# M8501 and M8502 ACL Tape Drive Installation and User's Guide


**Abstract**

This guide provides information about installing, operating, and maintaining the M8501 and M8502 ACL tape drives on an HP Integrity NonStop™ NS-series server. This guide is written for those who install or maintain the M8501 and M8502 ACL tape drives.


**Product Version**

N.A.

**Supported Release Version Updates (RVUs)**

This guide supports H06.03 and all subsequent H-series RVUs until otherwise indicated by its replacement publication.


| Part Number | Published |
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| 529972-001 | July 2005 |

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# What’s New in This Manual

## Manual Information

### Abstract

This guide provides information about installing, operating, and maintaining the M8501 and M8502 ACL tape drives on an HP Integrity NonStop™ NS-series server. This guide is written for those who install or maintain the M8501 and M8502 ACL tape drives.

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## New and Changed Information

This is a new manual.

# About This Manual

## Notation Conventions

### Hypertext Links

Blue underline is used to indicate a hypertext link within text. By clicking a passage of text with a blue underline, you are taken to the location described. For example:

> This requirement is described under Backup DAM Volumes and Physical Disk Drives on page 3-2.

### General Syntax Notation

This list summarizes the notation conventions for syntax presentation in this manual.

**UPPERCASE LETTERS.** Uppercase letters indicate keywords and reserved words. Type these items exactly as shown. Items not enclosed in brackets are required. For example:

```
MAXATTACH
```

**lowercase italic letters.** Lowercase italic letters indicate variable items that you supply. Items not enclosed in brackets are required. For example:

*file-name*

**computer type.** `Computer type` letters within text indicate C and Open System Services (OSS) keywords and reserved words. Type these items exactly as shown. Items not enclosed in brackets are required. For example:

```
myfile.c
```

**italic computer type.** *`Italic computer type`* letters within text indicate C and Open System Services (OSS) variable items that you supply. Items not enclosed in brackets are required. For example:

*pathname*

**[ ] Brackets.** Brackets enclose optional syntax items. For example:

TERM [*system-name*.]$*terminal-name*

INT[ERRUPTS]

A group of items enclosed in brackets is a list from which you can choose one item or none. The items in the list can be arranged either vertically, with aligned brackets on

each side of the list, or horizontally, enclosed in a pair of brackets and separated by vertical lines. For example:

```
FC [ num  ]
   [ -num ]
   [ text ]

K [ X | D ] address
```

**{ } Braces.** A group of items enclosed in braces is a list from which you are required to choose one item. The items in the list can be arranged either vertically, with aligned braces on each side of the list, or horizontally, enclosed in a pair of braces and separated by vertical lines. For example:

```
LISTOPENS PROCESS { $appl-mgr-name }
                  { $process-name  }

ALLOWSU { ON | OFF }
```

**| Vertical Line.** A vertical line separates alternatives in a horizontal list that is enclosed in brackets or braces. For example:

```
INSPECT { OFF | ON | SAVEABEND }
```

**… Ellipsis.** An ellipsis immediately following a pair of brackets or braces indicates that you can repeat the enclosed sequence of syntax items any number of times. For example:

```
M address [ , new-value ]...

[ - ] {0|1|2|3|4|5|6|7|8|9}...
```

An ellipsis immediately following a single syntax item indicates that you can repeat that syntax item any number of times. For example:

```
"s-char..."
```

**Punctuation.** Parentheses, commas, semicolons, and other symbols not previously described must be typed as shown. For example:

```
error := NEXTFILENAME ( file-name ) ;

LISTOPENS SU $process-name.#su-name
```

Quotation marks around a symbol such as a bracket or brace indicate the symbol is a required character that you must type as shown. For example:

```
"[" repetition-constant-list "]"
```

**Item Spacing.** Spaces shown between items are required unless one of the items is a punctuation symbol such as a parenthesis or a comma. For example:

```
CALL STEPMOM ( process-id ) ;
```

If there is no space between two items, spaces are not permitted. In this example, no spaces are permitted between the period and any other items:

```
$process-name.#su-name
```

**Line Spacing.** If the syntax of a command is too long to fit on a single line, each continuation line is indented three spaces and is separated from the preceding line by a blank line. This spacing distinguishes items in a continuation line from items in a vertical list of selections. For example:

```
ALTER [ / OUT file-spec / ] LINE

   [ , attribute-spec ]...
```

**!i and !o.** In procedure calls, the !i notation follows an input parameter (one that passes data to the called procedure); the !o notation follows an output parameter (one that returns data to the calling program). For example:

```
CALL CHECKRESIZESEGMENT (  segment-id                    !i
                         , error        ) ;              !o
```

**!i,o.** In procedure calls, the !i,o notation follows an input/output parameter (one that both passes data to the called procedure and returns data to the calling program). For example:

```
error := COMPRESSEDIT ( filenum ) ;                      !i,o
```

**!i:i.** In procedure calls, the !i:i notation follows an input string parameter that has a corresponding parameter specifying the length of the string in bytes. For example:

```
error := FILENAME_COMPARE_ (  filename1:length           !i:i
                            , filename2:length ) ;       !i:i
```

**!o:i.** In procedure calls, the !o:i notation follows an output buffer parameter that has a corresponding input parameter specifying the maximum length of the output buffer in bytes. For example:

```
error := FILE_GETINFO_ (  filenum                        !i
                        , [ filename:maxlen ] ) ;        !o:i
```

## Notation for Messages

This list summarizes the notation conventions for the presentation of displayed messages in this manual.

**Bold Text.** Bold text in an example indicates user input typed at the terminal. For example:

```
ENTER RUN CODE
?123
CODE RECEIVED:      123.00
```

The user must press the Return key after typing the input.

**Nonitalic text.** Nonitalic letters, numbers, and punctuation indicate text that is displayed or returned exactly as shown. For example:

```
Backup Up.
```

**lowercase italic letters.** Lowercase italic letters indicate variable items whose values are displayed or returned. For example:

*p-register*

*process-name*

**[ ] Brackets.** Brackets enclose items that are sometimes, but not always, displayed. For example:

```
Event number = number [ Subject = first-subject-value ]
```

A group of items enclosed in brackets is a list of all possible items that can be displayed, of which one or none might actually be displayed. The items in the list can be arranged either vertically, with aligned brackets on each side of the list, or horizontally, enclosed in a pair of brackets and separated by vertical lines. For example:

```
proc-name trapped [ in SQL | in SQL file system ]
```

**{ } Braces.** A group of items enclosed in braces is a list of all possible items that can be displayed, of which one is actually displayed. The items in the list can be arranged either vertically, with aligned braces on each side of the list, or horizontally, enclosed in a pair of braces and separated by vertical lines. For example:

```
obj-type obj-name state changed to state, caused by
{ Object | Operator | Service }
```

```
process-name State changed from old-objstate to objstate
{ Operator Request. }
{ Unknown.          }
```

**| Vertical Line.** A vertical line separates alternatives in a horizontal list that is enclosed in brackets or braces. For example:

```
Transfer status: { OK | Failed }
```

**% Percent Sign.** A percent sign precedes a number that is not in decimal notation. The % notation precedes an octal number. The %B notation precedes a binary number. The %H notation precedes a hexadecimal number. For example:

```
%005400
```

```
%B101111
```

```
%H2F
```

```
P=%p-register E=%e-register
```

## Notation for Management Programming Interfaces

This list summarizes the notation conventions used in the boxed descriptions of programmatic commands, event messages, and error lists in this manual.

**UPPERCASE LETTERS.** Uppercase letters indicate names from definition files. Type these names exactly as shown. For example:

```
ZCOM-TKN-SUBJ-SERV
```

**lowercase letters.** Words in lowercase letters are words that are part of the notation, including Data Definition Language (DDL) keywords. For example:

```
token-type
```

**!r.** The !r notation following a token or field name indicates that the token or field is required. For example:

```
ZCOM-TKN-OBJNAME       token-type ZSPI-TYP-STRING.          !r
```

**!o.** The !o notation following a token or field name indicates that the token or field is optional. For example:

```
ZSPI-TKN-MANAGER       token-type ZSPI-TYP-FNAME32.         !o
```

## Change Bar Notation

Change bars are used to indicate substantive differences between this manual and its preceding version. Change bars are vertical rules placed in the right margin of changed portions of text, figures, tables, examples, and so on. Change bars highlight new or revised information. For example:

> The message types specified in the REPORT clause are different in the COBOL environment and the Common Run-Time Environment (CRE).
>
> The CRE has many new message types and some new message type codes for old message types. In the CRE, the message type SYSTEM includes all messages except LOGICAL-CLOSE and LOGICAL-OPEN.

# 1 Overview and Features

This section includes:

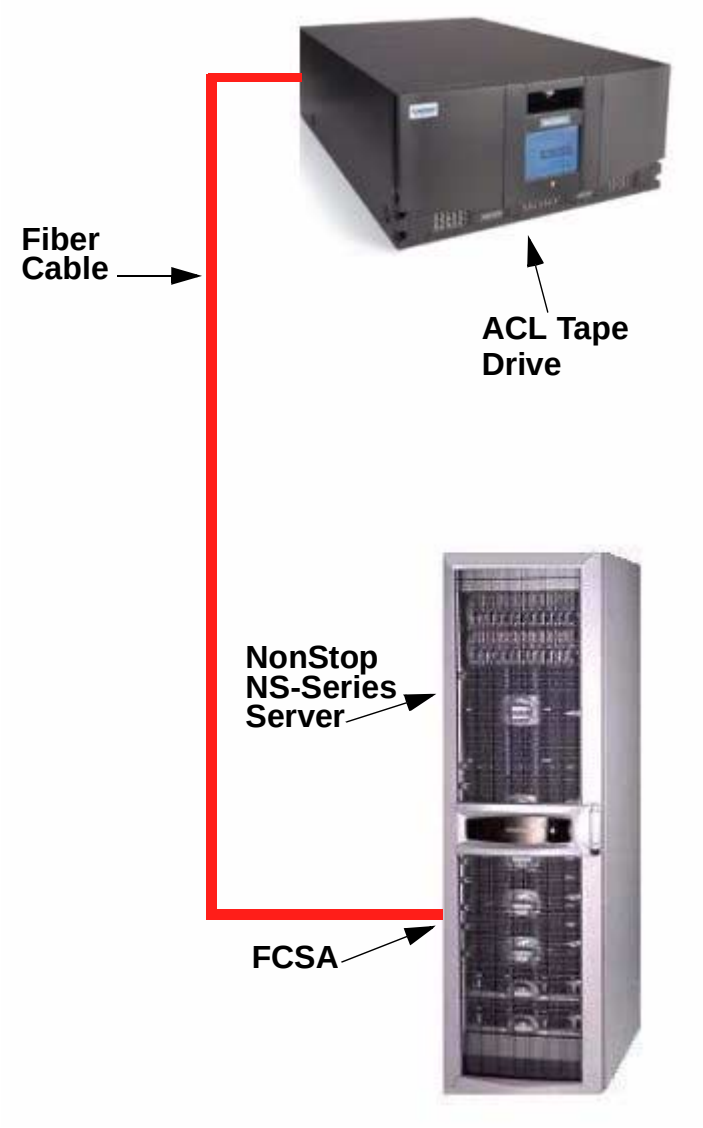


## Overview

The M8501 and M8502 auto cartridge loader (ACL) tape drives support the LTO Ultrium Gen 3 tape drive. They are designed for backup operations for the NonStop NS-series server. The M8501 comes in a rackmount configuration, and the M8502 comes in a tabletop configuration.

These auto cartridge loader tape drives connect to the Fibre Channel ServerNet adapter (FCSA) on the NonStop NS-series server by a fiber optic cable. Figure 1-1 shows how the ACL tape drives connect to the server.

**Figure 1-1. Hardware Configuration**




# Models and Accessories

These auto cartridge loader tape drives are configured with one internal LTO Gen 3 tape drive along with one removable tape cartridge magazine.

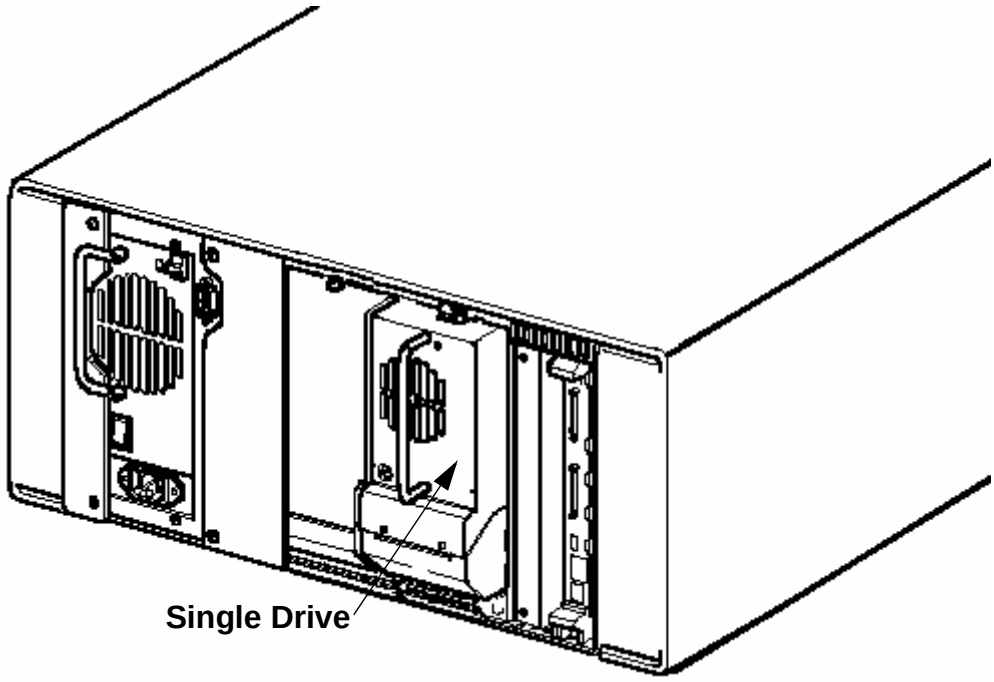
**Table 1-1. Models and Slot Capacities**

| Model | Drives | Slots | LTO |
|---|---|---|---|
| M8501 | 1 | 15 LTO | 12.0 TB |
| M8502 | 1 | 15 LTO | 12.0 TB |

# Internal Tape Drive

The ACL units supports a single internal tape drive. The internal tape drive can be hot-swapped.

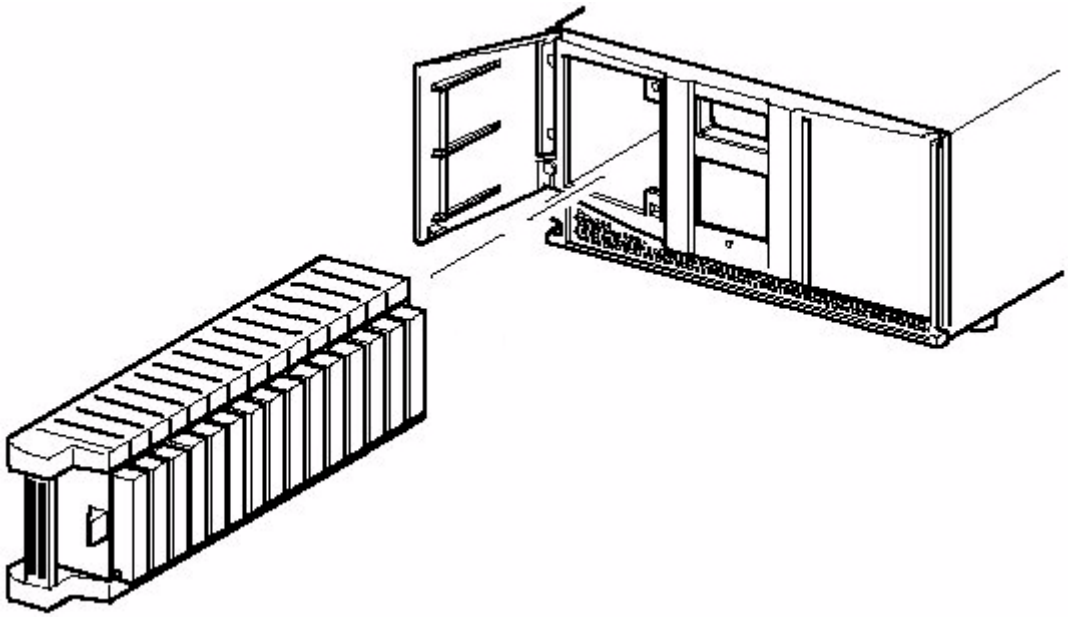
**Figure 1-2. Rear View of Tape Drive**



# Magazine

The ACL units contains one removable tape cartridge magazine that is accessible through the front left door. The door is opened by using the GUI touch screen on the control panel.

**Figure 1-3. Tape Cartridge Magazine**



# Power Supply

Power to the ACL units are supplied through an AC connector at the rear panel of the power supply. The ACL unit's power is normally controlled from the graphical user interface (GUI) touch screen; however, a manual power disconnect switch, located at the rear of the power supply may also be used.

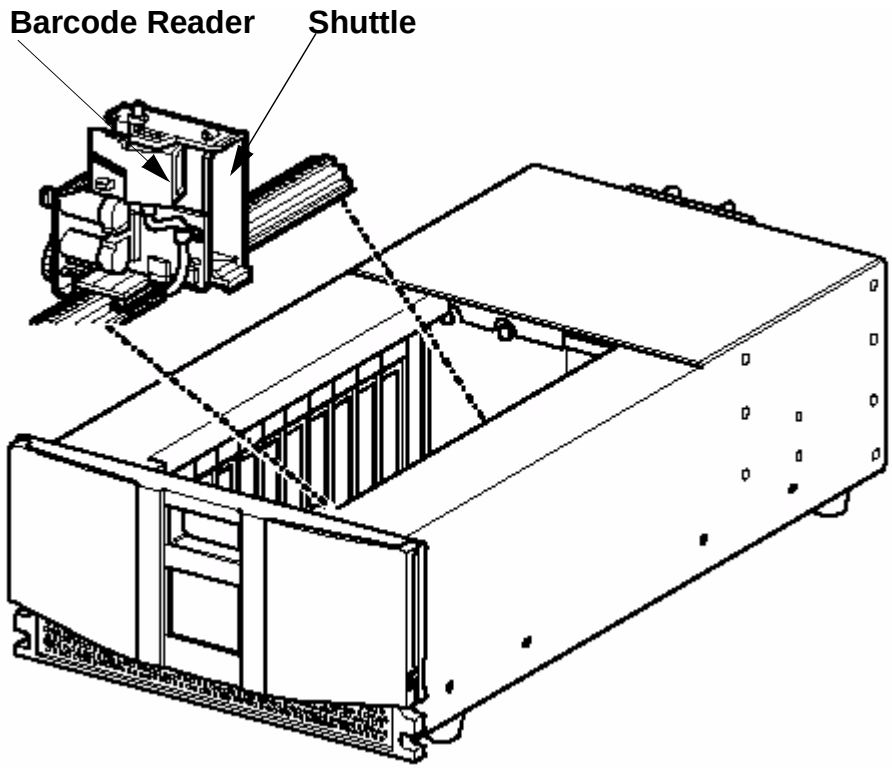
# Robotics

The ACL tape drive's robotics consist of a cartridge shuttle, motor hardware, motor drives, and other support electronics. These robotics are capable of picking and placing tapes throughout the tape drive and the tape cartridge magazine.

The cartridge shuttle assembly includes a mounted barcode reader for scanning tape cartridges installed in the magazine and tape drive.

**Note.** Both a full barcode reader scan and a physical scan are conducted each time the unit is initially powered up, or each time a tape magazine is exchanged.

**Figure 1-4. View of Barcode Reader and Shuttle Assembly**

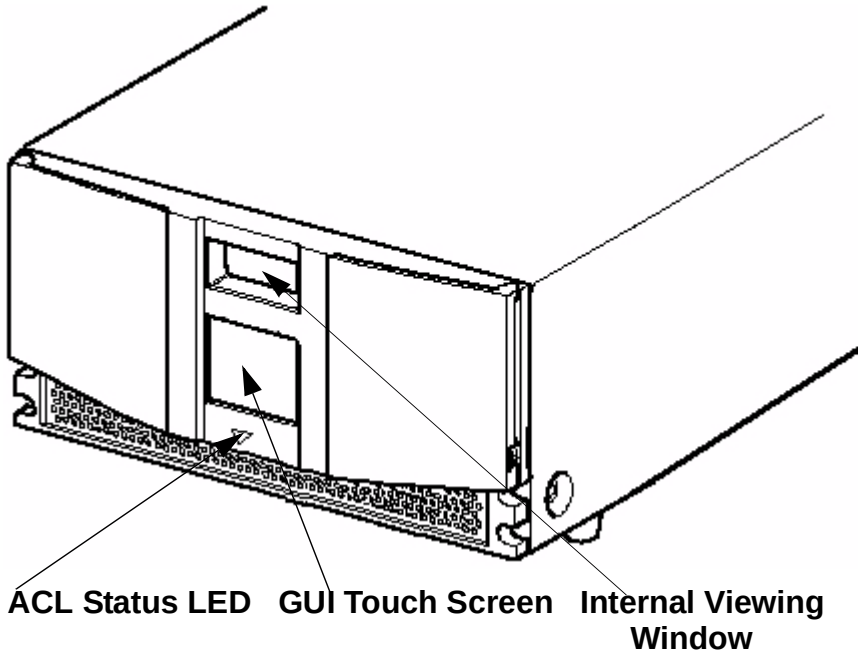


# Front Panel Indicators

The ACL tape drive's front panel indicators consist of:

- Viewing window - lets you visually check the unit's internal operations
- GUI touch screen - manually operated to setup and configure the unit
- ACL module status LED - displays the unit's operational status

**Figure 1-5. Front Panel Indicators**



# 2 Setting Up the ACL Tape Drives

This section includes:



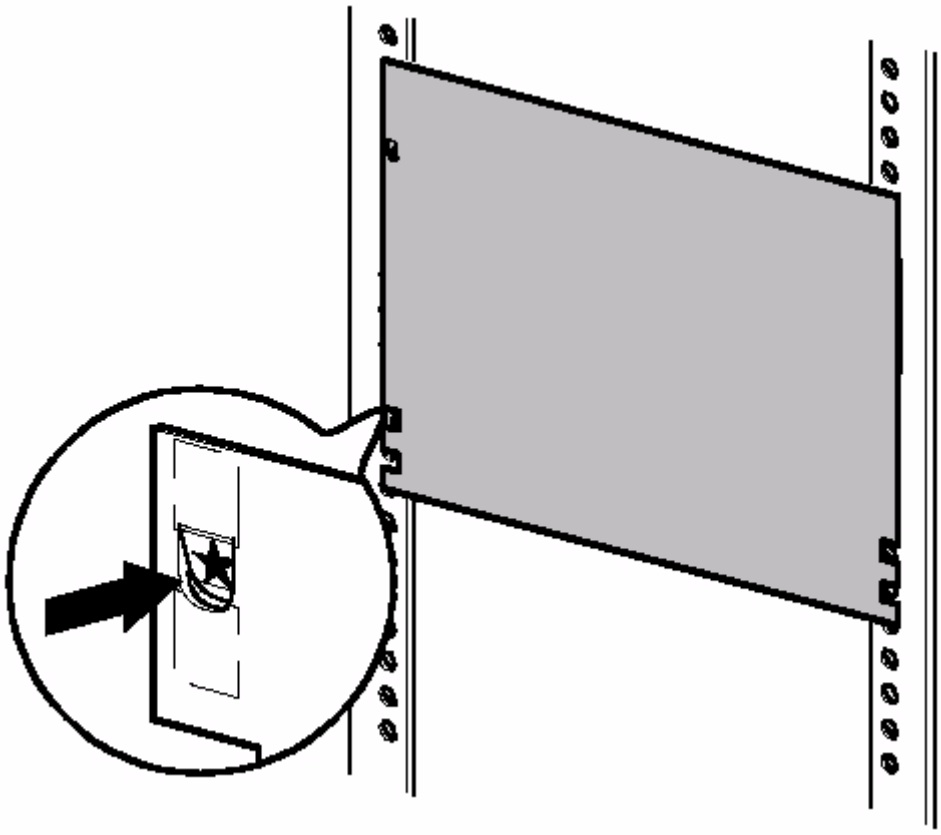
## Setting up the M8501 ACL Rackmount Unit

Setting up the ACL rackmount unit requires a template and storage cabinet slide rails to install the unit in a storage cabinet.

To setup the rackmount model:

1. Ensure that you have adequate space available in the rack.

**Figure 2-1. M8501 ACL Template**



2. Use the template that is shipped with the unit to mark the location of the mounting hardware on the mounting rails of the storage cabinet.

a. Push back the tabs in the top of the template and place them in the correct holes in the mounting rack. Match up the hole pattern indicated on the sides of the template with the hole pattern in the mounting rack.

b. Make sure to begin measuring in the correct place. If a unit is already installed immediately below the planned position of the new unit, then place the template against the front of the mounting rack and rest it on top of the previously installed unit.

c. Use the front of the template to mark the attachment points for mounting brackets, rails, components, or cage nuts on the back of the storage cabinet.

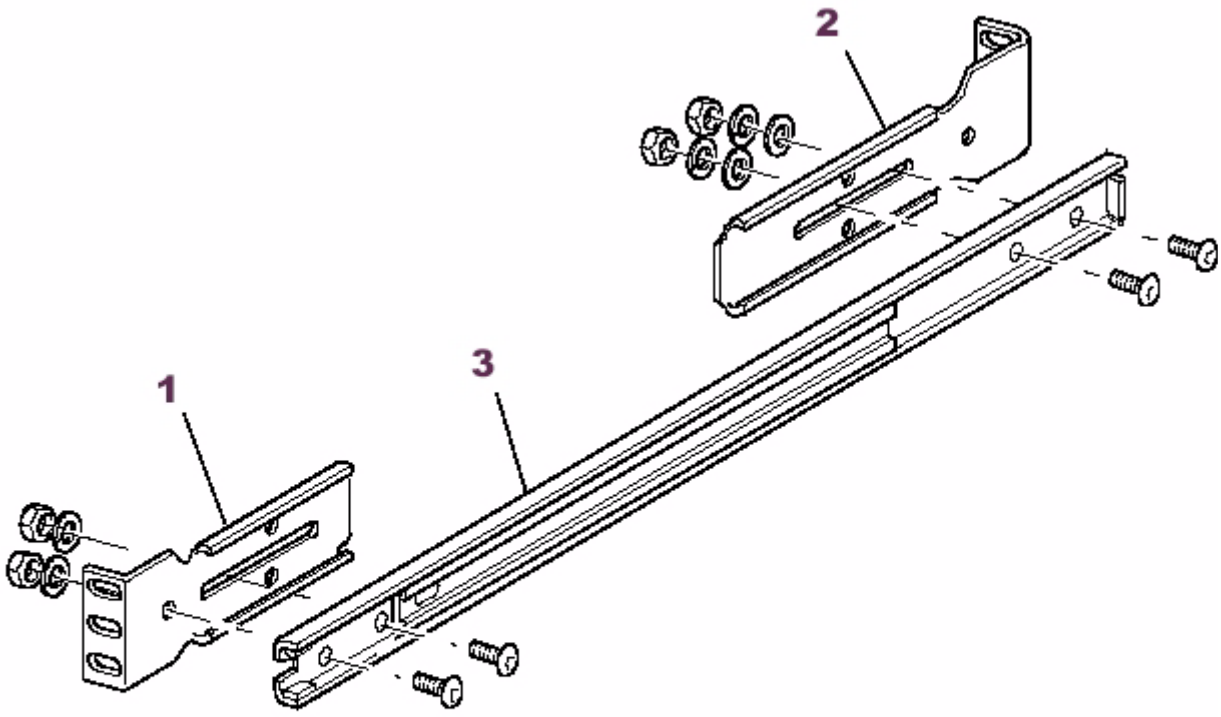
d. Use the back of the template to mark the attachment points for the mounting brackets, rails, components, or cage nuts on the back of the storage cabinet.

3. Remove the template.

4. Install the slide members for the rackmount unit.

5. If the slide members are already installed, attach the front and rear mounting brackets to the outer and middle slide members.

**Figure 2-2. Installing the Slide Members**



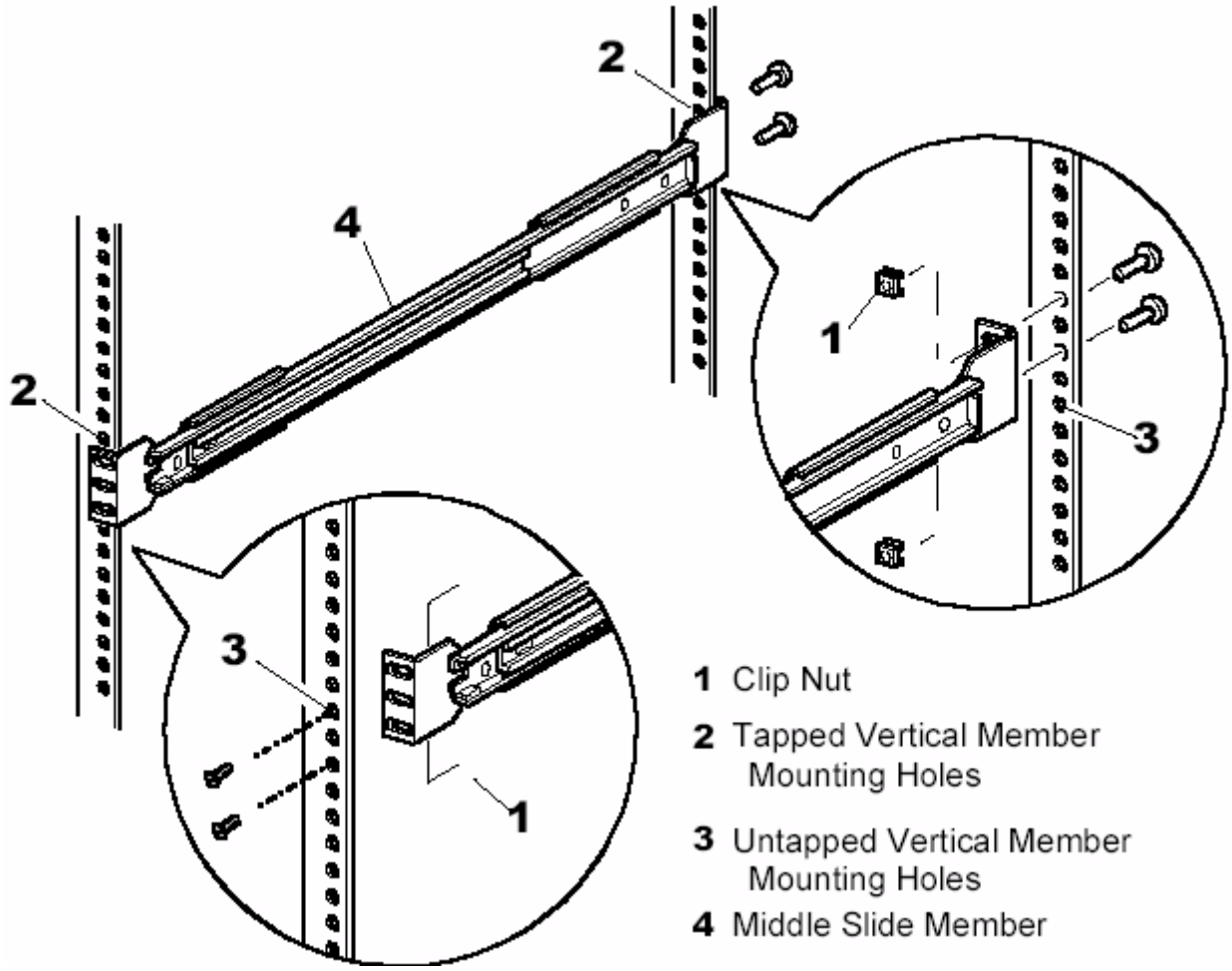

**1** Front Mounting Bracket

**2** Rear Mounting Bracket

**3** Middle Slide Member

6. Attach the slide members using the supplied fasteners. Install the clip nuts on the inside of the slide member's front and back mounting bracket only if the vertical rail mounting holes are not tapped.

**Figure 2-3. Installing Slide Member Fasteners**




7. Push the middle slide member as far as possible to the front of the slide member assembly.
8. Install the two clip nuts on each of the rack's front vertical rails.
9. Confirm that the bearing carrier is in the retained position.
10. Lift the unit and visually align the inner and middle slide members.

△ **Caution.** It is recommended that the unit be lifted by two people. Do not attempt to lift the unit by yourself.

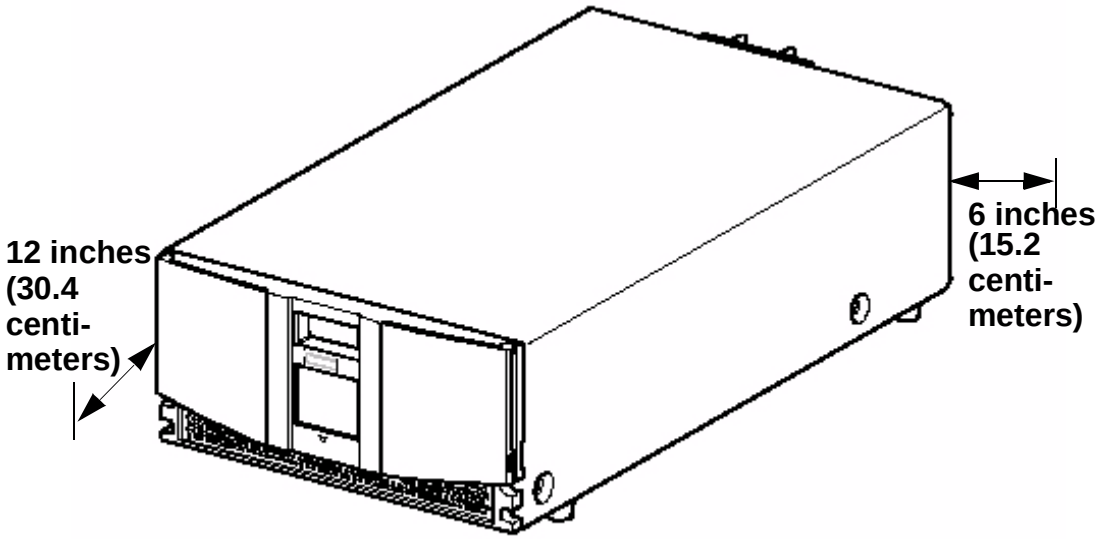
11. Verify the ball bearing slide members are located in the front position.
12. Slide the unit completely into the rack until the front panel touches the rack.
13. Remove and discard the tape that holds the door in the latched position, leaving the door open.

14. Attach the unit to the rack using two 10-32 captive thumbscrews that are located on the lower left and right front panel.
15. Fully tighten the rear-mounting bracket screws.

# Setting up the M8502 ACL Tabletop

The M8502 ACL tabletop requires no mechanical assembly for mounting (see Figure 2-4). Place the unit on a desk, table, or other stable horizontal surface. Ensure that the cooling grills at the front and the fans at the rear of the unit are not obstructed. Allow 12 inches (30.4 centimeters) of clearance at the front and 6 inches (15.2 centimeters) at the rear of the unit to allow for adequate cooling.

**Figure 2-4. Tabletop Model Clearances**



# 3

# Installing and Configuring the ACL Tape Drive for the NonStop NS-Series Server

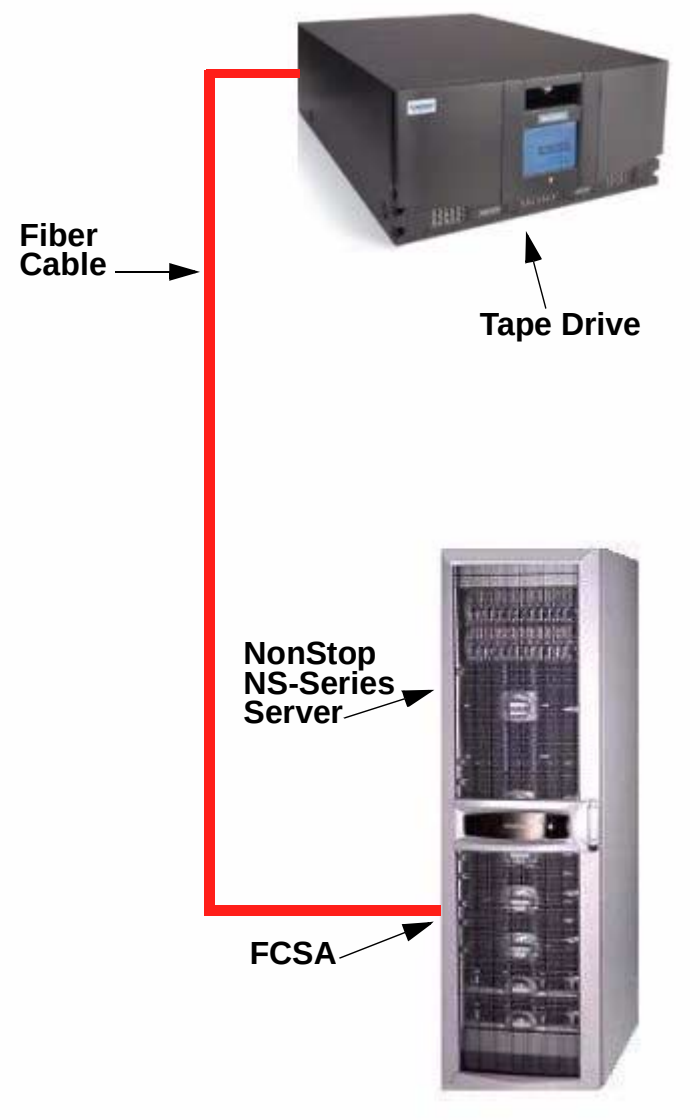
This section includes:



## Overview

A multimode shortwave fiber optic cable must be used to connect the ACL tape drive to the Fibre Channel ServerNet adapter (FCSA) on the HP NonStop NS-series server. Figure 3-1 shows how the ACL tape drive connects to the server.

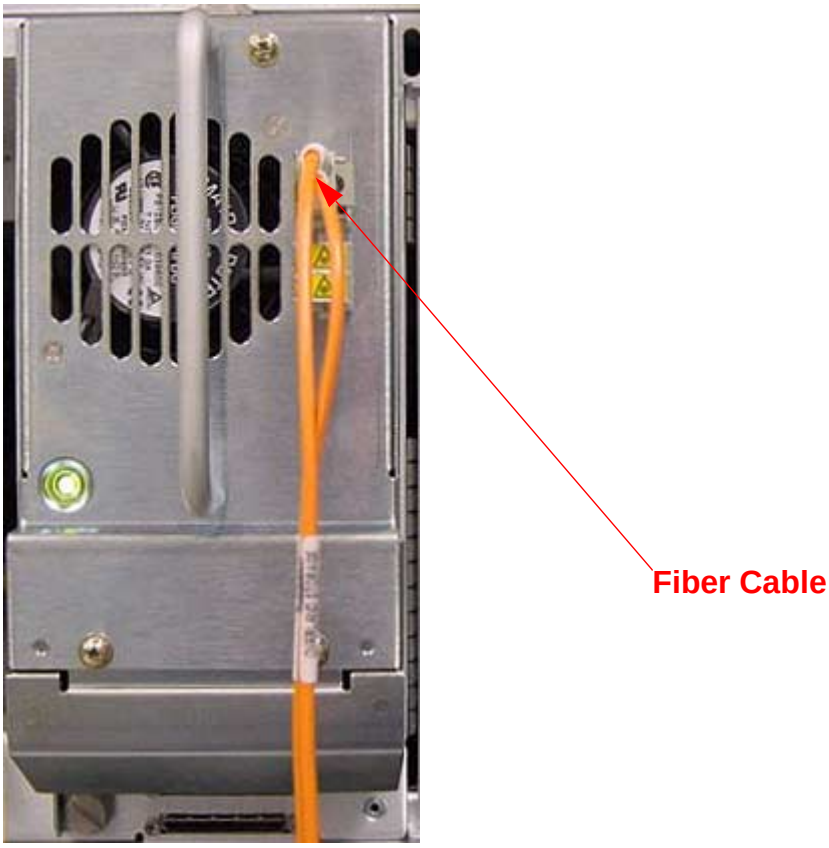
**Figure 3-1. Hardware Configuration**



# Installation

1. Connect one end of the fiber cable to the top Fibre Channel port at the rear of the tape drive. See Figure 3-2 for the location.

**Figure 3-2. Tape Drive's Fibre Channel Port Connection**




2. Connect the other end of the fiber cable to the Fibre Channel ServerNet adapter (FCSA) on the NonStop NS-series server. See Figure 3-4 on page 3-5 for the location.

   A LC-LC fiber optic cable must be used to connect the ACL tape drive to the FCSA. Figure 3-3 on page 3-4 shows each side of the cable.

**Table 3-1. Fiber Cables**

| Connector | Fiber Cable | Fiber Cable Distance |
|---|---|---|
| LC - LC | 50/125 µm | 2-300 meters (6.56-984.25 feet) |
| LC - LC | 62.5/125 µm | 3-150 meters (9.84-492.13 feet) |

**Figure 3-3. LC-LC Fiber Cable**

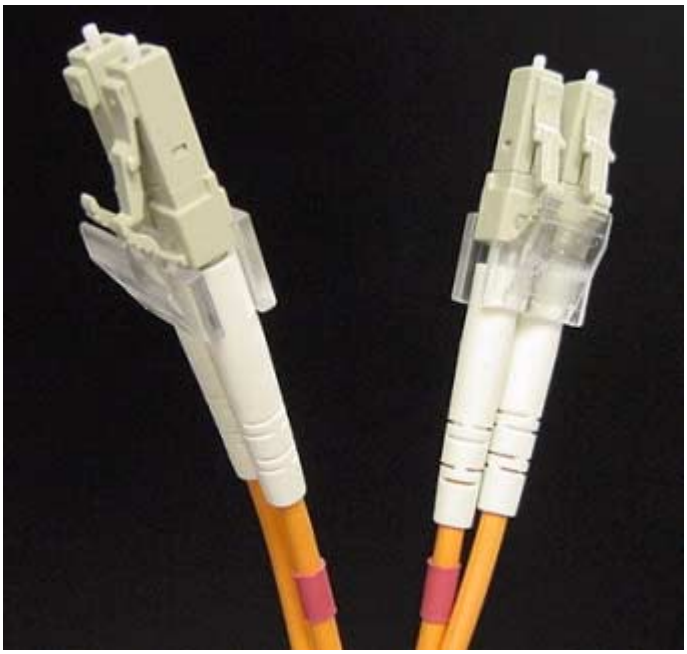


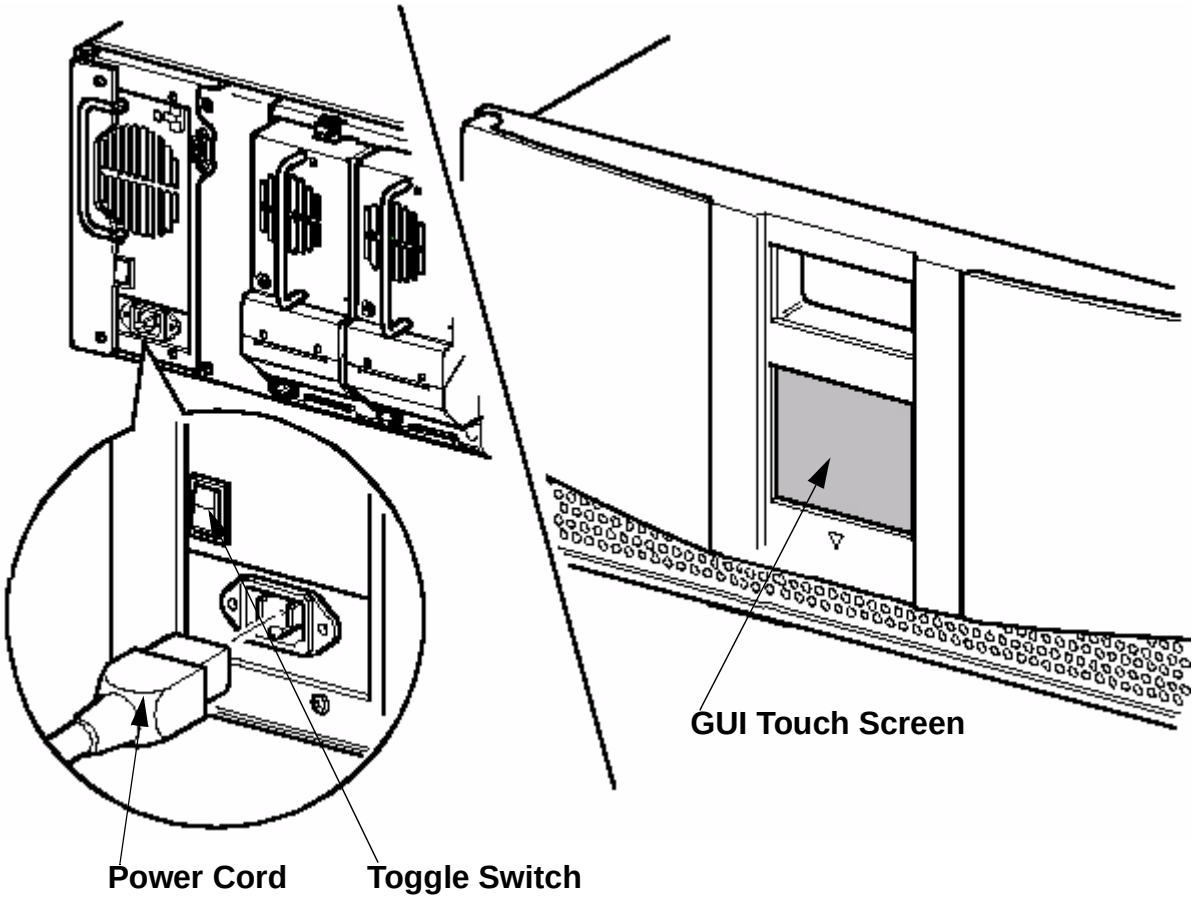
**Figure 3-4. View of Two FCSAs at the Rear of the Server**


3. Attach the power cord to the ACL tape drive's AC power receptacle (see Figure 3-5) and then plug the other end into an AC power outlet.

**Note.** The tape drive does not have protection against lightning surges. Customers in high-risk areas should use external surge protection rated for use in their location and be able to handle the power demand of the tape drive.

4. Toggle the power switch to the on position from the rear of the unit.
5. Press anywhere on the GUI touch screen to activate the display, and then turn the unit on.

**Figure 3-5. Powering On the ACL Tape Drive**



# Configuration

Follow steps 1-4 to navigate through the ACL tape drive's menu configuration to view the PORTNAME of the tape drive.

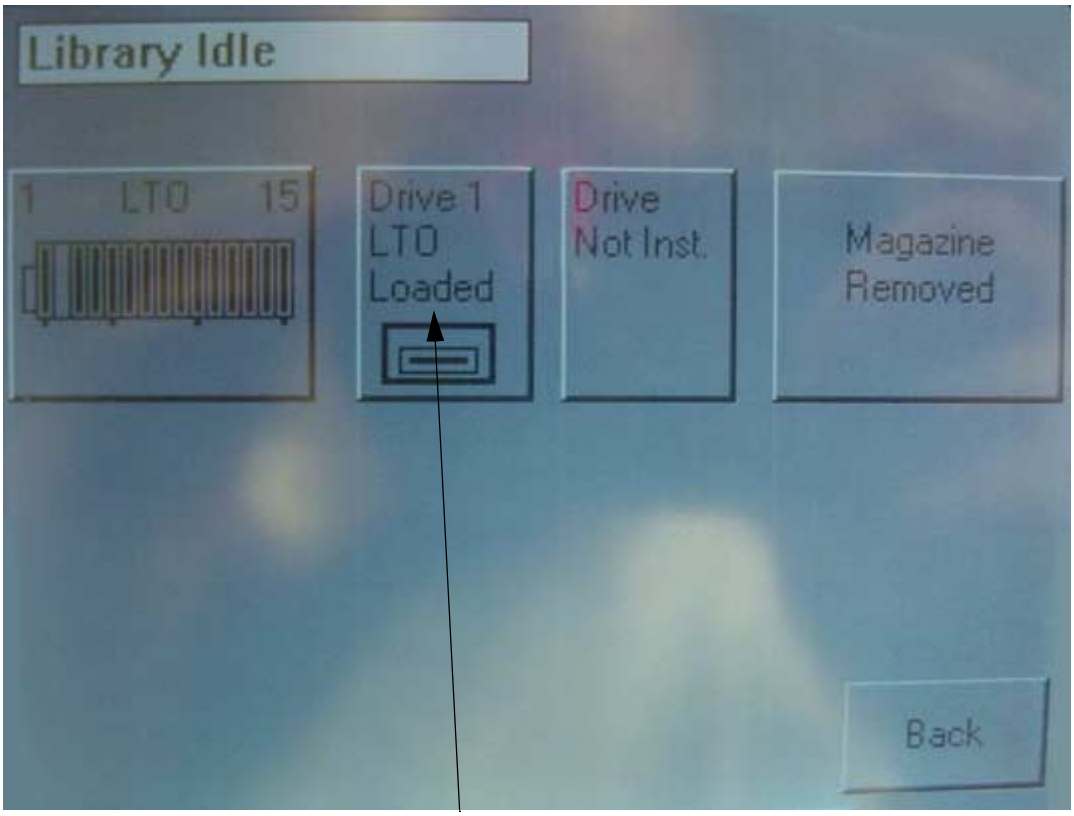
The purpose of viewing the tape drive's PORTNAME is because it will be added to the SCF configuration in step 5 on page 3-10.

1. Press the **Status** button on the GUI touch screen.

**Figure 3-6. Status Button**

2. Press the **Drive 1 LTO Loaded** button.

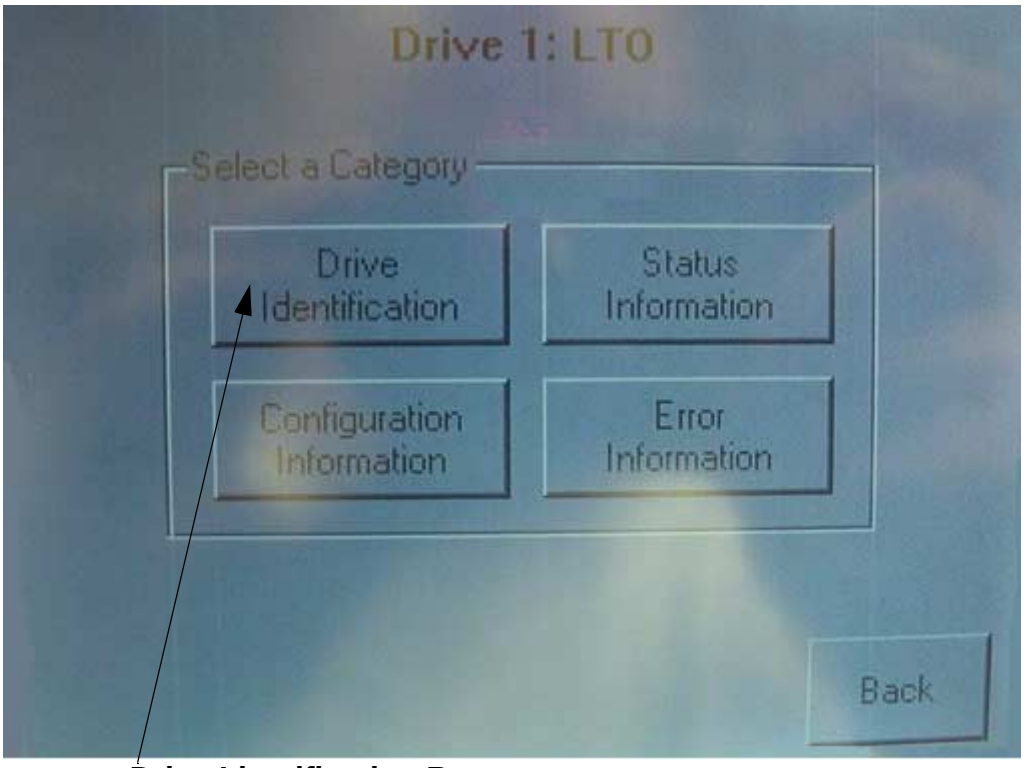
**Figure 3-7. Drive 1 LTO Loaded Button**




**Drive 1 LTO Loaded Button**

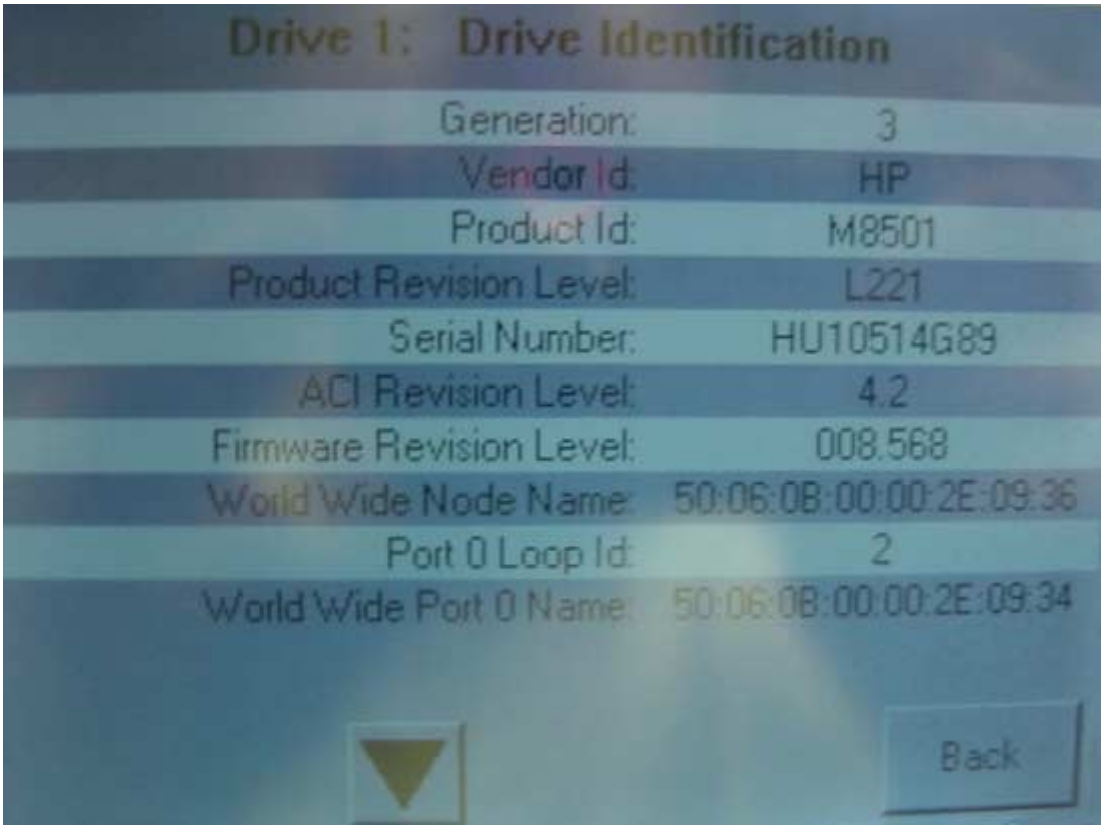
3. Press the **Drive Identification** button.

**Figure 3-8. Drive Identification Button**



4. View the **World Wide Port 0 Name** number. This number will be used as the PORTNAME in step 5.

**Figure 3-9. Viewing the Portname**




5. In SCF, issue this command:

```
SCF> ADD TAPE $tape, SENDTO STORAGE, LOCATION (group, module,
slot), SAC sac-id, PORTNAME 64-bit-portname, LUN lun-id
```

   Example:

```
SCF> ADD TAPE $TAPE1, SENDTO STORAGE, LOCATION (110,2,3), SAC
1, PORTNAME 50060B00002E0934, LUN 1
```

6. To start the ACL tape drive on the server, issue this command in SCF:

```
SCF> START TAPE $tape
```

   Example:

```
SCF> START TAPE $TAPE1
```

For complete details about the ADD and START commands, including command syntax, see the *SCF Reference Manual for the Storage Subsystem.*

# 4 Operation

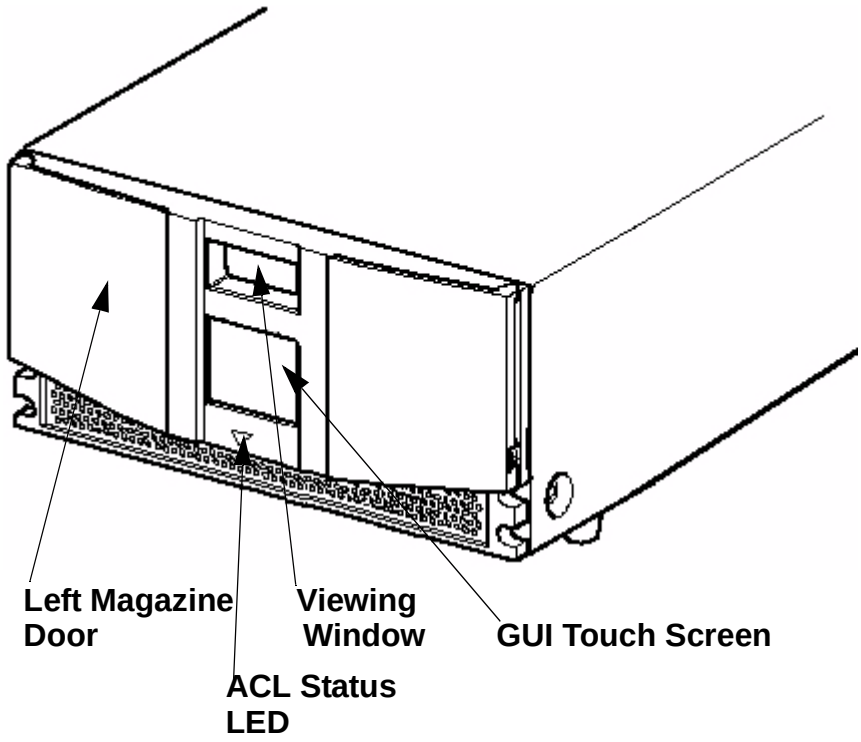
This section includes:



## Front Panel

The front panel of the ACL units include the left magazine door, a Graphical User Interface (GUI) touch screen, an ACL status LED, and a viewing window (see Figure 4-1).

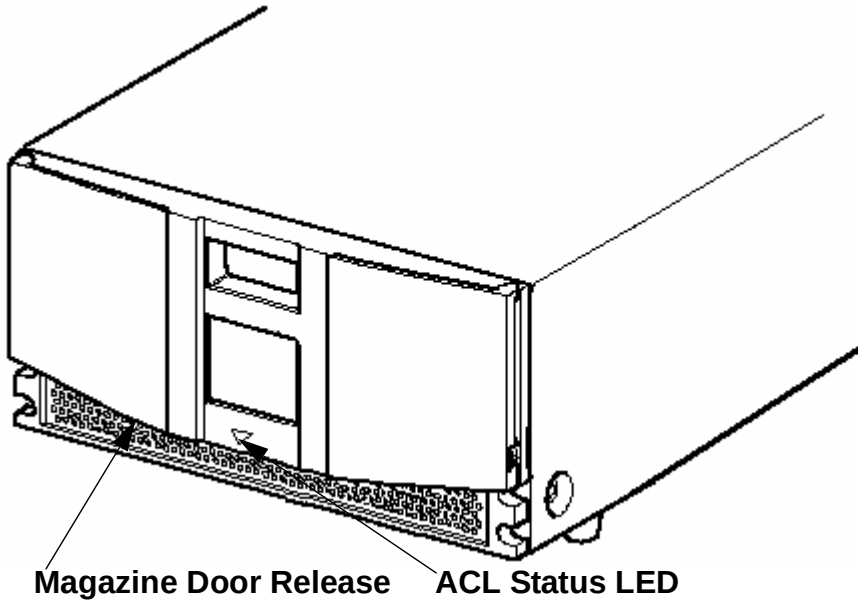
**Figure 4-1. Front Panel**



## Magazine Door

The magazine door has both an electrical release (via the GUI touch screen) and a manual release. It is always recommended that you open the magazine door using the GUI touch screen. If the GUI touch screen should fail, you can manually open the door by pushing a paper clip into the mechanical release at the center of the door.

**Figure 4-2. Magazine Door Mechanical Release**




## Indicators

The ACL tape drive's front panel indicators consist of a GUI touch screen and an ACL status LED.

**Table 4-1. ACL Front Panel Indicators**

| Indicator | Description |
|---|---|
| Solid Green | The ACL is operating correctly under normal conditions. |
| Flashing Green | The ACL is operating correctly; however, a change is being made via the GUI touch screen that interrupts the current ACL operation. |
| Solid Amber | The ACL is in a fault state as indicated by the fault message on the GUI touch screen. |

# Initialization Screen

When power is first applied to the ACL tape drives, a series of power-on self test (POST) diagnostics are performed. After the POST completes, the following initialization screen appears:

**Figure 4-3. Initialization Screen**


**Note.** Pressing **Continue** will display the ACL default screen.

## ACL Default Screen

After the POST executes successfully and the ACL initialization completes, the ACL tape drive Default Screen appears as shown in Figure 4-4.

**Figure 4-4. ACL Default Screen**


The ACL Default screen enables you to select these options:

- Technical Support Information (HP Logo)
- Magazine Access
- Move Media
- LCD Contrast Controls
- Power
- Status Online
- Menu

# Display Screens and Options

The ACL GUI touch screen displays graphics and text in the form of easy to understand messages. Graphics and text messages, along with their functions, are described in this section.

# Technical Support Information Option

Selecting the HP logo in the top left corner will display HP specific technical support assistance information. See Figure 4-5.

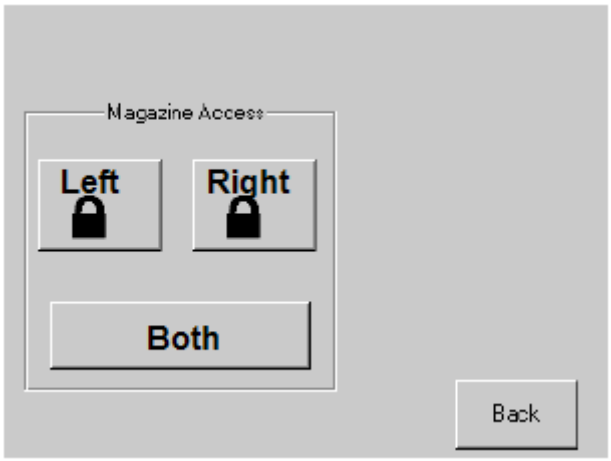
**Figure 4-5. Technical Support Information**


**Note.** The HP Global Support Center (GCSC) provides technical support for this product.

## Access Magazine Option

Selecting this option lets you display the Access Magazine screen (see Figure 4-6). The Access Magazine option lets you gain access to the left magazine door for tape cartridge placement or removal.

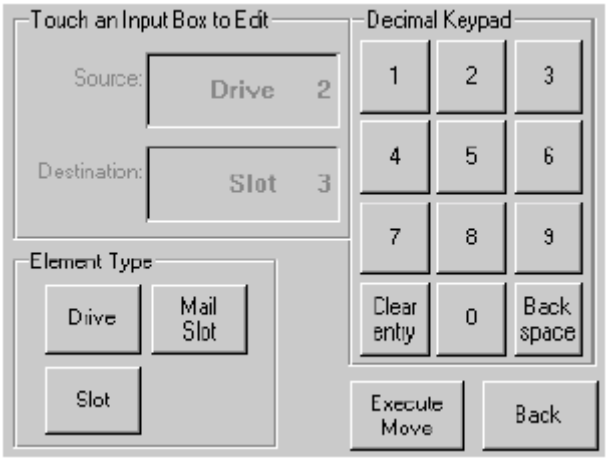
**Figure 4-6. Access Magazine Screen**




## Move Media

Selecting this option lets you display the Move Media screen, see Figure 4-7. The Move Media option lets you remove a cartridge from the tape drive, load a cartridge to the tape drive, or to move cartridges within the ACL.

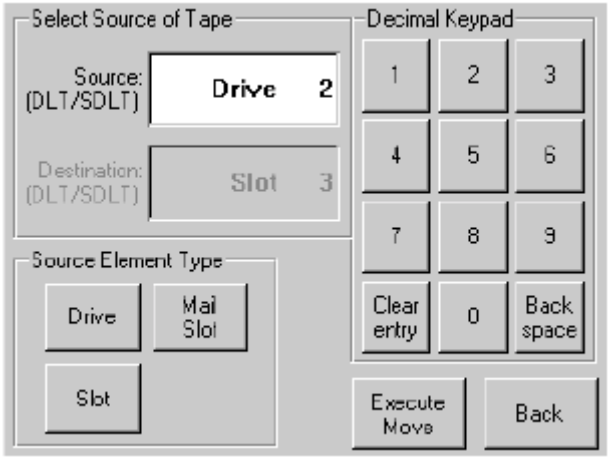
**Figure 4-7. Move Media Screen**



These figures illustrate moving a cartridge from the tape drive to a slot in the magazine:

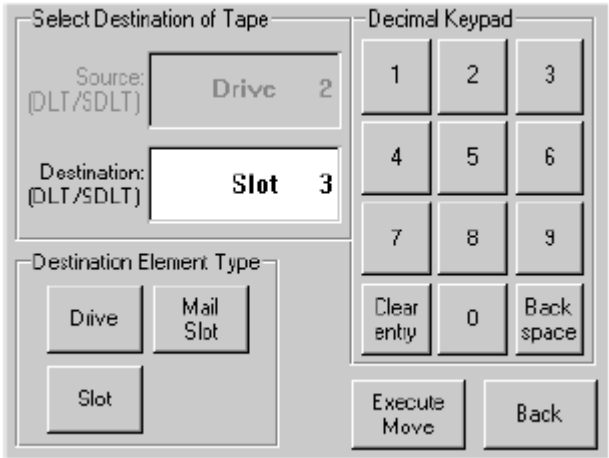
1. Touch the Source input box or Source Element Type from the Move Media Screen. The Source input box will change from gray to an active state, see Figure 4-8.
2. Touch the source you want to move, from the Source Element Type selections. The options available are Drive and Slot.

**Figure 4-8. Move Media Screen (Source)**




3. Touch the Destination Input Box on the Move Media Screen. The Destination Input Box will change from gray to an active state. See Figure 4-9.

**Figure 4-9. Move Media Screen (Destination)**



4. Touch the destination option that you want to move media to. From the Destination Element Type selections. The options available are Drive and Slot. Repeat selecting the desired destination option until the desired option is displayed in the Destination Input Box, for example, touching Slot three times displays Slot 3 in the Destination Input Box.
5. Touch the “Execute Move” button. The ACL robotics move the cartridge from the Drive to Slot 3.

## LCD Contrast Controls

Selecting these options let you increase or decrease the contrast of the LCD display. Incremental steps are set by adjusting the LCD contrast controls (up and down arrows) from the upper right corner of the ACL Default Screen. Incremental steps can range from 0 to 31 depending on your preference.

## Power

Selecting this option initiates an ACL power-down operation.

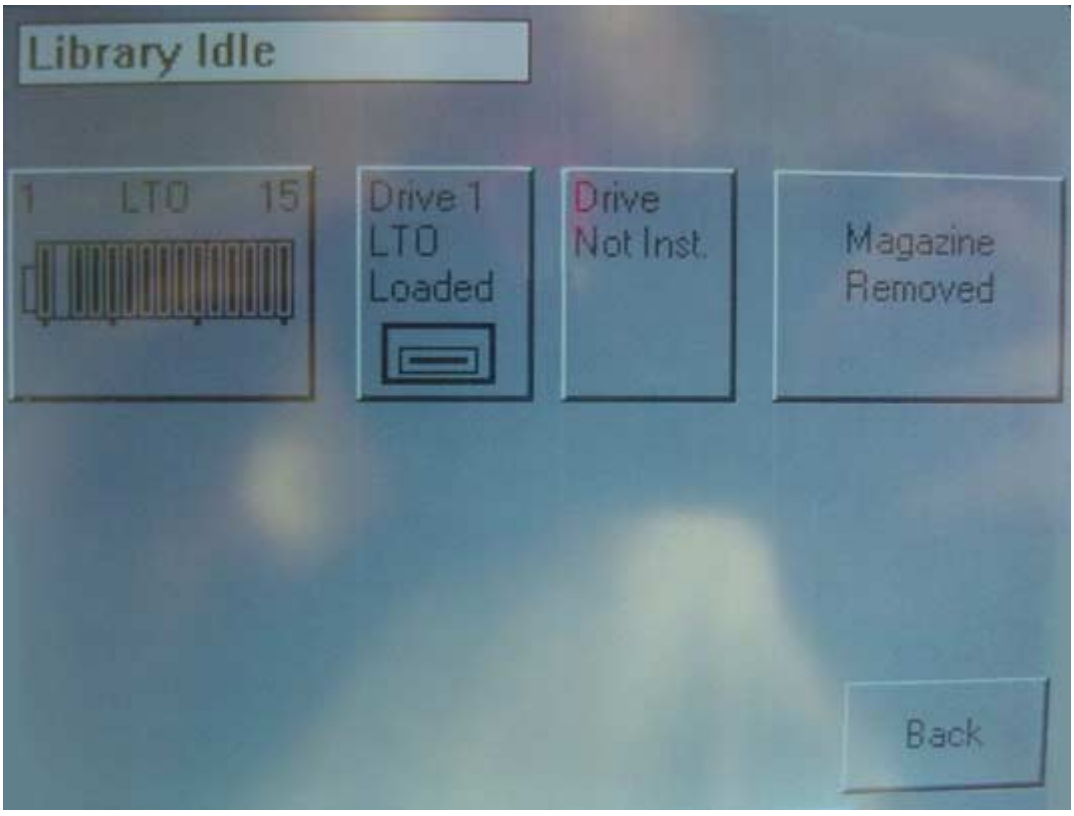
**Note.** The ACL moves the shuttle assembly to the parked position before powering down.

**Figure 4-10. Power Down Initiation Screen**

## Status

Selecting this option lets you display the ACL Status screen. You can identify a tape drive type, view physical tape drive status, tape drive cleaning information, and tape cartridge information by opening the corresponding areas on the screen.

**Figure 4-11. Status Screen**




## Online

Selecting this option from the ACL Default Screen lets you place the ACL online or offline.

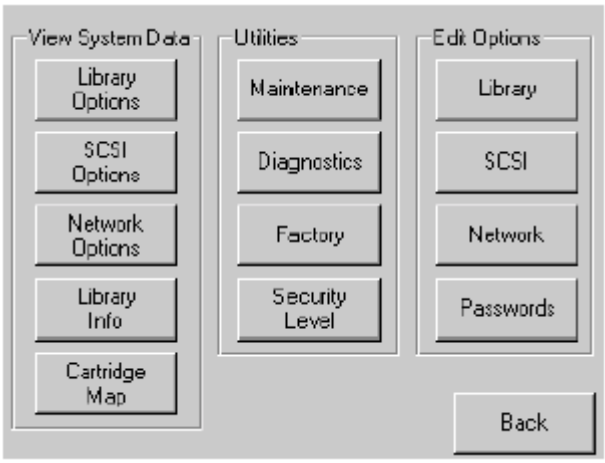
**Note.** By default the ACL automatically comes online after a power-up initialization.

# Menu Selections

Selecting Menu on the ACL Default Screen lets you view, configure, and use the ACL. The Menu option displays three distinct areas:

- View System Data
- Utilities
- Edit Options

**Figure 4-12. Menu Screen**




## View System Data

The View System Data area lets you select these screens:

- ACL Options
- SCSI Options
- Network Options
- ACL Info
- Cartridge Map

## ACL Options

Selecting this option lets you view but not modify the ACL settings as defined in the ACL option of the Edit Options area. Table 4-2 on page 4-11 describe the available options.

**Note.** You can view the next sequential ACL Options screen by selecting the up arrow. To return to the previous ACL Options screen select their **Back** button to return to the Menu screen.

**Figure 4-13. View ACL Options Screen (Initial Screen)**

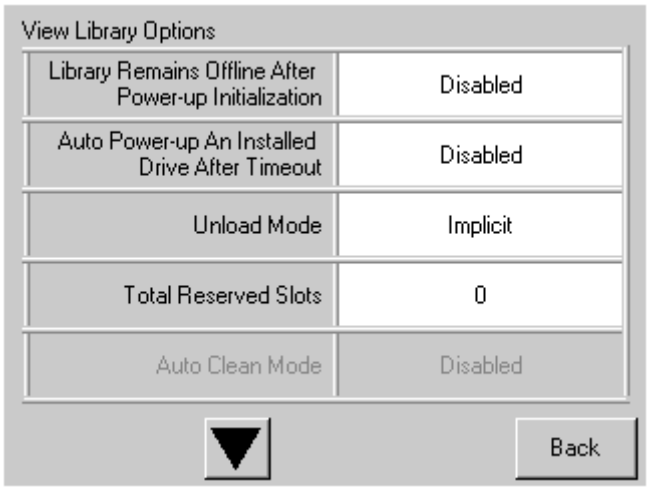



Table 4-2 below, lists and describes the available ACL options.

**Table 4-2. View ACL Options**

| Option | Description |
|---|---|
| ACL Stays Offline After Power-up Initialization | ACL does not go online after power-up initialization. You must select the Online option from the Menu screen on the GUI touch screen. The default is Disabled. |
| Auto Power-up on Installed Drive | Enables a tape drive to be automatically powered up (after a delay), after replacing a tape drive. |
| Unload Mode | Selects the unload mode for ACL tape drives. If Implicit, the ACL unloads a tape drive before attempting to move a cartridge from that tape drive. If Explicit, the server must issue a SCSI UNLOAD command to a tape drive before each MOVE MEDIUM command that removes a cartridge from that tape drive. The default is Implicit. |
| Total Reserved Slots | Lets you remove from use a specified number of slots at the rear of the magazine. The default is 0. |
| Auto Clean Mode | Lets you enable an automatic cleaning cycle. To use this option, you must have reserved a slot for a cleaning cartridge using the Total Reserved Slots option. The default is Disabled. |

**Table 4-2. View ACL Options**

| Option | Description |
|---|---|
| Drive and Slot Numbering | Lets you specify whether SCSI elements in the ACL displays with either zero-based or one-based. This affects the GUI touch screen, not the actual SCSI element addresses. The default is one based. |
| ACL Mode | Lets you set the robotics operating mode to Random or Sequential. The default is Random. |
| Sequential Mode | Lets you select a normal or recirculate frequency mode. The default is Normal. (Only available if ACL Mode is set to Sequential). |
| LCD Contrast Adjust | The LCD contrast controls let you increase or decrease the contrast of the LCD display. The increment steps are set by adjusting the LCD Contrast Adjust option from the ACL option. Incremental steps can range from 0 to 31 depending on your preference. |
| Barcode Label Size | Lets you limit the maximum number of characters of the barcode label. Possible settings are 1 through 8. The default is 8. |
| Barcode Label Alignment | Lets you specify the alignment of a barcode label. The options are Left to Right. When used in conjunction with the label size option, this option strips unwanted trailing characters (left alignment) or leading characters (right alignment). The default is Left Align. |
| Barcode Label Check Digit | Lets you specify whether to enable or disable the verification of a check digit character in the barcode label. The default is Disabled |
| Barcode Reader | Lets you specify whether the barcode reader will retry reading barcode labels. The default is Retries Enabled. |
| Module Configuration | Lets you specify the ACL Module Configuration. Three options are available:<br>● Standalone - Used when the ACL contains a single module<br>● Master - Used to select the module in a multi-module ACL<br>● Slave - Used to select the other modules in a multi-module ACL |

# Inserting and Removing Tape Cartridges

The magazine must be removed from the ACL in order to remove or insert tape cartridges. Make sure the slot you want to use is not already reserved for a tape cartridge that is now in a tape drive. The safest way to do this is to unload all tape drives before removing a magazine. You can unload the tape drive either through your host system software or by using the “Move Media” option on the Default Screen.

## Removing the Magazine

You must manually remove the ACL magazine. To access the magazine, use the “Magazine Access” option on the Default Screen. This option lets you open the left magazine door. After opening the magazine door, pull the magazine out and away from the ACL chassis.

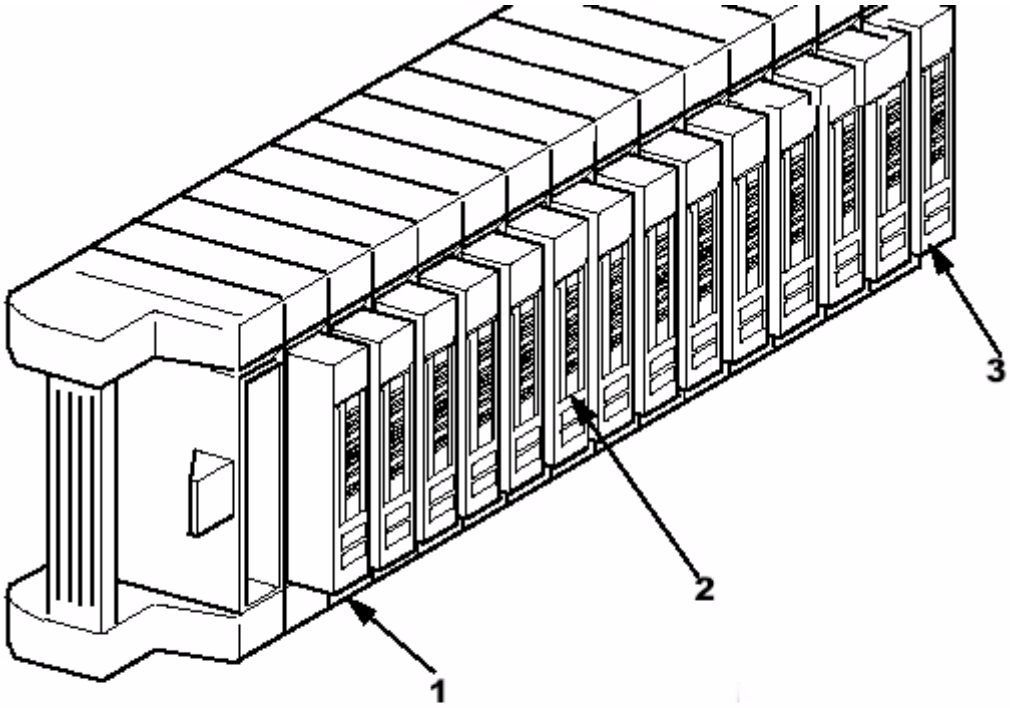
## Inserting Cartridges into the Magazine

A full magazine is shown in Figure 4-14. Note that the lowest numbered tape cartridge slot is the one closest to the front of the magazine.

Insert a tape cartridge so that the barcode labels are facing outward.

**Note.** Handle and store tape cartridges in a clean, dust-free environment.

**Figure 4-14. Tape Magazine With Tape Cartridges Installed**




1 LOWEST NUMBERED TAPE CARTRIDGE SLOT
2 BAR CODE LABEL
3 HIGHEST NUMBERED TAPE CARTRIDGE SLOT

# Barcode Labels

Figure 4-15 show you how to install a barcode label onto a tape cartridge.

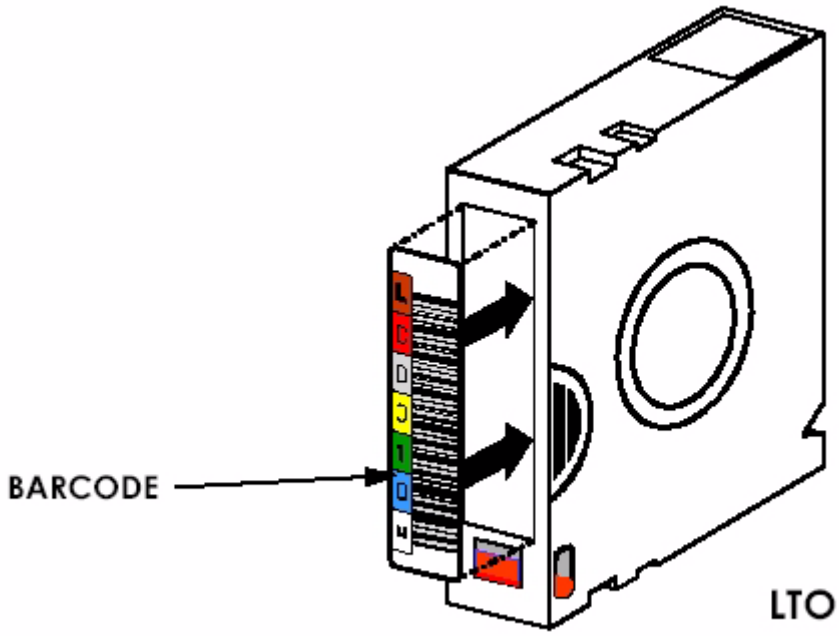
## LTO Cartridge Media

The following are tips to ensure maximum LTO cartridge media performance and life:

1. Place labels only in the recessed area, just above the write protection switch (See Figure). Never place labels on the top, bottom sides or rear of the cartridge, they can cause loader faults and interfere with normal operations. Such labels can come off inside the equipment causing damage.
2. Always inspect cartridges for incorrect or improperly attached labels.
3. Never erase information on a cartridge label, always replace the label.

**Note.** Barcode labels may be placed on the media with the alpha-numeric characters on the left or the right.

**Figure 4-15. Barcode Label Installation (LTO)**



# 5 Maintenance

This section includes:



# Introduction

This section describes the Clean One Drive menu option contained in the Maintenance submenu of the Utilities area on the front panel display. You can use the Clean One Drive menu option to clean the LTO Gen 3 tape drive that is installed in the ACL.

---

**Note.** Only perform the Clean One Drive menu option when the ACL displays a message informing you that the tape drive needs cleaning.

---

# Running a Cleaning Cartridge

Because the cleaning cartridge is abrasive, you should not use it unless the message “Use Cleaner” appears on the front panel display. There are two ways to manage the cleaning of the installed tape drives:

- Automatically, by enabling Auto Clean Mode.
- Manually, by selecting the Clean One Drive menu option from the Maintenance submenu on the front panel display.

## Automatically Running a Cleaning Cartridge

You can configure the ACL tape drive so that it automatically runs the cleaning cartridge mode. After a tape drive that needs cleaning completes an unload operation, it sends a cleaning needed message to the unit. This activates an automatic cleaning cycle if the cleaning cartridge slot has been reserved and Auto Clean Mode has been selected from the ACL tape drive’s Options menu.

To automatically run a cleaning cartridge using Auto Clean Mode:

1. Reserve a cleaning cartridge slot.
2. Enable Auto Clean Mode.

# Manually Running a Cleaning Cartridge

A cleaning cartridge can be installed and run from one of three locations:

- A Data Cartridge Slot-This location requires removing a magazine to insert a cleaning cartridge in a data cartridge slot and then removing it after cleaning.
- The Cleaning Slot-This location requires reserving the last data cartridge slot for exclusive use as a cleaning cartridge slot. The advantage with this method is that the cleaning cartridge is stored in the unit and is always available for use. it needs to be handled only when it expires and needs to be replaced.

## Running a Cleaning Cartridge from a Data Cartridge Slot

1. Install a cleaning cartridge into an appropriate data cartridge slot (Slot 0, for example).
2. Select the Clean One Drive menu option from the Maintenance submenu on the front panel display.
3. Select Source. If the default entry is not the slot with the cleaning cartridge, press Slot in the Element Type box to sequence through the available cartridge slots. Or, use the Decimal Keypad Backspace and Numeric Keys to enter the slot number directly.
4. Select Cleaning. If the default entry is not the tape drive to be cleaned, press Drive in the Destination Element Type box to sequence through the available tape drive choices. Or, use the Decimal Keypad Backspace and Numeric Keys to enter the tape drive number directly.
5. When the source and destination entries are correct, select Execute Clean.

## Running a Cleaning Cartridge from the Cleaning Slot

1. Reserve the cleaning cartridge slot. See the section on “Setting up Reserved Slots” in Chapter 3 for more information.
2. Install a cleaning cartridge in the reserved slot.
3. Select the Clean One Drive menu option from the Maintenance submenu on the front panel display. Note that the Source window defaults to the cleaning slot (Cln'g Slot 0).
4. