAD requests start at an interval of one per second. The interval then doubles after every transmission until an interval of 300 seconds is reached. At this point, the interval remains at 300 seconds. The RAD requests continue until an IP address is received from a RARP or BootP server, or an IP address is entered using Local Management.

1.4 FULL DUPLEX SWITCHED ETHERNET

Each switched Fast Ethernet port on the DLE02-MA and the DLE52-MA supports 10/100 Mbps operation and can be configured to operate in Full Duplex Switched Ethernet (FDSE) mode. FDSE allows each port to provide up to 200 Mbps of bandwidth.

1.5 SmartTrunk

SmartTrunk, also referred to as SmartTrunking, is the terminology used to describe load balancing or load sharing. The SmartTrunk application uses a multicast proprietary packet. During initialization, SmartTrunk registers with the host interface to receive all unknown destinations and SmartTrunk packets. When SmartTrunk is enabled, it starts sending packets every two seconds to each SmartTrunk port that is linked and enabled in order to determine the network topology. While SmartTrunk performs this function, data is temporarily blocked on new SmartTrunk ports and any port that becomes newly linked. If SmartTrunk determines that there are network loops, it temporarily disables the looped ports via Spanning Tree, then it begins to forward data.



Refer to the list of supported features in the release notes to determine if SmartTrunk is supported. For information on SmartTrunk configuration, refer to the *SmartTrunk User's Guide*.

1.6 REMOTE MONITORING (RMON)

The DLE02-MA and the DLE52-MA support all nine Ethernet RMON groups. The Statistics, Alarms, Events and History groups are enabled on all ports by default.

RMON Actions, available from Cabletron Systems, is a vendor-specific extension of RMON and provides the ability to set an “Action” on any SNMP MIB variable. The Action can be triggered by setting an RMON Event and/or Alarm. An example of an Action would be to turn off a MIB-2 interface if a broadcast threshold is crossed.

1.7 BROADCAST SUPPRESSION

Broadcast Suppression enables a user to set a desired limit of receive broadcast frames per port/per second to be forwarded out the other ports on the module up to the set limit. Any broadcast frames above this specified limit are dropped. In the event that broadcast frames are being suppressed, multicast and unicast frames continue to be switched.

1.8 PORT REDIRECT FUNCTION

The Port Redirect function, also referred to as “Port Mirroring,” is a troubleshooting tool used to map traffic from a single source port to a destination port within the chassis. This feature allows all packets, including those with errors, to be copied and sent to an analyzer or RMON probe. The analyzer or RMON probe will see the data as if it is directly connected to the LAN segment of the source port.

1.9 FLOW CONTROL

Flow Control is a method of managing the flow of frames between two devices. It ensures that a transmitting device does not overwhelm a receiving device with data. This enables the receiving device to communicate with the transmitting device, and to have it pause its transmission while the receiving device processes the frames already received. Flow control can be enabled or disabled on a port-by-port basis. Both devices must support the IEEE 802.3x standard for flow control to work.

The DLE02-MA and the DLE52-MA support the following two types of flow control:

- frame based 802.3x
- back pressure

Frame based 802.3x flow control is supported on all Ethernet ports operating in the full duplex mode.

Back pressure flow control is supported on all Ethernet ports operating in the standard mode of operation.

1.10 802.1p PORT PRIORITY

The IEEE 802.1p draft standard is used to assign a default priority to the frames received without priority information in their tag header, and to map prioritized frames to the appropriate transmit queues.

1.11 MANAGEMENT

Management of the DLE02-MA, DLE52-MA modules, the DLM6C-AA chassis, and any optional equipment is accomplished using the Local Management application or remote SNMP management stations. Local Management is accessible through the RS232 COM port on the front panel using a local VT100 terminal, or a remote VT100 terminal via a modem connection, and in-band via a Telnet connection. In-band remote management is possible through any SNMP compliant Network Management Software.

Local Management described in this user's guide provides the ability to manage the DLE02-MA and the DLE52-MA. Local Management information for Ethernet HSIMs or VHSIMs is included in this manual. Local Management information for non-Ethernet HSIMs or VHSIMs is included in their respective user's guide. For details on how to get manuals, refer to the Related Documentation section in the Preface of this guide.

1.12 802.1Q AND 802.1D

In 802.1Q mode (the default mode of operation), the switch functions as an 802.1D switch until the VLANs are configured.

1.13 DISTRIBUTED CHASSIS MANAGEMENT

From a management perspective, the DLM6C-AA chassis can be viewed as a single entity with a single IP address. Its systems management functions are distributed to all modules. The chassis can be managed using a single IP address, or the modules can be managed separately by individual IP addresses. When using a single IP address, system wide settings can be done from the chassis menu in Local Management, while module settings are done by selecting the specific module to be modified and changing the settings for that module.

1.14 OPTIONAL HSIMs AND VHSIMs

The DLE52-MA provides a slot for an optional High Speed Interface Module (HSIM) or Very High Speed Interface Module (VHSIM) for additional connectivity to various networking technologies. Any exceptions to the HSIMs and VHSIMs that operate in the DLE52-MA are listed in the Release Notes shipped with the DLE52-MA.

1.15 STANDARDS COMPATIBILITY

The DLE02-MA and the DLE52-MA are fully compliant with the IEEE 802.3, 802.3x, 802.3u, prestandard 802.1Q, and prestandard 802.1p standards. The DLE02-MA and the DLE52-MA provide IEEE 802.1D Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against “loop” conditions. The DLE02-MA and the DLE52-MA support a wide variety of industry standard MIBs including RFC 1213 (MIB II), RFC 1757 (RMON), RFC 1493 (Bridge MIB), RFC 1354 (FIB MIB), and RFC 1190 (Path MTU Discovery). A full suite of MIBs, available from Cabletron Systems, provide a wide array of statistical information to enhance troubleshooting.

For information about how to extract and compile individual MIBs, contact your DIGITAL representative.

1.16 LANVIEW DIAGNOSTIC LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

1.17 YEAR 2000 COMPLIANT

The DLE02-MA and DLE52-MA modules, and DLM6C-AA chassis have an internal clock that can maintain the time and date beyond the year 1999.

CHAPTER 2

NETWORK REQUIREMENTS

Before installing the DLE02-MA and the DLE52-MA interface modules, review the requirements and specifications referred to in this chapter concerning the following:

- SmartTrunk (Section 2.1)
- 10BASE-T Twisted Pair Network (Section 2.2)
- 100BASE-TX Twisted Pair Network (Section 2.3)

The network installation must meet the guidelines in this chapter and in the documents referenced in this chapter to ensure satisfactory performance of the equipment. Failure to follow the guidelines may produce poor network performance.



The Cabletron Systems *Cabling Guide*, referred to in the following sections, can be found at <http://www.networks.digital.com>.

2.1 SmartTrunk

To connect the DLE02-MA and the DLE52-MA to a network so they can take advantage of the SmartTrunk feature, there are certain rules concerning port connections and configurations that must be followed for proper operation.

Refer to the list of supported features in the related notes to determine if SmartTrunk is supported. For information on SmartTrunk configuration, refer to the *SmartTrunk User's Guide*.

2.2 10BASE-T NETWORK

When connecting a 10BASE-T segment to any of the DLE02-MA and the DLE52-MA ports, ensure that the network meets the Ethernet network requirements of the IEEE 802.3 standard for 10BASE-T. Refer to the Cabletron Systems *Cabling Guide* for details.



If a port is to operate at 100 Mbps, Category 5 cabling must be used. For 10 Mbps operation only, Category 3 cabling can be used. Refer to Section 2.3 for information about 100BASE-TX networks and cabling.

2.3 100BASE-TX NETWORK

The fixed ports of the DLE02-MA and the DLE52-MA provide an RJ45 connection that supports Category 5 UTP cabling. The device at the other end of the twisted pair segment must meet IEEE 802.3u 100BASE-TX Fast Ethernet network requirements for the devices to operate at 100 Mbps. Refer to the Cabletron Systems *Cabling Guide* for details.



The fixed ports of the DLE02-MA and the DLE52-MA support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 10 and 100 Mbps operation.

The DLE02-MA and the DLE52-MA are capable of operating at either 10 or 100 Mbps. The DLE02-MA and the DLE52-MA automatically sense the speed of the other device and adjusts its speed accordingly.

CHAPTER 3

INSTALLATION



Only qualified personnel should install the DLE02-MA and the DLE52-MA interface modules.



Read the release notes shipped with the device to check for any exceptions to the supported features and operation documented in this guide.

This chapter covers the following items:

- Unpacking the DLE02-MA and the DLE52-MA (Section 3.1)
- Installing Options (Section 3.2)
- Installing the DLE02-MA and the DLE52-MA into the DLM6C-AA Chassis (Section 3.3)
- Connecting to the Network (Section 3.4)
- Completing the Installation (Section 3.5)

3.1 UNPACKING THE DLE02-MA AND THE DLE52-MA

1. Open the box and remove the packing material protecting the module.
2. Verify the contents of the carton as listed in Table 3-1.

Table 3-1 Contents of DLE02-MA and the DLE52-MA Shipping Containers

Item	Quantity
DLE02-MA or DLE52-MA	1
Manual Accessory Kit	1

3.2 INSTALLING OPTIONS

If installing an optional HSIM or VHSIM, it must be installed in the DLE52-MA before proceeding to Section 3.3. Complete instructions for installing an optional HSIM or VHSIM are available in the applicable HSIM or VHSIM *User's Guide*. For details on how to get manuals, refer to the Related Documentation section in the Preface of this guide. Refer to Appendix B for the HSIM or VHSIM connector locations.

3.3 INSTALLING THE DLE02-MA AND THE DLE52-MA INTO THE DLM6C-AA CHASSIS

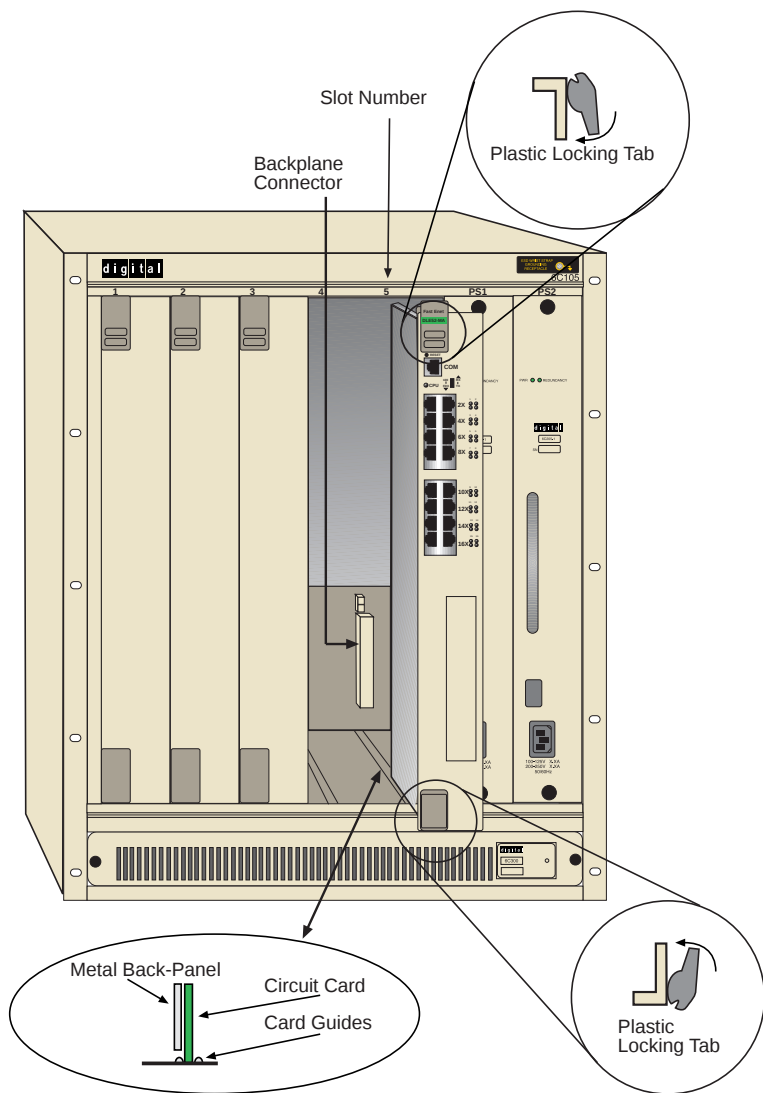


Failure to observe static safety precautions could cause damage to the DLE02-MA and the DLE52-MA. Follow static safety handling rules and wear the antistatic wrist strap provided with the DLM6C-AA chassis.

Do not cut the non-conductive bag to remove the module. Damage could result from sharp objects contacting the board or components.

The DLE02-MA and the DLE52-MA can be installed in any of the 5 slots that are available. To install a module, refer to Figure 3-1 and proceed as follows:

1. Remove the blank panel covering the slot in which the module will be installed. All other slots must remain covered to ensure proper airflow and cooling. (Save the blank plate in the event you need to remove the module.)
2. Carefully remove the module from the shipping box. (Save the box and packing materials in the event the module must be reshipped.)
3. Locate the antistatic wrist strap shipped with the DLM6C-AA chassis. Attach the antistatic wrist strap to your wrist and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the DLM6C-AA.
4. Remove the module from the plastic bag. (Save the bag in the event the module must be reshipped.) Observe all precautions to prevent damage from Electrostatic Discharge (ESD).



2361-02

Figure 3-1 Installing an Interface Module

5. Examine the module for damage. If any damage exists, **DO NOT** install the module. Immediately contact your DIGITAL

representative. Refer to the Getting Help section in the Preface of this Guide.



To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors.

Ensure that the top plastic locking tab lines up with the desired slot number located on the front panel of the chassis. Refer to Figure 3-1.

6. Locate the slot guides that line up with the number of the slot in which the module will be installed. Install the module in the chassis by aligning the module circuit card between the upper and lower metal rail guides of the desired slot, sliding it into the chassis, and locking down the top and bottom plastic locking tabs, as shown in Figure 3-1. Take care that the module slides in straight and properly engages the backplane connectors.
7. If the chassis in which the module is installed was powered down for the installation, turn it back on. Check to see that the CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, see Chapter 4 for details.

3.4 CONNECTING TO THE NETWORK

This section provides the procedures for connecting twisted pair segments from the network or other devices to the DLE02-MA or the DLE52-MA.



If the DLE02-MA and the DLE52-MA are being installed in a network using SmartTrunking, there are rules concerning the network cable and port configurations that must be followed for SmartTrunking to operate properly. Refer to the list of supported features in the release notes to determine if SmartTrunk is supported. Before connecting the cables, refer to the *SmartTrunk User's Guide* for the configuration information.

3.4.1 Connecting Twisted Pair Cables to Fixed Ports

All fixed ports of the DLE02-MA and the DLE52-MA are 10/100 ports with internal crossovers. When connecting a workstation, use a straight-through cable. When connecting networking devices, such as another bridge, repeater, or router, use a crossover cable.



All DLE02-MA and the DLE52-MA front panel ports support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms. Category 3 cable may be used if the connection is going to be used only for 10 Mbps.

Connect a twisted pair segment to the DLE02-MA or the DLE52-MA as follows:

1. Ensure that the device connected to the other end of the segment is powered ON.
2. Connect the Twisted Pair segment to the DLE02-MA or the DLE52-MA by inserting the RJ45 connector on the twisted pair segment into the desired RJ45 port as shown in Figure 3-2.

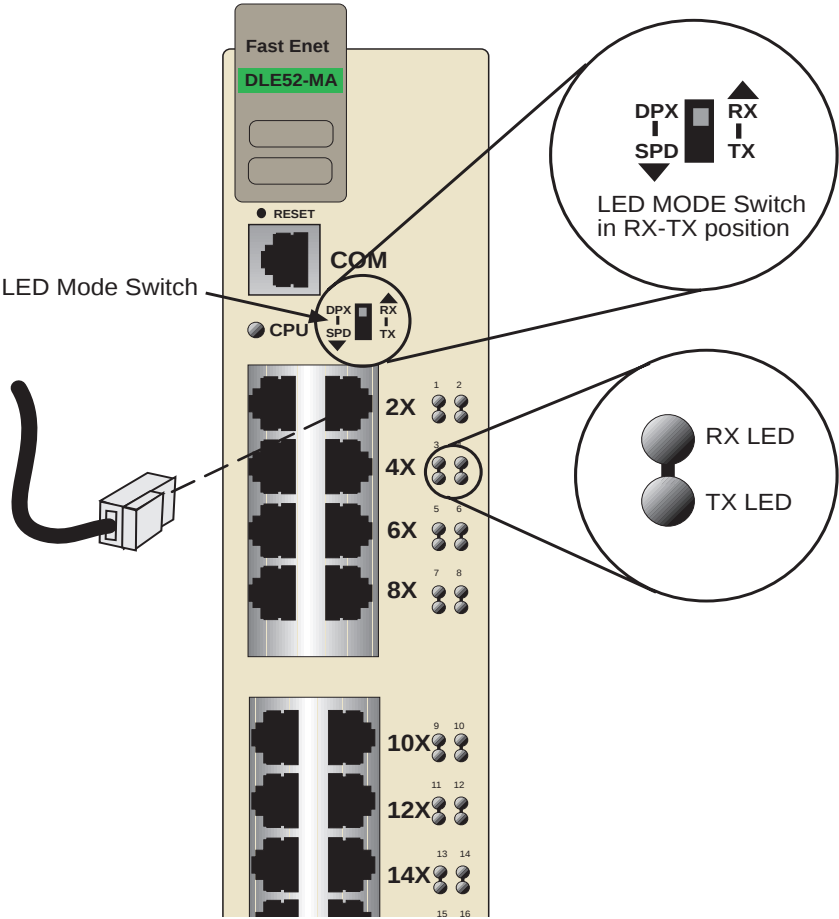


Figure 3-2 Connecting a Twisted Pair Segment to the DLE02-MA or DLE52-MA

3. Verify that a link exists by checking that the port **RX** (Receive) LED is ON (flashing amber, blinking green, or solid green). If the **RX** LED is OFF and the **TX** (Transmit) LED is not blinking amber, perform the following steps until it is on:
 - a. Verify that the LED mode switch located near the COM port of the module is in the UP position (RX and TX LED indicators).

- b. Verify that the cabling being used is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 100 Mbps, category 5 cabling must be used.
- c. Verify that the device at the other end of the twisted pair segment is on and properly connected to the segment.
- d. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts (Figure 3-3 and Figure 3-4) and check the cable for continuity. Typically, a crossover cable is used between a switching or hub device and an end user (computer). A straight-through cable is used between hub devices.

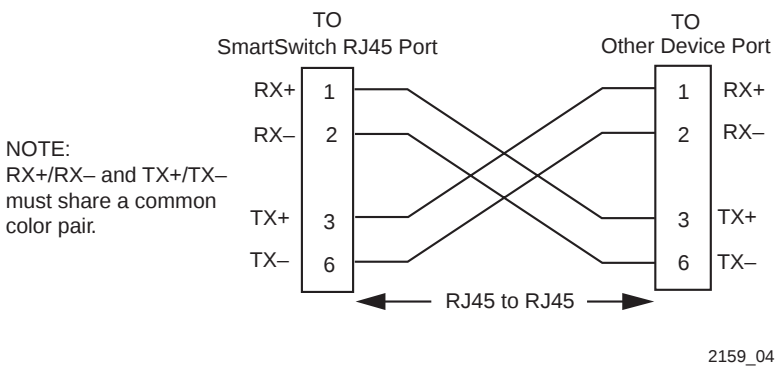


Figure 3-3 Cable Pinouts - (RJ45) Crossover Cable

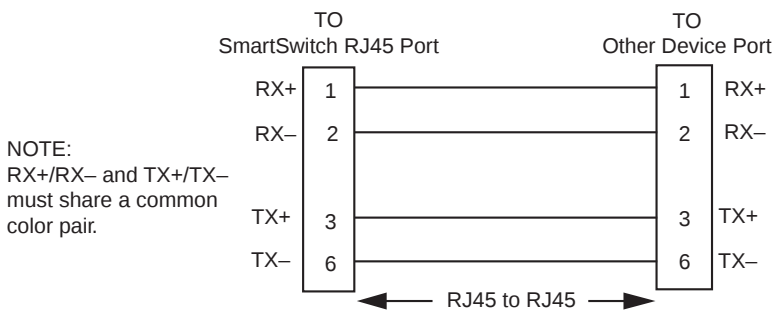


Figure 3-4 Cable Pinouts - (RJ45) Straight-Through Cable

- e. Ensure that the twisted pair connection meets the dB loss and cable specifications outlined in the Cabletron Systems *Cabling Guide*. Refer to the **Preface** for information on obtaining this document.

If a link is not established, contact your DIGITAL representative. Refer to Getting Help, in the Preface of this guide, for details.

4. Repeat steps 1 through 3 above, until all connections have been made.

3.5 COMPLETING THE INSTALLATION

After installing the DLE02-MA or DLE52-MA and any optional HSIM or VHSIM, the module is now ready to be set up through Local Management. Refer to Chapter 5 to set up a Local Management connection and configure the DLM6C-AA chassis, Chapter 6 to configure the module, and Chapter 7 for Network Tools.

CHAPTER 4

TROUBLESHOOTING

This chapter provides information concerning the following:

- Using the LANVIEW diagnostic and status monitoring system (Section 4.1)
- Troubleshooting network and module operational problems (Section 4.2)
- Using the RESET button (Section 4.3)

4.1 USING LANVIEW

The DLE02-MA and the DLE52-MA use built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs (Figure 4-1) allow quick observation of the network status to aid in diagnosing network problems. Refer to Table 4-1 for a description of the LEDs.

Refer to the HSIM or VHSIM *User's Guide* for a description of the HSIM or VHSIM LEDs.



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, (approximately 50% on, 50% off).

Solid indicates a steady LED light. No pulsing.

4.1.1 The LED Mode Switch

The DLE02-MA and the DLE52-MA have an LED mode switch, located on the front panel, that allows the user to change the function of the LEDs. Refer to Figure 4-1 for the location of the LED mode switch. When the switch is in the UP position, the LEDs indicate the receive (RX) and transmit (TX) status of the fixed ports. When the mode switch is in the DOWN position, the LEDs indicate at what speed the applicable port is currently operating (10 Mbps or 100 Mbps) and if the applicable port is operating in standard or full duplex mode.



The LED mode switch does not change the function of any LEDs on an HSIM or VHSIM installed in the DLE52-MA.

Table 4-1 provides the definitions of the LED states that occur when the LED mode switch is in the UP position. Table 4-2 provides the definitions of the LED states that occur when the LED mode switch is in the DOWN position.

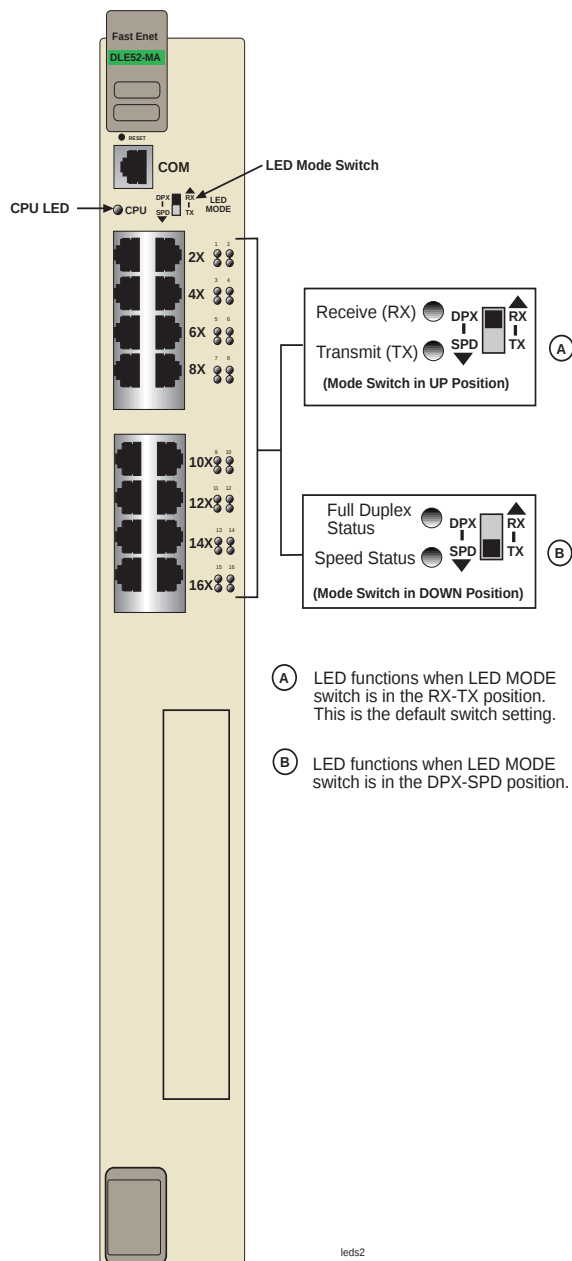


Figure 4-1 LANVIEW LEDs

Table 4-1 LANVIEW LEDs CPU, Receive, and Transmit Status

LED	Color	State	Recommended Action
CPU	Off	Power off.	Power up chassis.
	Red	Blinking. Hardware failure has occurred.	Contact your DIGITAL representative.
		Solid. Resetting, normal power up reset.	If the LED remains red for several minutes, contact your DIGITAL representative.
	Amber	Blinking. Crippled.	Contact your DIGITAL representative.
		Solid. Testing.	If the LED remains amber for several minutes, contact your DIGITAL representative.
	Green	Solid. Functional.	None.
	Amber and Green	Booting. Blinks amber and green while booting.	None.
The following port RX and TX LED indications are only valid when the LED MODE switch is in the RX-TX position.			
RX	Off	No link. No activity or port in Standby. Port enabled or disabled.	None.
	Green	Solid. Port enabled, link, no activity.	None.
		Blinking. Port disabled, link.	Enable port if desired.
	Amber	Flashing. Port enabled, link, activity.	None.
	Red	Diagnostic failure.	Contact your DIGITAL representative.

