Meridian 1

# Application Module and Intelligent Peripheral Equipment Module

## Diagnostic and Maintenance Guide

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# Contents

# About this guide

This guide is designed to assist in identifying, diagnosing, and resolving fault conditions in the Application Module and IPE Module. The intended audience for this guide includes end users, field technicians, and field support engineers.

This guide provides an overview to the Application Module and IPE Module, and to Application Module commands, a section on diagnosing faults, and a list of error and status messages to help diagnose faults. Procedures for software recovery and hardware replacement follow.

The term “Meridian 1” is used throughout this document, and refers to Meridian 1 and “Meridian 1-ready” systems (such as Meridian SL-1 style cabinets that have been upgraded).

## References

The following Northern Telecom (Nortel) publications (NTPs) may be of assistance when using this document:

- *Application Equipment Module Installation Guide* (NTP 553-3203-200)
- *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210)
- *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide* (NTP 553-3211-512)
- *Meridian Link/Customer Controlled Routing Engineering Guide* (NTP 553-3211-520)
- *Customer Controlled Routing User Guide* (P0747008)

# Chapter 1: Overview

## Application Module and IPE Module

The Application Module (AM) is a subunit that fits into an Application Equipment Module (AEM). It is an auxiliary application processor that provides an interface between the AEM and the Meridian 1, and possibly also a host computer, depending on the particular application running. The interface between the Application Module and the Meridian 1 is the Application Module Link (AML). The AML may also be referred to as a Command and Status Link (CSL) in the Meridian 1.

The Intelligent Peripheral Equipment (IPE) Module is a subunit that fits into an IPE shelf or Option 11 cabinet. The IPE Module also uses the AML as the interface to the Meridian 1 system.

Diagnostic tools are provided on both the Meridian 1 and the Application Module or IPE Module sides of the link. Tools on the Meridian 1 are typically the X11 input/output programs (Loads or LDs). Tools on the Application Module or IPE Module include commands and utilities accessed through the system console, or a terminal attached through a modem port or a TTY port (if available).

> ***Note:*** If you configure the optional conshare capability available to the Application Module and IPE Module, you can also access the Meridian 1 from the Application Module or IPE Module system console.

## Customer Controlled Routing

The Customer Controlled Routing (CCR) application provides a scripting interface, through which you can control the handling and treatment for calls that come through the Meridian 1 system.

You can install either the large version of CCR or the small version but not both versions. Small CCR supports twenty active script associations at most; Large CCR supports as many as 240 active associations.

## Meridian Link

The Meridian Link application is a communications facility between a host computer and a Meridian 1 system. Optionally, the Meridian Link application also provides an interface between the Meridian 1 system and Meridian Mail for voice processing.

## Meridian 1 utilities

You can use the X11 input/output programs listed below for configuring and maintaining the Application Module Link (AML). You can also use the programs for configuring telephones, Automatic Call Distribution (ACD), routes, and trunks.

> ***Note:*** For basic application configuration, see the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210). Further information can be found in the *X11 Input/Output Guide* (NTP 553-3001-400).

- LD2: Traffic report control program
- LD10: Single-line telephone administration; it configures 500/2500-type telephones
- LD11: Multiline telephone administration; it configures multiline and digital telephones
- LD14: Trunk administration; it configures trunks
- LD15: Customer data block; it configures customer-wide options
- LD16: Trunk routes; it configures routes

- LD17: Configuration record; it configures the ESDI or MSDL port between the Application Module or IPE Module and the Meridian 1
- LD20: Print program; it displays telephone configurations
- LD21: Print program; it displays the Customer Data Block configuration
- LD22: Print program; it displays the ESDI or MSDL port configuration and the Meridian 1 software packages equipped on the system
- LD23: Automatic Call Distribution (ACD); it configures ACD groups
- LD48: Link Diagnostic; it controls the status of the Application Module Link (AML) from the Meridian 1 and monitors AML messages flowing in and out of the Meridian 1

# Application Module hardware components

The Single Board Computer (SBC) card can be either an MVME147SA-1 or an MVME167-03. For easier reading, this card will be referred to as the MVME147/167 card.

The hardware components listed below (see Figures 1 and 2) are field-replaceable units.

- MVME147SA-1 SBC card
  This is the main CPU card of the Application Module. There are four LEDs and two switches on the faceplate of the SBC card:
  - The red LED (Fail indicator) is lit when the BRDFAIL bit is set or when a watchdog time-out occurs. It is normal for this indicator to flicker while diagnostics are running; when a failure occurs, this indicator is steadily lit.
  - The yellow LED (Status indicator) is lit when the MC68030 STATUS pin is low (when steadily lit, it indicates that the processor has stopped).
  - The green LED (Run indicator) is lit when the microprocessor executes a bus cycle.
  - The green LED (SCON indicator) is lit to indicate that the SBC card is the VME bus system controller.
  - The ABORT switch stops program execution and returns control to the debugger.
  - The RESET switch, when enabled, generates a local reset. If the SBC card is the system controller, this switch also generates a VME bus system reset.

**CAUTION**
**Risk of data loss**
Do not press both the ABORT and RESET buttons at the same time—you risk losing device configuration information.

- MVME167-03 SBC card
  The main CPU card of the Application Module. There are eight LEDs and two switches on the faceplate of the SBC card:
  - The red LED (Fail indicator) is lit when the BRDFAIL bit is set or when a watchdog time-out occurs. It is normal for this indicator to flicker while diagnostics are running; when a failure occurs, this indicator is steadily lit.
  - The yellow LED (Status indicator) is lit when the MC68040 STATUS pin is low (when steadily lit, it indicates that the processor has stopped).
  - The green LED (Run indicator) is lit when the microprocessor executes a bus cycle.
  - The green LED (SCON indicator) is lit to indicate that the SBC card is the VME bus system controller.
  - The green LED (LAN indicator) is lit when the LAN chip is the local bus master.
  - The green LED (+12V indicator) is lit when power is available to the transceiver interface.
  - The green LED (SCSI indicator) is lit when the SCSI chip is the local bus master.
  - The green LED (VME indicator) is lit when the board is using the VME bus, or when the board is accessed by the VME bus.
  - The ABORT switch stops program execution and returns control to the debugger.
  - The RESET switch, when enabled, generates a local reset. This switch also generates a VME bus system reset.
- MVME333-2 X.25 Communication Controller (XCC) card
  This card supports synchronous communications links to a host computer and the Meridian 1. On the faceplate, there is a single red LED (Fail indicator), which lights when a hardware or LAPB/X.25 communication software error occurs.

- MVME332XTS Asynchronous Communication Controller (ACC) card
  This card provides eight RS-232 interface ports for connection of terminals and printers. There are three LEDs on the faceplate of the ACC card:
  - The red LED (Fail indicator) lights when a hardware failure occurs on the ACC card.
  - The red LED (Halt indicator) lights steadily when the on-board processor halts, indicating an ACC card malfunction.
  - The green LED (Run) indicates the activity level of the ACC card by lighting dimly, brightly, or in pulsing mode. A dimly lit LED indicates that the system is idle, meaning that no terminal activities are occurring. A brightly lit or pulsing LED indicates data transfer activities are taking place.

- MVME712A and MVME712AM transition cards

  The MVME712A and MVME712AM cards provide four 9-pin connectors (asynchronous serial ports 1–4) and a printer-port connector. Additionally, the MVME712AM card provides an RJ11 port.

  The MVME712AM card has a built-in modem and is used in countries in which the modem is type-approved. The MVME712A transition card, which does not provide a built-in modem, uses a locally-approved external modem for remote maintenance.

  The built-in modem in the MVME712AM card provides full duplex operation over two-wire Public Switch Telephone Networks (PSTNs). It operates in asynchronous mode at data rates of 300, 600, 1200, or 2400 bps.

  This transition card also provides an Ethernet connection.

- MVME712M transition card
  This card supports RS-232 ports and Ethernet and SCSI interfaces for the SBC card.

- MVME705B transition card
  This card supports two synchronous I/O ports for the MVME333-2 XCC card. SP1 connects the Application Module Link (AML) to the Meridian 1.
- NT6D51AA transition card
  This card supports eight serial I/O ports for the MVME332XTS ACC card. SP1 connects to ports 1, 2, and 3; SP2 connects to ports 4, 5, and 6; and SP3 connects to ports 7 and 8.
- Power supply
  This is located at the front left-side of the Application Module.
- Disk/tape unit
  This is located at the front right-side of the Application Module. This unit contains a hard disk drive and a cassette tape drive.

The entire Application Module is also field-replaceable. If, in diagnosing the problem, replacing the above components does not help, contact your Nortel support personnel.

**Figure 1**
**Application Module in the AEM—front view**

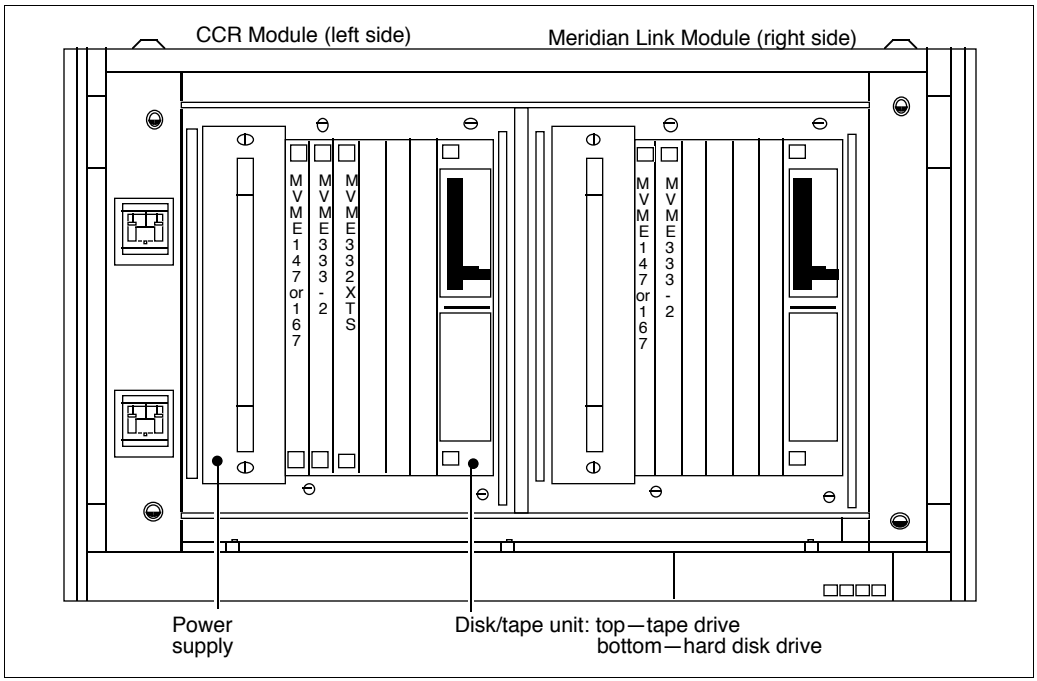
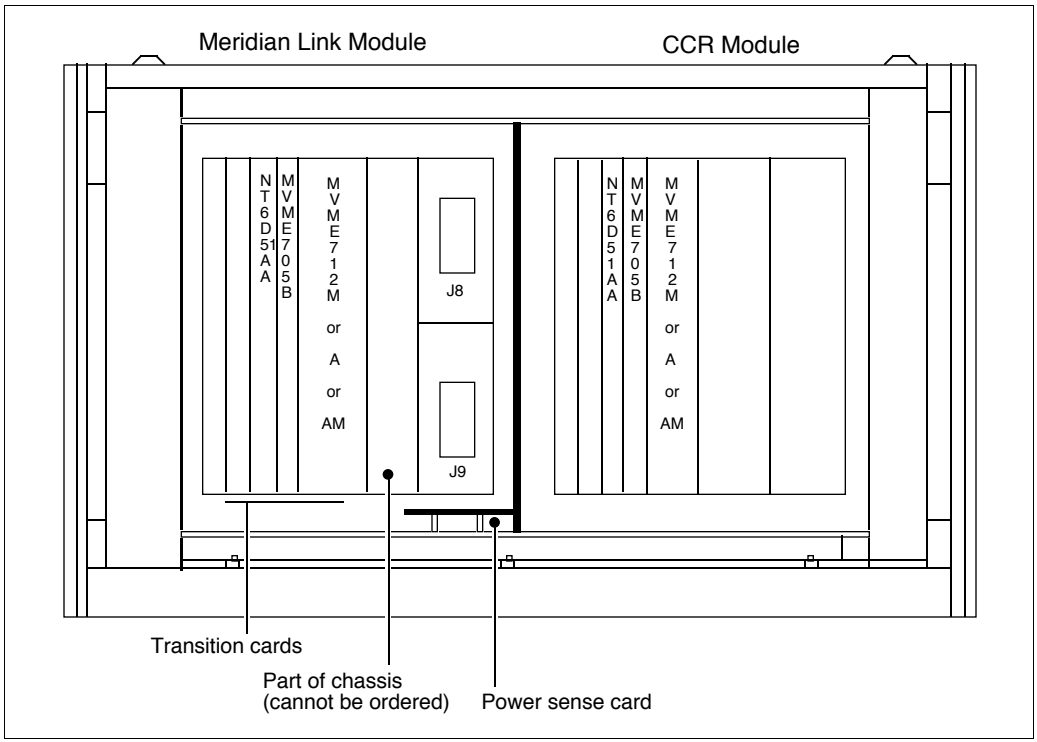


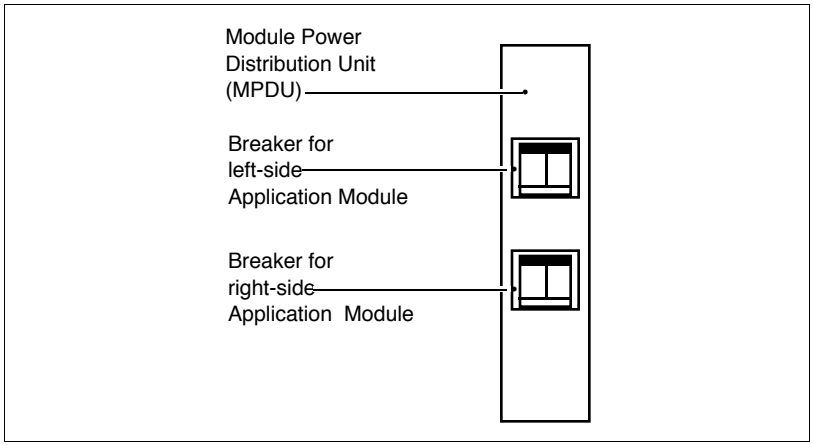
**Figure 2**
**Application Module in the AEM—rear view**




**CAUTION**
**Risk of system damage**
If you want to remove a card, you must perform the required software and hardware power-down processes. Hardware can be damaged if a component is reseated on the VME bus (Versa Module Eurocard bus) while the power is on. The operating system can be corrupted if the power switch is turned off before the application performs a normal shutdown.

The module power distribution unit (MPDU) in each AEM provides a circuit breaker for each Application Module in the AEM so you can power down components in one module without affecting the other (see Figure 3).

**Figure 3**
**MPDU circuit breaker associations**



# IPE Module hardware components

The IPE Module contains an SMM167 single board computer (SBC) card, a 240-Mbyte disk drive, a 600-Mbyte tape drive, and an IPE adapter card. Only the IPE Module is field-replaceable.

## SMM167

This card, one of the Motorola MVME167 family, consists of the following:

- MC68040 microprocessor operating at 25 MHz
- 8 Mbytes of dynamic random access memory (DRAM)
- MC68882 floating point coprocessor
- shared dynamic random access memory (DRAM) with parity
- time-of-day clock and calendar with battery backup
- 128 kbyte of static random access memory (SRAM)

The SBC card provides the following interfaces:

- Small Computer Systems Interface (SCSI) bus interface with direct memory access (DMA) channel to control the disk/tape unit
- eight serial I/O ports with EIA-232-D buffers
- Ethernet transceiver interface

## IPE Module faceplate

The IPE Module faceplate contains a Small Computer System Interface (SCSI) connector, four light-emitting diodes (LEDs), and three switches.

The SCSI connector must contain an SCSI terminator.

The LEDs show the following conditions:

- PWR indicator: This green LED is lit when the power is turned on.
- Run indicator: This yellow LED is lit almost continuously when an application is running, but flickers every few seconds.

- SCSI indicator: This yellow LED is lit almost continuously when in use. The intensity varies according to the amount of data movement.
- Fail indicator: This red LED is lit when a hardware or software failure occurs on the SBC card.

The switches perform the following functions:

- Power pushbutton: This turns power on and off on the IPE Module.
- ABORT button: This button, when pressed, stops program execution and returns control to the debugger. *Do not press this button*. If you accidentally press it, all software operations will stop and you will be in the firmware debugger. In this case, press the red RESET button immediately to reboot the system. Software diagnostics during system boot will attempt to repair possible file system damage caused by the non-standard shutdown.
- RESET button: This button invokes a cold restart. The system performs a self test and then reboots. *Do not press* the button while an application is running. Exit the application and prepare the system for powering down before pressing the RESET button. If the SBC card is the system controller, this button also generates a VME bus system reset. The software power down procedure is provided in Chapter 8, "Recovery/replacement procedures."

**CAUTION**
**Risk of memory loss**
Do not press both the ABORT and RESET buttons at the same time—you risk losing device configuration information.

## Tape drive

The tape drive is a 600-Mbyte cassette tape drive. The tape drive cannot be replaced in the field.

The following tapes are supplied with the IPE Module:

- a 155-Mbyte tape that provides the operating system for the IPE Module
- a 155-Mbyte tape that provides the application software

## Disk drive

The disk drive is a 240-Mbyte drive. The disk drive cannot be replaced in the field.

## I/O connectors

The I/O connectors for the IPE Module installed in an Option 11 system are standard, shielded, 50-pin tip-ring-type connector ports on the connector panel, which is located under the cabinet containing the module. The I/O connectors for an IPE Module installed in an Options 21–81 system are also standard, shielded 50-pin connector ports, which are located on the two I/O panels.

# Application Module and IPE Module utilities

You access applications software by logging in as one of the following:

**ccrusr**
Use this login to perform CCR functions, such as profile and script management.

**maint**
Use this login to perform generic functions (such as start/stop applications, tape backup/restore, password administration), and to prepare the system for a power down or reset.

**mlusr**
Use this login to perform link-specific functions for the AML. Such functions include link configuration, control, trace, and statistics.

**trmcnfg**
Use this login to set up a personal computer that is running Reflection 4+ software.

## Logging in

When presented with the login prompt ("Console Login:") at the system console, enter the appropriate user type (maint, for example) followed by the password for that user type (the default password is the same as the user name).

For example, to log in as maint, enter the following responses. Press [Return] to indicate your entry.

```
Console Login: maint
Password: maint
maint>
```

The prompt you see indicates the user type you used to log in; for example, logging in as maint produces a "maint>" prompt.

To log out, type **exit** or **quit** and press [Return]. For example:

```
maint> exit
Console Login:
```

## The ccrusr function

You can reach the ccrusr function from within maint using the ccrusr command, or by logging in as ccrusr at the "Console login:" prompt. The function allows you to do the following (depending on your access privilege):

- maintain user profiles and define access privileges
- create, edit, and view scripts
- create and display CDNs associated with a script
- create and display names or terms representing values

## The maint function

The system administrator uses the maint user ID for the following:

- system shutdown in preparation for power down or reset
- tape backup/restore facilities
- system operations/administration (log file and password management)
- general maintenance (disk usage)

When you log in as maint, you see the "maint>" prompt. To terminate the session and return to the "Console Login:" prompt, type **exit** or **quit**, and press [Return]. Type **help** and press [Return] to see a list of Application Module commands available to a maintenance user.

## The mlusr function

You can reach the mlusr function from within maint using the mlusr or admin command, or by logging in as mlusr at the "Console Login:" prompt. The function provides a suite of administrative facilities specific to the Application Module Link (AML) software running on the Application Module or IPE Module. You can use this function to display, change, and configure link 0 (the AML), and also link 1 (the Host Link) and link 2 (Meridian Mail Link), if present. The commands related to management of link include the following:

**Table 1**
**AML administration commands**

| Commands | Description |
|---|---|
| display linkctl | display the link control image |
| read link | read a link configuration file |
| save link | save a link configuration image to a named file |
| display link | display link configuration |
| change link | alter a link configuration |
| enable link | enable a link |
| disable link | disable a link |
| status link | print the current status of link |
| statistics link | print statistics for a specific link |

The mlusr function offers help facilities to assist you. To use the help facility, type **help** (or **help+*command*** when you need help on a particular command) and press [Return].

### The trmcnfg function

You use the trmcnfg function to download configuration information from a PC using Reflection 4+ software to the Application Module or IPE Module. For more information, refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

## Advanced maintenance

Technical users may require access to advanced diagnostic capabilities from time to time. These tools are described in the *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide* (NTP 553-3211-512).

# Chapter 2: Application Module commands

To use the Application Module commands in this chapter, you must be logged in as a maintenance user (maint). The commands may be entered at the Application Module or IPE Module console or at a terminal attached through a modem port or a teletype (TTY) port (if available).

This chapter describes all Application Module commands that apply to both CCR and Meridian Link. The responses that are shown in this chapter may differ slightly from those that appear on your console (depending on the release and level of release you are running).

> ***Note:*** All input at the system console must be in lowercase (or mixed case, if necessary) letters. User input is indicated in bold type.

You can see a list of all available commands by typing **help** or **?** and pressing [Return]. Table 2 lists all Application Module commands.

**Table 2**
**Application Module commands**

| Command | Description |
|---|---|
| admin | enters link-related user session |
| applconfig | displays and modifies application configuration (customer number) (CCR only) |
| applexit | exits the CCR application |
| applstart | starts the CCR application |
| backconfig | displays and modifies schedule for unattended backup |
| backdata | backs up user data to tape |
| backfiles | backs up selected files to tape |
| bootconfig | displays and modifies boot configuration for automatic starting of applications (CCR only) |
| ccrexit | stops the CCR application (CCR only) |
| ccrmidnight | runs midnight routines (CCR only) |
| ccrstart | starts the CCR application (CCR only) |
| ccrtraffic | maintains script statistics (CCR only) |
| ccrusr | enters CCR user session (CCR only) |
| chgpasswd | changes user passwords |
| conshare | starts Meridian 1 console session |
| diskuse | displays disk usage statistics |
| editvoice | starts voice prompt editing session (Meridian Link only) |
| exit | logs out (same as quit) |
| filedelete | selects and deletes files |
| fileverif | verifies application files present and the correct size |
| help | lists available commands |
| **— continued —** | |

**Table 2**
**Application Module commands (continued)**

| Command | Description |
|---|---|
| install | loads the software tape onto the hard disk |
| lanconfig | allows for changing the system's ethernet configuration |
| langconfig | configures language options for CCR (CCR only) |
| mlexit | performs no useful function (Meridian Link only) |
| mlstart | performs no useful function (Meridian Link only) |
| mlusr | enters a link-related user session |
| portconfig | configures terminal and printer ports (CCR only) |
| powerdown | shuts down the system |
| printconfig | configures printers (CCR only) |
| quit | logs out (same as exit) |
| resetmodem | resets the modem on the Application Module |
| restart | stops and starts all link processes |
| rootpasswd | changes the root password |
| rstdata | restores user data from tape |
| rstfiles | restores selected files from tape |
| scriptinfo | displays a summary of script information (CCR only) |
| showid | displays Meridian 1 information and authorized software |
| startNSE | adds Ethernet support |
| stopNSE | disconnects Ethernet support |
| tapeinfo | displays tape information (CCR only) |
| version | displays software version |
| view | selects and displays logs and diagnostic files |
| viewlog | views SysLog file |
| **— end —** | |

## admin—enter a link-related session

This command allows you to enter a link maintenance session, in which you may use the commands described in Chapter 3, "Link maintenance commands." You can also use the mlusr command to enter a link maintenance session.

**Example:**

maint> **admin**

Application registration successful : id = 1

maint>

## applconfig—display/modify application configuration

This command applies to CCR only.

The applconfig command displays the Meridian 1 customer number and allows you to change that number.

**Example:**

maint> **applconfig**

Enter a new value to change the following application parameter:

Enter Customer Number value as: 0-99
Enter a return for no change
Change 'MSL-1 Customer Number' from '1' to: **0**

Do you want to commit this new value? [y,n] **y**

maint>

## applexit—exit software applications

This command applies to CCR only.

This command stops all software applications. The command leaves the operating system up and running. The applications should be shut down properly to preserve file integrity and save configurations.

**Example**

maint> **applexit**

05/14/92 20:34:26 Notifying CCR Application of Shutdown

05/14/92 20:34:32 Stopping CCR application

Releasing Communication Resources...

maint>

## applstart—start software applications

This command applies to CCR only.

The applstart command starts all software applications loaded on the Application Module hard disk. It does not restart links. To restart all applications and links, use the restart command. To start only the CCR application, use the ccrstart command.

**Example**

maint> **applstart**

10/13/93 09:24:18 Starting CCR Application...
Starting Customer Controlled Routing Processes...

maint>

## backconfig—schedule unattended backup

You can schedule a backup for any future time. This is useful for performing routine backups during off-hours. You can also indicate that you wish the backup to reoccur (backup will be repeated every night or once a week, as you specify). If a failure occurs during backup, details will only be included in normal output messages.

**ATTENTION**

Ensure that the tape you leave in the tape drive is a backup tape, and not a system tape with software on it. Ensure that the backup tape is *not* write-protected.

**ATTENTION**

Ensure you have the correct backup tape; the IPE Module uses a 600-Mbyte tape and the Application Module uses a 155-Mbyte tape.

When you insert a tape cassette into the tape drive, ensure that the arrow on the cassette label points into the drive (Figures 4 and 5) and the notch of the cassette points down (Figure 5).

**Figure 4**
**Cassette tape with write protection disabled**

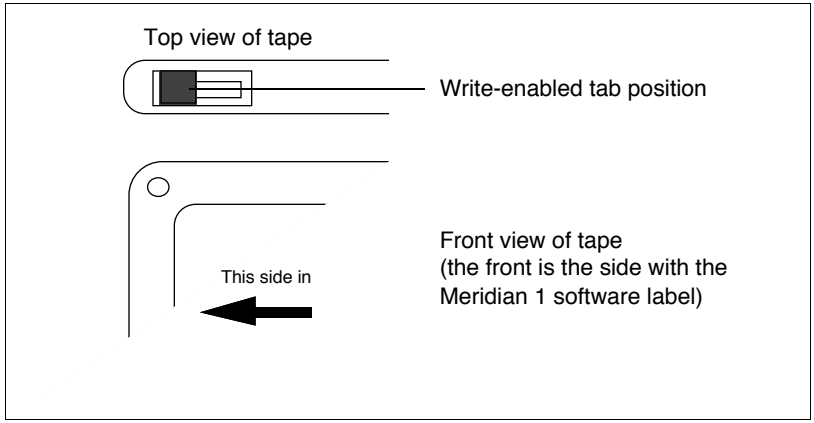
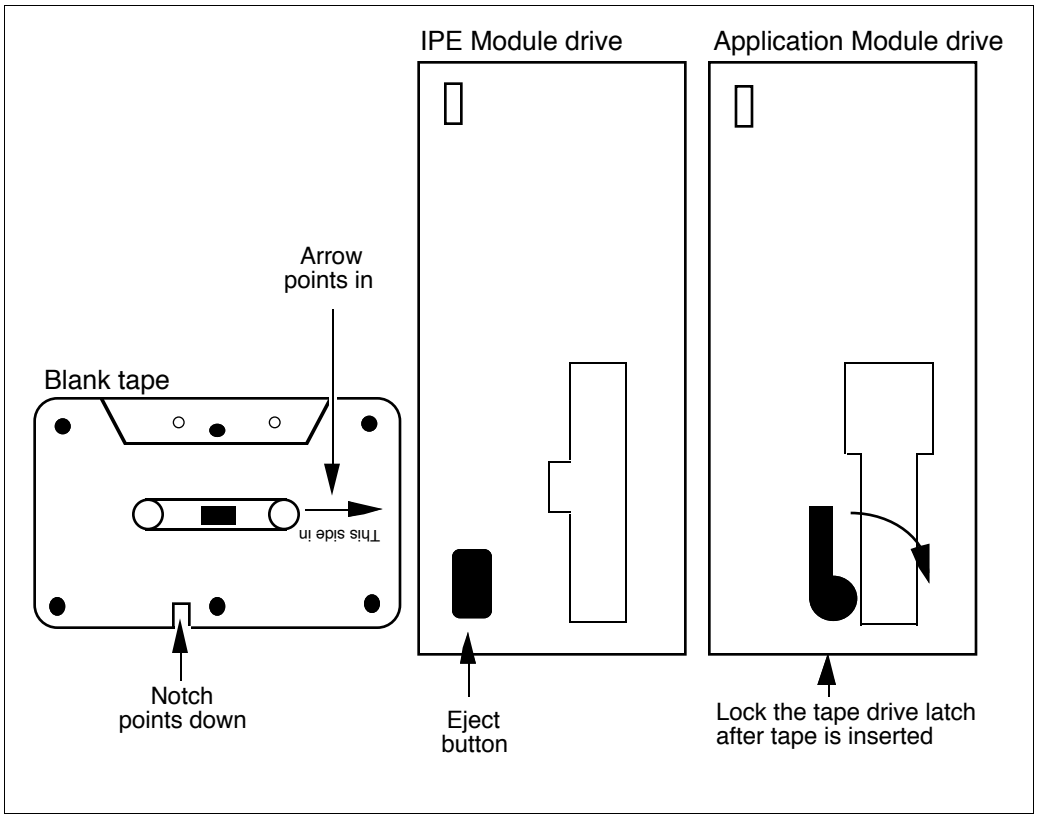


**Figure 5**
**Inserting tape into tape drive**




***Note:*** Ensure you use the correct backup tape. An IPE Module uses a 600-Mbyte tape. An Application Module uses a 155-Mbyte tape.

***Note:*** In the following examples, <cr> indicates where you press [Return]. Also, use uppercase characters when typing the day (SUN, MON, and so on).

**Example 1: Scheduling a new backup**

maint> **backconfig**
A backup has not been scheduled.

Do you want to schedule a backup [y,n]: **y**

Enter time in 24-hour form: 00:00—23:59
Enter return for no change
Change scheduling time from '02:00' to: **<cr>**
No change to scheduling time.

Enter day in the form: SUN=Sunday, MON=Monday, ..., ALL=all
Enter a return for no change
Change scheduling day from 'SUN' to: **<cr>**
No change to scheduling day.

Should tape backup be reoccurring? [y,n]: **n**

ATTENTION: Make sure a tape is in the drive prior to
scheduled backup time

maint>

**Example 2: Modifying an existing backup schedule**

maint> **backconfig**

Backup is scheduled for 02:05 on ALL
Backup will reoccur at same time and date

Do you want to modify backup schedule? [y,n] **y**

Do you want to unschedule backup? [y,n] **n**

Enter time in 24-hour form: 00:00-23:59
Enter a return for no change
Change scheduling time from '02:05' to: **04:00**

Enter day in the form: SUN=Sunday, MON=Monday, ..., ALL=all
Enter a return for no change
Change scheduling day from 'ALL' to: **<cr>**
No change to scheduling day.

Should tape backup be reoccurring? [y,n] **y**

ATTENTION: Make sure tape is in drive prior to scheduled backup time

maint>

**Example 3: No modification to scheduled backup**

maint> **backconfig**

Backup is scheduled for 04:00 on ALL
Backup will reoccur at same time and date

Do you want to modify backup schedule? [y,n] **n**

maint>

## backdata—back up data files

You can back up configuration files and data files to cassette tapes. All data files can be loaded onto one data cassette tape. When inserting the tape into the tape drive, check to make sure that the arrow printed on the face of the cartridge is positioned toward the right side of the drive (as shown in Figure 6) and the notch points down (as shown in Figure 7).

**ATTENTION**

Ensure that the tape you leave in the tape drive is a backup tape, and not a system tape with software on it. Ensure that the backup tape is *not* write-protected.

**ATTENTION**

Ensure you have the correct backup tape; the IPE Module uses a 600-Mbyte tape and the Application Module uses a 155-Mbyte tape.

**Figure 6**
**Cassette tape with write protection disabled**

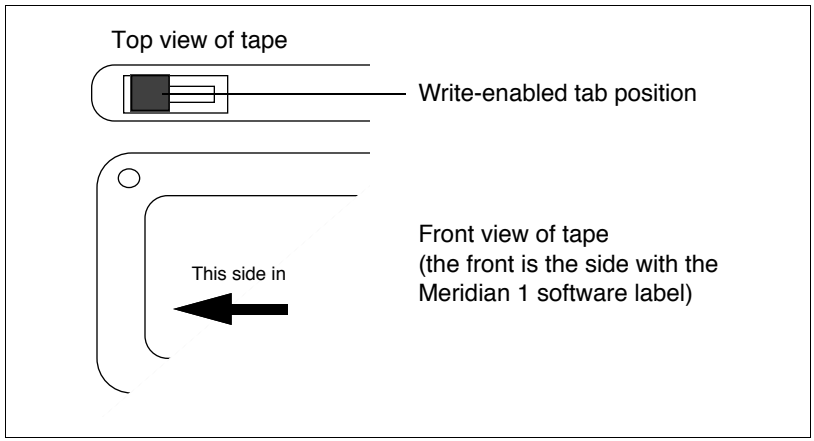
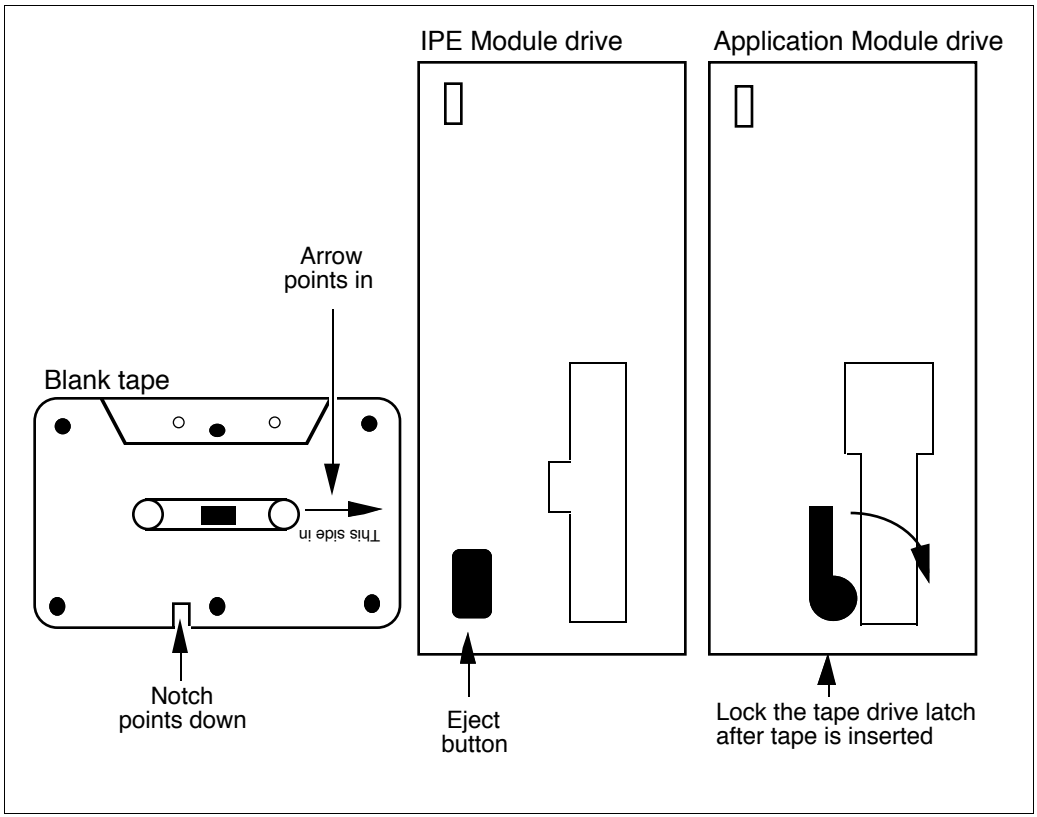


**Figure 7**
**Inserting tape into tape drive**




***Note:*** Ensure you use the correct backup tape. An IPE Module uses a 600-Mbyte tape. An Application Module uses a 155-Mbyte tape.

**Example:**

maint> **backdata**
Files will be backed-up from:

/usr/maint/files/AMprofile
/usr/maint/files/AutoStart
/usr/maint/files/IncrDY
/usr/maint/files/IncrTM
/usr/maint/files/Port
/usr/maint/files/Prefs
/usr/maint/files/Speed
/usr/mlusr/conf/hdlchlnk.dataf
/usr/mlusr/conf/hdlcmlnk.dataf
/usr/mlusr/conf/lh.config
/usr/mlusr/conf/loop13DCE.d
/usr/mlusr/conf/loop13DTE.d
/usr/mlusr/conf/loop31DCE.d
/usr/mlusr/conf/loop31DTE.d
/usr/mlusr/conf/tscfg.datafile
/usr/mlusr/conf/vlink.datafile
/usr/mlusr/conf/x25bcf333.2
/usr/mlusr/conf/x25hlink.datafi
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.
.

(actual list of directories may differ depending on the application)

Make sure tape is in drive
When ready, enter 'Y' to continue, or 'n' to quit: [y,n] **y**

**— continued —**

**Example (continued):**

```
Starting backup
c    4k   of   6k     [1]     usr/maint/files/AMprofile
c    4k   of   10k    [1]     /usr/maint/files/AutoStart
c    4k   of   14k    [1]     /usr/maint/files/IncrDY
c    4k   of   18k    [1]     /usr/maint/files/IncrTM
c    4k   of   22k    [1]     /usr/maint/files/Port
c    4k   of   26k    [1]     /usr/maint/files/Prefs
c    4k   of   30k    [1]     /usr/maint/files/Speed
c    4k   of   34k    [1]     /usr/mlusr/conf/hdlchlnk.dataf
c    4k   of   38k    [1]     /usr/mlusr/conf/hdlcmlnk.dataf
c    4k   of   42k    [1]     /usr/mlusr/conf/lh.config
c    4k   of   46k    [1]     /usr/mlusr/conf/loop13DCE.d
c    4k   of   50k    [1]     /usr/mlusr/conf/loop13DTE.d
c    4k   of   54k    [1]     /usr/mlusr/conf/loop31DCE.d
c    4k   of   58k    [1]     /usr/mlusr/conf/loop31DTE.d
c    4k   of   62k    [1]     /usr/mlusr/conf/tscfg.datafile
c    4k   of   66k    [1]     /usr/mlusr/conf/vlink.datafile
c    4k   of   72k    [1]     /usr/mlusr/conf/x25bcf333.2
c    4k   of   76k    [1]     /usr/mlusr/conf/x25hlink.datafi
.
.
.
Backup successful

maint>
```

## backfiles—back up selected data files

You can back up selected configuration and data files to cassette tapes. The selected files can be loaded onto one data cassette tape. When inserting the tape into the tape drive, check to make sure that the arrow printed on the face of the cartridge is positioned toward the right side of the drive (as shown in Figure 8) and the notch points down (as shown in Figure 9).

**ATTENTION**

Ensure that the tape you leave in the tape drive is a backup tape, and not a system tape with software on it. Ensure that the backup tape is *not* write-protected.

**ATTENTION**

Ensure you have the correct backup tape; the IPE Module uses a 600-Mbyte tape and the Application Module uses a 155-Mbyte tape.

**Figure 8**
**Cassette tape with write protection disabled**

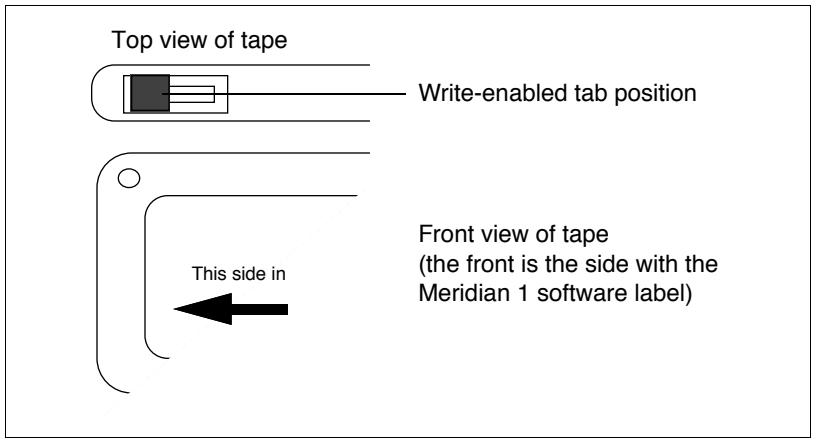
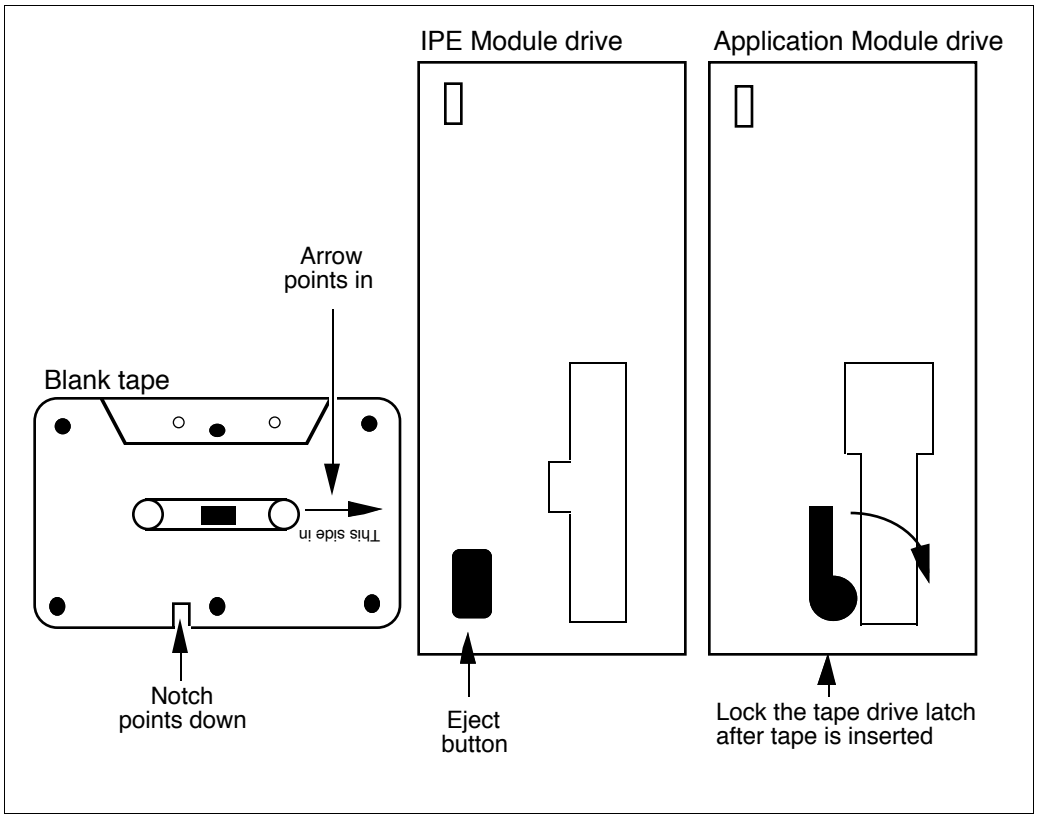


**Figure 9**
**Inserting tape into tape drive**




***Note:*** Ensure you use the correct backup tape. An IPE Module uses a 600-Mbyte tape. An Application Module uses a 155-Mbyte tape.

**Example:**

maint> **backfiles**

(The screen clears and a list of files appears.)

1. /usr/maint/files/AMprofile
2. /usr/maint/files/AutoStart
3. /usr/maint/files/IncrDY
4. /usr/maint/files/IncrTM
5. /usr/maint/files/Port
6. /usr/maint/files/Prefs
7. /usr/maint/files/Speed
8. /usr/maint/logs/SysLog
9. /usr/maint/logs/SysLog.old
10. /usr/mlusr/conf/hdlchlnk.dataf
11. /usr/mlusr/conf/hdlcmlnk.dataf
12. /usr/mlusr/conf/lh.config
13. /usr/mlusr/conf/loop13DCE.d
14. /usr/mlusr/conf/loop13DTE.d
15. /usr/mlusr/conf/loop31DCE.d
16. /usr/mlusr/conf/loop31DTE.d
17. /usr/mlusr/conf/passthru.dat
18. /usr/mlusr/conf/tscfg.datafile
19. /usr/mlusr/conf/vlink.datafile
20. /usr/mlusr/conf/x25bcf333.2
21. /usr/mlusr/conf/x25hlink.datafi

Make a selection/deselection by entering the desired value: **1**

Type the number corresponding to a file that you wish to back up (in this example, item 1) and press [Return]. An asterisk (*) appears beside the entry. You may continue selecting files by typing numbers and pressing [Return]. When you have selected all the files you wish to back up, press [Return] again. Your screen then lists the files to be backed up.

Assuming that you have selected item 1 only, the following appears:

Files to be backed up:
/usr/maint/files/AMprofile
Make sure tape is in the drive.
When ready, enter ‘y' to continue, or 'n' to quit: [y,n] **n**
##### No action taken.
maint>

## bootconfig—display and modify boot configuration

This command applies to CCR only.

You can configure the application for automatic reboot when the system boots. By default, the software application starts automatically whenever the Application Module or IPE Module restarts.

**Example: enabling auto-start**

maint> **bootconfig**

Application is not configured to start when the system boots

Do you want to enable starting application? [y,n] **y**

Auto start enabled

maint>

**Example: disabling auto-start**

maint> **bootconfig**

Application is configured to start when the system boots

Do you want to disable starting the application? [y,n] **y**

Auto start disabled

maint>

## ccrexit—shut down the CCR application

This command applies to CCR only.

This command allows you to shut down the CCR application while leaving other Application Module or IPE Module processes running.

**Example:**

maint> **ccrexit**

05/14/92 20:34:26 Notifying CCR Application of Shutdown

05/14/92 20:34:32 Stopping CCR application

Releasing Communication Resources...

maint>

## ccrmidnight—run midnight routines on system

This command applies to CCR only.

The ccrmidnight routines run every night to check that the system memory matches the disk and to put any errors or related information in the CCR log files. You can run these routines at any time by issuing the ccrmidnight command.

If the CCR application is running, the following message appears when executing the ccrmidnight command:

**Example:**

```
maint> ccrmidnight

The midnight routine has been executed.

maint>
```

If the CCR application is **not** running, the following message appears when executing the ccrmidnight command:

**Example:**

```
maint> ccrmidnight

The midnight routine is not executed
because the CCR application is not running.

maint>
```

## ccrstart—start up the CCR application

This command applies to CCR only.

This command allows you to start up the CCR application. It is not usually necessary to use a ccrstart command explicitly, because an applstart command will start all applications on an Application Module.

**Example:**

maint> **ccrstart**

10/13/93 09:37:13 Starting CCR Application...
Starting Customer Controlled Routing Processes...

maint>

## ccrtraffic—maintain script statistics

This command applies to CCR only.

This command allows the maintenance person to monitor the script statistics for the CCR application.

**Example:**

maint> **ccrtraffic**

CCR Traffic and Statistics Reporting Utility

1. Configure Traffic Report Options
2. Enable Traffic Reporting
3. Disable Traffic Reporting
4. View Report History
5. View Traffic Report Configuration

Enter the number of the function you want to perform

(Hit the <RETURN> key to EXIT)

### Configuring a traffic report

Configure a traffic report by selecting option 1 from the CCR Traffic and Statistics Reporting Utility menu to display a list of traffic report configuration options.

**Example:**

```
Configure Traffic Report Options

1. Include/Exclude Script Statistics
2. Change Interval Between Reports
3. Change Period of Record Keeping

Enter the function that you wish to perform.

(Hit the <RETURN> to EXIT)
```

When you select an option, its current value appears, and you are prompted for a new value. The options available are as follows:

- *Include/Exclude Script Statistics* includes or excludes information about the calls that have used a script and how those calls were handled by the script.
- *Change Interval Between Reports* sets the time interval (in minutes) between reports. The time interval may range from 0 to 1440 minutes (60 minutes is the default), although intervals of less than five minutes are not recommended.
- *Change Period of Record Keeping* sets the length of time (in days) that reports will be kept (maximum of 14 days). A zero setting indicates that no historical reports are kept.

Any changes that you configure take effect the next time you enable traffic or the next time the traffic reporting process is restarted for some reason (for example, because of a system reboot).

### Enabling/disabling traffic

Turn traffic reports on and off through maintenance by selecting option 2 (enable) or option 3 (disable) from the CCR Traffic and Statistics Reporting Utility menu. Enabling the reports starts the traffic recorders. Disabling the reports halts all traffic reporting activity.

### View traffic history

Traffic reports are saved in CCR log files. Once a log file reaches a certain size, it is closed and a new file is opened.

Log file names use the MMM_DD_YY.XXX format, where

- MMM_DD_YY = creation date
- XXX = a number incremented by 1 each time a new file is created

View the list of traffic reports saved by the system by selecting option 4 from the CCR Traffic and Statistics Reporting Utility menu. The View Traffic Log Utility menu is displayed and you can select the order in which you want the reports to appear.

**Example:**

```
View Traffic Log Utility

1:  View CCR Traffic Log files.
2:  View CCR Traffic Log files in reverse.

Enter the number of the function you want to perform.

(Hit the <RETURN> key to EXIT)  1

    7.  Feb_03_94.0007

View Traffic Log Utility

1:View CCR Traffic Log files.
2:View CCR Traffic Log files in reverse.
```

**— continued —**

**Example (continued):**

```
Enter the number of the function you want to perform.
(Hit the <RETURN> key to EXIT)  2

7.  Feb_03_94.0007
1.  Feb_02_94.0001
2.  Feb_02_94.0002

02/02/94 16:04:23 Feb_02_94.0002 created.
02/02/94 16:00:35 Traffic Logger shut down per OA&M request
02/02/94 15:57:18 Feb_02_94.0001 created.
```

Type the number corresponding to the file you wish to display and press [Return]. An asterisk (*) appears beside the entry. If you continue to select files, they will be displayed as a continuous file, one file with the next appended to it, and so on.

When you have selected all the files you wish to display at one time, press [Return] again. Your screen then displays the contents of the files you selected.

See the view log command for more information on viewing a log file.

### View traffic report configuration

View the current configuration values and the user-modified configuration values by selecting option 5 from the CCR Traffic and Statistics Reporting Utility menu. If there have been no modifications, or if an enable has been initiated, the values for the current and new configuration will be equal.

**Example:**

View Traffic Report Configuration

| | Current | New |
|---|---|---|
| Script Statistics | Excluded | Excluded |
| Reporting Interval | 60 minute(s) | 30 minute(s) |
| Reporting Period | 14 day(s) | 7 day(s) |
| Reporting State | Enabled | Disabled |

(Hit the <RETURN> key to EXIT)

The Current values are those that are currently being used by the reporting facility. The New values are those that a maintenance user has edited but not yet enabled. Unless the user enables the changes, they will be lost upon exit. The user will be reminded of this when exiting and will be given a chance to enable or exit.

***Note:*** To obtain script statistics, you must enable traffic reporting and include script statistics.

### Script statistics output

If script statistics have been included in the traffic report configuration, the script statistics report will be saved in a CCR log file.

The script statistics report provides information on the number of incoming calls controlled by a script, and how those calls were handled by the script. The breakdown of the types of call treatments include the following statistics:

- QUEUE TO—number of times a QUEUE TO command was executed
- ROUTE TO—number of times a ROUTE TO command was executed
- RAN—number of times a RAN treatment was given
- MUSIC—number of times a MUSIC treatment was given
- IVR—number of times an IVR treatment was given

- BUSY—number of times a FORCE BUSY command was executed
- DISCONNECT—number of times a FORCE DISCONNECT statement was executed
- QUIT—number of times that the script execution was completed
- ANSWERED—number of calls answered for the script
- ABANDONED—number of calls abandoned for the script; also represents transferred calls
- SILENCE—number of times a SILENCE treatment was given
- RINGBACK—number of times a RINGBACK treatment was given

**Example:**

10/12/91 10:20:45 Script Statistics

| Script Name | Number of Calls | Treatment | Number Received |
|---|---|---|---|
| SCRIPT_X | 500 | IVR | 50 |
| | | RAN | 300 |
| | | MUSIC | 400 |
| | | ROUTE | 500 |
| SCRIPT_Y | 1000 | RAN | 300 |
| | | ANSWER | 700 |
| | | DISCONNECT | 300 |

maint>

## ccrusr—enter a CCR user session

This command applies to CCR only.

This command enables you to enter into a CCR user session in order to manage your scripts, variables, associations, and profiles of CCR users. CCR user sessions are described in more detail in the *CCR User Guide* (P0747008).

**Example:**

maint> **ccrusr**

Customer Controlled Routing
Copyright 1991, 1993 Northern Telecom

Programmation d'acheminement par le client
Copyright Northern Telecom 1991, 1993

Enter User ID
Entrer code d'utilisateur
--->

## chgpasswd—change user passwords

You can change the factory configured passwords for maint and application users (such as mlusr and ccrusr), and for security reasons it is recommended that you do so. Only the first eight characters of a password are checked.

**Example:**

maint> **chgpasswd**

These login IDs may be changed:

maint
mlusr
ccrusr

Enter user's login ID [?, q]: **maint**
New password: **xxxxx** *
Re-enter new password: **xxxxx** *
Do you want to change the password on another login? [y, n, q] **n**

maint>

* The password does not appear as you type it in.

## conshare—Meridian 1 console session

Use the conshare command to pass through to the Meridian 1 interface and conduct a maintenance session from your maint login session.

The Application Module or IPE Module is optionally cabled to a Meridian 1 SDI port. Initially, you will be prompted to confirm whether the SDI port is correctly configured. The SDI port must be configured as TTY (DTE) and at 2400 baud rate.

Next, you will be prompted to specify the Application Module or IPE Module port that is cabled to the SDI port. The default for the Application Module is /dev/tty02, which represents the third port on the MVME712 transition card (connector J8 on the back of the I/O subpanel, SDI LINK on the universal I/O panel, or card 1 conn 3 on the generic I/O panel). The default for the IPE Module is /dev/tty03, which represents port 3 of the IPE Module.

> ***Note:*** Meridian 1 accepts messages sent in uppercase only; the Application Module or IPE Module accepts messages sent in mixed case. Therefore, you must set CAPS LOCK before starting a session. Be sure to unset CAPS LOCK when returning to the Application Module or IPE Module, or your output will appear distorted.

Type **<control>\C** to get back when the session is finished. To display a list of help options, type **<control>?**.

> ***Note:*** In the following example, **<cr>** indicates where you press [Return].

**Example:**

maint> **conshare**
Is the SDI port configured correctly? Use help for more information.
When ready, enter 'y' to continue, or 'n' to quit: [y,n] **y**

Enter port in the form /dev/tty0n: where n=1, 2, or 3
Enter a return for no change
Change maintenance port from '/dev/tty02' to: **<cr>**
No change to maintenance port.

Enter baud rate as either 300, 1200, or 2400
Enter a return for no change
Change baud rate from '2400' to: **<cr>**
No change to baud rate.

Set CAPS-LOCK, unset CAPS-LOCK when session is finished

If difficulty is experienced while making connection exit with CTRL c

Connecting thru /dev/tty02, speed 2400.
The escape character is CTRL-\ (28).
Type the escape character followed by C to get back,
or followed by ? to see other options.

OVL111 000 IDLE

TTY 03 SCH MTC 19:02
logi
OVL111 000 IDLE

TTY 03 SCH MTC 19:02
..LOGI
PASS? (see note)
**xxxx**
TTY #03 LOGGED IN 19:03 17/9/1993

>**LD xx**
•
•
********
>**LOGI**
**<Ctrl>\C**

maint>

***Note:*** The password does not appear as you type it in.

## diskuse—display disk usage statistics

The hard disk is formatted into system volumes, each with its special purpose. The diskuse command displays the amount of space used in each volume and is useful for diagnosing certain problems.

**Example:**

maint> **diskuse**

FILE SYSTEM USAGE AS OF 05/24/92 20:43:16

| File System | Free Blocks | Total Blocks | Percent Full |
|---|---|---|---|
| / | 15274 | 40000 | 61% |
| /usr | 86012 | 148484 | 42% |

maint>

The Percent Full statistic shows the percentage of allocated space currently being used for each volume. No volume should show more than 95%.

If a volume fills to 95% or more, use the filedelete command to remove unnecessary files, then verify the amount of space available using the diskuse command.

## editvoice—create/edit voice prompts

This command applies to Meridian Link only.

This command invokes the voice prompt editor used to create or edit voice prompts on Meridian Mail.

**Example:**

maint> **editvoice**

ACCESS Voice Prompt Editor - VPE Ver @(#) vpe_main.c 3.1.4.1 12/22/
Copyright (C) Northern Telecom Limited, 1992.
File "VPE.PRO" could not be found
Do you wish to create a new VPE profile (y,n)? **y**

**********
*** VPE INSTALLATION ***
**********

Enter pathname for profile directory, or nothing to use current directory:
**<cr>**

File "VPE.PRO" created.
Enter the telephone number associated with the vpe session: **xxxx**
(see Note 1)
If VPE will always be used to access the same account, enter Account #:
**xx** (see Note 2)
If your UNIX account is secure, enter the Password (for automatic logon):
**xxxxxxxx** (see Note 3)

```
****************************************
*** INSTALLATION COMPLETE***
****************************************

maint>
```

***Note 1:*** Enter the number from which you will record your voice prompts.

***Note 2:*** Enter the mailbox number.

***Note 3:*** Enter the password for the mailbox.

For information on the Voice Prompt Editor, refer to the *Meridian ACCESS Voice Prompt Editor User's Guide* (NTP 555-7001-318).

## exit—log out

This command allows you to log out of the account you are using (maint, for example). If you logged in from the "Console Login:" prompt, it will reappear when you log out.

You can also use the quit command to log out.

**Example:**

```
maint> exit

Console Login:
```

## filedelete—delete a file

This command allows you to select files and then delete them.

**Example:**
maint>**filedelete**

(The screen clears and a list of files appears.)

1. /usr/lib/api_headers/ambase_api.h
2. /usr/lib/api_headers/api_nwk_if.h
3. /usr/lib/hp/ambase_api.a
4. /usr/lib/hp/rose_ts.a
5. /usr/lib/hp/rtp.a
6. /usr/lib/hp/system.0
7. /usr/lib/hp/upper.a
8. /usr/lib/mot/ambase_api.a
9. /usr/lib/mot/rose_ts.a
10. /usr/lib/mot/rtp.a
11. /usr/lib/mot/system.0
12. /usr/lib/mot/upper.a
13. /usr/maint/logs/SysLog.old

Make a selection/deselection by entering the desired value:

You can select a group of files to delete. To select a file for deletion, type the number corresponding to the file and press [Return]. An asterisk (*) appears beside the entry. You may continue selecting files by entering numbers and pressing [Return].

When you have selected all the files you wish to delete, press [Return] again. Assuming that you have selected file 2 only, the following prompts appear:

Do you want to confirm each file before deleting? [y,n] **y**
Do you want to delete /usr/lib/api_headers/api_nwk_if.h? [y,n] **y**
maint>

## fileverif—verify system files

Use this command to verify that the correct application files

- are present
- are the proper size
- have proper ownership and permissions
- are structurally correct (for dynamic data files)

If the fileverif command indicates that files are missing or are present but not the correct size, there may be problems on your system. Contact your support representative for assistance with this condition.

**Example:**

maint> **fileverif**

FILE VERIFICATION AS OF 05/20/92 13:46:10

(Pause)

Static file verification found everything to be in order.

(Pause)

Permissions and ownership tests found everything in order.

(Pause)

Structural verification found main data files to be in order.

(Pause)

maint>

## help—list all commands

If you type **help** or **?** at the "maint>" prompt and press [Return], the system displays a list of the command names and a short description of each.

**Example:**

```
maint> help

                    Application Module Commands
admin               link/association administration (same as mlusr)
applconfig          display and modify CCR customer configuration
applexit            exit all applications
applstart           start all applications
backconfig          display and modify schedule for unattended backup
.
.                   (List of commands continues)
.
F=Find              N=Find next           X=Exit
Prev/U=Page Up      Next/D=Page Down      UpArrow/u=Up
x
maint>
```

## install—load software tape onto the hard disk

In an initial installation, this command loads the software tape onto the hard disk. This command instructs the program as to which applications are to be started, and what options are to be activated in each application. The inactive application remains on the hard disk for later activation, if the customer buys further options and obtains a new keycode.

**Example:**
maint> **install**

You can reconfigure the system using a keycode without a tape
or you can use a tape to upgrade the software and reconfigure.
Do you want to use a tape (y/n/q/)? **n**

Please enter the Meridian 1 ID of this site
(or Q or q to quit): **12345**

Please enter your key code (5 groups of 4 characters each):
Keycode group 1 (or Q or q to quit): **a405 <cr>**
Keycode group 2 (or Q or q to quit): **10e7 <cr>**
Keycode group 3 (or Q or q to quit): **63de <cr>**
Keycode group 4 (or Q or q to quit): **be2a <cr>**
Keycode group 5 (or Q or q to quit): **6ff0 <cr>**

***Note:*** If the Meridian Link application is installed, the following prompt appears.

Please enter the Meridian Link Protocol, x for X.25, <cr> for TCP/IP): **<cr>**

***Note:*** If the user chooses TCP/IP, the following prompts appear.

If you would like a default gateway IP address configured or changed,
please enter the IP address in internet dot notation (e.g. 47.82.45.10).
For no change enter <cr>: **<cr>**

If you would like a default subnet mask configured or changed,
please enter the subnet mask (e.g. 255.255.0.0).
For no change enter <cr>: **<cr>**

**— continued —**

**Example (continued):**

***Note:*** The configuration specified is displayed, as shown in the following example.

```
The following applications are configured:
Meridian Link
Large CCR
The following packages are configured:
1
96
97
98
99
100
101
Ethernet NSE software is enabled.
Is this correct (y/n/q)?: y
```

***Note:*** Enter **y** to enable the NSE software, **n** to return to the keycode entry prompt, or **q** to exit without enabling.

```
Please enter the CCR customer number (0-99): 1
Installing NSE R3V7.1. Please wait.
Is your module connected to the Ethernet (y/n) ? y
Configuring your system for NSE, please wait.

        ... various configuration and sysgen messages appear ...
ADD MODULE NAME AND ADDRESS TO TCPIP TRANSPORT
PROVIDER DATABASE
If you are not sure how to answer any prompt, type "?" for HELP.
Your module's system is currently the default name. We recommend that
you change it to avoid possible name conflicts.
Enter the MODULE NAME to be added to the tcpip transport provider
database (?, or module name):  ipename
Enter the MODULE ADDRESS to be added to the tcpip transport provider
database (?, or module address):  12.34.56.78
```

**— continued —**

**Example (continued):**

If you made any mistakes in entering the module name and IP address, you can correct them. Would you like to re-enter the module name or IP address? [y,n]: **n**

Entry for <module name> with address <address> added to tcpip transport provider database.

Now your system has been modified. You must reboot the system to have the new kernel take effect.

Would you like to reboot the system now (y/n) ? **y**

***Note:*** Optional feature prompts will not be present if the feature is not configured by the keycode. For instance, if CCR were not configured, the CCR customer number prompt would not appear.

## lanconfig—change the system's ethernet configuration

This command allows the user to change the following information in the system's ethernet configuration:

- default gateway address
- subnet mask address
- host name
- IP address

***Note:*** It is recommended that the CCR/Meridian Link module be connected to the Ethernet LAN before you run lanconfig. Changing Ethernet configuration without being connected to the Ethernet LAN will cause undesirable error messages. It is also recommended that you run lanconfig at a time when it is convenient to stop the Meridian Link and/or CCR application(s) as the system requires rebooting after lanconfig is executed.

Following are the rules for configuring gateway IP and subnet mask addresses:

- Default gateway IP and Subnet mask addresses have the same formats.
- Each address consists of four 8-bit bytes. This puts a limit on each byte: 0 to 255.
- On the Internet, 0, 127, and 255 are reserved for special purposes. Please contact your system administrator for valid subnet and default gateway addresses. Examples of valid subnet and default gateway IP addresses are 10.20.30.40 and 255.255.0.0, respectively.

**Example 1: System has default gateway and subnet mask pre-configured, and has NSE running**

maint> **lanconfig**

Default gateway is currently configured as: 1.2.3.4

If you would like a default gateway IP address configured or changed, please enter the IP address in Internet dot notation (e.g. 12.34.56.78).
For no change, enter <cr>.**10.20.30.40**

Saving default gateway address: 10.20.30.40

Subnet Mask is currently configured as: 100.200.0.0

If you would like a default gateway subnet mask configured or changed, please enter the subnet mask (e.g. 100.100.0.0).
For no change, enter <cr>. **100.100.200.0**

Saving default subnet mask: 100.100.200.0

ADD MODULE NAME AND ADDRESS TO TCPIP TRANSPORT PROVIDER DATABASE

If you are not sure how to answer any prompt, type "?" for HELP.

Your module is already specified in the transport provider database:
Its module name: python. Its IP address: 123.0.0.4

Would you like to change them? [y, n] **n**
The name and address for your module are not changed.

If you've made any changes to the Ethernet configuration,
you need to reboot the system in order for new changes
to take effect.

Would you like to reboot the system now? [Enter Y for Yes or N for No]: **y**

Running subcommand 'reboot' for menu 'machinemgmt',
MACHINE MANAGEMENT

Once started, a reboot CANNOT BE STOPPED.
Do you want to start an express reboot? [y, n, ?, q] **y**

Shutdown started ...

**Example 2: System has no default gateway and no subnet mask pre-configured, and has NSE running**

maint> **lanconfig**

Default gateway is not currently configured!

If you would like a default gateway IP address configured or changed,
please enter the IP address in Internet dot notation (e.g. 12.34.56.78).
For no change, enter <cr>.**10.20.30.40**

Saving default gateway address: 10.20.30.40

Subnet Mask is not currently configured!

If you would like a default gateway subnet mask configured or changed,
please enter the subnet mask (e.g. 100.100.0.0).
For no change, enter <cr>. **100.100.200.0**

Saving default subnet mask: 100.100.200.0

ADD MODULE NAME AND ADDRESS TO TCPIP TRANSPORT
PROVIDER DATABASE

If you are not sure how to answer any prompt, type "?" for HELP.

Your module is already specified in the transport provider database:
Its module name: python. Its IP address: 123.0.0.4

Would you like to change them? [y, n] **n**
The name and address for your module are not changed.

If you've made any changes to the Ethernet configuration,
you need to reboot the system in order for new changes
to take effect.

Would you like to reboot the system now? [Enter Y for Yes or N for No]: **y**

Running subcommand 'reboot' for menu 'machinemgmt',
MACHINE MANAGEMENT

Once started, a reboot CANNOT BE STOPPED.
Do you want to start an express reboot? [y, n, ?, q] **y**

Shutdown started ...

## langconfig—configue CCR logon screen languages

This command applies to CCR only.

The CCR application supports one or two languages at a time on the CCR logon screen. The langconfig command lets you define one language as the default and another (which is optional) as a second language.

**Example:**

maint> **langconfig**

Your pre-configured login languages are:
Default: English
Secondary: French

Would you like to configure new language options? **y**

System language options:
1. English
2. French

Please select the CCR default language. Select a number or press <Return> for default (English): **1**

System language options:
1. English
2. French
3. None

Please select the secondary language for the Login Screen. Select a number or press <Return> for default (French). Choosing None will result in a single language system: **2**

Your login language selections are:
Default: English
Secondary: French
Is this selection correct? (y,n): **y**

maint>

## mlexit

This command applies to Meridian Link only.

This command performs no usable functions.

## mlstart

This command applies to Meridian Link only.

This command performs no usable functions.

## mlusr—enter a link-related user session

This command allows you to enter a link maintenance session, in which you may use the commands described in Chapter 3, “Link maintenance commands.” You can also use the admin command to enter a link maintenance session.

**Example:**

```
maint> mlusr

        Application registration successful  :  id = 1

mlusr>
```

## portconfig—configure terminals and printers

This command applies to CCR only.

The CCR application provides eight ports for printers and terminals. However, IPE Modules can only use ports 7 and 8 for terminals and printers. When the system is shipped, all ports are configured for printers (off). The portconfig command enables you to display or change the characteristics for each port. The "Enter PORT number" prompt shows the port numbers of available ports.

> ***Note:*** Printer ports for HP printers should be configured for 9600 baud.

**Example:**

maint> **portconfig**

CCR Port Configuration Utility

1: List Port Configuration.
2: Change Port Characteristics.
Enter the number of the function you want to perform.
(Hit the <RETURN> key to EXIT)

### Displaying port characteristics

Select option 1 from the CCR Port Configuration Utility menu to display port characteristics.

**Example:**

List Port Characteristics
Enter PORT number (1 - 8): **8**

Characteristics of PORT #8

Port State: "on" (or Terminal)
BAUD Rate: 9600
(Hit <RETURN> to go back to main menu)

### Changing port characteristics

Select option 2 from the CCR Port Configuration Utility menu to change port characteristics.

***Note:*** In the example below, <cr> indicates where you press [Return].

**Example:**

Change Port Characteristics
Enter PORT number (1 - 8): **8**

Available states:
off (printer) on (terminal)
Select a state (default: “off”): **on**

Available BAUD Rates:
1200 2400 9600
Select a BAUD rate (default: 9600): **<cr>**

STATE = off
BAUD = 9600

Do you want to install these new characteristics (y/n)? **y**

PORT #8 now has new characteristics.

Hit <RETURN> when ready to see main menu.

***Note:*** If a printer has been defined for the port, it cannot be turned off until the printer is deleted.

***Note:*** If an IPE Module has port 6 configured for a terminal or printer, this configuration will be deleted when CCR is installed (Release 3C) or upgraded to Release 3C.

## powerdown—safely power down or reboot the module

The Application Module and IPE Module are shut down first by exiting from the application, then by entering the powerdown command. You may choose either to start an express powerdown (which occurs immediately) or to set a time delay so that other users have a chance to read the warning messages and log off.

You can also use the powerdown command to reboot the system.

> ***Note:*** In the example below, <cr> indicates where you press [Return].

**Example: Express powerdown**

```
maint> powerdown

Would you like to power down or reboot?
Powering down allows you to turn the system off.
Rebooting will automatically restart the system.
Enter p to power down, r to reboot, or q to quit: p

Running subcommand 'powerdown' from menu 'machinemgmt',
MACHINE MANAGEMENT
```

***Note:*** If more than one user is logged into the system, a list of the logged-in users will appear on the screen.

```
Users currently logged in:
disttech   console      Oct 26 13:38
root       tty01        Oct 25 21:20
Once started, a powerdown CANNOT BE STOPPED.
Do you want to start an express powerdown? [y, n, ?, q]  y
```

If, instead of performing an express powerdown, you want to alert all users currently logged into the system of the powerdown, type **n** and press [Return]. You are prompted to enter the number of seconds the system should wait after the warning message. Type the number of seconds that will allow the users to save their work and log off. Then press [Return].

The following messages appear on the screen. *Do nothing* while this is running. Once this message is complete, you may power down.

**Example: Shutdown messages**

```
Shutdown started.    Mon Sep 20 12:17:20 PDT 1993

Broadcast Message from root (console) on sysV68 Mon Sep 20 12:17:21
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

INIT: New run level: 0
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications
/usr/bin/maint: /dev/tty: cannot create
cron aborted: SIGTERM

The system is down.

NOTICE: System Halt Requested (0)

NOTICE: System secured for powering down.
```

**Example: Powerdown with time delay**

```
maint> powerdown

Would you like to power down or reboot?
Powering down allows you to turn the system off.
Rebooting will automatically restart the system.
Enter p to power down, r to reboot, or q to quit: p

Running subcommand 'powerdown' from menu 'machinemgmt',
MACHINE MANAGEMENT
```

***Note:*** If more than one user is logged into the system, a list of the logged-in users will appear on the screen.

```
Users currently logged in:
disttech   console      Oct 26 13:38
root       tty01        Oct 25 21:20
Once started, a powerdown CANNOT BE STOPPED.
Do you want to start an express powerdown? [y, n, ?, q]: n

Enter the number of seconds to allow
between the warning messages (default 60):  [?, q]  <cr>
```

The following messages appear on the screen. *Do nothing* while this is running. Once this message is complete, you may power down.

**Example: Shutdown messages**

```
Shutdown started.    Mon Sep 20 12:17:20 PDT 1993

Broadcast Message from root (console) on sysV68 Mon Sep 20 12:17:21
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

INIT: New run level: 0
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications
/usr/bin/maint: /dev/tty: cannot create
cron aborted: SIGTERM

The system is down.

NOTICE: System Halt Requested (0)

NOTICE: System secured for powering down.
```

**Example: Express reboot**

```
maint> powerdown

Would you like to power down or reboot?
Powering down allows you to turn the system off.
Rebooting will automatically restart the system.
Enter p to power down, r to reboot, or q to quit: r

Running subcommand 'powerdown' from menu 'machinemgmt',
MACHINE MANAGEMENT
```

***Note:*** If more than one user is logged into the system, a list of the logged-in users will appear on the screen.

```
Users currently logged in:
disttech   console      Oct 30 13:40
root       tty01        Oct 30 21:00
Once started, a reboot CANNOT BE STOPPED.
Do you want to start an express reboot? [y, n, ?, q]  y
```

If, instead of performing an express reboot, you want to alert all users currently logged into the system of the reboot, type **n** and press [Return]. You are prompted to enter the number of seconds the system should wait after the warning message. Type the number of seconds that will allow the users to save their work and log off. Then press [Return].

The following messages appear on the screen. *Do nothing* while this is running. Once this message is complete, the module reboots automatically.

```
Shutdown started.
Broadcast Message from root (console) on sysV68
THE SYSTEM IS BEING SHUTDOWN NOW! ! !
Log off now or risk your files being damaged.

INIT: New run level: 6
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications

Releasing Communication Resources...

The system is down.

NOTICE: System Reboot Requested (0)
```

## printconfig—configure printers

This command applies to CCR only.

The CCR application provides eight ports for printers and terminals. However, IPE Modules can only use ports 7 and 8 for printers and terminals. The "Enter PORT number" prompt shows the port numbers of available ports.

> ***Note:*** If an IPE Module has port 6 configured for a terminal or printer, this configuration will be deleted when CCR is installed (Release 3C) or upgraded to Release 3C.

This command allows you to perform many functions related to printers, including

- adding or deleting printers
- listing and getting the status of printers
- enabling or disabling printers
- listing or deleting print jobs

**Example:**

maint> **printconfig**

CCR Line Printer Configuration Utility

1: Add a printer.
2: Delete a printer.
3: List of configured printers.
4: Status of configured printers.
5: Enable a configured printer.
6: Disable a configured printer.
7: List/Delete printer job.

Enter the number of the function you want to perform.
(Hit the <RETURN> key to EXIT)

### Adding a printer

You may configure a port to run a printer by turning the state to off with the portconfig command.

You may configure the printer for the application by selecting option 1 from the printconfig menu. Ensure that the baud rate set by the portconfig command is set to 9600 for Hewlett Packard (HP) printers.

Do not use any spaces in the printer name.

**Example:**

CCR ADD Printer Operation

Enter printer name: **Printer1**
Enter PORT number (1 - 8): **8**

Select a Model number from the list provided below:

1. HP Rugged Writer.
2. HP LaserJet II, III, IV or DeskJet.
3. Other (dumb).

Enter the number of the desired printer type here: **2**

Line printer scheduler stopped
destination “Printer1” now accepting requests
printer “Printer1” now enabled

(Hit the <RETURN> key when finished)

### Deleting a printer

Select option 2 to delete a printer from the printconfig menu.

**Example:**

CCR Delete Printer Operation:
Enter printer name: **Printer1**

Removing Printer “Printer1”...
Line printer scheduler stopped

(Hit the <RETURN> key when finished)

### Listing configured printers

List all configured printers by selecting option 3 from the printconfig menu.

**Example:**

List of CCR Printers

| Printer Name | Port Number |
|---|---|
| Printer1 | 8 |

(Hit the <RETURN> key when finished)

### Status of configured printers

Display the status of all configured printers by selecting option 4 from the printconfig menu.

**Example:**

CCR Printer Status Display:

printer Printer1 is idle. enabled since Mar 4 15:23

(Hit the <RETURN> key when finished)

### Enabling printers

Enable a printer that was previously disabled by selecting option 5 from the printconfig menu.

**Example:**

CCR Enable Printer Operation
Enter printer name: **Printer1**

Enabling Printer “Printer1”...
printer “Printer1” now enabled

(Hit the <RETURN> key when finished)

### Disabling printers

Disable a printer to take it off-line temporarily without deleting printer configuration. To disable a printer, select option 6 from the printconfig menu.

**Example:**

CCR Disable Printer Operation
Enter printer name: **Printer1**

Disabling Printer “Printer1”...
printer “Printer1” now disabled

(Hit the <RETURN> key when finished)

### Listing/Deleting printer job

Any print requests that were made from an application (for example, printing of a Variable Table) may be displayed or removed from the print queue before they are printed by selecting option 7 from the printconfig menu.

**Example:**

CCR Delete Queue Print Job:
Printer1-7

Outstanding Print Jobs:
———————————

Printer1-7

Enter the JOB you wish to delete (or type <RETURN>): **Printer1-7**

request “Printer1-7” canceled

(Hit the <RETURN> key when finished)

## quit—log out

This command allows you to log out of maint or whatever account you are using. If you logged in from the "Console Login:" prompt, it will reappear when you log out. You can also use the exit command to log out.

**Example:**

maint> **quit**

Console Login:

## resetmodem—reset the modem on the Application Module

This command allows you to reset the internal modem on the Application Module, if it locks up. This command is also performed automatically when the system boots.

**Example:**

maint> **resetmodem**

Performing modem reset...
Connected
Sending atz
to the device.

OK
Disconnected

Done modem reset.

maint>

## restart—stop and start the link processes

This command stops all link processes and all applications running within the application, then restarts the processes and applications, if desired. This command, in particular, stops and restarts the link to the Meridian 1.

This command will not automatically restart applications that are external to the Application Module or IPE Module. External applications must be restarted manually.

To start applications but not links, use the applstart command.

To start the CCR application without starting any other applications, use the ccrstart command.

> ***Note:*** IThe following example shows the command being executed on an Application Module or IPE Module with only the CCR application. For modules that have only the Meridian Link application, replace references to CCR and Customer Controlled Routing with Meridian Link. For modules with both applications, add references to Meridian Link.

**Example:**

```
maint> restart

Restarting the link processes will deregister all applications.
All applications will need to be restarted after the link restart.
Enter y to continue with the link restart, n to not continue: y
Stopping application(s)

10/13/93 12:01:34 Notifying CCR Application of Shutdown...

10/13/93 12:01:44 Stopping CCR application

Releasing Communication Resources...
Restarting the link processes, please wait.

    Configure Link 0 : successful

    Enable Link 0 : successful

    Application release successful

Do you want to restart the application(s)?
Enter y to restart the application(s), or n not to restart: [y,n] y
Starting application(s)

10/13/93 12:03:57 Starting CCR Application...
Starting Customer Controlled Routing Processes...

maint>
```

## rootpasswd—change the root password

This command changes the root password and immediately locks everyone out of the root level. The new password is randomly generated. To find out what the new password is, contact Nortel support personnel.

**Example:**

```
maint> rootpasswd

(Pause)

maint>
```

## rstdata—restore data from backup tape

If restoring configuration files and data files becomes necessary due to catastrophic conditions such as a hard disk failure, use this command to recover the data and return to an operational state. Complete information on backup and restore procedures for a hard disk failure are provided in Chapter 8, “Recovery/replacement procedures”.

***Note:*** The following example shows the command being executed on an Application Module or IPE Module with only the CCR application. For modules that have only the Meridian Link application, replace references to CCR and Customer Controlled Routing with Meridian Link. For modules with both applications, add references to Meridian Link.

**Example:**

maint> **rstdata**

Make sure the tape is in drive
When ready, enter ‘y’ to continue, or ‘n’ to quit: [y,n] **y**

The restore will not succeed with an application running.
Enter ‘y’ to stop the application(s\) and continue, or ‘n’ to quit” [y,n] **y**
Stopping application(s)

02/04/94 10:58:56 Notifying CCR Application of Shutdown...

02/04/94 10:59:06 Stopping CCR application

Releasing Communication Resources...

Please wait while tape file list is extracted.

***Note:*** If your backed-up data contains link control files (containing link configuration information), you will see the following prompt:

Link control files are present in this restore list.
Do you want to restore the link control files? (y/n)

Type **y** and press [Return] to restore the link control files. Type **n** and press [Return] to ignore the backed-up link control files. The following message appears:

Link control files will be removed from restore list.

**— continued —**

**Example (continued):**

Files will be restored to:

```
/usr/maint/files/AMprofile
/usr/maint/files/AutoStart
/usr/maint/files/IncrDY
/usr/maint/files/IncrTM
/usr/maint/files/Port
/usr/maint/files/Prefs
/usr/maint/files/Speed
/usr/mlusr/conf/hdlchlnk.dataf
/usr/mlusr/conf/hdlcmlnk.dataf
/usr/mlusr/conf/lh.config
/usr/mlusr/conf/loop13DCE.d
/usr/mlusr/conf/loop13DTE.d
/usr/mlusr/conf/loop31DCE.d
/usr/mlusr/conf/loop31DTE.d
/usr/mlusr/conf/tscfg.datafile
/usr/mlusr/conf/vlink.datafile
(actual list of directories may differ depending on the release)
```

***Note:*** If you are restoring from a backup tape created using the backfiles command, you will only restore the files selected during the backfiles command

```
Please enter 'y' to do restore, or 'n' to quit: [y,n] y
Starting restore
x    4k  of   6k    [1]    usr/maint/files/AMprofile
x    4k  of   10k   [1]    /usr/maint/files/AutoStart
x    4k  of   14k   [1]    /usr/maint/files/IncrDY
x    4k  of   18k   [1]    /usr/maint/files/IncrTM
x    4k  of   22k   [1]    /usr/maint/files/Port
x    4k  of   26k   [1]    /usr/maint/files/Prefs
x    4k  of   30k   [1]    /usr/maint/files/Speed
x    4k  of   34k   [1]    /usr/mlusr/conf/hdlchlnk.dataf
x    4k  of   38k   [1]    /usr/mlusr/conf/hdlcmlnk.dataf
x    4k  of   42k   [1]    /usr/mlusr/conf/lh.config
x    4k  of   46k   [1]    /usr/mlusr/conf/loop13DCE.d
```

**— continued —**

**Example (continued):**

```
x    4k   of   50k    [1]     /usr/mlusr/conf/loop13DTE.d
x    4k   of   54k    [1]     /usr/mlusr/conf/loop31DCE.d
x    4k   of   58k    [1]     /usr/mlusr/conf/loop31DTE.d
x    4k   of   62k    [1]     /usr/mlusr/conf/tscfg.datafile
x    4k   of   66k    [1]     /usr/mlusr/conf/vlink.datafile
Restore successful
Configuration changed, restarting link processes.

     Configure Link 0 : successful

     Enable Link 0 : successful

     Application release successful

Do you want to restart the application(s)?
Enter 'y' to restart the application(s), or 'n' not to restart: [y,n] y
Starting the application(s)

02/04/94 11:05:41 Starting CCR Application...
Starting Customer Controlled Routing Process...

maint>
```

## rstfiles—restore a set of files

This command allows you to select and restore a set of files.

> ***Note:*** The following example shows the command being executed on an Application Module or IPE Module with only the CCR application. For modules that have only the Meridian Link application, replace references to CCR and Customer Controlled Routing with Meridian Link. For modules with both applications, add references to Meridian Link.

**Example:**

maint>**rstfiles**

The restore will not succeed with an application running.
Enter ‘y’ to stop the application\(s\) and continue, or ‘n’ to quit: [y,n] **y**
Stopping application(s)

02/03/94 14:26:29 Notifying CCR Application of Shutdown...
02/03/94 14:26:39 Stopping CCR application

Releasing Communication Resources...

Make sure tape is in drive
When ready, enter 'y' to continue, or 'n' to quit: [y,n] **y**

Please wait until tape file list is extracted
(List of files appears)

> ***Note:*** If you are restoring from a backup tape created using the backfiles command, the list of files from which you can select contains only the files selected during the backfiles command.

Make a selection/deselection by entering the desired value

Type the number corresponding to the file you wish to restore and press [Return]. An asterisk (*) appears beside the entry. You may continue selecting files by typing numbers and pressing [Return]. When you have selected all the files you wish to restore, press [Return] again.

Starting restoration of selected file(s) ...
Selective restore successful

maint>

## scriptinfo—display a summary of script information

This command applies to CCR only.

The scriptinfo command displays a complete list of scripts in the system, as well as all status information concerning those scripts. The list provides the following information:

- script name—name assigned to the script
- state—indicates whether the script is in the editing, validated, installed, or associated state
- CDNs—list of CDNs associated with the script
- variables—list of variables referenced by the script (if known)
- errors—list of errors and warnings reported by the last validation of the script

This command employs a viewer, which is started automatically by the scriptinfo command.

**Example:**

```
maint> scriptinfo

Script Name:    ALEX ATTEND
State:          Associated
CDNs:           1111, 2144
Variables:      alex acd
Errors:         INFO:MIN/MAX STEPS BEFORE
                CONTROL/TREATMENT: 2/51/1

F=Find            N=Find Next          X=Exit
Prev/U=Page up  Next/D=Page down  UpArrow/u=Up DownArrow/d=Down
```

The script state can have one of the following values:

- editing—indicates that the file has been created but not validated
- validated—indicates that the file has been validated successfully
- installed—indicates that the script has been installed successfully
- associated—indicates that there is an association for this script

## showid—display Meridian 1 information

The showid command indicates the ID and the package authorizations for the Meridian 1 connected to the Application Module or IPE Module.

The following services may appear in the list:

1 Operations, Administration, and Maintenance software required for any Application Module or IPE Module application

96 This service appears automatically if both Service 97 and Service 98 are present. It is not an orderable service, but is supplied automatically for compatibility with earlier releases of host software.

97 Inbound Call Management service for the Meridian Link application

98 Outbound Call Management service for the Meridian Link application

99 Service package for the CCR application

100 Host Enhanced Routing for the Meridian Link application

101 Host Enhanced Voice Processing for the Meridian Link application

**Example:**

```
maint> showid
SL-1 ID:  LEAN01
Base Services:  1, 99

maint>
```

## startNSE—activate Ethernet LAN support

This command allows you to invoke the networking feature based on the Network Service Extension (NSE) software package. It provides remote access to the Application Module or IPE Module from a PC using the telnet utility, and transfers files from a PC to the Application Module or IPE Module using the ftp utility.

To activate the networking feature, Ethernet LAN support must have been enabled using a keycode (refer to Procedure 25: Enable or disable Ethernet LAN support).

> ***Note:*** Ensure that you have the Application Module or IPE Module connected to the Ethernet with a cable before you run startNSE.

**Example:**

maint> **startNSE**

Enter the Node Name: **host1**
Enter the Node Address: **12.210.67.89**
Restart the system? **y**

You can choose to reboot the system at this point by typing **y**, or you can defer the reboot by typing **n**.

## stopNSE—de-activate Ethernet LAN support

This command stops Ethernet LAN support and returns the system to its original status before NSE was started. It also prevents an Ethernet LAN-based PC from gaining access to the applications.

**Example:**

maint> **stopNSE**

Restart the system?

You can choose to reboot the system at this point by typing **y**, or you can defer the reboot by typing **n**.

## tapeinfo—display information on a system tape

This command applies to CCR only.

Once you insert the CCR application tape into the tape drive you can use the tapeinfo command to display information about the software before installing it on your system.

**Example:**

```
maint> tapeinfo

Insert the desired tape into the drive, lock it into position,
then hit <return> after the drive light comes on and goes off. <cr>

Extracting information from the tape...

Media Information
-----------------------

Package Name - CCR
Volume Description - Customer Controlled Routing
Version - R03.08
Creation Date - Wed Dec  1 11:55:46 1993

maint>
```

## version—display Application Module or IPE Module software version

This command indicates the current software release of each software package installed on the Application Module or IPE Module.

**Example: (CCR installed)**

maint> **version**

The following packages are installed on this Application Module:
Product: SYSTEM V/68 Base Operating System R3V7
Version: FE03.71 RM03
Installed: Mar 21 09:28

Product: Customer Controlled Routing
Version: R03.06
Installed: Mar 21 10:08

Product: SYSTEM V/68 Base Operating System R3V7 Field Update
Version: FU_R3V7.1_NT-B
Installed: Mar 21 09:02

Product: LP Support System
Version: LQ02.01
Installed: Mar 21 09:23

Product: On-line Manual Pages Object Package (OLMP)
Version: OM03.71
Installed: Mar 21 09:28

Type return to continue, q to quit: **<cr>**

Product: Standalone System Interactive Diagnostics (SSID)
Version: DJ07.30
Installed: Mar 21 09:23

maint>

**Example: (CCR and Meridian Link installed)**

maint> **version**

```
The following packages are installed on this Application Module:
Product:     SYSTEM V/68 Base Operating System R3V7
Version:     FE03.71 RM03
Installed:   May 1  10:57

Product:     Customer Controlled Routing
Version:     03.53
Installed:   May 1  14:30

Product:     SYSTEM V/68 Base Operating System R3V7 Field Update
Version:     FU_R3V7.1_NT-D
Installed:   Mat 1  10:52

Product:     Meridian Applications
Version:     R05.20
Installed:   May 1  14:40

Product:     Meridian Link & X25NET333
Version:     05.00
Installed:   May 1  14:30

Type return to continue, q to quit: <cr>
```

**— continued —**

**Example: (CCR and Meridian Link installed) (continued)**

```
Product:    Host Based X.25 for NTI
Version:    ECK01.0 IR03
Installed:  May 1  12:25

Product:    X25NET333 DNLD, DRIVER/API,NETMAN
Version:    Release 4.1
Installed:  May 1  12:21

Product:    LP Support System
Version:    LQ02.03
Installed:  May 1  10:52

Product:    SYS V/68 Network Services Extension R3V7.1
Version:    NS03.71 RM02
Installed:  May 1  14:39

Product:    On-line Manual Pages Object Package (OLMP)
Version:    OM03.71
Installed:  May 1  10:57

Product:    Standalone System Interactive Diagnostics (SSID)
Version:    DJ07.30
Installed:  May 1  10:52

maint>
```

## view—display SysLog and link-related files

This command enables you to choose a set of log, trace, or record files and display the set. Trace and record files are described in Chapter 3, "Link maintenance commands." Contents of the SysLog file are described in Chapter 5, "Application Module and IPE Module error messages."

**Example:**

maint> **view**

1. Oct_12_93.0001
2. REVERSE: Oct_12_93.0001
3. Oct_13_93.0002
4. REVERSE: Oct_13_93.0002
5. Oct_13_93.0003
6. REVERSE: Oct_13_93.0003
7. Oct_13_93.0004
8. REVERSE: Oct_13_93.0004
9. Oct_13_93.0005
10. REVERSE: Oct_13_93.0005
11. Oct_13_93.0006
12. REVERSE: Oct_13_93.0005
13. Oct_13_93.0007
14. REVERSE: Oct_13_93.0007
15. Oct_13_93.0008
16. REVERSE: Oct_13_93.0008
17. Oct_13_93.0009
18. REVERSE: Oct_13_93.0009
19. Oct_13_93.0010
20. REVERSE: Oct_13_93.0010
21. Oct_13_93.0011

Make a selection/deselection by entering the desired value:

Type the number corresponding to the file you wish to display and press [Return]. To display the SysLog file, scroll down to the bottom of the list, note the number corresponding to the file and press [Return]. An asterisk (*) appears beside the entry and a display file is created that contains the selected file. As you continue to select files, they are appended to the display file.

When you have selected all the files you wish to display at one time, press [Return] again. The contents of the files you selected appear as a continuous file.

When you have finished viewing the selected files, type **x** and press [Return]. The list of files reappears. To exit, press [Return] again.

### Viewing a file

The following commands are available while you are viewing a file:

| | |
|---|---|
| ↑ or **u** | scroll up through the file, one line at a time |
| ↓ or **d** | scroll down through the file, one line at a time |
| **Prev** or **U** | scroll up through the file, a screen at a time |
| **Next** or **D** | scroll down through the file, a screen at a time |
| **f** | find a particular text pattern<br>When you type **f**, you are prompted to enter the string to locate. Type in the information and press [Return]. If that pattern exists in the log file, a portion of the log file containing that pattern will appear.<br><br>**Note:** The f command is case-sensitive. If the system doesn't find the pattern you are looking for, ensure that you entered it correctly with the proper mix of upper and lowercase characters. |
| **n** | find the next occurrence of the same text pattern |
| **x** | exit (return to the "maint>" prompt) |

## viewlog—display SysLog file

This command displays the contents of the SysLog file on the console. Contents of the SysLog file are described in Chapter 5, "Application Module and IPE Module error messages." Use the page up and down keys or the arrow keys to scroll through the log/trace/record file.

The file viewing commands, described under the view command, apply to the SysLog file.

**Example:**

maint> **viewlog**

(SysLog file is displayed)

# Chapter 3: Link maintenance commands

Use the commands in this chapter to manage the links between the Application Module or IPE Module, Meridian 1, host computer, and Meridian Mail. The commands provide the following:

- Link control—enables and disables the link
- Link status—displays the status of a single link or all links
- Link configuration—displays or changes the link control or link parameters
- Link statistics—displays protocol statistics for the link
- Association services—displays information on associated Meridian Link applications, the directory numbers registered for those associations, and the resources acquired by an application for those associations. This command also specifies the type of information you wish to receive for an association (enables or disables message statistics, filters particular messages, records messages, and/or monitors particular messages on the system console). (Meridian Link only)
- Traffic report—counts messages flowing to and from an application (Meridian Link only)
- Link tracing—records all messages flowing across a link
- Link testing—continuity and loopback tests
- File viewing—displays system log, record, and trace files
- Miscellaneous services—displays help text or version information, and quits the user session

# Using link maintenance commands

Link maintenance commands are available when you are logged in as mlusr and the CCR or Meridian Link application is running. To access the commands, do one of the following:

- log in as mlusr from the "Console Login:" prompt
- enter the mlusr command while logged is as maint

If the system responds unexpectedly to a request, mlusr provides troubleshooting diagnostic facilities.

## Command format

The command format for each link maintenance command is illustrated in this chapter, and many are accompanied by examples. Type the commands at the "mlusr>" prompt. The following conventions apply:

- ***Italics*** indicate that the parameter shown should be replaced by the appropriate information. For example, ***link_number*** should be replaced by the actual link number.
- ***[Text in square brackets]*** indicates optional parameters. Three dots after the text (for example, ***[message ...]*** ) indicate that you can type multiple instances of the parameter.
- The word, ***message,*** indicates that the message type or message name parameter may be used. This subject is discussed in more detail later in this chapter, under "Meridian Link messages."

Some commands can be abbreviated, as long as the abbreviation is unique (for example, you can enter **g a** for "get associations"). If the abbreviation you type is not unique, an error message indicates that you must type in a more specific command.

**Table 3**
**Link maintenance commands**

| Command | Description | Applies to |
|---|---|---|
| enable link link# | puts link in enabled state | Links 0, 1, and 2 |
| disable link link# | puts link in disabled state | Links 0, 1, and 2 |
| status link link# | displays status of link | Links 0, 1, and 2 |
| get links | displays all configured links | Links 0, 1, and 2 |
| display linkctl | displays contents of link control file | Links 0, 1, and 2 |
| change linkctl | allows you to change entries within link control file | Links 0, 1, and 2 |
| read linkctl filename | reads the contents of specified link control file into memory | Links 0, 1, and 2 |
| save linkctl filename | saves link control information to file specified | Links 0, 1, and 2 |
| display link link# | displays current link configuration parameters | Links 0, 1, and 2 |
| change link link# | allows you to change link configuration parameters | Links 0, 1, and 2 |
| save link link# [filename] | saves link parameters to file specified | Links 0, 1, and 2 |
| read link link# [filename] | reconfigures a link from parameters saved in a file | Links 0, 1, and 2 |
| statistics link link# | generates a protocol-specific list of statistics for link number specified | Links 0, 1, and 2 |
| get associations | displays information on current associations (Meridian Link only) | Applications |
| get dn association_id | displays DNs registered for specified association (Meridian Link only) | Applications |
| get resource association_id | displays Meridian 1 resources acquired for specified association (Meridian Link only) | Applications |

**— continued —**

**Table 3**
**Link maintenance commands (continued)**

| Command | Description | Applies to |
|---|---|---|
| enable msgstat association_id | turns on collection of message statistics for specified association (Meridian Link only) | Applications |
| disable msgstat association_id | turns off collection of message statistics for specified association (Meridian Link only) | Applications |
| clear msgstat association_id [message] [message...] | resets the statistics count to 0 for specified association (Meridian Link only) | Applications |
| get msgstat association_id [message] [message...] | displays current statistics for specified messages (Meridian Link only) | Applications |
| set filter association_id message [message...] | adds message types from the list of messages to be filtered (Meridian Link only) | Applications |
| clear filter association_id message [message...] | removes message types from the list of messages to be filtered (Meridian Link only) | Applications |
| enable filter association_id | turns on filtering of messages across the link (Meridian Link only) | Applications |
| disable filter association_id | turns off filtering of messages across the link (Meridian Link only) | Applications |
| get filter association_id | displays filter status of messages for the specified association (Meridian Link only) | Applications |
| set record association_id message [message...] | adds message types from the list of messages to be recorded (Meridian Link only) | Applications |
| clear record association_id message [message...] | removes message types from the list of messages to be recorded (Meridian Link only) | Applications |

**— continued —**

**Table 3**
**Link maintenance commands (continued)**

| Command | Description | Applies to |
|---|---|---|
| enable record association_id | turns on recording of messages across the link (Meridian Link only) | Applications |
| disable record association_id | turns off recording of messages across the link (Meridian Link only) | Applications |
| get record association_id | displays recording status of messages for the specified association (Meridian Link only) | Applications |
| set monitor association_id message [message...] | adds message types from the list of messages to be monitored (Meridian Link only) | Applications |
| clear monitor association_id message [message...] | removes message types from the list of messages to be monitored (Meridian Link only) | Applications |
| enable monitor association_id | turns on monitoring of messages across the link (Meridian Link only) | Applications |
| disable monitor association_id | turns off monitoring of messages across the link (Meridian Link only) | Applications |
| get monitor association_id | displays monitor status of messages for the specified association (Meridian Link only) | Applications |
| enable traffic association_id [period] [file_name] [lpr] [terminal] | turns on traffic reporting for the specified association “lpr” and “terminal” are key words (Meridian Link only) | Applications |
| disable traffic association_id | turns off traffic reporting for the specified associations (Meridian Link only) | Applications |
| get traffic association_id | gets traffic information for the specified association (Meridian Link only) | Applications |

**— continued —**

**Table 3**
**Link maintenance commands (continued)**

| Command | Description | Applies to |
|---|---|---|
| loopback test | allows you to connect a cable between two ports and perform a loop test<br><br>For TCP/IP, execute the ping command to test the network connection between the Meridian Link Module and the host. | Links 0 and 1 |
| continuity test | performs a continuity test on links 0 and 1 | Links 0 and 1 |
| trace link link# [trace_level] [filename] | records all messages flowing across the specified link | Links 0, 1, and 2 |
| trace main [trace_level] [filename] | records all messages flowing through the system | Links 0, 1, and 2 and Applications |
| untrace link link# | turns off link tracing | Links 0, 1, and 2 |
| untrace main | turns off system tracing | Links 0, 1, and 2 and Applications |
| view | allows you to select and display a log, trace, or record file | Files |
| viewlog | displays contents of the SysLog file | SysLog file |
| help | displays a summary of link maintenance commands | General help information |
| help keyword | depending on the keyword used, displays help text for a command or a list of Meridian Link messages | Specific help |
| version | displays software release version of current application | Release information |
| exit | ends mlusr session | Your mlusr session |
| quit | ends mlusr session | Your mlusr session |
| **— end —** | | |

# Link control commands

There are two link control commands: enable and disable link. In this section, bolded text indicates text you input.

## enable link

The enable link command puts the specified link in the enabled state. If the remote end is down, the link remains enabled but down. The normal response to enable is "Enable link *link_number:* successful." A descriptive error message is given if the command fails.

**Command format:**

mlusr> **enable link link_number**

**Example:**

mlusr> **enable link 0**

Enable link 0: successful
mlusr>

Link 0 Up
mlusr>

## disable link

The disable link causes the specified link to go down, and remain down until it is reenabled. A descriptive error message is given if the command fails.

**Command format:**

mlusr> **disable link link_number**

**Example:**

mlusr> **disable link 0**

Disable Link 0: successful
mlusr>

Link 0 disabled
mlusr>

# Link status commands

There are two link status commands: status link and get links.

## status link

The status link command shows whether the link is up or down, enabled or disabled. If a link status changes involuntarily, a Link Up/Down message is displayed on the system console (if mlusr is logged in) and written to the SysLog file.

**Command format:**

mlusr> **status link link_number**

**Example:**

```
mlusr> status link 1

          Link 1 : Up
mlusr>
```

## get links

This command displays all configured links. If no links are configured, "NONE" is displayed.

**Command format:**

mlusr> **get links**

**Example (CCR):**

```
mlusr> get links

Number of Links: 1
Link ID:         0
Link Type:     MSL-1 link
Machine ID:     SL16

mlusr>
```

**Examples (Meridian Link):**

```
mlusr> get links

Number of Links:  3
Link ID:        0
Link Type:      MSL-1 link
Machine ID:     hdlcdest
Link ID:        1
Link Type:      Host link
Machine ID:     x25dest
Link ID:        2
Link Type:      MMail link
Machine ID:     MeridianMail
mlusr>

mlusr> get links

Number of Links:  3
Link ID:        0
Link Type:      MSL-1 link
Machine ID:     hdlcdest
Link ID:        1
Link Type:      Host link
Machine ID:     Lanlink
Link ID:        2
Link Type:      MMail link
Machine ID:     MeridianMail
mlusr>
```

# Link configuration commands

The link control file (linkctl) contains information on all links to the Application Module or IPE Module, specifically the link number, link type (protocol used), and the file name where the link configuration parameters are stored. Each entry (one line of the file) corresponds to a link.

The link configuration commands do the following:

- display or change the link control file
- read or save the link control file
- display or change link configuration parameters
- save link configuration parameters
- read link configuration parameters

## display linkctl

This command displays the contents of the link control file.

**Command format:**

mlusr> **display linkctl**

**Example (CCR):**

```
mlusr> display linkctl

Current Control File Image

0       HDLC        /usr/mlusr/conf/hdlcmlnk.datafile

mlusr>
```

**Example (Meridian Link):**

```
mlusr> display linkctl

Current Control File Image
0       HDLC        /usr/mlusr/conf/hdlcmlnk.datafile
1       X25         /usr/mlusr/conf/X25hlnk.datafile
2       ASYNC       /usr/mlusr/conf/vlink.datafile

mlusr>
```

## change linkctl

This command allows you to maintain entries within the link control file by specifying a link to display information and then opting to delete the link, leave it unchanged, or specify changes to it. The file name includes the complete directory path to a link configuration file (which contains parameter settings for the link). You can change the type of link going to the host, but only TCP/IP, X.25, and HDLC are currently supported.

**Command format:**

mlusr> **change linkctl**

In the following example, only the host link (link 1) information is changed to indicate that it uses HDLC rather than X.25 protocol.

**Example:**

```
mlusr> change linkctl

Current Control File Image
0       HDLC            /usr/mlusr/conf/hdlcmlnk.datafile
1       X25             /usr/mlusr/conf/x25hlnk.datafile
2       ASYNC           /usr/mlusr/conf/vlink.datafile

Current Entry >  0     HDLC          /usr/mlusr/conf/hdlcmlnk.datafile
Type :   "delete" to remove
         "<ret>" to keep as is,
         "<link number> <link type> <file name>" to change
Entry > <cr>

Current Entry >  1     X25           /usr/mlusr/conf/x25hlnk.datafile
Type :   "delete" to remove
         "<ret>" to keep as is,
         "<link number> <link type> <file name>" to change
Entry > 1      HDLC          /usr/mlusr/conf/hdlchlnk.datafile

Current Entry >  2     ASYNC         /usr/mlusr/conf/vlink.datafile
Type :   "delete" to remove
         "<ret>" to keep as is,
         "<link number> <link type> <file name>" to change
Entry > <cr>
```

**— continued —**

**Example (continued):**

```
New Entry
Type :    "<ret>" end changes
          "<link number> <link type> <file name>" add entry
Entry > <cr>

New Control File Image:
0         HDLC      /usr/mlusr/conf/hdlcmlnk.datafile
1         HDLC      /usr/mlusr/conf/hdlchlnk.datafile
2         ASYNC     /usr/mlusr/conf/vlink.datafile

Confirm?  (yes or no): y
```

In the following example, only the host link (link 1) information is changed to indicate that it uses TCP/IP rather than X.25 protocol.

> ***Note:*** To change link 1 to use the TCP/IP protocol, type **LAN** in the link type field, and type **lanhlnk** in the file name field.

**Command format:**

```
mlusr> change linkctl
```

**Example:**

```
mlusr> change linkctl

Current Control File Image
0         HDLC      /usr/mlusr/conf/hdlcmlnk.datafile
1         X25       /usr/mlusr/conf/x25hlnk.datafile
2         ASYNC     /usr/mlusr/conf/vlink.datafile

Current Entry >  0     HDLC          /usr/mlusr/conf/hdlcmlnk.datafile
Type :    "delete" to remove
          "<ret>" to keep as is,
          "<link number> <link type> <file name>" to change
Entry > <cr>
```

**— continued —**

**Example (continued):**

```
Current Entry >  1      X25             /usr/mlusr/conf/x25hlnk.datafile
Type :    "delete" to remove
          "<ret>" to keep as is,
          "<link number> <link type> <file name>" to change
Entry > 1       LAN         /usr/mlusr/conf/lanhlnk.datafile

Current Entry >  2      ASYNC           /usr/mlusr/conf/vlink.datafile
Type :    "delete" to remove
          "<ret>" to keep as is,
          "<link number> <link type> <file name>" to change
Entry > <cr>

New Entry
Type :    "<ret>" end changes
          "<link number> <link type> <file name>" add entry
Entry > <cr>

New Control File Image:
0         HDLC        /usr/mlusr/conf/hdlcmlnk.datafile
1         LAN         /usr/mlusr/conf/lanhlnk.datafile
2         ASYNC       /usr/mlusr/conf/vlink.datafile

Confirm?  (yes or no): y
```

**Note:** “HDLC”, “X25”, “LAN”, and “ASYNC” must be entered in uppercase; if they are entered in lowercase, no error will be given but files will not be addressed correctly by the software. The pathname of the file must be in lowercase. The number of spaces between each parameter does not matter.

## read linkctl

To use this command, you must specify the name of the link control file (from the /usr/mlusr/conf directory). You are prompted to accept or reject the new configuration.

**Command format:**

mlusr> **read linkctl filename**

***Note:*** The file name should follow a slash character; for example, /hdlcmlnk.data.

**Example:**

```
mlusr> read linkctl /hdlcmlnk.data

New Control File Image:
0       HDLC            /usr/mlusr/conf/hdlcmlnk.data

Confirm?  (yes or no):  y

mlusr>
```

## save linkctl

If you change the link control information, you can use the save linkctl command to save the new information in a new file to preserve the original information in the default link control file for possible later use. The save linkctl command saves the current link control information to the file specified. A directory path does not need to be included with the file name, because link control files are always stored in the usr/mlusr/conf directory.

The command displays current information and asks you to confirm that it should be saved. If you specify a file name that already exists, you are prompted to confirm that the file should be overwritten (replaced).

**Command format:**

mlusr> **save linkctl filename**

***Note:*** The maximum length of the file name is 14 characters. The file name should follow a slash character.

**Example:**

```
mlusr> save linkctl /hdlchlnk.data

File "/usr/mlusr/conf /hdlchlnk.data" already exists. OK to overwrite?

Confirm?  (yes or no):  y

mlusr>
```

## display link

This command displays the contents (parameter settings) of a link configuration file. Table 4 (following the description of the change link command) describes the parameters in more detail.

**Command format:**

mlusr> **display link link_number**

**Example: Link 0 (LAPB) configuration**

```
mlusr> display link 0
Protocol: HDLC                  Link type: 1
Machine ID: SL16
Delay:  0
Port type:  H                   Physical DTE(0)/DCE(1):  0
PDN type:  0                    Maximum Frame length:  135
Baud rate:  19200               Fail timer:  50
RFS timer:  150                 Internal address:  1
Remote address:  3              T1:  20
Maximum out frames (K):  7      Maximum trans attempts: (N2):  8

mlusr>
```

**Example: Link 1 (TCP/IP) configuration (Meridian Link)**

```
mlusr> display link 1

Protocol: LAN                   Link type: 2
Machine ID: Lanlink
Delay: 0
Port:  3000
```

**Example: Link 1 (X.25) configuration (Meridian Link)**

```
mlusr> display link 1

Protocol: X25                          Link type: 2
Machine ID: x25dest
Delay: 0
Port type:  X                          Physical DTE(0)/DCE(1):  1
PDN type:  44                          Maximum Frame length:  135
Baud rate:  19200                      Fail timer:  150
RFS timer:  150                        Internal address:  1
Remote address:  3                     T1:  30
Maximum out frames (K):  7             Maximum trans attempts (N2):  7
Local DTE address:  000000990100
Flow control negotiation:  0           Incoming packet size:  128
Outgoing packet size:  128             Incoming window size:  2
Outgoing window size:  2               Throughput negotiation used:  0
Incoming throughput class:  10         Outgoing throughput class:  10
Lowest LCN for DTE/DCE:  -1            Highest LCN for DTE/DCE:  -1
Lowest LCN:  1                         Highest LCN:  4095
LOC LIC:  -1                           HOC HIC:  -1
T10:  1800
T11:  2000                             T12:  1800
T13:  1800                             T14:  600
T15:  1500                             T16:  1300
Maximum T12 retries:  3                Maximum T13 retries:  3

mlusr>
```

**Example: Link 2 (ASYNC) configuration (Meridian Link)**

```
mlusr> display link 2
Protocol:  ASYNC                       Link type:  3
Machine ID:  MeridianMail
Delay:  0
Port number:  tty03
```

## change link

The change link command modifies link configuration parameters such as baud rate and timers. Table 4 provides detailed information on each parameter. Some parameters cannot be changed; these are indicated in the following description and in Table 4.

**CAUTION**
**Risk of data loss**
Do not use the change link command without the direction of Nortel support personnel or Host Computer support.

**Command format:**

mlusr> **change link link_number**

The system takes you through each parameter, one at a time, displaying the parameter name, the valid values or allowed options for the parameter (if appropriate), and the current value of the parameter.

For each parameter you have three possible options:

1 Enter <cr> (carriage return) to leave the parameter as is.

2 Enter a new value within operational limits.

3 Enter <escape> <cr> to quit change functions.

Values entered outside operational limits are rejected, and you are prompted for that value again. When you have finished going through all the parameters appropriate to the link type, you are asked to confirm any changes you made. Changes are saved in memory and are in effect only until the next time the system is restarted. See the save link command for information on saving your changes permanently.

In the following example, the change link command is used to review all parameters associated with link 0. Only the Machine ID (from hdlcdest to SL18) and MVME705B port configuration (from DTE to DCE) are changed.

**Example:**

```
mlusr> change link 0
Machine ID
Current          hdlcdest
> SL18
Delay
Range [0 60000]
Current            0
> <cr>
Physical DTE(0)/DCE(1)
Options [0 1]
Current  0
> 1
PDN type
Range [0 88]
Current   0
> <cr>
Baud rate
Options [50 75 150 300 600 1200 2400 4800 9600 19200 38400 48000
56000 64000 12]
Current   19200
> <cr>
Fail timer
Range [0 9999]
Current   150
> <cr>
RFS timer
Range [0 9999]
Current   150
> <cr>
Internal address
Options [1 3]
Current   1
> <cr>
```

**— continued —**

**Example (continued)::**

```
Remote address
Options [1 3]
Current   3
> <cr>
T1
Range [0 9999]
Current    30
> <cr>
Maximum out frames (K)
Range [1 7]
Current  7
> <cr>
Maximum trans attempts (N2)
Range [1 9999]
Current     7
> <cr>
Confirm  (yes or no): yes
mlusr>
```

***Note:*** If you enter yes, the memory image is updated but not the file. To update the file, see the save link command.

The following parameters cannot be changed:

- Protocol
- Link type
- Port type
- Maximum Frame length (X.25)
- Lowest LCN for DTE/DCE (X.25)
- Lowest LCN (X.25)
- LOC LIC (X.25)
- Highest LCN for DTE/DCE (X.25)
- Highest LCN (X.25)
- HOC HIC (X.25)

**Table 4**
**Link parameters**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| **X.25, TCP/IP, LAPB, and ASYNC parameters:** | | |
| Protocol* | X25, LAN (for TCP/IP), HDLC, ASYNC | Link protocol used |
| Link type* | 1, 2, 3 | Type of link (1 = Meridian Link, 2 = Host link, 3 = MML) |
| Machine ID | (SL16)<br>(x25dest)<br>(Lanlink)<br>(MeridianMail) | Logical name assigned to the attached host |
| Delay | (0)–9999 | Maximum time (in seconds) between packet transmissions |
| **ASYNC only :** | | |
| Port number | (tty03) | |
| **TCP/IP only** | | |
| Port | (3000) | |
| **X.25 and LAPB parameters:** | | |
| Port type* | X, H | H = HDLC, X = X.25 |
| Physical DTE/DCE | 0, 1 | 0 if the AM or IPE Module port is configured as DTE; 1 if the port is configured as DCE (default) |
| * Parameters marked with an asterisk (*) cannot be changed. | | |

**— continued —**

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| PDN type | 0, 40–48 | Packet data network type. This parameter is dependent on the type of X.25 network configured on the host. The possible values are<br><br>0 — LAPB<br>40 — Datex-P (Germany)<br>41 — Transpac (France)<br>42 — PPS (United Kingdom)<br>43 — Datapac (Sweden)<br>44 — Telenet (USA)<br>45 — DDN (USA)<br>46 — Accunet (USA)<br>47 — Datapac (Canada)<br>48 — Tymnet (USA)<br><br>The default values are 0 for LAPB and 44 for X.25. |
| Maximum Frame length* | 135 | |
| Baud rate | 300, 600, 1200, 2400, 4800, 9600, (19200), 38400, 48000, 56000, 64000 | Must be identical to that specified on the Meridian 1 or host computer configuration; if modems are used, must also match baud rate of the modem |
| Fail timer | 0–(150)–9999 | Timer value (in 1/10 second increments) for monitoring the signals that indicate link failure |
| RFS timer | 0–(150)–9999 | Timer value (in 1/10 second increments) for monitoring CTS or DTR signals after line opening |
| **— continued —** | | |

* Parameters marked with an asterisk (*) cannot be changed.

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| Internal address | (1), 3 | 1 for DCE; 3 for DTE |
| Remote address | 1, (3) | 3 for DCE; 1 for DTE |
| T1 | 0–(30)–9999 | Frame recovery time (in 1/10 second increments); must be identical to the time specified on the host computer configuration |
| Maximum out frames (K) | 1–(7) | LAPB window size; must be identical to the size specified on the host computer configuration |
| Maximum trans attempts (N2) | 1–(7)–9999 | Maximum number of retries to complete a transmission; must be identical to the number specified on the host computer configuration |
| Local DTE address | 000000990100 | Specifies the local DTE address of the physical line<br><br>X.25 “call request” address that identifies the AM or IPE Module. When the host sends the X.25 call request packet to set up the SVC, it must specify the local DTE address of the AM or IPE Module. The default value is “000000990100”. |

**— continued —**

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| **X.25-only parameters:** | | |
| Flow control negotiation | (0)–1 | An X.25 service which allows flow control parameters (packet size and window size) to be negotiated between the host and the AM or IPE Module. Not supported by the AM or IPE Module. Default value is 0 (no flow control negotiation).<br><br>Use flow control negotiation (packet size and window size)<br>0 = no; 1 = yes |
| Incoming packet size | 16, 32, 64, (128), 256, 512, 1024, 2048, 4096 | Maximum X.25 packet size; must be identical to the size specified on the host computer configuration |
| Outgoing packet size | 16, 32, 64, (128), 256, 512, 1024, 2048, 4096 | Maximum X.25 packet size; must be identical to the size specified on the host computer configuration |
| Incoming window size | 1–(2)–7 | Maximum number of outstanding incoming packets without an acknowledgment |
| Outgoing window size | 1–(2)–7 | Maximum number of outstanding outgoing packets without an acknowledgment |
| Throughput negotiation used | (0)–1 | Specify whether throughput negotiation may be used<br>0 = no; 1 = yes |

**— continued —**

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| Incoming throughput class | 3–(10)–12 | Maximum amount of incoming information that can pass through a saturated network<br>3 = 75 bps; 4 = 150 bps<br>5 = 300 bps; 6 = 600 bps<br>7 = 1200 bps; 8 = 2400 bps<br>9 = 4800 bps; 10 = 9600 bps<br>11 = 19200 bps<br>12 = 38400 bps |
| Outgoing throughput class | 3–(10)–12 | Maximum amount of outgoing information to pass through a saturated network<br>3 = 75 bps; 4 = 150 bps<br>5 = 300 bps; 6 = 600 bps<br>7 = 1200 bps; 8 = 2400 bps<br>9 = 4800 bps; 10 = 9600 bps<br>11 = 19200 bps<br>12 = 38400 bps |
| Lowest LCN for DTE/DCE* | -1 | Specifies the lowest X.25 virtual circuit number that will be assigned for an incoming (if DTE) or outgoing (if DCE) X.25 call request. Not used by the AM or IPE Module. Default value is -1. |
| Highest LCN for DTE/DCE* | -1 | Specifies the highest X.25 virtual circuit number that will be assigned for an incoming (if DTE) or outgoing (if DCE) X.25 call request. Not used by the AM or IPE Module. Default value is -1. |
| **— continued —** | | |

* Parameters marked with an asterisk (*) cannot be changed.

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| Lowest LCN* | 1 | Specifies the lowest X.25 virtual circuit number that will be assigned for an incoming/outgoing X.25 call request. Default value is 1. |
| Highest LCN* | 4095 | Specifies the highest X.25 virtual circuit number that will be assigned for an incoming/outgoing X.25 call request. Default value is 4095. |
| LOC LIC* | -1 | Specifies the lowest X.25 virtual circuit number that will be assigned for an incoming (if DCE) or outgoing (if DTE) X.25 call request. Not used by the AM or IPE Module. Default value is -1. |
| HOC HIC* | -1 | Specifies the highest X.25 virtual circuit number that will be assigned for an incoming (if DCE) or outgoing (if DTE) X.25 call request. Not used by the AM or IPE Module. Default value is -1. |
| T10 | 0–(1800)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for an X.25 restart confirmation packet after sending an X.25 restart packet to host. |
| T11 | 0–(2000)–9999 | Amount of time (in 1/10 second increments) the host will wait for an X.25 call accept packet after sending an X.25 call request packet to the AM or IPE Module. |
| **— continued —** | | |

* Parameters marked with an asterisk (*) cannot be changed.

**Table 4**
**Link parameters (continued)**

| Link parameter | Allowed values (defaults in parentheses) | Description |
|---|---|---|
| T12 | 0–(1800)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for an X.25 reset confirmation packet after sending an X.25 reset request packet to the host |
| T13 | 0–(1800)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for an X.25 clear confirmation packet after sending an X.25 clear request packet to the host |
| T14 | 0–(600)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for a packet with any P(R) value after sending an X.25 data packet to the host |
| T15 | 0–(1500)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for a packet with a P(R) value that acknowledges a transmitted X.25 data packet to the host |
| T16 | 0–(1300)–9999 | Amount of time (in 1/10 second increments) the AM or IPE Module will wait for an X.25 interrupt confirmation packet after sending an X.25 interrupt request packet to the host |
| Maximum T12 retries | 0–(3)–9999 | Maximum number of times the AM or IPE Module sends reset requests due to T12 timeouts |
| Maximum T13 retries | 0–(3)–9999 | Maximum number of times the AM or IPE Module sends clear requests due to T13 timeouts |
| **— end —** | | |

## save link

This command saves the link parameters to the file specified. If no file name is provided, the file name specified in the link control file is used and you are asked to confirm that the default file should be overwritten (replaced). A full directory path must be specified with the file name (for example /usr/mlusr/conf/mylink).

**Command format:**

mlusr> **save link link_number [filename]**

**Example:**

To save parameters for link number 1 using the default configuration file:

mlusr> **save link 1**

File "/usr/mlusr/conf/x25hlnk.datafile" already exists. OK to overwrite? Confirm? (yes or no): **y**

mlusr>

**Example:**

To save parameters for link number 1 in a file called savedata:

mlusr> **save link 1 /usr/mlusr/conf/savedata**

mlusr>

## read link

Use this command to reconfigure a link from the parameters saved in a file. If you do not provide a file name, the file name specified in the link control file is used. Configuration files can be read from any specified directory.

You are asked to confirm the parameters. A "yes" response to the confirm prompt reconfigures the link. A "no" response aborts the command.

**Command format:**

mlusr> **read link link_number [filename]**

***Note:*** The maximum length of the file name is 14 characters. The file name must follow a slash character; for example, /saveconfig1.

**Example:**

To reconfigure link number 1 from file saveconfig1:

mlusr> **read link 1 /saveconfig1**

```
Protocol:  X25                          Link type:  2
Machine ID: x25dest
Delay:  0
Port type:  X                           Physical DTE(0)/DCE(1):  1
PDN type:  44                           Maximum Frame length:  135
Baud rate:  19200                       Fail timer:  150
RFS timer:  150                         Internal address:  1
Remote address:  3                      T1:  30
Maximum out frames (K):  7              Maximum trans attempts (N2):  7
Local DTE address:  000000990100
Flow control negotiation:  0            Incoming packet size:  128
Outgoing packet size:  128              Incoming window size:  2
Outgoing window size:  2                Throughput negotiation used:  0
Incoming throughput class:  10          Outgoing throughput class:  10
Lowest LCN for DTE/DCE:  -1             Highest LCN for DTE/DCE:  -1
Lowest LCN:  1                          Highest LCN:  4095
LOC LIC:  -1                            HOC HIC:  -1
T10:  1800
T11:  2000                              T12:  1800
T13:  1800                              T14:  600
T15:  1500                              T16:  1300
Maximum T12 retries:  3                 Maximum T13 retries:  3
Confirm?  (yes or no): y
```

# Link statistics command

The link statistics command generates a protocol-specific list of statistics for the link number you specify. Peg counts for the various frame/packet types sent or received are displayed, along with other information such as timeouts, number of active virtual circuits, and number of signal losses. The statistics differ for X.25 and HDLC protocols.

**Command format:**

mlusr> **statistics link link_number**

**Example: Link 0 (LAPB) statistics**

```
mlusr> statistics link 0
CPU ID 2                Port 0
Reason 0                Invalid frames 0
RXD I frames 140        TXD I frames 137
RR frames 275           RNR frames 0
REJ frames 0            SABM frames 0
UA frames 0             FRMR frames 0
DM frames 0             DISC frames 0
T1 frames 0             N2 frames 0
Signals lost 0          Signal drops 0
mlusr>
```

**Example: Link 1 (TCP/IP) statistics (Meridian Link)**

```
mlusr> statistics link 1
Host Connection Count 1
Connection Abort: Retransmission error 0
Connection Abort: User timeout 0
Connection Abort: Keep alive timeout 0
Retransmit Count 12
Packets Resized Smaller 0
Number ACKs Generated 4688
Packets Dropped: Not in window 0
Packets Dropped: Bad checksum 0
Duplicate Packets Received 1
Out of Order Packets Received 0
Packets Dropped: Out of memory 0
Total Packets Received 11447
Total Packets Transmitted 11547
Total Bytes Received 1204636
Total Bytes Transmitted 149853
mlusr>
```

**Example: Link 1 (X.25) statistics (Meridian Link)**

```
mlusr> statistics link 1
CPU ID 2                        Port 1
Circuit reference 536883250     Reason 0
More Nststi 0                   Active VCS 1
Type 1    call direction
Invalid packets 0               Setup packets 0
Clear packets 0                 TXD data packets 117
RXD data packets 90 T           XD int packets 0
RXD int packets 0               RR packets 117
RNR packets 0                   REJ packets 0
Reset packets 0                 Restart packets 0
T20 timeouts 0                  T21 timeouts 0
T22 timeouts 0                  T23 timeouts 0
T24 timeouts 0                  T25 timeouts 0
T26 timeouts 0                  Length remote 10
Remote DTE @ B81                Reverse charge request
mlusr>
```

**Example: Link 2 statistics (Meridian Link)**

```
mlusr> statistics link 2
Report Period 9887 seconds

Received Packets Count:
        Sync Packets 0          User Data Packets 0
        Poll Packets 0          Termination Packets 0
        Ack Packets 0           Error Ack Packets 0

Sent Packets Count:
        Sync Packets 2772       User Data Packets 0
        Poll Packets 0          Termination Packets 0
        Ack Packets 0           Error Ack Packets 0

Received Error Packets Counts:
        Format 0                Bad Check Sum 0
        Bad Ack Seq No 0        Bad Nak Seq No 0
        Bad Data Seq No 0       Bad Packet Type 0

Peak Registrations 6357
Cur Processes Registered 0
Cur Total Processes Registered 0
Last Reset 0
Last Synchronization
```

# Meridian Link messages

The association services commands (described in following pages of this chapter) provide a detailed view of the messages that pass across link 1. Some of these commands enable you to obtain information on particular messages, while ignoring other messages. Message types allow you to refer to specific messages when you use Meridian Link commands.

## Message types

Meridian Link Release 3 and later software assigns a message type to every Meridian Link message. This message type (a two-byte hexadecimal number) can be used to do the following:

- record all or selected types of messages
- filter all or selected types of messages
- monitor all or selected types of messages
- obtain statistics on selected types of messages

To see a list of message types, type **help msgtypes** and press [Return].

## Message names

The message names used in earlier versions of Meridian Link software may still be used in the commands described above; however, any new messages (introduced in Release 3 or later software) can only be referenced by message type. Type **help messages** and press [Return] at the "mlusr>" prompt to see a list of valid message names.

## Specifying message types in commands

Many of the association services commands include message as an optional parameter in the command format. You can specify particular messages by substituting any of the following for the message parameter:

- message type (0801, for example)
- message name (Make Call, for example)
- all (to select all messages)
- allin (to select all incoming messages to Meridian Link from the host)
- allout (to select all outgoing messages from Meridian Link to the host)

# Association services commands

These commands provide information covering application associations currently established on the Application Module or IPE Module.

## get associations

This command displays information on current active associations. The mlusr association is always shown with an application ID of ADMIN.nnnn, where nnnn is a number. The association ID, displayed for each association by invoking this command, is used in the association services commands (described in the following pages).

**Command format:**

mlusr> **get associations**

**Example:**

mlusr> **get associations**

```
Association ID:                 1
Application ID                  ADMIN.1334
Host Link ID:                   NONE
Meridian 1 Link ID:             NONE
Meridian 1 Customer Number:     NONE
Meridian Mail Link ID:          NONE
Registered Services:            1

Association ID:                 2
Application ID                  API_TOOL
Host Link ID:                   1
Host Name:                      X25dest
Meridian 1 Link ID:             0
Meridian 1 Name:                SL16
Meridian 1 Customer Number:     1
Meridian Mail Link ID:          2
Meridian Mail Name:             Meridian Mail
Registered Services:            97 98 100 101

mlusr>
```

## get directory numbers

Registering DNs with the Meridian 1, using the DN Registration message, allows an application to specify DNs for which it would like to receive events. The get dn command displays one of the following:

- ALL—meaning that the application has registered all DNs within the selected customer number on Meridian 1 for the specified association
- a list of DNs
- NONE—meaning that the application has registered no DNs for the specified association

**Command format:**

mlusr> **get dn association_id**

**Example:**

To obtain the list of DNs registered for association_id 1:

mlusr> **get dn 1**

Number of DNs registered: ALL

mlusr>

## get resource

For some Meridian Link features, the application must acquire a resource from Meridian 1 in order to perform a certain function. For example, an application must acquire a Control DN (CDN) before it can route the call on behalf of that CDN. Resources include CDNs, ACD queues, ACD positions, and devices (such as telephone sets or trunks).

The get resource command displays all the resources acquired by an application for the specified association. Acquired resources may be expressed in any of the following ways:

- all resources
- a single or all CDNs
- a single or all queues
- a single or all ACD positions
- a single or all DN devices
- a single or all TNs
- a voice port

Only one association may acquire a particular resource. Acquiring all resources precludes all other associations from acquiring any resources that are configured under the same customer number on Meridian 1.

**Command format:**

mlusr> **get resource association_id**

**Example:**

To obtain the list of resources acquired by an application for association_id 2:

```
mlusr> get resource 2

        Acquired Resource List Association 2
            Single Voice Port 3
            Single Voice Port 4

mlusr>
```

## message statistics

The statistics commands collect and display message statistics (number of each type of message flowing over the link). There are four statistics commands. These include

- enable message statistics collection
- disable message statistics collection
- clear messages for statistics
- get message statistics

Type **help msgtypes** and press [Return] to see a list of all message types that can be selected in the messages parameter. You can also type **help messages** and press [Return] to see a list of message types supported by Meridian Link Release 2 software, up to Release 5C.

### Enable message statistics collection

This command starts accumulation of message statistics for the specified association. Statistics can be collected for either all or selected messages.

**Command format:**

mlusr> **enable msgstat association_id**

**Example:**

To enable message statistics collection for association_id 1:

```
mlusr> enable msgstat 1

        Enable statistics successful

mlusr>
```

### Disable message statistics collection

This command stops the accumulation of statistics for an association—assuming that the specified statistics collection had been enabled. Statistics collection can be disabled for all or selected messages.

**Command format:**

mlusr> **disable msgstat association_id [message] [message ...]**

**Example:**

To disable message statistics collection for association ID 1:

mlusr> **disable msgstat 1**

Disable statistics successful

mlusr>

### Clear messages for statistics

This command resets the statistics to 0 for all messages for the specified association ID.

**Command format:**

mlusr> **clear msgstat association_id**

**Example:**

To clear message statistics peg counts for association_id 1:

mlusr> **clear msgstat 1**

Clear statistics successful

mlusr>

### Get message statistics

This command displays peg counts (the current statistics collected since the last get command) for specified messages on the specified association.

**Command format:**

mlusr> **get msgstat association_id message [message ...]**

**Example:**

To obtain the statistics collected for message mlmakecall for association ID 1:

mlusr> **get msgstat 1 0801**

```
    Facility Enabled
    Makecall              125

mlusr>
```

To get all messages, enter:

mlusr> **get msgstat 1 all**

```
    Facility Enabled

Enable Stat Collecting Response      1
Get Statistics                       2
Get Statistics Response              1
mlusr>
```

## filter commands

Five filter commands enable you to control which Meridian Link messages pass across the link. These are

- set filter
- enable filter
- disable filter
- clear filter
- get filter status

Type **help msgtypes** and press [Return] to see a list of all message types that can be selected in the messages parameter. You can also type **help messages** and press [Return] to see a list of message types supported up to Meridian Link Release 5C software.

### Set filter

This command adds message types to the list of messages that are to be filtered out.

**Command format:**

mlusr> **set filter association_id message [message ...]**

**Example:**

To filter makecall and initiate transfer messages for association_id 1:

mlusr> **set filter 1 0801 0804**
or
mlusr> **set filter 1 mlmakecall inittran**

Set filter successful

mlusr>

### Enable filter

This command turns on filtering of messages. Before entering this command, use the set filter command to specify which message types should be filtered out.

**Command format:**

mlusr> **enable filter association_id**

**Example:**

To enable filtering for association_id 1:

```
mlusr> enable filter 1

       Enable filter successful

mlusr>
```

### Disable filter

This command turns off filtering for a specified association ID. The list of messages set for filtering is still intact, should you reenable filtering.

**Command format:**

mlusr> **disable filter association_id**

**Example:**

To disable filtering for messages set for association_id 1:

```
mlusr> disable filter 1

       Disable filter successful

mlusr>
```

### Clear filter

This command removes one or more message types from the list of messages to be filtered out.

**Command format:**

mlusr> **clear filter association_id message [message ...]**

**Example:**

To stop filtering out two messages (make call and initiate transfer), for association ID 1:

mlusr> **clear filter 1 0801 0804**
or
mlusr> **clear filter 1 mlmakecall mlinitxtr**

Clear filter successful

mlusr>

### Get filter status

This command displays the filter status of messages for the specified association.

**Command format:**

mlusr> **get filter association_id**

**Example:**

For association_id 1

mlusr> **get filter 1**
Facility Enabled

Messages Filtered:
Make Call
Init Transfer

## record commands

Five record commands enable you to control recording of specified messages flowing across the link for an association. The messages are recorded in hexadecimal format to files on the Application Module or IPE Module hard disk (see Figure 10). The commands are as follows:

- set record
- enable record
- disable record
- clear record
- get record

Type **help msgtypes** and press [Return] to see a list of all message types that can be selected in the messages parameter. You can also type **help messages** and press [Return] to see a list of message types supported up to Meridian Link Release 5C software.

Use the view command (described later in this chapter) to look at record files, which use the format rec_xxx.yyy; where xxx is a number starting at 000 for the first file and incrementing by 1 for each new file, and yyy is the association ID of the application for which messages are being recorded.

A new file is created whenever an enable recording command is given. A new file is also created when the rec_xxx.yyy file exceeds 100 kbytes.

**Figure 10**
**Example of a recording file**

```
To  : hlink (assoc id=2)                Wed May 20 20:42:04 1992
                        Progress
Message:
FF 0A 00 25 02 80 01 08 08 5E 30 08 00 08 35 30 30 36 31 08 00 08 35 30 31 31
35
 03 70 2E 04 01 02 3F 04 01 08

To  : hlink (assoc id=2)                Wed May 20 20:42:04 1992
                        Status Change
Message:
FF 0A 00 19 02 00 00 08 0F 00 37 04 01 08 36 08 00 08 35 30 30 36 38 03 01

To  : hlink (assoc id=2)                Wed May 20 20:42:04 1992
                        Release Response
Message:
FF 0A 00 15 02 80 03 08 0C 07 30 08 00 00 35 30 30 36 71 03 00

From: hlink (assoc id=2)                Wed May 20 20:42:05 1992
                        Answer
Message:
FF 0A 00 12 02 00 01 08 09 FF 30 08 00 00 35 31 30 32
```

## Set record

Use this command to add specified message types to the list of messages to be recorded.

**Command format:**

mlusr> **set record association_id message [message ...]**

**Example:**

To set recording for two messages, makecall and calloffer, for association ID 2:

mlusr> **set record 2 0801 0807**
or
mlusr> **set record 2 mlmakecall mlcallofr**

Set record successful

mlusr>

### Enable record

This command turns on message recording. Before issuing this command, use get record to confirm the list of messages to be recorded. If necessary, use set record or clear record to modify the list. Recording stays active until you disable it or exit mlusr.

**Command format:**

mlusr> **enable record association_id**

**Example:**

To enable recording for messages set for association_id 2:

```
mlusr> enable record 2

       Enable record successful

mlusr>
```

### Disable record

This command turns off message recording if it had been enabled. Recording is also disabled when you exit mlusr. Disabling message recording does not alter the list of messages that were set for recording.

**Command format:**

mlusr> **disable record association_id**

**Example:**

To disable recording for messages set for association_id 2:

```
mlusr> disable record 2

       Disable record successful

mlusr>
```

### Clear record

This command clears the specified message types from the list of messages to be recorded.

**Command format:**

mlusr> **clear record association_id message [message ...]**

**Example:**

To clear recording for two messages, makecall and calloffer, for association ID 2:

mlusr> **clear record 2 0801 0807**
or
mlusr> **clear record 2 mlmakecall mlcallofr**

Clear record successful

mlusr>

### Get record

This command displays the current message recording status, and the current list of messages specified for recording.

**Command format:**

mlusr> **get record association_id**

**Example:**

To obtain the current message recording status for association_id 2:

mlusr> **get record 2**

Facility Enabled

Messages Recorded:
Make call
Call offered

mlusr>

## monitor commands

The monitor commands display messages flowing on the identified association_id on the system console. The messages appear in hexadecimal format. There are five monitoring commands:

- set monitor
- enable monitor
- disable monitor
- clear monitor
- get monitor

The format of the monitor file displayed on the console is the same as for the recording file. See Figure 10 in the record commands.

Type **help msgtypes** and press [Return] to see a list of all message types that can be selected in the messages parameter. You can also type **help messages** and press [Return] to see a list of message types supported by Meridian Link software up to Release 5C.

### Set monitor

Use this command to add the message types to the list of messages to be monitored.

**Command format:**

mlusr> **set monitor association_id message [message ... ]**

**Example:**

To monitor makecall and answer messages for association ID 1:

mlusr> **set monitor 1 0801 0809**
or
mlusr> **set monitor 1 mlmakecall mlanswer**

Set monitor successful

mlusr>
To monitor all outgoing messages, enter:

mlusr> **set monitor 2 allout**

### Enable monitor

This command turns on the message monitoring. Before using the enable monitor command, use the get monitor command to confirm the list of messages to be monitored. If necessary, use set monitor or clear monitor to modify the list.

**Command format:**

mlusr> **enable monitor association_id**

**Example:**

To enable monitoring for association_id 1:

mlusr> **enable monitor 1**

Enable monitor successful

mlusr>

### Disable monitor

This command turns off message monitoring. It does not alter the list of messages that were set for monitoring.

**Command format:**

mlusr> **disable monitor association_id**

**Example:**

To disable monitoring for messages set for association_id 1:

mlusr> **disable monitor 1**

Disable monitor successful

mlusr>

### Clear message for monitoring

This command clears the specified message types from the list of messages that are to be monitored.

**Command format:**

mlusr> **clear monitor association_id message [message ...]**

**Example:**

To clear monitoring of two messages, mlmakecall and mlanswer, for association_id 1:

mlusr> **clear monitor 1 0801 0809**
or
mlusr> **clear monitor 1 mlmakecall mlanswer**

Clear monitor successful

mlusr>

To clear all messages, enter:

mlusr> **clear monitor 1 all**

### Get monitor status

This command displays the current monitor status and a list of the messages to be monitored.

**Command format:**

mlusr> **get monitor association_id**

**Example:**

To get the status for association_id 1:

mlusr> **get monitor 1**

Facility Enabled

Messages Monitored :
Make call
Answer

mlusr>

## traffic commands

The traffic commands count messages flowing to and from an application over a period of time. There are three traffic commands, as follows:

- enable traffic
- disable traffic
- get traffic

### Enable traffic

This command turns on traffic reporting for the specified association.

**Command format:**

mlusr> **enable traffic association_id [period] [file_name] [lpr] [terminal]**

Reports are generated every 5, 10, 15, 30, or 60 minutes (as specified in the *period* parameter; 60 is the default). The report is sent to the user's terminal (if **terminal** is specified), the system printer (if **lpr** is specified), or to a file named *file_name*.*association_id***.** (if *file_name* is specified).

If no destination is specified, the report is sent to a default file (*traffic*.*association_id*), in directory /usr/mlusr/traf. Normally, lpr is not specified because Meridian Link systems do not have printers.

In the following example, traffic is monitored for association ID 1 and reports are generated every five minutes to the default file traffic.1.

**Example:**

```
mlusr> enable traffic 1 5
       Enable traffic successful
```

### Disable traffic

This command turns off the traffic reporting for the specified association.

**Command format:**

mlusr> **disable traffic association_id**

**Example:**

To disable traffic reporting for association_id 1:

```
mlusr> disable traffic 1
       Disable traffic successful
```

### Get traffic

This command displays the traffic information (period, filename, printer and terminal) for the specified association, which has traffic turned on.

**Command format:**

mlusr> **get traffic association_id**

**Example:**

To get the status for association_id 1:

```
mlusr> get traffic 1
       Traffic is enabled for Association 1

Period     : 5
Filename :  traffic.1
Printer    : YES
Terminal   : YES
```

**Example: Traffic report**

```
Application Message Traffic Report      Tue Oct 26 15:12:31 1993
Application = ADMIN.4017;  Association = 1;  Service(s) = 1
MSL-1 Link = None;  Host Link = None;  Meridian Mail Link = None
Filename = traffic.1;  Time period = 5 minutes

                Meridian Link Messages
                ======================
<0100> messages:
AppReg   AppRegRp  AppRel   AppRelRp  DnReg    DnRegRp   DnRel    DnRelRp
00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
GetAssoc  AssocRp  GetRegDn  RegDnRp  AppMon   AppMonRp  MonStop  MonStpRp
00000002  00000002  00000000  00000000  00000000  00000000  00000000  00000000
AppRelId
00000000

<0200> messages:
ConfLk   ConfLkRp  EnbLk    EnbLkRp   DisbLk   DisbLkRp  LkStatus  StatusRp
00000000  00000000  00000000  00000000  00000000  00000000  00000002  00000002
LkStats  StatsRp  PerfDiag  DiagRp   GetCLk   GetCLkRp  TraceLk  TrLkRp
00000002  00000002  00000000  00000000  00000001  00000001  00000000  00000000
UntrLk   UntrLkRp  LoopTst  LoopRp   DeCnLk   DeCnLkRp
00000002  00000002  00000000  00000000  00000000  00000000

<0300> messages:
EnlRec   EnlRecRp  DisRec   DisRecRp  SetRec   SetRecRp  ClrRec   ClrRecRp
00000001  00000001  00000000  00000000  00000000  00000000  00000000  00000000
GetRec   GetRecRp
00000001  00000001

<0400> messages:
EnlMon   EnlMonRp  DisMon   DisMonRp  SetMon   SetMonRp  ClrMon   ClrMonRp
00000001  00000001  00000001  00000001  00000000  00000000  00000001  00000001
GetMon   GetMonRp
00000002  00000002
```

**— continued —**

**Example: Traffic report (continued)**

```
<0600> messages:
EnlFil   EnlFilRp  DisFil   DisFilRp  SetFil   SetFilRp  ClrFil   ClrFilRp
00000001  00000001  00000001  00000001  00000000  00000000  00000000  00000000
GetFil   GetFilRp
00000001  00000001

<1300> messages:
Polling   ContTest  ContRp   ContMsg
00000000  00000001  00000001  00000000

<1600> messages:
EnlTraf   EnlTraRp  DisTraf   DisTraRp  GetTraf   GetTraRp
00000000  00000001  00000000  00000000  00000000  00000000

Summary:
      Total Meridian Link messages sent by application:  16
      Total Meridian Link messages received by application:  17
```

# Link tracing commands

Unlike message recording or monitoring, which record or display messages flowing on a specified stream (association ID), message tracing records all messages flowing on a link or through the system.

A link trace writes application layer messages flowing over the link to a file with a hexadecimal format. Message dumps are labeled with time stamp, message name, and direction of flow.

There are two levels of link traces. Trace level 0 (the default) traces all messages; trace level 1 traces all but polling messages.

Files are recirculated every 48 hours to avoid overflowing the file system. The default file names used by trace are as follows:

- For link 0: /usr/mlusr/trace/link0.trace
- For link 1: /usr/mlusr/trace/link1.trace
- For link 2: /usr/mlusr/trace/link2.trace
- For trace main: /usr/mlusr/trace/main.trace

Use trace link or trace main to turn on a trace. Use untrace link or untrace main to turn off a trace.

## trace link

The trace link command records all messages that are sent across a link.

**Command format:**

mlusr> **trace link link_number [trace_level] [file_name]**

## trace main

The trace main command records all messages that are sent to and from the Application Module or IPE Module regardless of link or association ID.

**Command format:**

mlusr> **trace main [trace_level] [file_name]**

## untrace link

Use untrace link to turn off a trace that was initiated by the trace link command.

**Command format:**

mlusr> **untrace link link_number**

## untrace main

The untrace main to turn off a trace that was initiated by the trace main command.

**Command format:**

mlusr> **untrace main**

Use the view command to see the trace file. (See the view command later in this chapter for more information on selecting and viewing files.) The following are examples of trace messages in trace files.

**Example: trace main**

```
05/20/92 20:41:37 to MLappl (assoc id=1) Trace Tsmain Response
FF 0A 00 0D 01 80 04 09 03 83 71 03 00
05/20/92 20:41:38 from hlink (assoc id=2) Make Call
FF 0A 00 1D 02 00 02 08 01 1A 30 08 00 00 35 31 30 39 31 08 00 00 35 31 30 38 34
 03 01
05/20/92 20:41:38 to mlink (assoc id=2) Outgoing ISDN/AP Msg: CON
FF 0A 00 28 00 00 00 07 01 00 2C 1E 03 1B 00 00 00 02 16 0E 00 02 00 01 01 00 00
 00 00 00 00 00 00 00 02 02 9A 15 8A 15
05/20/92 20:41:38 from mlink (assoc id=0) Incoming ISDN/AP Msg: CRS
FF 0A 00 2E 00 00 00 07 02 00 2C 24 03 21 00 00 00 02 16 0F 00 02 00 01 00 0A 00
 00 0E 8B 00 00 00 00 02 02 9A 15 8A 15 3D 01 08 3E 01 08
05/20/92 20:41:38 to hlink (assoc id=2) Progress
FF 0A 00 25 02 80 02 08 08 00 30 08 00 08 35 31 30 39 31 08 00 08 35 31 30 38 35
 03 01 2E 04 00 0A 3F 04 0E 8B
```

**Example: trace link 0**

```
05/20/92 20:41:33 to PBX CALLDIS link 0
03 15 00 00 00 02 16 2E 00 01 00 01 00 00 00 00 00 00 02 00 AA 15
05/20/92 20:41:34 from PBX USM link 0
03 19 00 00 03 05 16 1A 00 00 00 01 37 02 03 05 36 02 51 AA 3B 01 08 38 01 01 03
 19 00 00 03 05 16 1A 00 00 00 01 37 02 03 05 36 02 51 AA 3B 01 08 38 01 05 03 1
9 00 00 03 06 16 1A 00 00 00 01 37 02 03 06 36 02 51 A2 3B 01 08 38 01 01 03 19
00 00 03 06 16 1A 00 00 00 01 37 02 03 06 36 02 51 A2 3B 01 08 38 01 05 03 15 00
 00 00 02 16 2E 00 01 00 01 01 00 00 00 00 00 02 00 AA 15
05/20/92 20:41:34 from PBX POLL link 0
01 08 00 00 00 00 13 25 81
05/20/92 20:41:35 from PBX CALLDIS link 0
03 15 00 00 00 02 16 2E 00 01 00 01 02 00 00 00 00 00 02 00 3A 15
05/20/92 20:41:36 to PBX CON link 0
03 1B 00 00 00 02 16 0E 00 01 00 01 01 00 00 00 00 00 00 00 00 00 02 02 6A A5 11
```

**Example: trace link 1**

```
05/22/92 16:02:46 from host Release link 1
FF 0A 00 12 02 00 03 08 0B FF 30 08 00 00 35 31 30 33
05/22/92 16:02:46 to host Release Response link 1
FF 0A 00 19 02 80 03 08 0C 94 30 08 00 00 35 31 30 33 71 03 01 78 04 10 0C
05/22/92 16:02:46 from host Make Call link 1
FF 0A 00 1D 02 00 01 08 01 12 30 08 00 00 35 30 30 36 31 08 00 00 35 30 31 31 34
 03 01
05/22/92 16:02:46 from host Make Call link 1
FF 0A 00 1D 02 00 02 08 01 00 30 08 00 00 35 31 30 39 31 08 00 00 35 31 30 38 34
 03 01
05/22/92 16:02:46 to host Status Change link 1
FF 0A 00 19 02 00 00 08 0F 00 37 04 01 08 36 08 00 08 35 30 30 36 38 03 02
05/22/92 16:02:46 to host Progress link 1
FF 0A 00 25 02 80 01 08 08 00 30 08 00 00 08 35 30 30 36 31 08 00 00 08 35 30 31 31 35
```

**Example: trace link 2**

```
05/27/93 12:43:37 from mmlh 2 Trace Link Response
2C 05 19 E9 00 00 00 00 00 00 00 00 00 00 00 FF 0A 00 10 01 80 05 02
10 00 1A 03 02 71 03 00
05/27/93 12:44:53 to mmlh link 2 (assoc id=69) Meridian Mail Msg: LH:AM
Register
2C 05 1A 35 2C 05 00 00 00 00 00 00 00 00 00 FF 0A 00 1E 45 20 34 07 03 36
2D 14 00 00 75 32 00 00 00 00 63 09 00 00 68 2E 00 00 00 01
05/27/93 12:44:53 from mmlh 2 Meridian Mail Msg: LH:AM Register
F4 7A 3F FF F4 0C 00 00 02 28 00 40 33 70 3F FF FF 0A 00 1E F3 FE 00 07 03 00
2D 14 00 00 75 32 00 01 FF FF 63 09 00 01 00 00 00 00 00 0
```

# Link testing commands

Two commands test the physical continuity of links: continuity test and loopback test.

## continuity test

This command allows you to test end to end—from the Application Module or IPE Module software to the Meridian 1, including all applications in the module and host computer.

**Command format:**

mlusr> **continuity test**

**Example:**

```
mlusr> continuity test

Continuity test in progress
Results will be printed within 15 seconds

Meridian 1/SL-1 SL16: Link 0 responding

mlusr>
```

## loopback test

This test verifies the condition of synchronous links, typically link 0 (AML) and link 1 (host link) on the Application Module or IPE Module.

If the Meridian Link system is running with a host link over Ethernet TCP/IP, the user has the option to run a loopback ping test which invokes the UNIX ping command to verify that the host is operational.

This diagnostic test entails connecting a loopback cable between two synchronous ports on the Application Module or IPE Module (typically link 0 and link 1), and running a test from the mlusr> prompt to test the ports.

The loopback cable is a 25-pin RS232C, male-to-male straight cable for both the Application Module and the IPE Module.

The loopback test will configure both link 0 and link 1 as HDLC protocol links, and try four different combinations of DTE and DCE settings until the link establishes. If the link does not establish, the test is deemed to have failed, and the reason for the failure will be provided. Refer to Chapter 6, “Link error messages” for descriptions of the error messages.

After the test is completed, the two links are restored to their original configurations.

***Note:*** One port must be configured as DTE and the other as DCE.

**Command format:**

mlusr> **loopback test**

**Example:**

This command tests links 0 and 1.

mlusr> **loopback test**

Enter first Port/Link number (e.g. 0, 1, or 'q'): 0
Enter second Port/Link number (e.g. 0, 1, or 'q'): 1
Please plug in a straight cable between the ports
Ready (yes or no): **y**

Performing Loopback Test: Link 0 (DTE) and Link 1 (DCE)

***Note:*** 0 and 1 are the port numbers that the user enters.

Configure Link 0 : successful
Configure Link 1 : successful
Enable Link 0 : successful
Enable Link 1 : successful
Loopback Test Successful

***Note:*** If the link is not established, the following messages appears.

Loopback Test failed: reason ...

Restoring original link configuration
Please wait ...

Configure Link 0 : successful
Configure Link 1 : successful
Configure Link 2 : successful
Enable Link 0 : successful
Enable Link 1 : successful
Enable Link 2 : successful

mlusr>

If TCP/IP is running, the loopback test invokes the UNIX ping command from the mlusr session. You are then prompted to enter the IP address or the host machine name.

> ***Note:*** You can use the terminal's interrupt character to escape out of ping.

Following is a sample session of a loopback test performed on a Meridian Link system using TCP/IP.

**Example of a successful ping operation:**

This command tests links 0 and 1.

```
mlusr> loopback test

    Would you like to ping the host machine or perform the
    loopback test between ports 0 and 1 on the AM?
    Enter p to ping, <cr> to perform loopback (default): p

    Note: If a failure occurs in checking for TCP/IP, or if the user
    chooses <cr> then the default loopback diagnostic test is
    performed for ports 0 and 1.

    Enter the IP address in internet dot notation or host name:
    47.72.31.202
    Invoking ping command.
    PING 47.72.31.202: 56 data bytes
    64 bytes from 47.72.31.202:  seq=0.  time=16. ms
    64 bytes from 47.72.31.202:  seq=1.  time=0. ms

    ----47.72.31.202 PING Statistics----
    2 packets transmitted, 2 packets received, 0% packet loss
    round-trip (ms)   min/avg/max = 0/8/16

mlusr>
```

**Example of an unsuccessful ping operation:**

This command tests links 0 and 1.

mlusr> **loopback test**

Would you like to ping the host machine or perform the loopback test between ports 0 and 1 on the AM?
Enter p to ping, <cr> to perform loopback (default): **p**

***Note:*** If a failure occurs in checking for TCP/IP, or if the user chooses <cr> then the default loopback diagnostic test is performed for ports 0 and 1.

Enter the IP address in internet dot notation or host name:
**1.2.3.4**
Invoking ping command.
PING 1.2.3.4: 56 data bytes

----1.2.3.4 PING Statistics----
2 packets transmitted, 0 packets received, 100% packet loss

mlusr>

# File viewing commands

Two commands are provided for viewing files: view and viewlog.

## view

This command enables you to choose a set of log, trace, or record files and to display the set. Trace and record files are described earlier in this chapter, and the SysLog file is described in Chapter 5, "Application Module and IPE Module error messages."

This command is identical to the view command in maint.

**Command format:**

mlusr> **view**

**Example:**

mlusr> **view**

1. Oct_12_93.0001
2. REVERSE: Oct_12_93.0001
3. Oct_13_93.0002
4. REVERSE: Oct_13_93.0002
5. Oct_13_93.0003
6. REVERSE: Oct_13_93.0003
7. Oct_13_93.0004
8. REVERSE: Oct_13_93.0004

Make a selection/deselection by entering the desired value:

Type the number corresponding to the file you wish to display and press [Return]. An asterisk (*) will appear beside the entry. You may continue selecting files (they will be displayed as a continuous file, each file with the next appended to it) by typing numbers and pressing [Return].

When you have selected all the files you wish to display at one time, press [Return] again. Your screen displays the contents of the files you selected.

### Viewing a file

The following commands are available to you while you are viewing a file:

| | |
|---|---|
| ↑ or **u** | scroll up through the file, one line at a time |
| ↓ or **d** | scroll down through the file, one line at a time |
| **Prev** or **U** | scroll up through the file, a screen at a time |
| **Next** or **D** | scroll down through the file, a screen at a time |
| **f** | find a particular text pattern<br>When you type **f**, you are prompted to enter the string to locate. Type in the information and press [Return]. If that pattern exists in the log file, a portion of the log file containing that pattern will appear at the top line of the screen.<br><br>**Note:** The f command is case-sensitive. If the system doesn't find the pattern you are looking for, ensure that you entered it correctly (with the proper mix of upper and lowercase characters). |
| **n** | find the next occurrence of the same text pattern |
| **x** | exit (return to the "maint>" prompt) |

## viewlog

This command displays the contents of the current SysLog file. This command is identical to the viewlog command in maint.

**Command format:**

mlusr> **viewlog**

The commands described in the "Viewing a file" section are available to you while you are viewing the SysLog file.

# Miscellaneous commands

The miscellaneous commands are exit, quit, help, and version. The exit and quit commands are interchangeable.

## exit

This command ends the current mlusr session.

## quit

This command ends the current mlusr session.

## help

Provides a summary of all available commands, organized by topic. The following symbols are used in the summary:

- # separates the command format from the command description
  Example: get links # shows configured links
- | used like the word “or” to separate command variations
  Example: display|change linkctl
- [ ] denotes optional parts of the command format
  Example: read|save linkctl [filename]
- { } indicates that you can choose one of the items within the parentheses
  Example: get {filter|monitor|record} assoc_id

**Figure 11**
**Link maintenance help command**

```
                Meridian Link Administration Command Summary

note: | denotes or, [...] denotes optional, {...} denotes choice
Link configuration and control commands:
   get links  #shows configured links
   display|change  linkctl  #manage link control file
   read|save linkctl  [file_name]  #read/save from/to a different file
   display|change link  link_number  #show/change link parameters
   enable|disable|status|statistics  link link_number  #link operations
   read|save  link link_number [file_name]  #read/save link parameters
Association commands:
get associations  #show current associations
   get dn assoc_id  #show DNs registered by an association
   get resource assoc_id  #show resources acquired by an association
   get {filter|monitor|record}  assoc_id  #show status
   set|clear  {filter|monitor|record} assoc_id  {msg_name|msg_type}
   enable|disable  {filter|monitor|record|msgstat}  assoc_id
   get msgstat assoc_id {msg_name|msg_type}  #show message stats status
   clear msgstat assoc_id  #clear message stats
   enable|disable|display  load assoc_id  #manage traffic monitor
   enable traffic assoc_id {period} {file_name} {lpr} {terminal}
   disable traffic assoc_id
Test commands:
   continuity test # show diagnostic tests results
   loopback test # show diagnostic loopback results
Trace commands:
   trace link link_number [trace_level] [file_name]  #trace link traffic
   trace main trace_level [file_name]  #trace through traffic
   untrace link link_number  or   untrace main  #set trace off
Commands for more help/information:
   help, ?, help messages, help command  #list this and other help pages
   version, ver  #show MeridianLink release running
   view #display system log, trace or record files
   viewlog #display system log
Quitting or exiting mlusr session:
   quit, exit  #quit this login and return to maint/login:
link_number    = 0 (internal link) or 1 (host link) or 2 (Meridian Mail link)
assoc_id       = 1, 2, 3 etc. (use get associations to determine)
trace_level    = 0 (full) 1 (partial - no polls)
file_name      = Unix file name
terminal       = Key word for outputting report to terminal
lpr            = Key word for outputting report to printer
```

**Figure 11**
**Link maintenance help command (continued)**

```
Examples:
   mlusr> status link 1          mlusr> g a (get associations)
   mlusr> set monitor 2 all      mlusr> enable monitor 2
   mlusr> display link 1         mlusr> change link 1
   mlusr> trace link 1           mlusr> disable link 1
   mlusr> get traffic 1          mlusr> enable traffic 1 5 terminal lpr file 1
   mlusr> disable traffic 1      mlusr> enable traffic 1
   mlusr> loopback test          mlusr> continuity test

Last change:   2/19/93
```

**help command** By entering part of a command (usually a key word in the command format), detailed help is displayed if it is available.

**help msgtypes** Provides a summary list of all Meridian Link messages (message type and message name) that are passed across the link between the Application Module or IPE Module and the host.

**help messages** Provides a summary of Meridian Link message names used up to Meridian Link Release 5C.

Help information is usually too long to display on the screen at one time, so you are prompted to press [Return] key to continue viewing help.

## version

This command indicates the current software release of any applications running on the Application Module or IPE Module.

**Example: (CCR and Meridian Link installed)**

mlusr> **version**

The following packages are installed on this Application Module:
Product: SYSTEM V/68 Base Operating System R3V7
Version: FE03.71 RM03
Installed: May 1 10:57

Product: Customer Controlled Routing
Version: 03.53
Installed: May 1 14:30

Product: SYSTEM V/68 Base Operating System R3V7 Field Update
Version: FU_R3V7.1_NT-D
Installed: Mat 1 10:52

Product: Meridian Applications
Version: R05.20
Installed: May 1 14:40

Product: Meridian Link & X25NET333
Version: 05.00
Installed: May 1 14:30

Type return to continue, q to quit: **<cr>**

**— continued —**

**Example: (CCR and Meridian Link installed) (continued)**

```
Product:    Host Based X.25 for NTI
Version:    ECK01.0 IR03
Installed:  May 1  12:25

Product:    X25NET333 DNLD, DRIVER/API,NETMAN
Version:    Release 4.1
Installed:  May 1  12:21

Product:    LP Support System
Version:    LQ02.03
Installed:  May 1  10:52

Product:    SYS V/68 Network Services Extension R3V7.1
Version:    NS03.71 RM02
Installed:  May 1  14:39

Product:    On-line Manual Pages Object Package (OLMP)
Version:    OM03.71
Installed:  May 1  10:57

Product:    Standalone System Interactive Diagnostics (SSID)
Version:    DJ07.30
Installed:  May 1  10:52

mlusr>
```

# Chapter 4: Diagnosing faults

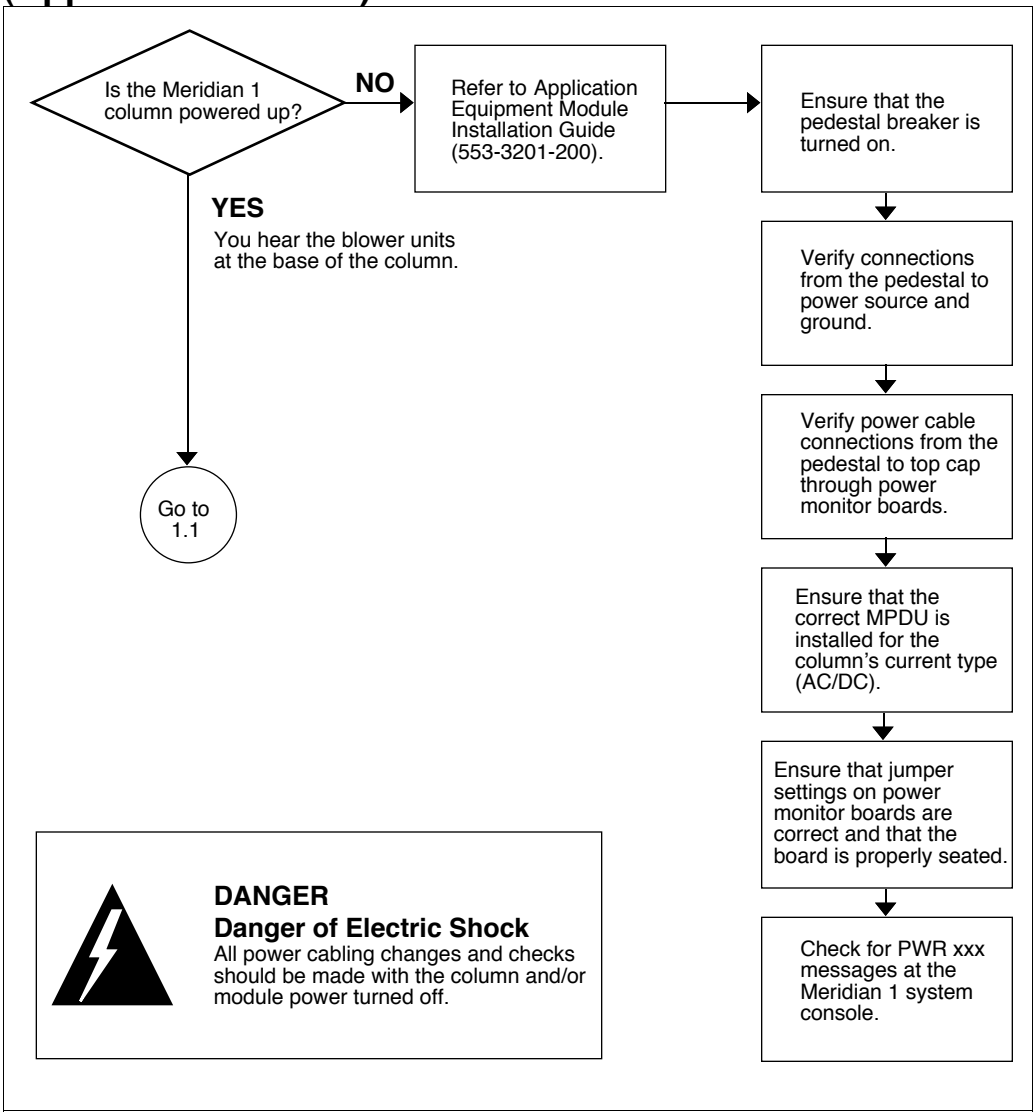
The procedures in this chapter enable you to locate the source of a problem with your Application Module or IPE Module or related devices. To use the procedures, start with the following "Quick reference fault isolation" checklist. Go through each question in turn, and if you answer no to one question, proceed to the diagnostic procedure recommended.

Follow the diagnostic procedures step by step, until the problem is diagnosed and fixed. In some cases, you are referred to specific recovery or replacement procedures, which are described in Chapter 8, "Recovery/replacement procedures." If a problem persists, contact your Nortel support personnel.

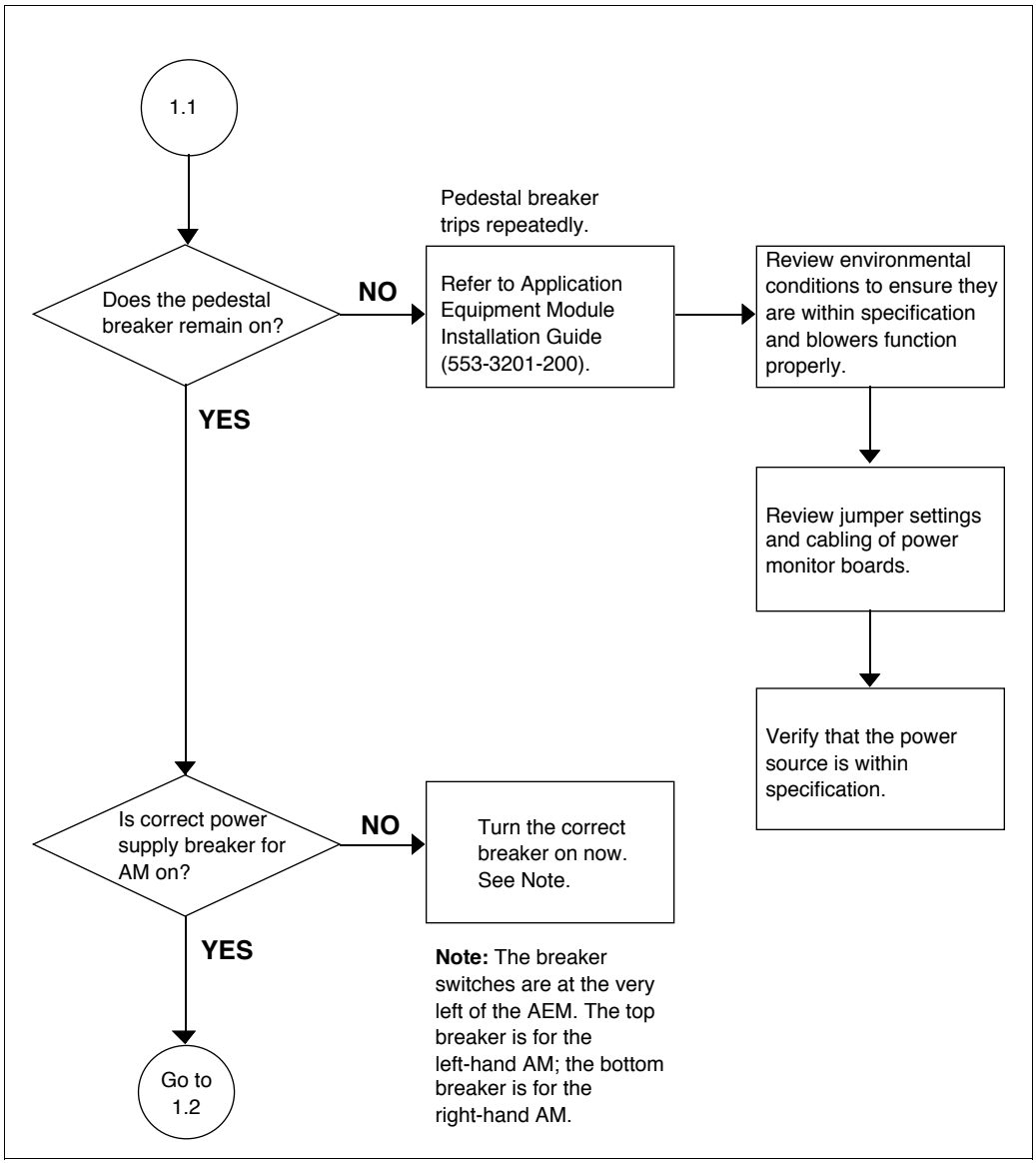
## Quick reference fault isolation

| Verify this: | If not, go to diagnostic procedure: |
|---|---|
| Is the module powered up? | 1: Power fault suspected (Application Module) or 2: Power fault suspected (IPE Module) |
| Are there any apparent hardware faults? | 3 and 4: Card fault suspected |
| Is the system console operational? | 5: System console fault suspected |
| Is the system start-up successful? | 6: System start-up problem |
| If appropriate, can you dial in from a remote terminal? | 7: Dial-up problem |
| Are all configured terminals operational? | 8: Application terminal problem |
| Are all configured printers operational? | 9: Printer faults |

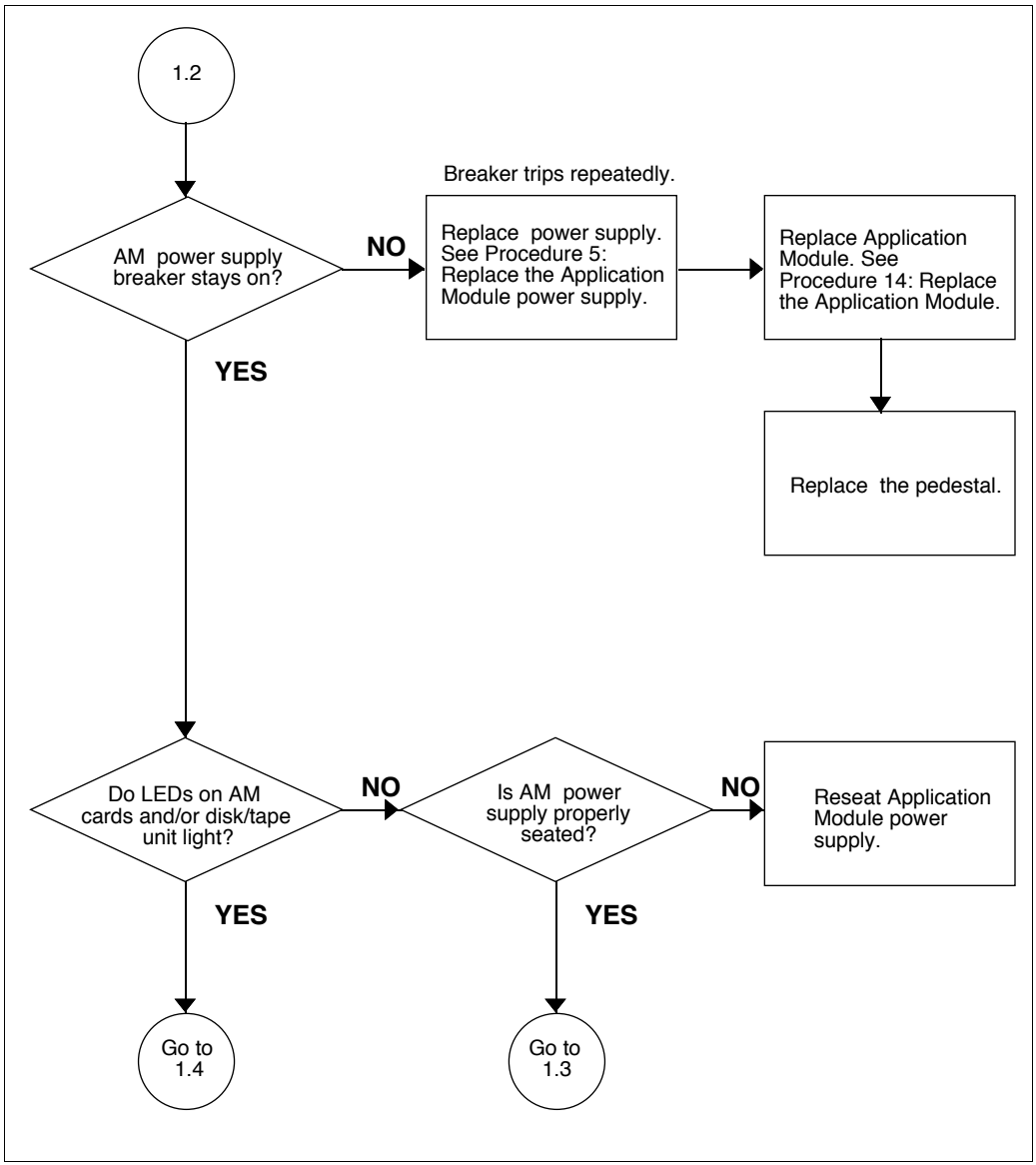
# Diagnostic procedure 1: Power fault suspected (Application Module)



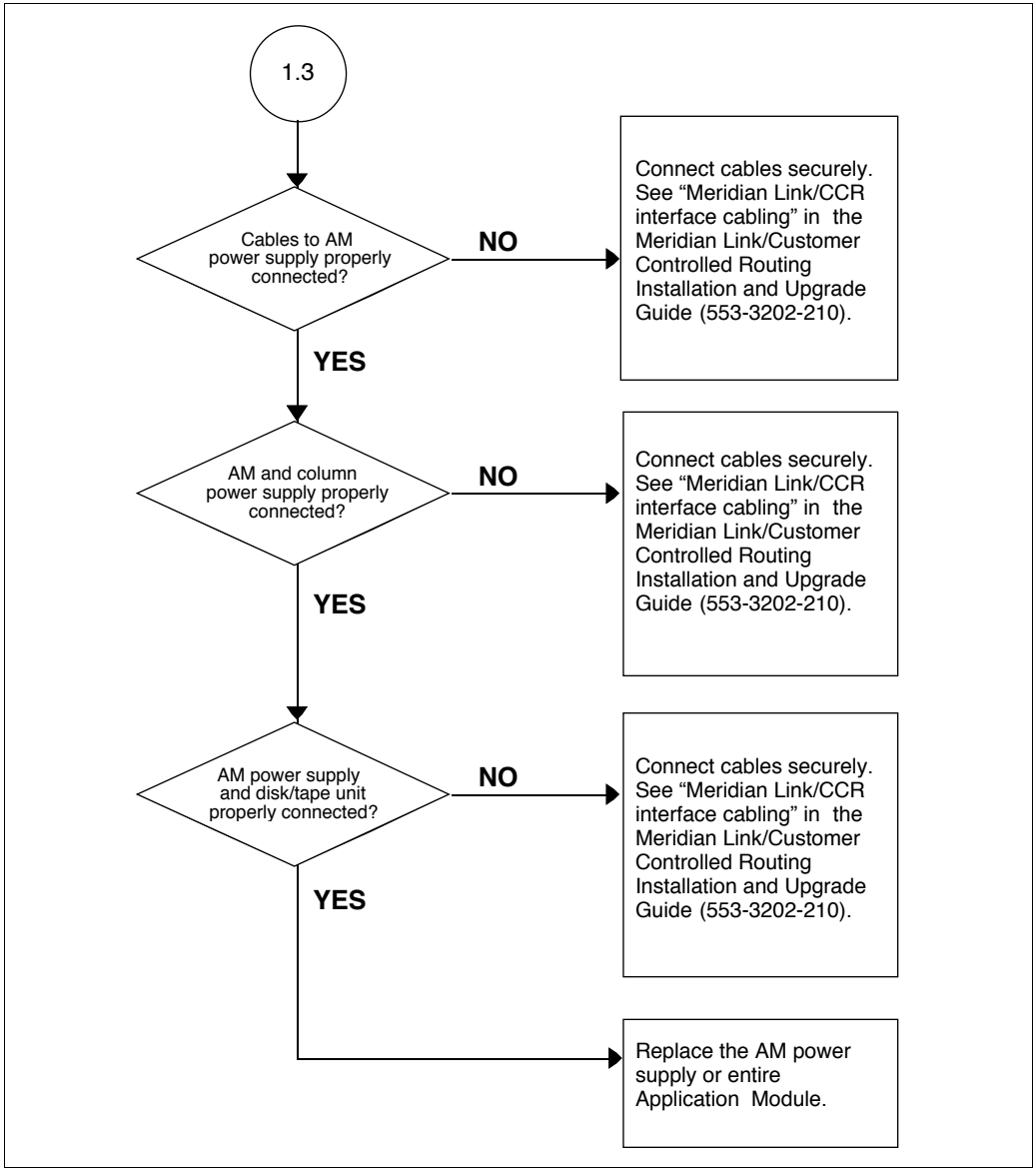
**Diagnostic procedure 1**
**Power fault suspected (Application Module) (continued)**



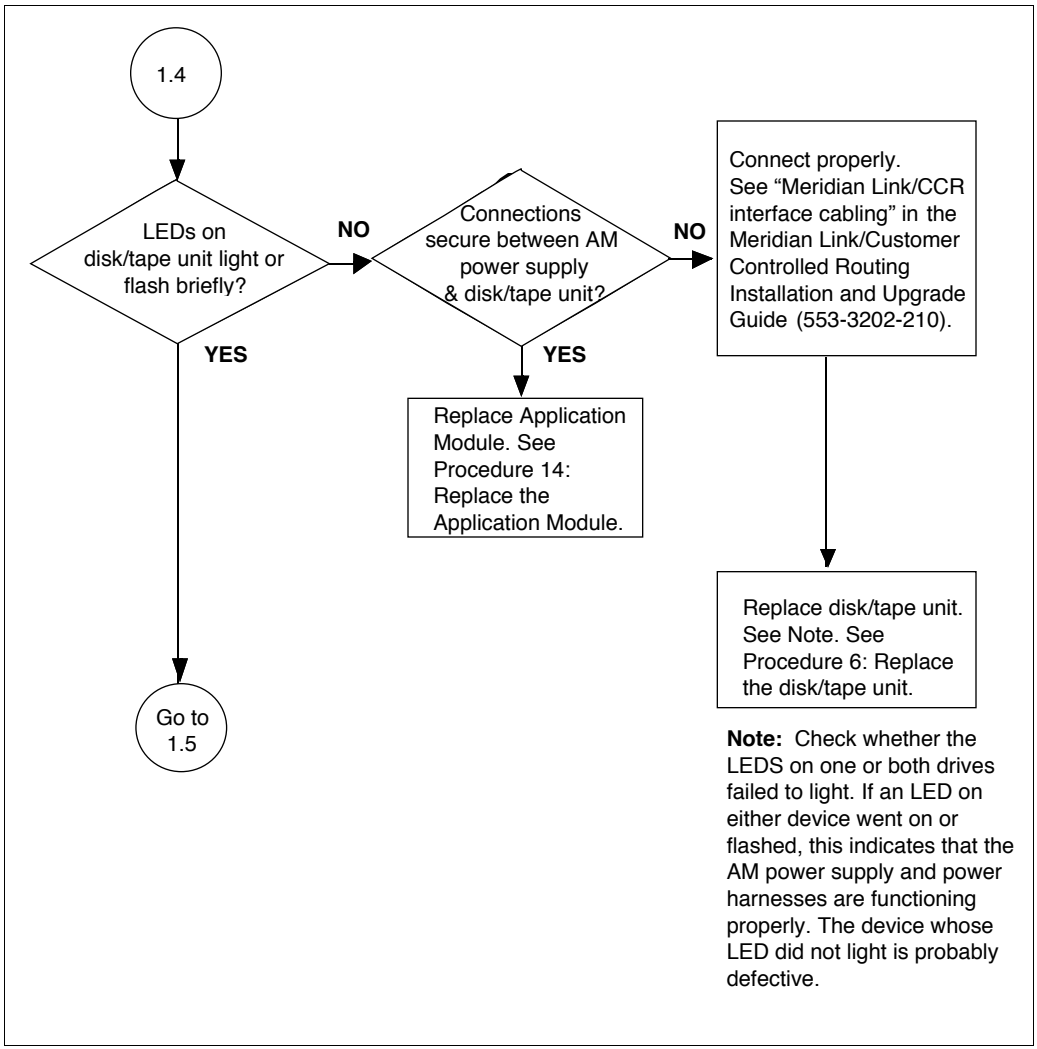
**Diagnostic procedure 1**
**Power fault suspected (Application Module) (continued)**



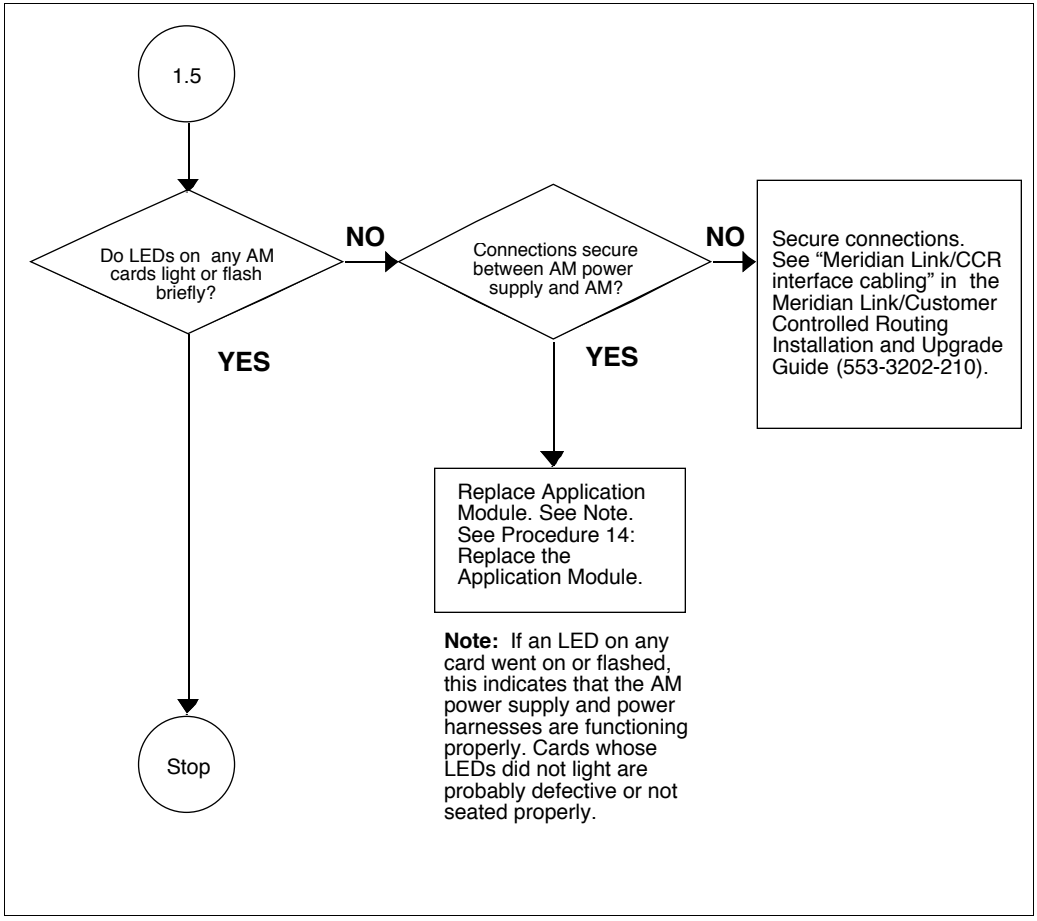
**Diagnostic procedure 1**
**Power fault suspected (Application Module) (continued)**



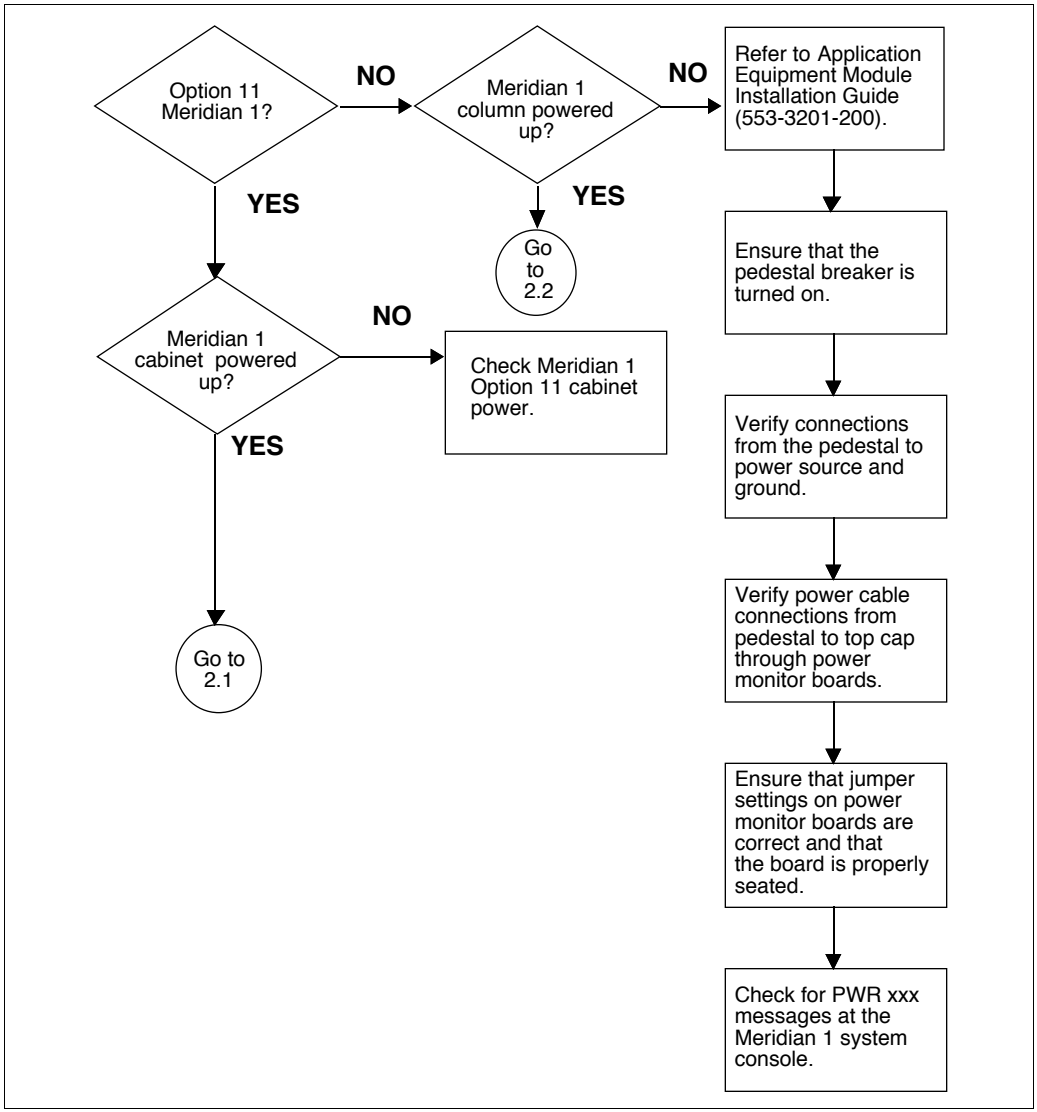
**Diagnostic procedure 1**
**Power fault suspected (Application Module) (continued)**



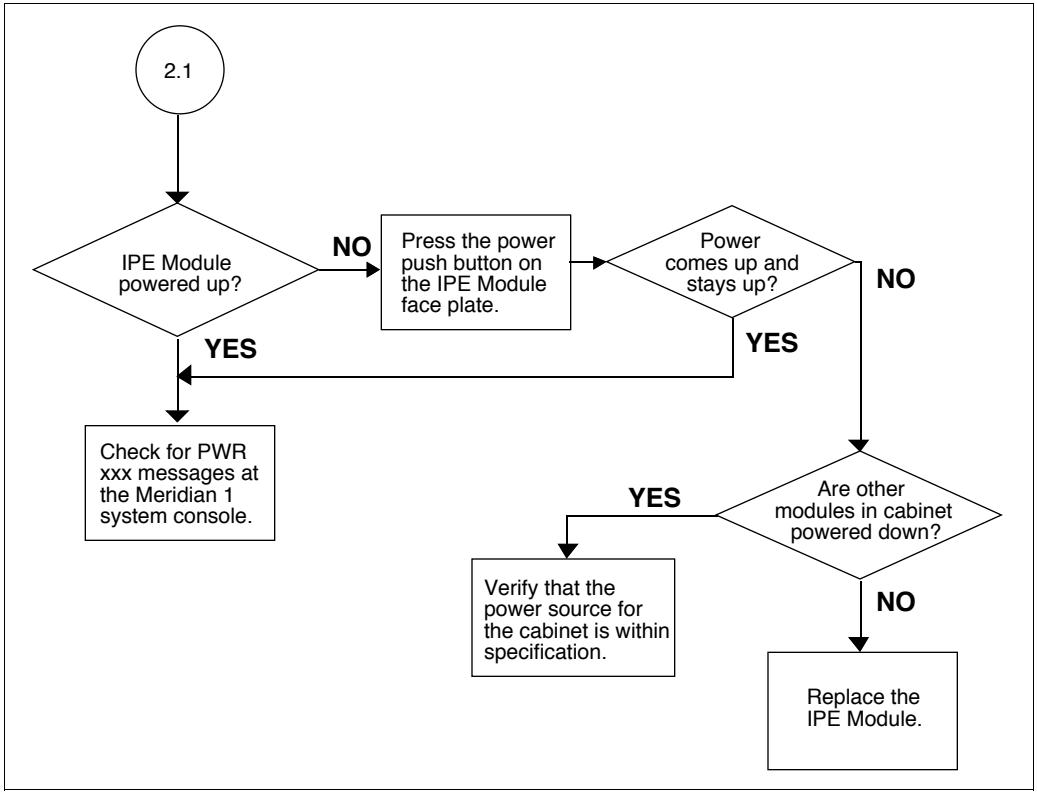
**Diagnostic procedure 1**
**Power fault suspected (Application Module) (continued)**



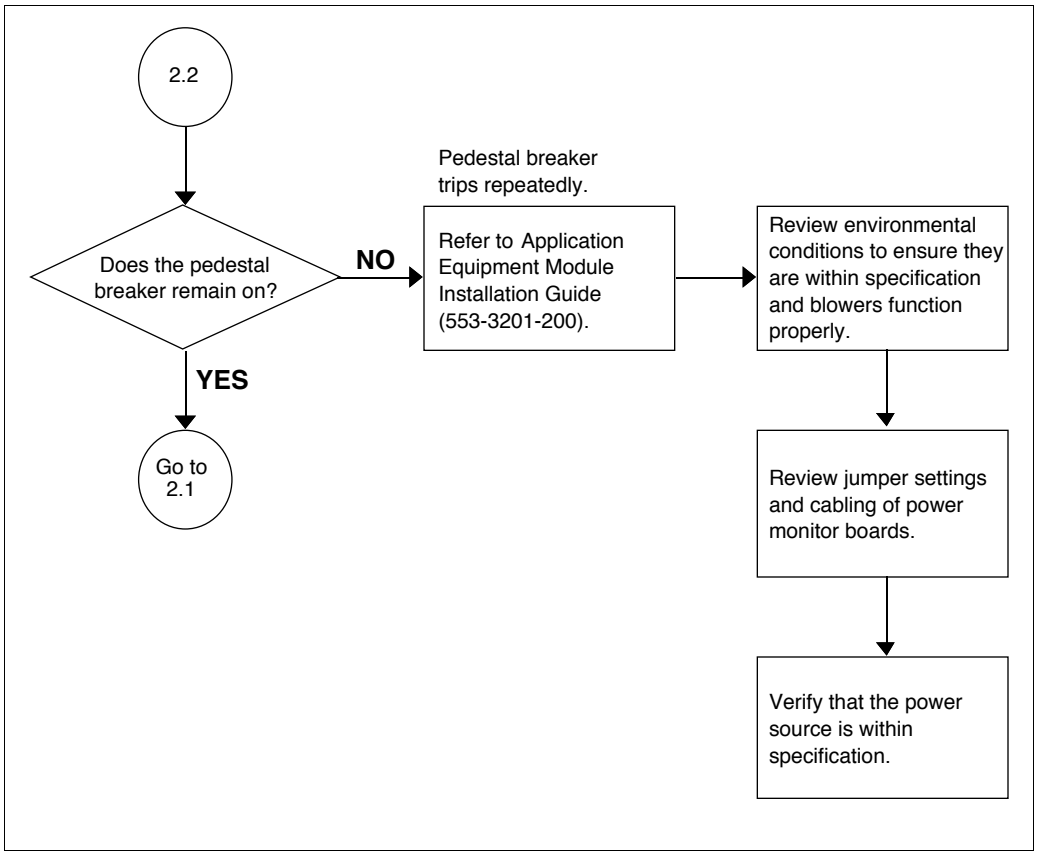
# Diagnostic procedure 2: Power fault suspected (IPE Module)



**Diagnostic procedure 2**
**Power fault suspected (IPE Module) (continued)**



**Diagnostic procedure 2**
**Power fault suspected (IPE Module) (continued)**



# Diagnostic procedures 3 and 4: Card fault suspected

Refer to the following figures for status information on LED indicators at the front of the Application Module and IPE Module.

**Figure 12**
**Application Module LED status indicators under normal operation**

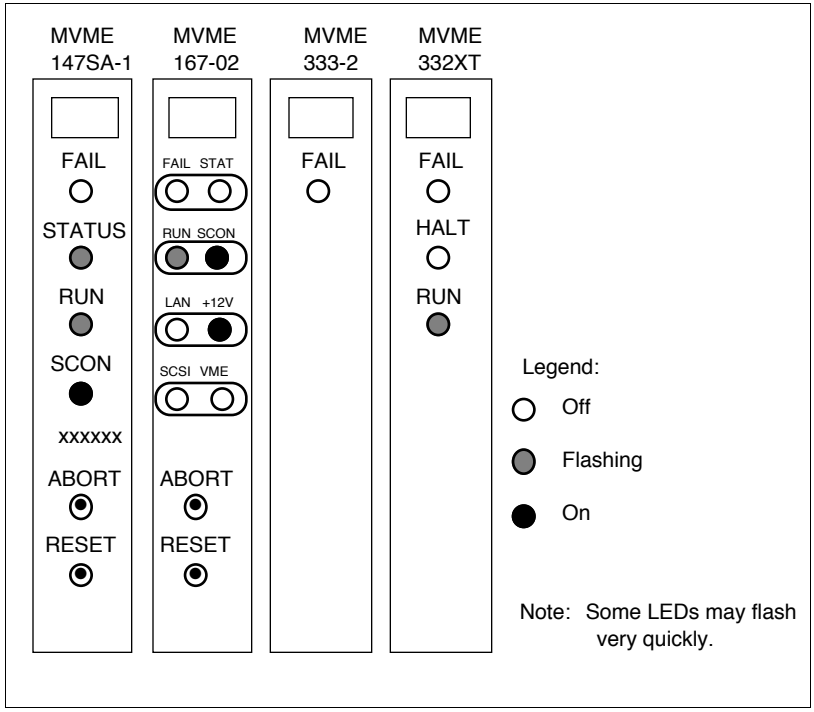
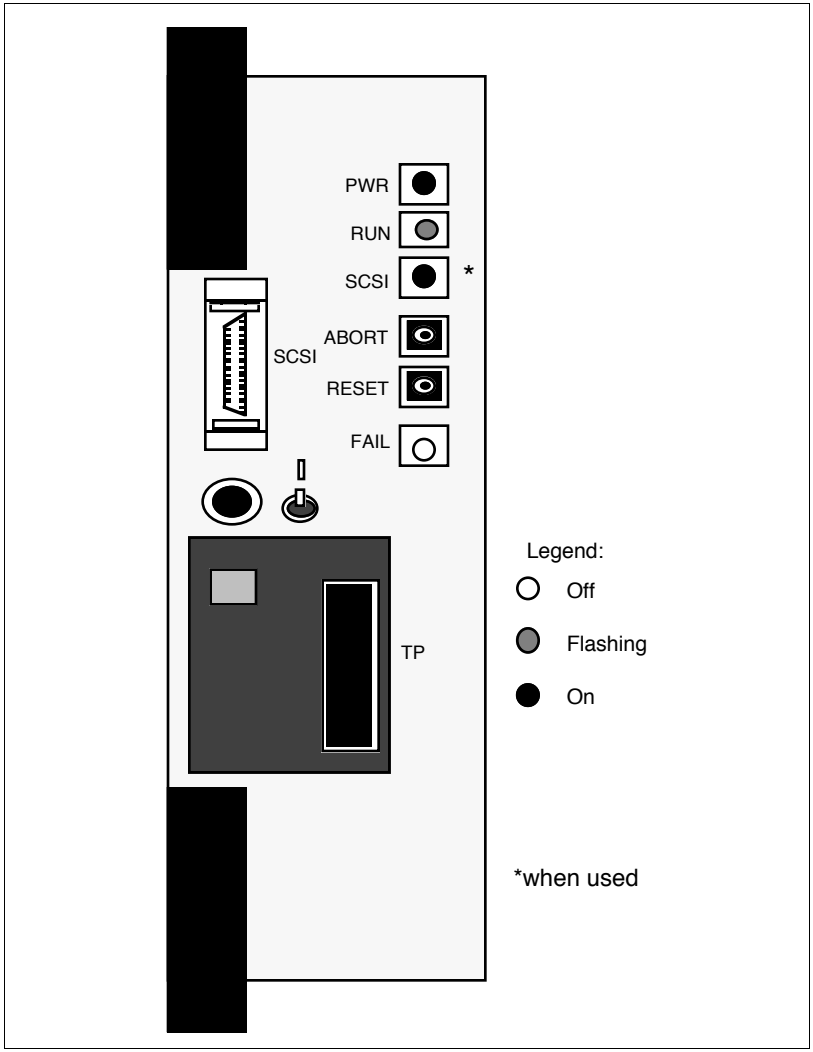


**Figure 13**
**IPE Module status indicators under normal operation**



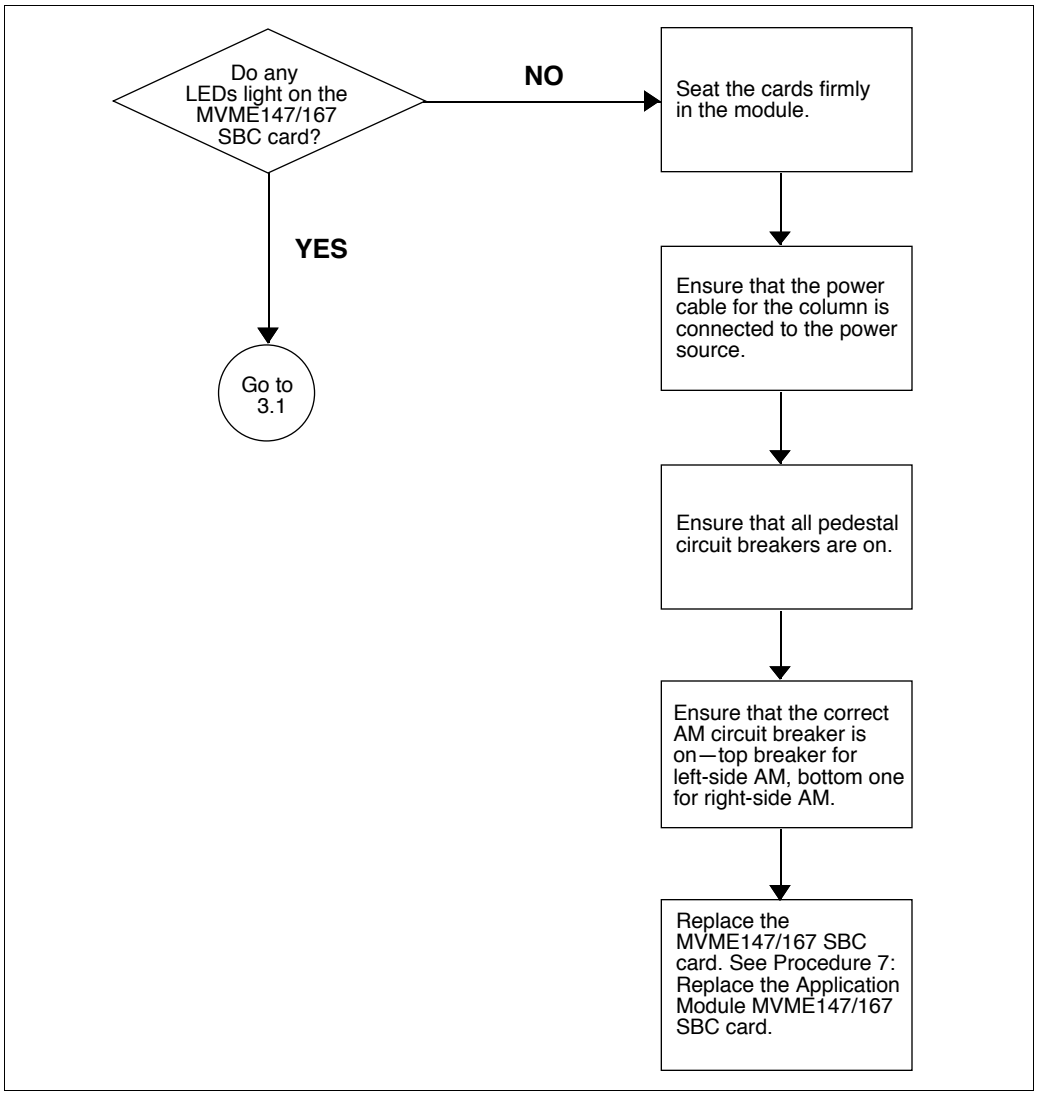
## Reseating a card

To reseat a card, remove the card using the extractors at top and bottom. Pull out several inches. Using both hands, push in firmly, applying pressure to the center of the card where the screw is located, until faceplate is flush with adjacent cards and extractors have returned to level position.

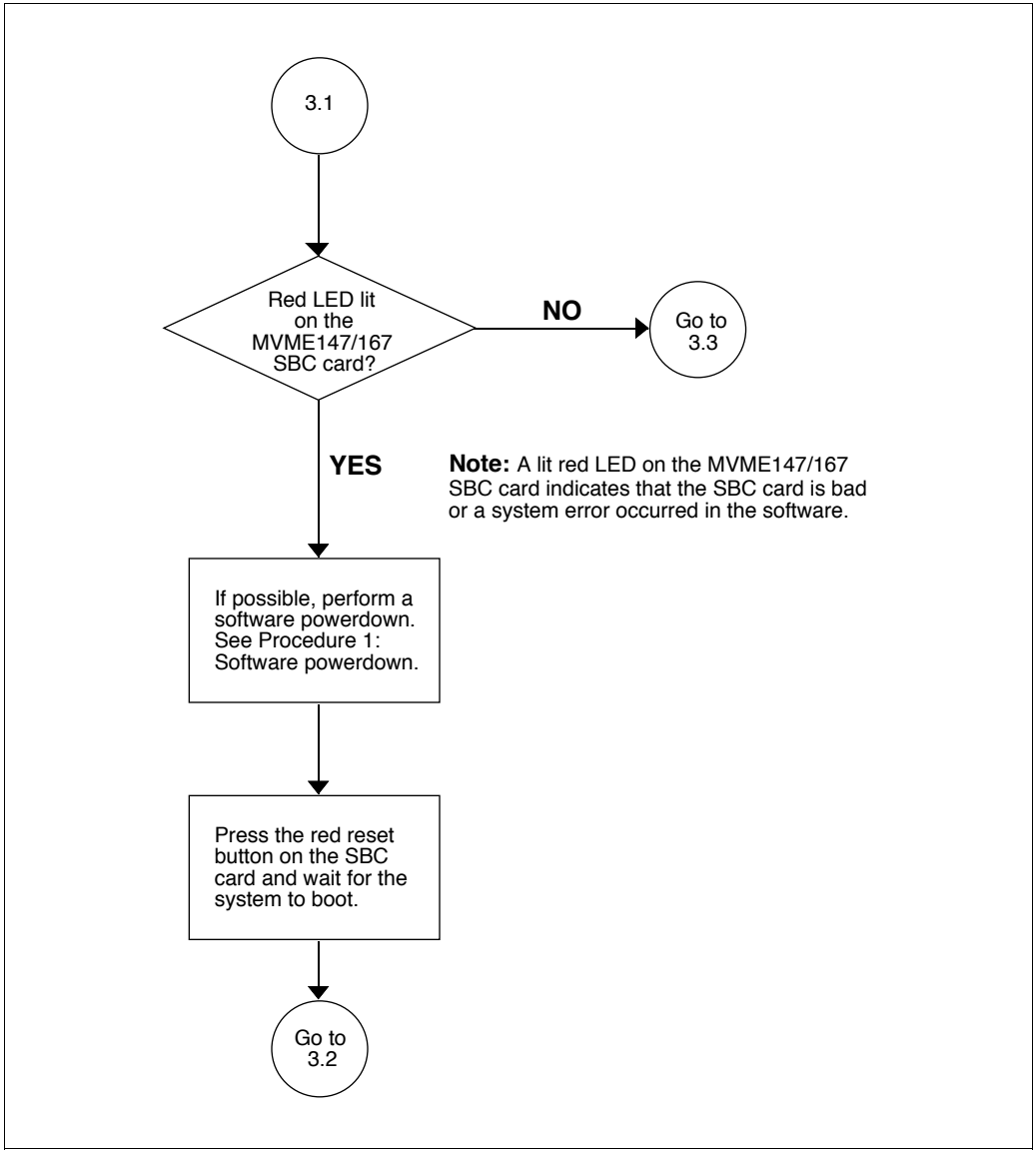
## Advanced diagnostic tests

In some cases, further troubleshooting is possible on hardware problems. More technical diagnostic tests are available to some users, as described in the *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide* (NTP 553-3211-512).

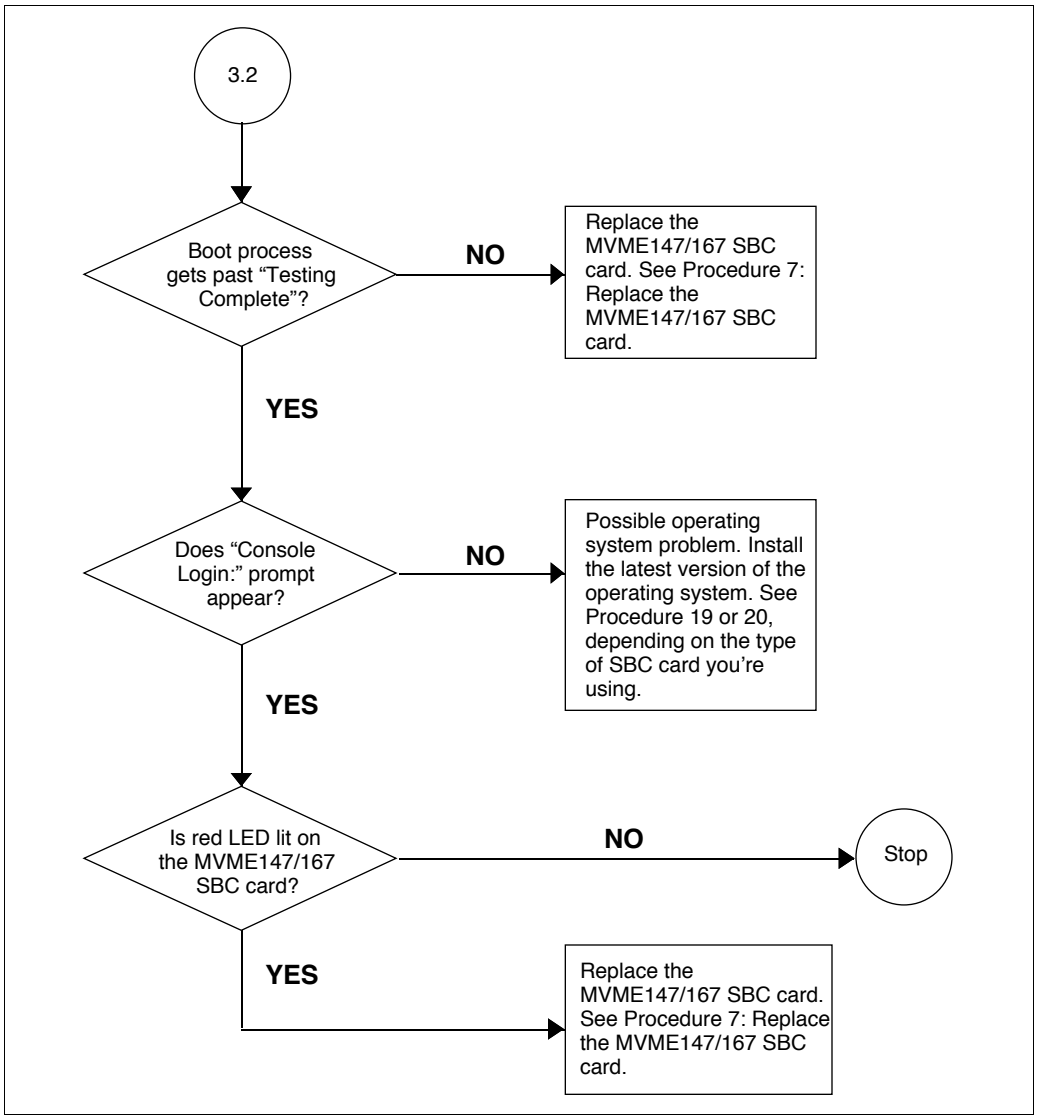
**Diagnostic procedure 3**
**Card fault suspected (Application Module)**



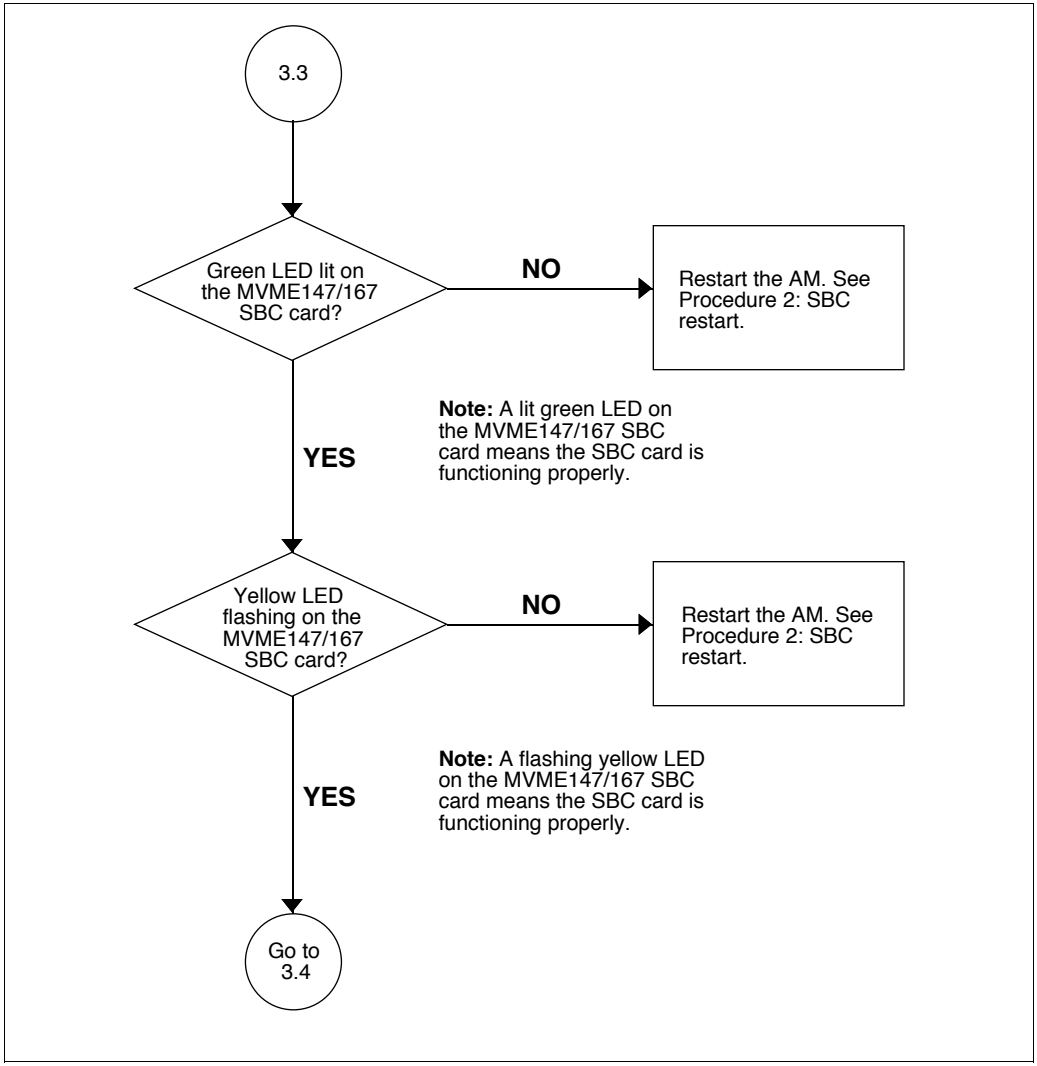
**Diagnostic procedure 3**
**Card fault suspected (Application Module) (continued)**



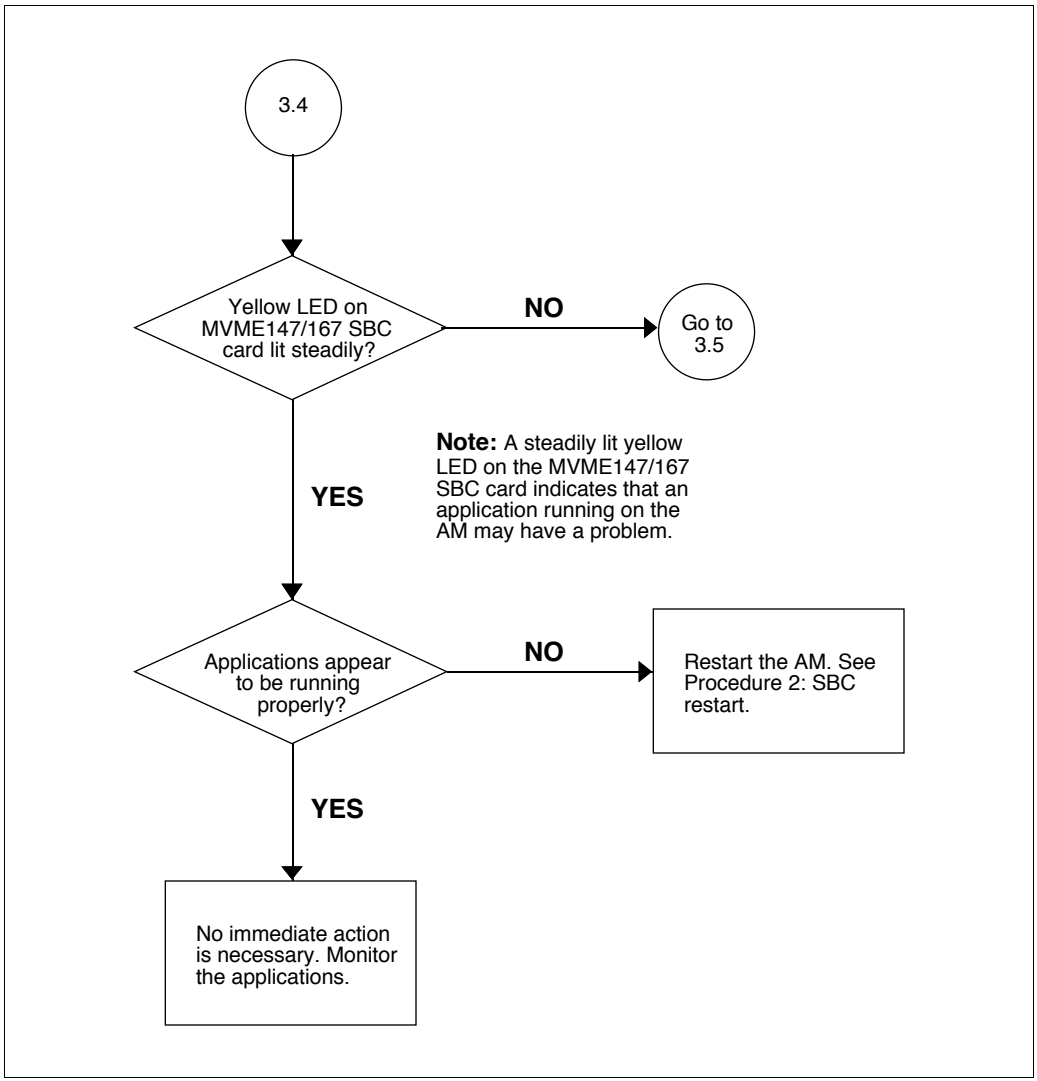
**Diagnostic procedure 3**
**Card fault suspected (Application Module) (continued)**



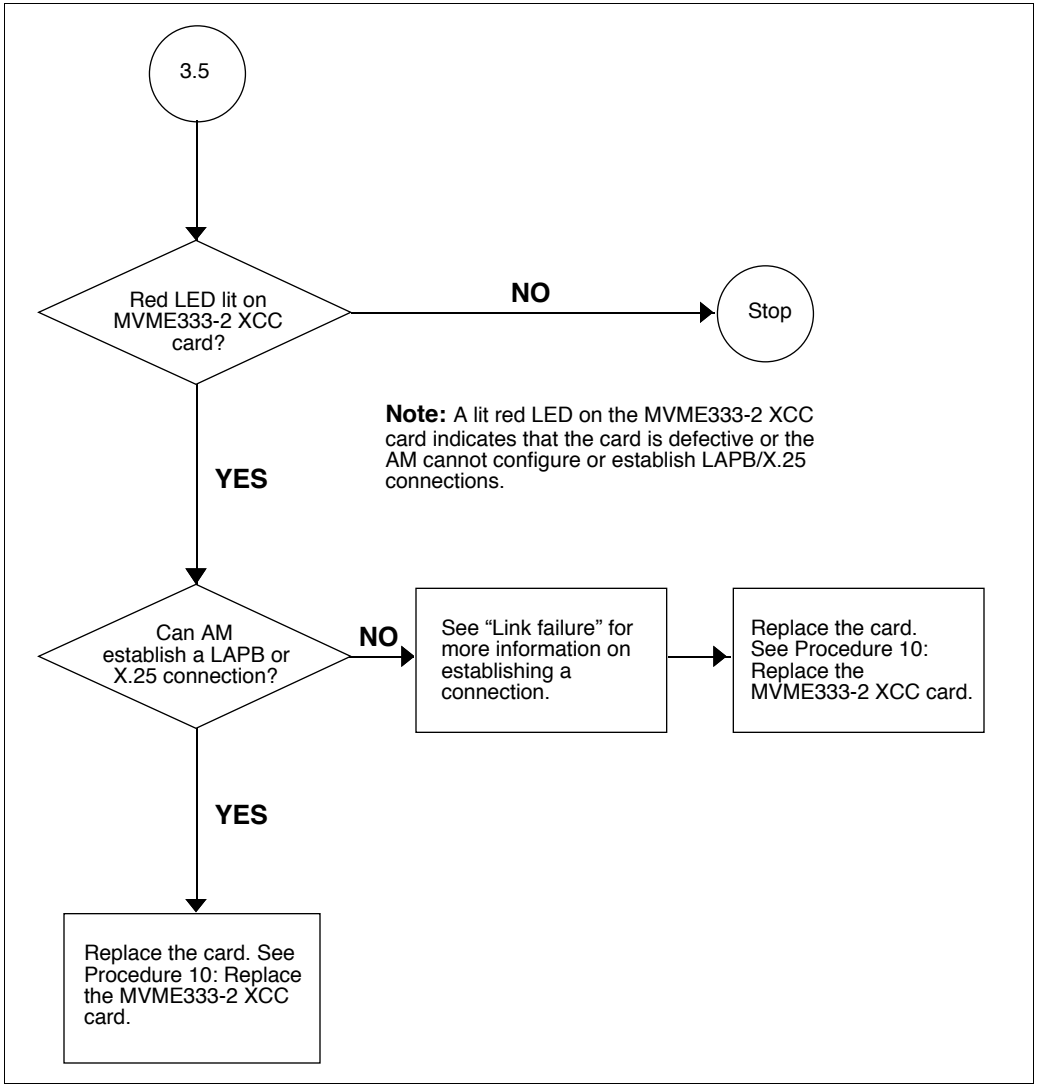
**Diagnostic procedure 3**
**Card fault suspected (Application Module) (continued)**



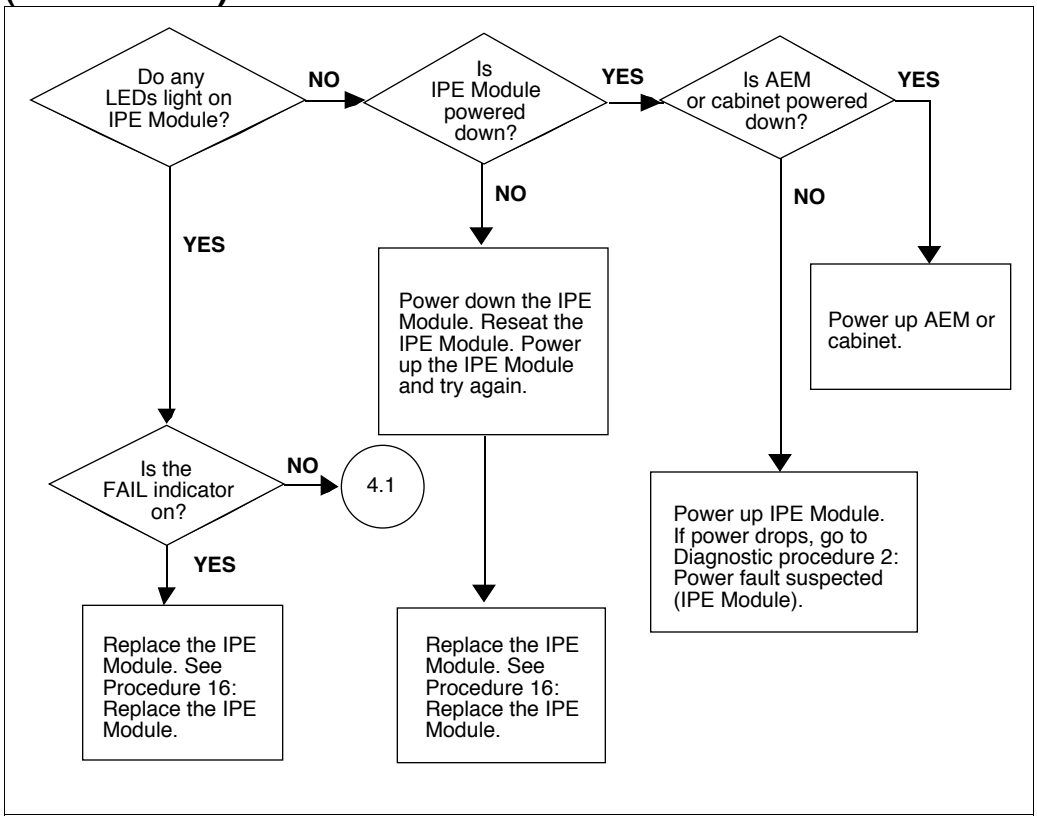
**Diagnostic procedure 3**
**Card fault suspected (Application Module) (continued)**



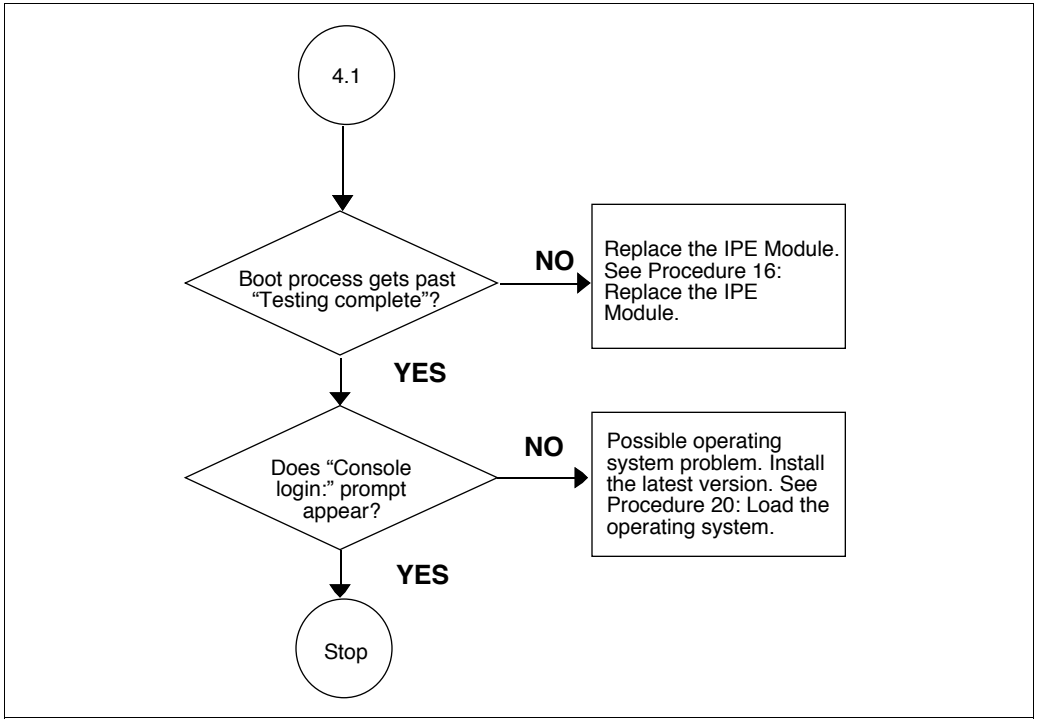
**Diagnostic procedure 3**
**Card fault suspected (Application Module) (continued)**



# Diagnostic procedure 4: Card fault suspected (IPE Module)

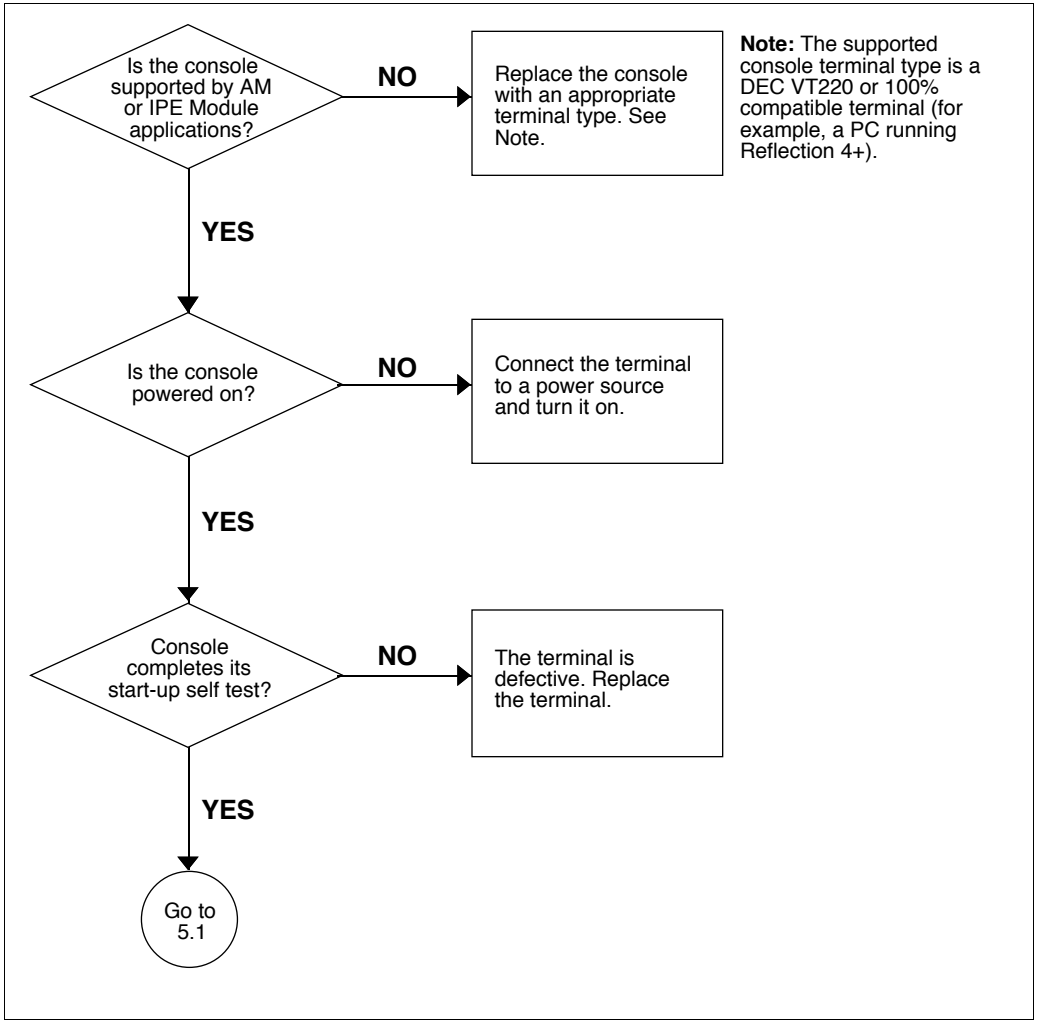


**Diagnostic procedure 4**
**Card fault suspected (IPE Module) (continued)**



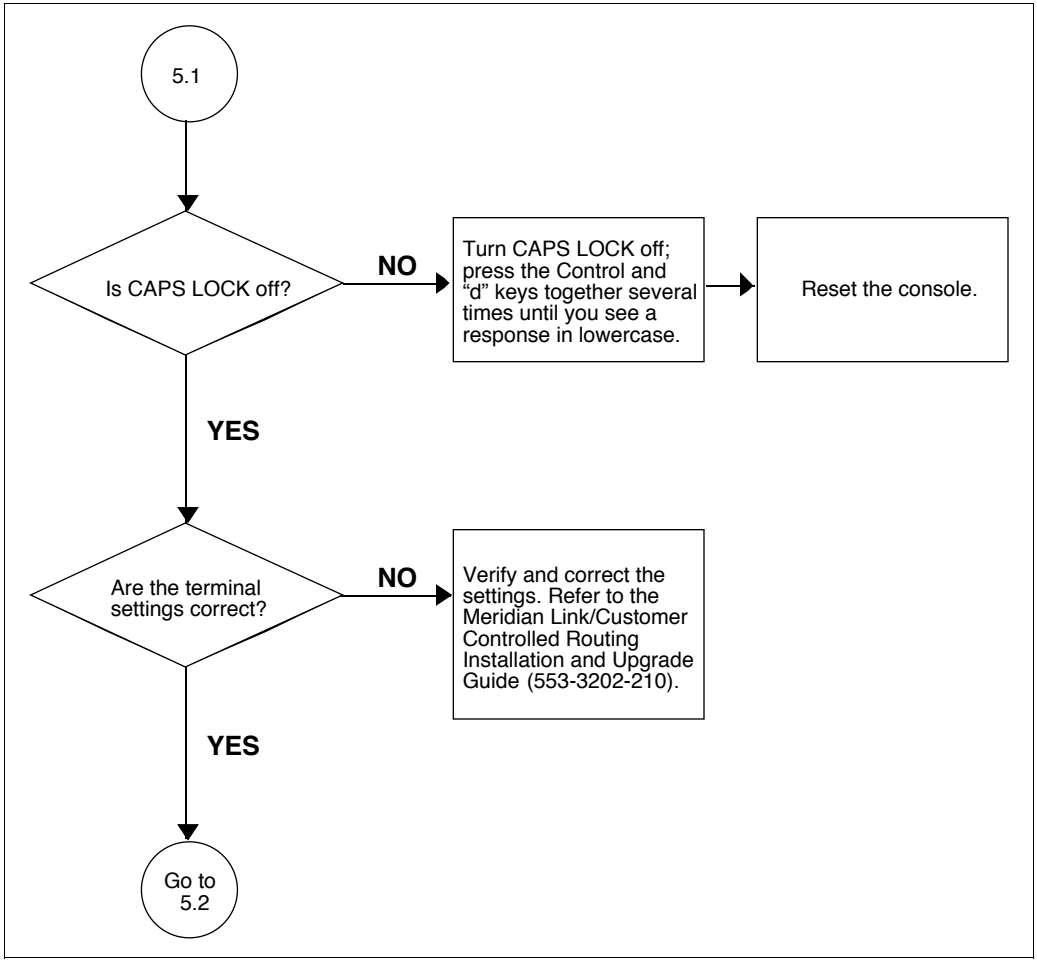
# Diagnostic procedure 5: System console fault suspected

This procedure applies to the system console only.

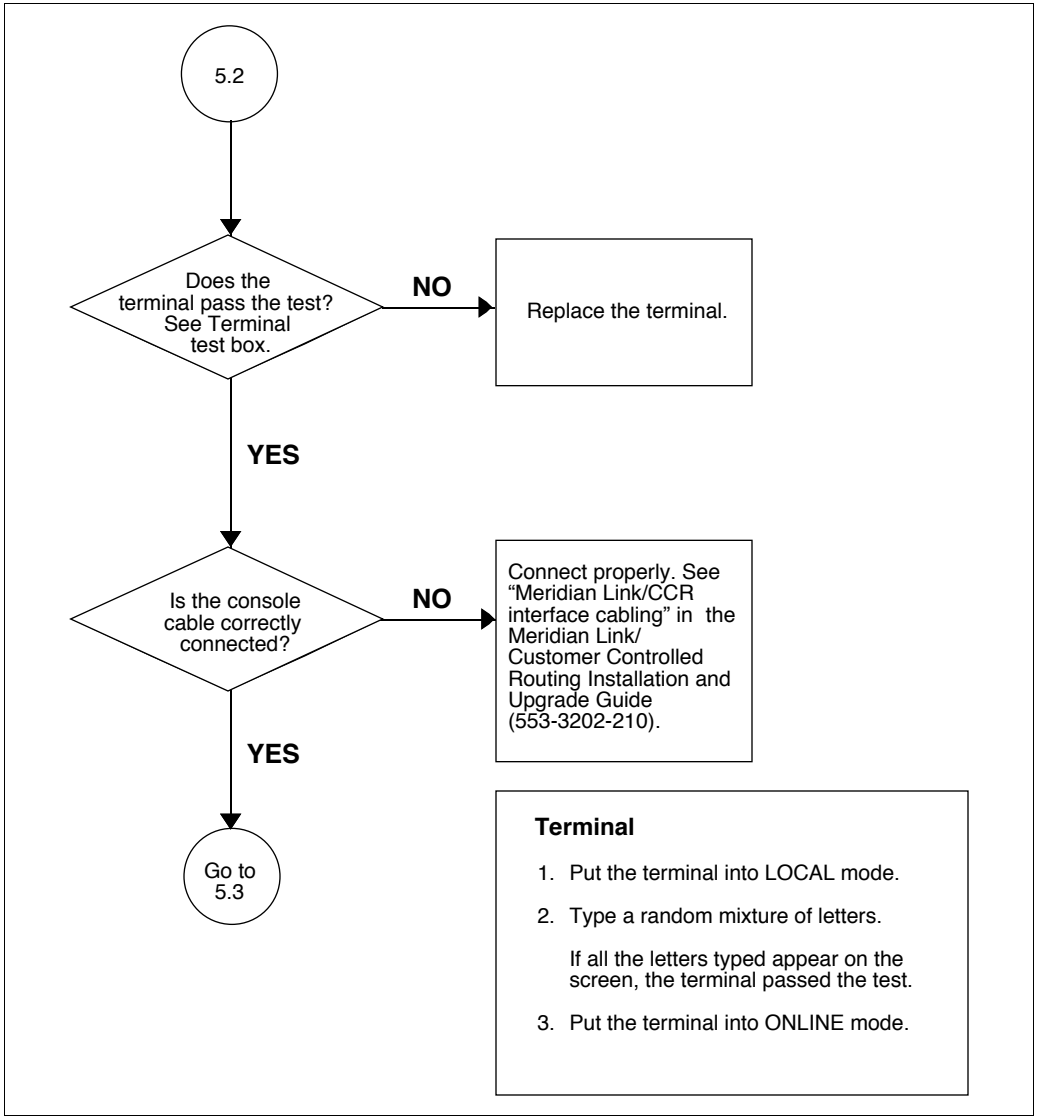



**Note:** The supported console terminal type is a DEC VT220 or 100% compatible terminal (for example, a PC running Reflection 4+).

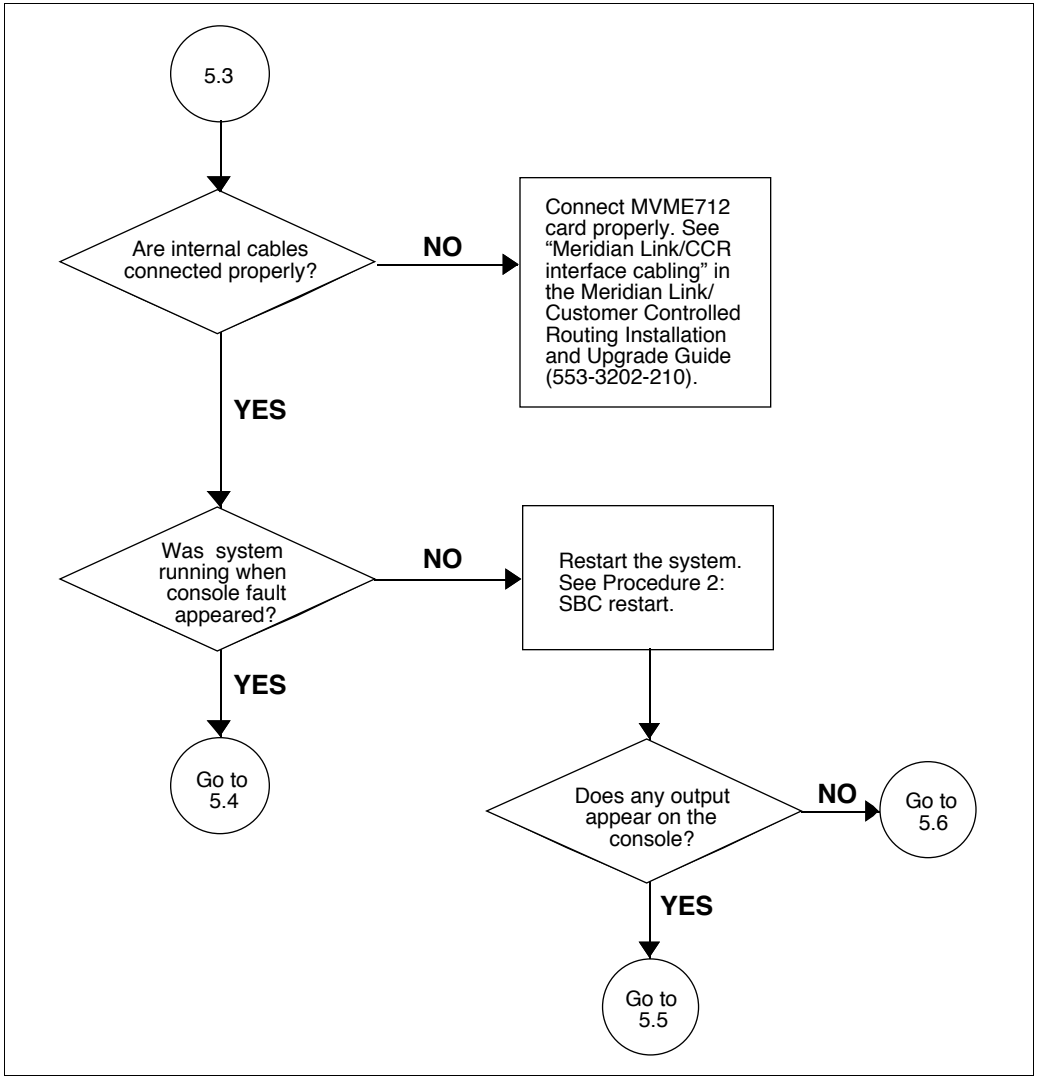
**Diagnostic procedure 5**
**System console fault suspected (continued)**



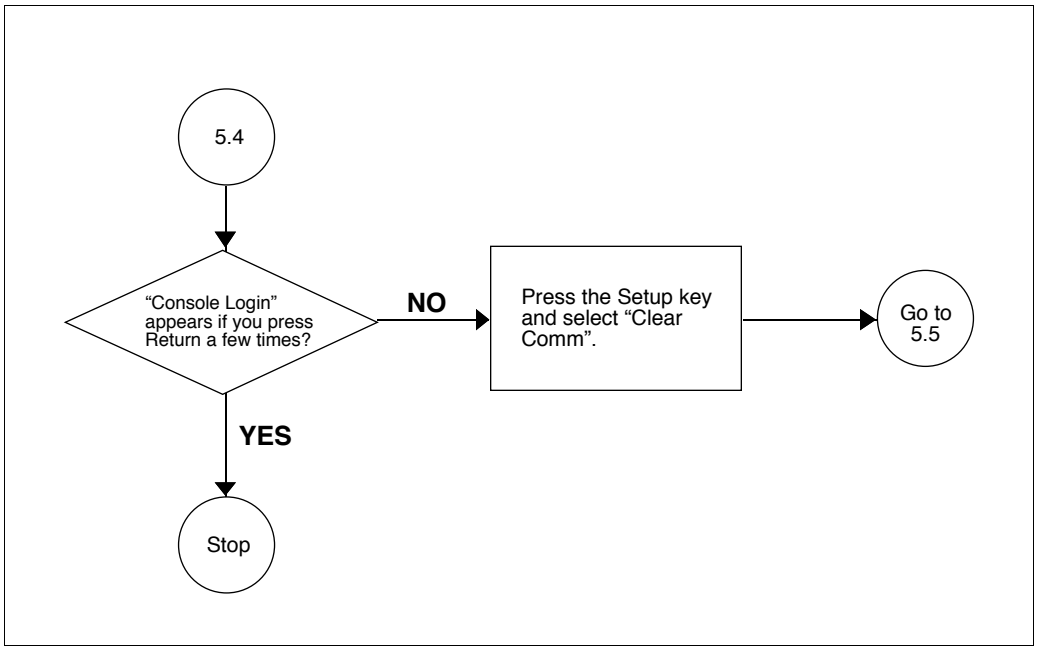
**Diagnostic procedure 5**
**System console fault suspected (continued)**



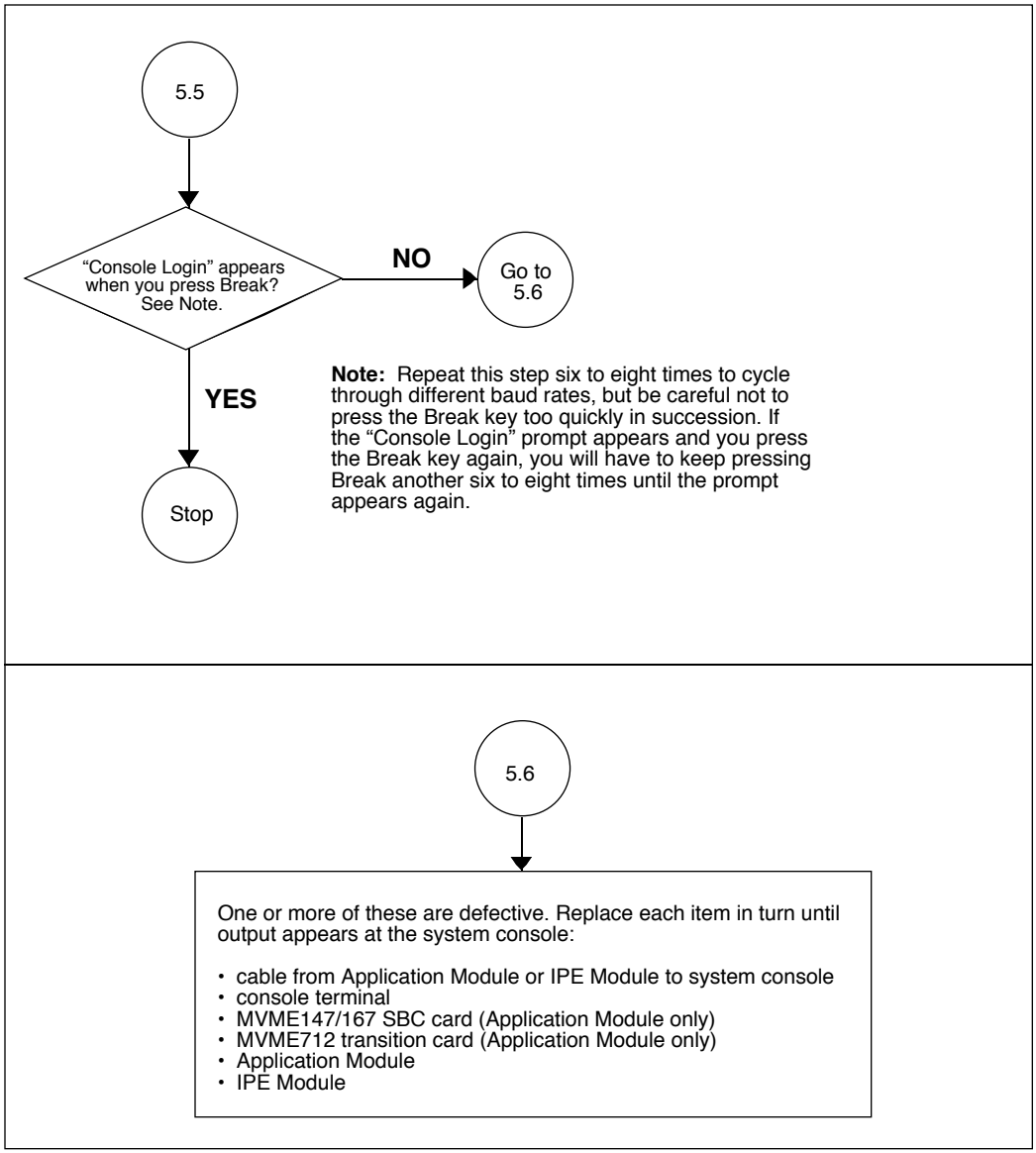
**Diagnostic procedure 5**
**System console fault suspected (continued)**



**Diagnostic procedure 5**
**System console fault suspected (continued)**



**Diagnostic procedure 5**
**System console fault suspected (continued)**



# Diagnostic procedure 6: System start-up problem

Typical start-up messages are listed here, along with points at which a problem could occur. To see the start-up messages, restart the Application Module or IPE Module using Procedure 2: SBC restart.

> ***Note:*** The illustrations in this section are for the Application Module MVME167 card or IPE Module. The Application Module MVME147 messages are similar.

```
Copyright Motorola Inc. 1988-1992, All Rights Reserved
MVME167 Debugger/Diagnostics Release Version 1.4 - 07/22/92
```

If the system stops at the previous prompt and there is no response at your system console, contact your service representative to have your system reset.

```
COLD Start
Local memory Found = D0800000 (&-8388608)
MPU Clock Speed = 25 Mhz
```

After this point, a series of diagnostic tests is performed on system components. If the system hangs or displays a FAILED message at a particular test, note the name of the test where the problem occurred and contact your service representative.

When the testing ends, the system automatically boots.

```
Autoboot in progress... To abort hit <BREAK>

RAM address from VMEbus = $00000000

Booting from: VME167, Controller 0, Device 0
```

If “Loading: Operating System” is not displayed, UNIX was probably not installed correctly. If it is determined that UNIX was not installed correctly, go to “Software reinstallation” for installation instructions.

```
Loading: Operating System
```

If “Loading: Operating System” is the last message displayed and the system seems to be frozen, the SCSI bus may need to be reset. Perform Procedure 2: SBC restart, and type **h** while the firmware tests are being run. At the “167-Diag” or “4120-Diag” prompt, type **reset** and press [Return]. Answer **y** to the first prompt, **c** to the second prompt, and **n** to the third prompt.

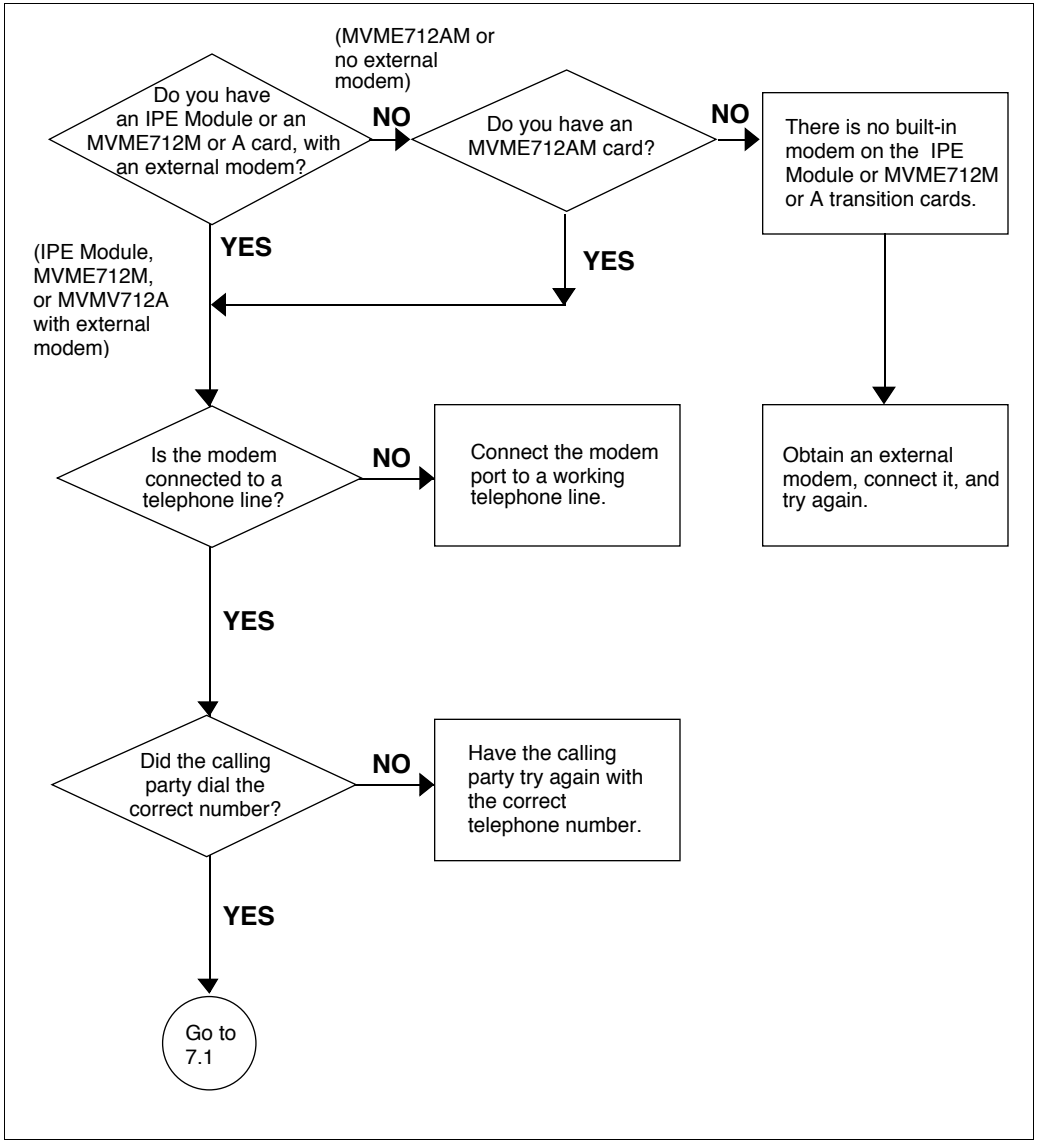
```
Volume:
IPL loaded at:  $001F0000
MVME TAPE IPL Version 1.0

*********************************************************************
              System V/68 Release R3V7 M68030 Version 920526

                        Real mem  = 6291456
                        Avail mem = 4964352
                        Buffers   = 60

*********************************************************************
   Copyright (c) 1984-1992 Motorola Inc. All rights reserved


Init: Single User Mode
 erase = #  kill = @  intr = DEL  quit = ^|
***
Enter <CR> to pause in a single user shell before init.
```

The system issues a series of messages as it starts up. When start-up is complete, the system displays the “Console Login:” prompt.

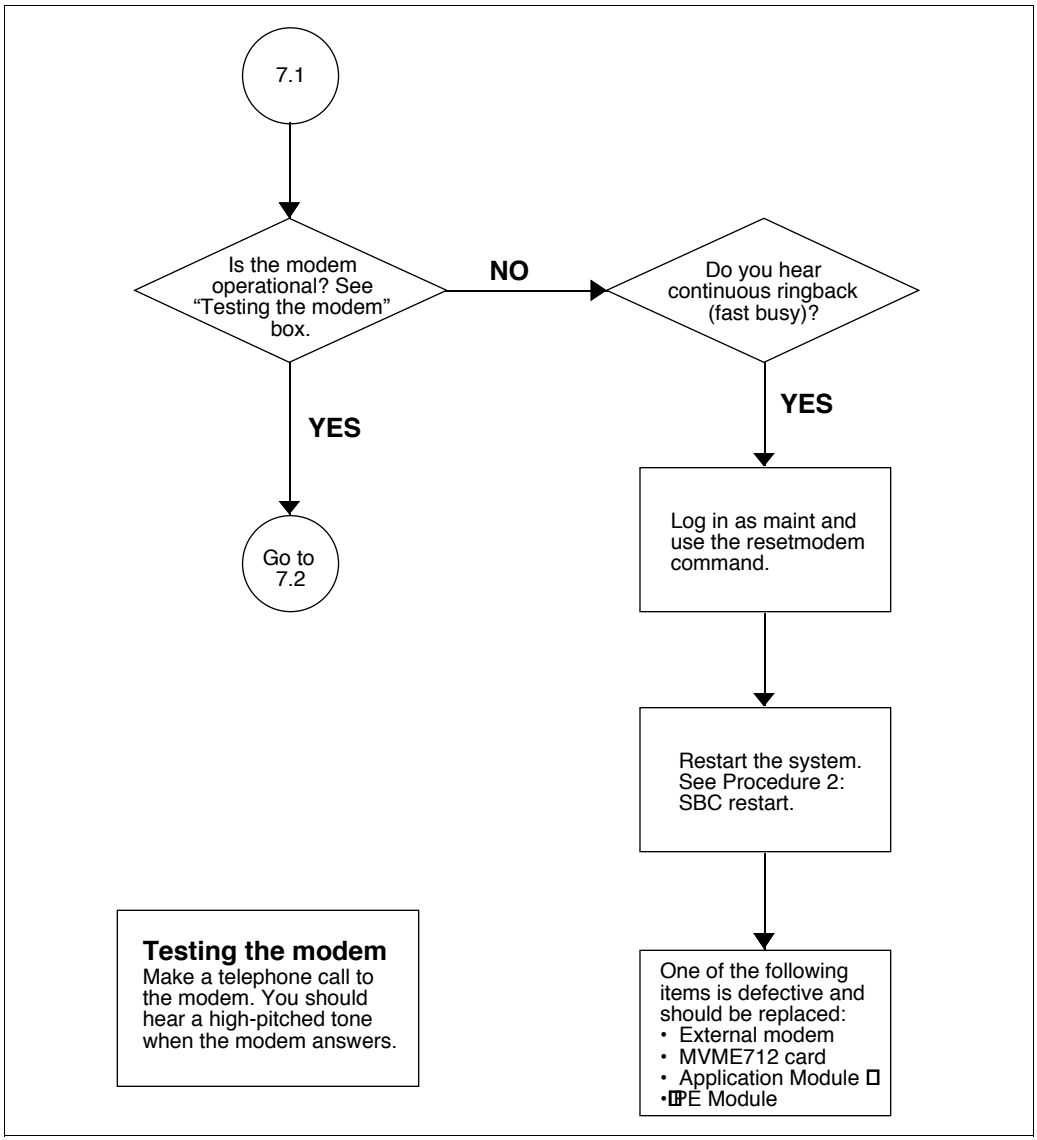
Check for the following problem indicators during system start-up:

- Fail (red) LED on the Application Module MVME147/167 card remains lit after system start-up is completed—replace the MVME147/167 card and reboot
- Fail (red) LED on the IPE Module remains lit after system start-up is completed—replace the IPE Module, reload the software and reboot
- System Panic message appears—the UNIX operating system may be in trouble. This may require special technical assistance. Restart the system. If the error persists, you may have to perform a reinstallation.
- SCSI I/O errors appear—the errors can look like the following: `Timeout on nnnnn SCSI device`, where nnnnn is the device name (such as CPU card, tape drive, or hard disk). If they appear, check that the disk/tape unit is inserted properly.
- Physical Block errors appear—the errors can look like the following: `Physical Block: 0xDE0 (11744) Command Byte:74 Status Byte 1:24` (the numbers may be different). If this occurs, the hard disk is probably faulty and should be replaced.

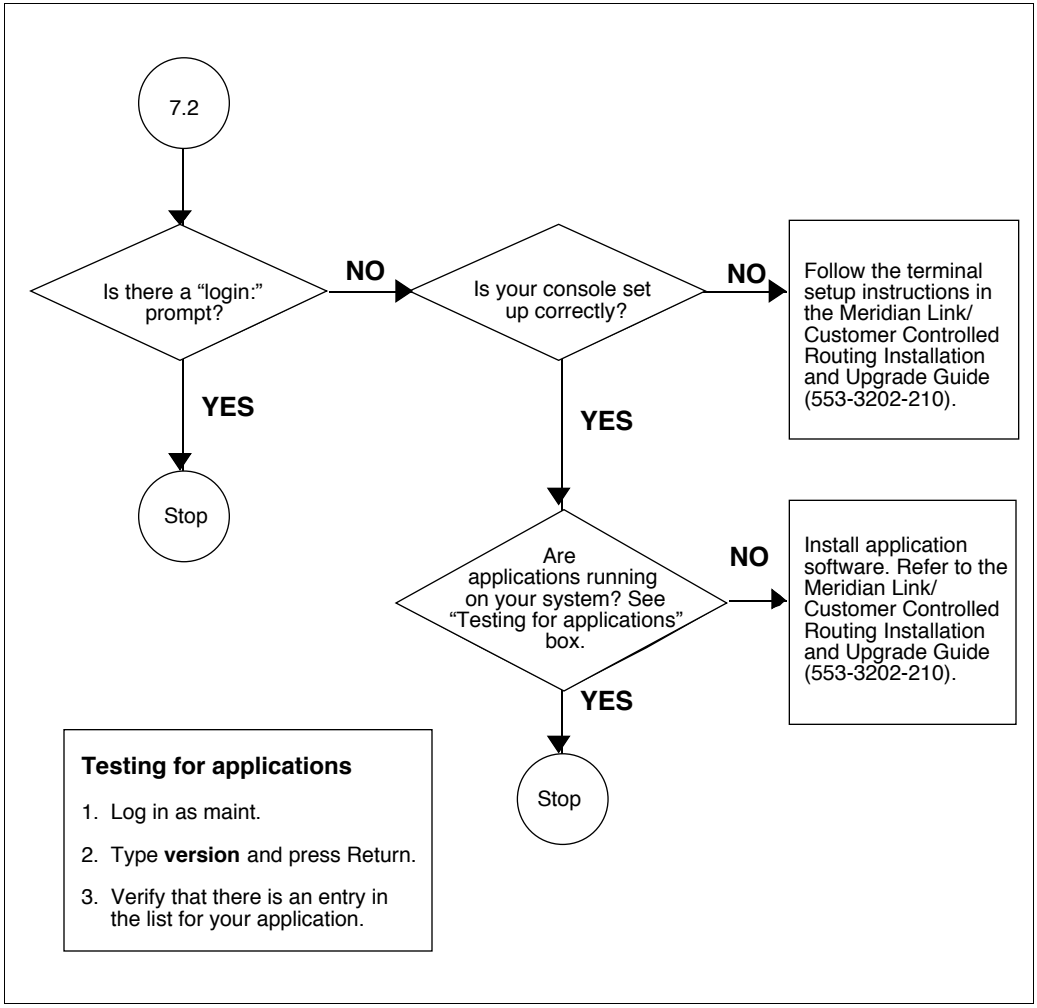
# Diagnostic procedure 7: Dial-up problem



**Diagnostic procedure 7**
**Dial-up problem (continued)**

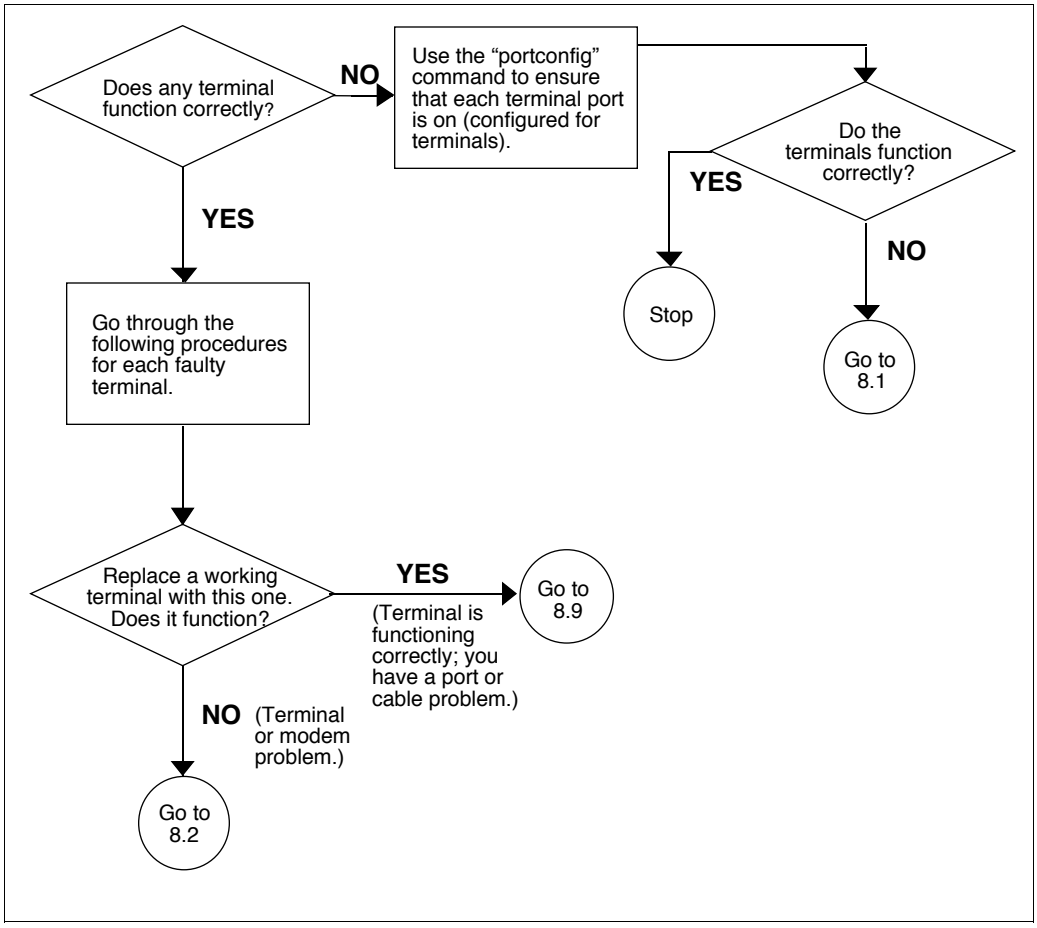


**Diagnostic procedure 7**
**Dial-up problem (continued)**



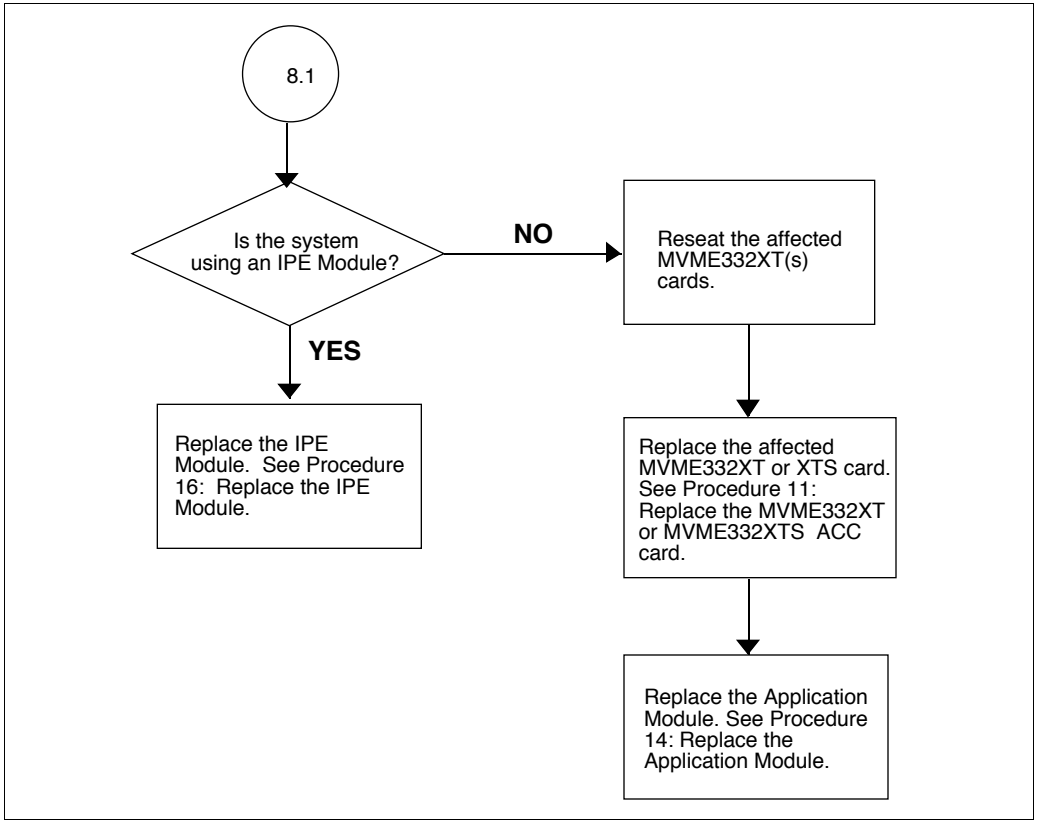
# Diagnostic procedure 8: Application terminal problem

This procedure applies to CCR only.



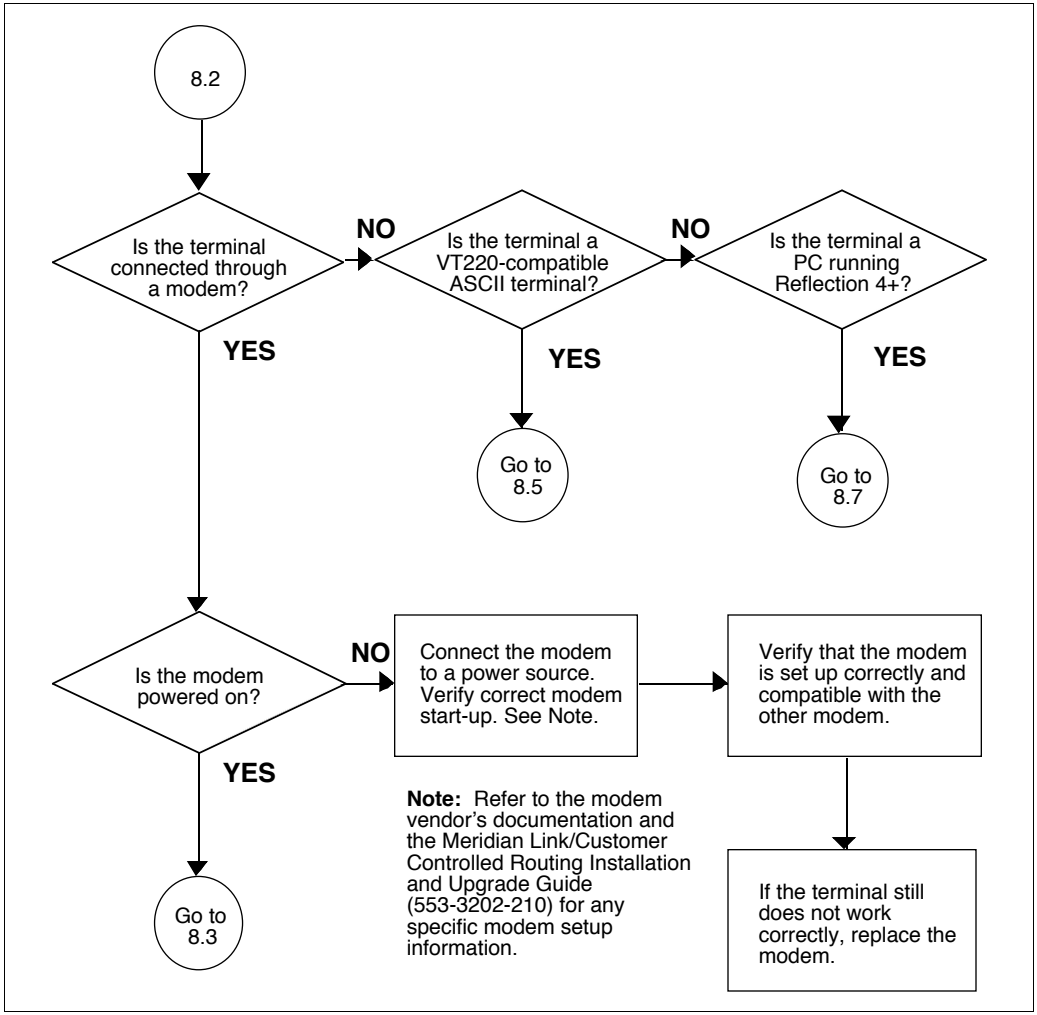
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



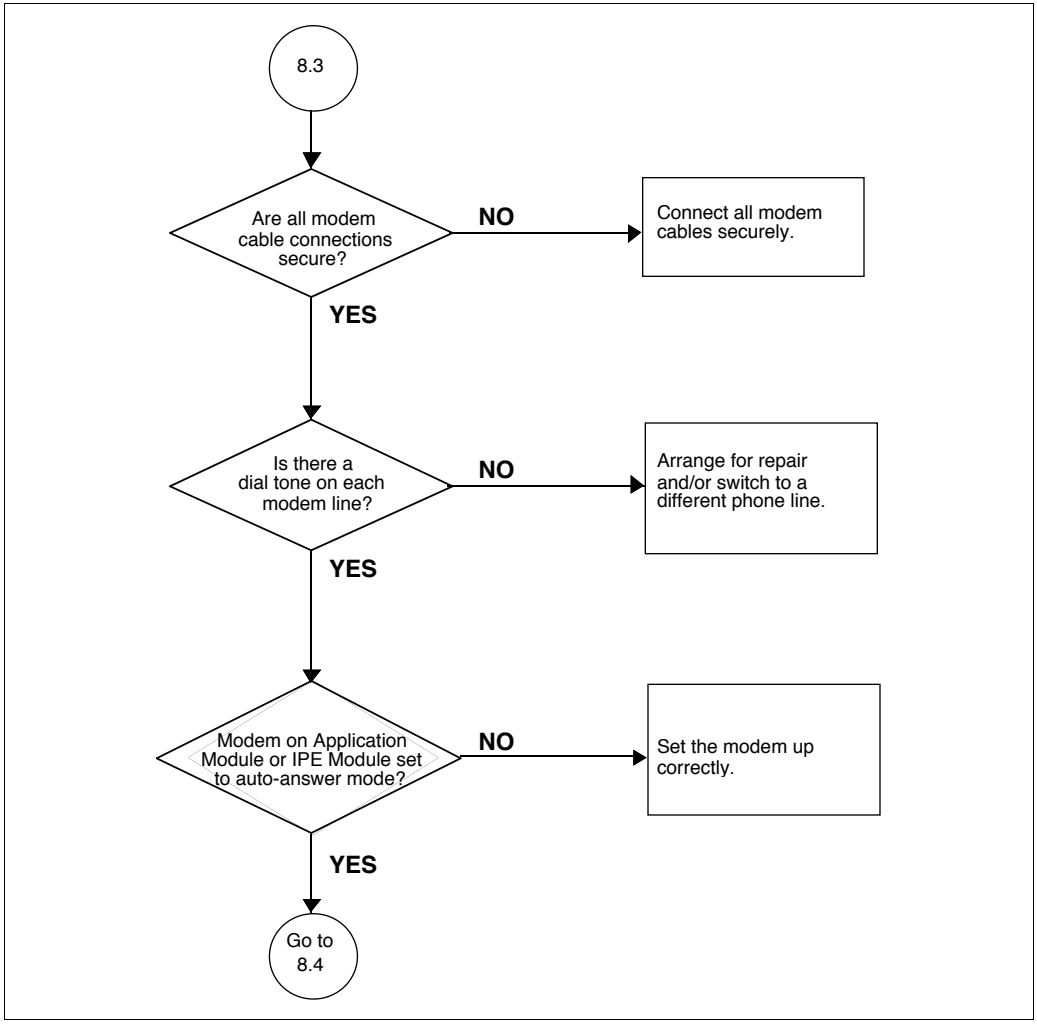
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



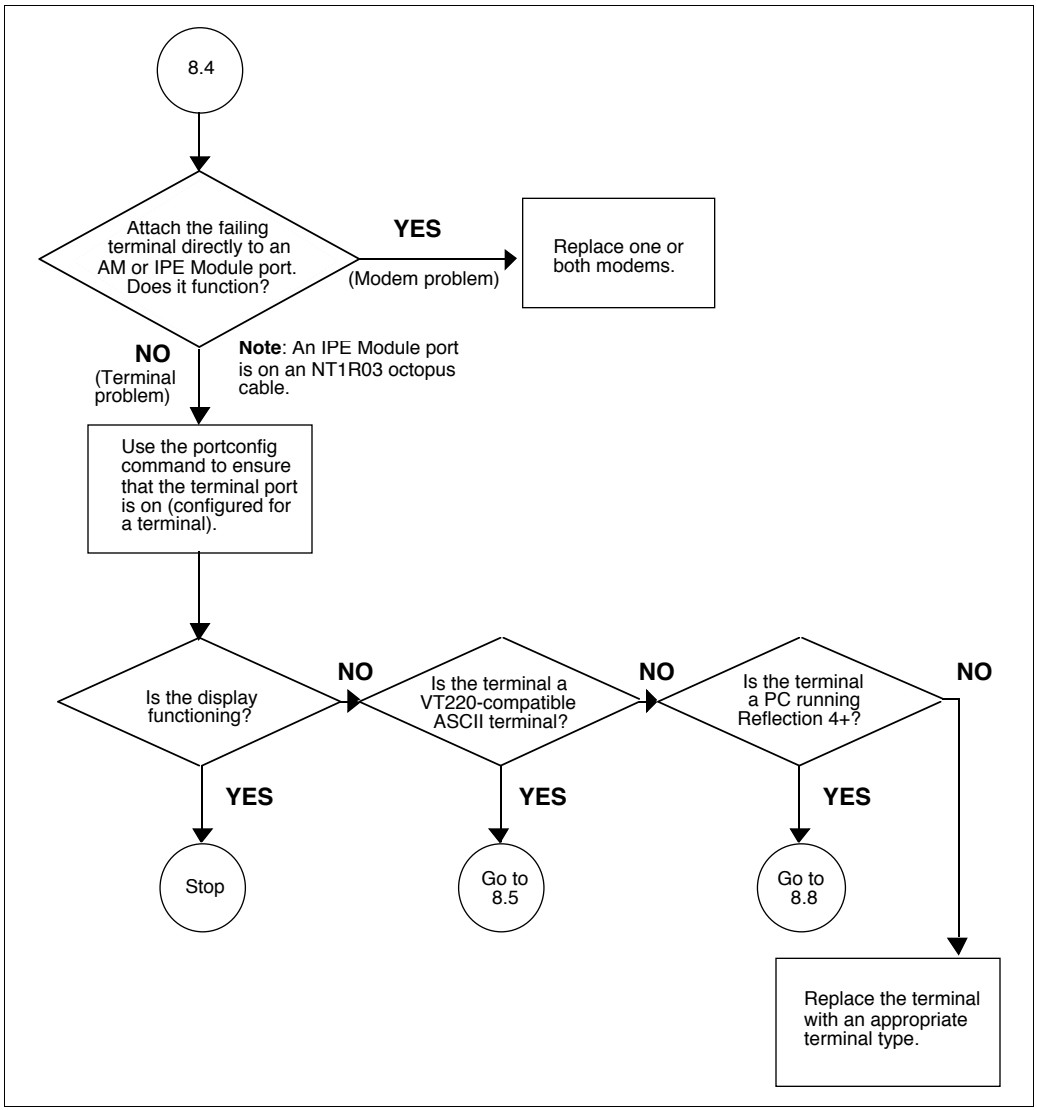
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



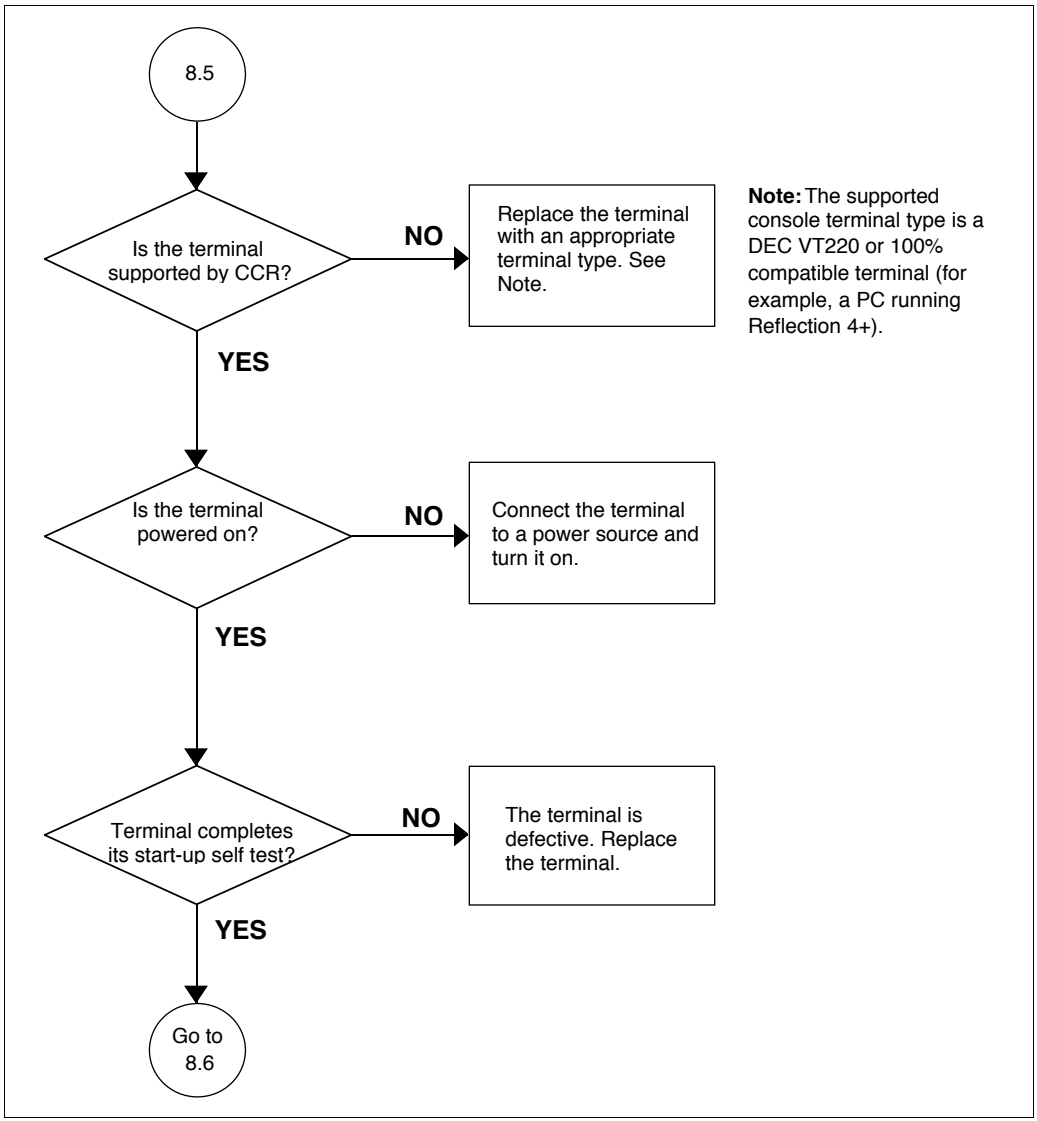
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



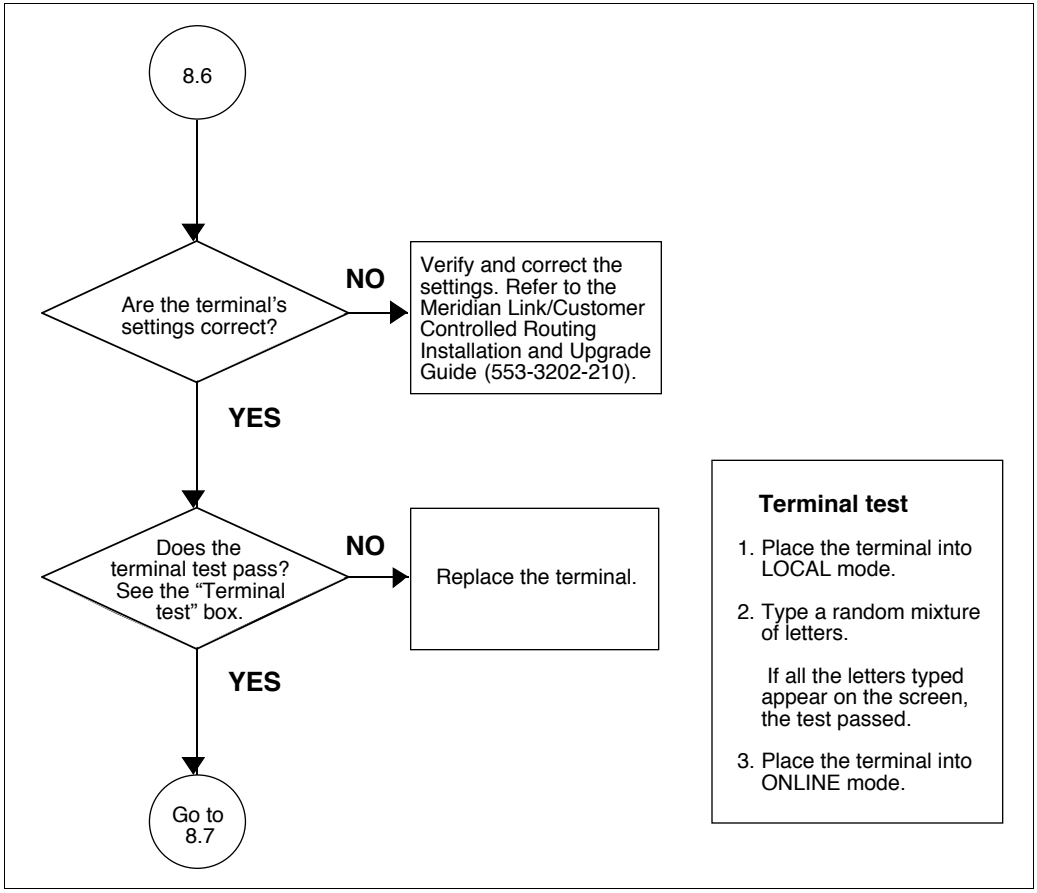
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



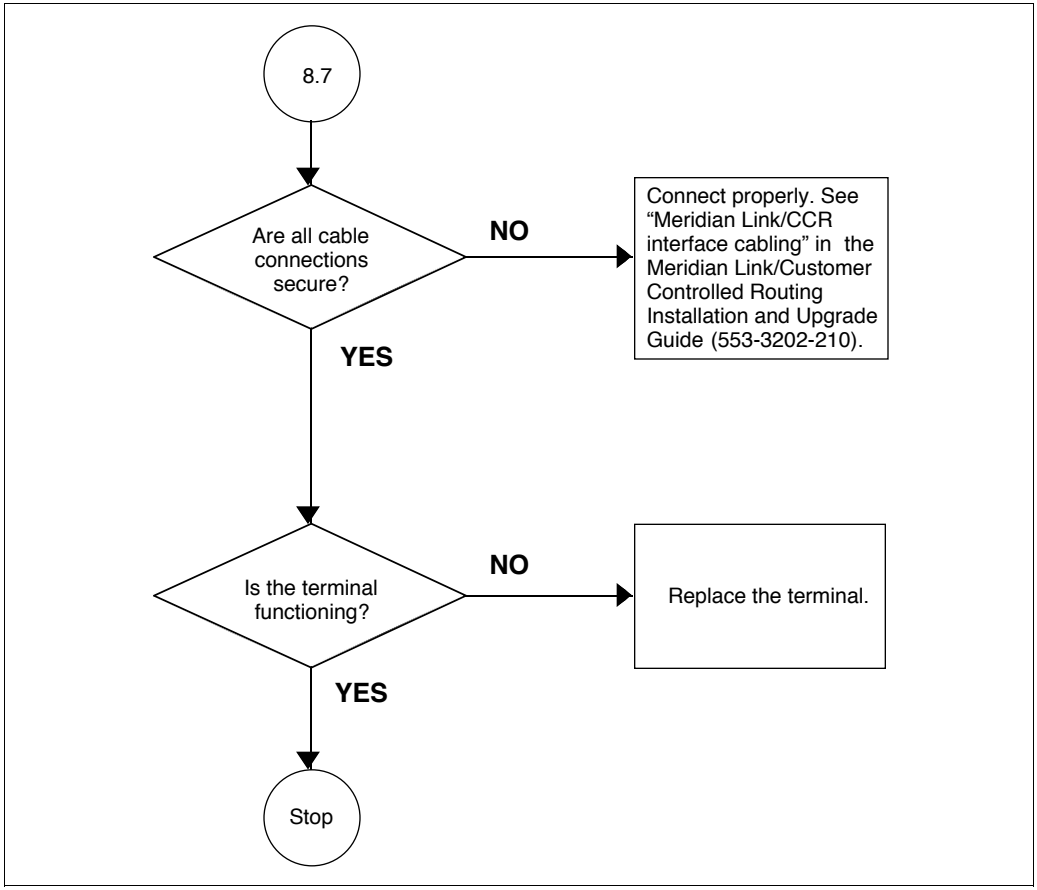
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



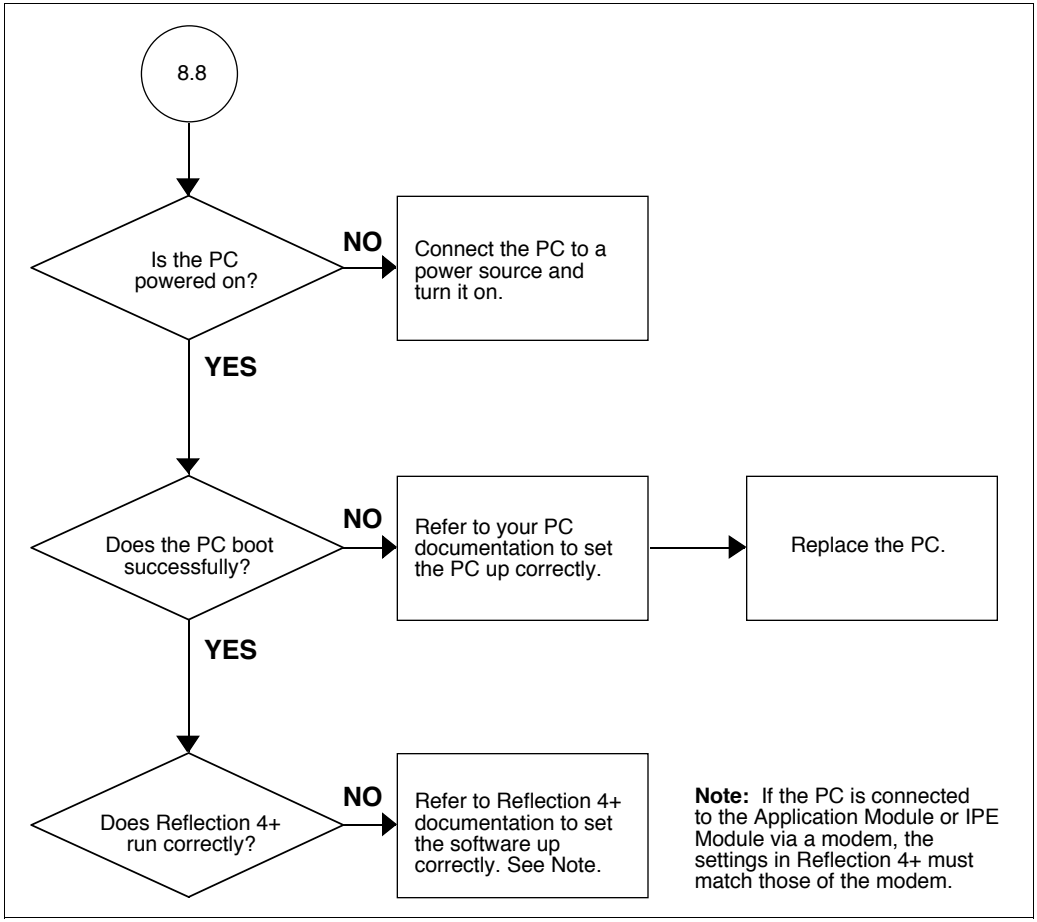
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



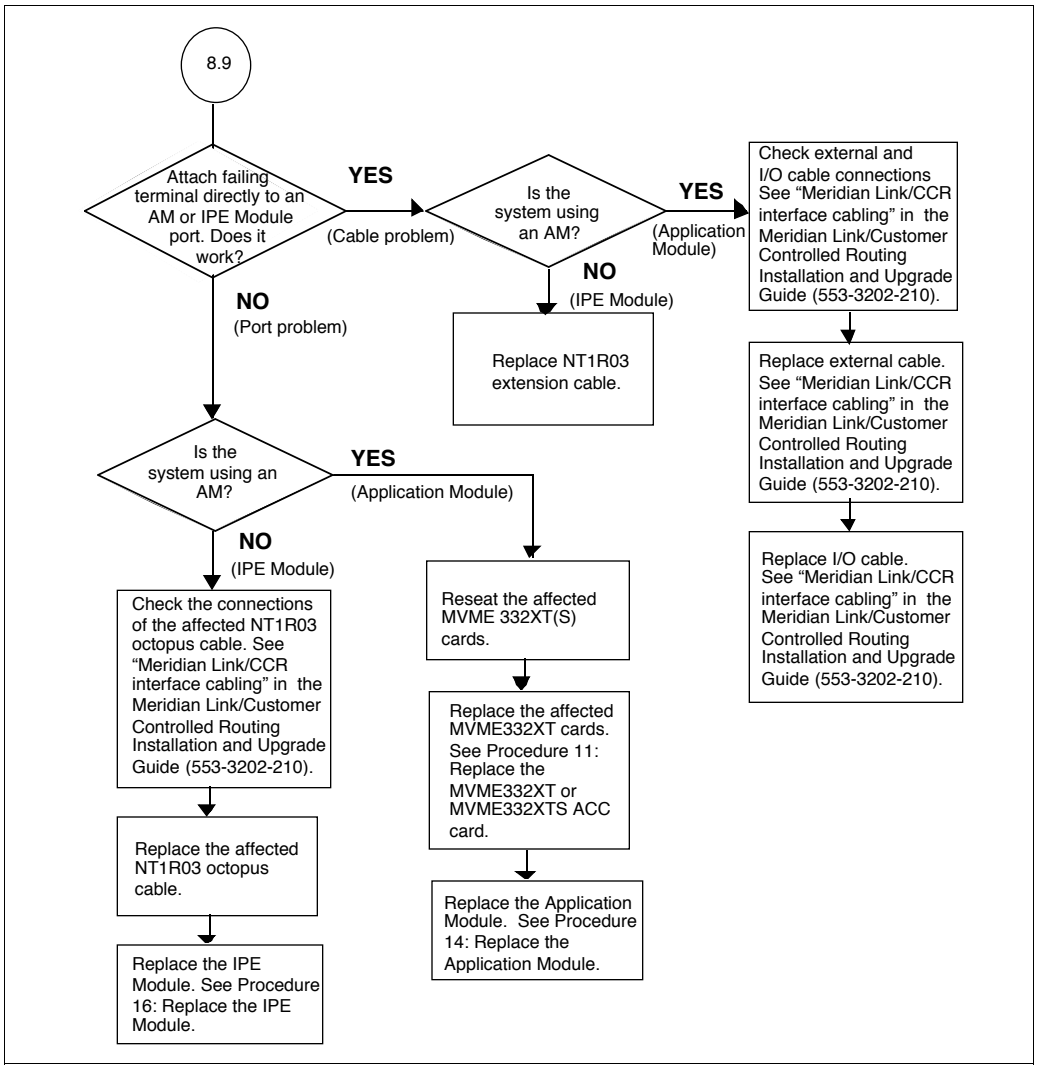
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



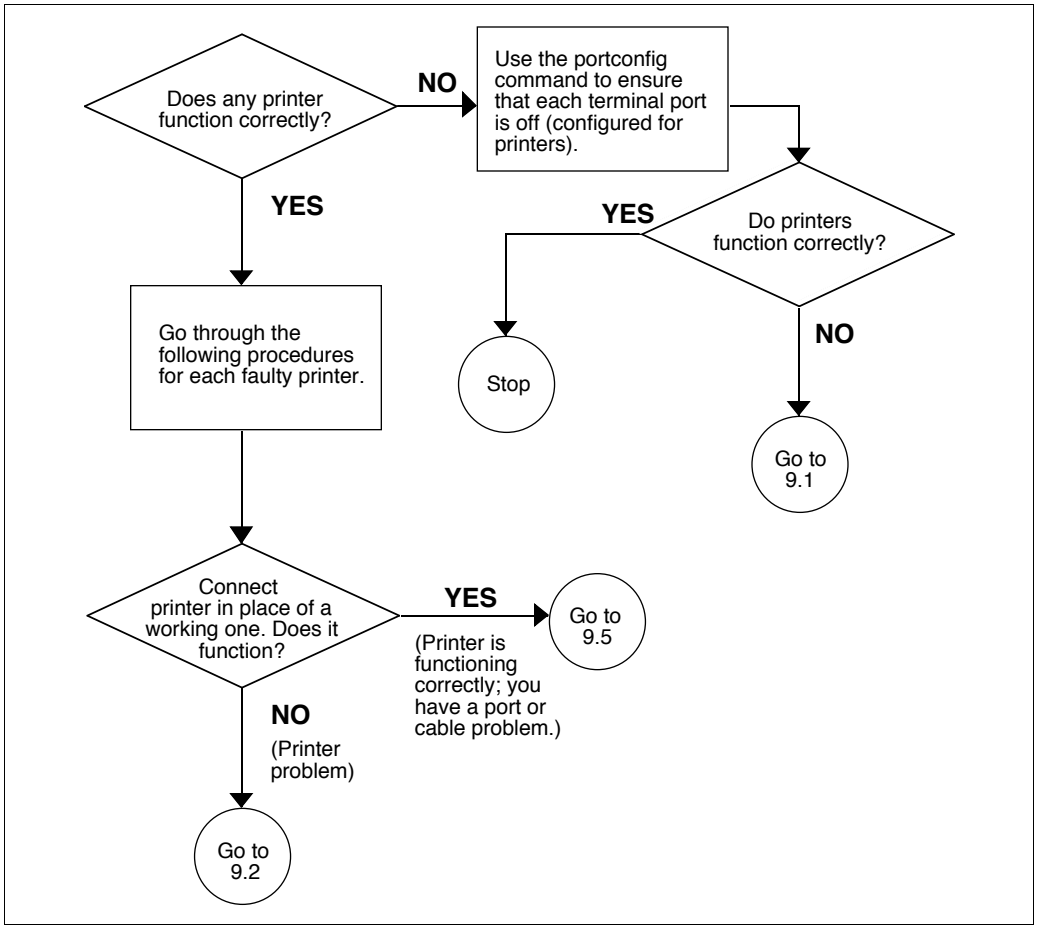
**Diagnostic procedure 8**
**Application terminal problem (continued)**

This procedure applies to CCR only.



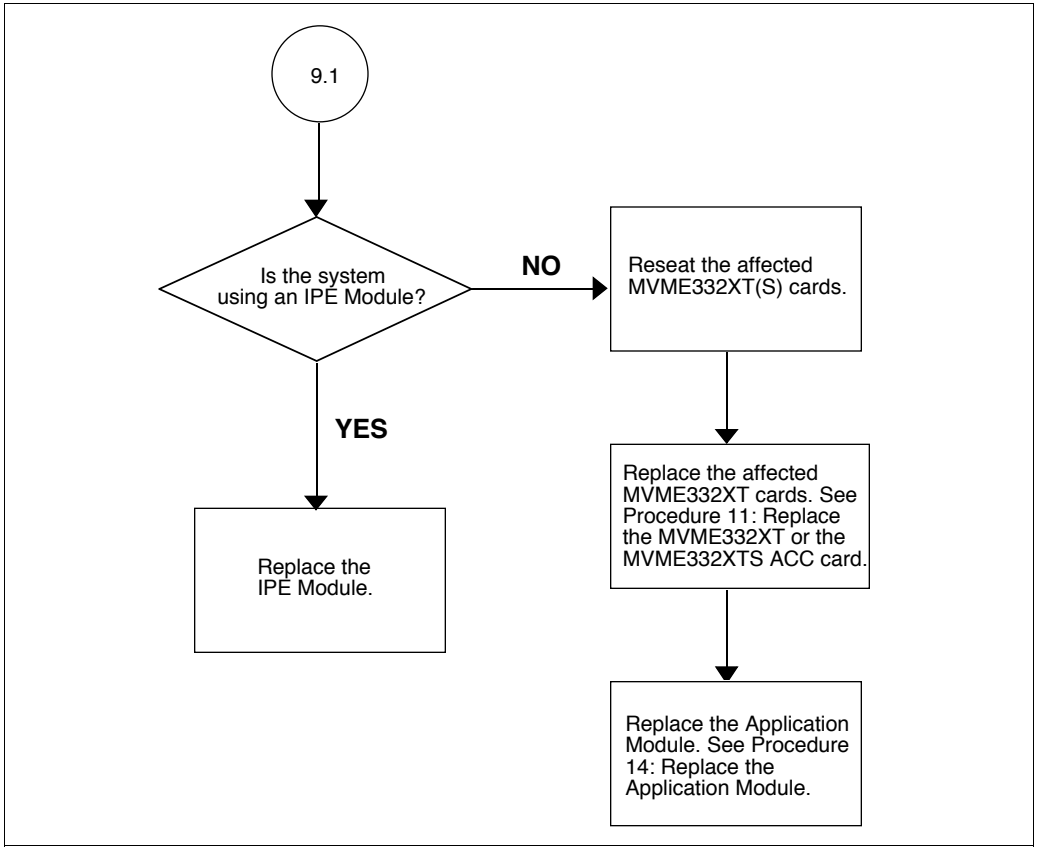
# Diagnostic procedure 9: Printer faults

This procedure applies to CCR only.



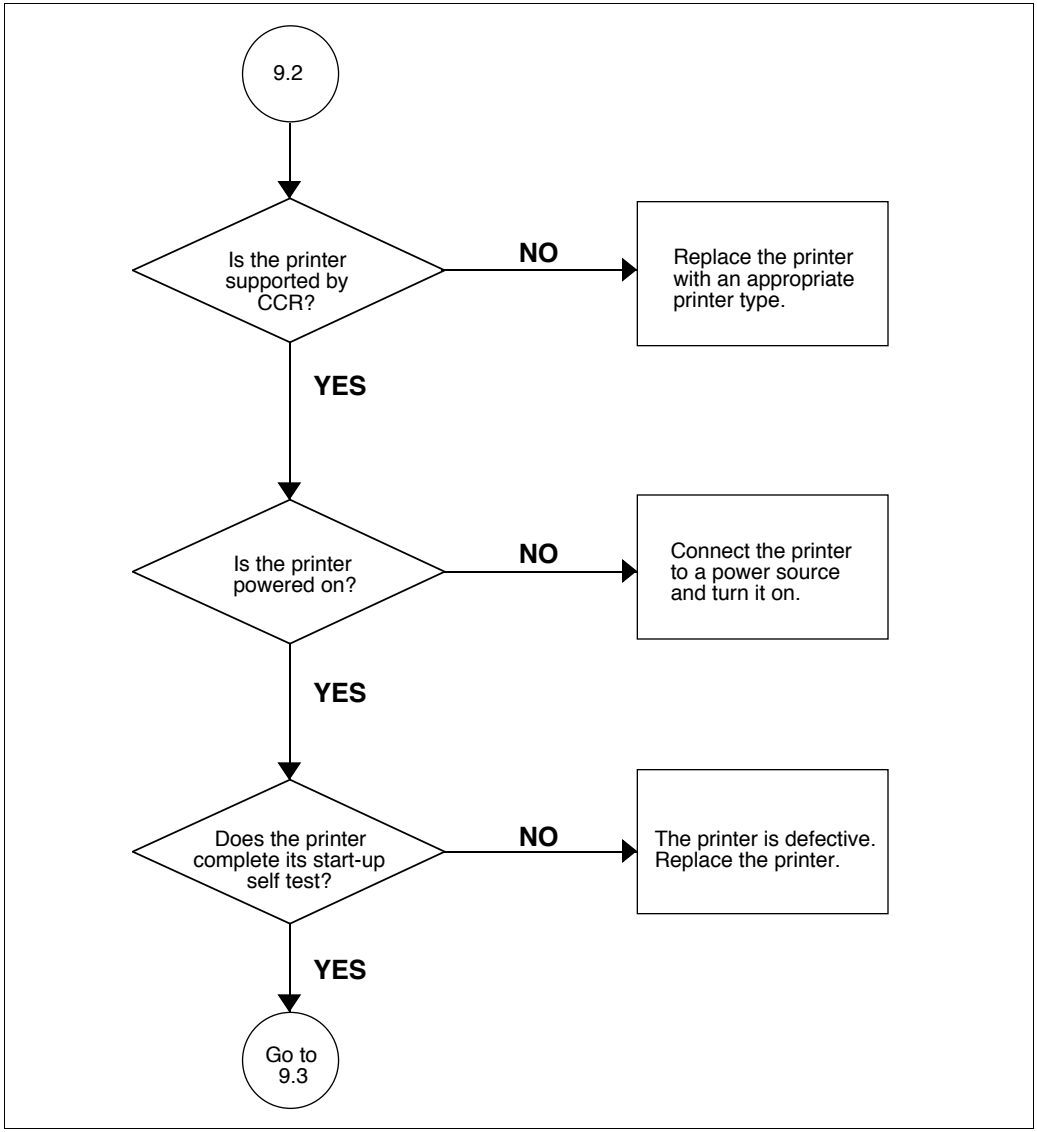
**Diagnostic procedure 9**
**Printer faults (continued)**

This procedure applies to CCR only.



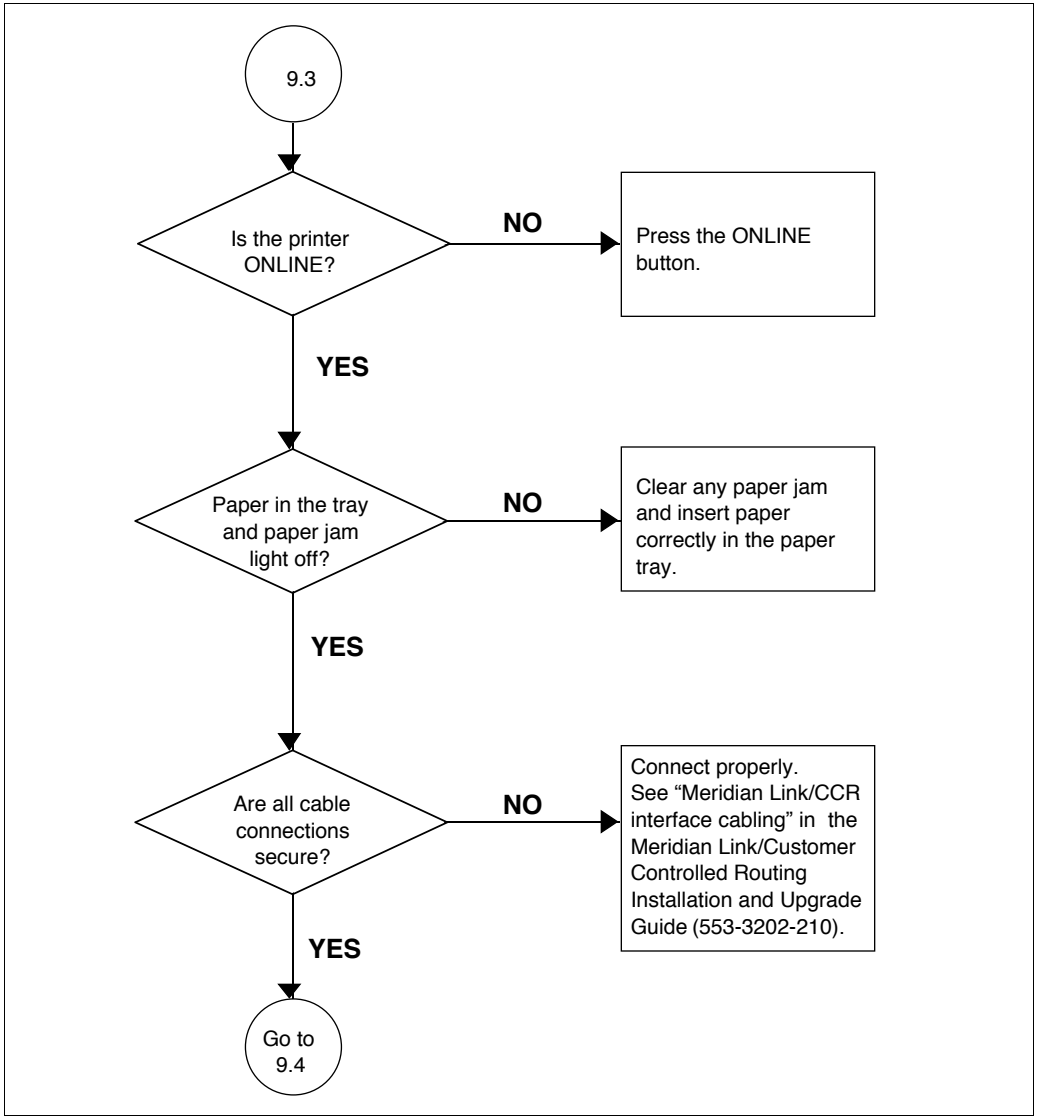
**Diagnostic procedure 9**
**Printer faults (continued)**

This procedure applies to CCR only.



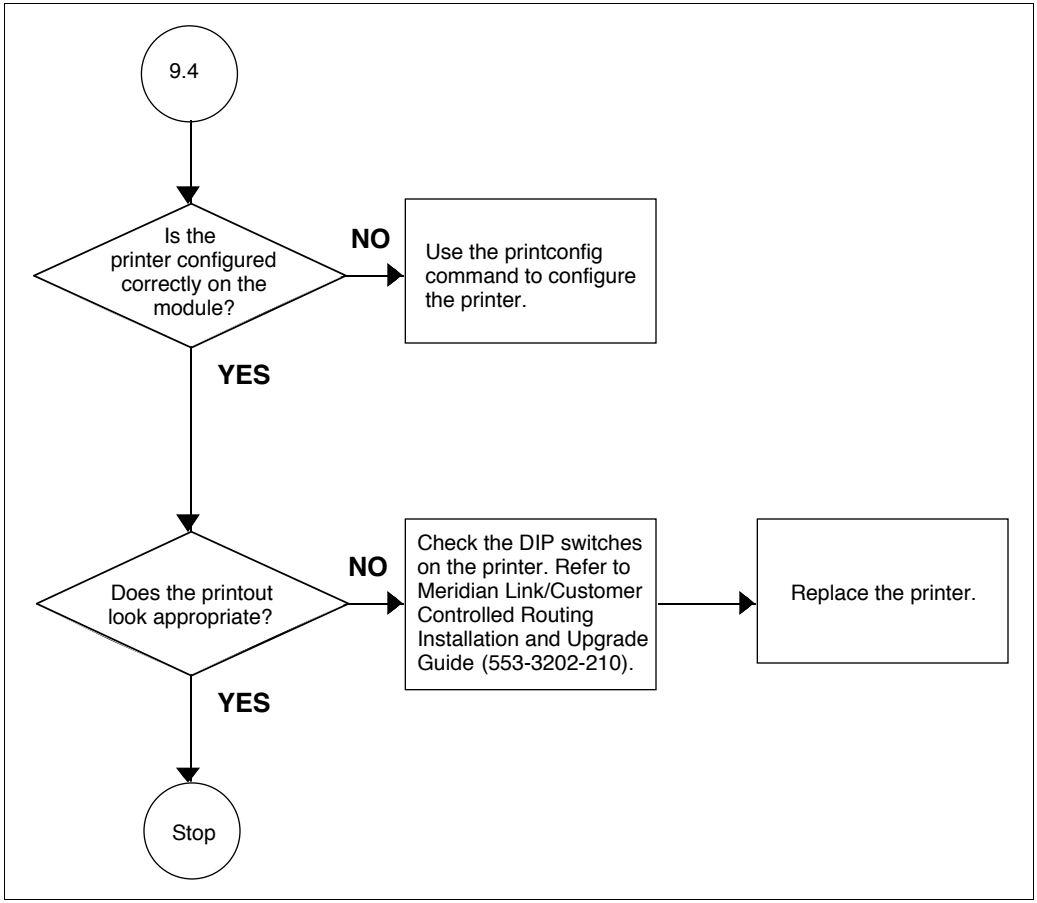
**Diagnostic procedure 9**
**Printer faults (continued)**

This procedure applies to CCR only.



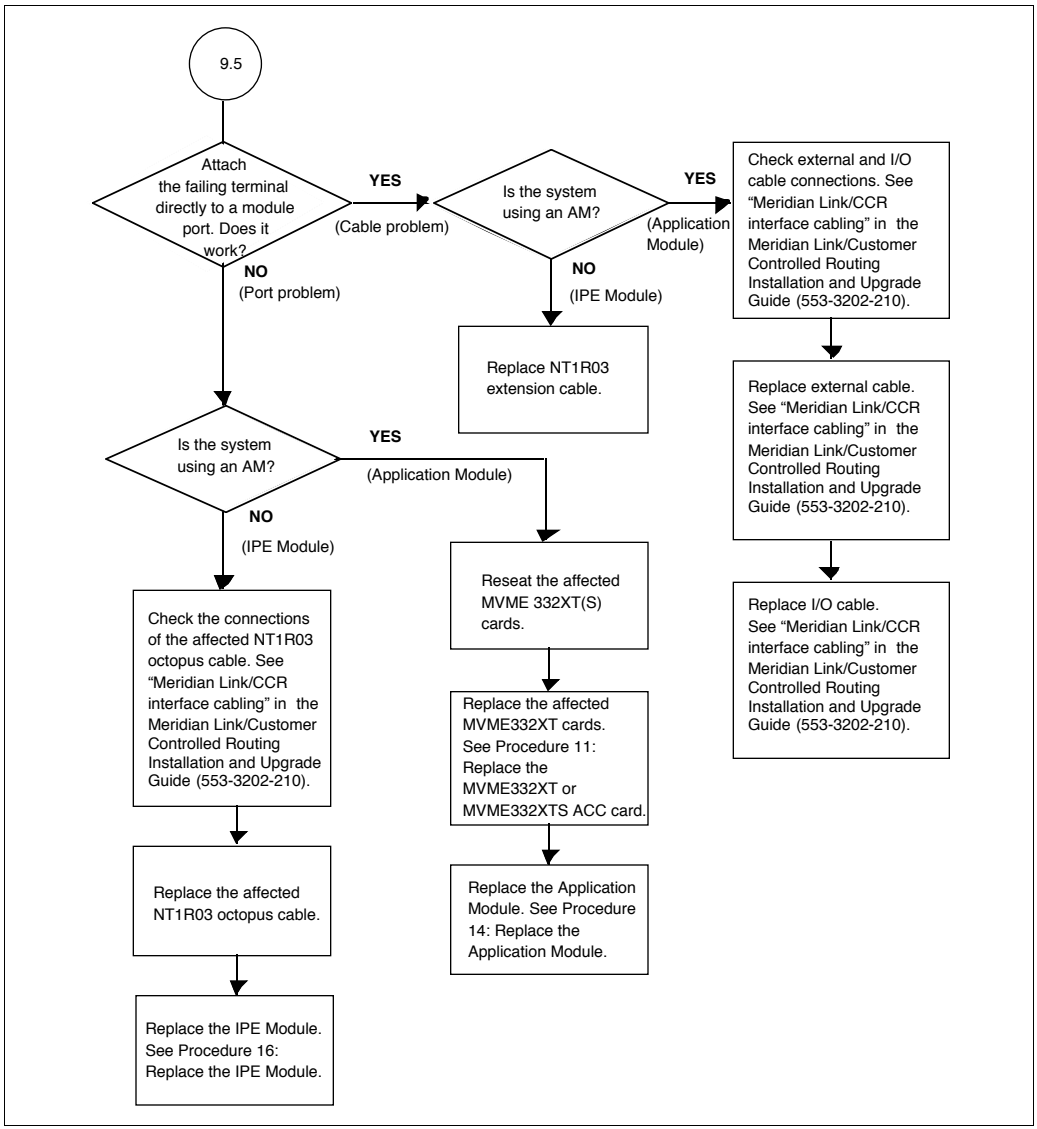
**Diagnostic procedure 9**
**Printer faults (continued)**

This procedure applies to CCR only.



## Diagnostic procedure 9
## Printer faults (continued)

This procedure applies to CCR only.



# Disk/tape drive unit faults

### Hard disk drive read/write fault

If the following error message appears repeatedly on the system console, the hard disk drive is defective and needs to be replaced:

```
page read error on integral hard disk #, partition #
```

To replace the IPE Module hard disk, you must replace the IPE Module. The following procedures are detailed in Chapter 8, "Recovery/replacement procedures."

- Procedure 15 to remove the IPE Module
- Procedure 16 to replace the IPE Module
- Procedures 20–22 to load the software.
- Procedure 24 to restore the files from the backup tape

To replace the Application Module disk/tape unit, perform the following:

- Procedure 6 to remove and replace the disk/tape unit
- Procedure 19 or 20 to load BOS
- Procedure 21 and 22 to reboot the system and load the applications
- Procedure 24 to restore files from the backup tape

Technical diagnostic tests are available to some users, as described in the *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide* (NTP 553-3211-512).

### Tape drive read/write fault

If you cannot write to the tape drive, do the following:

- Ensure that the tape is not write protected.
- Ensure that the tape has been inserted correctly into the tape drive and the door is completely closed.

Technical diagnostic tests are available to some users, as described in the *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide* (NTP 553-3211-512).

# Login failure

Once UNIX has booted, you can log in with one of the login IDs described in Chapter 1, "Overview." The following example shows how to log in by entering the desired login ID at the UNIX login prompt. The default password for each login ID is the same as the login ID. For example:

```
Console Login: maint
Password: maint
```

***Note:*** The password is not displayed on the console.

If you cannot log in from an Ethernet LAN-based PC, Ethernet LAN support may not be enabled. If Ethernet LAN support is already enabled, use the startNSE command to activate the support. Use Procedure 25 to enable Ethernet LAN support if it is not enabled.

## Difficulty logging in as ccrusr

This section applies to CCR only.

Log in as ccrusr. If the login is successful, the "Enter User ID" prompt appears.

- If logging in as ccrusr results in the following message:

  ```
  CCR Application is not running. Cannot log in now.
  Please start the application and try again.
  ```

  Start the CCR application software by logging into maint and entering the ccrstart command:

  ```
  maint> ccrstart
  ```

  The following display appears:

  ```
  Starting CCR Application...
  Starting Customer Controlled Routing Processes...

  maint>
  ```

- If performing a login as ccrusr results in a "Login incorrect" message, verify that the password is correct. The default password for ccrusr is ccrusr. Also make sure that, if the password is in lowercase, CAPS LOCK is not set.

- If you are able to enter the login ID and password successfully but do not get the "ccrusr>" prompt, or if you are unable to enter input at the prompt, verify that the console setup is correct. See *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210) for more information on console setup.
- If a login as ccrusr is still unsuccessful or the applstart command is not successfully executed (the above example shows a successful start-up), restart the Application Module or IPE Module by powering down safely (using the powerdown command in maint) and pressing the red RESET button on the front of the SBC card (Application Module) or on the faceplate (IPE Module).

  ***Note:*** If the Application Module is configured to automatically start the CCR application, it is not necessary to manually start CCR after the Application Module has restarted. Log in as maint and enter the following command to determine if CCR is configured to automatically start:

  maint> **bootconfig**

- If you still cannot log in as ccrusr, contact your Nortel support personnel.

## Difficulty logging in as maint

If the login is successful, the "maint>" prompt appears.

- If logging in as maint results in a "Login incorrect" message, verify that the password is correct. The default password for maint is maint. Also make sure that, if the password is in lowercase, CAPS LOCK is not set.
- If you are able to enter the login ID and password successfully but do not get the "maint>" prompt, or if you are unable to enter input at the prompt, verify that the console setup is correct. Refer to "Diagnostic procedure 5: System console fault suspected" earlier in this chapter.
- If you still cannot log in as maint, reinstall the application software as described in Chapter 8, "Recovery/replacement procedures."

## Difficulty logging in as mlusr

You can login to mlusr at the "Console login:" prompt or by using the mlusr command from maint.

If the login is successful and the "mlusr>" prompt appears, the system is ready to accept additional commands.

- If logging in as mlusr results in the following message

  ```
  "application" software not responding.
  Administration tool unable to register.
  Is "application" software installed and running?
  Login as maint, and execute mlstart.
  Goodbye...
  ```

  in which "application" represents the name of the application, power down the Application Module and reboot.

- If logging in as mlusr results in a "Login incorrect" message, verify that the password is correct. The default password for mlusr is mlusr. Also make sure that, if the password is in lowercase, CAPS LOCK is not set.

- If you are able to enter the login ID and password successfully but do not get the "mlusr>" prompt, or if you are unable to enter input at the prompt, verify that the console setup is correct. Refer to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

- If logging into mlusr is still unsuccessful, restart the Application Module by logging into maint and using the powerdown command. When the "System secured for powering down" message appears, press the red RESET button on the IPE Module faceplate or Application Module SBC card.

  After the Application Module has rebooted, start the application.

- If you still cannot log in as mlusr, reinstall the application software as described in Chapter 8, "Recovery/replacement procedures."

# Link failure

The Application Module or IPE Module supports three links:

- Link 0, an LAPB link to the Meridian 1 (AML)
- Link 1, an X.25 or a TCP/IP link to a host computer (Meridian Link only)
- Link 2, an asynchronous link to Meridian Mail (optional for Meridian Link only)

If any or all of these links fail, the application cannot operate normally.

## AML (Link 0) will not establish

If the AML, which connects an ESDI or MSDL port on the Meridian 1 to a port on the Application Module, does not come up, follow these steps:

**1** Check the link status from the Application Module.

a Log in as mlusr or log in as maint and use the mlusr command.

b Check the status of the link.

mlusr> **status link 0**

If the response is “Link 0 : Up”, the AML is properly connected.

If the response is “Link 0 : Disabled”, enable the link.

mlusr> **enable link 0**

If the response is “Link 0 : Enabled but down”, the AML is properly enabled but has not established a LAPB connection with the Meridian 1 ESDI or MSDL port. Try to establish the link from the Meridian 1 (go to step 2 for X11 Release 17/X11 International Phase 7 or earlier software; go to step 3 for X11 Release 18 or later software).

c Check the system log file for errors by logging in as mlusr and using the viewlog command.

**2** For X11 Release 17 /X11 International Phase 7 or earlier software only—check link status from the Meridian 1. Refer to *X11 Input/Output Guide* (NTP 553-3001-400) for more information, if necessary.

### Example: Link is attached to ESDI port 8

Substitute the port number in your configuration for the digit 8 in this example.

- Type **LD48** for link maintenance commands and press [Return].

  **> LD 48**

- Check the status of the link.

  **.STAT ESDI**

  If the response is "ESDI #08 : CONNECTED (SYNC CMS)", the AML is properly connected.

  If the response is "ESDI #08 : ENABLED (SYNC CMS)", the AML is properly enabled, but it is not connected.

  If the response is "ESDI #08 : DISABLED (SYNC CMS)", enable the ESDI port. The ACMS command will put the ESDI port in auto recovery mode. That is, if the AML goes down, the Meridian 1 will automatically try to enable it. Enter the following:

  **.ACMS 8**

  If the response is "ESDI #08 : AUTO SETUP (SYNC CMS)", the AML is already in auto recovery mode. No action is necessary.

- If the message "CSA003 8 t" is reported on the Meridian 1 console, the AML connection is established at system time t.
- If the message "CSA001 8 t 8" is reported on the Meridian 1 console, the AML LAPB connection is not established at system time t. Check the hardware and software configurations of the ESDI port.

**3** For X11 Release 18 or later software only—check link status from the Meridian 1. Refer to *X11 Input/Output Guide* (NTP 553-3001-400) for more information, if necessary.

**Example: Link is attached to ESDI or MSDL port 8**
Substitute the port number in your configuration for the digit 8 in this example.

- Type **LD48** at the Meridian 1 console and press [Return].

  > **LD 48**

- Check the status of the link.

  **.STAT AML 8**

If LYR2 status is EST (established), the AML is properly connected.

If LYR2 status is DSBL (disabled), enable the AML as follows:

- If you have an ESDI card, type **ENL AML 8 ACMS** (replace 8 with the appropriate port number for your configuration) and press [Return].
- If you have an MSDL card, type **ENL AML 8** (replace 8 with the appropriate port number for your configuration) and press [Return]. If you do not have AUTO RECOVERY on, you must also type **ENL AML 8 LYR7** (replace 8 with the appropriate port number for your configuration) and press [Return].

**4** Check the following:

- If you are using QPC513 ESDI, ensure that it is vintage G (or later).
- Ensure that the cable from ESDI or MSDL port (on the Meridian 1 I/O panel) to the Application Module (NT7D58) is properly mated.

**5** Check the link 0 configuration on the Meridian 1.

- Link 0 must be configured as DTE. The software Physical DTE must be set to 0 for DTE configuration.
- The link speed must be 19200 bps.
- For DTE configuration, the internal address (IADR) must be 1, and remote address (RADR) must be 3.

  mlusr> **display link 0**

  The following display appears (the pertinent values of the Link 0 configuration are underlined):

| | |
|---|---|
| Protocol: HDLC | Link type: 1 |
| Machine ID: SL16 | |
| Delay: 0 | |
| Port type: H | Physical DTE(0)/DCE(1): 0 |
| PDN type: 0 | Maximum Frame length: 135 |
| Baud rate: 19200 | Fail timer: 50 |
| RFS timer: 150 | Internal address: 1 |
| Remote address: 3 | T1: 20 |
| Maximum out frames (K): 7 | Maximum trans attempts (N2): 8 |

- If the display link configuration parameters are not the same as the above example, the parameters need to be changed using the change link 0 command (see Chapter 3, “Link maintenance commands”).

**6** Confirm that the application software package is installed on the Meridian 1.

- Type **LD22** at the Meridian 1 console, and press [Return].
- At the REQ prompt, type **PRT** and press [Return].
- At the TYPE prompt, type **PKG** and press [Return]. A list of all software packages installed on the Meridian 1 will be displayed.
- Ensure that the list includes entries for the software packages.

If the required packages are not listed, contact your Nortel support personnel.

**7** Confirm the Meridian 1 Machine ID (system ID).

- Type **LD22** at the Meridian 1 console, and press [Return].
- At the REQ prompt, type **TID** and press [Return]. Information similar to the following is displayed:
  TAPE ID:
  LOADED xxxx
  DISK/TAPE xxxx

  Your Meridian 1 machine ID, a string of up to eight characters, appears in place of the "xxxx".
- Log in as **maint** on the Application Module, and use the showid command (as described in Chapter 2, "Application Module commands").

If the Meridian 1 machine (system ID) does not match the machine ID given in response to the showid command, the AML cannot function. Contact your Nortel support personnel for the correct Application Module software.

**8** Check ESDI or MSDL port configuration on the Meridian 1.

There are several parameters that must be configured correctly in LD17. Print from LD22 and compare the parameter values with the information below. (An Option 11 IPE Module does not support an MSDL card.)

- The link is full duplex and synchronous. It uses internal clocking and is a direct connection to the Application Module.
- The speed of the link is 19200 bps.
- If the DTE/DCE configuration is not set up correctly, the AML will not establish. By default, the ESDI or MSDL port is configured as DCE because the Application Module side is configured as DTE.
- IADR must have a value of 3 and RADR must have a value of 1.
- The user type is CMS (Command and Status Link).
- The Value Added Server ID (VAS ID) is a number between 0-15, and must be unique for each ESDI defined.

- The CMS number is an ESDI or MSDL port number between 0 and 15.
- Set LD17 prompts as described in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

**9** Check the ESDI or MSDL card option settings.

- If the card is not set up to match the port configuration in LD17, the AML will not come up.
- The ESDI or MSDL port and option switch selection must be set up to match the software configuration in LD17. The socket selection must choose a DCE option and an RS-232 interface.
- Configure the ESDI port or MSDL port to match the configuration in LD17 according to the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).
- Check the status of the ESDI or MSDL port (see Step 2).

**10** Check the cabling

- on the Application Module, between the universal or generic I/O panel, or I/O subpanel and the MVME705B transition card
- on the IPE Module, from the I/O panel or connector panel through the octopus cable and extension cable to the ESDL or MSDL card

See the "Cable requirements" chapter in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

**11** For an Application Module, check the MVME705B transition card option settings.

Verify the physical DTE/DCE configuration. The AML port on the MVME705B card (SP1) must be hardware configured as DTE.

**12** For an Application Module, replace the MVME705B transition card, using the following procedures:

- Procedure 3: Hardware powerdown
- Procedure 18: Replace or reconfigure the MVME705B transition card

**13** Start up the application by logging in as maint, typing **applstart** and pressing [Return].

### Redundant Meridian Link only

**14** Manually switch the active link over to the standby link in LD 48. See Chapter 12, “Meridian 1 configuration for Meridian Link/CCR” in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

## X.25 host computer link (Link 1) will not establish

This section applies to Meridian Link only.

The following section describes the steps to take if the X.25 Host Link between the host computer and the Application Module or IPE Module does not establish.

**1** Check link status from the Meridian Link.

- Log in as mlusr. If unable to log in, see "Login failure."
- Check the status of the link.

  mlusr> **status link 1**

If the response is "Link 1 : Up", the Host Link is properly connected and the problem is not the Host Link connectivity. Make sure the host application has properly registered (see "Application registration fails").

If the response is "Link 1 : Disabled", enable the link.

mlusr> **enable link 1**

If the response is "Link 1 : Enabled but down", the Host Link is properly enabled, but there is something wrong on the host side: either link 1 parameters do not match the host, or the host is down.

If the response is anything other than what is indicated above, or there is no response at all, restart the application.

**2** Check the Host Link cable.

Use a straight-through RS-232 cable between the host computer and

- the Host Link port on the IPE Module octopus cable
- card 1 conn 2 on the generic I/O panel, Host on the universal I/O panel, or J3 on the I/O subpanel of the Application Module

Pins 2–8, 15, 17, and 20 are used.

Verify that the length of the cable between the host and the Application Module does not exceed the RS-232 recommended length of 15 m (50 ft). Use external modems if the distance between the Meridian Link Module and the host computer is farther than the maximum recommended cable length. Nortel neither supplies nor recommends a particular make or model for this purpose. If problems exist with the external modems, Nortel recommends that the customer call service representatives for the modem equipment. (A common symptom for an excessive cable length is that the link will establish for only a short period of time.) See the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210) for more information on using modems with the Application Module.

**3** Verify that the Application Module MVME333-2 XCC card is functional.

If the red LED is lit, see "Diagnostic procedure 3: Card fault suspected" to verify that the MVME333-2 XCC card is indeed bad.

**4** Check the X.25 communications software.

- Log in as maint, type **version**, and press [Return].
- A list of installed software packages appears. Check that the list contains an entry that reads "MeridianLink & X25 NET333." If it does not appear, reload the Meridian Link software.

**5** Check the Host Link configuration parameters.

- Log in as mlusr and use the display link 1 command to display the current configuration.

  mlusr> **display link 1**

  The following display appears (default values are shown):

```
Protocol:  X25                          Link type:  2
Machine ID:  x25dest
Delay:  0
Port type:  X                           Physical DTE(0)/DCE(1):  1
PDN type:  44                           Maximum Frame length:  135
Baud rate:  19200                       Fail timer:  150
RFS timer:  150                         Internal address:  1
Remote address:  3                      T1:  30
Maximum out frames (K):  7              Maximum trans attempts (N2):  7
Local DTE address:  000000990100
Flow control negotiation:  0            Incoming packet size:  128
Outgoing packet size:  128              Incoming window size:  2
Outgoing window size:  2                Throughput negotiation used:  0
Incoming throughput class:  10          Outgoing throughput class:  10
Lowest LCN for DTE/DCE:  -1              DTE/DCE:  -1
Lowest LCN:  1                          Highest LCN:  4095
LOC LIC:  -1                            HOC HIC:  -1
T10:  1800
T11:  2000                              T12:  1800
T13:  1800                              T14:  600
T15:  1500                              T16:  1300
Maximum T12 retries:  3                 Maximum T13 retries:  3
mlusr> display link 2
Protocol:  ASYNC                                Link type:  3
Machine ID:  MeridianMail
Delay:  0
TTY:  3
```

- The configuration parameters that need to be verified are listed here. These parameter values must be compatible with those defined for the host computer. Contact the host computer administrator for assistance.

  **Physical DTE(0)/DCE(1)** If the Host Link port on the Application Module or IPE Module is configured as DTE, this parameter must be 0. If it is configured as DCE (default), this parameter must be 1.

**PDN type** This parameter depends on the type of X.25 network used by the host computer. The possible values are as follows:

0 — LAPB
40 — DATEX-P (Germany)
41 — TRANSPAC (France)
42 — PSS (United Kingdom)
43 — DATAPAC (Sweden)
44 — TELENET (USA)
45 — DDN (USA)
46 — ACCUNET (USA)
47 — DATAPAC (Canada)
48 — TYMNET (USA)

**Maximum frame length** This must be identical to the host computer configuration. It specifies the maximum LAPB frame size.

**Baud rate** This must be identical to the host computer configuration. If external modems are used, it must also match the baud rate of the modem.

**Fail timer** This specifies the number of milliseconds to elapse before indicating link failure, for monitoring the following signals:

— CTS, DSR, and DCD (if host is configured as DTE)

— DTR and RTS (if host is configured as DCE)

**RFS timer** This specifies the time value (in milliseconds) for monitoring the following signals after line opening:

— CTS (if host is configured as DTE)

— DTR (if host is configured as DCE)

**Internal address** If the physical layer is DTE, the internal address is normally 3 and the remote address is 1. If the physical layer is DCE, the internal address is normally 1 and the remote address is 3.

Try establishing the Host Link using the following configurations

- internal = 3/remote = 1
- internal = 1/ remote = 3 .

**Remote address** (See “Internal address”).

**T1** This should be identical to the host computer configuration. It specifies the frame recovery time (in 1/10 second increments).

**Maximum out frames (K)** This must be identical to the host computer configuration. It specifies the LAPB window size.

**Maximum trans attempts (N2)** This value should be identical to the host computer configuration. It specifies the maximum number of retries to complete a transmission.

**Local DTE address** This is the X.25 “call request” address that identifies the Application Module. When the host sends the X.25 call request packet to set up the SVC, it must specify the local DTE address of the Application Module. The default value is 000000990100.

**Flow control negotiation** This value must be 0. It is the X.25 service which allows flow control parameters (packet size and window size) to be negotiated between the host and the Application Module. This is not supported by the Application Module. The default value is "0" (no flow control negotiation).

**Incoming packet size** This must be identical to the host computer configuration. It specifies the maximum X.25 packet size.

**Outgoing packet size** This must be identical to the host computer configuration. It specifies the maximum X.25 packet size.

**Incoming window size** This must be identical to the host computer configuration. It specifies the X.25 window size.

**Outgoing window size** This must be identical to the host computer configuration. It specifies the X.25 window size.

**Throughput negotiation used** This must be 0.

**Incoming throughput class** This must be 0.

**Outgoing throughput class** This must be 0.

**Lowest LCN for DTE/DCE** This specifies the lowest X.25 virtual circuit number that will be assigned for an incoming (if DTE) or outgoing (if DCE) X.25 call request. It is not used by the Application Module. The default value is -1.

**Highest LCN for DTE/DCE** This specifies the highest X.25 virtual circuit number that will be assigned for an incoming (if DTE) or outgoing (if DCE) X.25 call request. It is not used by the Application Module. The default value is -1.

**Lowest LCN** This specifies the lowest X.25 virtual circuit number that will be assigned for an incoming/outgoing X.25 call request. The default value is 1.

**Highest LCN** This specifies the highest X.25 virtual circuit number that will be assigned for an incoming/outgoing X.25 call request. The default value is 4095.

**LOC LIC** This specifies the lowest X.25 virtual circuit number that will be assigned for an incoming (if DCE) or outgoing (if DTE) X.25 call request. It is not used by the Application Module. The default value is -1.

**HOC HIC** This specifies the highest X.25 virtual circuit number that will be assigned for an incoming (if DCE) or outgoing (if DTE) X.25 call request. It is not used by the Application Module. The default value is -1.

**T10** This specifies (in 1/10 second increments) the amount of time the application will wait for an X.25 Restart Confirmation packet after sending an X.25 Restart packet to the host (T20 for DTE).

**T11** This specifies (in 1/10 second increments) the amount of time the host will wait for an X.25 Call Accept packet from Meridian Link after sending an X.25 Call Request packet (T21 for DTE).

**T12** This specifies (in 1/10 second increments) the amount of time the application will wait for an X.25 Reset Confirmation packet after sending an X.25 Reset Request packet to the host (T22 for DTE).

**T13** This specifies (in 1/10 second increments) the amount of time the application will wait for an X.25 Clear Confirmation packet after sending an X.25 Clear Request packet to the host (T23 for DTE).

**T14** This specifies (in 1/10 second increments) the amount of time the application will wait for a packet with any P(R) value after sending an X.25 Data packet to the host (T24 for DTE).

**T15** This specifies (in 1/10 second increments) the amount of time the application will wait for a packet with a P(R) value that acknowledges a transmitted X.25 Data packet to the host (T25 for DTE).

**T16** This specifies (in 1/10 second increments) the amount of time the application will wait for an X.25 Interrupt Confirmation packet after sending an X.25 Interrupt Request packet to the host (T26 for DTE).

**Maximum T12 Retries** This specifies the maximum number of times the application will send Reset Requests due to T12 time outs (R12 for DCE and R22 for DTE).

**Maximum T13 Retries** This specifies the maximum number of times the application will send Clear Requests due to T13 time outs (R13 for DCE and R23 for DTE).

**6** Have the host computer programmer verify the X.25 call request packet format as follows:

- The Called DTE address must match the address specified in the Host Link (Link 1) configuration file.
- No facilities should be specified.
- No user data should be specified.

**7** Check the physical DTE/DCE configuration.

If the host computer is physically DTE, the Host Link port on the IPE Module or MVME705B transition card (SP3) in the Application Module must be configured as DCE (this is the default). If the host computer is configured as DCE, the IPE Module or transition card must be configured as DTE.

If modems are used, both the Application Module and the host computer connections should be configured as DTE.

Perform the following steps to configure the Host Link (link 1) on the Application Module as DCE or DTE.

- Perform Procedure 3: Hardware powerdown.
- Perform Procedure 18: Replace or reconfigure the Application Module MVME705B transition card.
- Perform Procedure 4: Power up the Application Module or IPE Module.
- Log in as mlusr and verify that the physical DTE/DCE configuration parameter matches the DTE/DCE configuration on the MVME705B transition card as follows:

  mlusr> **display link 1**

- Use the following command to change the physical DTE/DCE address:

  mlusr> **change link 1**

Perform the following steps to configure the Host Link (link 1) on an IPE Module as DCE or DTE.

- Log in as mlusr and verify that the physical DTE/DCE configuration parameter matches the configuration on the CPU adapter card in the IPE Module. (Use Procedure 15, “Remove the IPE Module,” if necessary.)

  **mlusr>display link1**

- Use the following command to change the physical DTE/DCE address:

  **mlusr> change link 1**

**8** Verify link configuration with host computer configuration.

9 Check the Application Module MVME333-2 XCC card jumper settings as follows:

- Perform Procedure 3: Hardware powerdown.
- Perform Procedure 11: Replace the MVME333-2 XCC card (without actually replacing the card).
- Perform Procedure 4: Power up the Application Module or IPE Module.

## TCP/IP host computer link (Link 1) will not establish

This section applies to Meridian Link only.

The following section describes the steps to take if the TCP/IP Host Link between the host computer and the Application Module or IPE Module does not establish.

Check link status from the Meridian Link.

- Log in as mlusr. If unable to log in, see the section “Login failure” earlier in this chapter.
- Check the status of the link by typing **status link 1** in the mlusr prompt.

  If the response is “Link 1 : Up”, the Host Link is properly connected and the problem is not the Host Link connectivity. Make sure the host application has properly registered (see “Application registration fails”).

  If the response is “Link 1 : Enabled but down”, it is possible that no applications are registered.

  — Perform a loopback test as described in Chapter 3, “Link maintenance commands”. If there is no response to the ping command, contact your system administrator.

  — Restart the application.

  If neither of the above steps gives you the message “Link 1: Up”, contact your Nortel support personnel.

  If the response is “Link 1 : Disabled”, enable the link by typing **enable link1** in the mlusr prompt.

## Meridian Mail Link (Link 2) will not establish

The following section describes the steps to take if the link between Meridian Mail and the Application Module does not establish.

**1** Check link status from the Meridian Link.

- Log in as mlusr. If unable to log in, see the section "Login failure" earlier in this chapter.
- Check the status of the link.

  mlusr> **status link 2**

If the response is "Link 2 : Up", the Meridian Mail Link is properly connected and the problem is not the Meridian Mail Link connectivity. Make sure the host application has properly registered (see "Application registration fails" later in this chapter).

If the response is "Link 2: Disabled", enable the link.

mlusr> **enable link 2**

If the response is "Link 2: Enabled but down", the Meridian Mail Link is properly enabled, but there is something wrong with Meridian Mail.

If the response is anything other than indicated above, or there is no response at all, restart the application.

**2** Check the Meridian Mail Link cable.

**3** Verify that the card used for the Meridian Mail Link connection is functional. Follow Diagnostic procedure 2: Card fault suspected.

**4** Check the SEER (System Event and Error Report) log on the Meridian Mail system for SEERs related to "TC" or "TKM". If such SEERs have been reported, follow the instructions described in the *Meridian Mail System Event and Error Report* (NTP 555-7001-510).

**5** Check the ACCESS diagnostic tool, described in the *Meridian Mail System Administration Tools* (NTP 555-7001-305), to check the link from Meridian Mail.

# Meridian Link application malfunction

An application malfunction denotes the failure of the host-based application. Given that the base Application Module or IPE Module is operational (UNIX is loaded, application software is running, and both link 0 and
link 1 are up), if the host application does not perform as desired, the failure is classified as an application failure. The following sections describe how to treat such failures.

## Application registration fails

Make sure services expected by the host computer are on the distribution tape. See tape labels and verify with the host programmer.

1. Application registration can only take place after Meridian Link has successfully started on the Application Module or IPE Module and the link between the host and the application (link 1) is up. Verify that the Host Link is up by logging in as mlusr and typing the following:

   mlusr> **status link 1**

   Press [Return]. If the response is “Link 1 : Up”, the Host Link is up. Otherwise, refer to “X.25 Host Link (link 1) will not establish” or “TCP/IP Host Link (link 1) will not establish.”

2. If the host link is up, analyze the Application Registration Response message returned by the application in response to an Application Registration message sent by the host application.

   A message trace of the Host Link can be set up by using the trace facility on the application. To turn on the trace, log in as mlusr and type the following:

   mlusr> **trace link 1**

   Press [Return]. Have the host application attempt the application registration. Turn off the trace when the host application has finished attempting the registration and type the following:

   mlusr> **untrace link 1**

   Press [Return]. Use the view command to look at the trace file.

Normally there will be at least two messages displayed: an Application Registration message and an Application Registration Response message.

**3** If there is no response, verify that the association ID located in byte five of the Application Registration message is set to 00.

Also verify that the following bytes appear somewhere in the Application Registration message: 05 09 78 32 35 64 65 73 74. Inform the host application programmer if there is a problem.

**4** If the last three bytes of the Application Registration Response message are 71 03 00, the application has registered successfully.

**5** If the last four bytes of the Application Registration Response message (it might be an "Invalid Message" message) are 78 04 XX XX where XX XX is any number, the registration has failed.

The cause of the failure can be determined from the cause value (the last two bytes, for example, 0003) of the message. The information below describes a course of action to take for each cause value listed.

***Note:*** Host vendors can refer to the Meridian Link Interface Specification for information on decoding Meridian Link messages.

- 0003 indicates Meridian Link did not recognize the message from the host application. Verify that the message type in the Application Registration message located in bytes eight and nine contains the hexadecimal value 0101.
- 0004 indicates unrecognized information was found in the Application Registration message. Verify that the Application Registration message only contains the following information

  Header
  Service ID
  Process ID
  Association password
  Host ID
  MSL-1 Machine ID
  MSL-1 Customer number

- 0006 indicates information is missing from the Application Registration message. Verify that the message contains at least the following information

  Header
  Application protocol
  Application ID
  Service ID

- 0008 indicates the message length contained in bytes three and four of the Application Registration message is not correct. The message length is the size in bytes of the entire message.
- 0502 the limit for the number of applications that can register has been reached. Reboot the Application Module or IPE Module.
- 0504 indicates the application has already registered. The application can either continue to use the existing registration or release the application (by sending the Application Release message) and register the application again.
- 0505 indicates the Machine ID value specified in the Application Registration message is not valid. The value must be x25dest or must match the value in the Machine ID link parameter in ASCII format.

- 0506 indicates the Meridian 1 ID value specified in the Application Registration message is not valid. The value must be SL16 in ASCII format. Link 0 must also be configured on the Application Module or IPE Module. To verify if link 0 is configured, log in as mlusr and type the following

  mlusr> **get links**

  Press [Return]. The following display appears:

  ```
            Number of Links: 3
  Link ID:          0
  Link Type:        MSL-1 link
  Machine ID:       SL16

  Link ID:          1
  Link Type:        Host link
  Machine ID:       x25dest (or Lanlink)

  Link ID:          2
  Link Type:        MMail link
  Machine ID:       MeridianMail
  ```

  If the entry for Link ID: 0 does not exist, see "AML (link 0) will not establish" earlier in this chapter to diagnose the establishing of link 0.

- 0507 indicates that the Service ID specified in the Application Registration message is not available on the Meridian Link software installed on the Application Module or IPE Module. The possible Service ID values are 95, 96, 97, 98, 100 and 101.

## Meridian Link call processing functions fail

If an application's attempts to control calls (for example, Make Call, Release, Answer) at a DN fail, it is possible that the Meridian 1 database or the application software is not configured correctly, or that the application software is not equipped with the required packages.

### Check Meridian Link Module software option services

The application software tape lists the options or services purchased.

- Inbound and outbound call management (package 96)
  This package cannot be ordered but will be supplied if packages 97 and 98 are both ordered (for compatibility with older host applications). Service 96 may appear in the list of base services when the showid command is issued.
- Inbound call management (package 97)
  An application has access to all Application Module or IPE Module messages except Make Call. That is, an application cannot originate an outgoing call on behalf of a DN. Transfer and Conference of existing calls are permitted.
- Outbound call management (package 98)
  An application has access to all the Application Module messages except Call Offered. That is, an application will not receive an incoming Call Offered message when a call is terminated on an ACD agent.
- Host Enhanced Routing (package 100)
  This package supports the Route Request and Route Call messages, giving the host application the ability to route incoming calls.
- Host Enhanced Voice Processing (package 101)
  This service gives the host the ability to control Meridian Mail voice ports for IVR (Interactive Voice Response) type applications. The host is then able to acquire voice ports, receive notification of calls presented to voice ports, answer such calls, play voice segments to the caller, collect DTMF digits from the caller, release the call or transfer it to another DN. New Meridian Link messages have been defined to enable the host to use this functionality.

### Check application registration

The application must register with the application software to gain access to Application Module (AM) services.

- Log in as mlusr.
- Use the get associations command to display all the applications currently registered with application software.

- Make sure the application is registered with the appropriate service:
  - 95 = Pass-through OR
  - 96 = inbound and outbound OR
  - 97 = inbound call management
  - 98 = outbound call management
  - 100 = host enhanced routing
  - 101 = host enhanced voice processing

### Check telephone configuration

- Verify LD23 configuration: AST=YES, ISAP=YES, and VSID=VAS ID assigned to ESDI or MSDL link.
- Target DNs must be configured as AST if an application wishes to control the telephone. Use LD10 or LD11 as required for telephone configuration.
- Each telephone must be configured with the appropriate class of service or feature keys that the application tries to invoke on that telephone. For instance, if the application tries to transfer a call, the telephone must possess a TRN key.
- Make sure GRPs, VSID (LD15), and IAPG (LD10/11) are set correctly for status change messages. (Verify assignments with the application programmer.)
- Make sure DNIS is defined correctly (LD14, LD15, and LD16).

## Meridian Link-based applications do not receive expected messages

Some of the messages received by a Meridian Link-based application from the Meridian 1 are unsolicited due to events that occur on devices (ringing, answering, and so on). Some messages are responses from the application software after the application has requested a service.

Because the Application Module or IPE Module can handle multiple applications at the same time, if an application does not have the correct configuration, it will not receive the expected messages. Follow the procedures below to find out why the application is not receiving the expected messages.

### AM debugging tools (trace, monitor, record, filter)

The following list explains the tools available to track the flow of messages between the application and the Application Module or IPE Module. See Chapter 3, "Link maintenance commands" for information on using the tools.

- The trace command allows application software to capture all the messages flowing over a link (or through the Application Module or IPE Module) to files. The messages are represented in hexadecimal format. The file specified in the trace command is stored in the /usr/mlusr/trace directory.
- The monitor command allows application software to monitor all or a selective subset of application messages flowing on a particular association on the system console.
- The record command allows the application software to record all or a selected set of messages flowing on a particular association to a file. The record command is activated on a per-association basis. The file specified in the record command is stored in the /usr/mlusr/rec directory.
- The filter command allows the application software to filter out a selected set of application messages that flow on a particular association through the Application Module or IPE Module.

### Check application and DN registration

The application must register with the application software to gain access to the application services.

- Log in as mlusr.
- Use the get associations command to display all the applications and their association IDs.
- If the application software does not display any information related to applications on the system console other than "ADMIN Application," the application is not registered. An application must be registered before it can register DNs associated with that application.
- If the application software displays information related to application registrations, use the get dn command to display the DNs registered with that application.

Because Meridian Link software handles multiple applications simultaneously, unsolicited messages from the Meridian 1 to the application software must be routed to the applications that have registered for the DN. If the application is not registered for the DN, the Application Module or IPE Module cannot route the message.

### Check Meridian 1 configuration

If the telephone configuration on the Meridian 1 is not correct, the Meridian 1 will not send any messages to the Application Module or IPE Module. For the application to receive a particular type of message, the feature must be turned on. See the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210) for information on turning on a particular feature.

Use LD48 to see if the Meridian 1 is sending or receiving expected AML messages. For example (AML connected to ESDI port 9):

>**LD48**

.**ENL MSGI 9** (trace inbound messages on port 9)

.**ENL MSGO 9** (trace outbound messages on port 9)

***Note:*** Using these commands during a high-traffic period may impact service.

In this example, messages flowing in and out of port 9 will be displayed on the Meridian 1 console in hexadecimal format. To turn tracing off, do the following:

.**DIS MSGI 9**

.**DIS MSGO 9**

### Check ACD configuration

If an application is not receiving messages on behalf of an ACD set (such as Call Offered, Answer Indication, or Release Indication), the ACD group is not configured correctly. See the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210) for configuration details.

### Check Unsolicited Status Message configuration

If an application does not receive Status Change messages on behalf of a monitored device, the Unsolicited Status Messages (USM) feature may not be configured correctly. See the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210) for configuration details.

# Chapter 5: Application Module and IPE Module error messages

This chapter describes system messages, UNIX messages, and user messages. There are two categories of messages, those that are displayed on the system console and those that are reported to the SysLog file. Note that if the SysLog process is not running (for example, during shutdown after the process has been stopped), messages that normally go to the SysLog file will be displayed on the system console. If you observe a message that is not described in this guide, contact your Nortel support personnel for assistance.

The following messages are described in this chapter:

- messages that appear on the system console
  - system and UNIX messages
  - application messages
  - maint messages
  - mlusr messages
  - other messages (display, SysLog, and sys_wdog)
- messages that appear in the SysLog file
  - application messages
  - maint messages
  - other messages (SysLog and sys_wdog)

***Note:*** The use of single quotation marks in a message (included in one of the tables in this chapter) indicates that either a command or parameter specified by you or the system is being referenced in the message.

Wherever possible, the description provides information to help you recover from the error condition. Referenced procedures can be found in Chapter 8, "Recovery/replacement procedures."

# Messages that appear on the system console

The messages in this section appear directly on your system console.

## System and UNIX messages

The following list is a summary of the messages displayed by either the system or the UNIX operating system. They may appear at any time, even if you are logged in and using the system.

**Table 5**
**System and UNIX messages that appear on the console**

| Message | Description |
|---|---|
| Putc: out of clists | Warning—the buffers used by terminal devices for I/O have overflowed. Use Procedure 2: SBC restart. |
| PANIC: kernel bus error system panic | UNIX took a bus error while running in system mode. Record message and all activities on system. Use Procedure 2: SBC restart. |

## Application messages

The following list is a summary of the messages displayed by applications running on the Application Module or IPE Module.

**Table 6**
**Application messages that appear on the console**

| Message | Description |
|---|---|
| tschkhst: check_host: Cannot open Tele-Server Profile | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tschkhst: check_host: Cannot retrieve services from Tele-Server Profile | Indicates an internal application problem. Tell your Nortel support personnel there is no service in TSprofile and request new application software. |
| tsmain: write to trace file failed | There is a problem writing to an application trace file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. If the file system is not full, restart the trace by logging in as mlusr and entering **untrace main** followed by **trace main**. |
| tsmain - cannot open syslog | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmain write to syslog failed | There is a problem writing to the SysLog file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| Cannot Start Link Process | At least one of the link processes (mlnk HDLC, hlnk HDLC, hlink X25, lh or lhrx) is missing from /usr/mlusr/bin, or is for some reason not executable. Reinstall the application. |
| ‘file name’: tsmain can't open | There is a problem opening a trace file in the /usr/mlusr/trace directory. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| **— continued —** | |

**Table 6**
**Application messages that appear on the console (continued)**

| Message | Description |
|---|---|
| cannot open rec file ‘file name’ | There is a problem opening a trace file in the /usr/mlusr/trace directory. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| tsprofil: get_parm_serv: Cannot retrieve services from Tele-Server Profile | Indicates an internal application problem. Tell your Nortel support personnel there is no service in TSprofile and request new application software. |
| mlnkHDLC write to syslog failed | There is a problem writing to the SysLog file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| hlinkX25 write to syslog failed | There is a problem writing to the SysLog file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| x25admin write to syslog failed | There is a problem writing to the SysLog file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| hlnkHDLC write to syslog failed | There is a problem writing to the SysLog file. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| msgget ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 6**
**Application messages that appear on the console (continued)**

| Message | Description |
|---|---|
| msgsnd ‘UNIX error msg’ | If the ‘UNIX error msg’ is ‘no more processes,’ the application is losing messages due to excessive activities (console message monitoring, message tracing, and so on) during heavy message traffic periods. Turn off any unnecessary activities during high traffic periods.<br><br>Otherwise, there is an internal application problem. Use Procedure 2: SBC restart. |
| tsasctbl: init_assoc_tbl: shmget( ) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsdntbl: init_dn_rout_tbl: shmget( ) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tslnktbl: init_link_tbl: shmget( ) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tslnktbl: init_link_tbl: shmget( ) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmsgio: set_up_ipc: msgget(Q_TSMAIN_KEY, 0666IIPC_CREAT) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmsgio: set_up_ipc: msgget(Q_MLINK_KEY, 0666IIPC_CREAT) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmsgio: set_up_ipc: msgget(Q_HLINK_KEY, 0666IIPC_CREAT) ‘UNIX error msg’ | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 6**
**Application messages that appear on the console (continued)**

| Message | Description |
|---|---|
| tsmsgio: set_up_ipc: msgget(Q_APPL_KEY, 0666IIPC_CREAT) 'UNIX error msg' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmsgio: send_out_msg: msgsnd( ) 'UNIX error msg' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tsmsgio: check_q: msgctl( ) 'UNIX error msg' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| tssrvtbl: init_serv_tbl( ): shmget 'UNIX error msg' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| 'date and time' application Panic: Link failure - reconfiguring links | Indicates the X.25 communication software has crashed and application is being restarted. No action is necessary. |
| **— end —** | |

## maint messages

The following is a summary of the messages (errors and warnings) displayed on the console while you are using maint commands. In any case where it is likely that the application software has not been installed successfully, reinstall the application software using the reinstallation procedure.

**Table 7**
**maint messages that appear on the console**

| Command | Message | Description |
|---|---|---|
| | 'command' is not a valid command | The command you entered was not valid. Check the spelling of the command and try entering it again. Make sure CAPS LOCK is not set. |
| | command is ambiguous, could be one of the following: | You entered a short form of a command and the short form could apply to more than one command. Enter the command again in a form that is not ambiguous. |
| | no qualified commands found, can't execute | The system is defective. Reload the system. |
| admin | (no error messages) | |
| applconfig | Incorrect input form, please try again | The input for the application parameter is not within the accepted range. Enter a value according to the range indicated in the prompt. |
| applexit | (no error messages) | |

— continued —

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| applstart (See ccrstart because the applstart command issues the ccrstart command) | One or more Customer Controlled Routing processes are already running | The application has already been started. Any subsequent attempt to start the application, once it has been started, will not actually start it again. |
| | CCR died due to a problem reading the AMprofile | CCR has a problem reading the AMprofile. The CCR software is probably corrupted. Reinstall the CCR software. |
| | CCR died due to missing data in the AMprofile | The data in the AMprofile has been corrupted. Reinstall the CCR software or consult your Nortel support personnel. |
| | /usr/bin/add is not available | The add process was not found. It is likely that the application software has not been installed successfully. |
| | switch link process missing: X.25admin | The X.25admin process was not found. It is likely that the application software has not been installed successfully. |
| | switch link process missing: tsmain | The tsmain process was not found. It is likely that the application software has not been installed successfully. |
| | switch link process missing: mlnkHDLC | The mlnkHDLC process was not found. It is likely that the application software has not been installed successfully. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| applstart (continued) | Customer Controlled Routing was not started successfully | The application was not started. Use the viewlog command to search for any applicable errors in the SysLog file. |
| | switch link process missing: tsroot | The tsroot process was not found. It is likely that the application software has not been installed successfully. |
| | Application(s) were not started successfully. You must use the maint powerdown command to reboot the system in order to restart sys-wdog. You may then retry the applstart command. | The system watchdog process is not running. Power down and reboot the system or use Procedure 2: SBC restart. |
| backconfig | Attempt to unschedule backup failed<br><br>Attempt to change backup schedule failed<br><br>Attempt to schedule backup failed | The crontab mstr file was corrupted. It is likely that the application software was not installed properly. |
| backdata | Backup successful | The backup operation was not successful. Use the viewlog command to search for any applicable errors in the SysLog file.<br><br>The problem is most likely with the tape medium. Verify that the tape is positioned in the drive correctly, and that it is write enabled. Before entering the command, wait for the tape drive LED to go out after inserting the tape. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| backfiles | No files selected | No file was selected. |
| | No files available for selection | No files are available for backup. |
| | selectool: input file not found | The command which invoked the selector is programmed incorrectly. Report the failure to your Nortel support personnel. |
| | selectool: out of memory | The selector cannot obtain enough memory to function. Report the failure to your Nortel support personnel. |
| | selectool: unknown error <NUMBER>: exiting | A programmer error within the selector causes an unknown error. Report the failure to your Nortel support personnel.<br>**Note:** <NUMBER> in the message is replaced with the actual error number generated. |
| bootconfig | (no error messages) | |
| ccrexit | (no error messages) | |
| ccrmidnight | Unable to notify REPORTER (CCRLOG/MMGR) of midnight | The ccrmidnight routine could not notify the traffic reporting process, the error log process, or the resource manager process of the occurrence of a midnight. Use the viewlog command to search for any applicable traffic reporting errors in the SysLog file. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| ccrstart | ERROR: CCR terminated due to memory allocation failure | There is not enough available memory for CCR to execute successfully. Reboot the system. |
| | ERROR: CCR terminated due to a problem reading the AMprofile. | The system profile cannot be read or may be corrupted. CCR will not execute correctly. It is likely the software was not installed properly. |
| | ERROR: CCR terminated due to invalid CCR packaging. | The system profile may be corrupted. CCR will not execute correctly. It is likely the software was not installed properly. |
| | WARNING: Max active associations for installed CCR has been exceeded. All associations deactivated. | The CCR data contains an association table that has more active associations than are allowed for the installed CCR package. All associations have been changed to the "OFF" state. The user may enter a CCR user session and manually activate up to the active association limit for the installed CCR. |
| | Customer Controlled Routing was not started successfully | The application was not started. Use the viewlog command to search for any applicable errors in the SysLog file. |
| | One or more Customer Controlled Routing processes are already running | CCR has already been started. Any subsequent attempt to start CCR, once it has been started, will not actually start it again. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| ccrstart (continued) | CCR ccrlog process is already running.<br>CCR mmgr process is already running.<br>CCR cpexec process is already running.<br>CCR reporter process is already running. | This process was already running when the system was started. Use the ccrexit command followed by ccrstart and the message should not reappear. |
| ccrtraffic | Traffic Reporting has been enabled. | This is after choosing option 2 (Enable traffic reporting) or upon exit when a user has edited the configuration without enabling. If the user responds Yes to enable the changes, this message will also be seen. |
| | Traffic Reporting has been disabled. | This is after choosing option 3 (Disable traffic reporting). |
| | No CCR Traffic Log files available. | No log files are currently available for viewing. |
| | ERROR: the REPORTER process is not running. Configuration saved but not enabled until REPORTER recovers. | This will be seen when an enable is attempted and fails because the REPORTER is not running. |
| | ERROR: the REPORTER process is not running. Configuration saved but not disabled until REPORTER recovers. | This will be seen when a disable is attempted and fails because the REPORTER is not running. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| ccrusr | ERROR: Insufficient memory for profile data. Exiting user session. | There is not enough available memory for a CCR user session. Log out any unnecessary user sessions. Reboot the system. |
| | ERROR: AMprofile cannot be read properly. Exiting user session. | The system profile cannot be read or may be corrupted. The user session will not execute correctly. It is likely the software was not installed properly. |
| | ERROR: A CCR application has not been installed properly. Exiting user session. | The system profile may be corrupted. The user session will not execute correctly. It is likely the software was not installed properly. |
| | Fatal Error: No user id passed to musess | The logon to CCR was not correct. Restart CCR and try again. |
| | Fatal Error: Cannot load language files or user profile file. Exiting user session. | The language files and CCR data is corrupted. Reload CCR and try again. |
| chgpasswd | You cannot change the password for ‘login ID’ | You do not have permission to change the password for the login ID you entered. |
| conshare | conshare session unsuccessful | The communications connection between the Application Module or IPE Module and the Meridian 1 SDI port is not set up correctly. Refer to the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210). |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| diskspace | (no error messages) | |
| diskuse | Disk usage greater than 95% | There is the possibility that the file system could fill up. Remove any unnecessary files using the filedelete command. |
| exit/quit | (no error messages) | |
| filedelete | Nothing selected: no action taken | You have pressed [Return] without selecting a file. |
| | No files to delete: no action taken | No files are available to be deleted. |
| | No files selected | You have pressed [Return] without selecting a file. |
| | No files available for selection | No files are available to be deleted. |
| | selectool: input file not found | The command which invoked the selector is programmed incorrectly. Report the failure to your Nortel support personnel. |
| | selectool: out of memory | The selector cannot obtain enough memory to function. Report the failure to your Nortel support personnel. |
| | selectool: unknown error <NUMBER>: exiting | A programmer error within the selector causes an unknown error. Report the failure to your Nortel support personnel.<br>**Note:** <NUMBER> in the message is replaced with the actual error number generated. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| fileverif | Static file verification failed because File List files are missing | The list files that store the static file verification data are missing. |
| | File 'filename' is missing | The specified file is missing. |
| | File 'filename' is present but not the correct size | A file with the same name is present, but it is not the correct file. Either the specified file has become corrupted or an update file was deliberately placed in the system to correct a problem. Consult your Nortel support personnel for assistance with this condition. |
| | Static file verification found failures listed above. | This message appears even if no errors are found. If at least one error is listed, the static file tests found at least one file that failed. The application software may not have been installed successfully. |
| | Permissions and ownership failed because PList files are missing | PList files are missing. The application software may not have been installed successfully. |
| | 'filename' has wrong owner: expected 'owner', found 'owner'<br>'filename' has wrong group: expected 'group', found 'group'<br>'filename' has wrong permissions: expected 'permlist', found 'permlist' | The specified file had the wrong owner, group, or permissions. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| fileverif (continued) | Permissions and ownership tests found failures listed above. | The permissions and ownership tests found at least one file that failed. The application software may not have been installed successfully. |
| | /usr/maint/file/AutoStart file has incorrect value 'value'<br>/usr/maint/files/IncrDY file has incorrect value 'value'<br>/usr/maint/files/Port file has incorrect value 'value'<br>/usr/maint/files/Speed has incorrect value 'value' | The specified file contained the wrong value. |
| | Structural verification found failures as listed above | This message appears even if no errors are found. If at least one error is listed, the structural verification tests found at least one failure. The application software may not have been installed successfully. |
| help | 'invalid command' is not a valid command | The command for which help was requested was not a valid command. Check the spelling of the command and try entering it again. Make sure CAPS LOCK is not set. |
| langconfig | Secondary language cannot be the same as the default language. | Select the secondary language again, making sure that it is different from the default one. |
| | Incorrect input -- enter an integer. | Enter the number corresponding to one of the primary language options (that is, 1 or 2). |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| langconfig (continued) | Error: secondary language cannot be the same as the default language. Select again. | The secondary language must be different from the primary language. |
| | Incorrect input -- select again. | A valid secondary language was not entered. |
| | Error: need to define environment variable: CCRUSR_HOME_PATH | The language configuration file is corrupted. |
| | Error: need to define environment variable: MAINT_HOME_PATH | The language configuration file is corrupted. |
| mlexit | (no error messages) | |
| mlstart | (no error messages) | |
| portconfig | Invalid port # | Port numbers are 1 through 8 for the CCR application. |
| | Bad state...try again | Valid port states are on (for a terminal) or off (for a printer). |
| | Can't change STATE....Printer defined on this port (delete printer first) | Cannot change state to on if a printer has already been defined. Delete the printer using the printconfig command if installing a terminal. |
| | Bad baud rate...try again | Baud rates can be 1200, 2400, or 9600. |
| | Cannot define printer on this port (Use the portconfig command to change state of this port to off first.) | Cannot add a printer if a port has already been defined. Delete the port using the portconfig command if installing a printer. |
| powerdown | (no error messages) | |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| printconfig | Printer name already exists | Two printers may have the same name. Choose a different name for the second printer. |
| | Must give a non-null string for the name | The printer name must have one or more characters. |
| | Port already in use. Request denied. | Two printers cannot be configured for the same port. |
| | Invalid port number. Request rejected. | Valid port numbers are 1 through 8 for the CCR application. |
| | Invalid printer model. Request rejected. | Models are: 1) HP Rugged Writer, 2) HP LaserJet II, III, IV, and 3) Other (Dumb) |
| | Printer name doesn't exist | Only printers added to the system can be deleted, enabled, or disabled. |
| | Please enter a valid number or <Return> | Select menu items by their corresponding number (1 through 7). |
| quit | (no error messages) | |
| resetmodem | (no error messages) | |
| restart | (no error messages) | |
| rootpasswd | (no error messages) | |
| rstdata | Restore unsuccessful | The operation was not successful. Use the viewlog command to search for errors in the SysLog file. Verify that the tape is positioned in the drive correctly, and that it is write enabled. Wait for the tape drive LED to go out after inserting the tape before executing the command. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| rstfiles | No files selected | You have pressed [Return] without selecting a file. |
| | No files available for selection | No files are available to be restored. |
| | selectool: input file not found | The command which invoked the selector is programmed incorrectly. Report the failure to your Nortel support personnel. |
| | selectool: out of memory | The selector cannot obtain enough memory to function. Report the failure to your Nortel support personnel. |
| | selectool: unknown error <NUMBER>: exiting | A programmer error within the selector causes an unknown error. Report the failure to your Nortel support personnel.<br>**Note:** <NUMBER> in the message is replaced with the actual error number generated. |
| | Selective restore unsuccessful | The restore data operation was not successful. Use the viewlog command to search for any applicable errors in the SysLog file. The problem is most likely with the tape medium. Verify that the tape is positioned in the drive correctly, and that it is write enabled. Wait for the tape drive LED to go out after inserting the tape before executing the command. |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| scriptinfo | No ccr_scriptinfo file available | The scriptinfo data file is not present, indicating possible file system damage. |
| | scriptinfo failed: MULTILANGUAGE_ERR | The multilanguage feature is not working properly for the scriptinfo feature, indicating possible file system damage. |
| | scriptinfo failed: MEMORY_ERR | No memory is available for the scriptinfo feature, indicating possible file system damage. |
| | scriptinfo failed: ASSOCTABLE_ERR | A memory error or Association Table open failure occurred, indicating possible file system damage. |
| | scriptinfo failed: FILEOPEN_ERR | An error occurred while a file was being opened, indicating possible file system damage. |
| showid | Error accessing encrypted ID and package data | There were access or format problems with the Application Module or IPE Module profile information. The application software may not have been installed successfully. |
| tapeinfo | Tape info failure: Please make sure the tape is in the drive correctly and rerun the tape info command. | No tape was inserted in the drive, or the tape was not inserted correctly. |
| | Unable to recognize the tape. | This is not an AM product tape or a UNIX BOS tape. This tape could be a blank tape. |
| version | (no error messages) | |

**— continued —**

**Table 7**
**maint messages that appear on the console (continued)**

| Command | Message | Description |
|---|---|---|
| view | No files selected | You have pressed [Return] without selecting a file. |
| | No files available for selection | No files are available to be viewed. |
| | selectool: input file not found | The command which invoked the selector is programmed incorrectly. Report the failure to your Nortel support personnel. |
| | selectool: out of memory | The selector cannot obtain enough memory to function. Report the failure to your Nortel support personnel. |
| | selectool: unknown error <NUMBER>: exiting | A programmer error within the selector causes an unknown error. Report the failure to your Nortel support personnel.<br>**Note:** <NUMBER> in the message is replaced with the actual error number generated. |
| viewlog | SysLog file is not available | The SysLog file was not available, most likely because the file system is too full. If this condition should occur, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| **— end —** | | |

**Table 8**
**mlusr messages that appear on the console and SysLog files**

| Message | Display | Description |
|---|---|---|
| Exiting mlusr: Function ts_block call to fcntl() failed | SysLog file | Indicates setting to blocked I/O failed. This message is normally seen during issuing a mlusr command. After this message is displayed, the user is exited out of mlusr. |
| Exiting mlusr: Function ts_unblock call to fcntl() failed | SysLog file | Indicates setting to non-blocked I/O failed. This message is normally seen at the end of executing a command. After this message is displayed, the user is exited out of mlusr. |
| mlusr: async_lnk_config_str, malloc failed | SysLog file | There is a problem in allocating memory space when composing a configuration message to an asynchronous link (the Meridian Mail Link). This causes failure in configuring the asynchronous link. |
| Exiting mlusr: unable to allocate memory | SysLog file | Indicates a memory allocation for I/O buffers, or for message reference ID storage, has failed. This will affect mlusr's functioning. The solution is to restart mlusr. |
| AM Base software not responding: mlusr/admin unable to register. Is Meridian Link/AM Base software installed and running? Reboot the system to recover. | Console | Indicates that AM Base software (normally referred to as tsmain process) failed to respond to mlusr. The solution is to reboot the system. |
| mlusr: Unknown message received <main type> <sub type> | SysLog file | Indicates that mlusr received an invalid message. The main type and subtype of the message is also recorded. |

**— continued —**

**Table 8**
**mlusr messages that appear on the console and SysLog files (continued)**

| Message | Display | Description |
|---|---|---|
| Exiting mlusr: Application registration failed | SysLog file | There is a problem when mlusr tries to register as an application to the AM Base software. This often happens when the number of applications registered has reached the maximum. Reboot the Application Module or IPE Module. |
| mlusr: out of memory for DN list | SysLog file | There is a problem in allocating memory for the DN list during printing of registered DNs. |
| mlusr: out of memory for DN list | Console | There is a problem in allocating memory for the DN list during printing of registered DNs. |
| mlusr: memory failure during DN list processing | SysLog file | There is problem in accessing the DN list during printing of registered DNs. |
| mlusr: memory failure during DN list processing | Console | There is problem in accessing the DN list during printing of registered DNs. |
| mlusr: received 0 length DN IE | SysLog file | The DN list received is empty during printing of registered DNs. |
| mlusr: received 0 length DN IE | Console | The DN list received is empty during printing of registered DNs. |
| **— end —** | | |

## Other messages that appear on the system console

The messages in this section may appear on your system console at any time. These error, warning, or status messages, appear as a result of lower-level software processes.

### display

The following messages appear as a result of some display activities.

**Table 9**
**display messages that appear on the console**

| Message | Description |
|---|---|
| display: can't open file 'filename' | The specified file was not available. Because that display takes file name input from other application processes, check the spelling of the file name you entered for the previous command and try entering it again. |

### SysLog

The following messages appear as a result of processes related to the SysLog file.

**Table 10**
**SysLog messages that appear on the console**

| Message | Description |
|---|---|
| syslog: could not open named pipe | Error—the named pipe used for error collection from the various processes could not be opened. Use Procedure 2: SBC restart. |
| syslog: write to System Log failed | Warning—a failure has occurred while attempting to write to the SysLog file, most likely because the file system is too full to support the file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| — continued — | |

**Table 10**
**SysLog messages that appear on the console (continued)**

| Message | Description |
|---|---|
| syslog: openpipe: could not make named pipe | Error—a new named pipe file could not be created. Use Procedure 2: SBC restart. |
| syslog: openpipe: could not open named pipe | Error—the named pipe used for error collection from the various processes could not be opened. Use Procedure 2: SBC restart. |
| syslog: openpipe: could not clear NO_DELAY | Warning—the No Delay flag could not be cleared for the named pipe file. The system should operate normally and user intervention is not required. |
| syslog: midnight: cannot remove SysLog.old | Warning—the old SysLog file could not be removed. The system should operate normally and user intervention is not required. |
| syslog: midnight: could not move System Log - old data lost | Warning—the contents of the SysLog file could not be copied to the old SysLog file. This may be due to the file system being too full to support the old SysLog file. The system should operate normally. Use the diskuse command to check the utilization of the hard disk. |
| syslog: midnight: could not create System Log | Warning—the SysLog file could not be created. This is most likely due to the file system being too full to support the SysLog file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| syslog: append_syslog: write to System Log failed | Warning—a failure occurred while attempting to write to the SysLog file. The file system is probably too full to support the SysLog file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| **— continued —** | |

**Table 10**
**SysLog messages that appear on the console (continued)**

| Message | Description |
|---|---|
| syslog: append_syslog: open of System Log failed | Warning—an attempt to open the SysLog file failed, most likely because the file system is too full to support the file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command in order to check the utilization of the hard disk. |
| syslog: write_syslog: write to System Log failed | Warning—a failure occurred while attempting to write to the SysLog file. The file system is probably too full to support the SysLog file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| syslog: efopen: stat failed | Warning—execution of the stat system call failed. The system should operate normally and user intervention is not required. |
| syslog: efopen: ustat failed | Warning—execution of the ustat system call failed. The system should operate normally and user intervention is not required. |
| syslog: efopen: not enough free disk space to create file | Warning—there is not enough free space on the disk to create a new file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| syslog: efopen: could not open file 'filename' | Error—an attempt to open the specified file failed. Use Procedure 2: SBC restart. |
| syslog: nextfile: could not create System Log | Warning—a failure occurred while attempting to write to the SysLog file. The UNIX file system is probably too full to support the SysLog file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| **— continued —** | |

**Table 10**
**SysLog messages that appear on the console (continued)**

| Message | Description |
|---|---|
| syslog: nextfile: cannot echo message to SysLog.tmp | Warning—a message could not be written to the temporary SysLog file. The system should operate normally and user intervention is not required. |
| syslog: nextfile: cannot tail SysLog.old | Warning—the old SysLog file could not be truncated. The system should operate normally and user intervention is not required. |
| syslog: nextfile: cannot move SysLog.tmp | Warning—the temporary SysLog file could not be copied. The system should operate normally and user intervention is not required. |
| syslog: nextfile: failed to get file info | Warning—an attempt to get information about the SysLog file failed. The system should operate normally and user intervention is not required. |
| syslog: nextfile: can not append to System Log | Warning—an attempt to append to the SysLog file failed. The file system is probably too full to support the SysLog file. If this condition occurs, all messages intended for the SysLog file should be written to the console. Use the diskuse command to check the utilization of the hard disk. |
| syslog: terminate: cannot remove entry from watchlist | Warning—an attempt to remove SysLog's process ID from sys_watchdog's watch list failed. The system should operate normally and user intervention is not required. |
| syslog: terminate: cannot remove /usr/maint/files/error_pipe | Warning—an attempt to remove the named pipe failed. The system should operate normally and user intervention is not required. |
| **— end —** | |

### system watchdog

The following messages appear as a result of the system watchdog, which acts as a process manager for application software. All messages start with the date and time.

**Table 11**
**sys_wdog messages that appear on the console**

| Message | Description |
|---|---|
| sys_wdog: process 'process ID' died | Status—a dead process was detected. |
| sys_wdog: dead process 'process ID' is not in watch-list | Status—the dead process was not matched in the watch list. |
| sys_wdog: dead process <'process ID'> is not recovered -- SIGKILL | Status—the specified process died as a result of a SIGKILL instruction. |
| sys_wdog: dead process <'process ID'> is not recovered -- exit(NO_RECOV) | Status—the specified process died as a result of an exit instruction. |
| sys_wdog: fork() failed | Error—an attempt to start a process failed. Use Procedure 2: SBC restart. |
| sys_wdog: recovering process 'process ID' | Status—an attempt is being made to recover a process that died. |
| sys_wdog: execvp() failed | Error—an attempt to transform the calling process to a new process failed. Use Procedure 2: SBC restart. |
| sys_wdog: msgget() failed | Error—an attempt to retrieve a message queue identifier failed. Use Procedure 2: SBC restart. |
| sys_wdog: bad message received: mtype='message type' | Warning—received message was of the wrong type. The system should operate normally and user intervention is not required. |
| sys_wdog: bad message received: mtext='message text' | Warning—the text of the bad message is to follow. The system should operate normally and user intervention is not required. |

**— continued —**

**Table 11**
**sys_wdog messages that appear on the console (continued)**

| Message | Description |
|---|---|
| 'message text' | Warning—the text of the bad message in hexadecimal characters. The system should operate normally and user intervention is not required. |
| sys_wdog: invoking process 'process name' | Status—an attempt is being made to invoke the specified process. |
| sys_wdog: process 'process name' is deleted from watch-list | Status—the specified process has been deleted from the watch list. |
| watch_list is empty | Status—an attempt was made to print an empty watch list. |
| Watch_list: | Status—what follows is the contents of the watch-list. |
| add: msgget failed | Warning—an attempt to retrieve a message queue identifier failed. |
| add: msgsnd failed | Warning—an attempt to send a message to a queue failed. |
| del: msgget failed | Warning—an attempt to retrieve a message queue identifier failed. |
| del: msgsnd failed | Warning—an attempt to send a message to a queue failed. |
| prt: msgget failed | Warning—an attempt to retrieve a message queue identifier failed. |
| prt: msgsnd failed | Warning—an attempt to send a message to a queue failed. |
| **— end —** | |

# Messages that appear in the SysLog file

The SysLog file collects messages from the various application processes. The following is a sample SysLog file displayed by means of the viewlog command (which is described in Chapter 2, “Application Module commands”).

```
05/14/92  16:57:56  System Log was created
05/14/92  16:57:56  Attempting to start Meridian Link
05/14/92  16:58:03  sys_wdog: invoking process /usr/mlusr/bin/tsroot
05/14/92  16:58:03  sys_wdog: invoking process /user/mlusr/bin/x25admin
05/14/92  16:58:03  sys_wdog: invoking process /usr/mlusr/bin/tsmain
05/14/92  16:58:06  sys_wdog: invoking process /usr/mlusr/bin/mlnkHDLC
05/14/92  16:58:23  mlnkHDLC: pend() - erno = 35
05/14/92  16:58:23  mlnkHDLC: bad event:-1 -state:3
05/14/92  16:58:23  mlnkHDLC: above event not processed
05/14/92  16:58:26  Link 0: Up
05/14/92  19:01:13  Invoking maint
05/14/92  19:12:41  sys_wdog: process 234 died
05/14/92  19:12:41  sys_wdog: process 234 is not in watch-list
```

The following sections describe error messages that are reported to the SysLog file. All messages include the time and date that the event occurred.

## System and UNIX messages

There are no messages reported by either the system or UNIX to the SysLog file. However, a message with the following format:

tsmain: ‘internal name’: ‘message’

is an internal AM Base error message that indicates a UNIX or application software installation problem. An example of this type of message is

tsmain: start_acd_start (): can’t get resp_pdu

## Application messages

The following list is a summary of the application error messages that might be collected in the SysLog file. All messages start with the date and time.

**Table 12**
**Application messages that appear in the SysLog file**

| Message | Description |
|---|---|
| hlnkHDLC: init_comm_sw: xopen( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC: init_comm_sw: ioctl( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC: init_stat_count: lsetstat( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: pend( ) - errno ='UNIX error number' | If the 'UNIX error number' is 35, ignore the message. Otherwise the message indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: lconq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: lstatq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: lconc( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: ldisi( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: ldisc( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: ldisq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: write (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinkHDLC: read (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkHDLC: ldatq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC: msgget( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC error in wait_msg_q( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC: above event not processed | This message is normally generated when the application is started, and should be ignored. |
| hlnkHDLC: write to trace file failed | There is a problem writing to the trace file for link 1. The file system may be full. Log in as maint and enter **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. If the file system is not full, restart the trace by logging in as mlusr and using **untrace link 1** followed by **trace link 1**. |
| hlnkHDLC: bad event:'event number' - state:'state number' | It is normal for this message to appear when the application is started. If it appears any other time, it indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkHDLC: 'file name': can't open | There is a problem opening the trace file for link 1. The file system may be full. Log in as maint and use the diskuse command. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| hlnkHDLC: invalid ipc state sent from Mlink | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinkX25: disp_msg( ) lseek failed | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: Invalid State: 'state number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: bad event:'event number' - state:'state number' | It is normal for this message to appear when the application is started. If it appears any other time, it indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: above event not processed | This message is normally generated when the application is started and should be ignored. |
| hlinkX25: X.25 Link Reset - Cause:'cause number' Diagnostic:'diagnostic number' | This indicates the Host Link (link 1) has been reset. No action is necessary. |
| hlinkX25: Message Buffer Overflow Condition Cleared | Indicates the application is no longer being overloaded. |
| hlinkX25: Message Buffer Overflow - Messages May Be Lost | The application is being overloaded due to excess activity (message trace, monitoring, and so on) during a heavy message traffic period. Messages may be lost. Turn off all unnecessary activity on the Application Module or IPE Module. |
| hlinkX25: invalid ipc state sent from Hlink | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: 'file name': can't open | There is a problem opening the trace file for link 1. The file system may be full. Log in as maint and use the diskuse command. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| hlinkX25: disp_msg( ) lseek failed | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: xopen( ) - errno ='UNIX error | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinkX25: ioctl( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: proceventq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: pend( ) - errno ='UNIX error number' | If the 'UNIX error number' is 35, the message should be ignored. Otherwise the message indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: nconi( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: nconp( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: init_stat_count( ): nsetstat - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: ndatp( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: ndatq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: write (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: read (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: ndisc( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: ndisi( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25: ndisq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinkX25: nstatq( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlinkX25 error in wait_msg_q( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkX25: msgget( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| hlnkX25: write to trace file failed | There is a problem writing to the trace file for link 1. The file system may be full. Log in as maint and use **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. If the file system is not full, restart the trace by logging in as mlusr and invoking the **untrace link 1** command followed by the **trace link 1** command. |
| hlinklan: Invalid State: 'UNIX error number' | This message can occur during normal message processing. It indicates that the link state is invalid, and is an internal software error. |
| hlinklan: bad fd in readset for select – errno = 'UNIX error number' | This message can occur during normal message processing. It occurs when a bad file descriptor value (socket number) is put into the select statement readset. |
| hlinklan: bad timeout value for select – errno = 'UNIX error number' | This message occurs when a bad time-out value is used for the select statement which is used to monitor all socket file descriptor activity. |
| hlinklan: unexpected errno value for select – errno = 'UNIX error number' | This message occurs when an unexpected errno value is received during select statement execution time. |
| hlinklan: listen socket is not active – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that the listen socket is not active. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinklan: listen socket is not valid – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that the listen socket is not valid. |
| hlinklan: listen socket type is invalid – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that the listen socket type is invalid. |
| hlinklan: bad accept( ) parameters given – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that bad acceptance parameters were given. |
| hlinklan: no conn is present to accept on 1_socket – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that no connection is present to accept on the listen socket. |
| hlinklan: listen socket is not in listen state – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that the listen socket is not in a listen state. This means that the listen( ) function call has not been executed on the listen socket. |
| hlinklan: too many fd(s) are open for this process – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that there are too many socket fd(s) open for a given process. |
| hlinklan: unexpected errno value for client_connect – errno = 'UNIX error number' | This message can occur during an accept( ) operation which executes during socket connectivity, indicating that an unexpected errno value has occurred during client connect. |
| hlinklan: socket( ) – errno = 'UNIX error number' | This message can occur during a socket( ) function operation which indicates a critical error, meaning that a socket fd could not be allocated for some reason. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinklan: bind( ) – errno = 'UNIX error number' | This message can occur during a bind( ) function operation which indicates a critical error, meaning that the bind operation failed. |
| hlinklan: fcntl( ) – errno = 'UNIX error number' | This message can occur during an fcntl( ) operation which performs some type of file control on a socket file descriptor. |
| hlinklan: socket read error – errno = 'UNIX error number' | This message can occur during a socket read operation which indicates that an error occurred during this operation. |
| hlinklan: socket write error – errno = 'UNIX error number' | This message can occur during a socket write operation which indicates the byte data being written could not be sent. |
| hlinklan: bad header ie rcvd on tcp link | This message can occur during meridian link message validation. It indicates that a bad header IE was received, meaning that the byte pattern 0xff 0x0a was not seen in the message header. |
| hlinklan: msg receive retry limit exceeded | This message can occur during a socket read operation. If the whole message cannot be read within a maximum retry limit, then the message receiving process is stopped and a log error message is produced. |
| hlinklan: msg send retry limit exceeded | This message can occur during a socket write operation. If the whole message cannot be written on a socket fd within a maximum retry limit, then the message sending process is stopped and a log error message is produced. |
| hlinklan: assoc_id already in use | This message can occur during the application registration process, which indicates that the association id given from the tsmain process is already in use. |
| | **— continued —** |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| hlinklan: Bad MLink msg encountered | This log message occurs when a bad meridian link message is missing the result IE. |
| hlinklan: msgget( ) – errno = 'UNIX error number' | This message can occur during an msgget( ) operation which will try and get a message queue. If a message queue could not be obtained then this message will be printed to the log file. |
| hlinklan: shmget( ) – errno = 'UNIX error number' | This message can occur during an shmget( ) operation which will try and get some shared memory. |
| hlinklan: error in wait_msg_q – errno = 'UNIX error number' | This message can occur during a wait message queue operation which waits for any messages coming from the tsmain environment. |
| hlinklan: write to trace file failed – errno = 'UNIX error number' | This message can occur during a write operation to a trace file. |
| hlinklan: invalid port x in conf message | This message can occur during IPL timeframe when the listen port is being configured. |
| hlinklan: init error x | This message can occur during the initiation operation of the listen socket. |
| hlinklan: /xxx/yyy: can't open | This message can occur during the trace operation when a trace file is trying to be opened. |
| hlinklan: Setsockopt( ) - errno = "UNIX error number" | This message can occur during a setsockopt( ) operation which sets the options for a socket. |
| hlinklan: out-of-range association id | This message can occur during the application registration process, which indicates that the association id returned in the Application Registration Response message is out of range. |
| hlinklan: disp_msg( ) lseek failed | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| Invalid State: 'state number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| Link 0 Disabled | Status—the link between the Application Module or IPE Module and the Meridian 1 (link 0) has been disabled. |
| Link 0 Enabled but down | Status—the link between the Application Module or IPE Module and the Meridian 1 (link 0) has been enabled. |
| Link 0 Up | Status—the link between the Application Module or IPE Module and the Meridian 1 (link 0) has been established. |
| Link 1 Disabled | Status—the link between the Application Module or IPE Module and the host (link 1) has been disabled. |
| Link 1 Enabled but down | Status—the link between the Application Module or IPE Module and the host (link 1) has been enabled. |
| Link 1 Up | Status—the link between the Application Module or IPE Module and the host (link 1) has been established. |
| Link 2 Disabled | Status—the link between the Application Module or IPE Module and the Meridian Mail system has been disabled. |
| Link 2 Enabled but down | Status—the link between the Application Module or IPE Module and the Meridian Mail system has been enabled. |
| Link 2 Up | Status—the link between the Application Module or IPE Module and the Meridian Mail system has been established. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| Meridian 1 ID Check Failed - Link 0 Not Configured | The application software is not configured to work with the connected Meridian 1. Log in as maint on the Application Module or IPE Module and enter **showid** to check the ID. LD22 can be used to verify the SL-ID is the same as the Meridian 1 ID reported by showid and the one printed on the application software label. Contact your Nortel support personnel if there is a discrepancy. |
| Meridian 1 S/W Option Check Failed - Link 0 Not Configured | Option 209 is not configured on the X11 software of the connected Meridian 1. Contact your Nortel support personnel to obtain X11 software with the proper options. Link 0 will not establish unless the X11 software is configured with option 209. |
| Meridian Link Panic: Link failure - reconfiguring links | Indicates that the X.25 communication software has crashed and the application is being restarted. No action is necessary. |
| mlnkHDLC: bad event:'event number' - state:'state number' | It is normal for this message to appear when the application is started, in which case it should be ignored. If it appears any other time, it indicates an application problem. Use Procedure 2: SBC restart. If the error message is still encountered after restarting the system, reinstall the application software using the reinstallation procedure. |
| mlnkHDLC: 'file name': can't open | There is a problem opening the trace file for link 1. The file system may be full. Log in as maint and use **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. |
| mlnkHDLC: xopen - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: ioctl - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| mlnkHDLC: init_stat_count: lsetstat( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: pend( ) - errno ='UNIX error number' | If the 'UNIX error number' is 35, the message should be ignored. Otherwise the message indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: lconq - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: lstatq - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: lconc - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: ldisi - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: ldisc - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: ldisq - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: invalid ipc state sent from Hlink | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: write (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: read (conf) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: ldatq - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: disp_msg lseek failed | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| mlnkHDLC: write to trace file failed | There is a problem writing to the trace file for link 0. The file system may be full. Log in as maint and use **diskuse**. Refer to the filedelete command if the disk usage is greater than 95 percent. If the file system is not full, restart the trace by logging in as mlusr and invoking the **untrace link 1** command followed by the **trace link 1** command. |
| mlnkHDLC: above event not processed | This message is normally generated when the application is started and should be ignored. |
| mlnkHDLC: msgget( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC error in wait_msg_q( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: unsupported sub type of link message | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| mlnkHDLC: unsupported main type message); | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| Unrecoverable application Error | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| unsupported sub type of link message | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: bad event:'event number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: Panic # ='panic number' | Indicates that X.25 communication software has crashed. The application will be automatically restarted. No action is necessary. |
| x25dmin: Sub Panic # ='sub panic number' | Indicates that X.25 communication software has crashed. The application will be automatically restarted. No action is necessary. |
| **— continued —** | |

**Table 12**
**Application messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| x25dmin: xopen( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: ioctl( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: shmget( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: x25stat_data( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: lapbstat_data( ) - errno ='UNIX error number' | Indicates an internal application problem. Use Procedure 2: SBC restart. |
| x25dmin: Initiating Link Panic Restart | Indicates that the application is being restarted due to an X.25 communication software crash. |
| Error: Could not read message queue after 60 tries | Indicates that the traffic reporting process could not report on traffic because it could not establish inter-process communication. |
| MMLH: Open link failed [errno] No physical connection | Indicates that MML Handler (link 2) cannot open the device connected to the MML. Check the configuration to see if the device exists (using display link or change link commands) |
| MMLH: HandleSighup: No physical connection, [errno] MMLH: HandleSighup: Synchronization lost | The MML cable has become disengaged. Check the MML cable to make sure that it is still in place. |
| **— end —** | |

## maint messages

The following is a summary of the various messages reported during the use of maint commands. All messages start with the date and time.

**Table 13**
**maint messages that appear in the SysLog file**

| Command | Message | Description |
|---|---|---|
| login: maint | Invoking maint | maint was invoked. |
| exit/quit | Exiting maint | maint was exited or quit. |
| admin | (no messages) | |
| applconfig | (no messages) | |
| applexit | Stopping application | Status—applexit command was invoked. |
| | sys_wdog is NOT running | Error—the add process is not available. It is likely that the CCR software has not been installed successfully. |
| | /usr/bin/add is not available | Error—the add process is not available. It is likely that the CCR software has not been installed successfully. |
| | tsroot is not running | Status—the tsroot process is already running. No further attempt will be made to start it. |
| | tsmain is not running | Status—the tsmain process is already running. No further attempt will be made to start it. |
| | X.25admin is not running | Status—the X.25admin process is already running. No further attempt will be made to start it. |

**— continued —**

**Table 13**
**maint messages that appear in the SysLog file (continued)**

| Command | Message | Description |
|---|---|---|
| applexit (continued) | mlnkHDLC is not running | Status—the mlnkHDLC process is already running. No further attempt will be made to start it. |
| backconfig | Backup scheduled every 'day' at 'time' | Status—a backup has been scheduled for a specific day and time of the week. The backup will recur every week on that day and at that time. |
| | Backup scheduled once for 'day' at 'time' | Status—a backup has been scheduled for a specified day and time of the week. |
| backdata | Backup unsuccessful | Error—the backup operation was not successful. Look for information identifying the cause in the SysLog file. |
| | Background backup unsuccessful | Error—the backup operation was not successful. Look for information identifying the cause in the SysLog file. |
| bootconfig | Auto start disabled | Status—the application does not automatically start when the system is restarted. |
| | Auto start enabled | Status—the application will automatically start when the system is restarted. |
| ccrexit | (no messages) | |
| ccrmidnight | (no messages) | |
| ccrstart | (no messages) | |

**— continued —**

**Table 13**
**maint messages that appear in the SysLog file (continued)**

| Command | Message | Description |
|---|---|---|
| ccrusr | (no messages) | |
| chgpasswd | (no messages) | |
| conshare | conshare session unsuccessful | Error—the conshare session was unsuccessful, most likely due to the communications connection between the Application Module or IPE Module and the Meridian 1 SDI port. Refer to the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210) for information on how to set up the connection correctly. |
| diskspace | (no messages) | |
| diskuse | Disk usage greater than 95% | Warning—the file system could fill up. Remove unnecessary files using the filedelete command. |
| filedelete | Nothing selected: no action taken | You have pressed [Return] without selecting a file. |
| | No files to delete: no action taken | No files are available for deletion. |
| fileverif | Static file verification failed because File List files are missing | The list files that store the static file verification data are missing. |
| | File 'filename' is missing | The specified file is missing. |

**— continued —**

**Table 13**
**maint messages that appear in the SysLog file (continued)**

| Command | Message | Description |
|---|---|---|
| fileverif (continued) | File 'filename' is present but not the correct size | A file with the specified name is previously sent, but it is not the correct file. Either the specified file has become corrupted or an updated file was deliberately placed in the system to correct a problem. Consult your Nortel support personnel for assistance with this condition. |
| | Static file verification found failures listed above. | This message appears even if no errors are found. If at least one error is listed, the static file tests found at least one file that failed. The application software may not have been installed successfully. |
| | Permissions and ownership failed because PList files are missing | PList files are missing. The application software may not have been installed successfully. |
| | 'filename' has wrong owner: expected 'owner', found 'owner'<br>'filename' has wrong group: expected 'group', found 'group'<br>'filename' has wrong permissions: expected 'permlist', found 'permlist' | The specified file had the wrong owner, group, or permissions. |
| | Permissions and ownership tests found failures listed above. | The permissions and ownership tests found at least one file that failed. The application software may not have been installed successfully. |

— continued —

**Table 13**
**maint messages that appear in the SysLog file (continued)**

| Command | Message | Description |
|---|---|---|
| fileverif (continued) | | |
| | /usr/maint/file/AutoStart file has incorrect value 'value'<br>/usr/maint/files/IncrDY file has incorrect value 'value'<br>/usr/maint/files/Port file has incorrect value 'value'<br>/usr/maint/files/Speed has incorrect value 'value' | The specified file contained the wrong value. |
| | Structural verification found failures as listed above | This message appears even if no errors are found. If at least one error is listed, the structural verification tests found at least one failure. The application software may not have been installed successfully. |
| help | (no messages) | |
| langconfig | (no messages) | |
| mlexit | (no messages) | |
| portconfig | (no messages) | |
| powerdown | (no messages) | |
| printconfig | (no messages) | |

**— continued —**

**Table 13**
**maint messages that appear in the SysLog file (continued)**

| Command | Message | Description |
|---|---|---|
| restart | (no messages) | |
| rstdata | Restore unsuccessful | Error—the restore data operation was not successful. The problem is most likely with the tape media. Verify that the tape is positioned in the drive correctly, and that it is write-enabled. Wait for the LED to go out after inserting the tape before executing the command. |
| scriptinfo | No ccr_scriptinfo file available | The scriptinfo data file is not present, indicating possible file system damage. |
| | scriptinfo failed: MULTILANGUAGE_ERR | The multilanguage feature is not working properly for the scriptinfo feature, indicating possible file system damage. |
| | scriptinfo failed: MEMORY_ERR | No memory is available for the scriptinfo feature, indicating possible file system damage. |
| | scriptinfo failed: ASSOCTABLE_ERR | A memory error or Association Table open failure occurred, indicating possible file system damage. |
| | scriptinfo failed: FILEOPEN_ERR | An error occurred while a file was being opened, indicating possible file system damage. |
| tapeinfo | Extracting information from the tape... | Status—this is a normal message before the list of tape information. |
| version | (no messages) | |
| viewlog | (no messages) | |
| **— end —** | | |

## Bad-event messages

The following is an explanation for the "bad event" messages that you may see in the Application Module or IPE Module system log file "Syslog".

Basically there are three parts to the messages:

<link process name> <bad event> <state>

Example: mlnkHDLC: bad event:6 - state:5

<link process name> can be one of the following:

- mlnkHDLC (link to Meridian 1, link 0)
- hlnkX25 (link to host if X.25 link, link 1)

<bad event> can be one of the following:

0 no event
1 message received from other link process
2 (HDLC/LAPB link connect indication, unsolicited)
3 (HDLC/LAPB link confirmation, AM-initiated*)
4 (HDLC/LAPB link disconnect indication, unsolicited)
5 (HDLC/LAPB link disconnect confirmation, AM-initiated*)
6 (HDLC/LAPB link reset indication, unsolicited)
7 (data received on HDLC/LAPB link from Meridian 1 or host)
8 (X.25 link connect indication, unsolicited)
9 (X.25 link connect confirmation: AM-initiated*)
10 (X.25 link disconnect indication, unsolicited)
11 (X.25 link disconnect confirmation, AM-initiated*)
12 (data received on X.25 link from host)
13 (data sent on X.25 link to host – confirmation)
14 (X.25 interrupt received on X.25 link from host)
15 (X.25 interrupt sent on X.25 link to host – confirmation)
16 (X.25 link reset indication, unsolicited)
17 (X.25 link reset confirmation, AM-initiated*)

* "AM-initiated" means the Application Module or IPE Module initiated the action.

<state> can be one of the following:

0—initial state of the link when applstart is invoked
1—link is initializing
2—link has initialized and is waiting for configuration instructions
3—link is configured but disabled
4—link is temporarily down due to configuration of other link
5—link is enabled but is not established
6—link is established

## Other messages reported in the SysLog file

The messages in this section may appear in your SysLog file. These error, warning, or status messages appear as a result of lower-level software processes.

### display

No messages are reported by the display process in the SysLog file.

### SysLog

The following messages appear as a result of processes related to the SysLog file.

**Table 14**
**SysLog messages that appear in the SysLog file**

| Message | Description |
|---|---|
| Due to file size limit, errors occurring since 'time' have been removed. | Warning—all entries in the SysLog file since ‘time’ have been lost. The system should operate normally and user intervention is not required. |
| System Log was created | Status—indicates when the SysLog file was created. |
| SysLog was truncated at 'time' | Status—indicates when the SysLog file was truncated. |
| System Log is being appended to | Status—the SysLog file is being appended. |
| System Log was closed by syslog | Status—the SysLog file was closed by SysLog. |
| System Log was closed by SIGTERM | Status—the SysLog file was closed by an external kill. |

### system watchdog

The following messages appear as a result of system watchdog processes.

All messages start with the date and time.

**Table 15**
**sys_wdog messages that appear in the SysLog file**

| Message | Description |
|---|---|
| sys_wdog: process 'process ID' died | Status—a dead process was detected. |
| sys_wdog: dead process 'process ID' is not in watch-list | Status—the dead process was not matched in the watch list. |
| sys_wdog: dead process <'process ID'> is not recovered -- SIGKILL | Status—the process died as a result of a SIGKILL instruction. |
| sys_wdog: dead process <'process ID'> is not recovered -- exit(NO_RECOV) | Status—the process died as a result of an exit instruction. |
| sys_wdog: fork() failed | Error—an attempt to start a process failed. Use Procedure 2: SBC restart. |
| sys_wdog: recovering process 'process ID' | Status—an attempt is being made to recover a process that died. |
| sys_wdog: execvp() failed | Error—an attempt to transform the calling process to a new process failed. Use Procedure 2: SBC restart. |
| sys_wdog: msgget() failed | Error—an attempt to retrieve a message queue identifier failed. Use Procedure 2: SBC restart. |
| sys_wdog: bad message received: mtype='message type' | Warning—received message was of the wrong type. The system should operate normally and user intervention is not required. |
| sys_wdog: bad message received: mtext='message text' | Warning—the text of the bad message is to follow. The system should operate normally and user intervention is not required. |
| **— continued —** | |

**Table 15**
**sys_wdog messages that appear in the SysLog file (continued)**

| Message | Description |
|---|---|
| 'message text' | Warning—the text of the bad message in hexadecimal characters. The system should operate normally and user intervention is not required. |
| sys_wdog: invoking process 'process name' | Status—an attempt is being made to invoke the process. This may have resulted from a successful mlrestart command. |
| sys_wdog: process 'process name' is deleted from watch-list | Status—the process has been deleted from the watch list. This may have resulted from a successful mlrestart command. |
| watch_list is empty | Status—an attempt was made to print an empty watch list. |
| Watch_list: | Status—what follows is the contents of the watch list. |
| **— end —** | |

# Chapter 6: Link error messages

This chapter describes error messages that you might see when using link maintenance commands or when using diagnostic tools such as the continuity test and loopback test. If you see an error message that is not described in this guide, contact your Nortel support personnel for assistance.

## Link maintenance commands fail

Link maintenance commands can fail for either syntax or functional reasons. Syntax errors include the omission of required parameters in the command line, and unrecognized commands. Examples of invalid commands and their responses include

```
mlusr> display link
         Link Number Missing

mlusr> read linkctl
           File Name Needed

mlusr> get
          Incomplete Command

mlusr> change
          Incomplete Command

mlusr> change link
         Link Number Missing

mlusr> trace
          Incomplete Command
```

These errors are corrected by full specification of the command option. Refer to Chapter 3, “Link maintenance commands” or use the online help facility (for example, help trace) for more information on each command.

A second class of errors occurs due to error conditions existing within the Meridian Link software. The first of these errors occurs when mlusr is unable to register with the Meridian Link software. If the registration message times out, the following message is displayed:

```
AM Base software not responding: mlusr/admin
unable to register. Is Meridian Link/AM Base
software installed and running? Reboot the system
to recover.
```

To correct this error, restart the Meridian Link software by rebooting the Application Module or IPE Module.

Meridian Link software errors are a result of an mlusr request that cannot be properly processed. A message indicates the error condition and a description is printed on the mlusr screen. Error messages are displayed in the following format:

```
Error <Error Number>: <Error Description>
```

For example:

```
Error 0x0906: Link already enabled
```

See “mlusr error messages” for the action to be taken in response. (The 0x, which indicates hexadecimal, is not listed with the error messages in this guide.)

The following message appears if the X.25 communications software has crashed and the links are being reconfigured:

```
<date and time> Meridian Link Panic: Link failure -
reconfigure links
```

This might happen when the Application Module or IPE Module is experiencing heavy message traffic while other activities (trace running, monitoring, and so on) are running. Avoid unnecessary activity on the Application Module or IPE Module during high message traffic periods.

## mlusr error messages

The following summary of the error messages reported by application software to the system console covers the error messages in Application Registration, DN Registration, Link Maintenance, and Message Facility.

> ***Note:*** 0x may appear in the error message, and indicates hexadecimal. It is not listed with the error messages in this guide.

An explanation is provided for each error message; a solution is suggested on how to correct the error. The following message may appear in the Link Status Response Message:

### 000A - Link to SL1 down pending security validation

Whenever the link to the Meridian 1 is established, checks are made to verify that package 209 is installed and that the machine ID and the tape ID match. This message indicates these checks are under way. If the checks are successful, the link will establish normally.

The following values may appear in the Application Registration Response message.

### 000B - Request already in progress

A user has attempted to invoke an mlusr command (such as continuity test) that has already been invoked.

### 0502 - Association Table is full

Indicates the limit for the number of applications that can register has been reached. This state can be remedied either by restarting the application by rebooting the module or by releasing one or more associations.

### 0902 - Link process does not exist

Meridian Link software MLINK or HLINK processes cannot be invoked. To rectify this problem, shut down and restart the application (including the Meridian Link software).

### 0903 - Link ID Already Exists

To rectify this problem, reboot the module.

### 0904 - Meridian 1 or host machine name already exists

mlusr attempted to configure a link with an existing name. Use a different name.

### 0905 - Bad Link ID

The link ID is out of range. An invalid (unconfigured) link number was specified in a link command (enable, disable). Use get links to get a list of valid links.

If the application software is not functioning correctly, shut down the application (including the Meridian Link software) and restart it.

### 0906 - Link Already Enabled

mlusr attempted to enable an already enabled link. No action is necessary.

### 0907 - Link Already Disabled

mlusr attempted to disable an already disabled link. No action is necessary.

### 0908 - Error in opening a trace file

The trace file cannot be opened. Use the diskuse command to check the amount of memory space available or try another name.

### 0909 - Link Configuration Fail

Meridian Link Module can't configure link 0 (AML), link 1 (host link), or link 2 (Meridian Mail link).

There are a number of possible reasons for this error. First, the X.25 software may not be installed on the Meridian Link Module or it may not be installed correctly. Second, the Meridian Link software may not be installed correctly. Third, the MVME333-2 XCC card may be bad.

Reboot the Meridian Link Module and invoke the Meridian Link software. If the problem persists, try to reinstall the X.25 and Meridian Link software and restart the Meridian Link software. If the problem still persists, replace the MVME333-2 XCC card.

### 090A - Enable link command failed

Application Module cannot enable link 0 (AML) or link 1 (host link).

There are a number of possible reasons for this error. First, the X.25 software may not be installed on the Meridian Link Module or the X.25 software may not be installed correctly. Second, the Meridian Link software may not be installed correctly. Third, the MVME333-2 XCC card may be bad.

Reboot the Meridian Link Module and invoke the Meridian Link software. If the problem persists, try to reinstall the X.25 and Meridian Link software and restart the Meridian Link software. If the problem still persists, replace the MVME333-2 XCC card.

### 090B - Disable link command failed

Application Module cannot disable link 0 (AML) or link 1 (host link).

There are a number of possible reasons for this error. First, the X.25 software may not be installed on the Meridian Link Module or the X.25 software may not be installed correctly. Second, the Meridian Link software may not be installed correctly. Third, MVME333-2 XCC card may be bad.

Reboot the Meridian Link Module; and invoke the Meridian Link software. If the problem persists, try to reinstall the X.25 and Meridian Link software and restart the Meridian Link software. If the problem still persists, replace the MVME333-2 XCC card.

### 090C - Link command not supported

A link command used is not supported. Refer to Chapter 3, “Link maintenance commands” for valid commands.

### 090D - Link statistics request failed

The statistics command for a link only operates if the link is up. Ensure that the link is up before entering a statistics request.

### 090E - Configuration data overflow

The configuration data file is too large. Restart the Meridian Link software.

### 090F - Link command failed due to reconfiguration of associated link

Link 0 (AML) and link 1 (host link) use the two ports on the same MVME705B transition card and MVME333-2 XCC card. If link 0 is being configured, any mlusr command for link 1 will be rejected. If link 1 is being configured, any mlusr command for link 0 will be rejected.

To resolve this, wait for the Configuration Response message to appear before entering another (link) command.

### 0910 - Trace already enabled

Trace is already enabled, and an attempt is made again to turn on the trace. No action is necessary.

### 0911 - Trace already disabled

Trace is already disabled, and an attempt is made again to turn off the trace. No action is necessary.

### 0912 - Link to Meridian 1 failed because required software option not equipped

In order to use Meridian Link software, the Meridian 1 must be equipped with package 209. Use LD22 on the Meridian 1 system terminal to verify that package 209 is equipped.

### 0913 - Link to Meridian 1 failed due to Meridian 1 ID mismatch

In order to use Meridian Link software, the Meridian 1 ID must match the ID of the Meridian Link software. Use LD22 to verify that package 209 is present. Log in as maint and use the showid command to check the ID on the Meridian Link Module. Check the Meridian 1 ID printed on the Meridian Link software label against the connected switch.

### 0914 - No link responding

No response message is received from mlink or hlink. To rectify this problem, shut down and restart the application (including the Meridian Link software).

The following values may appear in any of the Message Facility (Recording, Monitoring, Statistics, Filtering) messages.

### 0B02 - Facility already enabled

Facility is already enabled and an attempt is made to turn on the same message facility. No action is necessary.

### 0B03 - Facility already disabled

Facility is already disabled, and an attempt is made to turn off the same message facility. No action is necessary.

### 0B04 - Message(s) already set

A message is already set, and an attempt is made to set the same message. No action is necessary.

### 0B05 - Message(s) already cleared

A message is already cleared, and an attempt is made to clear the same message. No action is necessary.

### 0B06 - Unable to open/write/close recording file

Unable to open/write/close a recording file in /usr/mlusr/rec directory. Make sure that mlusr has both read and write access to /usr/mlusr/rec.

### 0B07 - Invalid message type specified in MLUSR command

Verify that the message type specified is a valid Meridian Link message. Use help ‘msgtype’, help ‘message’, or help ‘command’ to display valid messages.

### 0B08 - Cannot clear all message set (filter, monitor or record)

To rectify this problem, shut down and restart the application (including the Meridian Link application).

## Diagnostic tools error messages

This is a summary of error messages reported when using the following diagnostic tools: continuity test, traffic reports, and loopback test.

### No more input is allowed

Certain diagnostic tests are in progress. No other input is allowed until the tests are completed. Wait for the "mlusr>" prompt before entering other commands.

### File <filename> cannot be opened for writing

The traffic report cannot be written to <filename>. Use the diskuse command to check amount of space available or try another name.

### Message from tsmain: Printer is not connected

The user directed the traffic report to a printer that is not connected. Check printer connections.

### Loopback Test Failed: Cannot configure any link

Loopback test cannot configure link 0 or 1. Use the fileverif Application Module command to check the loopback configuration files in directory /usr/mlusr/conf or refer to Error 0909—Link Configuration Fail.

### Loopback Test Failed: Cannot enable any link

Loopback test cannot enable link 0 or 1. Either use the fileverif Application Module command to check the loopback configuration files in directory /usr/mlusr/conf, or refer to Error 090A—Enable link command failed.

### Loopback Test Failed: Link doesn't come up

Loopback test has tried four DTE and DCE combination tests, and the link does not come up.

1. Ensure that the proper cable is used and that the cable is wired correctly. Try a different cable.
2. Run maint> fileverif to ensure that the correct application files are present and that they are the proper size.

3. Check the MVME705 and MVME333 cards.
   - Run SSID on the MVME333 card.
   - Check jumper settings on both cards.
4. Try swapping cards.

### Loopback Test Failed: No response message from mlink or hlink

The links are up, but the Meridian Link Module does not get a loopback test response message back from the links.

1. Ensure that the proper cable is used and that the cable is wired correctly. Try a different cable.
2. Run maint> fileverif to ensure that the correct application files are present and that they are the proper size.
3. Check the MVME705 and MVME333 cards.
   - Run SSID on the MVME333 card.
   - Check jumper settings on both cards.
4. Try swapping cards.

### Loopback Test Terminated: User not ready

During loopback test, the user typed **no** at the "Ready" prompt.

Run loopback test again, plug in the correct cable and type **yes** at the "Ready" prompt.

### Loopback Test Terminated: Cannot allocate memory for link_objects_bak

The loopback test cannot allocate memory to save the existing link configurations.

## Stale association

Associations that terminate before releasing their registered association are considered stale. Because the Meridian Link Module allows a maximum of sixteen registered associations, stale associations should be removed. Stale associations can be removed if the failed application recovers to the point of being able to release itself, or if the module is rebooted.

## Removing a stale mlusr association

If a dial-up mlusr session disconnects before normal termination, a stale mlusr association will be left registered. A stale mlusr association can be removed (without Meridian Link Module restart) only if the application ID for that association is known.

If the Association Table is not full, a stale mlusr association can be released only in the following manner:

```
Console login: mlusr
Password:
        Application registration successful: id = 2

mlusr> get associations
        Association ID:              1
        Application ID               ADMIN.1334
        Host Link ID:                NONE
        Meridian 1 Link ID:          NONE
        Meridian Customer Number:    NONE
        Meridian Mail Link ID:       NONE
        Registered Services:         1

        Association ID:              2
        Application ID               API_TOOL
        Host Link ID:                1
        Host Name:                   X25dest (or Lanlink)
        Meridian 1 Link ID:          0
        Meridian 1 Name:             SL16
        Meridian 1 Customer Number:  1
        Meridian Mail Link ID:       2
        Meridian Mail Name:          Meridian Mail
        Registered Services:         97 98 100 101
```

The current mlusr association is #2, API_TOOL. Assuming no other user is logged in as mlusr, association #1, ADMIN.1334, is stale. To remove it

1. Quit the current session and enter

   ```
   mlusr> quit
                   Application release successful
                   BYE-BYE
   ```

2. Log in as **disttech**. From the "disttech>" prompt execute the following command:

   ```
   /usr/mlusr/bin/rm_assoc -a 'association_ID'
   ```

   For this example:

   ```
   disttech> /usr/mlusr/bin/rm_assoc -a 1
   ```

   The following message sequence will take approximately 20 seconds to cycle through:

   ```
   Application registration failed
   Error 0x0504: Application exists
   disttech>
   Application Release Response not received.
   Application registration successful: id = 1
   disttech>
   ```

3. Log in as mlusr. Execution of the get associations command shows the previously stale association has been restored.

   The association is no longer stale and can be terminated normally by using the quit command.

# Chapter 7: CCR log file messages

If you have a problem with CCR, be sure to check your error logs for information regarding the problem. To access your CCR error logs, use the following procedure:

**1** Log in as **maint**.

**2** Type **view** and press [Return].
Screen information such as the following appears:

```
maint> view

    1. Oct_12_93.0001
    2. REVERSE: Oct_12_93.0001
    3. Oct_13_93.0002
    4. REVERSE: Oct_13_93.0002
    5. Oct_13_93.0003
    6. REVERSE: Oct_13_93.0003
    7. Oct_13_93.0004
    8. REVERSE: Oct_13_93.0004
    9. Oct_13_93.0005
   10. REVERSE: Oct_13_93.0005
   11. Oct_13_93.0006
   12. REVERSE: Oct_13_93.0005
   13. Oct_13_93.0007
   14. REVERSE: Oct_13_93.0007
   15. Oct_13_93.0008
   16. REVERSE: Oct_13_93.0008
   17. Oct_13_93.0009
   18. REVERSE: Oct_13_93.0009
```

Make a selection/deselection by entering the desired value:

**Note:** The messages contained within the SysLog file are discussed in Chapter 5, “Application Module and IPE Module error messages.”

**3** Type the appropriate number for the file you wish to view and press [Return]. By typing the number for a CCR log file, information like the following appears.

```
05/07/92  00:01:08  May_07_92.0056 created.
05/07/92  00:01:08  COMPLETED MIDNIGHT ROUTINE.

05/07/92  06:03:39  INFO  5019  Severity 0

Description:     Statistics timed out on SL1.
Component:       Call Execution Engine
Object:          AcdStatList
Function:        doTimeCheck

Data:
Miscellaneous: Restarting Statistics for ACD:  885A
```

The following commands are available while you are viewing a log file:

| | |
|---|---|
| ↑ or **u** | scroll up through the file, one line at a time |
| ↓ or **d** | scroll down through the file, one line at a time |
| **PgUp** or **U** | scroll up through the file, a screen at a time |
| **PgDn** or **D** | scroll down through the file, a screen at a time |
| **f** | find a particular text pattern<br>When you enter **f**, you are prompted to enter the string to locate. Type in the information and press [Return]. If that pattern exists in the log file, a portion of the log file containing that pattern will appear.<br><br>**Note:** The f command is case-sensitive. If the system doesn’t find the pattern you are looking for, ensure that you entered it correctly (with the proper mix of upper and lowercase characters). |
| **n** | find the next occurrence of the same text pattern |
| **x** | exit (return to the viewlog menu) |

Log files contain a list of messages that describe events and problems in the system. Some messages are one-line descriptions of events (preceded by date and time) and other messages include more information, in the following format:

```
m/d/y  h:m:s  class  mmmm  sev
```

where:

| | |
|---|---|
| m/d/y | = date event took place |
| h:m:s | = time event took place |
| class | = identifies the message as one of the following: |
| | info—an event of interest occurred |
| | warning—information important to maintain correct operation |
| | error—the system was unable to perform a desired task |
| | bug—the system has identified an incorrect state |
| | fatal—the system has experienced interruption of service |
| | alarm—manual intervention is required by the system |
| mmmm | = message number that uniquely identifies the message. All CCR messages are explained in more detail in this chapter, in order of message number. |
| sev | = severity code, where 1 is so severe that the system is inoperable. Codes 2, 3, and 4 have successively less impact, and 0 has no impact on the system. |

Many messages are followed by a description (brief explanation of the message) and other parameters (component, object, and function) that help support personnel determine more about the nature of a problem. The Data parameter indicates any additional information pertaining to the event. See the example shown earlier in this chapter.

## Messages

The log file provides brief information on each message. The following section provides a more thorough explanation of the messages (listed in message number order), the impact of the event or error, and where possible, a strategy for recovery. If a problem persists, contact your Nortel support personnel.

Some messages are accompanied by parameters that help pinpoint the location and possible cause for the event. In this section, optional parameters (those that are only reported in certain situations) are surrounded by square brackets ([Script name], for example). Cause parameters (shown as a number in the log file message) are described in more detail here.

### 1001

**Log message** Compiler out of memory

**Parameters** None

**Description** The application could not complete the validation as not enough memory was available to allocate.

**Impact** Not enough memory was available for complete validation. The script being compiled cannot be used without changes.

**Recovery** If large lists of constants (for example, specific ACD DNs) are used in the script, try to define these as variables rather than constants. This decreases compiler memory use. If the system is very busy (many calls active, many scripts installed), try compiling the script during a quieter time. Otherwise, make the script smaller.

### 1002

**Log message** Call processing out of memory

**Parameters** Cause 1, 2, 3, or 4 [Script Name], which have the following meanings

1: Could not allocate memory for tracking outstanding commands to the Meridian 1.

2: Could not allocate memory to activate a new Variable Table.

3: Could not allocate memory to activate a new Association Table.

4: Could not allocate memory to install a new script.

5: The Error Filtering will be impaired.

**Description** The call processing software could not allocate enough memory to continue its operation unimpaired.

**Impact** The impact differs for each cause, as follows:

1: Call synchronization with Meridian 1 may not be fully operational.

2: The Variable Table activation will be rejected.

3: The Association Table activation will be rejected.

4: The script installation will be rejected.

5: The Error Filtering will be disabled until call processing allocates more memory.

**Recovery** If this condition occurs under heavy load situations, ignore this message and retry during light load conditions. If it persists, or impairs the handling of calls too much, log in as maint and use the applexit and commands to clear out all memory usage.

### 1003

**Log message** CCR system manager out of memory

**Parameters** File Name and Procedure where the error occurred
User ID, [User Name], and Procedure where the error occurred
File Name, [Original Directory], and Procedure where the error occurred
[Script Name], [Script State], and Procedure where the error occurred.

**Description** The CCR system manager software could not allocate enough memory to continue its operation unimpaired.

**Impact** System memory is in short supply. The specified resource may not be created, or may not reset during start-up, at midnight, or during shutdown. This can interrupt script operation if the Variable Table or the Association Table is the affected resource. If the ACD statistics file is the affected resource, this can interrupt call processing. If the password file is the affected resource, this can prevent user logins.

This event may also indicate that the specified resource is not validated against the resource list or not moved to the correct directory during start-up, at midnight, or during shutdown. This should not affect the normal operation of the software.

**Recovery** Log out all user sessions except maint. Shut down and restart the system.

### 1004

**Log message** User Session out of memory

**Parameters** None

**Description** The user session software could not allocate enough memory to continue its operation unimpaired.

**Impact** System memory is in short supply. This message indicates that a user session could not continue or perform a task due to no memory.

**Recovery** If you have multiple user sessions, log some out. If this occurs during a high traffic period, wait until the traffic subsides. If this fails, restart the application. Reboot the system if the problem persists.

### 1005

**Log message** File read error

**Parameters** File Name

**Description** The CCR software encountered a read error on the specified file and aborted the related operation.

**Impact** Depending on which file is specified, the related operation may be aborted. For example, if the Event Log language files are unreadable, no log files are generated.

**Recovery** Disk errors may occur occasionally, and may not indicate a problem. If the errors persist, you may have to reinstall the application. Contact your Nortel support personnel if you are experiencing problems related to the area reported in the error message.

### 1006

**Log message** File write error

**Parameters** File Name

**Description** The software encountered a write error on the specified file and aborted the related operation.

**Impact** Depending on which file is specified, the related operation may be aborted. For example, if the Event Log cannot write its output files, no log files are generated.

**Recovery** Invoke the diskuse command. If the disk usage is not over 95%, contact your Nortel support personnel. If the disk usage is 95% or more, use the filedelete command to delete low priority files.

### 1007

**Log message** File create error

**Parameters** File Name

**Description** The software encountered a create error on the specified file and aborted the related operation.

**Impact** Depending on which file is specified, the related operation may be aborted. For example, if the Event Log cannot create its output files, the no log files are generated.

**Recovery** Invoke the diskuse command. If the disk usage is not over 95%, contact your Nortel support personnel. If the disk usage is 95% or more, use the filedelete command to delete low priority files.

### 1008

**Log message** File open error

**Parameters** File Name

**Description** The software encountered an error trying to open the specified file and aborted the related operation.

**Impact** Depending on which file is specified, the related operation may be aborted. For example, if the Event Log cannot open its language files, no log files are generated.

**Recovery** Use the fileverif command to verify system files. Invoke the diskuse command to ensure there is available space. Use the applexit and commands to restart the application. If the problem persists, reboot the system.

### 1009

**Log message** The process died due to an unrecoverable error.

**Parameters** Cause 1, 2, or 3, which have the following meanings

1: Call processing software restarted

2: Event Log software restarted

3: CCR system manager software restarted

**Description** The software encountered an unrecoverable internal condition and was restarted by the system watchdog utility.

**Impact** This event causes a system reset and the impact differs for each cause, as follows:

1. System operation will be halted while the system reloads the call execution machine. Messages reporting that activity should follow.

2. There is no operational impact on the system.

3. The internal data structures are rebuilt, but there is little operational impact to the system.

**Recovery** The software recovers automatically. The log file may indicate that certain scripts, variables, and so on could not be installed. If so, these must be reinstalled manually using the rstdata command.

### 1010

**Log message** Internal data structures in call processing are overflowing.

**Parameters** Cause 1, 2, or 3, which have the following meanings

1: Too many outstanding commands to Meridian 1

2: Too many installed scripts

3: Too many variable tables

**Description** The call processing software is overflowing its data structures.

**Impact** The impact on the system can differ according to the cause, as follows:

1: This condition may point to a communications problem with Meridian 1.

2: The internal limit (1000) of the number of installed scripts in the call processing software has been reached.

3: The internal limit (50) of the number of variable tables in the call processing software has been reached.

**Recovery** Recovery processes also differ according to cause, as follows:

1: Investigate the communications link between Meridian 1 and the CCR Module to ensure messages are flowing correctly in both directions. Restarting the application clears the problem temporarily.

2: Remove scripts that are no longer used for active call processing.

3: Wait for the call turnover to release old versions of variable tables kept by the call processing software while active calls against them still exist. If the problem persists, or there are no known active calls, restart the application.

### 1011

**Log message** The system profile file contains invalid data.

**Parameters** None

**Description** Data required from the system profile file was not found during start-up of the call processing software.

**Impact** The application does not start up.

**Recovery** Use the version command to verify which CCR is installed. Verify that the information reported is correct. Reinstall the software.

### 1012

**Log message** Unable to establish communication path with the Meridian 1.

**Parameters** Cause 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14 which have the following meanings

1: Queue read failure.
2: Application Registration API failure.
3: Application Registration rejected.
4: No response to the Application Registration.
5: The queue for communication with AM software is full.
6: Maximum outstanding requests detected by the API or AM Base. No more allowed.
7: AM Base cannot be accessed. Request cannot be executed.
8: Meridian 1 not responding to Link Status or Package query message—keep trying.
9: Meridian 1 rejected the start-up message.
10: An AM software error occurred such that the request could not be processed.
11: The requested device is not acquired.
12: The device is already locked by another application.
13: API/CCR detects response time out for request.
14: An unknown error was returned by the API software.

**Description** The application attempts to establish the communication path with the Meridian 1.

Causes 1, 2, 3 and 4 have to do with application registration. If the application fails to start up after three tries due to communication failure, the application will report this error and shut down automatically.

Causes 8 and 9 have to do with Link Status and Package query requests. If the application fails to receive the response, it will retry the request constantly.

The rest of the causes (5, 6, 7, 10, 11, 12 and 13) indicate problems occurring at either the API software or AM Base. If this error occasionally occurs during high traffic, ignore the error because the communication path should be reestablished once the traffic dies down. However, if this error occurs repeatedly, there may be a serious error in the communication path; both the application and the AML must be reset to correct the problem.

**Impact** The application starts up and attempts to establish the communications path. Upon failure to do so after a maximum number of retries (three retries, except with respect to cause 8, which is retried constantly), the call processing software reports this error and shuts down automatically.

**Recovery** Recovery procedures differ according to the cause.

1: Shut down and restart the application.

2-7: Use the tapeinfo command to verify the version of the CCR tape installed. Verify that the information reported is correct. If it is, reinstall the software.

8-9: Check Meridian 1 software packaging and release compatibility.

### 1013

**Log message** The process restarted unexpectedly due to error.

**Parameters** Component, Object, and Function

**Description** The reporter process restarted because of an error.

**Impact** Some traffic messages may be lost.

**Recovery** The system recovers automatically.

### 1014

**Log message** Unable to establish inter-process communication path.

**Parameters** Component, Object, and Function

**Description** Inter-process communication could not be established between the reporter and other processes.

**Impact** The traffic reporting feature is disabled.

**Recovery** Use the applexit and commands to restart the application.

### 1015

**Log message** The process died due to inability to respond to polling.

**Parameters** Component, Object, and Function

**Description** The Call Processor has gone into an unknown state, and was unable to respond to polling messages from the Link Software in the allotted time. When this happens, the Call Processor is trying to reset itself by reinitializing itself.

**Impact** Cannot process new calls while initializing.

**Recovery** Automatic recovery

**Misc.** Application registration released ... restarting call processing software.

### 1016

**Log message** CDN acquire failed

**Parameters** Component, Object, Function, Cause 1

1: Bad association ID

**Description** The CDN acquire request was rejected by MSL-1 due to some problem with the association id.

**Impact** The CDN cannot be used because it is not acquired. Usually it is a very serious problem when this error shows. It implies the subsequent CDN acquires may meet the same problem.

**Recovery** CCR will restart itself and try to correct the problem.

### 1017

**Log message** Package query failed

**Parameters** Component, Object, Function, Cause 1, 2, 3

1: Bad Association ID
2: An error occurred trying to send the command to SL-1
3: Invalid Reason

**Description** The package query request was rejected by MSL-1 due to some unknown synchronization problems.

**Impact** This is a fatal error. CCR will restart itself and try to correct the problem.

**Recovery** CCR restarts itself.

### 1018

**Log message** Application deregistration failed

**Parameters** Component, Object, Function, Cause 1, 2, 5

1. Bad Association ID/ CCR System Initialization
2. CCR Request Timed Out
5. Invalid Password

**Description** The CCR application was not able to be deregistered smoothly due to some unknown synchronization problems.

**Impact** MSL-1 will still think CCR is alive until it times out.

**Recovery** The CCR application will be shut down on time-out. This situation will be cleared up by itself when the time-out comes.

### 1019

**Log message** CDN acquire release failed

**Parameters** Component, Object, Function, Cause 1 or invalid reason

1. Bad Device ID
3. Invalid Reason

**Description** The CDN acquire release request was rejected due to some unknown synchronization problems.

**Impact** The CDN cannot be released. This means that the CDN cannot be released or acquired again by CCR.

**Recovery** The CCR application should be shut down and restarted.

### 1020

**Log message** CCR process halted due to invalid packaging.

**Parameters** None

**Description** No CCR package was installed. The system profile has been corrupted and/or the installation was not performed properly.

**Recovery** Use the version command to verify the CCR package installed. Reinstall the CCR package.

### 1021

**Log message** Internal compiler error.

**Parameters** None

**Description** The compiler has problems interpreting the math expression portion of the script.

**Impact** The script is not compiled due to the internal compiler problem.

**Recovery** Reduce and simplify the number of intrinsics or variables in the math expression. If it persists, contact NT support personnel.

### 2001

**Log message** An invalid message was received.

**Parameters** Cause 1, 2, 3, 4, 5, or 6; Message Type; and Procedure where the error occurred.

1: Invalid message from user session software to Call Processing
2: Unused
3: Invalid Message from Meridian 1 to Call Processing
4: Invalid message from Call Processing to the system manager
5: Invalid message from the user session to the system manager
6: Invalid message from the system manager to the user session

**Description** An unknown message type was received from the software. The occurrence could point to a software error, synchronization problem, or packaging mismatch.

**Impact** There is no impact. The system ignores the event.

**Recovery** No direct recovery is necessary since the software ignores the event.

### 2002

**Log message** Link congestion is reported by Meridian 1.

**Parameters** None

**Description** When Meridian 1 detects 10 consecutive time-outs (of four seconds each) for a CCR software reply to an incoming call event, Meridian 1 assumes the link is congested.

**Impact** When Meridian 1 detects link congestion, it issues a message to the CCR software to clear out the backlog of messages. All calls are given default treatment by Meridian 1 until the CCR software responds to this message, indicating to Meridian 1 that the communications path is cleared.

**Recovery** The software resynchronizes automatically, with the possibility of some calls receiving default treatment for a short time. If this event occurs under high load conditions, the software is running above its capacity. If it happens during low load conditions, there is a configuration or software error.

### 2003

**Log message** Application protocol violation detected

**Parameters** Cause 1, 2, or 3 and Message Type

1: Meridian 1 response received out of sequence
2: Meridian 1 response received for an unknown command
3: Meridian 1 response received for an unknown call

**Description** A protocol violation has occurred in the messaging interface between Meridian 1 and the CCR software.

**Impact** The event is ignored by the software and CCR recovers automatically.

**Recovery** If this event occurs under high load conditions, the software is running above its capacity. Messages may be lost due to overloaded communications resources, giving rise to protocol violations. If it happens during low load conditions, there is a configuration or software error.

### 2004

**Log message** Meridian 1 link failed

**Parameters** None

**Description** The communications software has detected that the link to Meridian 1 has failed.

**Impact** All call processing will immediately and automatically switch to Meridian 1 default treatment for both existing calls and new calls. The call processing software will lose all knowledge of any active calls. When the link recovers, the software will recover automatically.

**Recovery** Investigate why the link failed and correct the problem. If the software doesn't seem to recover, disable and enable the link.

### 2005

**Log message** Meridian 1 initialized

**Parameters** None

**Description** A notification is received from Meridian 1 that a Meridian 1 initialization has occurred. This notification is sent to the CCR software after Meridian 1 has completed its initialization procedures.

**Impact** This event resynchronizes the Meridian 1 and CCR software. Meridian 1 loses all queued calls during an initialization. CCR call processing is stopped for all active calls when this notification is received. If no calls were active at the time of the notification, there is no impact to the application.

**Recovery** The software recovers automatically.

### 2006

**Log message** Script exception occurred during call processing

**Parameters** Cause 1, 2, 3, 4, or 5; [Script Name, Script Offset]

1: Invalid opcode encountered

2: Invalid parameter in opcode encountered

3: Invalid statistics access encountered

4: Stack overflow encountered

5: Stack empty condition encountered

**Description** An invalid operation was encountered during script operation for a call.

**Impact** Script processing for the call is curtailed. Exceptions may occur for other calls depending on the conditional testing in the script for the statement where the exception occurred.

**Recovery** Remove the script from active call processing, then revalidate and reinstall it.

### 2007

**Log message** Script installation failed

**Parameters** Cause 1, 2, 3, 4, 5, or 6 and Script Name

1: Bad message: missing or wrong information in the request message

2: Meridian 1 link down: statistics changes required to complete the installation cannot be requested

3: Time-out on requested statistics changes from Meridian 1

4: Request clash: another script installation is already under way

5: Load failure: the call processing software could not successfully load the script into memory

6: Duplicate script: script is already installed

**Description** A script installation into the call processing software failed to complete. The script is not installed.

**Impact** The script cannot be used in active call processing until the problem has been corrected.

**Recovery** Recovery differs according to the cause, as follows:

1: Software error—log out and log back into the system, then retry the installation.

2: The script installation requires changes in the statistics information from Meridian 1. When the link is down, these changes cannot be requested to complete the script installation. Try again later when the link is up.

3: The script installation requires changes in the statistics information from Meridian 1. No response to the requests was received from Meridian 1. Check the status of the link and try again.

4: This is an attempt to install more than one script at a time. Find the log file entries for the installation underway and when it completes, retry the installation.

5: Call processing was unable to install the script, possibly because of shared memory or other memory allocation problems. Try again later or restart the application.

6: This script is already installed. Remove the script before trying to reinstall it.

### 2008

**Log message** Script removal failed

**Parameters** Cause 1, 2, 3, or 4 and Script Name

1: Bad message: missing or wrong information in the request message

2: Meridian 1 link down: statistics changes required to complete the removal cannot be requested

3: Time-out on requested statistics changes from Meridian 1

4: Unknown script: script is not installed

**Description** A script removal from the call processing software failed to complete. The script is not removed or never was installed.

**Impact** This indicates a software error. If the script can be reinstalled, then there is no impact. If not, restart the software to clear the problem.

**Recovery** Recovery differs according to the cause, as follows:

1: Software error—log out and log back into the system, then retry the removal.

2: The script removal requires changes in the statistics information from Meridian 1. When the link is down, these changes cannot be requested to complete the script removal. Try again later when the link is up.

3: The script removal requires changes in the statistics information from Meridian 1. No response to the requests was received from Meridian 1. Check the status of the link and try again later.

4: This is an attempt to remove a script of which call processing software is unaware. Since the script is not installed, there is no need to remove it.

### 2009

**Log message** Variable Table activation failed

**Parameters** Cause 1, 2, 3, 4, or 5

1: Bad message: missing or wrong information in the request message

2: Meridian 1 link down: statistics changes required to complete the installation cannot be requested

3: Time-out on requested statistics changes from Meridian 1

4: Request clash: another Variable Table was activated

5: Load failure: the call processing software could not successfully load the Variable Table into memory

**Description** A Variable Table activation failed to complete. The previous version of the Variable Table remains active.

**Impact** The new variables cannot be used in active call processing until the problem has been corrected.

**Recovery** Recovery differs according to the cause, as follows:

1: Software error—log out and log back into the system, then retry the activation.

2: The Variable Table activation requires changes in the statistics information from Meridian 1. When the link is down, these changes cannot be requested to complete the Variable Table activation. Try again later when the link is up.

3: The Variable Table activation requires changes in the statistics information from Meridian 1. No response to the requests was received from Meridian 1. Check the link status and try again.

4: This is an attempt to activate more than one table at a time. Find the log file entries for the activation underway and when it completes, retry the activation.

5: Call processing was unable to activate the Variable Table, possibly because of shared memory or other memory allocation problems. Try again later or restart the application.

### 2010

**Log message** Association Table activation failed

**Parameters** Cause 1, 2, 3, and 4 which have the following meanings

1: Bad message: missing or wrong information in the request message

2: Request clash: another Association Table activation was already underway

3: Load failure: the call processing software could not successfully load the Association Table into memory

4: Activation failure: the maximum allowable number of active associations has been exceeded

**Description** An Association Table activation into the call processing software failed to complete. The previous version of the Association Table remains active.

**Impact** The new associations cannot be used in active call processing until the problem has been corrected.

**Recovery** Recovery differs according to the cause.

1: Software error—log out and log back into the system; then retry the installation.

2: This is an attempt to activate more than one table at a time. Find the log file entries for the activation underway and when it completes, retry the activation.

3: Call processing was unable to activate the Association Table, possibly because of shared memory or other memory allocation problems. Try again later or restart the application.

4: This is an attempt to activate an association table with too many active associations for the installed CCR package. The active association limit is displayed in the data section of this log event. Retry the activation of the association table with active associations numbering less than or equal to that limit.

### 2011

**Log message** Call rejected by call processing software

**Parameters** Cause 1, 2, 3, 4, or 5; [CDN], [Script name], and Miscellaneous information

1: Unable to allocate memory for a new call

2: No association for the CDN

3: No script found for the call

4: Duplicate call ID or Invalid call ID

5: Unable to execute script—either first statement encountered is QUIT, WAIT, or SILENCE, or an invalid value for a Queue intrinsic has been detected

**Description** An incoming call cannot be handled by CCR. The call is handed back to Meridian 1 default operation.

**Impact** The call receives default treatment rather than script treatment.

**Recovery** Recovery differs according to cause.

1: Call processing cannot allocate new memory for the call. If this happens under a high load condition, it indicates the application is running above capacity. Under low load conditions, it may indicate a software memory allocation problem. Restart the application.

2: A call arrived from a CDN that does not appear in the Association Table. The CDN is switched to default mode on Meridian 1. Add an association and reset the CDN to controlled mode on Meridian 1.

3: The script that the association pointed to could not be found by call processing. Software error—restart the application.

4: If this message appears in the Error Log repeatedly due to invalid call ID: 0 (hex), most likely the call ID package (247) is not equipped in the Meridian 1 software. Make sure that the call ID package is turned on.

For duplicate call IDs, a call arrived with the same identification number as an existing call. This situation is likely to point to a software error, (old calls in the system are not being cleaned up). Restart the application.

5: For the specific conditional branches that executed for this call, the first statement encountered by call processing was a QUIT or WAIT statement. These are not valid first treatments, so the call was handed to Meridian 1 for processing. Correct the script.

### 2012

**Log message** Flow control level 2 indication received from the Meridian 1

**Parameters** None

**Description** A flow control level 2 indication (see "Notes on flow control" below) issued by the Meridian 1 indicates that the inbound traffic flow exceeds configured limits. The limits can be changed, or the system is temporarily operating above its capacity. This situation is cleared by a subsequent flow control level 0 indication.

**Impact** Messages may be lost if the condition persists.

**Recovery** Check configuration parameters on Meridian 1 and change them if necessary, especially if this occurs under normal call volume. If the configuration is correct and the problem persists, it indicates the system is running above capacity.

### Notes on flow control

Errors related to flow control have the following severity levels:

- Level 0 indicates no flow control (the flow control condition has cleared). Continue or resume normal call processing operation. See CCR message 6018.
- Level 1 is a warning that messages are being sent to Meridian 1 too quickly. Call execution is slowed down by waiting for a short period of time before continuing to the next call execution. Therefore the message traffic generated is much lower than during normal operation. New calls are handled immediately. See CCR message 5001.
- Level 2 is similar to level 1 except that now no call initiation messages may be sent to Meridian 1. All new calls will be rejected to the Meridian 1 for default treatment. Existing calls will be suspended (no further execution of calls will be done until level 0 is restored or the link fails). See CCR message 2012.
- Level 3 indicates that no input can be sent to Meridian 1. New calls will time-out, or be defaulted by the Meridian 1 before it even sends the new call indication to CCR. Because CCR can no longer communicate with the Meridian 1, it will treat a Level 3 Flow Control event the way it treats a Link Down event. That is, it will clean up its entire call database and do nothing until the situation clears (Level 0 indication, equivalent to a Link Up event). All existing calls in the system will be reverted to default by the Meridian 1. See CCR message 2013.

Flow control parameters are defined in the Meridian 1 configuration for the AML. The following parameters are defined in LD17 for the ESDI or MSDL port corresponding to the AML:

- SECU=YES
- INTL (the interval period for determining flow control)
- MCNT (the threshold for the number of messages during the interval set for INTL)

### 2013

**Log message** Flow control level 3 indication received from the Meridian 1. Refer to "Notes on flow control," CCR message 2012.

**Parameters** None

**Description** A flow control level 3 indication (see "Notes on flow control" following message 2012) was issued by the Meridian 1 indicating that the Meridian 1 inbound traffic flow consistently exceeded configured limits. The system may be temporarily operating above its capacity. A subsequent flow control level 0 indicates when the system is again operating at normal capacity.

**Impact** Messages will be lost until the condition is cleared.

**Recovery** If flow control indication does not return to 0, especially if the situation occurs when call volume is below normal, check configuration parameters on Meridian 1 and change them if necessary. If the configuration is correct and the problem persists, it indicates the system is running above capacity.

### 2014

**Log message** Previous event suppressed when it was repeated too many times

**Parameters** None

**Description** An error message filtering function in the event logging software keeps the same error from logging in the log file. Once the same event is logged five times consecutively, message 2014 appears when the sixth request is received. This event is not logged again until another event is received and logged. The intent is to keep runaway errors from crippling the system.

**Impact** No operational impact

**Recovery** Investigate why the error preceding this event occurred repeatedly and clear the problem.

### 2015

**Log message** Fail to delete session entry from user session list: operation aborted

**Parameters** User ID, Process ID, Lock Type, Error Status, and Procedure where the error occurred

**Description** The software was trying to delete a specified user session entry from the list of existing user sessions, but failed. This can happen during restart or midnight routines, or when a user logs out of the application.

**Impact** This does not affect normal software operation unless coupled with a memory shortage or file open/close error from the reported error status.

**Recovery** No recovery is required unless there is also a memory shortage or file open/close error, or unless the problem persists. If there is a memory shortage error, log out all unnecessary user sessions. If there is a file open/close failure, check the integrity of the file system using the fileverif command. If the problem persists, restart the application.

### 2016

**Log message** Fail to write script state in the script list: operation aborted

**Parameters** Script Name, Script State, [Process ID, Action Type, Cause], Error Status, and Procedure where the error occurred

**Description** This may happen during system shutdown, midnight routines, or when a user session is manipulating script files (editing, validating, or installing, for example).

**Impact** This has no impact on normal software operation unless there is a shortage of memory or a file open/close error, indicated by the error status parameter.

**Recovery** The software aborts the transaction automatically. Contact your Nortel support personnel.

### 2017

**Log message** Fail to write to the Variable Table file: references not reset

**Parameters** Error status and procedure where the error occurred

**Description** This happens during shutdown or restart of the call processing software. The software failed to update the file copy of the Variable Table after resetting the variable references.

**Impact** The memory copy of the Variable Table may not be the same as the file copy.

**Recovery** Remove all scripts, log out, log back in, activate the Variable Table, and reinstall scripts. If the error persists, shut down and restart the application. Use the fileverif command to check the file system integrity.

### 2018

**Log message** Fail to reset references in the Variable Table, in memory, and on file

**Parameters** Error status and procedure where the error occurred

**Description** This happens during shutdown or restart of the call processing software. The software failed to reset the variable references. All of the references should be reset when the system starts up or after a call processing software failure.

**Impact** If the user starts to install call scripts, call processing may fail the installation because the Variable Table is not active in the call processing software.

**Recovery** Remove all scripts, log out, log back in, activate the Variable Table and reinstall scripts.

### 2019

**Log message** Fail to read in the Variable Table: references not reset

**Parameters** Error status and procedure where the error occurred

**Description** This happens during shutdown or restart of the call processing software. The software failed to read in the Variable Table; thus, it failed to reset the variable references upon shutdown or call processing software restart.

**Impact** If the user starts to install call scripts, call processing may fail the installation because the Variable Table is not active in the call processing software.

**Recovery** Remove all scripts, log out, log back in, activate the Variable Table and reinstall scripts.

### 2020

**Log message** Fail to open a directory: directory validation skipped

**Parameters** Directory and procedure where the error occurred

**Description** This may happen during start-up, midnight routines, or shutdown. The software failed to open the given directory for read access. Validation or traversal of the specified directory is skipped.

**Impact** If this happens during start-up and is called from the Build Profile List, the profile list is not being built, which may affect the operation of user profile maintenance. If this happens during midnight and shutdown procedures, the given directory is not being validated against the system resource list. If it happens only once, it should cause no problem for normal software operation.

**Recovery** Shut down and restart the system.

### 2021

**Log message** Fail to open a user profile for read: validation of the profile aborted

**Parameters** User ID, Directory, and Procedure where the error occurred

**Description** Failure to open a user's profile file for read access. Most likely the profile has been deleted without updating the profile list or the file has the wrong permissions.

**Impact** This should cause no problem for normal software operation unless a user tries to edit the profile (which does not exist).

**Recovery** Shut down the system and restart. If that does not clear the problem, check file system integrity, using the fileverif command.

### 2022

**Log message** Fail to insert a profile into the profile list: operation aborted

**Parameters** User ID, User Name, [Action Type, Cause,] Error Status, and Procedure where the error occurred

**Description** This happens during start-up, midnight routines, shutdown, or user profile manipulation. The software failed to insert the profile entry into the profile list. Insertion is aborted.

**Impact** This should not affect the normal operation of the software, unless coupled with a memory shortage or file read/write error. The specified profile may also exist while the software thinks that it does not exist.

**Recovery** If the problem occurs repeatedly or hinders user profile manipulation, use the ccrmidnight command or restart the system.

### 2023

**Log message** Fail to delete a profile from the profile list: operation aborted

**Parameters** User ID, Process ID [User Name, Action Type, Cause], Error Status, and Procedure where the error occurred

**Description** This happens during midnight routines, shutdown, or user profile manipulation. The software failed to delete the profile entry from the profile list. Deletion is aborted.

**Impact** This should not affect the normal operation of the software, unless coupled with a memory shortage or file read/write error. The specified profile may not exist while the software thinks it is there.

**Recovery** If the problem occurs repeatedly or hinders user profile manipulation, use the ccrmidnight command or restart the system.

### 2024

**Log message** Fail to write user name into the profile list: operation aborted

**Parameters** User ID, User Name [Process ID, Action Type, Cause], Error Status, and Procedure where the error occurred

**Description** This happens during midnight routines, shutdown, or user profile manipulation. The software failed to write the User Name into the User Profile entry of the User Profile List. Update of the User Name is aborted.

**Impact** This should not affect normal software operation, unless coupled with a memory shortage or file read/write error. The specified profile may contain a user name that is not in the user profile list.

**Recovery** If problem occurs repeatedly or hinders user profile manipulation, use the ccrmidnight command or restart the system.

### 2025

**Log message** Fail to delete the file from the directory: operation aborted

**Parameters** File Name and Procedure where the error occurred

**Description** Failure to delete the file from its directory when trying to move the file to the Trash Directory. The file deletion attempt is aborted.

**Impact** This should not impact the normal operation of the software, except that the file that was supposed to be deleted is still there.

**Recovery** If this problem persists, use the ccrmidnight command or restart the system. If the problem occurs more frequently than before, check file system integrity, using the fileverif and diskuse commands.

### 2026

**Log message** Fail to copy file from one directory to another: operation aborted

**Parameters** File Name and Procedure where the error occurred

**Description** Failure to copy the file from its directory to the Trash Directory. The copy operation is aborted.

**Impact** This should not impact the normal operation of the software. The file is not copied to the Trash Directory.

**Recovery** If this problem persists, use the ccrmidnight command or restart the system. If the problem occurs more frequently than before, check file system integrity, using the fileverif command.

### 2027

**Log message** Fail to delete script from the script list: operation aborted

**Parameters** Script Name [Process ID, Action Type, Cause], Error Status, and Procedure where the error occurred

**Description** This happens during midnight routines, shutdown, or script manipulation. The software failed to delete the script entry from the script list. The entry deletion is aborted.

**Impact** This should not impact the normal operation of the software. There will be an inconsistency in the specified script. The software thinks that the script is there, but either it does not exist or it has the wrong file permissions.

**Recovery** If this problem persists, use the ccrmidnight command or restart the system. If the problem occurs more frequently than before, check file system integrity, using the fileverif command.

### 2028

**Log message** Fail to insert a script into the script list: operation aborted.

**Parameters** Script Name, Error Status, and Procedure where the error occurred

**Description** This happens during midnight routines, shutdown, or script manipulation. The software failed to insert the script entry into the script list. The entry insertion is aborted.

**Impact** This should not impact the normal operation of the software. There will be an inconsistency in the specified call script. The call script now exists, but the software thinks that it does not.

**Recovery** If this problem persists, use the ccrmidnight command or restart the system. If the problem occurs more frequently than before, check the file system integrity, using the fileverif command.

### 2029

**Log message** Cannot create an existing resource: operation aborted

**Parameters** User ID, User Name, Process ID, Action Type, Cause, and Procedure where the error occurred; or Script Name, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens during user profile or call script creation. The software does not allow creation of a resource if it already exists. The resource creation is aborted.

**Impact** This should not impact the normal operation of the software. The resource created may not be a valid resource, since the software never considered its duplicate existence.

**Recovery** No user intervention is needed.

### 2030

**Log message** Cannot edit a non-existing resource: edit request ignored

**Parameters** User ID, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens after a user profile edit. CCR does not allow editing of a non-existing resource. The edit attempt is ignored.

**Impact** This should not impact the normal operation of software. The edit action is ignored and if the user name is changed, the change will not be updated in the profile list.

**Recovery** No user intervention is needed.

### 2031

**Log message** Cannot delete a non-existing resource: operation aborted

**Parameters** User ID/Script Name, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens after user profile or call script deletion. The software does not allow deletion of a non-existing resource. The deletion is ignored.

**Impact** This should not impact the normal operation of the software. The delete action is ignored and aborted.

**Recovery** No user intervention is needed.

### 2032

**Log message** Invalid action type in message: message ignored or transaction aborted

**Parameters** User ID/Script Name, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens during user profile and call script manipulation. An invalid action type is encountered. The message received is ignored or the specified profile or script list is not built.

**Impact** The indicated action (Action Type) to the indicated system component did not occur. The user may perceive that some action did not take place.

**Recovery** Report the problem to your Nortel support personnel.

### 2033

**Log message** Invalid cause value encountered in message: message ignored

**Parameters** User ID/Script Name, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens during user profile, call script, and Association Table manipulation. An invalid cause is encountered in the message from the user session. The message received is ignored.

**Impact** Loss of that particular message.

**Recovery** No user intervention is needed.

### 2034

**Log message** Fail to write lock type into the session list: operation aborted

**Parameters** User ID/Script Name, Process ID, Action Type, Cause, and Procedure where the error occurred

**Description** This happens when the user session registers with the CCR system manager during user login. The software failed to write the Lock Type in the session list. The session is allowed, but is granted view access only.

**Impact** No write access is granted until the problem is fixed.

**Recovery** No user intervention is needed.

### 2036

**Log message** Unable to initialize shared memory for inter-process communication.

**Parameters** Component, Object, and Function

**Description** The state of the link between Meridian 1 and the CCR Module is unknown and the program is unable to communicate link status between processes.

**Impact** If the link is up, there is no impact. If the link is down, the system is unaware of the fact (default link state is up).

**Recovery** Examine the CCR log and SysLog files for evidence of related errors. If system functionality is affected, restart the application.

### 2037

**Log message** Unable to obtain shared memory for inter-process communication

**Parameters** Component, Object, Function, and Miscellaneous error information

**Description** The state of the link between Meridian 1 and the CCR Module is unknown and the program is unable to communicate link status between processes.

**Impact** If the link is up, there is no impact. If the link is down, the system is unaware of the fact (default link state is up).

**Recovery** Examine the CCR log and SysLog files for evidence of related errors. If system functionality is affected, restart the application.

### 2039

**Log message** ACD DN statistics request failed

**Parameters** Component, Object, Function, Miscellaneous error information, and Cause

7: Invalid Customer Number

32: Invalid ACD DN

**Description** A request for statistics failed, either because of a customer number mismatch between Meridian 1 and the CCR Module, or because the ACD DN is not configured on Meridian 1.

**Impact** Calls will not be treated correctly without valid statistics.

**Recovery** Recovery differs according to the cause.

7: Correct the customer number on the CCR Module if it is incorrect.

32: Remove all references to the ACD DN from the CCR script or Variable Table, or define the ACD DN on the Meridian 1.

### 2040

**Log message** Death of process due to unexpected signal

**Parameters** Component (Application Script Editor or Application Validation Engine), Object, Function, and Miscellaneous error information

**Description** An unexpected signal is encountered while a user is editing or validating a script.

**Impact** If the user is editing a script when this error occurs, the editing changes will be lost and the user returned to the script manager window. If the user is validating a script, the validation process ends with a validation failed message.

**Recovery** The user should reenter the script editor or revalidate the script and continue. Report the occurrence to your Nortel support personnel.

### 2041

**Log message** ACD statistics start request failed

**Parameters** Component, Object, Function, Cause 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11

1. Bad Association ID
2. Error occurred trying to send command to SL-1
3. Bad Customer Number
4. Target node's SRQL has been reached
5. Target node's SRL has been reached
6. D-Channel failure or target unreachable
7. Source node Home DN undefined
8. Enhanced Network Routing package not equipped
9. Resend timer expired
10. Not all statistics requested are available (warning)
11. An invalid DN was given

**Description** The statistics request about a particular CDN failed.

**Impact** The statistics about a particular CDN cannot be collected. This could result in a script or variable table installation failing.

**Recovery** Look at the cause field of the error message and fix the problem.

### 2042

**Log message** ACD statistics stop request failed

**Parameters** Component, Object, Function, Cause 1, 2

1: Bad Statistics ID
2: Error occurred trying to send command to SL-1

**Description** The statistics stop request failed.

**Impact** The statistics about a particular CDN cannot be stopped.

**Recovery** Restart the CCR application.

### 2043

**Log message** CDN is de-acquired by tsmain

**Parameters** Component, Object, Function, Cause 3

3: A system error occurred.

**Description** The CDN has been released forcefully by the system due to a system problem.

**Impact** The CDN is released from the MSL-1 point of view. All calls to this CDN will be defaulted.

**Recovery** The user needs to remove the CDN from the Association Table as well. If this is unsuccessful, CCR needs to be restarted.

### 2044

**Log message** CDN acquire error occurred

**Parameters** Component, Object, Function, Cause 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11

1. Bad Device ID
2. Bad DN
3. Invalid VC Class
4. Invalid ACD Position ID
5. Device is currently locked by another application
6. Cannot initialize device
7. Device already acquired by application
8. Device already monitored by application
9. Bad customer number
10. Invalid reason
11. Device locked by application

**Description** The CDN acquire request for a CDN failed due to the cause in the Cause field.

**Impact** Since the acquire was not successful, the CDN cannot be used.

**Recovery** Look at the cause field of the error message to find out the reason. Try to remove the CDN and reenter it after the problem has been corrected. If this does not work, restart the CCR application.

### 2045

**Log message** CDN acquire release error occurred

**Parameters** None

**Description** The CDN acquire release request for a CDN failed.

**Impact** The CDN which needs to be released has not been released.

**Recovery** Try to release the CDN again. No recovery is necessary.

### 2046

**Log message** CDN state change request failed

**Parameters** Component, Object, Function, Cause 1, 2, 3 and 4

1. Bad Device ID
2. Error occurred trying to send command to SL-1
3. Invalid Reason
4. Cannot change CDN state

**Description** The CDN state change response indicates that the request was not successful either because there is a synchronization problem, or the CDN device state cannot be changed.

**Impact** The CDN state is not changed.

**Recovery** Retry the request. If this fails, restart the CCR application.

### 2047

**Log message** Application registration error occurred

**Parameters** Component, Object, Function, Cause 1, 2, 3, 4

1. Bad Application ID
2. Bad Service Number
3. Bad Machine Name
4. Bad Customer Number

**Description** The CCR application registration response message shows that the registration request was not successful.

**Impact** The CCR system will restart.

**Recovery** After the CCR restart, the problem should be cleared automatically. Check the cause field of the error message for more information.

### 2048

**Log message** An invalid reason was found in a message

**Parameters** Component, Object, Function, Cause 3

3. SL1 Error

**Description** The reason field of the returned message response is not recognized by CCR as a valid reason.

**Impact** This message will be discarded. This error indicates some unknown errors occurred through the communication.

### 2050

**Log message** CDN is in a wrong state

**Parameters** Component, Object, Function

**Description** During a CDN acquire or release, the CDN state was unrecognizable.

**Impact** The CDN will be left in an unrecognized state, thus calls cannot be made against this CDN.

**Recovery** Restart the CCR application.

### 2051

**Log message** Continuity test failed—unable to answer the poll

**Parameters** Component, Object, Function, Cause 1

1. Invalid State

**Description** The continuity test polling failed because CCR is not in a valid state.

**Impact** The CCR application will restart itself.

**Recovery** No user intervention is necessary. After the CCR restart, everything should return to normal.

### 2052

**Log message** Call treatment was not executed successfully

**Parameters** Script Name, Script Command, Parameter, Component, Object, Function, Cause

6: Invalid Device ID was given
7: Invalid DN was given
8: Bad queuing priority was specified
9: Request failed on the MLS-1 for an unspecified reason
10: ACD queue is in Night Service. Call cannot be placed in a queue that is in Night Service
11: Call was already placed in queue by a previous IVR request or by a previous queue request
12: Call is not in specified queue
13: Call cannot be given busy tone, since it is an unanswered non-ISDN-CO or Japan DID trunk call. The call has been sent to the default ACD-DN.
14: An invalid Give IVR treatment was specified
15: The first command received for a call cannot be this treatment
16: Call originator is attendant and is not allowed to receive IVR/RAN/MUSIC
17: Call originator is a no hold Conference and is not allowed to receive IVR/RAN/MUSIC
18: Invalid RAN/MUSIC route
19: RAN or tone connection is blocked

**Description** The call command request was rejected due to incorrect information being put into the request message.

**Impact** This error implies there are call processing errors occurring.

**Recovery** Refer to the cause code in the error log message and fix the problem accordingly.

### 5001

**Log message** Flow control level 1 indication received from the Meridian 1. Refer to "Notes on flow control", CCR message 2012.

**Parameters** None

**Description** A flow control level 1 indication (see "Notes on flow control", following message 2012) was issued by Meridian 1, indicating that the Meridian 1 inbound traffic flow occasionally exceeds configured limits on Meridian 1. The system may be temporarily operating above its capacity. A subsequent flow control level 0 indicates when the system is again operating at normal capacity.

**Impact** Indication that message traffic exceeds what Meridian 1 is configured to expect. It has no immediate impact, but could be followed by a flow control 2 or 3 error.

**Recovery** If flow control indication does not return to 0, especially if the situation occurs when call volume is below normal, check configuration parameters on Meridian 1 and change them if necessary. If configuration is correct and the problem persists, it indicates the system is running above capacity.

### 5002

**Log message** User session does not exist: deleting user from the session list

**Parameters** User ID, Process ID, Lock Type, and Procedure where the error occurred

**Description** This happens when the call processing software restarts, at midnight or during shutdown. If the user session does not exist, the software deletes it from the session list.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5003

**Log message** Unrecognized file found: file is moved to the trash directory

**Parameters** File Name and Procedure

**Description** The software found an unrecognized file in the specified directory. The file is moved to the Trash Directory. This happens during midnight routines, start-up, or shutdown.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5004

**Log message** User profile does not exist: delete the profile from the profile list

**Parameters** User ID, User Name, and Procedure where the error occurred

**Description** The user profile does not exist. The software is deleting it from the profile list. This happens during midnight routines and shutdown.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5005

**Log message** User name in profile doesn't match the profile list: name updated

**Parameters** User ID, User Name, and Procedure where the error occurred

**Description** This happens during midnight routines or shutdown. The user name in the profile does not match the user name in the profile entry of the profile list. The name in the profile list entry is updated.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5006

**Log message** An existing profile is not in the profile list: list updated

**Parameters** User ID, User Name, and Procedure where the error occurred

**Description** This happens during midnight or shutdown. The user profile actually exists, but is not in the profile list. The profile entry is inserted into the profile list.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5007

**Log message** Invalid script state: state updated

**Parameters** Script Name, Script State, and Procedure where the error occurred

**Description** An invalid state was found for the specified script in the script list. The script state is updated and all associated files are moved to the Trash Directory.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5008

**Log message** Script source file doesn't exist: delete entry from script list

**Parameters** Script Name and Procedure where the error occurred

**Description** This happens during midnight or shutdown. The software could not find a script source file. The script entry is deleted from the script list.

**Impact** No system impact.

**Recovery** No user intervention is needed.

### 5009

**Log message** Existing script source file not in script list: entry added

**Parameters** Script Name and Procedure where the error occurred

**Description** This happens during midnight or shutdown. The software found an existing script source file, but there is no script entry in the script list. The script entry is inserted.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5010

**Log message** Script object file doesn't exist: reset state in script list

**Parameters** Script Name, Script State, and Procedure where the error occurred

**Description** The script object file does not exist. The software reset the state of the script in the script list and moved all associated files to the Trash Directory.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5011

**Log message** Script object file should not exist: file removed

**Parameters** Script Name and Procedure where the error occurred

**Description** The software found a script object file in the file system, but there is no script entry in the script list. All associated files are moved to the Trash Directory. This happens during midnight routines or shutdown.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5012

**Log message** Script error file should not exist: file removed

**Parameters** Script Name and Procedure where the error occurred

**Description** This happens during midnight routines or shutdown. The software found a script error file in the file system, but there is no script entry in the script list. The file is moved to the Trash Directory.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5013

**Log message** Script link file does not exist: reset state in script list

**Parameters** Script Name, Script State, and Procedure where the error occurred

**Description** This happens during midnight routines or shutdown. The script link file does not exist. The state in the script list is reset and all associated files moved to the Trash Directory.

**Impact** No system impact.

**Recovery** No user intervention is needed.

### 5014

**Log message** Script link file should not exist: file removed.

**Parameters** Script Name and Procedure where the error occurred.

**Description** This happens during midnight routines or shutdown. The software found a script link file in the file system, but there is no script entry in the script list. The file is moved to the Trash Directory.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 5015

**Log message** System start-up in progress: message ignored until start-up completes

**Parameters** User ID, Script Name, Process ID, Action Type, Cause, Lock Type, and Procedure.

**Description** The call processing software has not yet synchronized with the CCR system manager as part of the start-up procedures. Any message received will be ignored.

**Impact** There is no system impact.

**Recovery** Wait until the system is completely started up before logging in to the application.

### 5016

**Log message** User session is not registered: message ignored

**Parameters** User ID, Process ID, Action Type, Cause, and Procedure, Script Name, Process ID, Action type, Cause, and Procedure
User ID, Process ID, and Procedure
User ID, Process ID, Lock Type, and Procedure
Process ID, Action Type, Cause, and Procedure

**Description** The user session is not registered with the CCR system manager and is, therefore, an invalid user session. The message is ignored.

**Impact** There is no system impact.

**Recovery** Log out of the application and log back in.

### 5017

**Log message** User session has view access only: message ignored

**Parameters** User ID, Script Name, Process ID, Action Type, Cause, and Procedure

**Description** The user session cannot perform a write transaction with view access only. The message is ignored.

**Impact** There is no system impact.

**Recovery** Log out and log back in to gain write access (if there is no other user already logged in with write access).

### 5018

**Log message** Request to Change CDN to controlled mode timed out

**Parameters** Component, Object, Function, and CDN

**Description** The request to change the CDN to controlled mode has timed out.

**Impact** Calls cannot be controlled by that CDN.

**Recovery** Ensure that the CDN is configured on the Meridian 1. Remove the CDN from the Association Table if that CDN is not configured.

### 5019

**Log message** Statistics timed out on Meridian 1

**Parameters** Component, Object, Function, and ACD DN

**Description** The statistics request for the ACD DN has timed out.

**Impact** Any script using an intrinsic with this ACD DN will not evaluate correctly.

**Recovery** Ensure that the ACD DN is configured on Meridian 1. Do not use an ACD DN in a script if the DN is not configured on the Meridian 1.

### 5020

**Log message** Request to change CDN to default mode timed out

**Parameters** Component, Object, Function, and CDN

**Impact** There is no system impact.

**Recovery** System will recover automatically.

### 5021

**Log message** Call removed from system due to system time-out

**Parameters** Component, Object, Function, CDN and Miscellaneous information

**Description** A duplicate call id was detected by the software. Since the old call has existed in the system for more than 2 hours, the old call will be released and the new call will be accepted by the system instead. The Call Abandoned or the Call Answered message might have been lost.

**Impact** No system impact. However, this may imply a message loss situation has occurred.

**Recovery** No user intervention is needed.

### 5022

**Log message** All active associations in association table deactivated

**Parameters** None

**Description** The CCR data contains an association table that has more active associations than is allowed for the installed CCR package. All associations have been changed to the "OFF" state. The active association limit is displayed in the data section of this log event.

**Recovery** The user may enter a CCR user session and manually activate the associations up to the active association limit for the installed CCR.

### 5023

**Log message** Call removed from system due to system audit - calls older than 2 hours.

**Parameters** Component, Object, Function, and Miscellaneous information

**Description** The system checks on all outstanding calls once every 30 minutes. Calls older than the MAX_AUDIT_TIME (currently set at two hours), will be destroyed automatically.

**Impact** There is no system impact.

**Recovery** No user intervention is needed.

### 6001

**Log message** Invalid value found in message

**Parameters** Cause 1, 2, or 3 and Message Type

1: Invalid list type value

2: Invalid cause value

3: Invalid action type

**Description** An invalid field in a message has been detected.

**Impact** There is no system impact.

**Recovery** This occurrence may indicate a software error, but has no operational impact on the system.

### 6002

**Log message** Meridian 1 link up

**Parameters** None

**Description** The communications software has been able to re-establish the path with Meridian 1 after a previous failure. The application is now fully operational again.

**Impact** There is no system impact.

**Recovery** None

### 6003

**Log message** User logged in

**Parameters** User ID

**Description** A user has logged in to the application.

**Impact** There is no system impact.

**Recovery** None

### 6004

**Log message** User logged off

**Parameters** User ID

**Description** A user has logged out of the application.

**Impact** There is no system impact.

**Recovery** None

### 6005

**Log message** Variable Table change initiated

**Parameters** User ID

**Description** A user has requested that a new Variable Table be activated. The message is followed either by a successful completion or by a failure message.

**Impact** There is no system impact.

**Recovery** None

### 6006

**Log message** Variable Table change completed

**Parameters** User ID

**Description** A previously-requested Variable Table activation has been successfully completed.

**Impact** A new Variable Table is now active in call processing.

**Recovery** None

### 6007

**Log message** Association Table change initiated

**Parameters** User ID

**Description** A user requested activation of a new Association Table. The message is followed by a successful completion or by a failure message.

**Impact** There is no system impact.

**Recovery** None

### 6008

**Log message** Association Table change completed

**Parameters** User ID

**Description** A previously requested Association Table activation has been successfully completed.

**Impact** A new Association Table is now active in call processing.

**Recovery** None

### 6009

**Log message** Script installation initiated

**Parameters** User ID and Script Name

**Description** A user has requested script installation. The message is followed either by a successful completion or by a failure message.

**Impact** There is no system impact.

**Recovery** None

### 6010

**Log message** Script installation completed

**Parameters** User ID and Script Name

**Description** A previously requested script installation has been successfully completed.

**Impact** The new script is now ready for use in active call processing.

**Recovery** None

### 6011

**Log message** Script removal initiated

**Parameters** User ID and Script Name

**Description** A user has requested that a script be removed. The message is followed either by a successful completion or by a failure message.

**Impact** There is no system impact.

**Recovery** None

### 6012

**Log message** Script removal completed

**Parameters** User ID and Script Name

**Description** A previously requested script removal has been successfully completed.

**Impact** The script is now no longer available to active call processing. The contents of the script can now be edited and changed if required.

**Recovery** None

### 6013

**Log message** Script deleted

**Parameters** User ID and Script Name

**Description** A script has been deleted from the system.

**Impact** The script has been deleted from the disk.

**Recovery** None

### 6014

**Log message** A new User ID has been added to the application

**Parameters** User ID

**Description** A new User ID has been added to the application.

**Impact** The new User ID can now be used to log in to the application.

**Recovery** None

### 6015

**Log message** A User ID has been deleted from the application

**Parameters** User ID

**Description** A User ID has been deleted from the application.

**Impact** The User ID can no longer be used to log in to the application.

**Recovery** None

### 6016

**Log message** Application shut down by user request

**Parameters** None

**Description** A shutdown request was received from the CCR Module software and a graceful shutdown was done by the software.

**Impact** The application shuts itself down and has to be restarted before it will function again.

**Recovery** None

### 6017

**Log message** Application started

**Parameters** None

**Description** The application has been started up following a user request.

**Impact** The application will be ready as soon as the start-up procedure is completed.

**Recovery** None

### 6018

**Log message** Flow control level 0 indication received from Meridian 1. Refer to “Notes on flow control”, CCR message 2012.

**Parameters** None

**Description** A flow control level 0 indication (see “Notes on flow control” following message 2012) was received from Meridian 1. This notification indicates that previous flow control or overload conditions that have been encountered are now cleared.

**Impact** System operation is returned to normal.

**Recovery** None

### 6019

**Log message** Contact has been established with Meridian 1.

**Parameters** None

**Description** The call processing software has successfully completed the start-up communications sequence and is now in contact with the software on Meridian 1; it is ready to start active call processing.

**Impact** The application is ready to become operational.

**Recovery** None

### 6020

**Log message** User session forced to log out by the software

**Parameters** User ID, Process ID, Lock Type, and Procedure where the error occurred.

**Description** The user session did not log out within the given time during an application shutdown. The session was ended by the CCR system manager.

**Impact** All unsaved changes were lost.

**Recovery** None

### 6021

**Log message** CCR system software is shutting down upon user request.

**Parameters** None

**Description** The CCR system manager is going down gracefully after receiving the shutdown request from the CCR Module software.

**Impact** No system impact

**Recovery** None

### 6022

**Log message** IVR got canceled.

**Parameters** None

**Description** A call was receiving IVR but was interrupted. This will only occur with the Give Interruptible IVR treatment.

**Impact** There is no system impact.

**Recovery** None

### 6023

**Log message** Conversion: Script being revalidated

**Parameters** Script name

**Description** The script has been revalidated because the validator version number has changed.

**Impact** The application will take longer to start up with conversion. After the scripts are finished validating, normal CCR start-up will resume.

**Recovery** None

### 6024

**Log message** Error Filtering summary report

**Parameters** Component, Object, Function, Data

**Description** The Error Filtering feature gives a summary report of all the filtering errors that occurred in the system since the last report.

**Impact** No impact to the system. Any errors reported should be handled according to their own recovery suggestion.

**Recovery** None

# Chapter 8: Recovery/replacement procedures

This chapter contains all software and hardware recovery procedures that can be performed in the field.

These procedures include the following:

- software powerdown and restart
- hardware powerdown and restart
- various hardware replacement procedures
- reinstallation (initializing the system from tape)

# Powerdown and restart procedures

## Procedure 1: Software powerdown

**1** Log in as **maint**. The default password is **maint**.

**2** At the “maint>” prompt, type **powerdown** and press [Return].

The following messages appear:

**Figure 14**
**Powerdown notification message screen 1**

```
Would you like to power down or reboot?
Powering down allows you to turn the system off.
Rebooting will automatically restart the system.
Enter p to power down, r to reboot, or q to quit:
```

**3** When prompted to power down, reboot, or quit, type **p** and press [Return] to confirm that you wish to power down.

The following messages appear:

**Figure 15**
**Powerdown notification message screen 2**

```
Running subcommand 'powerdown' from menu 'machinemgmt',
MACHINE MANAGEMENT
```

***Note:*** If more than one user is logged in to the system, a list of the logged in users will appear on the screen.

```
Users currently logged in:
disttech   console      Oct 26 13:38
root       tty01        Oct 25 21:20
Once started, a powerdown CANNOT BE STOPPED.
Do you want to start an express powerdown? [y, n, ?, q]
```

**4** If software users are logged in, a list appears. Whether a list appears or not, you are prompted to start an express powerdown. If no list appears, or if you do not wish to alert all logged-in users, type **y** and press [Return].

If you wish to alert all users currently logged into the system of the powerdown, type **n** and press [Return]. Then you are prompted to enter the number of seconds the system should wait after the warning message. Type the number of seconds that will allow the users to save their work and log off. Then press [Return].

**Procedure 1: Software powerdown (continued)**

The information shown in Figure 16 appears on the screen.

**Figure 16**
**Shutdown message screen**

```
Shutdown started.    Mon Sep 20 12:17:20 PDT 1993

Broadcast Message from root (console) on sysV68 Mon Sep 20 12:17:21...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.


INIT: New run level: 0
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications
/usr/bin/maint: /dev/tty: cannot create
cron aborted: SIGTERM

The system is down.

NOTICE: System Halt Requested (0)

NOTICE: System secured for powering down.
```

## Procedure 2: SBC restart

**1** Log in as **maint**. The default password is **maint**.

**2** At the “maint>” prompt, type **powerdown** and press [Return].

The following messages appear:

**Figure 17**
**Powerdown notification message screen 1**

```
Would you like to power down or reboot?
Powering down allows you to turn the system off.
Rebooting will automatically restart the system.
Enter p to power down, r to reboot, or q to quit:
```

**3** Type **r** and press [Return] to confirm that you wish to reboot.

The following messages appear:

**Figure 18**
**Powerdown notification message screen 2**

```
Running subcommand 'reboot' from menu 'machinemgmt',
MACHINE MANAGEMENT
```

***Note:*** If more than one user is logged into the system, a list of the logged in users will appear on the screen.

```
Users currently logged in:
disttech   console      Oct 26 13:38
root       tty01        Oct 25 21:20

Once started, a reboot CANNOT BE STOPPED.
Do you want to start an express reboot? [y, n, ?, q]
```

**4** You are prompted to start an express reboot. Type **y** and press [Return].

If you wish to alert all users currently logged into the system of the reboot, type **n** and press [Return]. Then you are prompted to enter the number of seconds the system should wait after the warning message. Type the number of seconds that will allow the users to save their work and log off. Then press [Return].

The information shown in Figure 19 appears on the screen.

**Procedure 2: SBC restart (continued)**

**Figure 19**
**Shutdown messages**

```
Shutdown started.    Mon Sep 20 12:17:20 PDT 1993

Broadcast Message from root (console) on sysV68 Mon Sep 20 12:17:21...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

INIT: New run level: 6
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications
/usr/bin/maint: /dev/tty: cannot create
cron aborted: SIGTERM

The system is down.
NOTICE: System Reboot Requested (0)
```

Reboot messages appear.

## Procedure 3: Hardware powerdown

1. Complete Procedure 1: Software powerdown.
2. When the system confirms that it is secured for powering down, set the MPDU circuit breaker for the Application Module to OFF (down) or press the black power pushbutton on the IPE Module.

   The top breaker powers the Application Module next to the MPDU (on the left-hand side facing the AEM). The bottom breaker powers the second module.

   Wait 60 seconds before adding or removing hardware, or before trying to restore power.

## Procedure 4: Power up the Application Module or IPE Module

1. Set the MPDU circuit breaker for the Application Module to ON (up) or press the power pushbutton on the IPE Module.

   Reboot messages appear on the system console. If the CCR application has been configured for auto-start, the application starts up automatically.
2. If the CCR application does not have auto-start enabled, log in as **maint**.
3. At the “maint>” prompt, type **applstart** and press [Return].

   For more information on auto-start, refer to the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

# Hardware replacement procedures

**CAUTION**
**Risk of hardware damage**
Removing or adding hardware in the Meridian Link Module without performing proper powerdown procedures can damage hardware, corrupt application software, or interfere with call processing.

## Procedure 5: Replace the Application Module power supply

1. Complete Procedure 3: Hardware powerdown.
2. Loosen the screws at the top and bottom of the power supply.
3. Pull the power supply out of the Application Module.
4. Slide the replacement power supply into the Application Module.
5. Tighten the screws on the front of the power supply.
6. Restore power to the Application Module.

## Procedure 6: Replace the Application Module disk/tape unit

1. Complete Procedure 3: Hardware powerdown.
2. Loosen the screws at the top and bottom of the disk/tape unit.
3. Use the ejectors to unlock the disk/tape unit.
4. Pull the unit out of the Application Module.
5. Slide the replacement unit into the Application Module.
6. Tighten the screws on the front of the unit. Be careful not to over-tighten the screws.
7. Restore power to the Application Module.
8. Go to the reinstallation procedures, discussed later in this chapter.

## Procedure 7: Replace the Application Module MVME147/167 SBC card

1. Complete Procedure 3: Hardware powerdown.
2. Loosen the screws at the top and bottom of the card.
3. Use the ejectors to unlock the card.
4. Pull the card out of the Application Module.
5. Slide the replacement card into the Application Module. Firmly press the middle of the faceplate to seat the card.
6. Tighten the screws on the faceplate of the replacement card.

   To configure an Application Module with an MVME147 card, follow Procedure 8. To configure an IPE Module or an Application Module with an MVME167 card, follow Procedure 9.
7. Restore power to the Application Module by setting the MPDU circuit breaker to ON (up).

   The system reboots into the “Console Login:” prompt.

## Procedure 8: Configure the Application Module MVME147 SBC card

MVME147 SBC cards may be shipped with the battery backed-up RAM (BBRAM) values set to their original factory defaults. To set the BBRAM information for use with the Application Module, follow the procedure described below.

**ATTENTION**

Do not press the [Backspace] or [Delete] key when the operating system is not installed, or you may drop out of the procedure into a previous menu or out of the installation procedure altogether. Use # (hold the [Shift] key and press 3) to backspace.

If you drop out of the procedure (into the "#" prompt), start the reinstallation procedure from the beginning.

This procedure assumes that you have completed Procedures 1 and 3, and you have just installed a new MVME147 SBC card using Procedure 7.

**1** Set the MPDU circuit breaker to ON (up).

The following screen appears.

**Figure 20**
**System restart messages (MVME147 card)**

```
Copyright Motorola Inc. 1989,1990, All Rights Reserved
VME147 Monitor/Debugger Release 2.42 - 8/1/94
CPU running at 25 MHz

FPC  passed test
MMU  passed test

COLD Start

Onboard RAM start = $00000000, stop = $007FFFFF
No offboard RAM detected
```

**2** When messages begin to appear, type **h**.

**Procedure 8: Configure the Application Module MVME147 SBC card (continued)**

**3** Write down the release level of the monitor/debugger (known as firmware level). In Figure 20, this is shown as 2.42. This number will be used later in this procedure.

**Figure 21**
**Start-up interrupt menu**

```
1) Continue System Start-up
2) Select Alternate Boot Device
3) Go To System Debugger
4) Initiate Service Call
5) Display System Test Errors
6) Dump Memory to Tape
Enter Menu #:
```

**4** The start-up interrupt menu appears. Type **3** and press [Return] to enter the system debugger.

**5** At the "147-Diag>" prompt, type **iot;t** and press [Return].

The system performs a scan of disk/tape controllers. Figure 22 shows the results of the scan.

**Figure 22**
**Results of disk/tape controller scan**

```
Scanning system for available disk/tape controllers........
    Disk Controllers Available
LUN   Type     Address   # dev
0     VME147  $FFFE4000   1   SCSI Addr = 0 - CDC    ST1126N        9204
1     VME147  $FFFE4000   1   SCSI Addr = 4 - TEAC   MT-2ST/N50  RV D
      VME147  $FFFE4000   *   SCSI Addr = 7

Align LUNs to SCSI addresses [Y,N] N?
```

**6** Write down the type of disk drive installed in SCSI address 0. This information is required later in the procedure. (In the example shown above, the drive is a CDC ST1126N.)

**7** You are prompted to align LUNs. Type **y** and press [Return].

**Procedure 8: Configure the Application Module MVME147 SBC card (continued)**

**Figure 23**
**Disk/tape controller list after aligning LUNs**

```
Disk Controllers Available
 LUN   Type    Address  # dev
 0   VME147  $FFFE4000   1  SCSI Addr = 0 - CDC   ST1126N    9204
 1   VME147  $FFFE4000   1  SCSI Addr = 1
 2   VME147  $FFFE4000   1  SCSI Addr = 2
 3   VME147  $FFFE4000   1  SCSI Addr = 3
 4   VME147  $FFFE4000   1  SCSI Addr = 4 - TEAC  MT-2ST/N50 RV D
 5   VME147  $FFFE4000   1  SCSI Addr = 5
 6   VME147  $FFFE4000   1  SCSI Addr = 6
     VME147  $FFFE4000   *  SCSI Addr = 7

Save map in NVRAM [Y,N] N?
```

**8** The LUN results appear. Type **y** and press [Return] to save the map in non-volatile memory.

**9** At the "147-Diag>" prompt, type **ab** and press [Return] to set autoboot enable.

Autoboot enable prompts appear. Answer them as indicated below.

**Figure 24**
**Autoboot enable prompts**

```
Controller LUN  = 00? <cr>
Device LUN  = 00? <cr>
Default String =   ? <cr>
Boot at Power-up only or any board Reset [P,R] = P? r <cr>
On any board Reset:
Auto Boot from Controller 0, Device 0
```

**10** At the "147-Diag>" prompt, type **reset** and press [Return].

The SCSI bus reset prompts appear. Answer them as indicated below.

**Figure 25**
**SCSI bus reset prompts**

```
Reset Local SCSI Bus (Y, N)  N?  y <cr>
Automatic reset of known SCSI Buses on RESET (Y, N) = N?  y <cr>
Cold/Warn Reset flag (C, W) = C?  <cr>
Execute Soft Reset (Y, N)  N?  <cr>
```

**Procedure 8: Configure the Application Module MVME147 SBC card (continued)**

**11** At the "147-Diag>" prompt, type **env** and press [Return].

The environment prompts appear.

**12** Answer the prompts as indicated in Figures 26, 27, or 28, depending on the firmware installed in your system. The firmware release appeared in the start-up messages shown in step 3.

**Figure 26**
**Environment prompts for firmware revision 2.2**

```
Bug or System environment [B,S] = S? s <cr>
SYSTEM V/68 or VERSAdos operating system [S,V] = S? <cr>
Execute/Bypass SST Memory test [E,B] = E? b <cr>
Set VME Chip:
Board ID [0-FF] = $00? <cr>
GCSR base address [0-0F] = $0F? <cr>
Utility Interrupt Mask [0-FE] = $00? <cr>
Utility Interrupt Vector [$20-$30] = $0180? <cr>
```

**Figure 27**
**Environment prompts for firmware revision 2.3**

```
Bug or System environment [B,S] = S? <cr>
Execute/Bypass System Memory Sizing [E,B] = B? <cr>
Execute/Bypass SST Memory test [E,B] = B? <cr>
Set VME Chip:
Board ID(def is 0) [0-FF] = $00? <cr>
GCSR base address offset(def is 0F) [0-0F] = $0F? <cr>
Utility Interrupt Mask(def is 0) [0-FE] = $00? <cr>
Utility Interrupt Vector number(def is 60) [8-F8] = $60? <cr>
VMEbus Interrupt Mask(def is FE) [0-FE] = $FE? <cr>
```

**Procedure 8: Configure the Application Module MVME147 SBC card (continued)**

**Figure 28**
**Environment prompts for firmware revision 2.42**

```
Bug or System environment [B,S] = S? <cr>
Execute/Bypass System Memory Sizing [E,B] = B? <cr>
Execute/Bypass SST Memory test [E,B] = B? <cr>
Set VME Chip:
Board ID(def is 0) [0-FF] = $00? <cr>
GCSR base address offset(def is 0F) [0-0F] = $0F? <cr>
Utility Interrupt Mask(def is 0) [0-FE] = $00? <cr>
Utility Interrupt Vector number(def is 60) [8-F8] = $60? <cr>
VMEbus Interrupt Mask(def is FE) [0-FE] = $FE? <cr>
```

Depending on the previous configuration, the system will reboot automatically or display the “147-Diag>” prompt.

**13** If the system reboots automatically at this point, type **h** as soon as messages begin to appear on the console.

If the system displays the “147-Diag>” prompt, type **menu** then press [Return].

In either case, the start-up interrupt menu appears.

**Figure 29**
**Start-up interrupt menu**

```
1) Continue System Start-up
2) Select Alternate Boot Device
3) Go to System Debugger
4) Initiate Service Call
5) Display System Test Errors
6) Dump Memory to Tape
Enter Menu #:
```

If you want to load the operating system, go to Procedure 19: Load the operating system tape on an Application Module with an MVME147 card.

**14** At the start-up interrupt menu, type **1** and press [Return].

The system reboots into the “Console Login:” prompt.

## Procedure 9: Configure the Application Module MVME167 SBC card or the IPE Module

MVME167 cards and IPE Modules are shipped with auto-boot no-pause disabled, which means that at boot time, it will pause at the "167-Diag>" or "4120-Diag>" prompt. The following configuration is necessary to enable auto-boot no-pause.

**ATTENTION**

Do not press the [Backspace] or [Delete] key when the operating system is not installed, or you may drop out of the procedure into a previous menu or out of the installation procedure altogether. Use # (hold the [Shift] key and press 3) to backspace.

If you drop out of the procedure (into the "#" prompt), start the reinstallation procedure from the beginning.

This procedure assumes that you have completed Procedures 1 and 3, and you have just installed a new IPE Module using Procedure 16 or a new MVME167 card in the Application Module using Procedure 7.

**1** Turn on the power (if it is not already on).

If the "167-Diag>" or "4120-Diag>" prompt appears, go to step 4. If the following messages appear on the console, go to step 2.

**Figure 30**
**System restart messages (MVME167 card or IPE Module)**

```
Copyright Motorola Inc. 1988 - 1992, All Rights Reserved

VME167 Debugger/Diagnostics Release Version 1.4 - 07/22/92
COLD Start

Local Memory Found = 00800000 (&8388608)

MPU Clock Speed = 25Mhz
```

**2** Before the messages start to appear, type **h**. If you are too late, press the Break key.

**Procedure 9: Configure the Application Module MVME167 SBC card or the IPE Module (continued)**

**Figure 31**
**Start-up interrupt menu**

```
1) Continue System Start-up
2) Select Alternate Boot Device
3) Go To System Debugger
4) Initiate Service Call
5) Display System Test Errors
6) Dump Memory to Tape
Enter Menu #:
```

**3** The start-up interrupt menu appears. Type **3** and press [Return] to go to the debugger.

**4** At the “167-Diag>”, “4120-Diag>”, or “4120-Bug>” prompt, type **env** and press [Return].

The environment prompts appear. Answer them as indicated in the following figures. If you make a mistake, quit the process by entering a period (.) at a prompt and answering “**n**” for the last two questions (Update Non-Volatile RAM/Reset Local System). This brings you back to the “167-Diag>” or “4120-Diag>” prompt. Then type **env;d** and press [Return] to undo the mistakes you made and bring back the original default values.

**Procedure 9: Configure the Application Module MVME167 SBC card or the IPE Module (continued)**

**Figure 32**
**Environment prompts (MVME167 card)**

```
Bug or System environment [B/S] = S?  <cr>
Field Service Menu Enable [Y/N] = Y?  <cr>
Remote Start Method Switch [G/M/B/N] = B?  <cr>
Probe System for Supported I/O Controllers [Y/N] = Y?  <cr>
Negate VMEbus SYSFAIL* Always [Y/N] = N?  <cr>
Local SCSI Bus Reset on Debugger Start-up [Y/N] = Y?  <cr>
Local SCSI Bus Negotiations Type [A/S/N] = A?  <cr>
```

*Note:* The prompt "Local SCSI Bus Negotiations Type" may not appear for all MVME167 cards.

```
Ignore CFGA Block on a Hard Disk Boot [Y/N] = Y?  <cr>
Auto Boot Enable [Y/N]  = Y?  <cr>
Auto Boot at power-up only [Y/N] = N?  <cr>
Auto Boot Controller LUN = 00? . <cr>   (Type a period (.) and press [Return].)
```

**Note:** If you changed or reentered any values in Figure 32, you will see two additional prompts, to which you should respond as shown in the following figure.

**Figure 33**
**Additional prompts (IPE Module)**

```
Update Non-Volatile RAM (Y/N)?  y <cr>
Reset Local System (CPU) (Y/N)?  y <cr>
```

**Procedure 9: Configure the Application Module MVME167 SBC card or the IPE Module (continued)**

**Figure 34**
**Environment prompts (IPE Module)**

```
Bug or System environment [B/S] = B?  <cr>
Field Service Menu Enable [Y/N] = N?  <cr>
Probe System for Supported I/O Controllers [Y/N] = Y?  <cr>
Local SCSI Bus Reset on Debugger Start-up [Y/N] = Y?  <cr>
Ignore CFGA Block on a Hard Disk Boot [Y/N] = Y?  <cr>
Auto Boot Enable [Y/N]   = Y?  <cr>
Auto Boot at power-up only [Y/N] = N?  <cr>
Auto Boot Controller LUN = 00? .  <cr>  (Type a period (.) and press [Return].)
```

**Note:** If you changed or reentered any values in Figure 34, you will see two additional prompts, to which you should respond as shown in the following figure.

**Figure 35**
**Additional prompts (IPE Module)**

```
Update Non-Volatile RAM (Y/N)?  y <cr>
Reset Local System (CPU) (Y/N)?  y <cr>
```

The system reboots automatically. Messages start to appear on the console. If you want to reload the operating system, go to Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card.

The system automatically boots into the “Console Login:” prompt. The next time you reboot the system, it will no longer pause at the “167-Diag>” or “4120-Diag>” prompt.

## Procedure 10: Replace the Application Module MVME333-2 XCC card

1. Complete Procedure 3: Hardware powerdown.
2. Loosen the screws at the top and bottom of the card.
3. Use the ejectors to unlock the card.
4. Pull the card out of the Application Module.
5. Check the jumpers on the replacement card (see Table 16).
6. Slide the replacement unit into the Application Module. Firmly press the middle of the faceplate to seat the card.
7. Tighten the screws on the faceplate of the replacement card.
8. Restart power to the Application Module.

**Table 16**
**MVME333-2 XCC card jumper settings**

| Block | Jumper setting |
|---|---|
| K1 | 2 and 4, 6 and 8, 10 and 12, 13–14, 15–16, 23–24 |
| K2 | none |
| K3 | 1–2, 5–6, 7–8, 9–10 |
| K4 | none |
| K5 | 1–2, 3–4 |
| K6 | 5–6 |
| K7 | 5–6 |
| K8 | none |
| K9 | 1–2 |

## Procedure 11: Replace the MVME332XT or MVME332XTS ACC card

1. Complete Procedure 3: Hardware powerdown.
2. Loosen the screws at the top and bottom of the card.
3. Use the ejectors to unlock the card.
4. Pull the card out of the Application Module.
5. Check the switches and jumpers on the replacement card (see Tables 17 and 18).
6. Slide the replacement unit into the Application Module. Press hard in the middle of the faceplate to seat the card.
7. Tighten the screws on the faceplate of the replacement card.
8. Restart power to the Application Module.

**Table 17**
**MVME332XT ACC card switch settings**

| Switch | Position 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| S1 | on | off | off | off | off | on | on | on |
| S2 | off | off | on | on | | | | |

**Table 18**
**MVME332XT ACC card jumper settings**

| Block | Jumper setting |
|---|---|
| J1 | 1–2, 5–6, 7–9, 8–10, 11–12, 15–17 |
| J4 | 1–2 |

## Procedure 12: Replace the NT6D51 transition card

You must remove the Application Module from the AEM to access the transition cards.

1. Complete Procedure 13: Remove the Application Module.
2. Loosen the screws at the top and bottom of the card faceplate (at the rear of the Application Module).
3. Pull the card out of the Application Module.
4. Disconnect the ribbon cable to the card.
5. Connect the ribbon cable to the replacement card.
6. Slide the replacement card into the back of the Application Module. Press hard in the middle of the faceplate to seat the card.
7. Install the screws on the faceplate of the replacement card.
8. Complete Procedure 14: Replace the Application Module, to reinstall the module.

## Procedure 13: Remove the Application Module

You do not need to remove cards, the power supply, or the disk/tape unit from the Application Module before removing the module from the AEM.

**1** Complete Procedure 3: Hardware powerdown.

**2** Perform the following steps at the rear of the Application Module:

- Remove all the covers on the rear of the AEM.
- Tag and disconnect all external cables to the I/O subpanel.
- If you have an I/O subpanel, loosen the five spring-loaded screws that hold the I/O subpanel to the I/O assembly of the AEM. Gently set the panel in the back of the Application Module so the cables do not come in contact with the AEM.
- If you have a universal I/O panel, remove the screws at the edges of the I/O panel. Gently set the panel in the back of the Application Module.
- Detach the orange logic return ground wire that is screwed to the terminal block at the bottom center of the AEM.
- Unplug the yellow and gray cable (NT7D52AA) from the power sense card.
- Unplug the power harness from the connector (P3 or P4) on the rear of the MPDU.

**3** Loosen the four screws on the front of the Application Module.

**4** Hold the Application Module by the handles on each side and pull it out of the AEM. Before the Application Module is completely out, take hold of the bar on the top of the Application Module to lift the module out and down.

## Procedure 14: Replace the Application Module

If you are replacing the Application Module with a new one, retain the cards, power supply, and disk/tape unit from the original Application Module for use as spare components.

This procedure assumes that you have removed the Application Module using Procedure 13.

**1** Carefully lift the Application Module to the AEM and slide it into place, making sure that the cabling is directed properly to the I/O panel.

**2** Tighten the four screws on the front of the Application Module.

**3** Perform the following steps at the rear of the Application Module:

- Plug the power harness into the appropriate connector (P3 or P4) on the rear of the MPDU.
- Plug the yellow and gray cable (NT7D52AA) into the power sense card on the I/O subpanel.
- Attach the orange logic return ground wire to the terminal block at the bottom center of the AEM.
- Tighten the five spring-loaded screws that hold the I/O subpanel to the I/O assembly of the AEM.
- Replace the universal I/O panel using five screws.
- Connect all external cables to the I/O subpanel.
- Replace all covers on the rear of the AEM.

## Procedure 15: Remove the IPE Module

You do not need to turn off the power on the IPE shelf or Option 11 cabinet before removing the IPE Module.

1. Complete Procedure 3: Hardware powerdown.
2. Press the black power pushbutton on the IPE Module to turn the power off.
3. Use the ejectors to loosen the IPE Module, then take a firmer hold on the IPE Module to remove it.

## Procedure 16: Replace the IPE Module

This procedure assumes that you have removed the IPE Module using Procedure 15.

1. Ensure that the power pushbutton is in the off position.
2. Carefully lift the IPE Module to the IPE shelf or Option 11 cabinet and slide it into place.
3. Press firmly on the faceplate to ensure that the module seats into the backplane connections.
4. Press the power pushbutton to turn power on.

## Procedure 17: Replace the Application Module MVME712 transition card

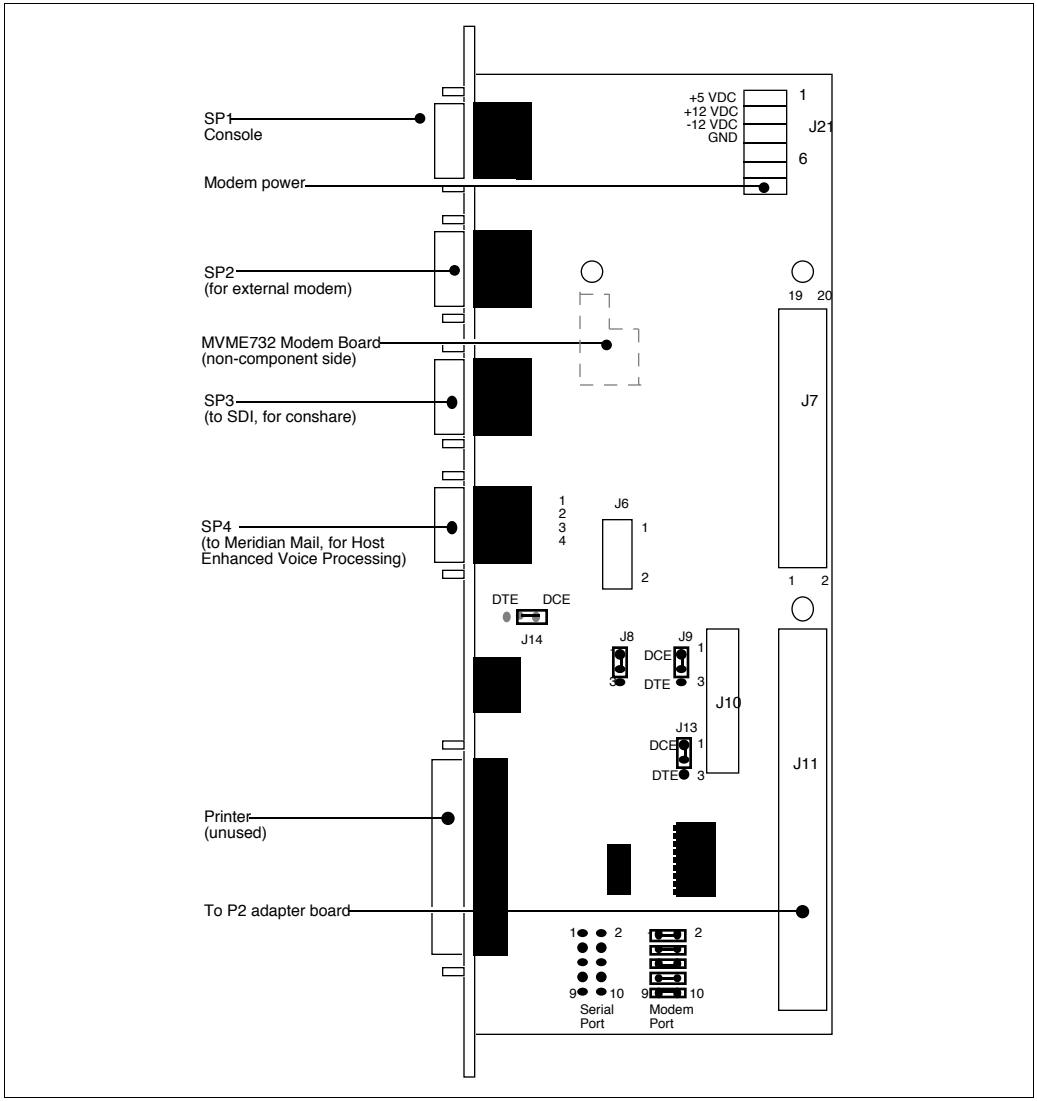
You must remove the Application Module from the AEM to access the transition cards.

1. Complete Procedure 13: Remove the Application Module.
2. Loosen the screws at the top and bottom of the card faceplate (at the rear of the Application Module).
3. Pull the card out of the Application Module.
4. Disconnect the cables to the card.
5. Check the jumpers and cable connections on the replacement card.

   For DCE, check that the jumper is over the top two pins on all jumper locations; for DTE, check that the jumper is over the bottom two pins on all jumper locations. See Figures 36, 37, or 38.
6. Reconnect the cables to the replacement card.
7. Slide the replacement card into the back of the Application Module. Firmly press the middle of the faceplate to seat the card.
8. Install the screws on the faceplate of the replacement card.
9. Complete Procedure 14: Replace the Application Module to reinstall the module.

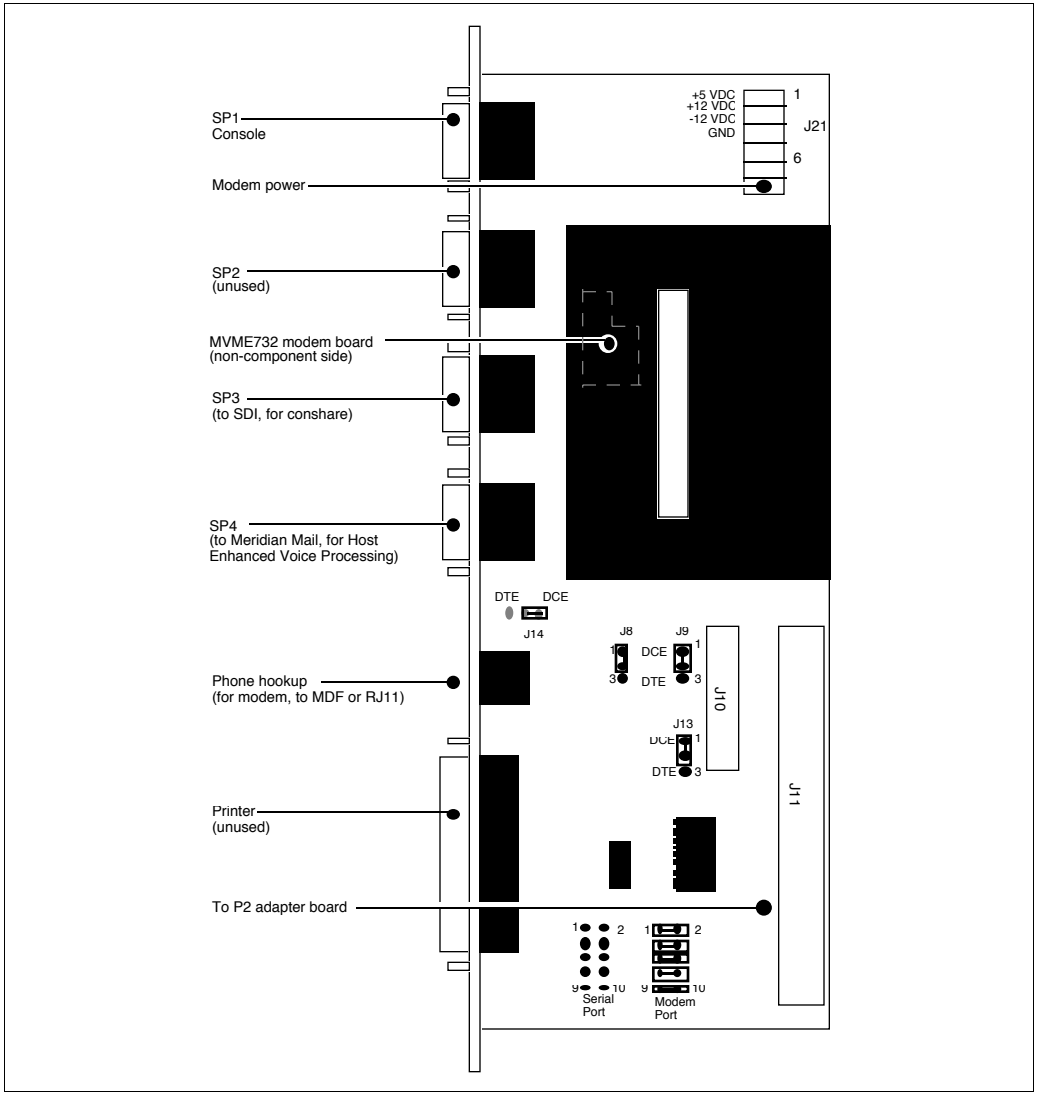
**Procedure 17: Replace the Application Module MVME712 transition card (continued)**

**Figure 36**
**MVME712A transition card configuration**



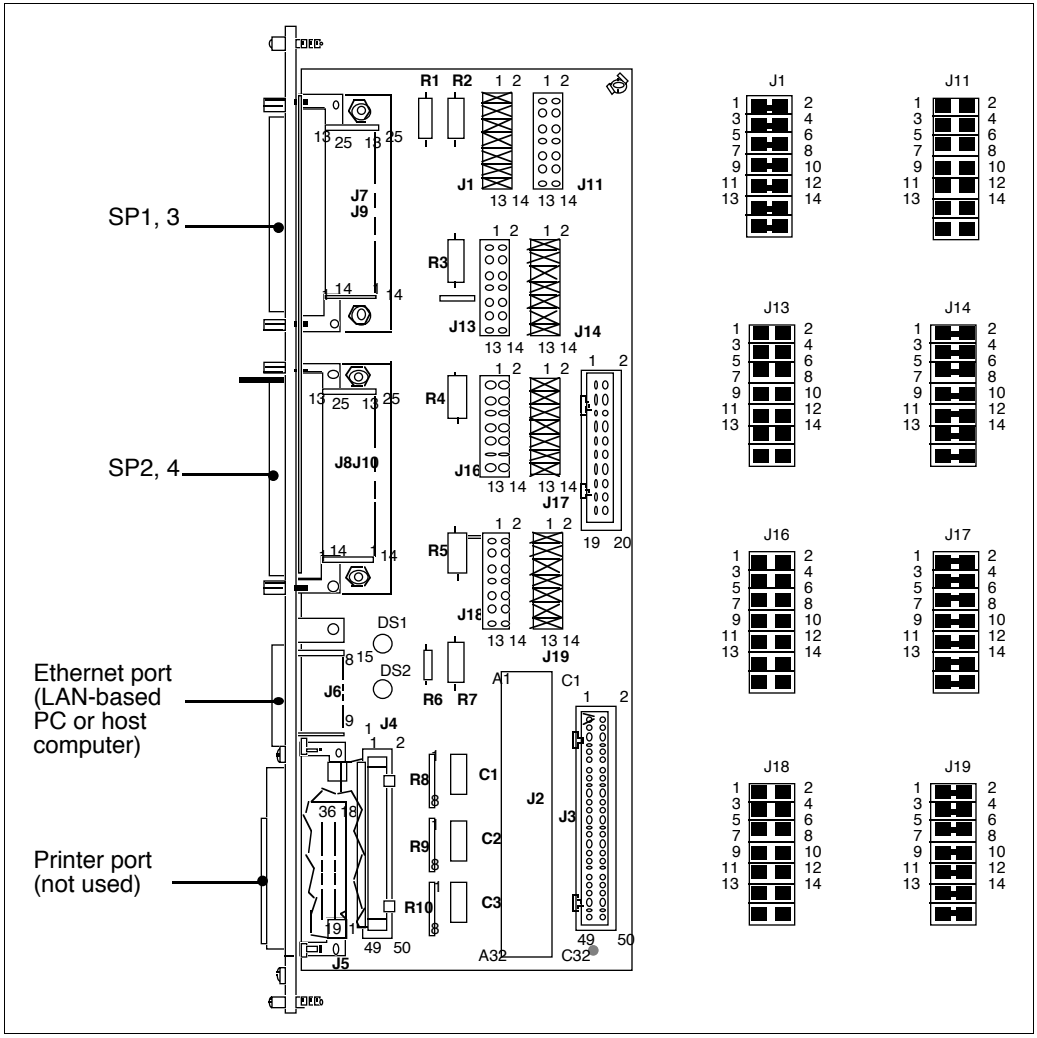
**Procedure 17: Replace the Application Module MVME712 transition card (continued)**

**Figure 37**
**MVME712AM transition card configuration**



**Procedure 17: Replace the Application Module MVME712 transition card (continued)**

**Figure 38**
**MVME712M transition card configuration**



## Procedure 18: Replace or reconfigure the Application Module MVME705B transition card

You must remove the Application Module from the AEM to access the transition cards.

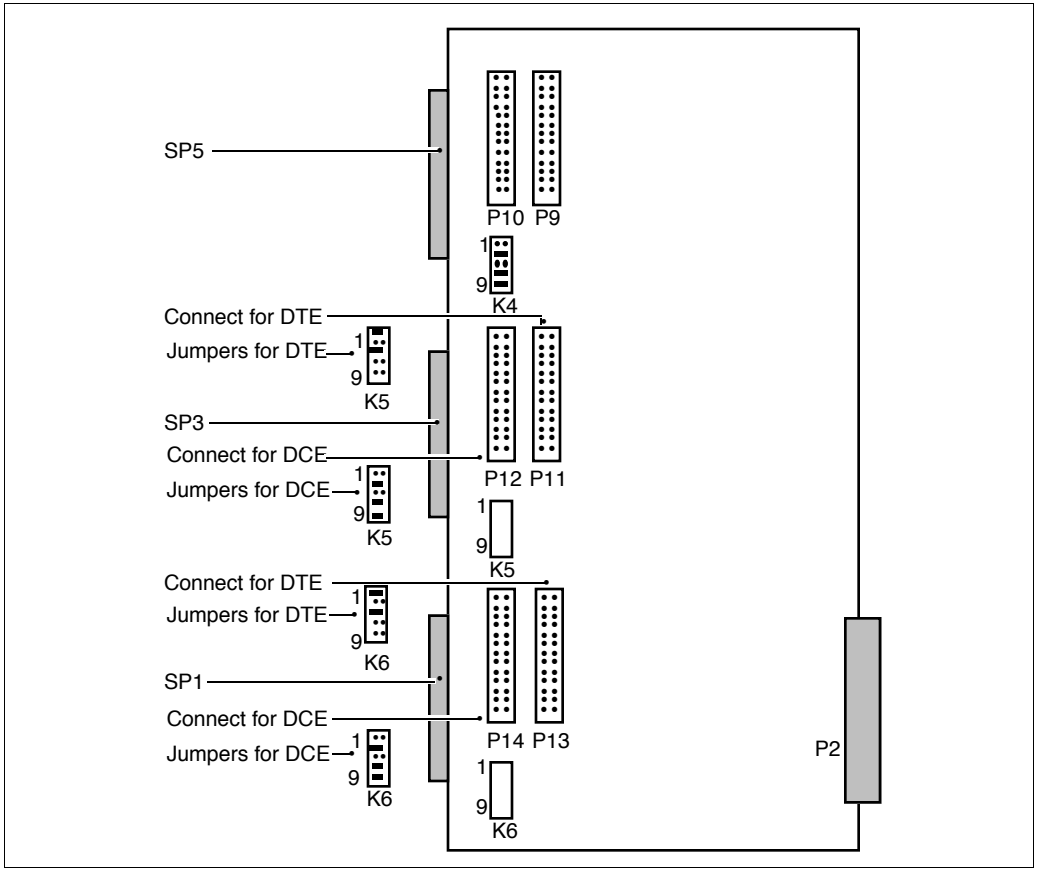
1. Complete Procedure 13: Remove the Application Module.
2. Loosen the screws at the top and bottom of the card faceplate (at the rear of the Application Module).
3. Pull the card out of the Application Module.
4. Disconnect the ribbon cable to the card.
5. Check the jumpers and cable connections on the replacement card or change the settings on the current card to reconfigure it. See Table 19 and Figure 39.
6. Connect the ribbon cable to the replacement or reconfigured card.
7. Slide the replacement or reconfigured card into the back of the Application Module. Firmly press the middle of the faceplate to seat the card.
8. Install the screws on the faceplate of the card.
9. Complete Procedure 14: Replace the Application Module, to reinstall the module.

**Table 19**
**MVME705B jumper settings and cable connections**

| Serial port | DCE mode | DTE mode |
|---|---|---|
| SP1 | On header K6, place jumpers over pins 3-4, 7-8, 9-10<br>Plug the I/O cable into P14 | On header K6, place jumpers over pins 1-2, 5-6<br>Plug the I/O cable into P13 |
| SP3 | On header K5, place jumpers over pins 3-4, 7-8, 9-10<br>Plug the I/O cable into P12 | On header K5, place jumpers over pins 1-2, 5-6<br>Plug the I/O cable into P11 |
| SP5 | Not used | Not used |

**Procedure 18: Replace or reconfigure the Application Module MVME705B transition card (continued)**

**Figure 39**
**MVME705B serial port configuration**



# Software reinstallation—initializing the system from tape

Some events may require you to load the operating system and application software from tape. If the disk drive fails or your system experiences a software problem, reload the software using the tapes delivered with the system. Keep these tapes with your database backups and use the most recent version for these procedures. You only need to perform the backup tape procedure once if you store the backup tape securely.

Allow up to 90 minutes for a complete reinstallation operation.

## Overview of software reinstallation process

The following procedures explain how to perform a software reinstallation.

**Procedure 19** Load the operating system tape on an Application Module with an MVME147 card

**Procedure 20** Load the operating system tape on an IPE Module or an Application Module with an MVME167 card

**Procedure 21** Reboot and go through setup

**Procedure 22** Load the application software from tape

**Procedure 23** Back up configuration files and data files

**Procedure 24** Restore the configuration files and data files from the backup tape

If the configuration data for your application was not backed up properly, see the configuration procedures in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (NTP 553-3202-210).

***Note:*** The procedures in this section show the data that appears on your screen. Do not worry if the messages you see differ slightly from the ones shown here, but watch for error messages.

## Procedure 19: Load the operating system tape on an Application Module with an MVME147 card

This procedure assumes that you have backed up all files and have powered down the Application Module.

**ATTENTION**

Do not press the [Backspace] or [Delete] key when the operating system is not installed, or you may drop out of the procedure into a previous menu or out of the installation procedure altogether. Use # (hold the [Shift] key and press 3) to backspace.

If you drop out of the procedure (into the "#" prompt), start the reinstallation procedure from the beginning.

If you are sure that your MVME147 card has been configured (for example, if you are upgrading software on a working system), skip steps 3–13 and go directly from step 2 to step 14.

**1** Set the appropriate breaker on the MPDU to the ON position.

The following messages appear.

**Figure 40**
**System restart messages (MVME147 card)**

```
Copyright Motorola Inc. 1989,1990,1991, All Rights Reserved
VME147 Monitor/Debugger Release 2.42 - 8/1/91
CPU running at 25 MHz

FPC  passed test
MMU  passed test
COLD Start

Onboard RAM start = $00000000, stop = $007FFFFF
No offboard RAM detected
```

**2** Type **h** immediately, before the next prompt appears. (You have about 5 seconds to do this.)

**3** Write down the firmware release listed on the second message line. Figure 40, for example, shows Release 2.42. You will need this in step 12.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 41**
**Start-up interrupt menu**

```
1) Continue System Start-up
2) Select Alternate Boot Device
3) Go To System Debugger
4) Initiate Service Call
5) Display System Test Errors
6) Dump Memory to Tape
Enter Menu #:
```

**4** The menu in Figure 41 appears. Type **3** and press [Return] to enter the system debugger.

**5** At the "147-Diag>" prompt, type **iot;t** and press [Return].

The system performs a scan of disk/tape controllers (Figure 42).

**Figure 42**
**Results of disk/tape controller scan**

```
Scanning system for available disk/tape controllers........
    Disk Controllers Available
LUN   Type     Address   # dev
0     VME147  $FFFE4000   1   SCSI Addr = 0 - FUJITSU  M2614S        M606
1     VME147  $FFFE4000   1   SCSI Addr = 4 - TEAC   MT-2ST/N50  RV F
      VME147  $FFFE4000   *   SCSI Addr = 7
Align LUNs to SCSI addresses [Y,N] N?
```

**6** Write down the type of disk drive installed in SCSI address 0. This information is required later in the procedure. (In the example shown above, the drive is a Fujitsu M2614S.)

**7** You are prompted to align LUNs. Type **y** and press [Return].

**Figure 43**
**Disk/tape controller list after aligning LUNs**

```
Disk Controllers Available
 LUN   Type    Address  # dev
 0   VME147  $FFFE4000   1  SCSI Addr = 0 - FUJITSU  M2614S     M606
 1   VME147  $FFFE4000   1  SCSI Addr = 1
 2   VME147  $FFFE4000   1  SCSI Addr = 2
 3   VME147  $FFFE4000   1  SCSI Addr = 3
 4   VME147  $FFFE4000   1  SCSI Addr = 4 - TEAC  MT-2ST/N50 RV F
 5   VME147  $FFFE4000   1  SCSI Addr = 5
 6   VME147  $FFFE4000   1  SCSI Addr = 6
     VME147  $FFFE4000   *  SCSI Addr = 7

Save map in NVRAM [Y,N] N?
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**8** The LUN results appear (Figure 43). Type **y** and press [Return] to save the map in non-volatile memory.

**9** The "147-Diag>" prompt reappears. Type **ab** and press [Return] to set autoboot enable.

Autoboot enable prompts appear. Answer them as indicated below.

**Figure 44**
**Autoboot enable prompts**

```
Controller LUN = 00? <cr>
Device LUN  = 00? <cr>
Default String =   ? <cr>
Boot at Power-up only or any board Reset [P,R] = R? <cr>
On any board Reset:
Auto Boot from Controller 0, Device 0
```

**10** At the "147-Diag>" prompt, type **reset** and press [Return].

The SCSI bus reset prompts appear. Answer them as indicated below.

**Figure 45**
**SCSI bus reset prompts**

```
Reset Local SCSI Bus (Y, N)  N?  y <cr>
Automatic reset of known SCSI Buses on RESET (Y, N) = N?  y <cr>
Cold/Warn Reset flag (C, W) = C?  <cr>
Execute Soft Reset (Y, N)  N?  <cr>
```

**11** When the "147-Diag>" prompt appears, type **env** and press [Return].

The environment prompts appear.

**12** Answer them as indicated in Figures 46, 47, or 48, depending on the firmware installed in your system. The firmware release appeared in the start-up messages shown in Figure 40.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 46**
**Environment prompts for firmware revision 2.2**

```
Bug or System environment [B,S] = S? <cr>
SYSTEM V/68 or VERSAdos operating system [S,V] = S? <cr>
Execute/Bypass SST Memory test [E,B] = E? b <cr>

Set VME Chip:
Board ID [0-FF] = $00? <cr>
GCSR base address [0-0F] = $0F? <cr>
Utility Interrupt Mask [0-FE] = $00? <cr>
Utility Interrupt Vector [$20-$30] = $0180? <cr>
```

**Figure 47**
**Environment prompts for firmware revision 2.3**

```
Bug or System environment [B,S] = S? <cr>
Execute/Bypass System Memory Sizing [E,B] = B? <cr>
Execute/Bypass SST Memory test [E,B] = B? <cr>

Set VME Chip:
Board ID(def is 0) [0-FF] = $00? <cr>
GCSR base address offset(def is 0F) [0-0F] = $0F? <cr>
Utility Interrupt Mask(def is 0) [0-FE] = $00? <cr>
Utility Interrupt Vector number(def is 60) [8-F8] = $60? <cr>
VMEbus Interrupt Mask(def is FE) [0-FE] = $FE? <cr>
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 48**
**Environment prompts for firmware revision 2.42**

```
Bug or System environment [B,S] = S? <cr>
Execute/Bypass System Memory Sizing [E,B] = B? <cr>
Execute/Bypass SST Memory test [E,B] = B? <cr>
Set VME Chip:
Board ID(def is 0) [0-FF] = $00? <cr>
GCSR base address offset(def is 0F) [0-0F] = $0F? <cr>
Utility Interrupt Mask(def is 0) [0-FE] = $00? <cr>
Utility Interrupt Vector number(def is 60) [8-F8] = $60? <cr>
VMEbus Interrupt Mask(def is FE) [0-FE] = $FE? <cr>
```

Depending on the previous configuration, the system will reboot automatically or display the “147-Diag>” prompt.

**13** If the system reboots automatically at this point, type **h** as soon as messages begin to appear on the console.

If the system displays the “147-Diag>” prompt, type **menu** then press [Return].

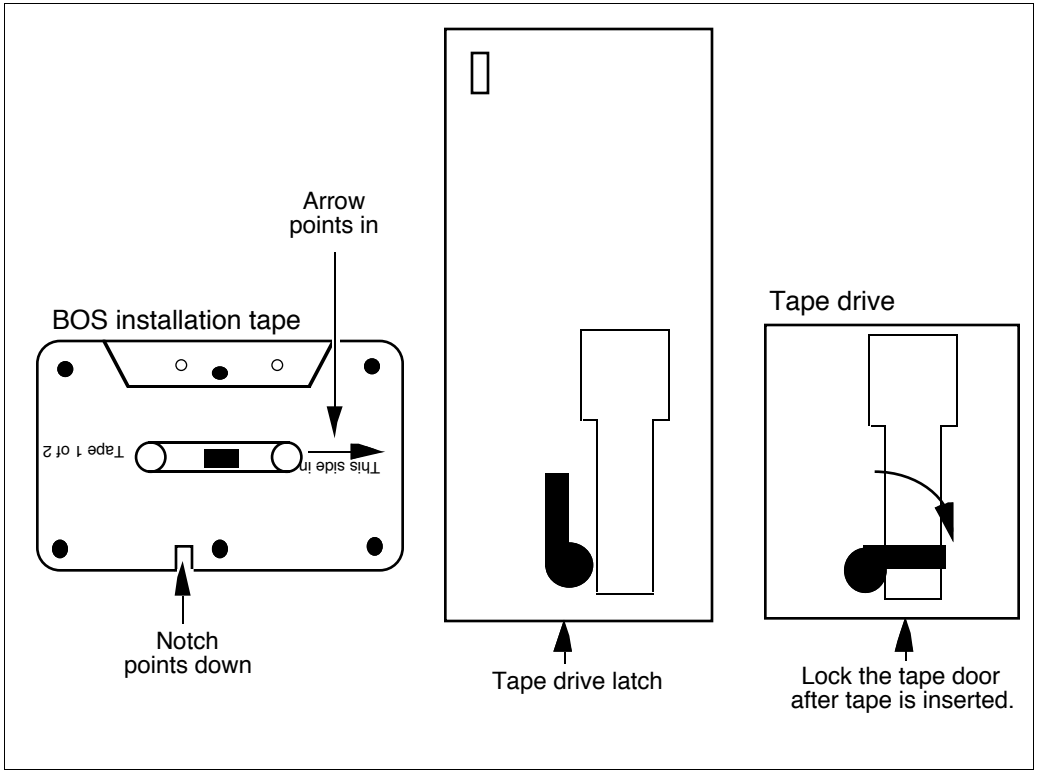
In either case, the start-up interrupt menu appears.

**14** Insert the BOS tape System V/68 BOS R3V7.1 into the tape drive.

The tape indicator light comes on, flashes, and then goes off. Wait for the tape indicator light to turn off before proceeding to the next step.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 49**
**Insert tape into the tape drive**



**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 50**
**Start-up interrupt menu**

```
1) Continue System Start-up
2) Select Alternate Boot Device
3) Go To System Debugger
4) Initiate Service Call
5) Display System Test Errors
6) Dump Memory to Tape
Enter Menu #:
```

**15** When the tape indicator goes off, type **2** and press [Return].

**16** You are prompted to enter the alternate boot device. Type **4,,** and press [Return].

**17** When the start-up interrupt menu reappears, type **1** and press [Return] to continue the system start-up.

The system starts up. A series of test messages will appear on one line across the screen for approximately 10 minutes. The system start-up messages begin to appear as shown in the Figure 51.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 51**
**System start-up messages**

```
Testing Complete
Autoboot in progress ... To abort hit <BREAK>

RAM address from VMEbus = $00000000

Booting from:  VME147, Controller 4, Device 0
Loading:  Operating System

Volume:  V/68

IPL loaded at:   $001F0000
MVMETAPE IPL Version 1.0

**********************************************************************

              System V/68 Release R3V7 M68030 Version 920526

                        Real mem  = 6291456
                        Avail mem = 4964352
                        Buffers   = 60

**********************************************************************
Copyright (c) 1984-1992 Motorola Inc. All rights reserved


INIT:  SINGLE USER MODE
***
 erase = #  kill = @  intr = DEL  quit = ^|
***
147 SCSI configuration
Device    Addr Vers Revision  Seria  Blocks   Size Vendor Description
-------   ---- ---- --------  -------  -------  ---- ------------------------
Disk        00 0001  M606...  .......  0352175  0512  FUJITSU     M2614S
Tape        40 0001  RV F...  .......  0000000  0000  TEAC    MT-2ST/N50
Enter the correct date and time EST using one of the following formats
[mmddhhmmyy] or [mmddhhmmyyyy]:
```

**18** Type the date in the form MMDDHHMMYY (month, date, hour in 24-hour clock format, minute, year—note that the time should be in Eastern Standard Time), or MMDDHHMMYYYY, and press [Return].

Example: **0314163098** or **031416301998**

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**ATTENTION**

During the installation or start-up of BOS, different characters than usual represent the character delete, line delete, and interrupt functions. During these operations,

- character delete (backspace), usually [Control-h], is [#]
- line delete, usually [Control-u], is [@]
- interrupt, usually [Control-c], is Delete

If you make a mistake entering the date, use [#] to delete characters. If you press [Delete], a "#" prompt appears; press [Control-d] to return to where you were.

**19** You are prompted to confirm the date you entered. Type **y** and press [Return] if the date is correct.

If the date is not correct, type **n** and press [Return]. You are then prompted to enter each value.

When you enter the date successfully and respond **y** to the prompt, the BOS software management menu appears.

**Figure 52**
**BOS software management menu**

```
  The BOS (FE03.71) Software Management Menu

  1 install      Install FE03.71 BOS Software
  2 upgrade      Upgrade To FE03.71 BOS Software

---> Enter a number, a name, the initial part of name, or
     ? or <number>? for HELP, q to QUIT:
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**20** Type **1** and press [Return] to install the software.

The BOS installation procedure begins.

**Figure 53**
**BOS installation, phase 1**

```
BOS INSTALLATION PROCEDURE


Phase 1.  Identify Root And Usr File Systems Installation Disk Drive(s)


The BOS product supports root and usr file system installations
on the disk controllers listed below.  The first column is the controller's
selection number, the second column is the name of the controller, and,
the third column is a brief description of the controller.  Identify
at the prompt the root file system's installation disk controller type.

  1  MVME147   The MVME147 CPU Processor/SCSI Controller
  2  MVME167   The MVME167 CPU Processor/SCSI Controller
  3  MVME323   The MVME323 ESDI Disk Controller
  4  MVME327   The MVME327 SCSI Bus Controller
  5  MVME328   The MVME328 SCSI Host Adapter


---> Enter a number, a name, the initial part of a name, or
     ? or <number>? for HELP, or q to QUIT [MVME167]:
```

**21** When prompted to select the SBC card, type **1** and press [Return].

The system response is: "Selected the 'MVME147' controller type."

**Figure 54**
**Disk drive number prompt**

```
---> Enter the root file system's disk drive number
     (00, 10, 20, 30, ?, q) [00]:

Selected default disk drive number, '00'.
```

**22** You are prompted to enter the root file system's disk drive number. Press [Return] to select the default disk drive number (00).

The disk drive selection list appears.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 55**
**Disk drive selection list**

```
The MVME147 CPU Processor/SCSI Controller may be used to install
the BOS product on the following disk drive types.
The first column is the selection number, the second is the disk type
name (see the disk types associated with the ddefs(1M) utility), and
the third briefly describes the specific disk drive type:

  1 m147cdcIV       Seagate/CDC WREN IV 300Mb Disk (94171/MVME875)
  2 m147cdcIII      Seagate/CDC WREN III 150Mb Disk (94161/MVME874)
  3 m147sea80       Seagate ST-296N 80Mb Disk (ST296N/M MVME873)
  4 m147cdcV        Seagate/CDC WREN V 600Mb Disk (94181/MVME876)
  5 m147cdcVII      Seagate/CDC WREN VII 1.2 GB Disk (94601/MVME877)
  6 m147swift126    Seagate/CDC Swift 104 MB Disk (94351-126/MVME863)
  7 m147swift201    Seagate/CDC Swift 172 MB Disk (94351-200S/MVME864)
  8 m147fuji2613    Fujitsu Pico Bird 3E 135Mb Disk (2613ESA/MVME863)
  9 m147fuji2614    Fujitsu Pico Bird 3E 180Mb Disk (2614ESA/MVME864)
 10 m147fuji2624     Fujitsu Pico Bird 4 500Mb Disk (2624SA/MVME866)
 11 m147fuji2622     Fujitsu Pico Bird 4 300Mb Disk (2622SA/MVME865)
 12 m147fuji2652     Fujitsu Super Humming Bird 1.75 Gb Disk (2652SA/MVME878)
 13 m147fuji2694     Fujitsu Pico Bird 5 1 Gb Disk (2694SA/MVME867)
 14 m147micr1578     MICROPOLIS 300Mb Disk (1578)
 15 m147micr1588     MICROPOLIS 600Mb Disk (1588)
 16 m147micr1598     MICROPOLIS 1Gb Disk (1598)
 17 m147sea3283      Seagate 240 Megabyte Disk (ST3283N)


---> Enter a number, a name, the initial part of a name, or
     ? or <number>? for HELP, or q to QUIT [m147cdcIV]:
```

You noted the disk type for your system in step 6. (See Figure 42 for an example.) Most of the disk drives shown in the above figure are not used by Nortel. Some common disk types used by Nortel and their corresponding selection numbers are listed in the table below.

**Note:** If your drive is not listed, but another drive of the same size is listed, use the option number for the listed drive. If you experience difficulties, contact your local Nortel support personnel.

| Disk types used | Select this number |
|---|---|
| CDC ST1126N 9204 (104 Mbyte) | 6 |
| CDC ST1201N (172 Mbyte) | 7 |
| Fujitsu M2614S (180 Mbyte) | 9 |
| Seagate ST3283N (240 Mbyte) | 17 |

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**23** Type the number corresponding to your disk drive, and press [Return].

The system response is: “Selected the XXXX disk type”, where XXXX represents the disk type selected.

**Figure 56**
**Format disk drive prompt**

```
If the root file system's disk is new or needs to be formatted,
it can be formatted now. In order for you to take advantage of
dynamic disk slicing capabilities and the use of the
sledit(1M) utility you may have to reformat the disk if it
was formatted with the R3V3 or earlier version of
the BOS disk formatter, dinit(1M).

WARNING - FORMATTING THE DISK WILL DESTROY ALL DATA ON THE DISK.

---> Format the root file system's disk drive (y, n, ?, q) [n]:
```

**24** You are prompted to format the root file system’s disk drive. Type **y** and press [Return] to indicate that you wish to format the drive.

**Figure 57**
**Same disk drive prompt**

```
The usr file system is often on the same disk drive as
the root file system, but not always.  The following
questions determine where to install the usr file system.

---> Will the root and usr file systems be
     on the same disk drive? (y, n, ?, q) [y]:
```

**25** You are prompted to indicate whether or not the root and user file systems will be on the same disk drive. Type **y** and press [Return] to indicate yes.

**Figure 58**
**Slice number prompt**

```
The default usr file system slice number for the MVME147
controller is slice number 2, but it may be changed.
Enter below, the slice number where the usr file system is to be install
ed.

---> Enter the slice number for the usr file system (0-6, ?, q) [2]:
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**26** You are prompted to enter the user file system slice number. Press [Return] to use the default slice number (2).

Phase 2 of the BOS installation begins, and the slice table appears. Figures 59, 60, 61, and 62 show disk slicing tables for four different drive types.

**Figure 59**
**Disk slicing table for 104-Mbyte disk drive**

```
Phase 2.  Configure Root And Usr File-Systems And Swap Area


Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:


slice   offset  sl size fs size fsname  vol-id  info
0       648     40000   40000   root    R3      1
1       40648   20000   0                       1h8
2       60648   148484  148484  usr     R3      1
3       0       0       0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       209132  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Figure 60**
**Disk slicing table for 172-Mbyte disk drive**

```
Phase 2. Configure Root And Usr File-Systems And Swap Area

Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:

slice    offset    sl size   fs size   fsname         vol-id    K
0        648       60000     60000     root           R3        1
1        60648     40000     0                                  1
2        100648    180000    180000    usr  R3                  1
3        280648    54827     0                                  1
4        0         0         0                                  1
5        0         0         0                                  1
6        0         0         0                                  1
7        0         335475    0                                  1

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 61**
**Disk slicing table for 180-Mbyte disk drive**

```
slice   offset  sl size fs size fsname  vol-id  info
0       648     60000   60000   root    R3      1
1       60648   40000   0                       1h8
2       100648  180000  180000  usr     R3      1
3       280648  71528   0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       352176  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Figure 62**
**Disk slicing table for 240-Mbyte disk drive**

```
slice   offset  sl size fs size fsname  vol-id  info
0       648     60000   60000   root    R3      1
1       60648   40000   0                       1h8
2       100648  378000  378000  usr     R3      1
3       478648  142     0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       478800  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**27** You are prompted to modify the parameters. Type **n** and press [Return] to indicate that you don't wish to modify any parameters.

**Figure 63**
**Install OLMP prompt**

```
---> Install On-line Manual Pages Object Package (OLMP)? (y, n, ?, q) [n]:
```

**28** You are prompted to indicate whether you wish to install online manual pages. Type **y** and press [Return] to indicate yes.

**Figure 64**
**Install TARS prompt**

```
---> Install On-line Problem Descriptions (Tars on Tape)? (y, n, ?, q) [n]:
```

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**29** You are prompted to indicate whether you wish to install online problem descriptions. Nortel does not use these descriptions. Type **n** and press [Return] to indicate no.

**Figure 65**
**Verify installation prompt**

```
---> Do you want to verify correct installation? (y, n, q) [y]:
```

**30** You are prompted to verify correct installation. Press [Return] to indicate yes.

Confirmation of your selection appears, along with a summary of the installation information. The summary should look exactly like Figure 66, with the possible exception of the disk drive entry ('m147fuj2614').

**Figure 66**
**Software installation summary**

```
Selected to run mkcomply to verify correct installation.


Check the information below.  If any part of the information is incorrect,
the previous questions will have to be answered again.

        * Format and install the new bootloader on the MVME147,
          controller #0, disk drive #00,
          using the ddefs(1M) description 'm147fuj2614'.

        * Create a root file system using 1 Kbyte logical blocks
          on slice 0 on the MVME147, controller #0, disk drive #00.

        * Create a swap area in slice 1 on the
          MVME147, controller #0, disk drive #00.

        * Create a usr file system using 1 Kbyte logical blocks
          on slice 2 on the MVME147, controller #0, disk drive #00.

        * Install On-line Manual Pages Object Package (OLMP).
        * Do Not Install On-line Problem Descriptions (Tars on Tape)
---> Is all of this information correct (y, n, q, ?):
```

**31** If the summary information is correct, type **y** and press [Return]. If it is not correct, type **n**, press [Return], and then enter the information correctly when prompted.

When the information is correct and you reply **y** to the above prompt, phases 3 and 4 of the installation begin.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Note:** Phases 3 and 4 may take from 30 to 90 minutes to complete.

**Figure 67**
**BOS installation, phases 3 and 4**

```
***> Checking tape in drive


Phase 3.  Prepare Installation Disk Drive(s)

***> Retensioning tape (in background)
***> Formatting root file system's disk drive
***> Writing slice table to /dev/rdsk/m147_00s7
***> Creating the root file system
***> Labeling the root file system
***> Creating the usr file system
***> Labeling the usr file system
***> Installing boot-loader on root file system's disk drive
***> Mounting root file system as /root
***> Making the /tmp directory
***> Making the /usr directory
***> Mounting usr file system as /root/usr


Phase 4.  Install BOS Software

***> Waiting for tape to complete retensioning
***> Copying files; this will take from 10-35 minutes
           depending upon your system configuration...
70240 blocks
1200 blocks
10960 blocks
40 blocks
***> Making the root file system lost+found directory

Reserving 160 entries
***> Making the usr file system lost+found directory

Reserving 480 entries
***> Installing /etc/badtracks/m147_00 bad spot list
***> Creating sysadm(1M) package information file
***> Setting up the new operating system
***> Creating root and usr file system associated device nodes
***> Setting permissions on installation disk's root directory
***> Running mkcomply to confirm correct installation
***> Setting root's password entry
New password:
```

**32** At the "New Password:" prompt, press [Return].

**33** The system responds with "Re-enter new password:". Press [Return] again.

**Procedure 19: Load the operating system tape on an Application Module with an MVME147 card (continued)**

**Figure 68**
**BOS installation, completion**

```
Re-enter new password:
***> Unmounting all mounted file systems
***> Synchronizing the installation disk

                BOS product installation is completed.

   You must RESET the system and allow it to autoboot from the hard disk
.

                        *************************
                        **** RESET THE SYSTEM ****
                        *************************
```

**34** Remove the BOS tape from the drive.

**Note:** Procedure 20 is for the IPE Module or MVME167 card.

**35** Proceed with Procedure 21 and go through the setup.

## Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card

If you have just installed a new MVME167 card in an Application Module and you are installing the software for the first time, you need to do steps 2–6. Otherwise, skip these five steps.

> ***Note:*** If you intend to activate CCR and use terminals or printers, ensure that the MVME332XT or MVME332XTS card is installed before you start this procedure.

This procedure assumes that you have backed up all files and have powered down the IPE Module or the Application Module.

**1** Turn on the power. If the "167-Diag>" or the "167-Bug>" prompt appears, go to step 5. If the "4120-Diag>" or "4120-Bug" prompt appears, go to step 4. If the following messages appear on the console, go to step 2.

**Figure 69**
**System restart messages (MVME167 card)**

```
Copyright Motorola Inc. 1988 - 1992, All Rights Reserved

VME167 Debugger/Diagnostics Release Version 1.4 - 07/22/92
COLD Start

Local Memory Found = 00800000 (&8388608)
MPU Clock Speed = 25Mhz
```

**2** Type **h** as soon as messages start to appear. If you are too late, press the Break key instead.
The start-up interrupt menu appears.

**3** If you are using an IPE Module, go to step 4.

If you are using a new MVME167 card, go to step 5.

If you are using a previously configured MVME167 card, go to step 6.

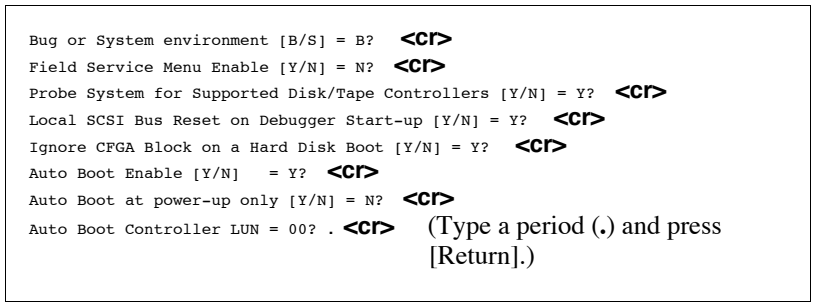
**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**4** At the "4120-Diag>" or "4120-Bug>" prompt, type **env** and press [Return].
The environment prompts appear. Answer them as indicated in the figure below. Then go to step 6.

If you make a mistake, quit the process by entering a period (.) at a prompt and answering "**n**" for the last two questions (Update Non-Volatile RAM/Reset Local System). This brings you back to the "167-Diag>" or "4120-Diag>" prompt. Then type **env;d** and press [Return] to undo the mistakes you made and bring back the original default values.

**Note:** At the "Auto Boot Controller LUN=00?" prompt, type a period (.) and press [Return] to bypass additional prompts that do not need to be changed.

**Figure 70**
**Environment prompts (IPE Module)**




**Note:** If you changed or reentered any values in Figure 70, you will see two additional prompts, to which you should respond as shown in the following figure.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 71**
**Additional prompts (IPE Module)**

```
Update Non-Volatile RAM (Y/N)?  y <cr>
Reset Local System (CPU) (Y/N)?  y <cr>
```

**5** At the "167-Diag>" prompt, type **env** and press [Return]. The environment prompts appear. Answer them as indicated in the figure below. Then go to step 6.

If you make a mistake, quit the process by entering a period (.) at a prompt and answering "**n**" for the last two questions (Update Non-Volatile RAM/Reset Local System). This brings you back to the "167-Diag>" prompt. Then type **env;d** and press [Return] to undo the mistakes you made and bring back the original default values.

**Note:** At the "Auto Boot Controller LUN=00?" prompt, type a period (.) and press [Return] to bypass additional prompts that do not need to be changed.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 72**
**Environment prompts (MVME167 card)**

```
Bug or System environment [B/S] = S?  <cr>
Field Service Menu Enable [Y/N] = Y?  <cr>
Remote Start Method Switch [G/M/B/N] = B?  <cr>
Probe System for Supported I/O Controllers [Y/N] = Y?  <cr>
Negate VMEbus SYSFAIL* Always [Y/N] = N?  <cr>
Local SCSI Bus Reset on Debugger Start-up [Y/N] = Y?  <cr>
Local SCSI Bus Negotiations Type [A/S/N] = A?  <cr>
```

***Note:*** The prompt "Local SCSI Bus Negotiations Type" may not appear for all MVME167 cards.

```
Ignore CFGA Block on a Hard Disk Boot [Y/N] = Y?  <cr>
Auto Boot Enable [Y/N]  = Y?  <cr>
Auto Boot at power-up only [Y/N] = N?  <cr>
Auto Boot Controller LUN = 00? .  <cr>   (Type a period (.) and press [Return].)
```

**Note:** If you changed or reentered any values in Figure 72, you will see two additional prompts, to which you should respond as shown in the following figure.

**Figure 73**
**Additional prompts (MVME167 card)**

```
Update Non-Volatile RAM (Y/N)?  y <cr>
Reset Local System (CPU) (Y/N)?  y <cr>
```

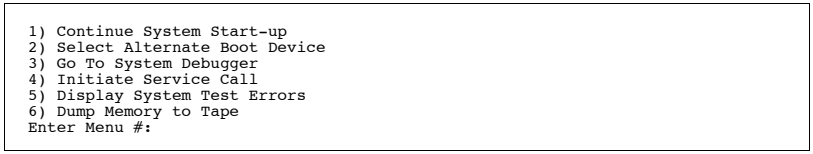
**6** The system reboots automatically. Messages start to appear on the console. Type **h** as soon as messages start appearing on the console.

The start-up interrupt menu appears.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Note:** If the “167-Diag>” or “4120-Diag>” prompt appears, type **menu** and press [Return].

**Figure 74**
**Start-up interrupt menu**

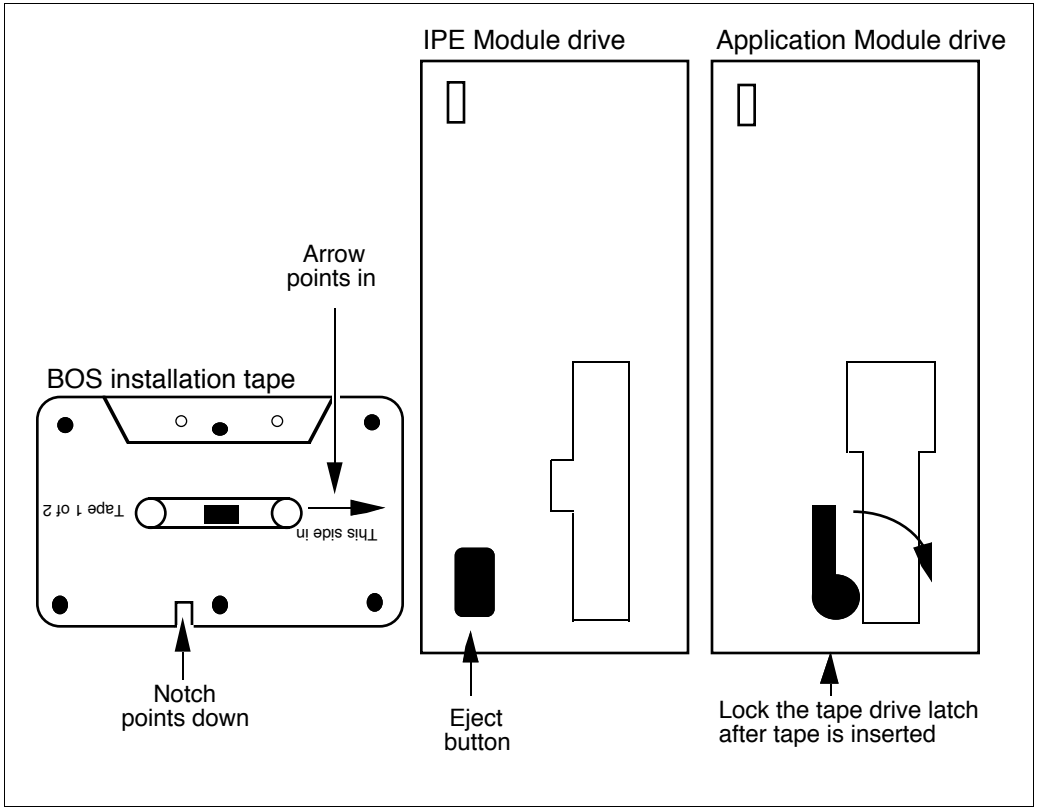



**7** Insert the operating system tape (System V/68 BOS R3V7.1) into the tape drive.

The tape indicator light comes on, flashes, and then goes off. Wait for the tape indicator light to turn off before proceeding to the next step.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 75**
**Insert tape into the tape drive**



**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**8** Type **2** and press [Return].

**Figure 76**
**Alternate boot device prompt**

```
Alternate Boot Device (Controller,Drive,File):  0,0,
Change it (Y/N)?
```

**9** You are prompted to change the alternate boot device. Type **y** and press [Return].

**Figure 77**
**Controller prompt**

```
Controller:
```

**10** You are prompted to enter the controller number. Type **0** and press [Return].

**Figure 78**
**Drive prompt**

```
Drive     :
```

**11** You are prompted to enter the drive number. Type **40** and press [Return].

**Figure 79**
**File prompt**

```
File      :
```

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**12** You are prompted to enter the file name. Press [Return].

**Figure 80**
**Continue start-up prompt**

```
Continue System Start Up (Y/N)?
```

**13** You are prompted to continue start-up. Type **y** and press [Return].

A series of test messages will appear on one line across the screen for approximately 10 minutes. The system start-up messages begin to appear as shown in the following figure.

**Figure 81**
**System start-up messages**

```
Testing Complete
Autoboot in progress ... To abort hit <BREAK>

Booting from:  VME167, Controller 0, Drive 40
Loading:  Operating System

Volume:  V/68

IPL loaded at:  $001F0000
MVMETAPE IPL Version 1.0

************************************************************************

              System V/68 Release R3V7 M68040 Version 920526

                        Real mem  = 6291456
                        Avail mem = 4956160
                        Buffers   = 60

************************************************************************
Copyright (c) 1984-1992 Motorola Inc. All rights reserved


INIT:  SINGLE USER MODE
***
 erase = #  kill = @  intr = DEL  quit = ^|
***
167 SCSI configuration
Device    Addr Vers Revision  Serial#  Blocks   Size Vendor Description
-------   ---- ---- --------  -------  -------  ---- --------------------

Disk        00 0002  9324...  .......  0478845  0512  SEAGATE ST3283N
Tape        40 0001  RV F...  .......  0000000  0000  TEAC    MT-2ST/N50
Enter the correct date and time EST using one of the following formats
[mmddhhmmyy] or [mmddhhmmyyyy]:
```

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**14** Write down the vendor and description of the disk drive installed in SCSI address 00. This information is required later in the procedure. (In the preceeding example, the drive is a SEAGATE ST3283N.)

**15** Type the date in the form MMDDHHMMYY (month, date, hour in 24-hour clock format, minute, year—note that the time should be Eastern Standard Time), or MMDDHHMMYYYY, and press [Return}.

Example: **0314163098** or **031416301998**

**ATTENTION**

During the installation or start-up of BOS, different characters than usual represent the character delete, line delete, and interrupt functions. During these operations,

- character delete (backspace), usually [Control-h], is [#]
- line delete, usually [Control-u], is [@]
- interrupt, usually [Control-c], is Delete

If you make a mistake entering the date, use [#] to delete characters. If you press [Delete], a "#" prompt appears; press [Control-d] to return to where you were.

**16** You are prompted to confirm the date you entered. Type **y** and press [Return].

If the date is not correct, type **n** and press [Return]. You are then prompted to enter the date, as in step 15.

When you enter the date successfully and respond **y** to the prompt, the BOS software management menu appears (Figure 82).

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 82**
**BOS software management menu**

```
        The BOS (FE03.71) Software Management Menu

 1 install      Install FE03.71 BOS Software
 2 upgrade      Upgrade To FE03.71 BOS Software

---> Enter a number, a name, the initial part of name, or
     ? or <number>? for HELP, q to QUIT:
```

**17** At the software management menu, type **1** and press [Return] to install the software.

The BOS installation procedure begins.

**Figure 83**
**BOS installation, phase 1**

```
Phase 1.  Identify Root And Usr File Systems Installation Disk Drive(s)


The BOS product supports root and usr file system installations
on the disk controllers listed below.  The first column is the controller's
selection number, the second column is the name of the controller, and,
the third column is a brief description of the controller.  Identify
at the prompt the root file system's installation disk controller type.

  1  MVME147   The MVME147 CPU Processor/SCSI Controller
  2  MVME167   The MVME167 CPU Processor/SCSI Controller
  3  MVME323   The MVME323 ESDI Disk Controller
  4  MVME327   The MVME327 SCSI Bus Controller
  5  MVME328   The MVME328 SCSI Host Adapter

---> Enter a number, a name, the initial part of a name, or
     ? or <number>? for HELP, or q to QUIT [MVME167]:
```

**18** The system prompts you to select the disk controller. Whether you have an IPE Module or an Application Module, type **2** and press [Return] to select the MVME167 SBC card (this option supports both the IPE Module and the Application Module with an MVME167 card).

The system response is: "Selected the 'MVME167' controller type".

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 84**
**Disk drive number prompt**

```
Selected MVME167 controller number 0.
This is the only controller number for the MVME167 controller
supported by the BOS product.

---> Enter the root file system's disk drive number
     (00, 10, 20, 30, 40, 50, 60, ?, q) [00]:
```

**19** You are prompted to enter the root file system's disk drive number. Press [Return] to enter the default disk drive number (00).

The disk drive selection list appears.

**Figure 85**
**List of disk drive types**

```
Selected default disk drive number '00'.
The MVME167 CPU Processor/SCSI Controller may be used to install
the BOS product on the following disk drive types.
The first column is the selection number, the second is the disk type
name (see the disk types associated with the ddefs(1M) utility), and
the third briefly describes the specific disk drive type:

  1 mcdcIV          Seagate/CDC WREN IV 300Mb Disk (94171/MVME875)
  2 mcdcV           Seagate/CDC WREN V 600Mb Disk (94181/MVME876)
  3 mcdcVII         Seagate/CDC WREN VII 1.2 GB Disk (94601/MVME877)
  4 mcdcIII         Seagate/CDC WREN III 150Mb Disk (94161/MVME874)
  5 mfuji2613       Fujitsu Pico Bird 3E 135Mb Disk (2613ESA/MVME863)
  6 mfuji2614       Fujitsu Pico Bird 3E 180Mb Disk (2614ESA/MVME864)
  7 mfuji2624       Fujitsu Pico Bird 4 500Mb Disk (2624SA/MVME866)
  8 m147swift126    Seagate/CDC Swift 104 MB Disk (94351-126/MVME863)
  9 m147swift201    Seagate/CDC Swift 172 MB Disk (94351-200S/MVME864)
 10 mfuji2652        Fujitsu Super Humming Bird 1.75 Gb Disk (2652SA/MVME878)
 11 mfuji2694        Fujitsu Pico Bird 5 1 Gb Disk (2694SA/MVME867)
 12 mfuji2622        Fujitsu Pico Bird 4 300Mb Disk (2622SA/MVME865)
 13 mmicr1578        MICROPOLIS 300Mb Disk (1578)
 14 mmicr1588        MICROPOLIS 600Mb Disk (1588)
 15 mmicr1598        MICROPOLIS 1Gb Disk (1598)
 16 m147sea3283      Seagate 240 Megabyte Disk (ST3283N)
 17 m147sea3283      Seagate 240 Megabyte Disk (ST3283N)


---> Enter a number, a name, the initial part of a name, or
     ? or <number>? for HELP, or q to QUIT [mcdcIV]:
```

You noted the disk type for your system in step 14. (See Figure 81 for an example.) Most of the disk drives in the above figure are not used by Nortel. Some common disk types used by Nortel and their corresponding selection numbers are listed in the table below.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Note:** If your drive is not listed, but another drive of the same size is listed, use the option number for the listed drive. Although options 8, 9, 16, and 17 start with the prefix "m147," these options are also applicable to IPE Modules and Application Modules with MVME167 cards. If you experience difficulties, contact your local Nortel support personnel.

| Disk types used | Select this number |
|---|---|
| CDC ST1126N 9204 (104 Mbyte) | 8 |
| CDC ST1201N (172 Mbyte) | 9 |
| Fujitsu M2614S (180 Mbyte) | 6 |
| Seagate ST3283N (240 Mbyte) | 16 |

**20** For this example, the m147sea3283 disk drive is being used. Type **16** and press [Return].

The system response is: "Selected the XXXX disk type", where XXXX represents the disk type selected.

**Figure 86**
**Format disk drive prompt**

```
Selected the 'm147sea3283' disk type.

If the root file system's disk is new or needs to be formatted,
it can be formatted now.  In order for you to take advantage of
dynamic disk slicing capabilities and the use of the
sledit(1M) utility you may have to reformat the disk if it
was formatted with the R3V3 or earlier version of
the BOS disk formatter, dinit(1M).

WARNING - FORMATTING THE DISK WILL DESTROY ALL DATA ON THE DISK.

---> Format the root file system's disk drive (y, n, ?, q) [n]:
```

**21** You are prompted to format the root file system's disk drive. Type **y** and press [Return] to indicate that you wish to format the drive.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 87**
**Same disk drive prompt**

```
The usr file system is often on the same disk drive as
the root file system, but not always.  The following
questions determine where to install the usr file system.

---> Will the root and usr file systems be
     on the same disk drive? (y, n, ?, q) [y]:
```

**22** You are prompted to indicate whether or not the root and user file systems will be on the same disk drive. Type **y** and press [Return] to indicate yes.

**Figure 88**
**Slice number prompt**

```
The default usr file system slice number for the MVME167
controller is slice number 2, but it may be changed.
Enter below, the slice number where the usr file system is to be installed.

---> Enter the slice number for the usr file system (0-6, ?, q) [2]:
```

**23** You are prompted to enter the user file system slice number. Press [Return] to use the default slice number (2).

Phase 2 of the BOS installation begins, and the slice table appears. Figures 89-92 show the slice tables for four different disk drives.

## Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)

**Figure 89**
**Disk slicing table for 104-Mbyte disk drive**

```
Phase 2. Configure Root And Usr File-Systems And Swap Area


Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:

slice   offset  sl size fs size fsname  vol-id  info
0       648     40000   40000   root    R3      1
1       40648   20000   0                       1h8
2       60648  148484   148484  usr     R3      1
3       0       0       0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       209132  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Figure 90**
**Disk slicing table for 172-Mbyte disk drive**

```
Phase 2. Configure Root And Usr File-Systems And Swap Area

Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:

slice    offset    sl size   fs size   fsname         vol-id    K
0        648       60000     60000     root           R3        1
1        60648     40000     0                                  1
2        100648    180000    180000    usr  R3                  1
3        280648    54827     0                                  1
4        0         0         0                                  1
5        0         0         0                                  1
6        0         0         0                                  1
7        0         335475    0                                  1

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 91**
**Disk slicing table for 180-Mbyte disk drive**

```
Phase 2. Configure Root And Usr File-Systems And Swap Area

Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:

slice   offset  sl size fs size fsname  vol-id  info
0       648     60000   60000   root    R3      1
1       60648   40000   0                       1h8
2       100648  180000  180000  usr     R3      1
3       280648  71528   0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       352176  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**Figure 92**
**Disk slicing table for 240-Mbyte disk drive**

```
Phase 2.  Configure Root And Usr File-Systems And Swap Area


Check the following slicing information for the root file system's disk
drive; indicate below whether you wish to modify this information:


slice   offset  sl size fs size fsname  vol-id  info
0       648     60000   60000   root    R3      1
1       60648   40000   0                       1h8
2       100648  378000  378000  usr     R3      1
3       478648  142     0                       1h8
4       0       0       0                       1h8
5       0       0       0                       1h8
6       0       0       0                       1h8
7       0       478800  0                       1h8

---> Modify any of these parameters? (y, n, ?, q):  [n]
```

**24** You are prompted to modify the parameters. Press [Return] to indicate that you don't wish to change any parameters.

**Figure 93**
**Install OLMP prompt**

```
---> Install On-line Manual Pages Object Package (OLMP)? (y, n, ?, q) [n]:
```

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**25** You are prompted to indicate whether you wish to install online manual pages. Type **y** and press [Return] to indicate yes.

**Figure 94**
**Install TARS prompt**

```
---> Install On-line Problem Descriptions (Tars on Tape)? (y, n, ?, q) [n]:
```

**26** You are prompted to indicate whether you wish to install online problem descriptions. Nortel does not use these descriptions. Type **n** and press [Return] to indicate no.

**Figure 95**
**Verify installation prompt**

```
---> Do you want to verify correct installation? (y, n, q) [y]
```

**27** You are prompted to indicate whether you wish to verify correct installation. Type **y** and press [Return] to indicate yes.

Confirmation of your selection appears, along with a summary of the installation information. The summary should look exactly like the one in Figure 96, with the possible exception of the disk drive entry (‘m147sea3283’).

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 96**
**Software installation summary**

```
Selected to run mkcomply to verify correct installation.

Check the information below.  If any part of the information is incorrect,
the previous questions will have to be answered again.

        * Format and install the new bootloader on the MVME167,
          controller #0, disk drive #00,
          using the ddefs(1M) description 'm147sea3283'.

        * Create a root file system using 1 Kbyte logical blocks
          on slice 0 on the MVME167, controller #0, disk drive #00.

        * Create a swap area in slice 1 on the
          MVME167, controller #0, disk drive #00.

        * Create a usr file system using 1 Kbyte logical blocks
          on slice 2 on the MVME167, controller #0, disk drive #00.

        * Install On-line Manual Pages Object Package (OLMP).
        * Do Not Install On-line Problem Descriptions (Tars on Tape)
---> Is all of this information correct (y, n, q, ?):  y
```

**28** If the summary information is correct, type **y** and press [Return]. If it is not correct, type **n**, press [Return], and then enter the information correctly when prompted.

When the information is correct and you reply **y** to the above prompt, phases 3 and 4 of the installation begin.

**Note:** Phases 3 and 4 may take from 30 to 90 minutes to complete.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 97**
**BOS installation, phases 3 and 4**

```
***> Checking tape in drive

Phase 3.  Prepare Installation Disk Drive(s)

***> Retensioning tape (in background)
***> Formatting root file system's disk drive
***> Writing slice table to /dev/rdsk/m167_00s7
***> Creating the root file system
***> Labeling the root file system
***> Creating the usr file system
***> Labeling the usr file system
***> Installing boot-loader on root file system's disk drive
***> Mounting root file system as /root
***> Making the /tmp directory
***> Making the /usr directory
***> Mounting usr file system as /root/usr

Phase 4.  Install BOS Software

***> Waiting for tape to complete retensioning
***> Copying files; this will take from 10-35 minutes
           depending upon your system configuration...
70240 blocks
1200 blocks
10960 blocks
***> Making the root file system lost+found directory

Reserving 160 entries
***> Making the usr file system lost+found directory

Reserving 960 entries
***> Installing /etc/badtracks/m167_00 bad spot list
***> Creating sysadm(1M) package information file
***> Setting up the new operating system
***> Creating root and usr file system associated device nodes
***> Setting permissions on installation disk's root directory
***> Running mkcomply to confirm correct installation
***> Setting root's password entry
New password:
```

**29** At the "New password:" prompt, press [Return].

**30** The system responds with "Re-enter new password:" Press [Return] again.

**Procedure 20: Load the operating system tape on an IPE Module or an Application Module with an MVME167 card (continued)**

**Figure 98**
**BOS installation, completion**

```
***> Unmounting all mounted file systems
***> Synchronizing the installation disk

                BOS product installation is completed.

   You must RESET the system and allow it to autoboot from the hard disk


                        *************************
                        **** RESET THE SYSTEM ****
                        *************************
```

**31** Remove the operating system tape from the drive.

**32** Proceed with Procedure 21 and go through the setup.

## Procedure 21: Reboot and go through setup

If you have just installed the operating system tape, ensure that you perform the following procedure before you load the application tape.

**Note:** If your configuration requires an MVME332 card, ensure that it is installed prior to starting this procedure.

**1** Press the red RESET button on the MVME147 or MVME167 SBC card or the IPE Module.

System start-up messages appear on the system console (see Figures 99 and 100).

**Figure 99**
**MVME147 Application Module start-up messages**

```
Copyright Motorola Inc. 1989,1990, All Rights Reserved

VME147 Monitor/Debugger Release 2.42 - 08/01/91
CPU running at 25 MHz

FPC  passed test
MMU  passed test

COLD Start

Onboard  RAM start = $00000000,  stop = $007FFFFF
No offboard RAM detected
```

**Figure 100**
**IPE Module or MVME167 Application Module start-up messages**

```
Copyright Motorola Inc. 1988 - 1992, All Rights Reserved

MVME167 Debugger/Diagnostics Release Version 1.4 - 07/22/92
COLD Start

Local Memory Found =00800000 (&8388608)

MPU Clock Speed =25Mhz
```

**Procedure 21: Reboot and go through setup (continued)**

The autoboot process then starts. Autoboot messages for the IPE Module or MVME167 card are shown in Figures 101 and 102. Messages for the MVME147 card are similar.

A series of test messages will appear on one line across the screen for approximately 10 minutes. The system start-up messages begin as shown in the following figure.

**Figure 101**
**System autoboot messages 1**

```
Testing Complete
Autoboot in progress ... To abort hit <BREAK>

Booting from:  VME167, Controller 0, Drive 40
Loading:  Operating System

Volume:  V/68

IPL loaded at:  $001F0000
MVMETAPE IPL Version 1.0

**********************************************************************

              System V/68 Release R3V7 M68040 Version 920526

                        Real mem  = 6291456
                        Avail mem = 4956160
                        Buffers   = 60

**********************************************************************
Copyright (c) 1984-1992 Motorola Inc. All rights reserved


INIT:  SINGLE USER MODE
***
 erase = #  kill = @  intr = DEL  quit = ^|
***
167 SCSI configuration
Device    Addr Vers Revision  Serial#  Blocks   Size Vendor Description
-------   ---- ---- --------  -------  -------  ---- --------------------

Disk        00 0002  9324...  .......  0478845  0512  SEAGATE ST3283N
Tape        40 0001  RV F...  .......  0000000  0000  TEAC    MT-2ST/N50
Enter <cr> to pause in a single user shell before init.

Default boot sequence continuing...
The system is coming up. Please wait.
```

**Procedure 21: Reboot and go through setup (continued)**

**Figure 102**
**System autoboot messages 2**

```
This machine has not been used as a customer machine yet.  The messages that
follow are from checking the built-in file systems for damage that might have
occurred during shipment.  As long as you do not see either of the messages
                                   BOOT SYSV68
                                      or
                              FILE SYSTEM WAS MODIFIED
all is well.  If either message does come out, call your service
representative.
However, the machine is still usable unless you are told otherwise.
Checking file systems:


  /dev/root
  File System:  root Volume:  R3


  ** Phase 1 - Check Blocks and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Counts
  ** Phase 5 - Check Free List
  1992 files 27376 blocks 31684 free

  /dev/usr
  File System:  usr Volume:  R3

  ** Phase 1 - Check Blocks and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Counts
  ** Phase 5 - Check Free List
  2861 files 44730 blocks 327360 free


Node name set to sysV68.

        Welcome!
This machine has to be set up by you.  When you see the "login" message type
                                    setup
followed by the RETURN key.  This will start a procedure that leads you through
those things that should be done the "first time" the machine is used.

Until you do so, the above filesystem shipment damage check will be run
each time you boot.

mount -f S51K /dev/usr /usr
Checking for system dump ...
Expreserve notification performed.
Error logging started.
Stream Error logging started.
netspec "tcpip" not set up.
Line printer scheduler started.
The system is ready.

Console Login:
```

**2** At the “Console Login:” prompt, type **root** and press [Return] to log in as the root user.

**3** At the “Password:” prompt, press [Return].

The root password is reset once the application is installed.

**Procedure 21: Reboot and go through setup (continued)**

**4** At the "#" prompt, type **portconfig -m** and press [Return]. The following messages appear on your screen.

**Figure 103**
**Portconfig warning**

```
THIS WILL REMOVE EXISTING tty NODES IN  '/dev'  AND
CREATE NEW ONES BASED ON THE DRIVERS CONFIGURED INTO THE
MOST RECENTLY BUILT KERNEL IN  '/usr/src/uts/m68k/cf' AND THE CURRENT
HARDWARE CONFIGURATION.  ARE YOU SURE THIS IS WHAT
YOU WANT TO DO?
(default = n) [y, n]:
```

**5** If there is a tape in the drive, unlock the tape drive and remove the tape.

**6** Type **y** and press [Return].

The port configuration messages (shown in Figure 104) appear on your screen.

**Note:** Figure 104 shows an entry about adding MVME167 controller board entries. This is present even though the SBC card is an MVME147 card or the module is an IPE Module, and is a result of the software supporting the IPE Module and the MVME147 and MVME167 cards. Ignore the entry.

**Procedure 21: Reboot and go through setup (continued)**

**Figure 104**
**Portconfig messages**

```
------------------------------------------------
Found a vme332xt driver entry in /usr/src/uts/m68k/cf/master (major # 34)
Found a configured board (board 0)
Removing existing /dev/tty entries for module 1
    rm -f /dev/tty1[0123456789]
Making tty entries for board 0
Ports appear on backpanel module 1/dev:
tty11 tty12 tty13 tty14 tty15 tty16 tty17 tty18 tty19
Adding m332xt Controller board 1 associated entries to /etc/inittab.
------------------------------------------------
Found a m564 driver entry in /usr/src/uts/m68k/cf/master (major # 40)
------------------------------------------------
Found a z8530 driver entry in /usr/src/uts/m68k/cf/master (major # 33)
Found a configured board (board 0)
------------------------------------------------
Found a m681con driver entry in /usr/src/uts/m68k/cf/master (major # 42)
------------------------------------------------
Found a c240con driver entry in /usr/src/uts/m68k/cf/master (major # 45)
Adding MVME167 Controller board associated entries to /etc/inittab.
------------------------------------------------
Removing /dev/tty entries for non-configured back panel modules:
        rm -f /dev/tty2[123456789]
        rm -f /dev/tty3[123456789]
        rm -f /dev/tty4[123456789]
        rm -f /dev/tty5[123456789]
        rm -f /dev/tty6[123456789]
        rm -f /dev/tty7[123456789]
        rm -f /dev/tty8[123456789]
        rm -f /dev/tty9[123456789]

------------------------------------------------

Use 'sysadm ttymgmt' to turn these entries on in /etc/inittab

Current back panel layout should be as follows:
 712/147     1437/332xt
 _________
|  _   _  |
| | | | | |
| | | | | |
| |_| |_| |
|  tty cons |
|   02      |
|  _   _  |
| | | | | |
| | | | | |
| |_| |_| |
|  tty tty  |
|   03  01  |
|  _   _  |
| | | | | |
| |_| | | |
| ether |_| |
|  net      |
|      _  |
|  _  | | |
| | | | | |
| |_| |_| |
|  pr  SCSI |
|___________|
#
```

**Procedure 21: Reboot and go through setup (continued)**

**7** At the "#" prompt, type **setup** and press [Return].

The setup procedure begins.

**Figure 105**
**Time zone prompt**

```
The first step is to set the timezone, date, and time of the system clock.

Current time and time zone is:  12:37 EDT
Change the time zone? [y, n, ?, q]
```

**8** You are prompted to change the time zone. Type in your response (**y** if you wish to change the time zone, **n** if the time zone is already correct) and press [Return].

If you typed **n**, go on to step 11 where you're prompted to change the date and time. If you typed **y**, the time zone selection list appears.

**Figure 106**
**Time zone menu**

```
        Available time zones are...
        1.  Greenwich       (GMT)
        2.  Atlantic        (AST & ADT)
        3.  Eastern         (EST & EDT)
        4.  Central         (CST & CDT)
        5.  Mountain        (MST & MDT)
        6.  Pacific         (PST & PDT)
        7.  Yukon           (YST & YDT)
        8.  Alaska          (AST & ADT)
        9.  Bering          (BST & BDT)
        10. Hawaii          (HST)
        11. Middle European (MET)
        12. East European   (EET)
        13. Set TZ variable for any other time zone info
Enter zone number:
```

**Procedure 21: Reboot and go through setup (continued)**

**9** At the “Enter zone number:” prompt, type the number corresponding to your time zone and press [Return].

If your time zone is not listed in time zones 1–12, type **13** and press [Return]. You will see explanatory messages. At the “Enter 3-letter time-zone-name” prompt (Figure 107), type three letters to represent your time zone and press [Return]. At the “Enter time difference from GMT” prompt, type the difference between your local time and Greenwich Mean Time (GMT). Use a minus if your time zone is west of GMT.

**Figure 107**
**Additional time zone menu**

```
Enter 3-letter time-zone-name (a thru z or A thru Z)

Enter time difference from GMT (use “-” if west of GMT)
```

**Figure 108**
**DST prompt**

```
Does your time zone use Daylight Savings Time during the year? [y, n, ?, q]
```

**10** You are prompted to indicate whether your time zone uses Daylight Savings Time during the year. Type in your response (**y** if Daylight Savings Time applies, **n** if it does not) and press [Return].

The system response reflects whether or not the Daylight Savings Time selection was changed.

**Figure 109**
**Date and time change prompt**

```
Time zone now changed.
Note:   Any logins and processes running when the time zone changes, and
all their child processes, will continue to see the old time zone.
The cron will be restarted at the end of this procedure.
Current date and time:   Tue. 06/29/93 09:37
Change the date and time? [y, n, ?, q]
```

**Procedure 21: Reboot and go through setup (continued)**

**11** You are prompted to change the date and time. If you do not wish to change the date and time, type **n**, press [Return], and proceed to step 17. If you wish to change the date and time, type **y** and press [Return].

**Figure 110**
**Month prompt**

```
Month    default 06      (1-12):
```

**12** When prompted, type the number corresponding to the current month and press [Return].

**Figure 111**
**Day prompt**

```
Day      default 29      (1-31):
```

**13** When prompted, type the date and press [Return].

**Figure 112**
**Year prompt**

```
Year     default 93      (70-99):
```

**14** When prompted, type the year and press [Return].

**Figure 113**
**Hour prompt**

```
Hour     default 09      (0-23):
```

**15** When prompted, type the hour and press [Return].

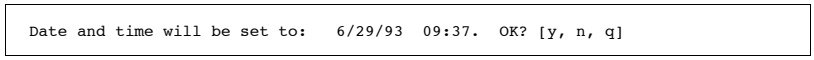
**Figure 114**
**Minute prompt**

```
Minute   default 37      (0-59):
```

**Procedure 21: Reboot and go through setup (continued)**

**16** When prompted, type the minutes and press [Return].

**Figure 115**
**Date and time set prompt**

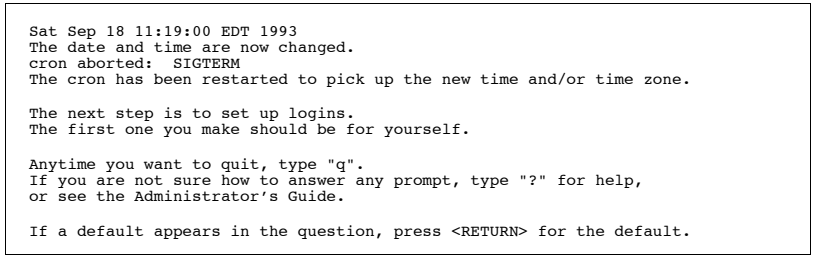


```
Date and time will be set to:   6/29/93  09:37.  OK? [y, n, q]
```

**17** You are prompted to confirm the date and time. Type **y** and press [Return].

Once the application starts, the time will be set to the time on the Meridian 1. The system response reflects any time or time zone change with a “cron aborted” message.

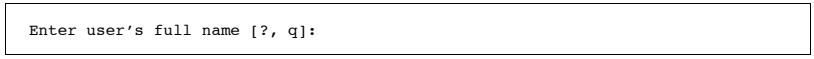
**Figure 116**
**Time change confirmation**



```
Sat Sep 18 11:19:00 EDT 1993
The date and time are now changed.
cron aborted:  SIGTERM
The cron has been restarted to pick up the new time and/or time zone.

The next step is to set up logins.
The first one you make should be for yourself.

Anytime you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Administrator’s Guide.

If a default appears in the question, press <RETURN> for the default.
```

**Note:** Ensure that you respond with q to the remaining prompts. Entering any other data may prevent applications from functioning properly.

**Figure 117**
**User’s name prompt**



```
Enter user’s full name [?, q]:
```

**18** You are prompted to enter a user login name. Type **q** and press [Return].

**Procedure 21: Reboot and go through setup (continued)**

**Figure 118**
**Administrative passwords prompt**

```
Do you want to give passwords to administrative logins? [y, n, ?, q]
```

**19** You are prompted to give passwords to administrative logins. Type **q** and press [Return].

**Figure 119**
**Change system name prompt**

```
This machine is currently called "sysV68".
Do you want to change it? [y, n, ?, q]
```

**20** You are prompted to change the name of the system. For security reasons, you should change the system name from the default, sysV68. Type **y** and press [Return].

**Figure 120**
**System name prompt**

```
What name do you want to give it? [q]
```

**21** You are prompted for the new system name. Type the new name and press [Return]. Figure 121 appears.

**Figure 121**
**Setup end message**

```
This completes your initial setup of the machine. You may now log into your
login.

#
```

**22** To install the application software, go to Procedure 22.

**23** If you need to go to the “Console Login:” prompt (for example, if you are not installing Meridian Link or CCR immediately), type **exit** and press [Return].

## Procedure 22: Load the application software from tape

Before loading the application tape (labeled Tape 2 of 2), ensure that you reboot and go through setup as described in Procedure 21. This procedure assumes you are at the "Console Login:" prompt. If you have just performed Procedure 21, you may see the "#" prompt; if so, skip steps 1 and 2 and go to step 3.

**ATTENTION**

If you plan to use Ethernet, ensure that your module is connected to a working Ethernet backbone.

**1** At the "Console Login:" prompt, type **root** and press [Return] to log in as the root user.

**2** At the "Password" prompt, press [Return].

**3** At the root shell prompt "#", type **sysadm** and press [Return].

**Figure 122**
**System administration menu**

```
                        SYSTEM ADMINISTRATION

  1 diagnostics    system diagnostics menu
  2 diskmgmt       disk management menu
  3 filemgmt       file management menu
  4 machinemgmt    machine management menu
  5 packagemgmt    package management menu
  6 softwaremgmt   software management menu
  7 syssetup       system setup menu
  8 ttymgmt        tty management menu
  9 usermgmt       user management menu

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT:
```

**4** At the system administration menu, type **6** and press [Return].

**Procedure 22: Load the application software from tape (continued)**

**Figure 123**
**Software management menu**

```
                        SOFTWARE MANAGEMENT

 1 installpkg     install new software package onto built-in disk
 2 listpkg        list packages already installed
 3 removepkg      remove previously installed package from built-in disk

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT:
```

**5** At the software management menu, type **1** and press [Return] to select the install option.

**Figure 124**
**Drive selection menu**

```
Select which drive to use:
    1 ctape             2 diskette1         3 hddiskette1
Enter a number, a name, the initial part of a name, or
? for HELP,  q to QUIT:
```

**6** You are prompted to select a drive. Type **1** and press [Return] to select the ctape (cassette tape) option.

**Figure 125**
**Insert medium prompt**

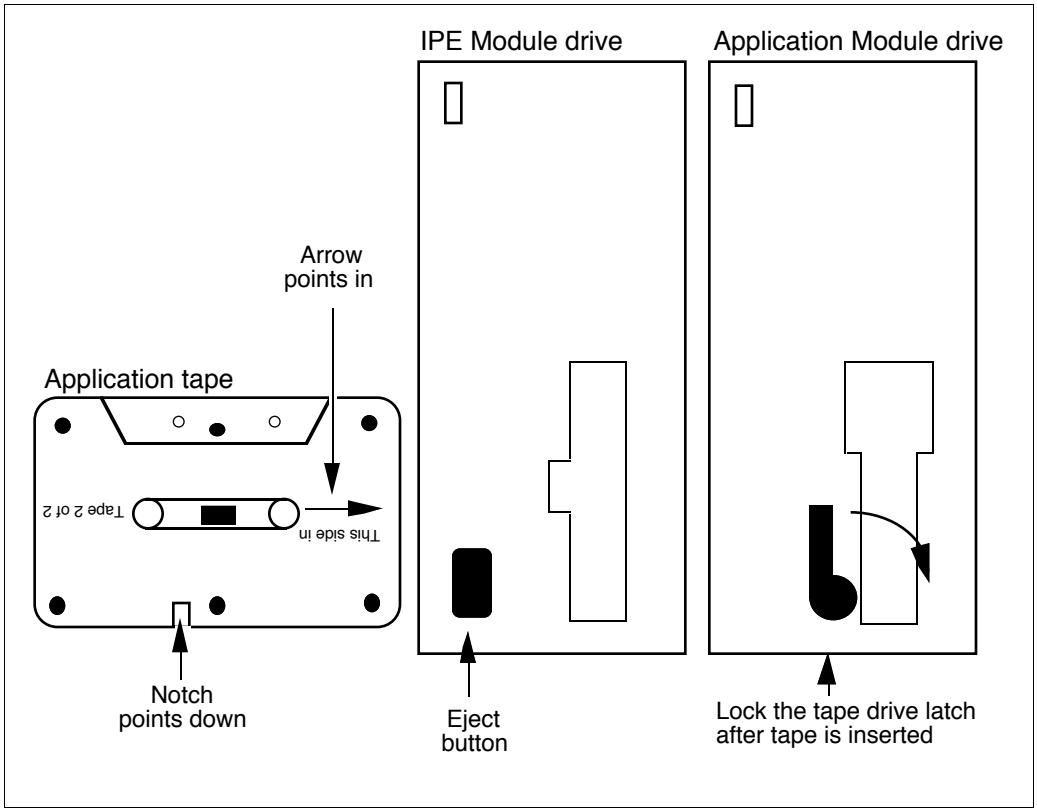
```
Insert the removable medium for the package you want to install
into the ctape drive.
Press <RETURN> when ready.  Type  q  to quit.
```

**7** You are prompted to insert the medium. Insert the application tape (tape 2 of 2) into the tape drive and wait until the tape indicator light turns off.

Once the tape is inserted correctly and the latch completely closed, the tape indicator light goes on, flashes briefly, then goes off again. Wait until the light goes off before proceeding to the next step.

**Procedure 22: Load the application software from tape (continued)**

**Figure 126**
**Insert tape into the tape drive**



**Procedure 22: Load the application software from tape (continued)**

**CAUTION**
**Risk of hardware damage**
Do not attempt to press a keyboard key until the tape active indicator light goes *from on to off* and stays off. The tape drive can enter a non-operational state if operations are attempted before the drive is completely ready.

**8** When the tape indicator light is off, press [Return] to start the auto-loading of the application software.

The system response is “Installing Meridian Applications”.

**9** You are prompted to press [Return] to continue. Press [Return].

A series of software install messages appears for approximately 10 minutes (Figure 127). If an error occurs, contact your Nortel support personnel.

**Figure 127**
**Software install messages 1**

```
190 blocks
Preparing for installation. Please wait.
Preparing for installation successful.
10 blocks
30 blocks
7780 blocks
1100 blocks
110 blocks
1080 blocks
2080 blocks
430 blocks
11000 blocks
11320 blocks
```

(A series of messages appears on the screen.)

```
.
Installation Complete.
Host based X.25 is installed.

Setting file permissions and ownerships. Please wait.
Setting file permissions and ownerships completed.

06/01/94 19:56:44 Invoking maint
```

**Procedure 22: Load the application software from tape (continued)**

**Figure 128**
**Meridian ID prompt**

```
Please enter the Meridian 1 ID of this site:
(or Q or q to quit)
```

**10** The system prompts you for the Meridian 1 ID. Type your ID and press [Return].

**Note:** If you make a mistake while typing your Meridian 1 ID or keycode, do not try to backspace and correct the error. Instead, continue until step 16, where you will be able to type n, press [Return], and return to step 10.

**Note:** Input for the Meridian 1 ID is case sensitive; input for the keycode is not case sensitive.

**Figure 129**
**Keycode prompt 1**

```
Please enter your keycode (5 groups of 4 characters):
Keycode group 1 (or Q or q to quit):
```

**11** The system prompts you for your keycode. Type the first 4-character group of your keycode and press [Return].

**Figure 130**
**Keycode prompt 2**

```
Keycode group 2 (or Q or q to quit):
```

**12** You are prompted for the second group of keycode characters. Type the second group and press [Return].

**Procedure 22: Load the application software from tape (continued)**

**Figure 131**
**Keycode prompt 3**

```
Keycode group 3 (or Q or q to quit):
```

**13** You are prompted for the third group of keycode characters. Type the third group and press [Return].

**Figure 132**
**Keycode prompt 4**

```
Keycode group 4 (or Q or q to quit):
```

**14** You are prompted for the fourth group of keycode characters. Type the fourth group and press [Return].

**Figure 133**
**Keycode prompt 5**

```
Keycode group 5 (or Q or q to quit):
```

**15** You are prompted for the fifth group of keycode characters. Type the fifth group and press [Return].

A list of configured applications appears.

**Note:** Optional feature prompts will not appear if the features were not configured in the keycode. For example, if Meridian Link was not purchased, the prompts in Figures 134, 135, and 136 will not appear.

**Figure 134**
**Meridian Link protocol prompt**

```
Please enter the Meridian Link protocol, x for X.25, <cr> for TCP/IP): <cr>
```

**Procedure 22: Load the application software from tape (continued)**

**16** If you are activating the Meridian Link application, you are prompted to enter the Meridian Link protocol.

If you are using the X.25 protocol, type **x,** press [Return], then go to step 19.

If you are using the TCP/IP protocol, press [Return], then go to step 17.

**Figure 135**
**IP address prompt**

```
Meridian Link using a TCP/IP connection.

If you would like a default gateway IP address configured or changed, please
enter the IP address in internet dot notation (e.g. 47.82.45.10), for no change
enter <cr>:
```

**17** To configure or change a default gateway IP address, type the IP address in the proper format and press [Return]. If no modification or configuration is required, simply press [Return].

**Figure 136**
**Subnet mask prompt**

```
Saving default gateway IP address:

If you would like a default subnet mask configured or changed,
please enter the subnet mask (e.g. 255.255.0.0). For no change enter <cr>:
```

**18** To configure or change a default subnet mask, type the subnet mask address in decimal format and press [Return]. If no modification or configuration is required, simply press [Return].

**Procedure 22: Load the application software from tape (continued)**

**Figure 137**
**Verification prompt**

```
Saving default subnet mask:

The following will be installed:
Meridian Link
Large CCR

The following packages are configured:
1
96
97
98
99
100
101

Ethernet NSE software is enabled.

Is this correct (y/n/q)?
```

The system lists the application or applications installed.

**Note:** Figure 137 only shows applications that have been selected; they are actually enabled when the system reboots at the end of this procedure.

**19** The system prompts you to verify that the list is correct.

To check that the correct application has, or applications have, been activated, refer to the checklist (Table 12) you completed in Chapter 6, “Site survey/installation checklist” of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If the list is incorrect, type **n** and press [Return]. You are returned to step 10. If the list is correct, type **y** and press [Return].

If you did not purchase CCR or NSE, go to step 25.

If you did not purchase CCR but you have enabled NSE, go to step 21. For more information about Ethernet connections, refer to “Installing Ethernet LAN support” in Chapter 9, “Meridian Link/CCR interface cabling” of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If you have purchased CCR, go to step 20.

**Procedure 22: Load the application software from tape (continued)**

**Figure 138**
**CCR customer number prompt**

```
Please enter the CCR customer number (0-99):
```

**20** You are prompted to enter your CCR customer number (Figure 138). Type the number and press [Return].

**Note:** A two-minute pause occurs at this point before the following messages appear.

**Figure 139**
**Ethernet connection prompt**

```
Installing NSE R3V7.1. Please wait.
Is your module connected to the Ethernet (y/n) ?
```

**21** You are asked whether your Application Module or IPE Module is connected to Ethernet (Figure 139).

For more information about Ethernet connections, refer to Chapter 9, “Meridian Link/CCR interface cabling” chapter of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If your module is not connected to Ethernet, type **n** and press [Return]. Go to step 25.

If you are connected to Ethernet and you plan to use it in the near future, type **y** and press [Return]. You see a message asking you to wait. Then you see more installation messages (Figure 140). Go to step 22.

If you are connected to Ethernet but do not plan to use it in the near future, you may choose to type **n** and press [Return]. Disabling Ethernet support increases the processing power available to your application(s). Go to step 25.

**Procedure 22: Load the application software from tape (continued)**

**ATTENTION**

If you disable Ethernet support, you must perform a complete reinstallation of the base operating system and application(s) before you can reenable Ethernet support.

**Figure 140**
**Software install messages 2**

```
Configuring your system for NSE. Please wait.
/usr/src/uts/m68k/sysgen/sysgen -l /usr/src/uts/m68k/sysgen  -big
        make -f io.mk MAKE=make FRC= DASHG= DASHO=-O INCRT=/usr/include
LIBDIR=../cf SYS= CFLAGS= -O  -I/usr/include -DLAI -DINKERNE
L -DSTREAMS -DBRIDGE CPU=m68k CC=/bin/pcc/cc
        make -f scsi.mk "MAKE=make" "CC=/bin/pcc/cc" "FRC="
"INCRT=/usr/include"
"DASHO=-O" "CFLAGS=-O  -I/usr/include -DLAI -DINKER

.
.
.

Warning: ./config.h: 358: NBLK4 redefined
        rm -f sysV68 sysV68.nm
        ld -o sysV68 ld.VME131 m68kvec.o low.o conf.o lib.io lib.ml lib.os
lib.s5 lib.bpp lib.fpack lib.nosrc lib.fpsp lib.du lib.tc
pip lib.nfs lib.bppv2 lib.c37x lib.kdb lib.lnc lib.nsedebug lib.sbc lib.scsi
lib.wan lib.x25 lib.stub lib.io lib.ml lib.os
lib.s5 lib.bpp lib.fpack lib.nosrc lib.fpsp lib.du lib.tcpip lib.nfs lib.bppv2
lib.c37x lib.kdb lib.lnc lib.nsedebug lib.sbc lib.scs
i lib.wan lib.x25 lib.stub
        mcs -da "SYSTEM V/68 - R3V7" sysV68
        chmod 755 sysV68
        ../kdb/kdbnm -q sysV68
../kdb/kdbnm: not enough space for symbol table
../kdb/kdbnm: need total of 145908 bytes at k_symtab
../kdb/kdbnm: 135168 bytes were reserved for symbols, 135168 bytes were used
sysV68 made.
```

**Figure 141**
**Module name prompt**

```
  ADD MODULE NAME AND ADDRESS TO TCPIP TRANSPORT PROVIDER DATABASE


If you are not sure how to answer any prompt, type “?” for HELP.

Your module’s system is currently the default name. We recommend that you
change it to avoid possible name conflicts.

Enter the MODULE NAME to be added to the tcpip transport provider database
(?, or module name):
```

**Procedure 22: Load the application software from tape (continued)**

**22** You are prompted for the name of the Application Module or IPE Module. (The term “module name” refers to an Ethernet host computer, which in this case is the Application Module or IPE Module.) Type the module name and press [Return]. The module name must not exceed eight alphanumeric characters. For more information about module names, consult your network administrator.

**Figure 142**
**Module address prompt**

```
Enter the MODULE ADDRESS to be added to the tcpip transport provider database
(?, or module address):
```

**23** You are prompted for the address of the Application Module or IPE Module (Figure 142). Type the module address and press [Return]. The module address must be four numbers separated by periods, such as “12.234.67.89”. For more information about module addresses, consult your network administrator.

**Figure 143**
**Reenter prompt**

```
If you made any mistakes in entering the module name and IP address, you can
correct them. Would you like to re-enter the module name or IP address? [y,n]:
```

**24** You are asked whether you want to reenter the module name or address (Figure 143).

If you have not made a mistake, type **n** and press [Return]. Go to step 25.

If you want to reenter the module name and address, type **y** and press [Return]; you will return to step 22.

**Procedure 22: Load the application software from tape (continued)**

**Figure 144**
**Reboot prompt**

```
Entry for <module name> with address <address> added to tcpip transport
provider database.

Now your system has been modified. You must reboot the system to have the new
kernel take effect.

Would you like to reboot the system now (y/n) ?
```

**25** You are prompted to reboot the system (Figure 144). Type **y** and press [Return].

**Figure 145**
**Reboot messages 1**

```
INIT: New run level: 6
The system is coming down.  Please wait.
System services are now being stopped.
Terminating Applications
/usr/bin/maint: /dev/tty: cannot create
cron aborted: SIGTERM

The system is down.

NOTICE: System Reboot Requested (0)
```

The system clears and the following messages appear.

**Note:** The following figure is illustrative only. Your messages may be different depending on the application(s) purchased.

**Procedure 22: Load the application software from tape (continued)**

**Figure 146**
**Reboot messages 2**

```
Copyright Motorola Inc. 1988 - 1992, All Rights Reserved

M4120 Debugger/Diagnostics Release Version 1.1 - 09/30/92 (IR01)
COLD Start

Local Memory Found =01000000 (&16777216)

MPU Clock Speed =25Mhz

Autoboot in progress... To abort hit <BREAK>
Booting from: M4120, Controller 0, Drive 0
Loading: Operating System

.                                (diagnostic messages)
.
Initializing For Applications

        Configure Link 0 : successful

        Enable Link 0 : successful

        Application release successful
Starting Applications

06/01/94 20:55:53 Starting CCR Application...
Starting Customer Controlled Routing Processes...

Performing modem reset...
Connected
Sending atz
 to the device.
Done modem reset.
The system is ready.

Console Login:
```

**26** Remove the application tape from the cassette tape drive.

The appearance of the “Console Login:” prompt indicates that the new application software is now installed. You may now log in to the system to perform other commands. You may also restore configuration files and data files from backup if necessary (Procedure 24: Restore configuration files and data files from the backup tape).

## Procedure 23: Back up configuration files and data files

**1** At the Console Login: prompt, type **maint** (if you are not already logged in) and press [Return]. The default password is **maint**.

**2** Insert the backup tape into the drive.

Ensure that the tape is a backup tape and not a system tape, because any information on the tape will be overwritten by the backup. Ensure that the tape is not write-protected.

**Note:** Ensure you use the correct backup tape. An Application Module uses a 155-Mbyte tape. An IPE Module uses a 600-Mbyte tape.

**3** At the "maint>" prompt, type **backdata** and press [Return] to start the backup process.

**Figure 147**
**Backdata messages 1**

```
Files will be backed-up from:
/usr/maint/files/AMprofile
/usr/maint/files/AutoStart
/usr/maint/files/IncrDY
/usr/maint/files/IncrTM
/usr/maint/files/Port
/usr/maint/files/Prefs
/usr/maint/files/Speed
.
.
.
```

(Actual list of directories may differ depending on the application)

```
Make sure tape is in drive
When ready, enter 'y' to continue, or 'n' to quit:   [y,n]
```

**4** You are prompted to continue the backup process. Wait until the tape LED goes off before typing **y** and pressing [Return].

Various messages appear; the backup is complete when the message "Backup successful" appears.

**Procedure 23: Back up configuration files and data files (continued)**

**Figure 148**
**Backdata messages 2**

```
Starting backup
c  4k  of   6k   [1]  usr/maint/files/AMprofile
c  4k  of   10k  [1]  /usr/maint/files/AutoStart
c  4k  of   14k  [1]  /usr/maint/files/IncrDY
c  4k  of   18k  [1]  /usr/maint/files/IncrTM
c  4k  of   22k  [1]  /usr/maint/files/Port
c  4k  of   26k  [1]  /usr/maint/files/Prefs
c  4k  of   30k  [1]  /usr/maint/files/Speed
.
.
.

Backup successful

maint>
```

**5** At the “maint>” prompt, type **exit** and press [Return] to log out of maint.

**6** Unlock the tape drive and remove the cassette tape. Keep this and all your backup tapes in a safe place in case you need to use them again.

## Procedure 24: Restore configuration files and data files from the backup tape

**1** At the “Console Login:” prompt, type **maint** and press [Return].

**2** You are prompted for a password. Type the password and press [Return]. The default password is **maint**.

**3** At the “maint>” prompt, type **rstdata** and press [Return].

Prompts similar to the following appear:

**Figure 149**
**Rstdata prompt**

```
Make sure tape is in drive
When ready, enter 'y' to continue, or 'n' to quit:   [y,n]
```

**4** You are prompted to prepare the tape drive. Insert the most recent backup tape for your application data.

**Note:** Wait until the tape indicator light turns off before proceeding to the next step:

**5** When the tape is ready, type **y** and press [Return].

**Figure 150**
**Stop applications prompt**

```
The restore will not succeed with an application running.
Enter 'y' to stop the application(s) and continue, or 'n' to quit:  [y,n]
```

**6** If an application is not running, go to step 7. If an application is running, you will be prompted to stop all applications. Type **y** and press [Return].

**Procedure 24: Restore configuration files and data files from the backup tape (continued)**

**Figure 151**
**Rstdata messages screen 1**

```
Stopping application(s)

02/02/94 16:00:27 Notifying CCR of Shutdown...
02/02/94 16:00:37 Stopping CCR application

Release Communication Resources...

Please wait while tape file list is extracted.
```

You may be prompted about restoring link control files (Figure 152).

**Figure 152**
**Restore link control files prompt**

```
Link control files are present in this Restore list.
Do you want to restore link control files (y/n)?
```

**7** If you have already configured the links for Release 3C (refer to the chapter on “Link configuration” in the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide [NTP 555-3202-210]) and you do not want to overwrite them with backed-up Release 2 configuration, type **n** and press [Return].

If you have not configured the links for Release 3C, or if you wish to restore the Release 2 configurations, type **y** and press [Return].

**Procedure 24: Restore configuration files and data files from the backup tape (continued)**

**Figure 153**
**Rstdata messages screen 2**

```
Files will be restored to:

/usr/maint/files/AMprofile
/usr/maint/files/AutoStart
/usr/maint/files/IncrDY
/usr/maint/files/IncrTM
/usr/maint/files/Port
/usr/maint/files/Prefs
/usr/maint/files/Speed
/usr/maint/conf/hdlchlnk.dataf
/usr/maint/conf/hdlcmlnk.dataf
/usr/maint/conf/lh.config
/usr/mlusr/conf/loop13DCE.d
/usr/mlusr/conf/loop13DTE.d
/usr/mlusr/conf/loop31DCE.d
/usr/mlusr/conf/loop31DTE.d
/usr/mlusr/conf/tscfg.datafile
/usr/mlusr/conf/vlink.datafile
/usr/mlusr/conf/x25bcf333.2
/usr/mlusr/conf/x25hlink.datafi
```

(Actual list of directories may differ depending on the application)

```
Please enter 'y' to do restore, or 'n' to quit:  [y,n]
```

**8** You are prompted to restore the files. Type **y** and press [Return].

Various prompts appear, followed by the message "Restore successful" when the procedure is completed (Figure 154).

**Note:** The following figure is illustrative only. It shows restoration messages for Meridian Link. If you are restoring for CCR, your messages will be different.

**Procedure 24: Restore configuration files and data files from the backup tape (continued)**

**Figure 154**
**Rstdata messages screen 3**

```
Starting restore
x     4k      of      6k      [1]  usr/maint/files/AMprofile
x     4k      of      10k     [1]  /usr/maint/files/AutoStart
x     4k      of      14k     [1]  /usr/maint/files/IncrDY
x     4k      of      18k     [1]  /usr/maint/files/IncrTM
x     4k      of      22k     [1]  /usr/maint/files/Port
x     4k      of      26k     [1]  /usr/maint/files/Prefs
x     4k      of      30k     [1]  /usr/maint/files/Speed
x     4k      of      34k     [1]  /usr/maint/conf/hdlchlnk.dataf
x     4k      of      38k     [1]  /usr/maint/conf/hdlcmlnk.dataf
x     4k      of      42k     [1]  /usr/maint/conf/lh.config
x     4k      of      46k     [1]  /usr/mlusr/conf/loop13DCE.d
x     4k      of      50k     [1]  /usr/mlusr/conf/loop13DTE.d
x     4k      of      54k     [1]  /usr/mlusr/conf/loop31DCE.d
x     4k      of      58k     [1]  /usr/mlusr/conf/loop31DTE.d
x     4k      of      62k     [1]  /usr/mlusr/conf/tscfg.datafile
x     4k      of      66k     [1]  /usr/mlusr/conf/vlink.datafile
x     6k      of      72k     [1]  /usr/mlusr/conf/x25bcf333.2
x     4k      of      76k     [1]  /usr/mlusr/conf/x25hlink.datafi
Restore successful
Configuration changed, restarting link processes.
      Configure Link 0 :  successful
      Configure Link 1 :  successful
      Configure Link 2 :  successful
      Enable Link 0 :  successful
      Enable Link 1 :  successful
      Enable Link 2 :  successful
      Link 0 :  enabled but down
      Link 1 :  enabled but down
      Link 2 :  enabled but down
      Link 0 :  up
      Link 1 :  up
      Link 2 :  up
      Application release successful
```

**9** If, in step 6, you stopped any applications, you are prompted to restart them. Type **y** and press [Return] to restart the applications.

**10** Unlock the tape drive and remove the cassette tape. Keep this, and label it with the date, and store it with all your backup tapes in a safe place in case you need to use it again.

## Procedure 25: Enable or disable Ethernet LAN support

Before you enable or disable Ethernet LAN support, ensure that all applications have been stopped.

This procedure can be used to enable or disable Ethernet LAN support. The example shown in the following procedure is for enabling the support.

1. Type **maint** and press [Return] at the "Console Login:" prompt to log in as the maintenance user.
2. You are prompted to enter a password. Type the password for the maint account and press [Return]. The initial password for maint is **maint**.
3. At the "maint>" prompt, type **install** and press [Return].

**Figure 155**
**Tape prompt**

```
You can reconfigure the system using a keycode without a tape or you can use a
tape to upgrade the software and reconfigure.
Do you want to use a tape (y/n/q)?
```

4. You are prompted to use a tape (Figure 155). Type **n** and press [Return].

**Figure 156**
**Meridian 1 ID prompt**

```
Please enter the Meridian ID of this site:
(or Q or q to quit)
```

5. You are prompted to enter your Meridian 1 ID (Figure 156). Type your ID and press [Return].

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Note:** If you make a mistake while typing your Meridian ID or keycode, do not try to backspace and correct the error. Instead, continue until step 12, where you will be able to type n, press [Return] and return to step 6.

**Note:** Input for the Meridian ID is case sensitive; input for the keycode is not case sensitive.

**Figure 157**
**Keycode prompt 1**

```
Please enter your keycode (5 groups of 4 characters each):
Keycode group 1 (or Q or q to quit):
```

**6** You are prompted to enter your keycode (Figure 157). Type the first 4-character group of your keycode that will enable Ethernet LAN support and press [Return].

**Figure 158**
**Keycode prompt 2**

```
Keycode group 2 (or Q or q to quit):
```

**7** You are prompted to enter the second group of keycode characters. Type the second group and press [Return].

**Figure 159**
**Keycode prompt 3**

```
Keycode group 3 (or Q or q to quit):
```

**8** You are prompted to enter the third group of keycode characters. Type the third group and press [Return].

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Figure 160**
**Keycode prompt 4**

```
Keycode group 4 (or Q or q to quit):
```

**9** You are prompted to enter the fourth group of keycode characters. Type the fourth group and press [Return].

**Figure 161**
**Keycode prompt 5**

```
Keycode group 5 (or Q or q to quit):
```

**10** You are prompted to enter the fifth group of keycode characters. Type the fifth group and press [Return].

A list of configured applications appears.

**Note:** Optional feature prompts will not appear if the features were not configured in the keycode. For example, if Meridian Link was not purchased, the prompts in Figures 162, 163, and 164 will not appear.

**Figure 162**
**Meridian Link protocol prompt**

```
Please enter the Meridian Link protocol, x for X.25, <cr> for TCP/IP):
```

**11** If you are activating the Meridian Link application, you are prompted to enter the Meridian Link protocol.

If you are using the X.25 protocol, type **x,** press [Return], then go to step 14.

If you are using the TCP/IP protocol, press [Return], then go to step 17.

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Figure 163**
**IP address prompt**

```
Meridian Link using TCP/IP connection.

If you would like a default gateway IP address configured or changed, please
enter the IP address in internet dot notation (e.g. 47.82.45.10), for no change
enter <cr>:
```

**12** To configure or change a default gateway IP address, type the IP address in the proper format and press [Return]. If no modification or configuration is required, simply press [Return].

**Figure 164**
**Subnet mask prompt**

```
Saving default gateway IP address:

If you would like a default subnet mask address configured or changed,
please enter the subnet mask address in decimal, for no change enter <cr>:
```

**13** To configure or change a default subnet mask, type the subnet mask address in decimal format and press [Return]. If no modification or configuration is required, simply press [Return].

**Figure 165**
**Verification prompt**

```
Saving default subnet mask:

The following applications are configured:
Meridian Link
Large CCR

The following packages are configured:
1
96
97
98
99
100
101

Ethernet NSE software is enabled.

Is this correct (y/n/q)?
```

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

The system lists the application or applications installed.

**Note:** Figure 165 only shows applications that have been selected; they are actually enabled when the system reboots at the end of this procedure.

**14** The system prompts you to verify that the list is correct.

To check that the correct application has, or applications have, been activated, refer to the checklist (Table 12) you completed in Chapter 6, “Site survey/installation checklist” of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If the list is incorrect, type **n** and press [Return]. You are returned to step 6. Re-key your Meridian ID and keycode. If the list of applications is still incorrect, type **q** and press [Return]. The message “Software not configured” appears. Call your Nortel support personnel for a new keycode.

If the list is correct, type **y** and press [Return].

If you did not purchase CCR or NSE, go to step 20.

If you did not purchase CCR but you have enabled NSE, go to step 16. For more information about Ethernet connections, refer to “Installing Ethernet LAN support” in Chapter 9, “Meridian Link/CCR interface cabling” of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If you have purchased CCR, go to step 15.

**Figure 166**
**CCR customer number prompt**

```
Please enter the CCR customer number (0-99):
```

**15** You are prompted to enter your CCR customer number (Figure 166). Type the number and press [Return].

**Note:** A two-minute pause occurs at this point before the following messages appear.

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Figure 167**
**Ethernet connection prompt**

```
Installing NSE R3V7.1. Please wait.

Is your module connected to the Ethernet (y/n) ?
```

**16** You are asked whether your Application Module or IPE Module is connected to Ethernet (Figure 167).

For more information about Ethernet connections, refer to "Meridian Link/CCR interface cabling" chapter of the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (NTP 553-3202-210).

If your module is not connected to Ethernet, type **n** and press [Return]. Go to step 20.

If you are connected to Ethernet and you plan to use it in the near future, type **y** and press [Return]. You see a message asking you to wait. Then you see more installation messages (Figure 168). Go to step 22.

If you are connected to Ethernet but do not plan to use it in the near future, you may choose to type **n** and press [Return]. Disabling Ethernet support increases the processing power available to your application(s). Go to step 20.

**ATTENTION**

If you disable Ethernet support, you must perform a complete reinstallation of the base operating system and application(s) before you can reenable Ethernet support.

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Figure 168**
**Software install messages 2**

```
Configuring your system for NSE. Please wait.
/usr/src/uts/m68k/sysgen/sysgen -l /usr/src/uts/m68k/sysgen  -big
        make -f io.mk MAKE=make FRC= DASHG= DASHO=-O INCRT=/usr/include
LIBDIR=../cf SYS= CFLAGS= -O  -I/usr/include -DLAI -DINKERNE
L -DSTREAMS -DBRIDGE CPU=m68k CC=/bin/pcc/cc
        make -f scsi.mk "MAKE=make" "CC=/bin/pcc/cc" "FRC="
"INCRT=/usr/include"
"DASHO=-O" "CFLAGS=-O  -I/usr/include -DLAI -DINKER

.
.
.

Warning: ./config.h: 358: NBLK4 redefined
        rm -f sysV68 sysV68.nm
        ld -o sysV68 ld.VME131 m68kvec.o low.o conf.o lib.io lib.ml lib.os
lib.s5 lib.bpp lib.fpack lib.nosrc lib.fpsp lib.du lib.tc
pip lib.nfs lib.bppv2 lib.c37x lib.kdb lib.lnc lib.nsedebug lib.sbc lib.scsi
lib.wan lib.x25 lib.stub lib.io lib.ml lib.os
lib.s5 lib.bpp lib.fpack lib.nosrc lib.fpsp lib.du lib.tcpip lib.nfs lib.bppv2
lib.c37x lib.kdb lib.lnc lib.nsedebug lib.sbc lib.scs
i lib.wan lib.x25 lib.stub
        mcs -da "SYSTEM V/68 - R3V7" sysV68
        chmod 755 sysV68
        ../kdb/kdbnm -q sysV68
../kdb/kdbnm: not enough space for symbol table
../kdb/kdbnm: need total of 145908 bytes at k_symtab
../kdb/kdbnm: 135168 bytes were reserved for symbols, 135168 bytes were used
sysV68 made.
```

**Figure 169**
**Module name prompt**

```
  ADD MODULE NAME AND ADDRESS TO TCPIP TRANSPORT PROVIDER DATABASE


If you are not sure how to answer any prompt, type “?” for HELP.

Your module’s system is currently the default name. We recommend that you
change it to avoid possible name conflicts.

Enter the MODULE NAME to be added to the tcpip transport provider database
(?, or module name):
```

**17** You are prompted for the name of the Application Module or IPE Module. (The term “module name” refers to an Ethernet host computer, which in this case is the Application Module or IPE Module.) Type the module name and press [Return]. The module name must not exceed eight alphanumeric characters. For more information about module names, consult your network administrator.

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**Figure 170**
**Module address prompt**

```
Enter the MODULE ADDRESS to be added to the tcpip transport provider database
(?, or module address):
```

**18** You are prompted for the address of the Application Module or IPE Module (Figure 170). Type the module address and press [Return]. The module address must be four numbers separated by periods, such as “12.234.67.89”. For more information about module addresses, consult your network administrator.

**Figure 171**
**Re-enter prompt**

```
If you made any mistakes in entering the module name and IP address, you can
correct them. Would you like to re-enter the module name or IP address? [y,n]:
```

**19** You are asked whether you want to reenter the module name or address (Figure 171).

If you have not made a mistake, type **n** and press [Return]. Go to step 20.

If you want to reenter the module name and address, type **y** and press [Return]; you will return to step 17.

**Figure 172**
**Reboot prompt**

```
Entry for <module name> with address <address> added to tcpip transport
provider database.

Now your system has been modified. You must reboot the system to have the new
kernel take effect.

Would you like to reboot the system now (y/n) ?
```

**Procedure 25: Enable or disable Ethernet LAN support (continued)**

**20** You are prompted to reboot the system (Figure 172). Type **y** and press [Return].

Application shutdown and start-up messages appear. Eventually the "Configuration successful" message appears (Figure 173).

**Figure 173**
**Installation confirmation**

```
Configuration successful
```

# List of terms

**ACD**

*See* Automatic Call Distribution (ACD).

**ACD DN**

*See* Automatic Call Distribution Directory Number (ACD DN).

**AEM**

*See* Application Equipment Module (AEM).

**AM**

*See* Application Module (AM).

**AML**

*See* Application Module Link (AML).

**Application Equipment Module (AEM)**

Module Packaging within the Meridian 1 Universal Equipment Module that supports Application Module or IPE Module.

**Application Module (AM)**

Nortel's Motorola-based application processor that is packaged within an AEM in a Meridian 1.

**Application Module Link (AML)**

A Nortel internal and proprietary link that connects the Meridian 1 (via ESDI or MSDL) to the Application Module or IPE Module.

**attendant**

A PBX operator position. Attendants typically receive incoming calls and extend them to the desired party. PBX users typically contact the attendant by dialing 0. The Meridian 1 supports multiple attendants, and offers features such as a busy lamp field showing the busy/idle state of DNs.

**Automatic Call Distribution (ACD)**

This is a feature offered by the Meridian 1 that queues and distributes incoming calls to a number of answering positions. Calls are queued until an agent is available. If multiple agents are available, calls are serviced in the order they arrive and distributed so that the workload at each answering position is approximately equal. ACD has many additional features, including recorded announcement (RAN), music while queued, night treatment, overflows, statistics/reports, and networking with ISDN.

**Automatic Call Distribution directory number (ACD DN)**

An ACD DN is the queue where incoming calls wait until they are answered. Calls are answered in the order in which they entered the queue.

**Base Operating System (BOS)**

Motorola's SYSTEM V/68 Base Operating System (UNIX). UNIX System V Release 3 Version 7.1 (V/68 R3V7.1) is used with the Application Module or IPE Module.

**CDN**

*See* control directory number.

**central office (CO)**

A public network telephone exchange. Local subscribers are connected to the CO via local loops; PBXs are connected to the CO via trunks. Nortel's DMS-100 is an example of a CO.

**Command and Status Link (CSL)**

A Nortel internal and proprietary link, also known as AML.

**Control Directory Number (CDN)**

A Control DN is a special ACD DN, configured in Meridian 1, to which no agents are assigned. To control calls in the CDN you need to create a script, otherwise the calls are put into the default mode. A call script is associated with a CDN, so that all calls entering a CDN are handled by the same call script.

**CSL**

*See* Command and Status Link.

**Customer Controlled Routing (CCR)**

CCR is a product that enables you to control and route Automatic Call Distribution (ACD) calls entering your Meridian 1 system. You can provide a specific recorded announcement, music, and so on, before assigning a call to an agent.

**Direct Inward Dialing (DID)**

An attribute of a trunk. The CO passes the extension number of the called party over a DID trunk to the PBX when offering a call to the PBX. The PBX is then able to automatically route the call to the extension without requiring operator/attendant assistance. In this way, a single trunk can terminate calls for many different extensions (but not simultaneously).

**directory number (DN)**

The number that identifies a telephone set on a PBX or in the public network. It is the number that a caller dials in order to establish a connection to the addressed party. The DN could be a local PBX extension (local DN), a public network telephone number, an ACD-DN, or the pilot or group number for an ACD queue.

**Directory Number Identification Service (DNIS)**

A service provided on a trunk. DNIS identifies to the called system the last 3 or 4 digits of the number actually dialed by the caller. The DNIS digits are sent as in-bank DTMF tones on non-ISDN trunks, or by using dial pulses on dial pulse (DIP) trunks. On ISDN PRA trunks, DNIS is carried in the called party IE field of the Q.931 Setup message.

**DN**

*See* directory number (DN).

### DNIS

*See* Directory Number Identification Service (DNIS).

### Dual Tone Multi-Frequency (DTMF)

The signaling method used with touch-tone 2500 telephones. Digits are sent as in-band tones, each digit being a unique combination of 2 out of 16 tones.

### Enhanced Serial Data Interface (ESDI)

A Nortel Meridian 1 pack, numbered QPC513. This card supports internal communications between the Meridian 1 CPU and other components within the Meridian 1 system.

### Intelligent Peripheral Equipment (IPE) Module

Nortel's smaller application processor that can be packaged in a Meridian 1 Option 11 cabinet or in an IPE shelf.

### Interactive Voice Response (IVR)

A system/facility that plays voice menus to callers, and acts upon user input (typically DTMF digits from a touch-tone phone). Sometimes called VRU (Voice Response Unit).

### IPE Module

*See* Intelligent Peripheral Equipment (IPE) Module.

### Meridian 1

Meridian 1 is the private branch exchange (PBX) that handles the calls to and from an organization's ACD system. It routes calls to the various queues and provides the framework for all the ACD features available through various applications.

### Meridian Link

Meridian Link is an application that allows a Meridian 1 system to exchange information with a host computer so that users can integrate the capabilities of both into a business application.

### Module Power Distribution Unit (MPDU)

Part of an AEM that provides power to the Application Modules housed within it.

**Multi-use Serial Data Link (MSDL) card**

This card supports internal communications between the Meridian 1 CPU and other components within the Meridian 1 system.

**Northern Telecom Publication (NTP)**

A collection of documents and manuals that describe the Meridian 1 product portfolio, and how to install, administer and maintain it.

**Operations, Administration and Maintenance (OA&M)**

Operations, Administration and Maintenance. The tools, typically software, that enable a technician to configure, administer and maintain a system.

**overlay**

Generally used to describe some software that is not always memory resident; it is loaded on request. In the Meridian 1, most configuration, administration and maintenance functions are done from a tty terminal using various overlays. Each overlay is designed for a specific task: for example, Overlay 10 is used to configure PBX (500/2500) sets, 11 to configure proprietary sets, Overlay 23 to configure ACD queues, Overlay 17 to configure I/O ports, Overlay 15 to configure customer data, Overlay 48 to configure link maintenance, and so on. The Meridian 1 currently has about 100 overlays. An overlay is loaded from the tty by typing LD nn where nn is the overlay number. Overlays are exited by typing ****.

**QPC513**

A Nortel Meridian 1 circuit pack, also known as ESDI (Enhanced Serial Data Interface). This card supports internal communications between the Meridian 1 CPU and other components within the Meridian 1 system.

**route**

Route usually refers to a trunk route. This is a collection of trunks which share many common characteristics, such as trunk type (for example, DID). On the Meridian 1, trunks must be associated with (belong to) a trunk route. Routes are configured in Overlay 16 on the Meridian 1.

**script**

A collection of statements defining call routing and treatment for calls controlled by CCR.

**Standalone System Interactive Diagnostics (SSID)**

A set of diagnostic tools that provide confidence tests on various Application Module or IPE Module hardware components.

**terminal number (TN)**

The physical address of a device (for example, telephone set, a trunk, and attendant) on the Meridian 1 PBX. The TN is composed of the loop, shelf, card and unit IDs.

**TN**

*See* terminal number.

**trunk**

Trunks are the physical links, or circuits, that enable telephone communication, such as the link between a PBX and the public central office (CO). There are various trunk types which provide services such as Direct Inward Dialing (DID trunks), ISDN, central office connectivity (CO trunks). Trunks can be analog or digital. Digital trunks use A/B signaling, or D-channel signaling in the case of ISDN. Trunks are configured on the Meridian 1 in Overlay 14.

**variable**

This is a user-defined name that represents a value or set of values. Variables, such as “after_hours” representing the value “17:00–06:00”, are defined in the Variable Table.

**Versa Module Eurocard (VME).**

VME bus is an industry standard, high performance, 32-bit computer bus.

**VME**

*See* Versa Module Eurocard.

**Voice Response Unit (VRU)**

A device that plays voice menus to a caller and responds to caller instructions entered on a touch tone phone. Also known as IVR (Interactive Voice Response).

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# Application Module and Intelligent Peripheral Equipment Module

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Meridian Link Release 5C
Customer Controlled Routing Release 3C


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