Table 4-1 LANVIEW LEDs CPU, Receive, and Transmit Status (Continued)

LED	Color	State	Recommended Action
TX	Off	Port enabled, and no activity. Should flash green every two seconds indicating BPDUs being sent if STA is enabled and there is a valid link.	1. Ensure that the STA is enabled and that there is valid link. Section 6.16.1 describes how to enable the STA. 2. Contact your DIGITAL representative.
	Green	Flashing. Indicates activity. Rate indicates data rate.	None.
	Amber	Blinking. Port in standby. Port may be disabled due to Spanning Tree.	1. Ensure that the port is not disabled. Refer to Section 6.16.3 for information on enabling/disabling ports. 2. Contact your DIGITAL representative.
	Red	Flashing. Indicates collision rate.	None, unless there is a high rate of activity. If so, check for network configuration problems or a defective device.
		Solid. Diagnostic Failure.	Contact your DIGITAL representative.

Table 4-2 Speed and Full Duplex LED Indications

LED	Color	Description
The following port DPX and SPD LED indications are only valid when the LED MODE switch is in the DPX-SPD position.		
DPX (Duplex Status)	Amber	Port is operating in standard mode (10 Mbps or 100 Mbps).
	Green	Port is operating in full duplex mode (20 Mbps or 200 Mbps).
SPD (Speed Status)	Amber	There is a link and the port is operating at 10 Mbps.
	Green	There is a link and the port is operating at 100 Mbps.

4.2 TROUBLESHOOTING CHECKLIST

If the DLE02-MA and the DLE52-MA are not working properly, refer to Table 4-3 for a checklist of possible problems, causes, and recommended actions to resolve the problem.

Table 4-3 Fault Identification

Symptom	Possible Causes
All LEDs off.	1. Installation error - Remove the DLE02-MA and the DLE52-MA and perform installation in accordance with installation instructions. Check connectors for dust or dirt and clean as necessary. 2. Power system fault - refer to Table 4-4.
Module stays in BOOT state.	1. Device does not have an operable firmware image, and is sending out BootP requests in an effort to locate a BootP server on the network. Press the RESET button on the front panel to attempt to use the firmware image in FLASH memory. 2. If the problem continues after pressing the RESET button, refer to Section B.1 for instructions on forcing a BootP image download. 3. Contact your DIGITAL representative if the problem continues.
Cannot access Local Management.	1. Firmware image fault - refer to Table 4-5 2. Management system fault - refer to Table 4-6.
Cannot contact device through in-band management.	1. Management system fault - refer to Table 4-6. 2. No link to device - verify all network connections between network management station and the DLE02-MA and the DLE52-MA are valid and operating.
User parameters (IP address, community names, etc.) lost on reset or power-up.	Device setup fault - refer to Table 4-7.
Device is not forwarding traffic from any port.	Device setup fault - refer to Table 4-7.

Table 4-4 Power System Troubleshooting

Possible Causes	Instruction
Loss of Power to the DLM6C-AA chassis.	Perform the following steps: 1. Check ON/OFF switches of DLM6C-AA power supplies. All switches must be in the ON () position. 2. Check all power cords and cables for proper connection. Examine power cords for fraying or other damage. Replace if necessary. 3. Examine DLM6C-AA chassis power supplies. If power supply LEDs or audible warning tone indicate power supply problems, troubleshoot or replace any faulty power supplies.
Fault in DLM6C-AA power bus.	1. Remove the DLE02-MA or the DLE52-MA from the current slot and re-install in another free slot in the chassis. 2. If the DLE02-MA and the DLE52-MA functions in the selected slot, the DLE02-MA and the DLE52-MA onboard power converter is operational. The DLM6C-AA chassis power bus may have a localized fault. Install the DLE02-MA or the DLE52-MA in the working slot and then contact your DIGITAL representative. 3. If the DLE02-MA and the DLE52-MA does not function in the selected slot, continue the process with all module slots in the chassis. If the module does not function in any slot, the chassis power bus may have a system-wide fault or the module onboard power converter may be inoperable. Diagnose the module power converter as described below to isolate the fault.
Fault in DLE02-MA and the DLE52-MA module power converter.	1. Remove a working module from a known good chassis. 2. Install the DLE02-MA or the DLE52-MA in the known good slot. 3. If the DLE02-MA or the DLE52-MA does not function, there may be a fault in the onboard power converter. Contact your DIGITAL representative immediately.

Table 4-5 Firmware Troubleshooting

Possible Causes	Instruction
Autobaud enabled.	Press ENTER (RETURN) (may take up to four times).
Terminal setup is not correct.	Refer to Chapter 5 for proper setup procedures.
Improper console cable pinouts.	Refer to Appendix A for proper console port pinouts.
The COM port of the device has been disabled, or the COM port application has been changed.	1. Establish a Telnet connection to the device. 2. Refer to Section 6.4.10 for instructions on enabling/disabling the COM port and changing the COM port application.
Corrupt firmware image, or hardware fault.	1. If possible, attempt to download the image to the device again. Refer to Section B.1 for instructions on how to force a download of a new firmware image. 2. Contact your DIGITAL representative if the problem continues.

Table 4-6 Management System Troubleshooting

Possible Causes	Instruction
Improper Community Names Table.	1. Refer to Section 5.9 for Community Names Table setup. 2. If the Community Names have been forgotten, refer to Section B.1 for instructions on clearing NVRAM.

Table 4-6 Management System Troubleshooting (Continued)

Possible Causes	Instruction
The DLE02-MA or the DLE52-MA does not have an IP address.	1. Refer to Section 6.4.1 for IP address assignment procedure. 2. If the DLE02-MA and the DLE52-MA are using the IP address of the DLM6C-AA chassis, ensure that the modules are not in STANDALONE management mode. Section 6.4.9 provides instructions on setting the management mode.
The applicable front panel port is disabled.	1. Enable port. Refer to Section 6.16.3 for instructions on enabling/disabling ports. 2. Port may disabled due to Spanning Tree. Review network design and delete unnecessary loops.

Table 4-7 Device Setup Troubleshooting

Possible Causes	Instruction
The DLE02-MA and the DLE52-MA detect a looped condition.	1. Verify that Spanning Tree is enabled. Refer to Section 6.16.3 for instructions on setting the type of STA. 2. Review network design and delete unnecessary loops.
1. Mode switch (7), NVRAM Reset, was changed sometime before either cycling power or pressing the RESET button, causing the user-entered parameters to reset to factory default settings. 2. Clear NVRAM was set through Local Management.	1. Reenter the lost parameters as necessary. Refer to Chapter 5 for instructions on configuring the device through Local Management. 2. Call your DIGITAL representative if problem continues.



If these troubleshooting tables do not solve any problems that occur with the DLE02-MA or the DLE52-MA, then contact your DIGITAL representative. Refer to Getting Help, in the Preface of this guide, for details.

4.3 USING THE RESET BUTTON

The RESET button located near the upper plastic locking tab of the module (refer to Figure 4-2) resets the DLE02-MA and the DLE52-MA processor without affecting the NVRAM.



Pressing the RESET button resets the device, and all current switching being performed by the module is halted. A module downtime of up to two minutes results from this action.

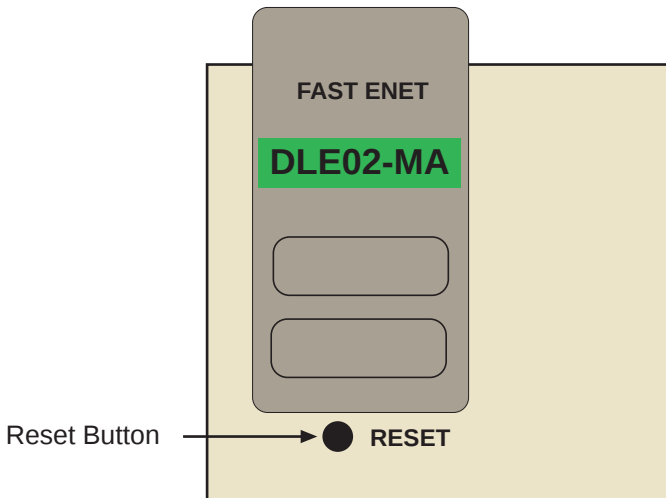


Figure 4-2 RESET Button

To reset the DLE02-MA and the DLE52-MA processor, press and release the RESET button. To push the button, use a pen or similar tool, as the button is recessed behind the metal plate of the front panel. The module processor goes through a reset process of approximately 60 seconds. Additional downtime may be added as the module reenters the network.

CHAPTER 5

LOCAL MANAGEMENT: OVERVIEW, SETUP, AND CHASSIS MANAGEMENT

This chapter explains how to set up a management terminal to access the DLE02-MA and the DLE52-MA Local Management for the chassis. It also explains how to use the Local Management screens and commands.



Depending on the firmware version used in the DLE02-MA and the DLE52-MA, some features described in this document may not be supported. Refer to the Release Notes shipped with the module to determine which features are supported.

5.1 OVERVIEW

Local Management for the DLE02-MA and the DLE52-MA consists of a series of management screens that allows the management of the modules, the attached segments, and the DLM6C-AA chassis. The management screens allow the user to perform the following tasks:

- Manage any interface module in the chassis via a connection to a single interface module.
- Assign IP addresses and subnet masks to the DLE02-MA and the DLE52-MA modules, and the DLM6C-AA chassis.
- Control access to the DLE02-MA and the DLE52-MA modules and the DLM6C-AA chassis by establishing community names.
- Download a new image of operating software.
- Designate which Network Management Workstations receive SNMP traps from the DLE02-MA and the DLE52-MA modules, and the DLM6C-AA chassis.
- Monitor the environmental status of the DLM6C-AA chassis.
- View switch, interface, and RMON statistics.
- Assign ports to operate in standard or full duplex mode.
- Enable trunking of ports to perform load sharing.
- Configure the HSIM of the DLE52-MA.

There are three ways to access Local Management:

- Locally using a VT type terminal connected to the COM port of the DLE02-MA and the DLE52-MA.
- Remotely using a VT type terminal connected through a modem.
- In-band through a Telnet connection.

5.2 LOCAL MANAGEMENT KEYBOARD CONVENTIONS

All key names appear as capital letters in this manual. Table 5-1 explains the keyboard conventions and the key functions that are used.

Table 5-1 Keyboard Conventions

Key	Function
ENTER Key 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.
ESCAPE (ESC) Key	This key allows an escape from a Local Management screen without saving changes. For example, “Press ESC twice” means the ESC key must be pressed quickly two times.
SPACE bar BACKSPACE Key	These keys cycle through selections in some Local Management fields. Use the SPACE bar to cycle forward through selections and use BACKSPACE 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.
[–] Key	This key decreases values from a Local Management increment field. For example, “Press [–]” means to press the minus sign key.
DEL Key	The DEL (Delete) key removes characters from a Local Management field. For example, “Press DEL” means to press the Delete key.

5.3 MANAGEMENT TERMINAL SETUP

Use one of the following systems to access Local Management:

- An IBM or compatible PC running a VT series emulation software package
- A Digital Equipment Corporation VT100 type terminal
- A VT type terminal running emulation programs for the Digital Equipment Corporation VT100 series
- A remote VT100 type terminal via a modem connection
- In-band via a Telnet connection

5.3.1 Console Cable Connection

Use the Console Cable Kit provided with the DLM6C-AA chassis to attach the management terminal to the COM port as shown in Figure 5-1.

Connect an IBM PC or compatible device, running the VT terminal emulation, to the DLE02-MA or the DLE52-MA as follows:

1. Connect the RJ45 connector at one end of the cable (supplied in the kit) to the COM port on the DLE02-MA or the DLE52-MA.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 adapter (supplied in the kit).
3. Connect the RJ45-to-DB9 adapter to the PC communications port.



If using a modem between the VT compatible device and the COM port of the DLE02-MA or the DLE52-MA, use the appropriate connector included in the management cable kit. Refer to the modem manufacturer's information for proper operation and setup of the modem.

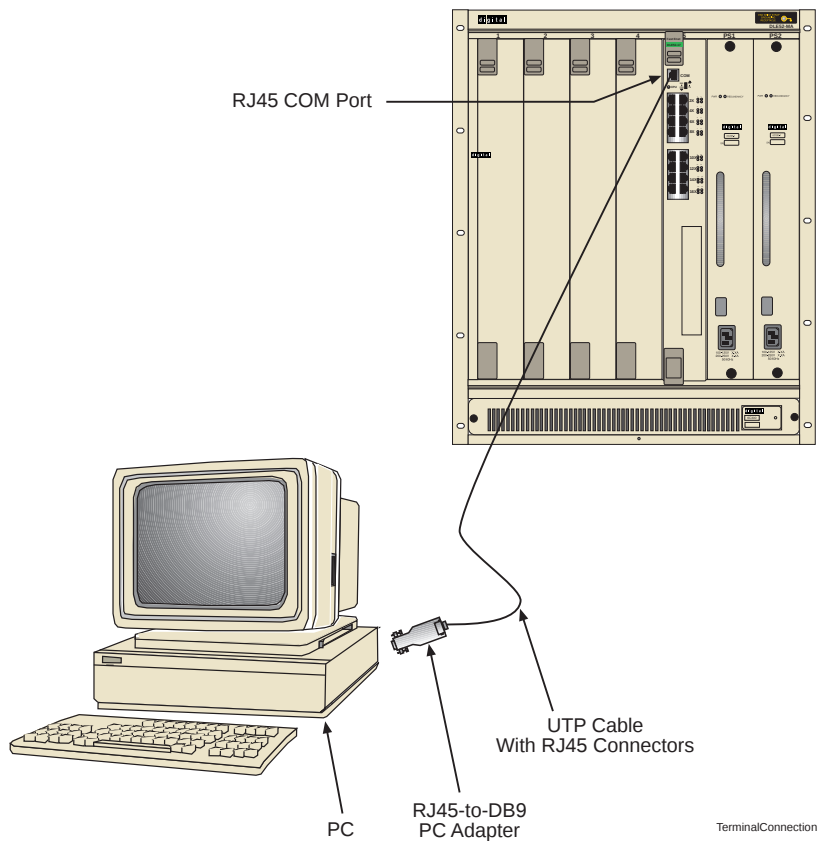


Figure 5-1 Management Terminal Connection

5.3.2 Management Terminal Setup Parameters

Table 5-2 lists the setup parameters for the local management terminal.

Table 5-2 VT Terminal Setup

Display Setup Menu	
Columns ->	80 Columns
Controls ->	Interpret Controls
Auto Wrap ->	No Auto Wrap
Scroll ->	Jump Scroll
Text Cursor ->	Cursor
Cursor Style ->	Underline Cursor Style
General Setup Menu	
Mode ->	VT100, 7 Bit Controls
ID number ->	VT100ID
Cursor Keys ->	Normal Cursor Keys
Power Supply ->	UPSS DEC Supplemental
Communications Setup Menu	
Transmit ->	2400, 4800, 9600, 19200
Receive ->	Receive=Transmit
XOFF ->	XOFF at 64
Bits ->	8 bits
Parity ->	No Parity
Stop Bit ->	1 Stop Bit
Local Echo ->	No Local Echo
Port ->	DEC-423, Data Leads Only
Transmit ->	Limited Transmit
Auto Answerback ->	No Auto Answerback
Keyboard Setup Menu	
Keys ->	Typewriter Keys
Auto Repeat ->	any option
Keyclick ->	any option
Margin Bell ->	Margin Bell
Warning Bell ->	Warning Bell

5.3.3 Telnet Connections

Once the module or chassis has a valid IP address, the user can establish a Telnet session with Local Management from any TCP/IP based node on the network. Telnet connections to the DLE02-MA and the DLE52-MA require the community name passwords assigned at the SNMP Community Names screen of either the DLM6C-AA chassis, or the module.

For information about setting the IP address, refer to Section 5.8.

For information about assigning community names, refer to Section 5.9.

Refer to the instructions included with the Telnet application for information about establishing a Telnet session.

If the DLE02-MA or the DLE52-MA is operating in the 802.1Q mode, the management station must be connected to a physical port on the device that is on the same VLAN as the virtual Host Data Port. For more information about the virtual Host Data Port and the setup information for remote management in a device that is to be configured with VLANs, refer to the *Port Based VLAN User's Guide*.

5.3.4 Monitoring an Uninterruptible Power Supply

If the DLM6C-AA chassis is connected to an American Power Conversion (APC) Uninterruptible Power Supply (UPS) for protection from a loss of power, a connection from the COM port of a module to the UPS can be made to monitor the status of the UPS. To use the COM port for this purpose, it must be reconfigured to support the UPS application. This procedure is performed from the General Configuration screen of the interface module. Section 6.4.10 provides detailed instructions on configuring the COM port for UPS applications. Refer to the UPS documentation for details on how to access the status information.

Use the Console Cable Kit provided with the DLM6C-AA chassis to attach the UPS to the module COM port as shown in Figure 5-2.

Connect the UPS device to the COM port of the DLE02-MA or the DLE52-MA as follows:

1. Connect the RJ45 connector at one end of the cable to the COM port on the module.

2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 male (UPS) adapter, Cabletron Systems Part No. 9372066.
3. Connect the RJ45-to-DB9 male (UPS) adapter to the female DB9 port on the rear of the UPS device (refer to the particular UPS device's user instructions for more specific information about the monitoring connection).

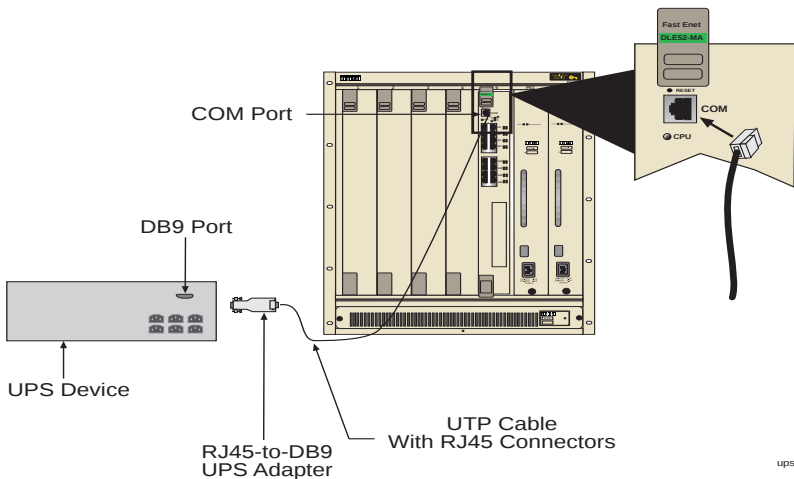


Figure 5-2 Uninterruptible Power Supply (UPS) Connection

5.4 LOCAL MANAGEMENT SCREEN ELEMENTS

There are six types of screens used in Local Management: password, menu, statistics, configuration, status, and warning screens. Each type of screen can consist of one to five basic elements, or fields. Figure 5-3 shows an example of the fields in a screen. A description of each type of field and other elements in the screen follows Figure 5-3.



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

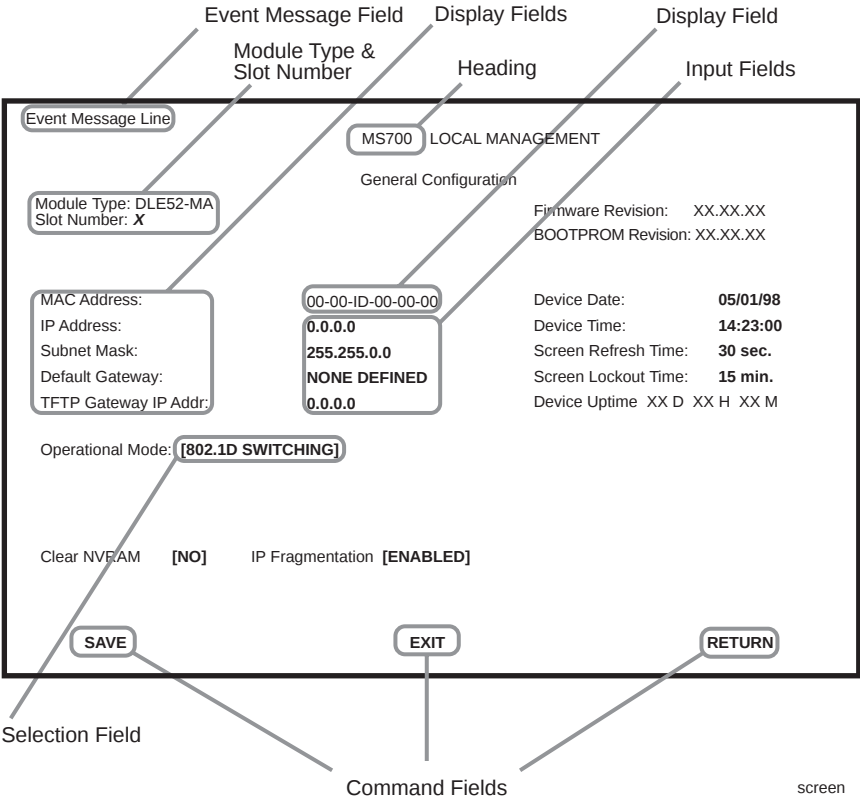


Figure 5-3 Example of a Local Management Screen

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 5-3 describes the most common event messages. Event messages related to specific Local Management applications are described with those applications throughout this manual.

Table 5-3 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 no changes were made that required saving.

Heading

The heading will indicate whether the module was accessed using the chassis or module IP address. If the chassis IP address was used to access the module, the heading will be the chassis name, e.g., DLM6C-AA. If the module IP address was used to access the module, the module name will be in the heading, the same as listed next to Device Type, e.g., DLE52-MA.

Module Type and Slot Number

These fields display only when a module is being accessed through Local Management. The module type is displayed and the chassis slot number of the module is displayed. A chassis screen will not display these fields.

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, 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 Fields

Selection 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 are 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 the next sequence in 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.

5.5 ACCESSING LOCAL MANAGEMENT

Access to Local Management is controlled through the Password screen, Figure 5-4. Whenever a connection is made to the DLE02-MA or the DLE52-MA, the Password screen displays. Before continuing, the user must enter a password, which is compared to the previously stored passwords. The level of access allowed the user depends on the password. To set or change passwords, refer to Section 5.9. The following steps describe the procedure to access Local Management.

1. Turn on the terminal. Press ENTER (this may take up to four keystrokes, until the COM port of the DLE02-MA or the DLE52-MA auto-senses the baud rate of the terminal) until the DLM6C-AA Local Management Password screen, Figure 5-4, displays.

Event Message Line

MS700 LOCAL MANAGEMENT

CABLETRON Systems, Incorporated
P.O.Box 5005
Rochester, NH 03866-5005 USA
(603) 332-9400

(c) Copyright CABLETRON Systems, Inc, 1997

Enter Password: XXXXXXXXXX

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Figure 5-4 Local Management Chassis/Module Password Screen

2. Enter the Password and press ENTER. The default Super-User access password is “*public*” or press ENTER.



The User's password is one of the community names specified in the SNMP Community Names screen. Access to certain Local Management capabilities depends on the degree of access accorded that community name. Refer to Section 5.9.

- If an invalid password is entered, the terminal beeps and the cursor returns to the beginning of the password entry field.
- Entering a valid password causes the associated access level to display at the bottom of the screen and the Main Menu screen to appear.
- If no activity occurs for several minutes, the session ends and the Password screen reappears.

5.5.1 Navigating Local Management Screens

The DLE02-MA and the DLE52-MA Local Management application consists of a series of menu screens. Navigate through Local Management by selecting items from the menu screens.

The DLE02-MA and the DLE52-MA supports the following mode of switching operation:

- 802.1Q SWITCHING (802.1Q port based VLANs)

The switch operational mode is set in the General Configuration screen of the module. Depending on the Operational Mode set for the module, the hierarchy of Local Management screens differs as shown in Figure 5-5.

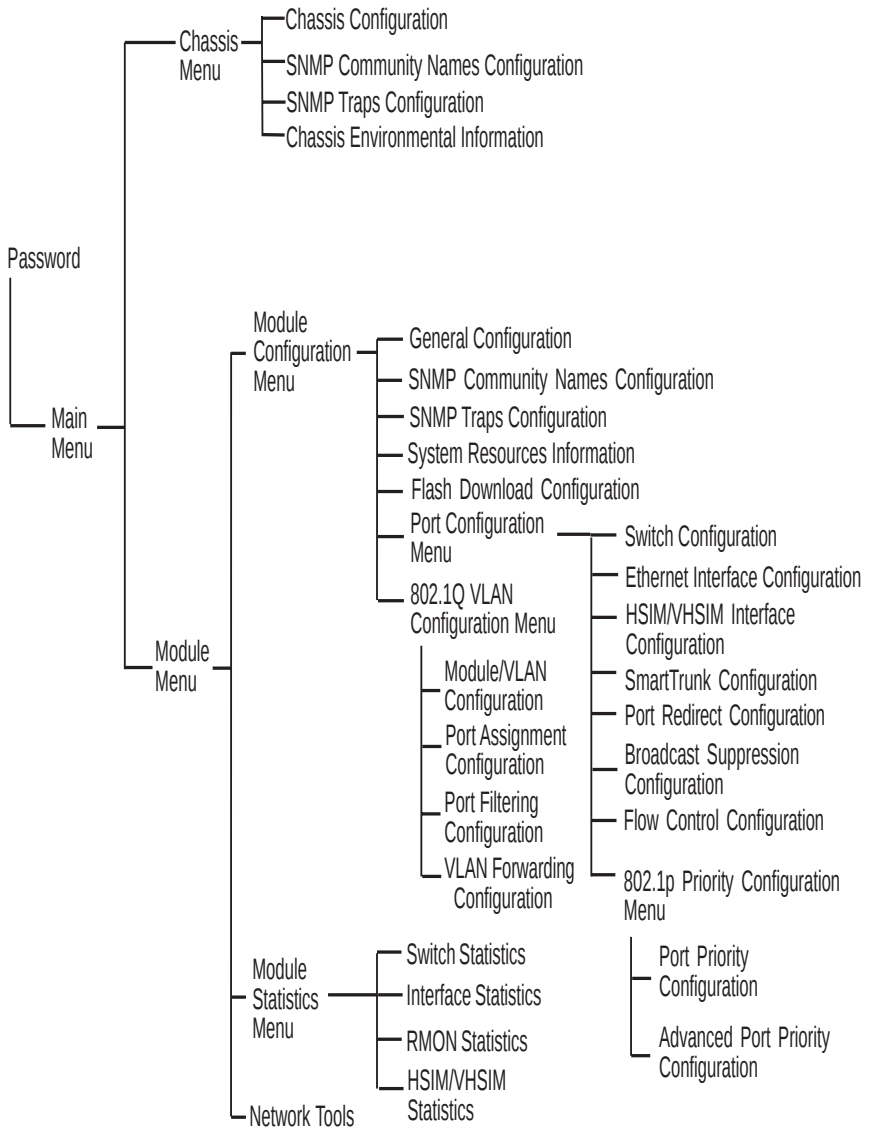


Figure 5-5 802.1Q Switching Mode, LM Screen Hierarchy

5.5.2 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 menu item displays on the screen.

5.5.3 Exiting Local Management Screens

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

Using the EXIT Command

To exit a Local Management 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 Chassis Main Menu screen displays and the session ends.

Using the RETURN Command

To exit LM using the RETURN command, proceed as follows:

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 are lost.

3. Exit from Local Management by repeating steps 1 and 2 until the Device Menu screen displays.
4. To end the LM session, use the arrow keys to highlight the **RETURN** command at the bottom of the Device Menu screen.

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

5.5.4 Using the NEXT and PREVIOUS Commands

If a particular Local Management screen has more than one screen to display its information, the NEXT and PREVIOUS commands are used to navigate between its screens.

To go to the next or previous display of a screen, proceed as follows:

1. Highlight the applicable **NEXT** or **PREVIOUS** command at the bottom of the screen.
2. Press ENTER. The screen displays.

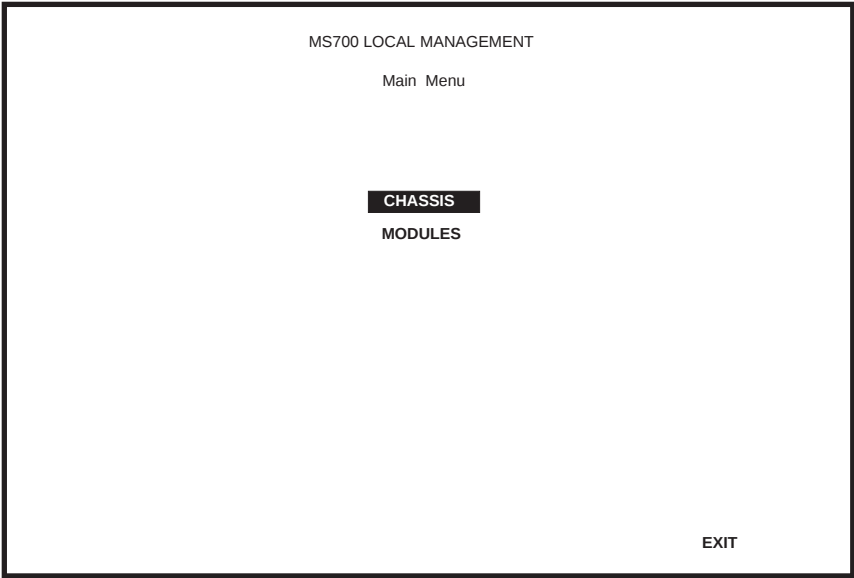
5.5.5 Using the CLEAR COUNTERS Command

The CLEAR COUNTERS command is used to momentarily reset all counters of a screen to zero to allow the user to observe counter activity over a period of time. To reset the counters, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** command.
2. Press ENTER, the counters are reset to zero, and the counter will start up again immediately.

5.6 THE MAIN MENU SCREEN

The Main Menu Screen is the access point for all Local Management screens for the modules and the DLM6C-AA chassis. Figure 5-6 shows the Main Menu screen.



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Figure 5-6 Main Menu Screen



If the terminal is idle for several minutes the Local Management Password screen redisplay and the session ends. This idle time can be changed in the General Configuration screen in Section 5.8.6.

The following explains each Main Menu screen selection as shown in Figure 5-6:

CHASSIS

Provides access to the Chassis Menu screen, shown in Figure 5-7, that is used to configure the DLM6C-AA chassis, access current chassis power supply and environmental status, and perform Port Redirect functions.

To access the Chassis Configuration screen, use the arrow keys to highlight the **CHASSIS** menu item and press ENTER. The Chassis Configuration screen displays. Proceed to Section 5.7.

MODULES

Provides access to the Module Selection screen that is used to select individual modules in the chassis for management purposes.

To access the Module Selection screen, use the arrow keys to highlight the **MODULES** menu item and press ENTER. The Module Selection screen displays. Proceed to Chapter 6 if module management is desired at this time.

5.7 CHASSIS MENU SCREEN

The Chassis Menu screen, Figure 5-7, provides access to Local Management screens that allow you to configure and monitor operating parameters, modify SNMP community names, set SNMP traps, monitor the DLM6C-AA environmental status, and to perform port redirect functions.

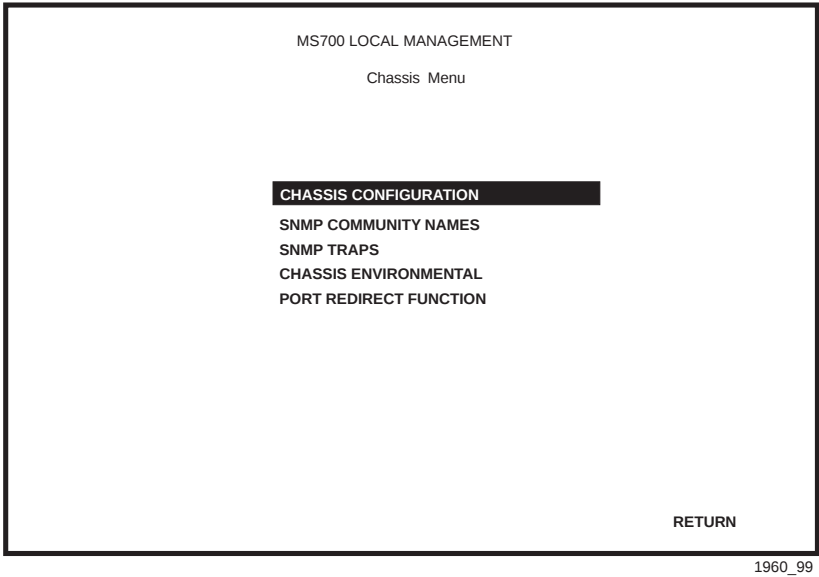


Figure 5-7 Chassis Menu Screen

The following briefly explains each screen accessible from the Chassis Menu screen.

CHASSIS CONFIGURATION

Allows the user to configure operating parameters for the DLM6C-AA chassis. For details, refer to Section 5.8.

SNMP COMMUNITY NAMES

Allows the user to enter new, change, or review the community names used as access passwords for device management operation. Access is limited based on the password level of the user. For details, refer to Section 5.9.

SNMP TRAPS

Provides display and configuration access to the table of IP addresses used for trap destinations and associated community names. For details, refer to Section 5.10.

CHASSIS ENVIRONMENTAL

Provides access to chassis power supply status, power supply redundancy status and chassis fan tray status. For details, refer to Section 5.11.

PORT REDIRECT FUNCTION

Allows the user to redirect traffic from one port in the chassis to a specific destination port. For details, refer to Section 5.12.

5.8 CHASSIS CONFIGURATION SCREEN

The Chassis Configuration screen, Figure 5-8, allows the user to set the chassis date and time, IP address and Subnet Mask, the operational mode of all modules installed in the chassis, and to view the chassis uptime.

To access the Chassis Configuration screen from the Chassis Menu screen, use the arrow keys to highlight the **CHASSIS CONFIGURATION** menu item and press ENTER. The Chassis Configuration screen, Figure 5-8, displays.

The screenshot shows the 'Chassis Configuration' screen for 'MS700 LOCAL MANAGEMENT'. At the top is an 'Event Message Line'. Below it, the title 'Chassis Configuration' is centered. The screen is divided into two columns of settings. The left column includes 'MAC Address: 00-00-ID-00-00-00', 'IP Address: 0.0.0.0' (with the IP field highlighted in black), and 'Subnet Mask: 0.0.0.0'. The right column includes 'Chassis Date: 01/11/98', 'Chassis Time: 14:23:00', 'Screen Refresh Time: 30 sec.', 'Screen Lockout Time: 15 min.', and 'Chassis Uptime: XX D XX H XX M'. Below these settings, 'Operational Mode: [802.1Q SWITCHING]' is displayed. At the bottom, there are three buttons: 'SAVE', 'EXIT', and 'RETURN'.

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Figure 5-8 Chassis Configuration Screen

The following briefly explains each Chassis Configuration screen field:

MAC Address (Read-Only)

Displays the base physical address of the chassis.

IP Address (Modifiable)

Allows the IP address to be set for the DLM6C-AA chassis. If an IP address is assigned to the DLM6C-AA chassis, all the interface modules installed in the chassis can be managed via this IP address, eliminating the need to assign an IP address to each interface module. To set the IP address, refer to Section 5.8.1.

Subnet Mask (Modifiable)

Displays the subnet mask for the chassis. A subnet mask “masks out” the network bits of the IP address by setting the bits in the mask to 1 when the network treats the corresponding bits in the IP address as part of the network or subnetwork address, or to 0 if the corresponding bit identifies the host. The DLM6C-AA chassis automatically uses the default subnet mask that corresponds to the IP class that was entered in the IP address field. Section 5.8.2 describes how to change the subnet mask from default.

Chassis Date (Modifiable)

Contains a value that the chassis recognizes as the current date. When the chassis date is modified and saved all interface modules installed in the chassis are set to this date. To set a new chassis date, refer to Section 5.8.3.

Chassis Time (Modifiable)

Contains a value that the chassis recognizes as the current time. When the chassis time is modified and saved, all interface modules installed in the chassis are set to this time. To enter a new time, refer to Section 5.8.4.

Screen Refresh Time (Modifiable)

Contains the rate at which the screens are updated. This setting determines how frequently (in seconds) information is updated on the screen. To enter a new update time, refer to Section 5.8.5.

Screen Lockout Time (Modifiable)

Contains the maximum number of minutes that the Local Management application displays a module’s screen while awaiting input or action from a user. For example, if the number 5 is entered in this field, the user

has up to five minutes to respond to each of the specified module's Local Management screens. In this example, after five minutes of "idleness" (no input or action), the terminal "beeps" five times, the Local Management application terminates the session, and the display returns to the Password screen. To enter a new lockout time, refer to Section 5.8.6.

Chassis Uptime (Read-Only)

Displays the total time the chassis has been operating. The chassis uptime is based on which interface module installed in the chassis has been operating for the longest period of time.

Operational Mode (Read-Only)

Displays the 802.1Q SWITCHING option.

With the operational mode set to 802.1Q SWITCHING, the DLE02-MA and the DLE52-MA act as an IEEE 802.1Q switch. The modules are able to increase their switching functionality by creating and maintaining port based Virtual LANs (VLANs).



If the DLE02-MA and the DLE52-MA have been set to **802.1Q SWITCHING**, refer to your *Port Based VLAN User's Guide* to configure the devices for this type of operation.

5.8.1 Setting the IP Address

To set the IP address, perform the following steps:

1. Use the arrow keys to highlight the **IP Address** field.
2. Enter the IP address into this field using Decimal Dotted Notation (DDN) format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If the IP address is a valid format, the cursor returns to the beginning of the IP address field. If the entry is not valid, the Event

Message Line displays “INVALID IP ADDRESS OR FORMAT ENTERED”. Local Management does not alter the current value and refreshes the IP address field with the previous value.

4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The “SAVED OK” message displays indicating that the changes have been saved to memory.

5.8.2 Setting the Subnet Mask

If the management workstation that is to receive SNMP traps from the DLM6C-AA is located on a separate subnet, the subnet mask for the DLM6C-AA must be changed from its default.

To change the subnet mask from its default, perform the following steps:

1. Use the arrow keys to highlight the **Subnet Mask** field.
2. Enter the subnet mask into this field using Decimal Dotted Notation (DDN) format.

For example: 255.255.255.0

3. Press ENTER. If the subnet mask is valid, the cursor returns to the beginning of the Subnet Mask field. If the entry is not valid, the Event Message Line displays “INVALID SUBNET MASK OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the Subnet Mask field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The changes are saved to memory.

5.8.3 Setting the Chassis Date

The DLM6C-AA is year 2000 compliant, so the Chassis Date may be set beyond the year 1999. To set the chassis date, perform the following steps:

1. Use the arrow keys to highlight the **Chassis Date** field.
2. Enter the date in this format: MM/DD/YYYY



It is not necessary to add separators between month, day, and year numbers. For example, to set the date to 06/17/1998, type "06171998" in the Chassis Date field.

3. Press ENTER to set the system calendar to the date in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the date 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, but it does refresh the Chassis Date field with the previous value.



Upon saving the new chassis date, all interface modules installed in the chassis recognize the new value as the current date.

5.8.4 Setting the Chassis Time

To set the chassis clock, perform the following steps:

1. Use the arrow keys to highlight the **Chassis Time** field.
2. Enter the time in this 24-hour format: HH:MM:SS



When entering the time in the system time field, separators between hours, minutes, and seconds do not need to be added as long as each entry uses two numeric characters. For example, to set the time to 6:45 A.M., type "064500" in the Chassis Time field.

3. Press ENTER to set the system clock to the time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

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 Chassis Time field with the previous value.



Upon saving the new chassis time, all interface modules installed in the chassis recognize the new value as the current time.

5.8.5 Entering a New Screen Refresh Time

The screen refresh time is set from 3 to 99 seconds with a default of 3 seconds. To set a new screen refresh time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Refresh Time** field.
2. Enter a number from 3 to 99.
3. Press ENTER to set the refresh time to the time entered in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 3 to 99 seconds range, 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 setting, but it does refresh the Screen Refresh Time field with the previous value, and the valid range will be displayed.

5.8.6 Setting the Screen Lockout Time

The screen lockout time can be set from 1 to 30 minutes with a default of 15 minutes. To set a new lockout time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Lockout Time** field.
2. Enter a number from 1 to 30.

3. Press ENTER to set the lockout time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 1 to 30 minutes range, 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 setting, but it does refresh the Screen Lockout Time field with the previous value, and the valid range will be displayed.

5.9 SNMP COMMUNITY NAMES SCREEN

The SNMP Community Names menu item allows the user to set Local Management community names. Community names act as passwords to Local/Remote Management and provide security access to the DLM6C-AA. Access to the DLM6C-AA is controlled by enacting any of

three different levels of security authorization (read-only, read-write, and super-user).



Super-User access gives the user full management privileges, allows existing passwords to be changed, and all modifiable MIB objects for the Cabletron Container MIB and Internet MIB-II to be edited.

To access the SNMP Community Names screen from the Chassis Menu screen, use the arrow keys to highlight the **SNMP COMMUNITY NAMES** menu item and press ENTER. The SNMP Community Names screen, Figure 5-9, displays.

Event Message Line

MS700 LOCAL MANAGEMENT

SNMP Community Names

Community Name	Access Policy
public	read-only
public	read-write
public	super-user

SAVE

EXIT

RETURN

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Figure 5-9 SNMP Community Names Screen

The following explains each SNMP Community Names screen field:

Community Name (Modifiable)

Displays the user-defined name used to access DLM6C-AA management. Any community name assigned here acts as a password to Local Management.

Access Policy (Read-Only)

Indicates the access given each community name. Possible selections are as follows:

read-only	This community name allows read-only access to the DLM6C-AA MIB objects, and excludes access to security-protected fields of read-write or super-user authorization.
read-write	This community name allows read and write access to the DLM6C-AA MIB objects, excluding security protected fields for super-user access only.
super-user	This community name permits read-write access to the DLM6C-AA MIB objects and allows the user to change all modifiable parameters including community names, IP addresses, traps, and SNMP objects.

5.9.1 Establishing Community Names

The password used to access Local Management at the Password screen must have Super-User access in order to view and edit the SNMP Community Names screen. Using a password with read-only or read-write access does not allow the user to view or edit the SNMP Community Names screen.



Any community name assigned in the SNMP Community Names screen is a password to its corresponding level of access to Local Management. The community name assigned Super-User access is the only one that gives the user complete access to Local Management.

All passwords assigned in the DLM6C-AA SNMP Community Names screen allow access to both the DLM6C-AA Local Management screens, and the Local Management screens of the interface modules that are installed in the chassis. To configure the interface module to disallow access to the DLM6C-AA Local Management screens refer to Section 6.5.

To establish community names, proceed as follows:

1. Use the arrow keys to highlight the **Community Name** field adjacent to the selected access level.
2. Enter the password in the field (maximum 31 characters).
3. Press ENTER.
4. Repeat steps 1 through 3 to modify the other community names.
5. Use the arrow keys to highlight **SAVE** at the bottom of the screen and press ENTER. The message “SAVED OK” displays. The community names are saved to memory and their access modes implemented.

5.10 SNMP TRAPS SCREEN

Since the DLM6C-AA is an SNMP compliant device, it can send messages to multiple Network Management Stations to alert users of status changes. The SNMP Traps screen is shown in Figure 5-10.

To access the SNMP Traps screen from the Chassis Menu screen, use the arrow keys to highlight the **SNMP TRAPS** menu item and press ENTER. The Chassis SNMP Traps screen displays.

Event Message Line

MS700 LOCAL MANAGEMENT

SNMP Traps

Trap Destination	Trap Community Name	Enable Traps
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]

SAVE EXIT RETURN

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Figure 5-10 SNMP Traps Screen

The following explains each field of the SNMP Traps screen.

Trap Destination (Modifiable)

Indicates the IP address of the workstation to receive trap alarms. Up to eight different destinations can be defined.

Trap Community Name (Modifiable)

Displays the Community Name included in the trap message sent to the Network Management Station with the associated IP address.

Enable Traps (Toggle)

Enables transmission of the traps to the network management station with the associated IP address. This field toggles between YES and NO.

5.10.1 Configuring the Trap Table

To configure the Trap table, proceed as follows:

1. Using the arrow keys, highlight the appropriate **Trap Destination** field.

2. Enter the IP Address of the workstation that is to receive traps. IP address entries must follow the DDN format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If an invalid entry is entered “INVALID IP ENTERED” is displayed in the Event Message Line.
4. Using the arrow keys, highlight the **Trap Community Name** field. Enter the community name.
5. Press ENTER.
6. Using the arrow keys, highlight the **Enable Traps** field. Press the SPACE bar to choose either **YES** (send alarms from the chassis to the workstation), or **NO** (prevent alarms from being sent).
7. Using the arrow keys, highlight the **SAVE** command and press ENTER. The message “SAVED OK” displays on the screen. The designated workstations now receive traps from the DLM6C-AA.



Exiting without saving causes a “NOT SAVED?” message to appear in the Event Message Field. Edits will be lost if they are not saved before exiting.

5.11 CHASSIS ENVIRONMENTAL SCREEN

The Chassis Environmental menu item allows the user to view chassis environmental information.

To access the Chassis Environmental Information screen from the Chassis Menu screen, use the arrow keys to highlight the **CHASSIS ENVIRONMENTAL** menu item and press ENTER. The Chassis Environmental Information screen, Figure 5-11, displays.

Event Message Line	
MS700 LOCAL MANAGEMENT	
Chassis Environmental Information	
Chassis Power Redundancy	Not Available
Power Supply #1 Status	Normal
Power Supply #2 Status	Not Installed
Chassis Fan Status	Normal
EXIT	RETURN

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Figure 5-11 Chassis Environmental Information Screen

The following describes each of the Chassis Environmental Information screen fields.

Chassis Power Redundancy (Read-Only)

Displays the current redundancy status of the DLM6C-AA power supplies. This field will read either “Available” or “Not Available”.

Power Supply #X Status (Read-Only)

Displays the current status of power supplies 1 and 2 for the DLM6C-AA. This field will read either “Normal”, “Fault”, or “Not Installed”.

Chassis Fan Status (Read-Only)

Displays the current status of the DLM6C-AA fan tray. This field will read either “Normal”, “Fault”, or “Not Installed”.

5.12 PORT REDIRECT FUNCTION SCREEN

The Port Redirect Function screen, Figure 5-12, allows the user to set any one of the modules in the chassis (1 through 5), and the ports of the corresponding module installed, as a source or destination port. A source port can only have one destination port, and only one source port can be directed to any one specific destination port, as it is only a one-to-one mapping. There cannot be more than one source port redirected to only one specific destination port, nor can there be one specific source port directed to more than one destination port. For example, port 1 in module (slot) 1 can be set as a source port with port 2 in module (slot) 3 as the destination port. Traffic from port 1 in module 1 is then automatically redirected to port 2 in module 3. The port redirect function is extremely useful for troubleshooting purposes, as it allows traffic to be sent to a particular port where, with the use of an analyzer or RMON probe, all current traffic from the source port can be examined.



The module number corresponds to the slot number in which the module resides in the DLM6C-AA chassis (1 through 5).

Although traffic from the source port (including, if desired, errored frames) is sent to the destination port, normal switching is still performed for all frames on the source port.

To access the Port Redirect Function screen from the Chassis Menu screen, use the arrow keys to highlight the **PORT REDIRECT FUNCTION** menu item and press ENTER. The Port Redirect Function screen, Figure 5-12, displays.

Event Message Line

MS700 LOCAL MANAGEMENT

Port Redirect Function

Source		Destination		Redirect Errors
Module	Port	Module	Port	
1	1	3	4	ON
1	2	3	5	ON
1	3	3	6	ON
2	1	4	1	OFF
2	2	4	2	ON
3	1	4	3	ON
3	2	5	5	ON
3	3	5	8	OFF

Source Port [1]

Destination Port [1]

Status [ADD]

Source Module [1]

Destination Module [1]

Errors [ON]

SAVE

EXIT

NEXT

PREVIOUS

RETURN

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Figure 5-12 Port Redirect Function Screen

The following definitions briefly explain each field of the Port Redirect Function screen.

Source Module (Read-Only)

Displays which modules are currently set as source modules.

Source Port (Read-Only)

Displays which ports are currently set as source ports.

Destination Module (Read-Only)

Displays which modules are currently set as destination modules.

Destination Port (Read-Only)

Displays which ports are currently set as destination ports.

Redirect Errors (Read-only)

Displays whether the corresponding source modules and ports are configured to send errored frames to the destination modules and ports (ON option), or to drop all errored frames before forwarding traffic (OFF option).

Source Port [n] (Selectable)

Allows a selected port [n] to be configured as a source port.

Source Module [*n*] (Selectable)

Allows a selected module [*n*] to be configured as a source module.

Destination Port [*n*] (Selectable)

Allows a selected port [*n*] to be configured as a destination port.

Destination Module [*n*] (Selectable)

Allows a selected module [*n*] to be configured as a destination module.

Status (Toggle)

Allows the user to add or delete the source/destination modules and ports selected in the Source/Destination Modules and ports fields.

Errors (Toggle)

Allows the user to configure the source modules and ports to either send errored frames to selected destination modules and ports (ON option), or to drop errored frames, and send only valid traffic to the destination modules and ports (OFF option). The default setting of this field is ON.

5.12.1 Displaying the Source and Destination Entries

There can be more than one Port Redirect Function screen depending on the number of port redirect entries. Each screen displays up to ten port redirect entries. If there is more than one screen of redirect entries, the **NEXT** and/or **PREVIOUS** command is displayed at the bottom of the screen, allowing the user to navigate to the next or previous screen.

To display the next screen, use the arrow keys to highlight **NEXT**. Press ENTER and the next screen of entries is displayed.

To display the previous screen, use the arrow keys to highlight **PREVIOUS**. Press ENTER to view the entries in the previous screen.

5.12.2 Changing Source and Destination Ports

Add or delete source/destination module and port entries as follows:

1. Use the arrow keys to highlight the **Source Module** field.
2. Press the SPACE bar or BACKSPACE one or more times to increment or decrement the module number displayed in the brackets [*n*] until the appropriate module number is displayed.
3. Use the arrow keys to highlight the **Source Port** field.

4. Press the SPACE bar or BACKSPACE one or more times to increment or decrement the port number displayed in the brackets [*n*] until the appropriate port number is displayed.
5. Use the arrow keys to highlight the **Destination Module** field.
6. Use the SPACE bar or BACKSPACE key to step to the appropriate module number for the destination module.
7. Use the arrow keys to highlight the **Destination Port** field.
8. Use the SPACE bar or BACKSPACE key to step to the appropriate port number for the destination port.
9. Use the arrow keys to highlight the **Status** field.
10. Use the SPACE bar to select either the **ADD** or **DEL** (delete) option. Press ENTER. This adds or deletes the selections made in steps 2 and 4 and also updates the screen Source Module, Source Port, Destination Module and Destination Port lists.
11. Use the arrow keys to highlight the **Errors** field.
12. Use the SPACE bar to select either the **ON** or **OFF** option and press ENTER. **ON** forces the source module and port to forward errored frames to the destination module(s) and port(s). **OFF** forces the errored frames to be dropped before forwarding traffic.



If more than one module and port is to be redirected, repeat steps 1 through 12 for each additional setting, then go to step 13 to save all the new settings at once.

13. Use the arrow keys to highlight **SAVE** at the bottom of the screen. Press ENTER. The message “SAVED OK” is displayed.

CHAPTER 6

LOCAL MANAGEMENT: MODULE NAVIGATION

This chapter shows how to navigate in the module selections of the Local Management screens.



For module navigation hierarchies, see Section 5.5.1.

6.1 MODULE SELECTION SCREEN

The Module Selection screen is the access point to Local Management for all modules installed in the DLM6C-AA chassis. Once a module is selected, the Module Menu for the selected device displays. Figure 6-1 shows the Module Selection screen.

Event Message Line

MS700 LOCAL MANAGEMENT

SNMP Traps

Trap Destination	Trap Community Name	Enable Traps
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]

SAVE

EXIT

RETURN

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Figure 6-1 Module Selection Screen

The following explains each Module Selection screen field as shown in Figure 6-1.

Module # (Selectable)

Displays the slot in which the module is installed. The module number enclosed in <> characters indicates the module to which the management terminal or Telnet session is currently connected.

Module Type (Read-only)

Displays the type of interface module that is installed in each slot.

Serial # (Read-only)

Indicates the serial number of the module. The serial number of the device is necessary when calling your DIGITAL representative.

Hardware Revision (Read-only)

Reflects the hardware version of the module.

6.1.1 Selecting a Module

To select an individual module to perform Local Management functions, proceed as follows:

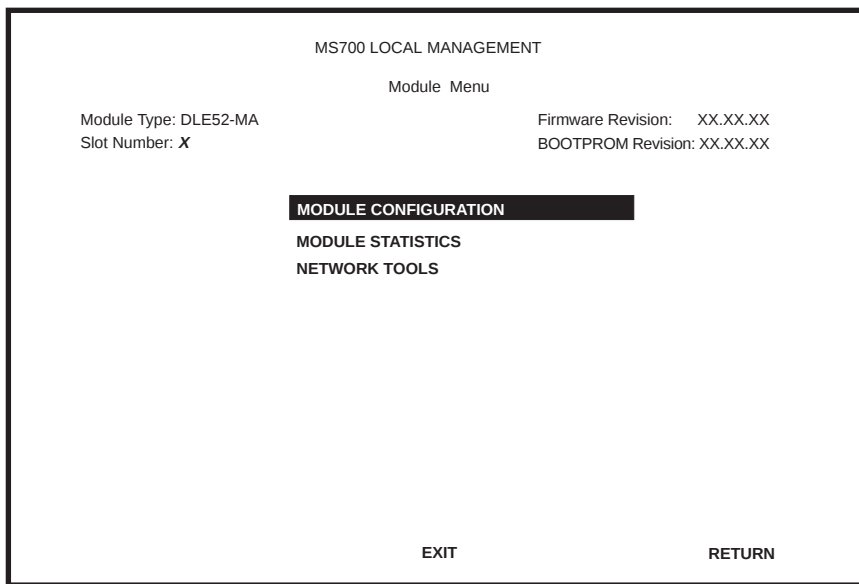
1. Use the arrow keys to highlight the desired module number in the Module # field.
2. Press ENTER, the applicable Module Menu screen displays. Proceed to Section 6.2.

6.2 MODULE MENU SCREEN

The Module Menu screen is the access point for all Local Management screens for the DLE02-MA and the DLE52-MA. Figure 6-2 shows the DLE52-MA Module Menu screen.



The Local Management screens shown in this chapter are for the DLE52-MA. The DLE02-MA shares the same Local Management screens. The difference is that the DLE02-MA does not have a slot for an HSIM or VHSIM, so any screens that show HSIM or VHSIM ports would not show on the DLE02-MA. The DLE02-MA has 24 front panel ports, while the DLE52-MA has 16 front panel ports.



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Figure 6-2 Module Menu Screen

The following explains each Module Menu screen field as shown in Figure 6-2:

MODULE CONFIGURATION

Provides access to the Local Management screens that are used to configure the DLE02-MA or the DLE52-MA and also provides access to the Port Configuration Menu screen and 802.1 Configuration Menu screens. The Port Configuration Menu screen provides access to the screens that are used to set operating parameters specific to each port.

The 802.1 Configuration Menu screen provides access to the Switch Configuration screen, 802.1Q VLAN Configuration Menu screen, and the 802.1p Priority Configuration Menu screen. These screens are used to set the basic switch operations, and provide access to screens to configure VLANs and assign port priorities.

For details about the Module Configuration Menu screen, refer to Section 6.3. For details about the Port Configuration Menu screen, refer to Section 6.9. For details about the 802.1 Configuration Menu screen, refer to Section 6.15.

MODULE STATISTICS

Provides access to screens used to obtain statistics and performance information for the DLE02-MA or the DLE52-MA. For details, refer to Section 6.21.

NETWORK TOOLS

The Network Tools function resides on the DLE02-MA or the DLE52-MA and consists of commands that allow the user to access and manage network devices, including the ability to Telnet to other devices. Chapter 7 explains how to use the Network Tools utility.

6.3 MODULE CONFIGURATION MENU SCREEN

The Module Configuration Menu screen, Figure 6-3, provides access to Local Management screens that allow you to configure and monitor operating parameters, modify SNMP community names, set SNMP traps, configure switch parameters and configure DLE02-MA or the DLE52-MA ports.

To access the Module Configuration Menu screen from the Module Menu screen, use the arrow keys to highlight the **MODULE CONFIGURATION** menu item and press ENTER. The Module Configuration screen displays.

Event Message Line

MS700 LOCAL MANAGEMENT

Module Configuration Menu

Module Type: DLE52-MA
Slot Number: X

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

GENERAL CONFIGURATION

SNMP COMMUNITY NAMES CONFIGURATION

SNMP TRAPS CONFIGURATION

SYSTEM RESOURCES

FLASH DOWNLOAD

PORT CONFIGURATION MENU

802.1 CONFIGURATION MENU

EXIT RETURN

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Figure 6-3 Module Configuration Menu Screen

The following briefly explains each screen accessible from the Module Configuration Menu screen:

GENERAL CONFIGURATION

Allows the user to monitor and configure operating parameters for the DLE02-MA or the DLE52-MA. For details, refer to Section 6.4.

SNMP COMMUNITY NAMES CONFIGURATION

Used to enter new, change, or review the community names used as access passwords for Local/Remote management operation. Access is limited based on the password level of the user. For details, refer to Section 6.5.

SNMP TRAPS CONFIGURATION

Provides display and configuration access to the table of IP addresses used for trap destinations and associated community names. For details, refer to Section 6.6.

SYSTEM RESOURCES

Displays the CPU type used in the device and its operating speed; displays the size of each memory system used (Flash memory, DRAM

and NVRAM) in the device and the unused portion of each memory; and displays the current CPU (switch) utilization and the peak switch utilization. For details, refer to Section 6.7.

FLASH DOWNLOAD

Used to force the DLE02-MA and the DLE52-MA to download a new image file from a TFTP server to its Flash memory. For details, refer to Section 6.8.

PORT CONFIGURATION MENU

Used to select the screens for configuring the DLE02-MA or the DLE52-MA ports. For details, refer to Section 6.9.

802.1 CONFIGURATION MENU

Displays only if the DLE02-MA or the DLE52-MA has been configured to operate as an IEEE 802.1Q switch. Provides access to the Switch Configuration screen, 802.1Q VLAN Configuration Menu screen, and the 802.1p Priority Configuration Menu screen. For details, refer to Section 6.15.

For details about the VLAN Local Management screens and how to use them to configure VLANs in the DLE02-MA and the DLE52-MA, refer to the *DIGITAL MultiSwitch 700 Port Based VLAN User's Guide*.

6.4 GENERAL CONFIGURATION SCREEN

The General Configuration screen, Figure 6-4, allows the user to set the system date and time, IP address and subnet mask, the default gateway, the TFTP Gateway IP address, the Operational Mode, the Management Mode, and the COM port configuration. The General Configuration screen also allows the user to clear NVRAM, and enable or disable IP Fragmentation.

To access the General Configuration screen from the Module Configuration Menu screen, use the arrow keys to highlight the **GENERAL CONFIGURATION** menu item and press ENTER. The General Configuration screen, Figure 6-4, displays.

Event Message Line

MS700 LOCAL MANAGEMENT

General Configuration

Module Type: DLE52-MA
Slot Number: X

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

MAC Address: 00-00-ID-00-00-00
IP Address: 0.0.0.0
Subnet Mask: 255.255.0.0
Default Gateway: NONE DEFINED
TFTP Gateway IP Addr: 0.0.0.0

Module Date: 01/11/98
Module Time: 14:23:00
Screen Refresh Time: 30 sec.
Screen Lockout Time: 15 min.
Module Uptime XX D XX H XX M

Operational Mode: [802.1Q SWITCHING]

Management Mode: [DISTRIBUTED]

Com 1 : [ENABLED]

Application: [LM]

Clear NVRAM [NO]

IP Fragmentation [ENABLED]

SAVE

EXIT

RETURN

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Figure 6-4 General Configuration Screen

The following briefly explains each General Configuration screen field:

MAC Address (Read-Only)

Displays the base physical address of the module.

IP Address (Modifiable)

Displays the IP address for the DLE02-MA or the DLE52-MA. To set the IP address, refer to Section 6.4.1. The IP address can also be set through Runtime IP Address Discovery as described in Section 1.3.

Subnet Mask (Modifiable)

Displays the subnet mask for the module. A subnet mask “masks out” the network bits of the IP address by setting the bits in the mask to 1 when the network treats the corresponding bits in the IP address as part of the network or subnetwork address, or to 0 if the corresponding bit identifies the host. When an IP address is entered in the IP Address field, the subnet mask field automatically enters the default subnet mask for the IP address. For details about how to change the subnet mask from its default value, refer to Section 6.4.2.

Default Gateway (Modifiable)

Displays the default gateway for the DLE02-MA or the DLE52-MA. This field is not defined until an appropriate value is entered. For details about why and how to set the Default Gateway, refer to Section 6.4.3.

TFTP Gateway IP Addr (Modifiable)

Displays the TFTP Gateway IP address for the DLE02-MA or the DLE52-MA. To set the TFTP Gateway IP address, refer to Section 6.4.4.

Module Date (Modifiable)

Contains a value that the module recognizes as the current date. To set a new module date, refer to Section 6.4.5.

Module Time (Modifiable)

Contains a value that the module recognizes as the current time. To enter a new time, refer to Section 6.4.6.

Screen Refresh Time (Modifiable)

Contains the rate at which the screens are updated. This setting determines how frequently (in seconds) information is updated on the screen. To enter a new update time, refer to Section 6.4.7.

Screen Lockout Time (Modifiable)

Contains the maximum number of minutes that the Local Management application displays a module's screen while awaiting input or action from a user. For example, if the number 5 is entered in this field, the user has up to five minutes to respond to each of the specified module's Local Management screens.

In this example, after five minutes of "idleness" (no input or action), the terminal beeps five times, the Local Management application terminates the session, and the display returns to the Password screen. To enter a new lockout time, refer to Section 6.4.8.

Module Uptime (Read-Only)

Displays the total time that the module has been operating.

Operational Mode (Toggle)

The DLE02-MA or the DLE52-MA operate as an IEEE 802.1Q switch (802.1Q SWITCHING option).

In 802.1Q SWITCHING mode (the default mode of operation), the DLE02-MA and the DLE52-MA function like an 802.1D switch until it is configured to create and maintain IEEE 802.1Q VLANs.

Management Mode (Toggle)

This field toggles between DISTRIBUTED and STAND ALONE.

In DISTRIBUTED mode, Local Management is entered via the DLM6C-AA password screen, and all chassis configuration screens are available to the user. All other modules installed in the chassis that are set for distributed management may also be accessed via a connection to a single COM port on one of the modules.



If the user is establishing a remote connection, such as a Telnet or SNMP connection, using the IP address of the module, the chassis LM screens will not be available. To access the chassis LM screens, the IP address of the chassis must be used to establish the connection.

In STAND ALONE mode, the module is isolated from the chassis configuration screens, and the module may not be accessed from a module that is in DISTRIBUTED mode. This provides additional security for any module to which the user may wish to restrict access.

Section 6.4.9 describes how to set the Management Mode.

Com 1 (Toggle)

This field allows the user to enable or disable the COM port. The selection toggles between ENABLED and DISABLED. The default is ENABLED. For details, refer to Section 6.4.10.

Application (Toggle)

Used to set the application that the COM port will support. The field toggles between LM (Local Management) and UPS (Uninterruptible Power Supply). The default is LM. The baud rate setting for LM is automatically sensed.

The UPS setting allows you to use the COM port to monitor an American Power Conversion (APC) Uninterruptible Power Supply (UPS).

For UPS, the baud rate is automatically set to 2400.

For details about how to configure the COM port for various applications, refer to Section 6.4.10.

Clear NVRAM (Toggle)

This allows the user to reset NVRAM to the factory default settings. All user-entered parameters, such as IP address and Community Names are

then replaced with DLE02-MA or DLE52-MA default configuration settings. For details, refer to Section 6.4.11.

IP Fragmentation (Toggle)

Used to enable or disable IP fragmentation. The default setting for this field is ENABLED. If the DLE02-MA or the DLE52-MA will be bridged to an FDDI ring within the chassis, IP Fragmentation should be enabled. If IP Fragmentation is disabled, all FDDI frames that exceed the maximum Ethernet frame size will be discarded. For details on enabling or disabling IP Fragmentation, refer to Section 6.4.12.

6.4.1 Setting the IP Address

To set the IP address, perform the following steps:



If the DLM6C-AA chassis has been assigned an IP address, it is not necessary to assign an IP address to the DLE02-Ma or the DLE52-MA. All installed modules have the same IP address as the chassis. If a separate IP address for the module is desired, proceed as follows.

1. Use the arrow keys to highlight the **IP Address** field.
2. Enter the IP address into this field using Decimal Dotted Notation (DDN) format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If the IP address is a valid format, the cursor returns to the beginning of the IP address field. If the entry is not valid, the Event Message Line displays “INVALID IP ADDRESS OR FORMAT ENTERED”. Local Management does not alter the current value and refreshes the IP address field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The warning screen shown in Figure 6-5 displays.

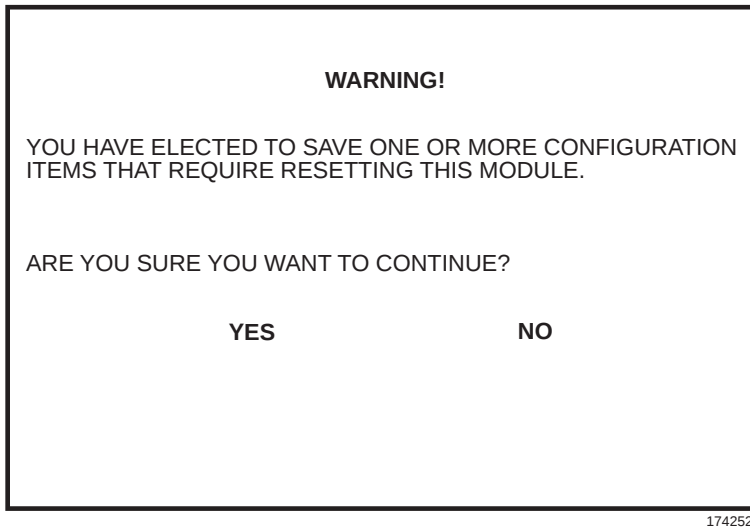


Figure 6-5 Configuration Warning Screen

5. Use the arrow keys to highlight the **YES** command. Press ENTER. The changes are saved and the module reboots.

6.4.2 Setting the Subnet Mask

If the management workstation that is to receive SNMP traps from the DLE02-MA and the DLE52-MA is located on a separate subnet, the subnet mask for the DLE02-MA and the DLE52-MA must be changed from its default.

To change the subnet mask from its default, perform the following steps:

1. Use the arrow keys to highlight the **Subnet Mask** field.
2. Enter the subnet mask into this field using Decimal Dotted Notation (DDN) format.

For example: 255.255.255.0

3. Press ENTER. If the subnet mask is valid, the cursor returns to the beginning of the Subnet Mask field. If the entry is not valid, the Event Message Line displays “INVALID SUBNET MASK OR FORMAT

ENTERED”. Local Management does not alter the current value, but it does refresh the Subnet Mask field with the previous value.

4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The warning screen shown back in Figure 6-5 displays.
5. Use the arrow keys to highlight the **YES** command and press ENTER. The changes are saved and the module reboots.

6.4.3 Setting the Default Gateway

If the SNMP management station is located on a different IP subnet than the DLE02-MA or the DLE52-MA, a default gateway must be specified. When an SNMP Trap is generated, the DLE02-MA or the DLE52-MA sends the Trap to the default gateway. To set the default gateway, perform the following steps:

1. Use the arrow keys to highlight the **Default Gateway** field.
2. Enter the IP address of the default gateway using the DDN format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If the default gateway entered is a valid format, the cursor returns to the beginning of the Default Gateway field. If the entry is not valid, the Event Message Line displays “INVALID DEFAULT GATEWAY OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the Default Gateway field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command.
5. Press ENTER. The Event Message Line at the top of the screen displays “SAVED OK”.

6.4.4 Setting the TFTP Gateway IP Address

If the network TFTP server is located on a different IP subnet than the DLE02-MA or the DLE52-MA, then a Gateway IP address should be specified. To set the TFTP Gateway IP address, perform the following steps:

1. Use the arrow keys to highlight the **TFTP Gateway IP Address** field.

2. Enter the IP address of the TFTP gateway using the DDN format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If the TFTP gateway IP address entered is a valid format, the cursor returns to the beginning of the TFTP Gateway IP Address field. If the entry is not valid, the Event Message Line displays “INVALID TFTP GATEWAY IP ADDRESS OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the TFTP Gateway IP Address field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command.
5. Press ENTER. The Event Message Field displays “SAVED OK”.

6.4.5 Setting the Module Date



If the DLM6C-AA chassis has been assigned a chassis date, it is not necessary to assign a module date to the DLE02-MA and the DLE52-MA. All installed modules recognize the chassis date of the DLM6C-AA.

The modules are year 2000 compliant, so the module date may be set beyond the year 1999. To set the module date, perform the following steps:

1. Use the arrow keys to highlight the **Module Date** field.
2. Enter the date in this format: MM/DD/YYYY



It is not necessary to add separators between month, day, and year numbers. For example, to set the date to June 17, 1998, type “06171998” in the Module Date field.

3. Press ENTER to set the system calendar to the date in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the date entered is a valid format, the Event Message Field displays “SAVED OK”. If the entry is not valid, Local Management does not alter

the current value, but it does refresh the Module Date field with the previous value.

6.4.6 Setting the Module Time

To set the module clock, perform the following steps:



If the DLM6C-AA chassis has been assigned a chassis time, it is not necessary to assign a module time to the DLE02-MA and the DLE52-MA. All installed modules recognize the chassis time of the DLM6C-AA.

1. Use the arrow keys to highlight the **Module Time** field.
2. Enter the time in this 24-hour format: HH:MM:SS



When entering the time in the system time field, separators between hours, minutes, and seconds do not need to be added as long as each entry uses two numeric characters. For example, to set the time to 6:45 A.M., type “064500” in the Module Time field.

3. Press ENTER to set the system clock to the time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is a valid format, the Event Message Field displays “SAVED OK”. If the entry is not valid, Local Management does not alter the current value and refreshes the Module Time field with the previous value.

6.4.7 Entering a New Screen Refresh Time

The screen refresh time is set from 3 to 99 seconds with a default of 3 seconds. To set a new screen refresh time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Refresh Time** field.
2. Enter a number from 3 to 99.
3. Press ENTER to set the refresh time to the time entered in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 3 to 99 seconds range, the Event Message Field displays “SAVED OK”. If the entry is not valid, Local Management does not alter the current setting, but it does refresh the Screen Refresh Time field with the previous value, and the correct range will display momentarily.

6.4.8 Setting the Screen Lockout Time

The screen lockout time can be set from 1 to 30 minutes with a default of 15 minutes. To set a new lockout time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Lockout Time** field.
2. Enter a number from 1 to 30.
3. Press ENTER to set the lockout time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 1 to 30 minutes range, the Event Message Field displays “SAVED OK”. If the entry is not valid, Local Management does not alter the current setting, but it does refresh the Screen Lockout Time field with the previous value, and the correct range will display momentarily.

6.4.9 Setting the Management Mode

To set the management mode, perform the following steps:



Upon saving the new Management Mode, the module will reboot.

If the module will be set to **STANDALONE**, ensure the following procedures have been completed:

The module has been assigned a unique IP address.

The module has been assigned SNMP community names from the module SNMP Community Names screen (Section 6.5). In **STAND ALONE** management mode, the module does not use the community names of the DLM6C-AA chassis.

1. Use the arrow keys to highlight the Management Mode field:

2. Use the SPACE bar to toggle the options (**DISTRIBUTED** or **STAND ALONE**) until the desired mode displays.
3. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The warning screen shown in Figure 6-5 displays.
4. Use the arrow keys to highlight the **YES** command and press ENTER. The changes are saved and the module reboots.

6.4.10 Configuring the COM Port



Before altering the COM port settings, ensure that a valid IP address is set for the module or chassis. (Refer to Section 6.4.1). Read this entire COM port configuration section before changing the settings of the COM port.

The DLE02-MA and DLE52-MA COM ports support the following applications:

- Local Management connections
- American Power Conversion (APC) Uninterruptible Power Supply (UPS) connections

To configure the COM port, proceed as follows:

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



Do **NOT** disable or alter the settings of the COM port while operating the current Local Management connection through a terminal. Altering the COM port settings disconnects the Local Management terminal from the port, and ends the Local Management session. If the DLE02-MA or the DLE52-MA was previously assigned a valid IP address, reenter Local Management by establishing a Telnet connection to the module. If the module does not have a valid IP address, and other modules in the chassis are inaccessible, reset NVRAM on the DLE02-MA or the DLE52-MA using Mode Switch 7 (refer to Appendix B) to reestablish COM port communications.

2. Press the SPACE bar to choose either **ENABLED** or **DISABLED**. The COM port must be **ENABLED** if it will be used for Local

Management or UPS applications. Select **DISABLED** if you wish to disable the COM port for additional module security.



If the COM port is reconfigured without a valid IP address set on the module or chassis, the message shown in Figure 6-6 displays. Do not continue unless the outcome of the action is fully understood.

WARNING

THE COM PORT HAS BEEN RECONFIGURED AND THERE IS NO IP ADDRESS SET FOR THIS DEVICE. YOU WILL NO LONGER BE ABLE TO MANAGE THIS BOARD. DO YOU STILL WISH TO RECONFIGURE THIS COM PORT?

YES **NO**

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Figure 6-6 COM Port Warning Screen



If the DLM6C-AA chassis has been configured with a valid IP address this screen will not appear. When the chassis is assigned a valid IP address all the interface modules installed share this same address.

3. Use the arrow keys to highlight **YES**. Press ENTER.
4. If you **ENABLED** the port, proceed to Section 6.4.10.1. The edits are saved. If you **DISABLED** the port, use the arrow keys to highlight **SAVE** at the bottom of the screen, then press ENTER. When the message “SAVED OK” displays, the edits are saved.



Exiting without saving causes the message “NOT SAVED -- PRESS SAVE TO KEEP CHANGES” to appear. Exiting without saving causes all edits to be lost.

6.4.10.1 Changing the Com Port Application

After enabling the COM port as described in Section 6.4.10, you can select one of the applications supported by the COM port: LM, and UPS. The default application is LM.

To change the COM port application:

- 1. Use the arrows keys to highlight the **Application** field.
- 2. Use the SPACE bar or BACKSPACE to step through the available settings until the operation you require appears. Table 6-1 lists the available settings and their corresponding applications.

Table 6-1. COM Port Application Settings

Setting	Application
LM	Local Management Session
UPS	APC Power Supply SNMP Proxy

- 3. Press ENTER to accept the application.
- 4. Use the arrow keys to highlight **SAVE** at the bottom of the screen, then press the ENTER key.
- 5. When the message “SAVED OK” appears, the edits are saved.



When the COM port is configured to perform the UPS application, all future Local Management connections must be made by establishing a Telnet connection to the module. Ensure that the module has a valid IP address before saving changes to the COM port application. If the module does not have a valid IP address and the changes are saved, refer to Appendix B for instructions on clearing NVRAM in order to reestablish COM port communications.

6.4.11 Clearing NVRAM

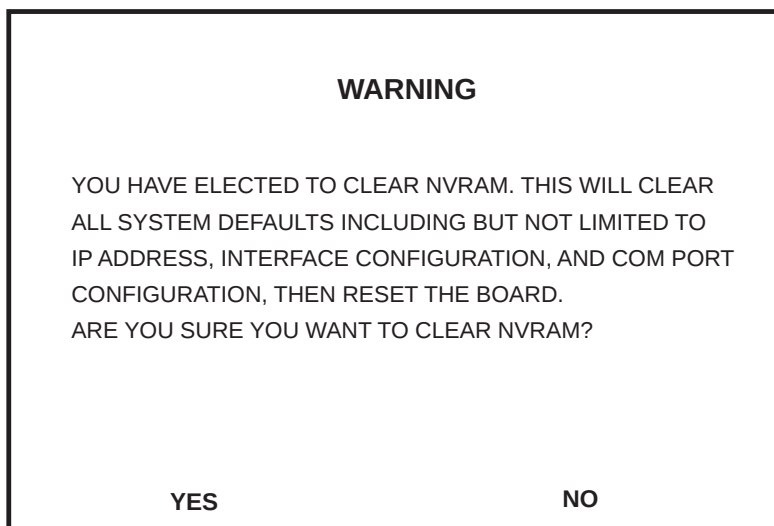


Clearing NVRAM will result in the loss of all user-entered parameters. Do not proceed unless this procedure is completely understood.

Clearing NVRAM allows the user to clear all user-entered parameters, such as IP address and Community Names from NVRAM.

Clear NVRAM as follows:

1. Use the arrow keys to highlight the **Clear NVRAM** field.
2. Use the SPACE bar to toggle the field to **YES**.
3. Use the arrow keys to highlight **SAVE** at the bottom of the screen.
4. Press ENTER. The warning shown in Figure 6-7 is displayed.



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Figure 6-7 Clear NVRAM Warning Screen

5. Use the arrow keys to highlight **YES** and press ENTER. The message "CLEARING NVRAM. REBOOT IN PROGRESS..." displays. The DLE02-MA and the DLE52-MA clear NVRAM and reboot. All user-entered parameters default to factory settings.

6.4.12 Enabling/Disabling IP Fragmentation



If the DLE02-MA and the DLE52-MA are being bridged to an FDDI ring, for example, using an optional DELHF-UA, IP Fragmentation should be enabled. If it is disabled, all FDDI frames that exceed the maximum Ethernet frame size will be discarded.

To enable or disable IP fragmentation, proceed as follows:

1. Use the arrow keys to highlight the **IP Fragmentation** field.
2. Press the SPACE bar to choose either **ENABLED** or **DISABLED**.
3. Use the arrow keys to highlight the **SAVE** command.
4. Press ENTER. The Event Message Field displays “SAVED OK”.

6.5 SNMP COMMUNITY NAMES CONFIGURATION SCREEN

The SNMP Community Names menu item allows the user to set Local/Remote Management community names. Community names act as passwords to Local/Remote Management and are agents of security access to the DLE02-MA and the DLE52-MA. Access to the DLE02-MA and the DLE52-MA is controlled by enacting any of three different levels of security authorization (read-only, read-write, and super-user).

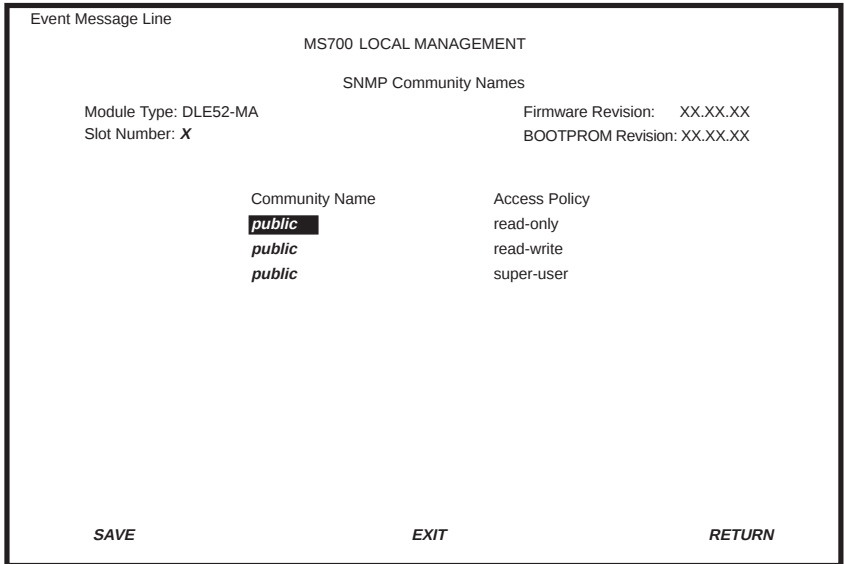


If the DLM6C-AA has been assigned community names, it is not necessary to assign community names to the individual modules installed in the chassis unless the user wishes to limit access to DLM6C-AA chassis screens by assigning different community names to the module. When this is done access is limited to the screens specific to the module the terminal is attached to and the **CHASSIS** menu item of the Main Menu screen will not appear.

Super-User access gives the user full management privileges, allows existing passwords to be changed, as well as all modifiable MIB objects.

To access the SNMP Community Names screen from the Module Configuration Menu screen, use the arrow keys to highlight the **SNMP**

COMMUNITY NAMES menu item and press ENTER. The SNMP Community Names screen, Figure 6-8, displays.



The image shows a terminal-style configuration screen for 'MS700 LOCAL MANAGEMENT'. At the top, it says 'Event Message Line' and 'MS700 LOCAL MANAGEMENT'. Below that is the title 'SNMP Community Names'. The screen is divided into two columns of information. The left column shows 'Module Type: DLE52-MA' and 'Slot Number: X'. The right column shows 'Firmware Revision: XX.XX.XX' and 'BOOTPROM Revision: XX.XX.XX'. In the center, there is a table with two columns: 'Community Name' and 'Access Policy'. The 'Community Name' column lists 'public' three times, with the first instance highlighted in a black box. The 'Access Policy' column lists 'read-only', 'read-write', and 'super-user' corresponding to the three 'public' entries. At the bottom, there are three buttons: 'SAVE', 'EXIT', and 'RETURN'.

Community Name	Access Policy
public	read-only
public	read-write
public	super-user

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Figure 6-8 SNMP Community Names Screen

The following explains each SNMP Community Names screen field:

Community Name (Modifiable)

Displays the user-defined name through which a user accesses DLE02-MA or the DLE52-MA management. Any community name assigned here acts as a password to Local/Remote Management.

Access Policy (Read-Only)

Indicates the access accorded each community name. Possible selections are as follows:

- | | |
|------------|--|
| read-only | This community name allows read-only access to the DLE02-MA or the DLE52-MA MIB objects, and excludes access to security-protected fields of read-write or super-user authorization. |
| read-write | This community name allows read and write access to the DLE02-MA or the DLE52-MA |

MIB objects, excluding security protected fields for super-user access only.

super-user

This community name permits read-write access to the DLE02-MA or the DLE52-MA MIB objects and allows the user to change all modifiable parameters including community names, IP addresses, traps, and SNMP objects.

6.5.1 Establishing Community Names

The password used to access Local Management at the Password Screen must have Super-User access in order to view and edit the SNMP Community Names screen. Using a password with read-only or read-write access does not allow the user to view or edit the SNMP Community Names screen.



Any community name assigned in the SNMP Community Names screen is a password to its corresponding level of access to Local/Remote Management. The community name assigned Super-User access is the only one that gives the user complete access to Local/Remote Management.

To establish community names, proceed as follows:

1. Use the arrow keys to highlight the **Community Name** field adjacent to the selected access level.
2. Enter the password in the field (maximum 31 characters).
3. Press ENTER.
4. Repeat steps 1 through 3 to modify the other community names.
5. Use the arrow keys to highlight **SAVE** at the bottom of the screen and press ENTER. The message “SAVED OK” displays. The community names are saved to memory and their access modes implemented.



Exiting without saving causes a “NOT SAVED?” message to display. Edits will be lost if they are not saved before exiting.

6.6 SNMP TRAPS CONFIGURATION SCREEN

Since the DLE02-MA and the DLE52-MA are SNMP compliant devices, they can send messages to multiple Network Management Stations to alert users of status changes. The SNMP Traps screen is shown in Figure 6-9.



It is only necessary to assign SNMP traps if the user desires the traps to be sent to different addresses than those assigned (refer to Section 5.10) which details how to set SNMP Traps for the DLM6C-AA chassis.

To access the SNMP Traps screen from the Module Configuration Menu screen, use the arrow keys to highlight the **SNMP TRAPS** menu item and press ENTER. The SNMP Traps screen displays.

Event Message Line

MS700 LOCAL MANAGEMENT

SNMP Community Names

Community Name	Access Policy
public	read-only
public	read-write
public	super-user

SAVE

EXIT

RETURN

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Figure 6-9 SNMP Traps Screen

The following explains each field of the SNMP Traps screen.

Trap Destination (Modifiable)

Indicates the IP address of the workstation to receive trap alarms. Up to eight different destinations can be defined.

Trap Community Name (Modifiable)

Displays the Community Name included in the trap message sent to the Network Management Station with the associated IP address.

Enable Traps (Toggle)

Enables transmission of the traps to the network management station with the associated IP address. This field toggles between YES and NO.

6.6.1 Configuring the Trap Table

To configure the Trap Table, proceed as follows:

1. Using the arrow keys, highlight the appropriate **Trap Destination** field.
2. Enter the IP Address of the workstation that is to receive traps. IP address entries must follow the DDN format (*nnn.nnn.nnn.nnn*).
3. Press ENTER. If an invalid entry is entered “INVALID IP ENTERED” is displayed in the Event Message Line.
4. Using the arrow keys, highlight the **Trap Community Name** field. Enter the community name.
5. Press ENTER.
6. Using the arrow keys, highlight the **Enable Traps** field. Press the SPACE bar to choose either **YES** (send alarms from the module to the workstation), or **NO** (prevent alarms from being sent).
7. Using the arrow keys, highlight the **SAVE** command and press ENTER. The message “SAVED OK” displays on the screen.



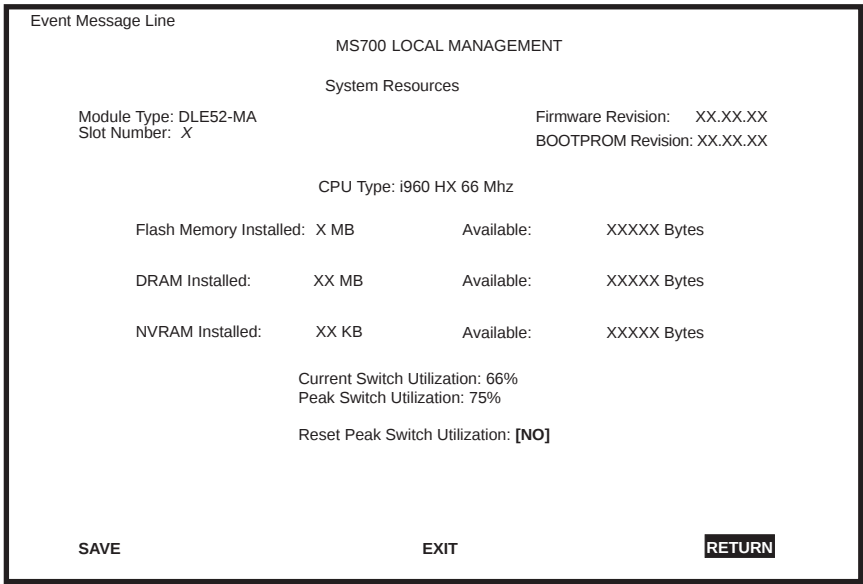
Exiting without saving causes a “NOT SAVED?” message to appear in the Event Message Field. Edits are lost if they are not saved before exiting.

The designated workstations now receive traps from the DLE02-MA and the DLE52-MA.

6.7 SYSTEM RESOURCES SCREEN

The System Resources screen, Figure 6-10, provides information concerning the processor used in the DLE02-MA and the DLE52-MA and the amount of Flash memory, DRAM, and NVRAM that is installed and how much of that memory is available. This screen is used to monitor the current processor (switch) utilization and the peak switch utilization.

To access the System Resources screen from the Device Configuration Menu screen, use the arrow keys to highlight the **SYSTEM RESOURCES** menu item and press ENTER. The System Resources screen displays.



sysres

Figure 6-10 System Resources Screen

The following briefly defines each field of the System Resources screen.

CPU Type (Read-only)

Indicates the microprocessor used in the DLE02-MA and the DLE52-MA.

Flash Memory Installed (Read-only)

Indicates the amount of Flash memory installed in the DLE02-MA and the DLE52-MA and how much is currently available.

DRAM Installed (Read-only)

Indicates the amount of DRAM installed in the DLE02-MA and the DLE52-MA and how much of it is currently available.

NVRAM Installed (Read-only)

Indicates the amount of NVRAM installed in the DLE02-MA and the DLE52-MA and how much of it is currently available.

Current Switch Utilization (Read-only)

Shows the percentage of the device switching capacity currently being used.

Peak Switch Utilization (Read-only)

Shows the peak percentage of device switching capacity used, since the last reset.

Reset Peak Switch Utilization (Toggle)

Is used to reset the Peak Switch Utilization field. The switch may be set to either YES or NO as described in Section 6.14.2. YES resets the Peak Switch Utilization field to the current system traffic.

6.7.1 Setting the Reset Peak Switch Utilization

To set the Reset Peak Switch Utilization field to YES or NO, proceed as follows:

1. Use the arrow keys to highlight the **Reset Peak Switch Utilization** field.
2. Press the SPACE bar to select **YES** or **NO**.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” displays and the Reset Peak Utilization counter resets to zero. The counter starts incrementing immediately after reset when incidents occur.

6.8 FLASH DOWNLOAD SCREEN

The Flash Download screen, shown in Figure 6-11, is used to replace the information stored in the DLE02-MA and the DLE52-MA Flash memory with a new image file downloaded from a TFTP server.



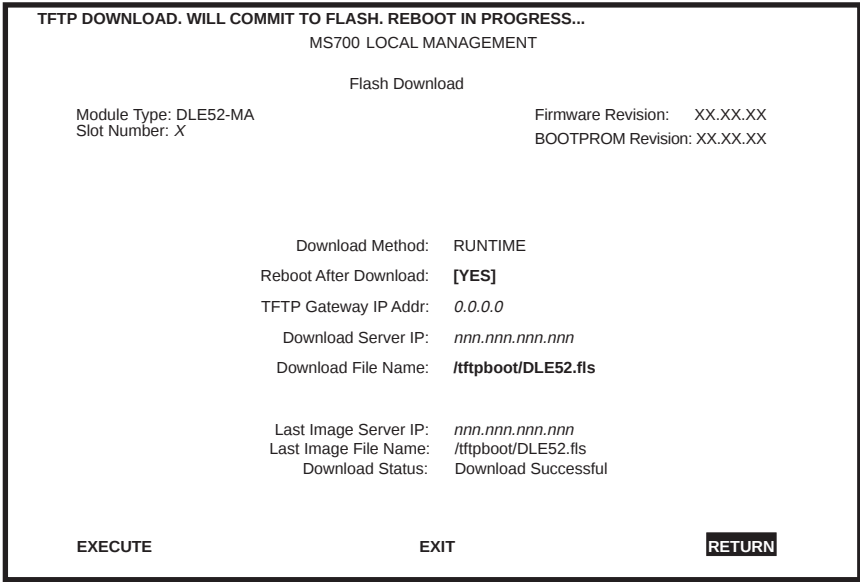
The user may also force the download of an image by changing the position of Switch 6 located on the module. Refer to Appendix B for details.

Before downloading an image to the device, copy the image to the network TFTP server.



For information on how to set up a workstation as a TFTP server, refer to the specific workstation documentation.

To access the Flash Download screen from the Device Configuration Menu screen, use the arrow keys to highlight the **FLASH DOWNLOAD** menu item and press ENTER. The Flash Download screen displays.



25042-49

Figure 6-11 Flash Download Screen

The following briefly defines each field of the Flash Download screen:

Download Method (Read-Only)

Indicates the download method used by the device. With RUNTIME, the DLE02-MA and the DLE52-MA attempt a TFTP download based on the IP address and file name entered in the fields at the bottom of the Flash Download screen. Section 6.8.1 describes how to download using Runtime.

Reboot After Download (Toggle)

Notifies the user that the DLE02-MA or the DLE52-MA will reboot after the download is complete. This field toggles between YES and NO. If YES is selected, the module reboots after the download is completed. If NO is selected, the module continues using the existing firmware image and stores the new firmware image in Flash memory. When the module is reset or during the next power-up, the device boots from Flash memory using the new image.

TFTP Gateway IP Addr (Modifiable)

Shows the IP address of the TFTP gateway server defined on the General Configuration screen in Section 6.4.4.

Download Server IP (Modifiable)

Used to select the IP address of the TFTP server to be used for the Flash download.

Download File Name (Modifiable)

Used to select the complete TFTP Server path and file name of the new image.

Last Image Server IP (Read-Only)

Shows the IP address of the server used for the previous Flash Download.

Last Image File Name (Read-Only)

Shows the complete path and file name of the last image downloaded to Flash.

Download Status (Read-Only)

Provides the status of the current or most recent download.

6.8.1 Image File Download Using Runtime

To download a firmware image of Flash to the DLE02-MA or the DLE52-MA using Runtime, proceed as follows:

1. Use the arrow keys to highlight the **Reboot After Download** field.
2. Use the SPACE bar to select either **YES** or **NO**. Select **YES** if you want the device to reboot after the download is completed. Select **NO** if you want the device to store the new image in Flash memory until the device is reset or during the next power-up.
3. Use the arrow keys to highlight the **TFTP Gateway IP Addr** field.
4. Set the IP address of the TFTP gateway server (this defaults to the same IP address as that set in the TFTP Gateway IP Addr field on the General Configuration screen).
5. Use the arrow keys to highlight the **Download Server IP** field.
6. Enter the IP address of the TFTP server using the DDN format (*nnn.nnn.nnn.nnn*).
7. Use the arrow keys to highlight the **Download File Name** field.
8. Enter the complete pathway and file name of the image stored on the download server.

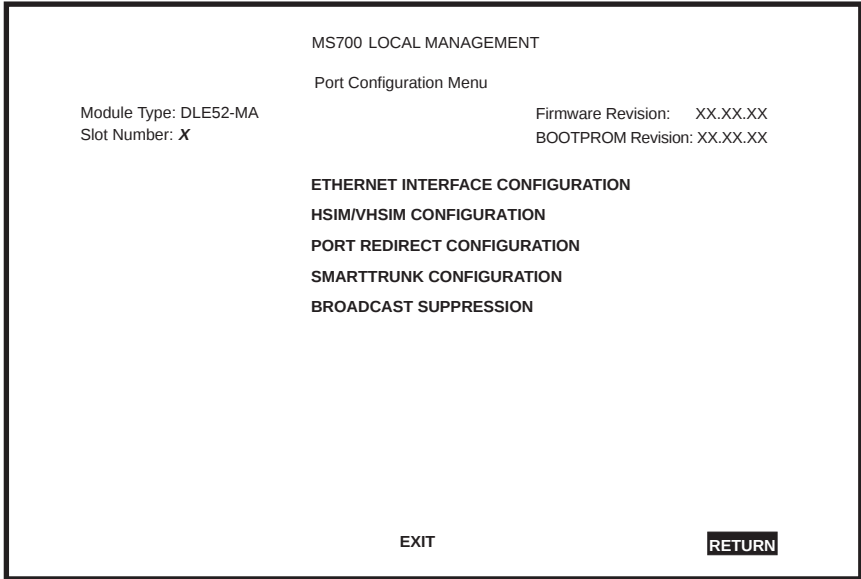
For example: /tftpboot/6H252.flb

- 9. Use the arrow keys to highlight **EXECUTE** at the bottom of the screen and press ENTER. If Reboot After Download is set to **NO** in step 2, the message “RUNTIME DOWNLOAD IN PROGRESS” displays in the Event Message Field and the new image is downloaded into Flash memory. If Reboot After Download is set to **YES** in step 2, the message “REBOOT WILL OCCUR AFTER DOWNLOAD COMPLETES” displays.

6.9 PORT CONFIGURATION MENU SCREEN

The Port Configuration Menu screen, Figure 6-12, allows the user to select one of many screens to perform port configuration tasks on the DLE02-MA and the DLE52-MA.

To access the Port Configuration Menu screen from the Module Configuration Menu screen, use the arrow keys to highlight the **PORT CONFIGURATION MENU** item and press ENTER. The Port Configuration Menu screen displays.



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Figure 6-12 Port Configuration Menu Screen

The following explains each field of the Port Configuration Menu screen:

ETHERNET INTERFACE CONFIGURATION

Indicates the link status, current and desired operational mode, and advertised ability for the Ethernet ports on the DLE02-MA and the DLE52-MA. Also provides access to the Ethernet Port Configuration screen, which allows configuration of the DLE02-MA and the DLE52-MA Ethernet ports. For details, refer to Section 6.10.

HSIM/VHSIM CONFIGURATION

Provides access to the HSIM or VHSIM Setup screen, for non-Ethernet HSIMs and VHSIMs, depending on the HSIM or VHSIM installed in the module. The non-Ethernet HSIM and VHSIM screens are described in their respective user's guides. This menu option is not available in the DLE02-MA, and will be available in the DLE52-MA only if there is a non-Ethernet HSIM or VHSIM installed, such as an FDDI or ATM device. For details, refer to Section 6.12.

PORT REDIRECT CONFIGURATION

Used to redirect traffic from a source switch port to a destination switch port. For details, refer to Section 6.13.

SMARTTRUNK CONFIGURATION

Used to logically group interfaces together to create greater bandwidth uplinks. For information on SmartTrunk configuration, refer to the *SmartTrunk User's Guide*.

BROADCAST SUPPRESSION

Used to set a desired limit of receive broadcast frames that are forwarded per port per second. For details, refer to Section 6.14.

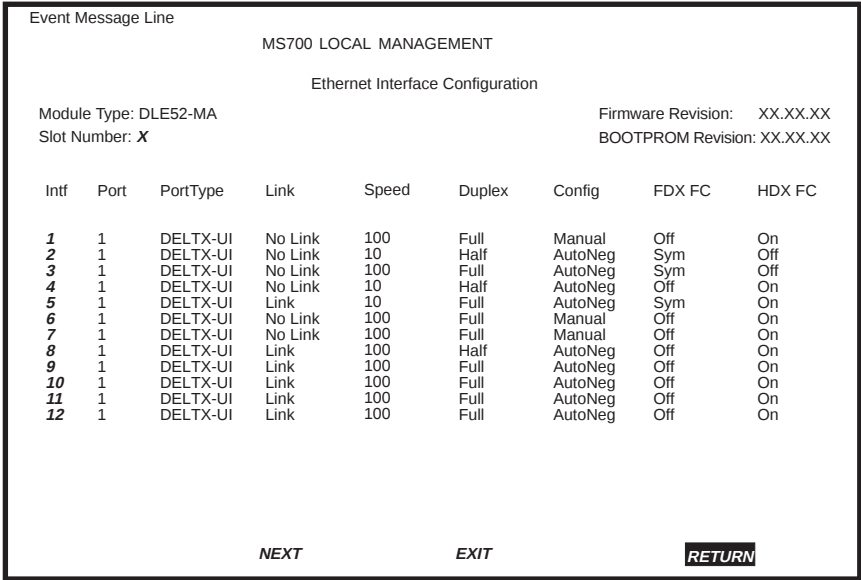
6.10 ETHERNET INTERFACE CONFIGURATION SCREEN

The Ethernet Interface Configuration screen, Figure 6-13, is used to display the link status and current operating mode of each Ethernet port, and provides access to the Ethernet Port Configuration screen, which allows configuration of the DLE02-MA and the DLE52-MA Ethernet ports.

In normal operation, all front panel ports automatically establish a link with the device at the other end of the segment without requiring user setup. However, the Ethernet Interface Configuration screen can be used

to access the Ethernet Port Configuration screen to select a port and display its Ethernet Port Configuration screen. The Ethernet Port Configuration screen is used to change the operating mode of the port and enable or disable the advertisement to another device. Refer to Section 6.11 for details.

To access the Ethernet Interface Configuration screen from the Port Configuration Menu screen, use the arrow keys to highlight the **ETHERNET INTERFACE CONFIGURATION** menu item and press ENTER. The Ethernet Interface Configuration screen displays. To view the fields for other ports, use the arrows to highlight the **PREVIOUS** or **NEXT** command at the bottom of the screen and press the ENTER key.



enet_config

Figure 6-13 Ethernet Interface Configuration Screen

The following section briefly explains each field of the Ethernet Interface Configuration screen:

Intf (Read-Only)

Displays the interface number.

Port (Read-Only)

Displays the number of the physical port on the interface. For the front panel ports on the DLE02-MA and the DLE52-MA, this will always be 1.

PortType (Read-Only)

Displays the type of interface using the name of the physical port type. For the Ethernet 10/100 ports in the DLE02-MA and the DLE52-MA, DELTX-UI will be displayed. If a Gigabit port is installed via the optional HSIM or VHSIM, the interface displayed may be GE-1000SX, GE-1000LX, or GE-1000CX.

Link (Read-Only)

Indicates whether or not there is a physical connection from the port to another device. One of the following values is displayed:

- Link – There is a link signal present and a valid physical connection to another device.
- No Link – There is no link signal present and there is no valid physical connection to another device.
- ??? – The port has not completed its auto-negotiation.

Speed (Read-Only)

Displays the current operational speed in Mbps. Display options are 10, 100 or 1000.

Duplex (Read-Only)

Displays the current duplex setting. One of the following values is displayed:

- Half – the port will operate in half duplex mode.
- Full – the port will operate in full duplex mode.

Config (Read-Only)

Displays whether Auto-Negotiation (AutoNeg) or Manual is enabled. In normal operation, the port with a DELTX-UI interface is capable of auto-negotiating the operational mode and no further user setup is required.



In normal operation, front panel ports automatically establish a link with the device at the other end of the segment without requiring user setup. However, Local Management provides the user with the option of manually configuring that port.

FDX FC (Read-Only)

Displays the current full duplex flow control setting. Flow control is used to manage the transmission between two devices as specified by IEEE 802.3x to prevent receiving ports from being overwhelmed by frames from transmitting devices. One of the following values is displayed: Sym, AsymRx, AsymTx, Off, or NA. NA (Not Applicable) is displayed when the port does not support flow control. Detailed explanations of the other selections are in Section 6.11, under the Full Duplex Flow Control definition.

HDX FC (Read-Only)

Displays the current half duplex flow control setting. Half duplex flow control, also known as back pressure, is a collision based flow control mechanism used in half duplex configurations. The port will display either On, Off, or NA. NA is displayed when the port does not support flow control.

6.11 ETHERNET PORT CONFIGURATION

The Ethernet Port Configuration screen (Figure 6-14) is used to change the operating mode of a specific Ethernet interface, such as the speed, duplex, auto-negotiation, advertised ability, and the flow control settings. Optional Fast Ethernet or Gigabit Ethernet ports are also configured on this screen.

To access the Ethernet Port Configuration screen for a specific port from the Ethernet Interface Configuration screen, use the arrow keys to highlight the desired Ethernet port and press ENTER. The Ethernet Port Configuration screen displays for the desired port.

Event Message Line

MS700 LOCAL MANAGEMENT

Ethernet Port Configuration

Module Type: DLE52-MA

Slot Number: X

Firmware Revision: XX.XX.XX

BOOTPROM Revision: XX.XX.XX

Interface: 25

Physical Port: 25

Default Speed: [100]

Default Duplex: [Full]

Auto-Negotiation State: [Enabled]

Advertised Ability: [100Base-TXFD] [Enabled]

Full Duplex Flow Control: [Auto-Negotiate]

Half Duplex Flow Control: [On]

SAVE

EXIT

RETURN

port_config

Figure 6-14 Ethernet Port Configuration Screen

The following section briefly explains each field of the Ethernet Port Configuration screen:

Interface (Read-Only)

Displays the Interface number.

Physical Port (Read-Only)

Displays the number of the physical port on the interface.

Default Speed (Selectable)

Displays the current operational speed in Mbps. Display options are: **10**, **100**, or **1000**. If Auto-Negotiation is disabled for the port, then the port defaults to operate in the setting displayed. To select a Default Speed, refer to Section 6.11.1.

Default Duplex (Toggle)

The choices are **Half**, for half duplex, or **Full**, for full duplex. If Auto-Negotiation is disabled for the port, then the port defaults to operate in the setting displayed. To choose the Default Duplex, refer to Section 6.11.1.

Auto-Negotiation State (Toggle)

Determines whether Auto-Negotiation is **Enabled** or **Disabled** for the specific port. During auto-negotiation, the port “tells” the device at the other end of the segment what its capabilities are. If Auto-Negotiation is disabled, the port reverts to the speed, duplex and flow control settings specified by Default Speed, Default Duplex, Half Duplex Flow Control and Full Duplex Flow Control fields respectively. To choose the Auto-Negotiation State, refer to Section 6.11.1.

Advertised Ability (Selectable)

In normal operation, with all capabilities enabled, the port “advertises” that it has the ability to operate in any mode. The user may choose to set up the port so that only a portion of the available capabilities are advertised and the others are disabled. The left field displays the advertised ability of the port, but only becomes active on ports that have Auto-Negotiation enabled. The status of a particular ability is displayed in the right field. The “T” in an ability stands for twisted pair. Possible abilities are:

- 10Base-T – 10 Mbps operation
- 10Base-TFD – 10 Mbps full duplex operation, effectively 20 Mbps
- 100Base-TX – 100 Mbps operation
- 100Base-TXFD – 100 Mbps full duplex operation, effectively 200 Mbps
- 1000Base-X, 1000Base-T – Gigabit Ethernet
- 1000Base-XFD, 1000Base-TFD – Full Duplex Gigabit Ethernet
- FDX PAUSE – displays for 100 Mbps port only, indicating that the port will recognize the 802.3x function
- FDX APAUSE – Asymmetric PAUSE operation for full-duplex links in Gigabit Ethernet
- FDX SPAUSE – Symmetric PAUSE operation for full-duplex links in Gigabit Ethernet
- FDX BPAUSE – Asymmetric and Symmetric PAUSE operation for full duplex links in Gigabit Ethernet
- Rem Fault 1 – simple fault or error detection is supported

- Rem Fault 2 – simple fault or error detection is supported

To enable or disable advertised modes, refer to Section 6.11.2.

Full Duplex Flow Control (Selectable)

Used to set the flow control feature on each port for a specific mode. The choices are:

- Symmetric – the port will operate in Symmetric mode, causing the port to interpret received PAUSE frames and allow the port to transmit PAUSE frames when necessary, for any speed connection.
- Asymmetric Rx – the port will operate in Asymmetric Rx mode, causing the port to interpret received PAUSE frames and disallows the port to transmit PAUSE frames. This option is for Gigabit only.
- Asymmetric Tx – the port will operate in Asymmetric Tx mode, causing the port to ignore PAUSE frames and allows the port to transmit PAUSE frames when necessary. This option is for Gigabit only.
- Disabled – full duplex flow control is off, causing the port to ignore received PAUSE frames and does not allow the port to transmit PAUSE frames for any speed connection.
- Auto-Negotiate – when supported, the maximum flow control capabilities of the port are reflected in the PAUSE bits of the Auto-Negotiation registers. The ports' flow control operational state is determined by the results of Auto-Negotiation. This option is not displayed if Auto-Negotiation is not supported on this port.

To change the settings for full duplex flow control, refer to Section 6.11.1.

Half Duplex Flow Control (Toggle)

Back pressure half duplex flow control is enabled when the port is set **On**, and disabled when the port is set **Off**. To change the settings, refer to Section 6.11.1.

6.11.1 Selecting Settings

All selectable or toggle fields other than Advertised Ability can be changed by following this procedure:

1. Use the arrow keys to highlight the field to be changed.
2. Use the SPACE bar or BACKSPACE key to step or toggle through the selections.
3. Press the ENTER key when the desired selection is displayed.
4. Use the arrow keys to highlight the SAVE command at the bottom of the screen. The selection is saved for that interface.

6.11.2 Setting the Advertised Ability

During normal operation, all front panel ports auto-negotiate to the highest speed possible. Under some circumstances, the Network Administrator may want the port to advertise only some of the available modes and not operate in other modes.

To set the advertised ability, proceed as follows:

1. Use the arrow keys to highlight the **Advertised Ability** field.
2. Use the SPACE bar to select the desired mode.
3. Use the arrow key to move to the **Enabled/Disabled** field.
4. Use the SPACE bar to select **Enabled** or **Disabled**. Press ENTER.
5. Use the arrow key to move back to the **Advertised Ability** selection and use the SPACE bar to select the next mode to enable or disable.
6. Continue this process until enabling or disabling the advertised modes is completed.
7. Use the arrow keys to highlight the **SAVE** command. Press ENTER. The message "SAVED OK" displays and Local Management saves the configuration.

6.12 HSIM/VHSIM CONFIGURATION SCREEN



This option is only available on the DLE52-MA. The **HSIM/VHSIM Configuration** menu item can only be selected when a non-Ethernet HSIM or VHSIM is installed in the DLE52-MA. Then the applicable setup screen for that interface displays. This only applies to HSIMs and VHSIMs that can support FDDI or ATM, such as the DELHF-UA, DELHA-UA, and VHSIM-A6DP interfaces. Refer to the appropriate HSIM or VHSIM user's guide to set its operating parameters.

To access the HSIM/VHSIM Configuration screen from the Port Configuration Menu screen, use the arrow keys to highlight the **HSIM/VHSIM CONFIGURATION** menu item and press ENTER. The applicable HSIM or VHSIM setup screen displays. Refer to the appropriate HSIM or VHSIM user's guide for instructions on using the Local Management screens for these interfaces.

6.13 PORT REDIRECT CONFIGURATION SCREEN

The Port Redirect Configuration screen, Figure 6-15, enables the user to set each one of the ports on the DLE02-MA and the DLE52-MA as a source or destination port. A source port can have only one destination port, and only one source port can be directed to any one specific destination port, as it is only a one-to-one mapping. There cannot be more than one source port redirected to only one specific destination port, nor can there be one specific source port directed to more than one destination port. For example, port 1 can be set as the source port with port 2 as the destination port. Traffic from port 1 is then automatically redirected to port 2. The port redirect function is extremely useful for troubleshooting purposes, as it allows traffic to be sent to a particular port where, with the use of an analyzer or RMON probe, all current traffic from the source port can be examined.



Although all traffic from the source port (including, if desired, errored frames) is sent to the destination port, normal switching is still performed for all frames on the source port.

To access the Port Redirect Configuration screen from the Port Configuration Menu screen, use the arrow keys to highlight the **PORT REDIRECT CONFIGURATION** menu item and press ENTER. The Port Redirect Configuration screen displays. To view or edit the fields for other ports, use the arrow keys to highlight the PREVIOUS or NEXT command at the bottom of the screen and press the ENTER key.

Event Message Line

MS700 LOCAL MANAGEMENT

Port Redirect Configuration

Module Type: DLE52-MA
Slot Number: X

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

<u>Source Port:</u>	<u>Destination Port:</u>	<u>Redirect Errors:</u>
1	5	ON
2	6	ON
3	7	OFF

Source Port [1]

Destination Port [1]

Errors [ON]

Status [ADD]

SAVE

EXIT

RETURN

2159_26

Figure 6-15 Port Redirect Configuration Screen

The following definitions briefly explain each field of the Port Redirect Configuration screen:

Source Port (Read-only)

Shows which ports are currently set as source ports.

Destination Port (Read-only)

Shows which ports are currently set as destination ports.

Redirect Errors (Read-only)

Displays whether the corresponding source ports are configured to send errored frames to the destination ports, or to drop all errored frames before forwarding traffic.

Source Port [n] (Selectable)

Allows a selected port [n] to be changed to a source port.

Destination Port [n] (Selectable)

Allows a selected port [n] to be changed to a destination port.

Errors (Toggle)

Allows the user to configure the source ports to either send errored frames to selected destination ports (ON option), or to drop errored frames, and send only valid traffic to the destination ports (OFF option). The default setting of this field is ON.

Status (Toggle)

Allows you to add or delete the source and destination ports selected in the Source Port [n] and Destination Port [n] fields.

6.13.1 Changing Source and Destination Ports

Add or delete source port and destination port entries as follows:

1. Use the arrow keys to highlight the **Source Port** field.
2. Press the SPACE bar or BACKSPACE one or more times to increment or decrement the port number displayed in the brackets [n] until the appropriate port number is displayed.
3. Use the arrow keys to highlight the **Destination Port** field.
4. Use the SPACE bar or BACKSPACE to step to the appropriate port number for the destination port.
5. Use the arrow keys to highlight the **Status** field.
6. Use the SPACE bar to select either the **ADD** or **DEL** (delete) option. Press ENTER. This adds or deletes the port selections made in steps 2 and 4 and also updates the screen Source Port and Destination Port list.
7. Use the arrow keys to highlight the **Errors** field.
8. Use the SPACE bar to select either the **ON** or **OFF** option and press ENTER. **ON** forces the source module and port to forward errored frames to the destination module and port. **OFF** forces the errored frames to be dropped before forwarding traffic.



If more than one port is to be redirected, repeat steps 1 through 8 for each additional setting, then go to step 9 to save all the new settings at once.

9. Use the arrow keys to highlight **SAVE** at the bottom of the screen. Press ENTER. The message “SAVED OK” is displayed. This saves the new settings and updates the Source Port and Destination Port read-only fields.

6.14 BROADCAST SUPPRESSION SCREEN

The Broadcast Suppression screen, Figure 6-16, allows the user to set a desired limit of receive broadcast frames that are switched out to the other ports.

To access the Broadcast Suppression screen from the Port Configuration Menu screen, use the arrow keys to highlight the **BROADCAST SUPPRESSION** menu item and press ENTER. The Broadcast Suppression screen displays. To view or edit the fields for other ports, use the arrow keys to highlight the PREVIOUS or NEXT command at the bottom of the screen and press the ENTER key.

Event Message Line					
MS700 LOCAL MANAGEMENT					
Broadcast Suppression					
Module Type: DLE52-MA			Firmware Revision: XX.XX.XX		
Slot Number: X			BOOTPROM Revision: XX.XX.XX		
PORT #	Total RX	Peak Rate	Time Since Peak	Threshold	Reset Peak
1	12345678910	150000	999:23:59	150000	[NO]
2	12345678910	150000	999:23:59	150000	[NO]
3	12345678910	150000	999:23:59	150000	[NO]
4	12345678910	150000	999:23:59	150000	[NO]
5	12345678910	150000	999:23:59	150000	[NO]
6	12345678910	150000	999:23:59	150000	[NO]
7	12345678910	150000	999:23:59	150000	[NO]
8	12345678910	150000	999:23:59	150000	[NO]
9	12345678910	150000	999:23:59	150000	[NO]
10	12345678910	150000	999:23:59	150000	[NO]
11	12345678910	150000	999:23:59	150000	[NO]
12	12345678910	150000	999:23:59	150000	[NO]

SAVE
NEXT
EXIT
RETURN

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Figure 6-16 Broadcast Suppression Screen

The following explains each field of the Broadcast Suppression screen:

PORT # (Read-only)

Identifies the number of the port.

Total RX (Read-Only)

Displays the total number of broadcast frames received.

Peak Rate (Read-Only)

Displays the number of broadcast frames received per second.

Time Since Peak (Read-Only)

Displays the time since peak broadcast frames received.

Threshold (Modifiable)

Allows the user to set the desired limit of receive broadcast frames that will be forwarded per port per second. For details, refer to Section 6.14.1.

Reset Peak (Toggle)

Allows the user to reset the peak rate. Resetting the Peak Rate also resets the Time Since Peak field. The Reset Peak field toggles between YES and NO. For details, refer to Section 6.14.2.

6.14.1 Setting the Threshold

To set the Threshold, proceed as follows:

1. Use the arrow keys to highlight the **Threshold** field for the selected port.
2. Type in the numbers for the desired limit in increments of 10.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

6.14.2 Setting the Reset Peak

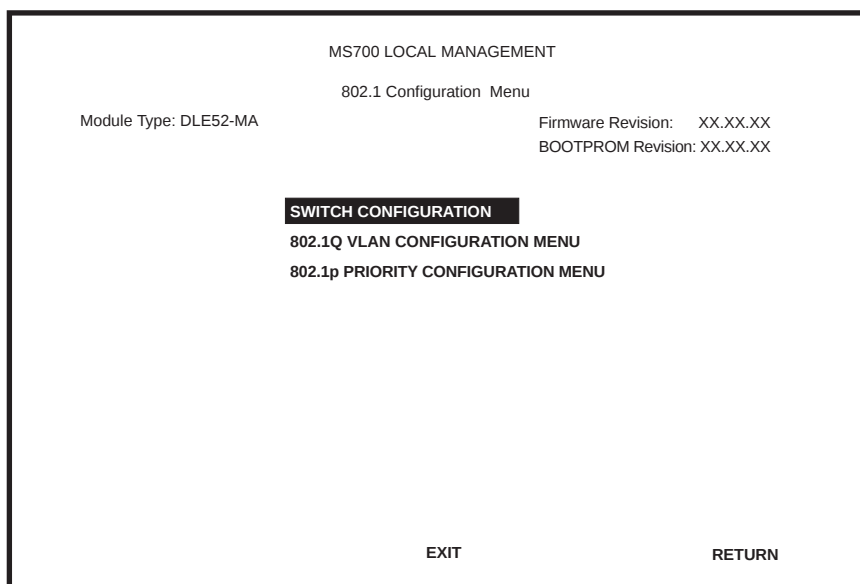
To set the Reset Peak field to **YES** or **NO**, proceed as follows:

1. Use the arrow keys to highlight the **Reset Peak** field for the selected port.
2. Press the SPACE bar to select **YES** or **NO**.
3. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

6.15 802.1 CONFIGURATION MENU SCREEN

The 802.1 Configuration Menu screen, Figure 6-17, provides access to the Switch Configuration, 802.1Q VLAN Configuration Menu, and 802.1p Priority Configuration Menu screens.

To access the 802.1 Configuration Menu screen from the Device Configuration Menu screen, use the arrow keys to highlight the **802.1 CONFIGURATION MENU** item and press ENTER. The 802.1 Configuration Menu screen displays.



25041_89

Figure 6-17 802.1 Configuration Menu Screen

The following briefly describes each screen that is accessible from the 802.1 Configuration Menu screen.

SWITCH CONFIGURATION

Provides the basic setup options for customizing the operation of a switch device in the network. For details, refer to Section 6.16.

802.1Q VLAN CONFIGURATION MENU

Displays only if the DLE02-MA or the DLE52-MA has been configured to operate as an IEEE 802.1Q switch. When selected, this menu item opens the 802.1Q VLAN Configuration Menu screen. For details about the VLAN Local Management screens and how to use them to configure VLANs in the DLE02-MA and the DLE52-MA, refer to the *DIGITAL MultiSwitch 700 Port Based VLAN User's Guide*.

802.1p PRIORITY CONFIGURATION MENU

Used to select the Port Priority Configuration or Advanced Port Priority Configurations screens. For details, refer to Section 6.18.

6.16 SWITCH CONFIGURATION SCREEN

The Switch Configuration screen, Figure 6-18, provides the basic setup options to modify switch operations in your network.

To access the Switch Configuration screen from the 802.1 Configuration Menu screen, use the arrow keys to highlight the **SWITCH CONFIGURATION** menu item and press ENTER. The Switch Configuration screen, Figure 6-18, displays ports 1 through 8. To view or edit the fields for other ports, use the arrow keys to highlight the **PREVIOUS** or **NEXT** command at the bottom of the screen and press the ENTER key.



For the DLE52-MA, port 17 on the Switch Configuration screen represents the optional HSIM available. If a two-port HSIM is installed, such as an DELHE-UA, ports 17 and 18 would represent the ports for this HSIM.

For the DLE52-MA, ports 18 through 21 represent the backplane connections that the DLE52-MA has with the DLM6C-AA chassis. The module has a direct connection to every other slot in the chassis.

For the DLE02-MA, ports 25 through 28 represent the backplane connections that the DLE02-MA has with the DLM6C-AA chassis. The module has a direct connection to every other slot in the chassis. Port 29 is the Host Data Port.

Event Message Line

MS700 LOCAL MANAGEMENT

Switch Configuration

Module Type: DLE52-MA
Slot Number: X

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

Switch Address: 00-00-1D-00-00-00
Number of Ports: 21

Type of STA: [DEC]
Age Time (sec): 300

Port #	MAC Address	State	Status
1	00-00-1D-00-00-00	learning	[ENABLED]
2	00-00-1D-00-00-01	listening	[DISABLED]
3	00-00-1D-00-00-02	blocking	[ENABLED]
4	00-00-1D-00-00-03	learning	[DISABLED]
5	00-00-1D-00-00-04	listening	[ENABLED]
6	00-00-1D-00-00-05	standby	[DISABLED]
7	00-00-1D-00-00-06	forwarding	[ENABLED]
8	00-00-1D-00-00-07	forwarding	[ENABLED]

SAVE NEXT EXIT RETURN

2269_18

Figure 6-18 Switch Configuration Screen

The following describes each field of the Switch Configuration screen:

Switch Address (Read-Only)

Displays the base MAC address of the switch.

Number of Ports (Read-Only)

Displays the total number of switched ports on the module. Depending on the optional interface, there can be many virtual WAN or ATM ports that will display on this screen.

Type of STA (Selectable)

Allows the user to set the method that the switch uses to decide which switch is the controlling (Root) switch when two or more switches exist in parallel (Spanning Tree Algorithm). The selections include IEEE, DEC, and NONE. To set the STA, refer to Section 6.16.1.

Age Time (Modifiable)

Allows the user to set the amount of time (in seconds) the DLE02-MA or the DLE52-MA will keep an address in its switch table before discarding it. The module will discard an address from its switch table if it does not receive a valid packet from the applicable address in the amount of time

specified in the Age Time field. To change the Age Time field from the default value of 300 seconds, refer to Section 6.16.2.

Port # (Read-Only)

Lists each bridge port on the module. If the number of ports is greater than eight, then the additional ports are listed on subsequent screens.

MAC Address (Read-Only)

Displays the hardware address assigned to each listed port.

State (Read-Only)

There are five states that can display in this field. These states are described as follows:

Disabled: Management disabled this interface. No traffic is received or forwarded while the interface is disabled.

Listening: The bridge is not adding information to the Transparent Database. The bridge is monitoring BPDU traffic while preparing to move from the learning to the forwarding state.

Learning: The switch is learning the network address of this interface. The bridge enters the learning state when the Transparent Database is created (during start-up or after being deleted), or when the Spanning Tree Algorithm detects a network topology change.

Forwarding: The bridge is on line and this interface is forwarding traffic.

Blocking: This interface will not forward any traffic through the bridge because a loop condition has been detected by the STA.

Status (Toggle)

Used to disable or enable a port by setting the status of the listed interface to either ENABLED or DISABLED. To set the port status, refer to Section 6.16.3.

6.16.1 Setting the STA

The Spanning Tree Algorithm (STA) setting allows the user to set the method that the switches use to decide which is the controller (Root) switch when two or more switches are in parallel. The available selections are IEEE, DEC, and NONE.

To set the STA, proceed as follows:

1. Use the arrow keys to highlight the **Type of STA** field.
2. Use the SPACE bar to step to the appropriate setting (**IEEE**, **DEC**, or **NONE**).
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

6.16.2 Setting the Age Time

To set the Age Time, proceed as follows:

1. Use the arrow keys to highlight the **Age Time** field.
2. Enter the desired Age Time in increments of 10. The available Age Time range is 10 seconds to 1,000,000 seconds with the default value of 300 seconds.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen. If the entry is not in the range, the Event Message will come up with an error message giving the correct range, and the field will refresh with the previous Age Time.
4. Press ENTER. The message “SAVED OK” is displayed.

6.16.3 Setting (Enabling or Disabling) the Port Status



Disabling the port status of a backplane connection will block the module from passing user traffic to the applicable module slot in the DLM6C-AA chassis. SNMP and other management traffic (e.g., ping and Telnet traffic), however, will still pass via the backplane to the applicable module slot.

To set the status of an interface (port), proceed as follows:

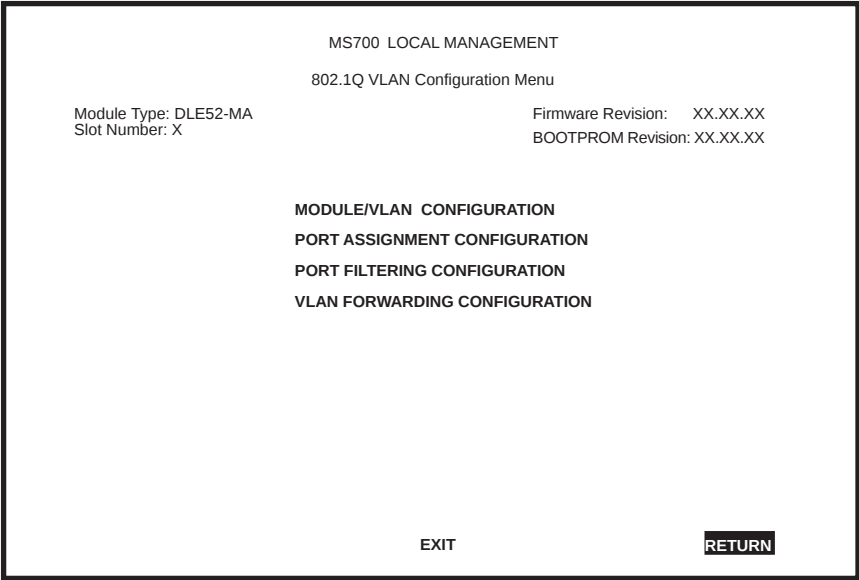
1. Use the arrow keys to highlight the **Status** field of the port.
2. Use the SPACE bar to toggle to either **ENABLED** or **DISABLED**.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.

4. Press ENTER. The message “SAVED OK” is displayed.

6.17 802.1Q VLAN CONFIGURATION MENU SCREEN

The 802.1Q VLAN Configuration Menu screen, Figure 6-20, provides access to the VLAN screens used to configure the VLAN switch parameters.

To access the 802.1Q VLAN Configuration Menu screen from the 802.1 Configuration Menu screen, use the arrow keys to highlight the **802.1Q VLAN CONFIGURATION MENU** item and press ENTER. The 802.1Q VLAN Configuration Menu screen displays.



2504-90

Figure 6-19 802.1Q VLAN Configuration Menu Screen

Refer to the *DIGITAL MultiSwitch 700 Port Based VLAN User’s Guide* for information about 802.1Q VLAN.

6.18 802.1p PRIORITY CONFIGURATION MENU

The 802.1p Priority Configuration Menu screen, Figure 6-20, provides access to two screens used to set the port priority and advanced port priority for each front panel port (1 through 24 for the DLE02-MA, or 1 through 17 or 18 for the DLE52-MA).

To access the 802.1p Priority Configuration Menu screen from the Port Configuration Menu screen, use the arrow keys to highlight the **802.1p PRIORITY CONFIGURATION MENU** item and press ENTER. The 802.1p Priority Configuration Menu screen displays.

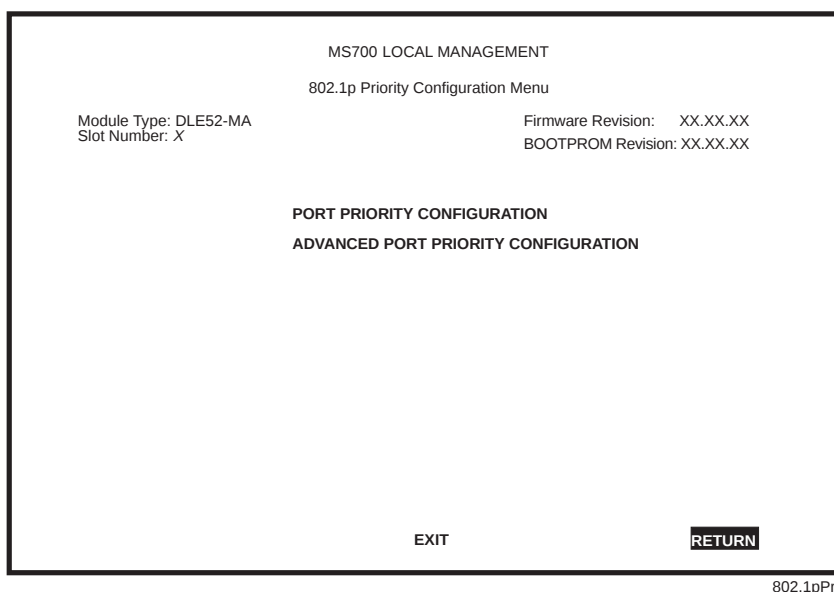


Figure 6-20 802.1p Priority Configuration Menu Screen

The 802.1p Priority Configuration Menu screen displays the following menu items:

PORT PRIORITY CONFIGURATION

Used to set the port default transmit priority (1 through 7) of each port for frames that are received without priority information in their tag header. Refer to Section 6.19 for details.

ADVANCED PORT PRIORITY CONFIGURATION

Used to determine which ports are set to each transmit priority, 0 through 7, with 0 being the lowest priority and 7 the highest priority. This screen can also be used to reprioritize frames received in one priority so they can be transmitted at a different priority. Refer to Section 6.20 for details.

6.19 PORT PRIORITY CONFIGURATION SCREEN

The Port Priority Configuration screen, Figure 6-21, is used to set the port default transmit priority (0 through 7) of each port (1 through 24 for the DLE02-MA, or 1 through 17 or 18 for the DLE52-MA), so that frames received through the ports without priority information in their tag header are tagged according to the default settings. For example, if the default port priority of a port is set to 5, all frames received through that port without a priority in their tag header are tagged as a priority 5.

To access the Port Priority Configuration screen from the 802.1p Priority Configuration Menu screen, use the arrow keys to highlight the **PORT PRIORITY CONFIGURATION** menu item and press ENTER. The Port Priority Configuration screen displays.

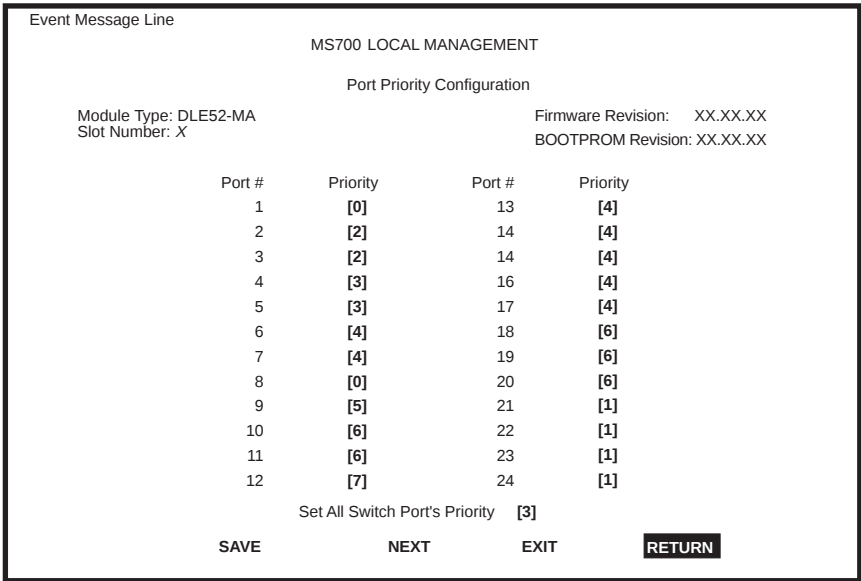


Figure 6-21 Port Priority Configuration screen

The following describes each field of the Port Priority Configuration screen:

Port # (Read-Only)

Lists each switched port on the device.

Priority (Selectable)

Used to select the default transmit priority that will be added to the tag header of frames received without the priority information in their tag header. A priority of 0 through 7 (with 0 being the lowest priority and 7 the highest) can be selected for each port. All ports are set to the default value of “0” when the device is initialized.



Frames with priority indicated in their tag header are transmitted out ports only if the associated VLAN is specified to transmit frames with a tagged frame format.

To set the transmit priority for each port, refer to Figure 6.19.1.

Set All Switch Port's Priority (Selectable)

Used to set all ports to one default transmit priority. A value of 0 through 7 (with 0 being the lowest priority and 7 the highest) can be selected that will apply to all ports. To set the default transmit priority for all ports, refer to Figure 6.19.2.

6.19.1 Setting Switch Port Priority Port-by-Port

To set the default port priority on a particular port, proceed as follows:

1. Use the arrow keys to highlight the **Priority** field for the particular port.
2. Press the SPACE bar to step to the appropriate value **0** through **7**.
3. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” displays and the setting is saved.

6.19.2 Setting Switch Port Priority On All Ports

To set the port priority on all ports, proceed as follows:

1. Use the arrow keys to highlight the **Set All Switch Port's Priority** field.
2. Press the SPACE bar to select a priority from **0** through **7** (0 is the lowest priority).
3. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message "SAVED OK" displays and the setting is saved.

6.20 ADVANCED PORT PRIORITY CONFIGURATION SCREEN

The Advanced Port Priority Configuration screen, Figure 6-22, is used to set the Priority/Queue Mapping and Priority Regeneration for a particular port and also can be used to change the default port priority.

Priority/Queue Mapping is used to set the transmit (TX) queue (0 through 3 with 0 being the lowest level TX queue) for each frame priority. For example, if the TX queue is set to 3 for those frames with a priority 1, then those frames would be transmitted before any frames with a priority that has the TX queue set to 2 or lower.

Priority Regeneration is used to reprioritize received frames to a different transmit priority. For example, the frames with a received (RX) transmit priority or a port default priority of 3 could be changed to have a transmit priority of 5.

To access the Advanced Port Priority Configuration screen from the Priority Configuration Menu screen, use the arrow keys to highlight the **ADVANCED PORT PRIORITY CONFIGURATION** menu item and press ENTER. The Advanced Port Priority Configuration screen displays. To view or edit the fields for more priorities, use the arrow keys to highlight the **PREVIOUS** or **NEXT** command at the bottom of the screen and press the ENTER key.

Event Message Line

MS700 LOCAL MANAGEMENT

Advanced Port Priority Configuration

Module Type: DLE52-MA
Slot Number: X

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

Priority/Queue Mapping		Priority Regeneration	
Priority	TX Queue	RX Priority	TX Priority
0	[1]	0	[0]
1	[0]	1	[1]
2	[0]	2	[2]
3	[1]	3	[3]
4	[2]	4	[4]
5	[2]	5	[5]
6	[3]	6	[6]
7	[3]	7	[7]

PORT: XXX

Default Priority [7]

SAVE

NEXT

EXIT

RETURN

advportpri

Figure 6-22 Advanced Port Priority Configuration Screen

The following describes each field of the Advanced Port Priority Configuration screen:

Priority (Read-Only)

Lists the eight priorities, 0 through 7.

TX Queue (Selectable)

Enables the frames with a certain priority to be mapped to transmit according to one of four TX queues (0 through 3) with 0 being the lowest transmit level. Refer to Table 6-2 for the TX Queue default values according to frame priority.

Table 6-2 TX Queue Mapping Default Values

Priority	0	1	2	3	4	5	6	7
TX Queue	1	0	0	1	2	2	3	3

To set the TX Mapping Queues, refer to Section 6.20.1.

RX Priority (Read-Only)

Lists the eight priorities, 0 through 7.

TX Priority (Selectable)

Enables the frames with a certain RX priority to be changed to transmit according to a different TX priority (0 through 7). For example, all frames with an RX priority of 3 could be regenerated with a TX priority of 5. The new value would also be inserted in the VLAN tag if the frame is tagged as outbound.

The regenerated priority is used to determine the correct queue as defined in the Priority/Queue Mapping. The default values for the TX Priority settings are listed Table 6-3 according to RX priority.

Table 6-3 TX Priority Regeneration Default Values

RX Priority	0	1	2	3	4	5	6	7
TX Priority	0	1	2	3	4	5	6	7

To set the RX Regeneration Priorities, refer to Section 6.20.2.

Default Priority (Selectable)

Used to set the default port priority (0 through 7) of the port selected in the Port command. To set the default port priority, refer to Section 6.20.3.

PORT (Modifiable)

Used to enter the number of the port to be configured. The port number is entered in numerically. To view the settings for the desired port press the ENTER or arrow key to refresh the screen.

6.20.1 Setting the TX Mapping Queues

To set the TX queue for frames with a particular priority, proceed as follows:

1. Use the arrow keys to highlight the **PORT** field.
2. Enter the number of the appropriate port that the TX queue setting will be applied. If the port number is outside the range of the module, an error message will be displayed, indicating the correct range of the port numbers in the Event Message field.
3. Use the arrow keys to highlight the **TX Queue** field for the particular frame priority.
4. Press the SPACE bar to step to the appropriate value, **0** through **3**. The **0** selection is the lowest level TX queue.
5. If more than one TX queue is to be changed, repeat steps 3 and 4 until all the appropriate TX queue settings are changed.
6. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
7. Press ENTER. The message “SAVED OK” displays and the setting is saved.

6.20.2 Setting the TX Regeneration Priorities

To reset the TX priority for frames with a particular RX priority, proceed as follows:

1. Use the arrow keys to highlight the **PORT** field.
2. Enter the number of the appropriate port that the TX queue setting is being applied to.
3. Use the arrow keys to highlight the **TX Priority** field for the particular RX frame priority.
4. Press the SPACE bar to step to the appropriate value, **0** through **7**. The **0** selection is the lowest level TX priority value.
5. If more than one TX priority is to be changed, repeat steps 3 and 4 until all the appropriate TX priority settings are changed.

6. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
7. Press ENTER. The message “SAVED OK” displays and the setting is saved.

6.20.3 Setting the Default Port Priority

To reset the default port priority, proceed as follows:

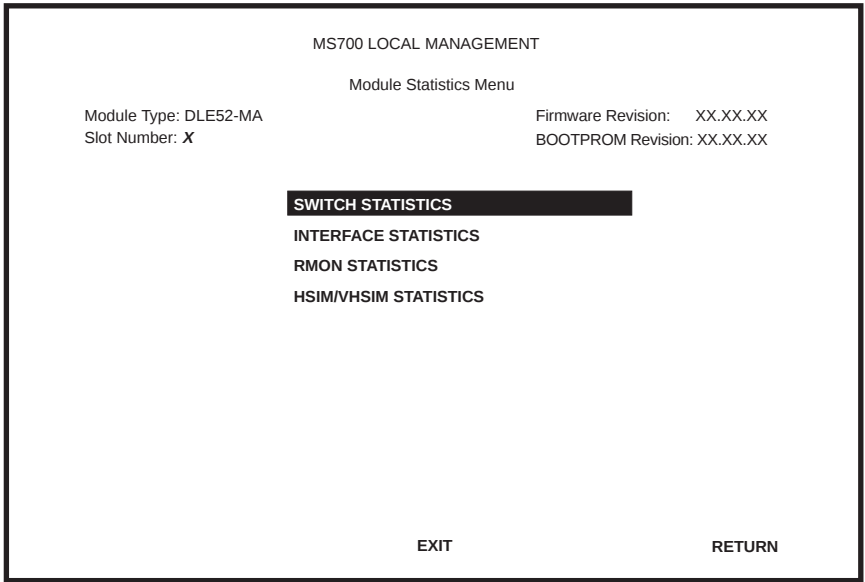
1. Use the arrow keys to highlight the **PORT** field.
2. Enter the number of the appropriate port that the TX queue setting is being applied to.
3. Use the arrow keys to highlight the **Default Priority** field.
4. Press the SPACE bar to step to the appropriate value, **0** through **7**. The **0** selection is the lowest level priority.
5. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.

Press ENTER. The message “SAVED OK” displays and the setting is saved. This new setting will be reflected in the Port Priority Configuration screen the next time it is displayed.

6.21 MODULE STATISTICS MENU SCREEN

The Module Statistics Menu screen, Figure 6-23, provides access to screens that allow the user to obtain switch statistics about frame traffic through each interface, to view MIB-II statistics from each interface, and to view RMON Statistics gathered by the RMON agent embedded in the DLE02-MA and the DLE52-MA.

To access the Module Statistics Menu from the Module Menu screen, use the arrow keys to highlight the **MODULE STATISTICS** menu item and press ENTER. The Module Statistics Menu screen displays.



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Figure 6-23 Module Statistics Menu Screen

The Module Statistics Menu screen displays the following menu items:

SWITCH STATISTICS

The Switch Statistics screen lists the number of frames received, transmitted, filtered, and forwarded by each interface. For details, refer to Section 6.22.

INTERFACE STATISTICS

The Interface Statistics screen provides the MIB-II statistics for each switched interface, on an interface-by-interface basis. For details, refer to Section 6.23.

RMON STATISTICS

The RMON Statistics screen displays all the statistics gathered by the embedded RMON agent built-in to the DLE02-MA and the DLE52-MA. For details, refer to Section 6.24.

HSIM/VHSIM STATISTICS

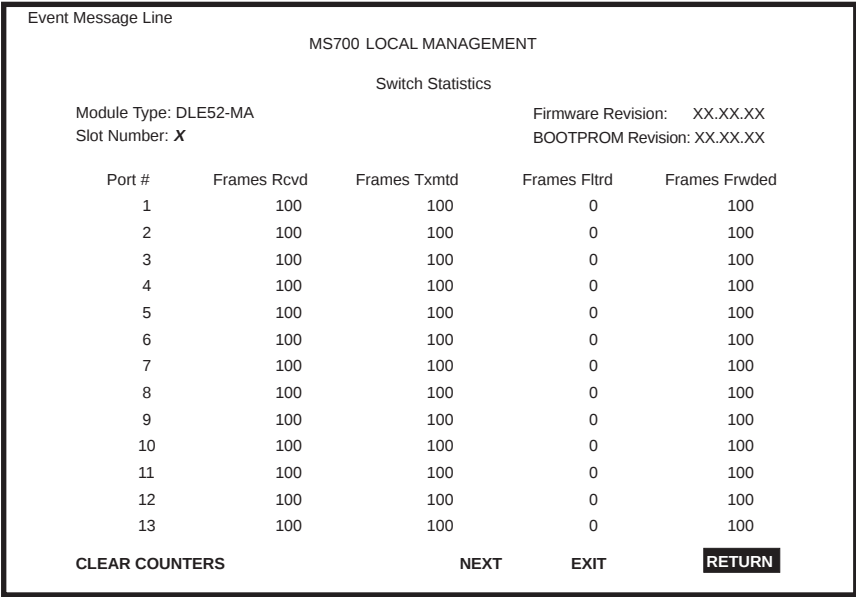
Displays the statistics screen for an optional non-Ethernet HSIM or VHSIM installed in the DLE52-MA only. This selection does not appear unless a non-Ethernet HSIM or VHSIM is installed. For information

concerning the particular screen, refer to the user’s guide for the specific HSIM or VHSIM.

6.22 SWITCH STATISTICS SCREEN

The Switch Statistics screen, Figure 6-24, lists the number of frames received, transmitted, filtered, and forwarded by each interface, including backplane interfaces.

To access the Switch Statistics screen from the Module Statistics Menu screen, use the arrow keys to highlight the **SWITCH STATISTICS** menu item and press ENTER. The Switch Statistics screen displays. To view or edit the fields for other ports, use the arrows to highlight the **PREVIOUS** or **NEXT** command at the bottom of the screen and press the ENTER key.



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Figure 6-24 Switch Statistics Screen

The Switch Statistics screen displays the following items:

Port # (Read-Only)

Identifies the interface or port number.

Frames Rcvd (Read-Only)

Displays the number of frames received by the interface since last power-up or reset.

Frames Txmtd (Read-Only)

Displays the number of frames transmitted by the interface since last power-up or reset.

Frames Fltrd (Read-Only)

Displays the number of frames filtered by the interface since last power-up or reset.

Frames Frwded (Read-Only)

Displays the number of frames forwarded by the interface since last power-up or reset.

CLEAR COUNTERS (Command)

This command is used to reset all statistic counters to zero. For details on how to use this field, refer to Section 6.22.1.

6.22.1 Using the CLEAR COUNTERS Command

To reset all the statistics counters to zero momentarily, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** field.
2. Press ENTER, the counters are reset to zero, and the counter starts recording incidents immediately.

This command only clears the counters temporarily, while in the Switch Statistics screen. If the screen is exited, then entered again, the counters will show the overall original statistics from the last hardware reset.

6.23 INTERFACE STATISTICS SCREEN

The Interface Statistics screen is used to gather MIB-II statistics for all of the DLE02-MA and the DLE52-MA interfaces (all front panel ports and all backplane interfaces) with the exception of a non-Ethernet HSIM or VHSIM installed in the DLE52-MA.



Non-Ethernet HSIM/VHSIMs gather their own statistics, and may be viewed via the Local Management screens of the applicable HSIM. Refer to your HSIM or VHSIM documentation for information on how to access these screens.

To access the Interface Statistics screen, use the arrow keys to highlight the **INTERFACE STATISTICS** menu item on the Module Statistics Menu screen and press ENTER. The Interface Statistics screen, Figure 6-25, displays.

Event Message Line

MS700 LOCAL MANAGEMENT

Interface Statistics

Module Type: DLE52-MA

Slot Number: X

Interface: 1

Name: Fast Ethernet Frontpanel

Firmware Revision: XX.XX.XX

BOOTPROM Revision: XX.XX.XX

InOctets: 7500456

InUnicast: 6789

InNonUnicast: 0

InDiscards: 0

InErrors: 0

InUnknownProtos: 0

OutOctets: 0

OutUnicast: 0

OutNonUnicast: 0

OutDiscards: 0

OutErrors: 0

OutQLen: 0

Address: 00-00-00-00-00-00

Last Change: xx days 00:00:00

Admin Status: Up

Oper Status: Down

MTU: 1514

Speed: 100000000

Link Status: No Link

Duplex Mode: Standard

Interface: [XX]

CLEAR COUNTERS

EXIT

RETURN

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Figure 6-25 Interface Statistics Screen

The following definitions explain each field of the Interface Statistics screen:

Interface (Read-only)

Displays the Interface number for which statistics are currently being displayed. Figure 6-25 shows the Interface field displaying 1. This represents port 1 of the module. To view other interface statistics, refer to Section 6.23.1.

Name (Read-only)

Displays the type of interface for which statistics are being displayed.

InOctets (Read-only)

Displays the total number of octets (bytes) that have been received on the interface. This includes all octets from bad frames, and framing characters.

InUnicast (Read-only)

Displays the total number of frames that have been received that were sent to a single address.

InNonUnicast (Read-only)

Displays the total number of frames that have been received that were delivered to a broadcast or multicast address.

InDiscards (Read-only)

Displays the total number of inbound frames that were discarded, even though the frames contained no errors. This field may increment because the switch needed to free up buffer space, or the switch was being overutilized.

InErrors (Read-only)

Displays the total number of inbound frames that have been discarded because they contained errors. This field represents the total number of errored frames, regardless of the cause of the error.

InUnknownProtos (Read-only)

Displays the total number of frames that were discarded because the frames were in an unknown, or unsupported, format.

OutOctets (Read-only)

Displays the total number of octets (bytes) that have been transmitted from the interface.

OutUnicast (Read-only)

Displays the total number of frames transmitted that were sent to a single address.

OutNonUnicast (Read-only)

Displays the total number of frames transmitted to a broadcast or multicast address.

OutDiscards (Read-only)

Displays the total number of outbound frames that were discarded, even though the frames contained no errors. This field may increment, because the switch needed to free up buffer space, or the switch was being overutilized.

OutErrors (Read-only)

Displays the total number of outbound frames discarded because they contained errors. This field represents the total number of errored frames, regardless of the cause of the error.

OutQLen (Read-only)

Displays the length of the frame queue. The field represents the total number of frames that can be contained in the queue.

Address (Read-only)

Displays the MAC Address of the interface that is currently being displayed.

Last Change (Read-only)

Displays the last time that the interface was reset.

Admin Status (Read-only)

Displays the current status of the interface. If this field displays “Testing”, no frames may be passed on this interface.

Oper Status (Read-only)

Displays the current status of the interface. If this field displays “Testing”, no frames may be passed on this interface.

MTU (Read-only)

Displays the maximum frame size (in octets) that a frame may contain to be received or transmitted from this interface.

Speed (Read-only)

Displays the theoretical maximum amount of bandwidth that the interface can support in bits per second.

Link Status (Read-only)

Displays the current link status of the interface. This field will read either “Link” or “No Link”.

Duplex Mode (Read-only)

Indicates whether the interface is operating in normal or full duplex mode. This field will read either “Standard” or “Full Duplex”.

Interface [nn] (Command)

This command is used to enter an interface number for viewing statistics. For instructions on how to use this command, refer to Section 6.23.1.

CLEAR COUNTERS (Command)

This command is used to reset all statistic counters to zero. For details on how to use this field, refer to Section 6.23.2.

6.23.1 Displaying Interface Statistics

To display the statistics for any interface, proceed as follows:

1. Use the arrow keys to highlight the **Interface [nn]** field at the bottom of the screen.
2. Press the SPACE bar to increment (or press the DEL (delete) key to decrement) the interface number.
3. Press ENTER (neither the **Interface #** fields nor the statistics will change until ENTER is pressed).

6.23.2 Using the CLEAR COUNTERS Command

To reset all the statistics counters of the selected interface to zero, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** command.
2. Press ENTER, the counters are reset to zero, and the counter starts recording incidents immediately.

This command only clears the counters temporarily, while in the Switch Statistics screen. If the screen is exited, then entered again, the counters will show the overall original statistics from the last hardware reset.

6.24 RMON STATISTICS SCREEN

RMON statistics for each interface, on an interface-by-interface basis, are viewed through the RMON Statistics screen shown in Figure 6-26.



The RMON Statistics screen provides statistics for all front panel Ethernet Interfaces, and any Ethernet HSIM/VHSIM Modules installed in the DLE52-MA. This screen does not provide statistics for a non-Ethernet HSIM/VHSIM.

To access the RMON Statistics screen, use the arrow keys to highlight the **RMON STATISTICS** menu item on the Module Statistics Menu screen and press ENTER. The RMON Statistics screen displays.

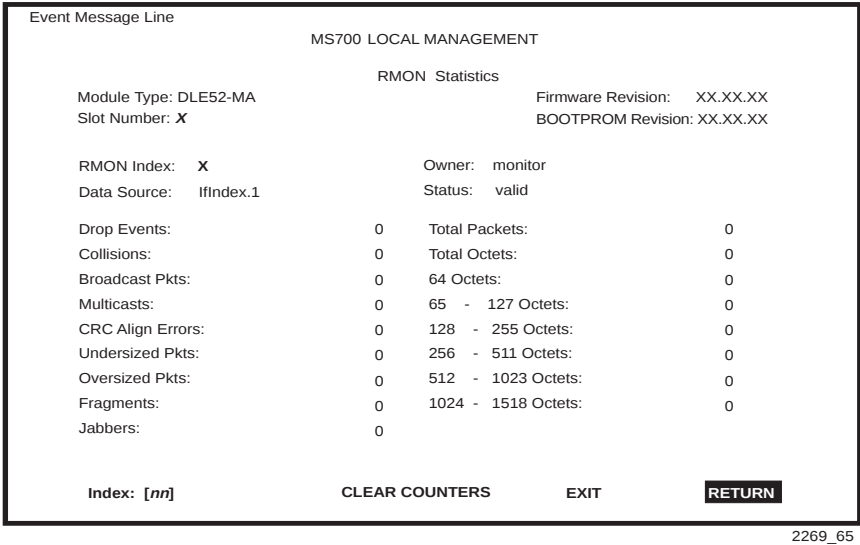


Figure 6-26 RMON Statistics Screen

The following briefly defines each field of the RMON Statistics screen:

RMON Index (Read-only)

Displays the current Ethernet interface for which statistics are being shown. The DLE02-MA and the DLE52-MA has an embedded RMON agent that gathers statistics for each interface on the module.

Data Source (Read-only)

Displays the source of the statistics data that is currently being displayed on the screen. Figure 6-26 shows that the data source for this RMON index is Interface 1 (port 1) by displaying the name IfIndex.1. If the

screen was displaying RMON statistics for Interface 2 (port 2), the name displayed would be IfIndex.2.

Owner (Read-only)

Displays the name of the entity that configured this entry.

Status (Read-only)

Displays the current operating status of the displayed interface. This field will display “valid” or “invalid”.

Drop Events (Read-only)

Displays the total number of times that the RMON agent was forced to discard frames due to the lack of available switch resources.



The Drop Events field does not display the number of frames dropped, it only displays the number of times that the RMON agent was forced to discard frames.

Collisions (Read-only)

Displays the total number of collisions that have occurred on this interface.

Broadcast Pkts (Read-only)

Displays the total number of good frames that were directed to the broadcast address. The value of this field does not include multicast frames.

Multicasts (Read-only)

Displays the total number of good frames received that were directed to a multicast address. The value of this field does not include frames directed to the broadcast address.

CRC Align Errors (Read-only)

Displays the number of frames with bad Cyclic Redundancy Checks (CRC) received from the network. The CRC is a 4-byte field in the data frames that ensures that the data received is the same as the data that was originally sent.

Undersized Pkts (Read-only)

Displays the number of frames received whose size was less than the minimum Ethernet frame size of 64 bytes, not including preamble, but have a valid CRC.

Oversized Pkts (Read-only)

Displays the number of frames received whose size exceeded 1518 data bytes, not including preamble, but have a valid CRC.

Fragments (Read-only)

Displays the number of received frames that are not the minimum number of bytes in length or received frames that had a bad Frame Check Sequence (FCS), were less than 64 bytes in length (excluding framing bits, but including FCS bytes), and have an invalid CRC.



It is normal for the Fragments field to increment. Fragments are a normal result of collisions in a half-duplex network.

Jabbers (Read-only)

Displays the total number of frames that were greater than 1518 bytes and had either a bad FCS or a bad CRC.

Total Packets (Read-only)

Displays the total number of frames (including bad frames, broadcast frames, and multicast frames) received on this interface.

Total Octets (Read-only)

Displays the total number of octets (bytes) of data, including those in bad frames, received on this interface.

64 Octets (Read-only)

Displays the total number of frames including bad frames, received that were 64 bytes in length (excluding framing bits, but including FCS bytes).

65 - 127 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 65 and 127 bytes in length (excluding framing bits, but including FCS bytes).

128 - 255 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 128 and 255 bytes in length (excluding framing bits, but including FCS bytes).

256 - 511 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 256 and 511 bytes in length (excluding framing bits, but including FCS bytes).

512 - 1023 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 512 and 1023 bytes in length (excluding framing bits, but including FCS bytes).

1024 - 1518 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 1024 and 1518 bytes in length (excluding framing bits, but including FCS bytes).

Index [nn] (Command)

This command is used to enter an index number for viewing statistics. For instructions on how to use this command, refer to Section 6.24.1.

CLEAR COUNTERS (Command)

This command is used to reset all statistic counters to zero. For details on how to use this field, refer to Section 6.24.2.

6.24.1 Displaying RMON Statistics

To display the statistics for any index, proceed as follows:

1. Use the arrow keys to highlight the **Index [nn]** field at the bottom of the screen.
2. Press the SPACE bar to increment (or press the DEL [delete] key to decrement) the index number.
3. Press ENTER (neither the **RMON Index** field nor the statistics will change until ENTER is pressed).

6.24.2 Using the CLEAR COUNTERS Command

To reset all the statistics counters of the selected interface to zero, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** field.

2. Press ENTER, the counters are reset to zero, and the counter starts recording incidents immediately.

This command only clears the counters temporarily, while in the Switch Statistics screen. If the screen is exited, then entered again, the counters will show the overall original statistics from the last hardware reset.

CHAPTER 7

NETWORK TOOLS

7.1 NETWORK TOOLS

The Network Tools function resides on the DLE02-MA and the DLE52-MA and allows the user to access and manage network devices. Figure 7-1 shows the Network Tools Help screen.

To access the Network Tools screen, access Local Management, then use the arrow keys to highlight the **NETWORK TOOLS** menu item in the Module Menu screen and press ENTER. The Network Tools Help screen displays. Refer to Chapter 6 for details on accessing Local Management.



Type **help** at the prompt to list all the commands that are available for the device in the current operational mode. A command used incorrectly (wrong syntax) will prompt a display of the correct usage. Use lower case characters when entering commands in Network Tools.

```
Welcome to Network Tools

-> help

Commands Available to the User:

Built in Commands:

arp          bridge      defroute
netstat      ping        reset
show         traceroute

soft_reset   telnet      link_trap
atm_stp_state

SPECIAL:
    done, quit, or exit - Exit from the Network Tools.
    For help with a specific command, type 'help <command>'.

->
```

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Figure 7-1 Network Tools Help Screen

The Network Tools functions are performed using a series of commands. Entering commands in Network Tools involves typing the command to be executed at the Network Tools prompt, adding any desired or required extensions, and pressing ENTER.

There are two categories of commands in the command set.

- Built-in Commands – Allow the user to access and manage network devices. The commands are **arp**, **bridge**, **defroute**, **netstat**, **ping**, **reset**, **show**, **tracert**, **soft_reset**, **telnet**, **link_trap**, and **atm_stp_state**.
- Special Commands – Allow the user to exit from Network Tools. The commands are **done**, **exit**, and **quit**.



The conventions used in describing the commands in Network Tools are as follows:

Arguments enclosed by [] are required.

Arguments enclosed by < > are optional.

In the following command examples, the information entered by the user is shown in **bold** Helvetica font.

To abort the output or interrupt a process, press the CONTROL key and c key simultaneously, designated as ^C here.

The commands are presented in the following format:

command:

- | | |
|---------------------|---|
| Syntax: | Shows the required command format. It indicates where arguments, if any, must be specified. |
| Description: | Briefly describes the command and its uses. |
| Options: | Lists any additional fields in the appropriate format that may be added to the command. |
| Example: | Shows an example of the command. |

7.1.1 Built-in Commands

The built-in commands listed in this section activate functions on the managed device or devices being accessed through Network Tools.

arp:

Syntax: arp <options>

Description: The arp command provides access to the ARP (Address Resolution Protocol) cache, enabling you to view cache data, delete entries, or add a static route. Super-User access is required to delete an entry or add a static route.

Each ARP cache entry lists the network *interface* that the device is connected to, the device's *network address* or IP address, the device's *physical address* or MAC address, and the *media type* of connection to the device. Media types are displayed as numbers, which stand for the following states:

- 1 - Other
- 2 - Invalid entry (cannot ping device, timed out, etc.)
- 3 - Dynamic route entry
- 4 - Static route entry (not subject to change)

You can specify the arp command without options, or with one of the following options:

Options:

- a Views cache data
- d Deletes an IP address entry. Requires additional arguments: <Interface Number> <IP address>
- s Adds a static entry. Requires additional arguments: <Interface Number> <IP address> <MAC address>
- f Flushes the ARP cache

Example:

```
-> arp -a
# Interface      Network Address  Physical Address  Media Type
# (SonicInt)     122.144.40.111   00.00.0e.12.3c.04 3(dynamic)
# (SonicInt)     122.144.48.109   00.00.0e.f3.3d.14 3(dynamic)
# (SonicInt)     122.144.52.68    00.00.0e.12.3c.04 3(dynamic)
# (SonicInt)     122.144.21.43    00.00.0e.03.1d.3c 3(dynamic)

-> arp -d 1 122.144.52.68

-> arp -s 1 22.44.2.3 00:00:0e:03:1d:3c

-> arp -f
```

051467

bridge:

Syntax: bridge [ENABLE/DISABLE] [IFNUM/ALL]

Description: The bridge command allows each bridge port to be enabled or disabled at the user’s request, either one at a time or all at once. Specifying a single interface number will affect the bridging status of that interface, while specifying ALL will affect every interface.

Options: Not Applicable

Example:

```
-> bridge disable all

-> bridge enable 1

-> bridge disable 1
```

051468

defroute:

Syntax: defroute [interface number] [IP address]

Description: The defroute command allows the user to view, set or delete the default IP route to a managed device through the specified interface.

Options: Not Applicable

Example:

```
-> defroute 2 147.152.42.32
    # Default route is 147.152.42.32 on interface 2
-> defroute
    # Default route is 147.152.42.32 on interface 2
-> defroute delete
    # Default route is not currently set.
->
```

05141-69

netstat:

Syntax: netstat [option]

Description: The netstat command provides a display of general network statistics for the managed device. The netstat command must be used with one of the two display options.

Options:

- i Displays status and capability information for each interface
- r Displays routing information for each interface

Example:

```
-> netstat -i
Interface + Description      MTU      Speed    Admin    Oper     MAC Addr
# 1 (ethernet - csmacd)     1514     10000000 up        up       0x00 0x00 0x1d 0x07 0x50 0x0e
# 2 (ethernet - csmacd)     1514     10000000 up        up       0x00 0x00 0x1d 0x07 0x50 0x0f
# 3 (ethernet - csmacd)     1514     10000000 up        up       0x00 0x00 0x1d 0x07 0x50 0x10
# 4 (ethernet - csmacd)     1514     10000000 up        up       0x00 0x00 0x1d 0x07 0x50 0x11

-> netstat -r
Destination                Next-hop                Interface
# Default Route            DirectConnection        1
# 134.141.0.0              DirectConnection        2
# 134.141.0.0              DirectConnection        3
```

051470

ping:

Syntax: ping [IP address]

Description: The ping command generates an outbound ping request to check the status (alive/not alive) of a device at a specified IP address.

Options: Not Applicable

Example:

```
-> ping 122.144.40.10
122.144.40.10 is alive
```

051471

reset:

Syntax: reset

Description: The reset command allows a soft reset of the device. The user will be queried to confirm the reset command to insure against unwanted resets.



The Network Tools connection to the module will be terminated upon execution of this command.

Options: Not Applicable

Example:

```
-> reset
RESET: Are you *SURE*? -> Y
```

174245

show:

Syntax: show [PROTOCOL] [TABLE]

Description: The show command displays information concerning various components of the device. Protocols currently supported are IP, IPX, DECnet, and AppleTalk. Components of those protocols that are currently supported are ARP caches, route tables, FIB tables, server tables, and interface tables. The number of valid entries in the table will be displayed at the end of the table display.

Options: Not Applicable

Example:

```
-> show Appletalk interfaces

# Interface  AdminStatus  OperStatus  MTU  Forwarding  Framing
# 1          enabled      enabled      1500  enabled      ethernet
# 2          disabled     disabled     1500  disabled     ethernet

-> show IP ARP

# Interface  MediaType  PhysicalAddress  NetworkAddress
# 3          3 (dynamic)  00:00:1d:04:40:5d  123.456.40.1
# 4          3 (dynamic)  08:00:20:0e:d8:31  123.456.40.30
```

174246

traceroute:

Syntax: traceroute [IP address]

Description: The traceroute command generates a TRACEROUTE request to a specified IP address and provides a display of all next-hop routers in the path to the device. If the device is not reached, the command displays all next-hop routers to the point of failure.

Options: Not Applicable

Example:

```
-> traceroute 122.144.11.52

# next-hop[0] : 122.144.60.45
# next-hop[1] : 122.144.8.113
# next-hop[2] : 122.144.61.45
# 122.144.11.52 is alive : 3 hops away.
```

051477

soft_reset:

Syntax: soft_reset

Description: This command restarts the software image, which restores the user configuration settings from NVRAM. The user will be queried to confirm the reset command to ensure against unwanted resets.



The Network Tools connection to the module will be terminated upon execution of this command.

Options: Not Applicable

Example:

```
-> soft_reset  
RESET: Are you *SURE*? -> Y
```

174266

telnet:

Syntax: telnet [IP address] <Port #>

Description: The telnet command allows the user to communicate with another host (that supports Telnet connections) using the Telnet protocol. The user must specify the remote host using its IP address. The [IP address] field is mandatory. If no Port number is specified, telnet will attempt to contact the host at the default port.

Options: <Port #>

Example:

```
-> telnet 134.141.12.345  
Trying 134.141.12.345  
Connected to 134.141.12.345  
  
SunOS UNIX (server1)  
login:
```

link_trap:

Syntax: link_trap [enable/disable/status] [PORT/all]

Description: The link_trap command allows link traps to be enabled or disabled when specifying a single port, or simultaneously when specifying “all” or no ports. When one or all ports are specified to enable, disable, or find their status, their current condition is displayed.

Options: Not Applicable

Example:

```
-> link_trap status
LINK TRAP STATUS:

Port 1 is ENABLED      Port 2 is DISABLED
Port 3 is ENABLED      Port 4 is ENABLED

-> link_trap disable 2
Link traps have been DISABLED on port 2

-> link_trap disable all
Link traps have been DISABLED on all ports (1-24)

-> link_trap status 3
Link traps are ENABLED on port 3
```

linktrap

atm_stp_state:



The **atm_stp_state** command is only available if an DELHA-UA is installed in the DLE52-MA. This command allows the user to enable, disable, or check the current status of the Spanning Tree Algorithm on all ATM interfaces.

Syntax: atm_stp_state [STATE]

Description: The atm_stp_state command allows the user to enable, disable, or check the status of the Spanning Tree Algorithm on all ATM interfaces. The user must specify the STATE option as enable, disable, or status. The STATE field is mandatory.

Options: enable, disable, status

Example:

```
-> atm_stp_state status
Atm Stp is Enabled
-> atm_stp_state disable
-> atm_stp_state enable
```

2314_79

7.1.2 Special Commands

done, quit, exit:

Syntax: done**Description:** The done command enables the user to exit from Network Tools and return to the Main Menu screen.**Options:** Not Applicable**Example:**

```
-> done
```

051472

APPENDIX A

SPECIFICATIONS

This appendix provides operating specifications for the DLE02-MA and DLE520MA Interface Modules. Cabletron Systems reserves the right to change these specifications at any time without notice.

A.1 MODULE SPECIFICATIONS

Processors:	Intel i960 RISC processor control Power PC
Dynamic Random Access Memory (DRAM):	20 MB
FLASH Memory:	8 MB
Shared Memory	4MB

A.2 PHYSICAL PROPERTIES

Dimensions:	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in)
Weight (Unit):	2.72 kg (6 lb)
MTBF (Predicted):	200,000 hours

A.3 ENVIRONMENTAL REQUIREMENTS

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)

A.4 INPUT/OUTPUT PORTS

DLE52-MA Specifications

Ports 1 through 16	Fast Ethernet 10/100 Mbps (100BASE-TX compliant) with RJ45 connectors.
Slot for optional High Speed Interface Module (HSIM) or Very High Speed Interface Module (VHSIM)	Slot accepts optional HSIMs or VHSIMs that provide a variety of physical cabling types.

DLE02-MA Specifications

Ports 1 through 24	Fast Ethernet 10/100 Mbps (100BASE-TX compliant) with RJ45 connectors.
--------------------	--

A.5 COM PORT PINOUT ASSIGNMENTS

The COM port is a serial communications port that supports Local Management or connection to a UPS.

Table A-1 shows the COM port pin assignments:

Table A-1 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Data Carrier Detect (DCD)	Output
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Data Terminal Ready (DTR)	Output
7	Request to Send (RTS)	Input
8	Clear to Send (CTS)	NA

A.6 REGULATORY COMPLIANCE

Safety	UL 1950, CSA C22.2 No. 950, EN 60950, IEC 950 and 73/23/EEC
Electromagnetic Compatibility (EMC)	FCC Part 15, EN 50082-1, EN 55022, VCCI V-3, CSA C108.8, and 89/336/EEC, AS/NZS 3548

APPENDIX B

SWITCH SETTINGS, UPGRADES, AND INSTALLATIONS

This appendix covers the following items:

- Setting the mode switches (Section B.1)
- Installing the DRAM SIMM (Section B.2)
- Location for installing HSIMs or VHSIMs (Section B.3)



You need an antistatic wrist strap (provided with DLM6C-AA chassis) to perform the procedures in this appendix. Use the antistatic wrist strap when performing any of the procedures in this appendix to minimize ESD damage to the devices involved.

B.1 SETTING THE MODE SWITCHES



Read the appropriate sections to be fully aware of the consequences when changing switch settings.

Only qualified personnel should change switch settings.

These switches are set at the factory and do not need to be changed unless you intend to perform the following:

- Force download a new image file from a BootP server.
- Clear NVRAM and restore all user-entered parameters such as the IP address and Subnet Masks to the DLE02-MA and the DLE52-MA “Default” configuration settings.
- Clear user-entered passwords stored in NVRAM and restore the default passwords.

Figure B-1 shows the location of the mode switches and the switch settings for normal operation.

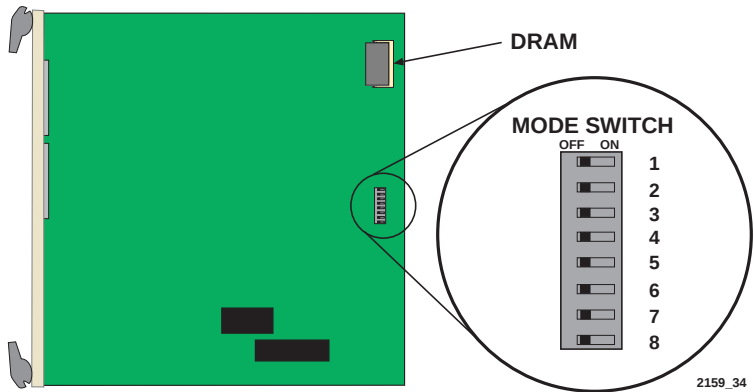


Figure B-1 Module Mode Switch Location/Component Layout

Switch definitions and positions are as follows:

- Switches 1 through 4 – For DIGITAL use only.
- Switch 5 – COM Port Autobaud. The default (OFF) position enables Autobaud sensing on the COM port for Local Management sessions. Changing the switch to the ON position disables Autobaud sensing and sets the COM port to 9600 baud for Local Management sessions.
- Switch 6 – Forced BootP. Changing the position of this switch (i.e., moving the switch from one position to the other) clears download information from NVRAM and forces the DLE02-MA and the DLE52-MA to download a new image file from a BootP server after power to the chassis is restored.



After changing the position of switch 6, DO NOT reapply power to the chassis until there is a station acting as a BootP server, which contains the image file.

- After changing the position of switch 6 and restarting the module, the DLE02-MA and the DLE52-MA request a new image download until they either receive a new image or the RESET button on the front panel is pressed. When the RESET button is pressed, the DLE02-MA and the DLE52-MA continue trying to contact a BootP server, but will time out in approximately one minute. If the module times out, the image is downloaded from its FLASH memory.
- Switch 7 – Clear NVRAM. Changing the position of this switch resets NVRAM on the next power up. ALL user entered parameters, such as IP addresses, subnet masks, SNMP traps, and switching functions are restored to their factory default settings.
- Switch 8 – Reset Password/Community Strings. Changing the position of this switch clears only the user-entered passwords stored in NVRAM, and restores the default passwords. Once the DLE02-MA and the DLE52-MA reset, the passwords can either be reentered or the default passwords (Public and ENTER) may be used.



Do not change the position of switch 8 unless it is necessary to reset the module super-user configured passwords to their factory default settings.

B.2 SIMM UPGRADE

Memory upgrade is available for the DLE02-MA and the DLE52-MA to expand the DRAM to 32 MB. This section explains how to locate and add/replace a Single In-line Memory Module (SIMM). For information on the available SIMM upgrades, contact the your DIGITAL representative. For details on getting help, refer to Getting Help, in the Preface in this guide.

B.2.1 Locating SIMMs

Figure B-2 shows the location of the DRAM SIMM connector.

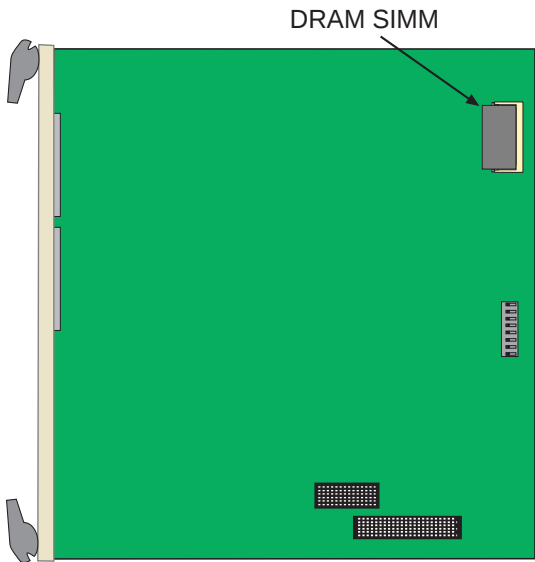


Figure B-2 SIMM Slot Locations

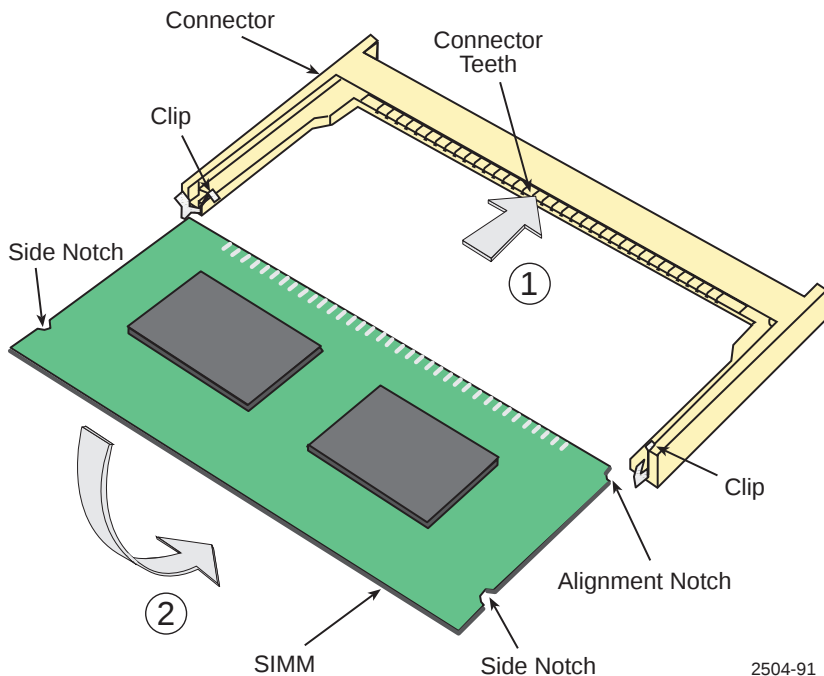
B.2.2 Installing the DRAM SIMM



Observe all antistatic precautions when handling sensitive electronic equipment.

To install a DRAM SIMM, refer to Figure B-3 and proceed as follows:

1. With the SIMM alignment notch oriented as shown in Figure B-3, insert the SIMM down between the connector teeth.
2. Pivot the SIMM downward so the connector clips align with the two side notches of the SIMM and the connector clips lock the SIMM into place.



2504-91

Figure B-3 Installing the DRAM

B.3 INSTALLING OPTIONAL HIGH SPEED INTERFACE MODULES

Figure B-4 shows the location of the two connectors for an optional High HSIM or VHSIM. Depending on if an HSIM or VHSIM is installed, one or both connectors are used.



Refer to the installation instructions for the optional HSIM or VHSIM in the associated user's guide.

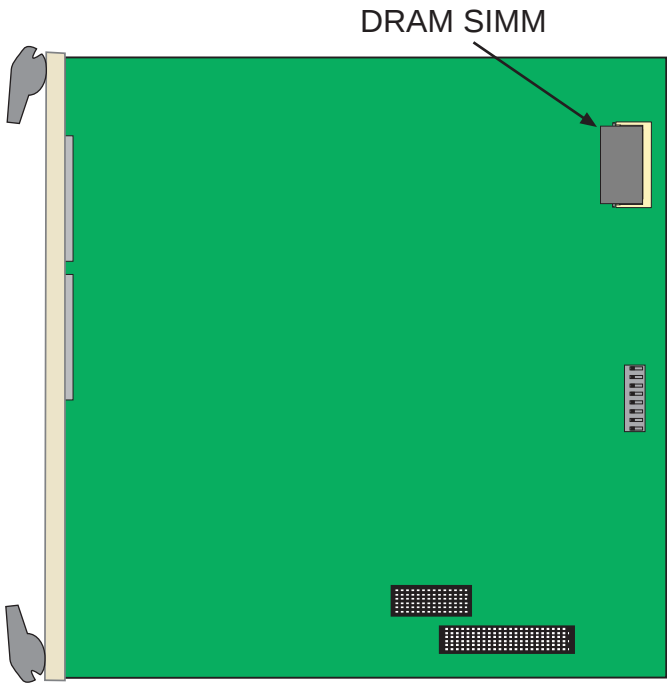


Figure B-4 HSIM and VHSIM Connector Locations

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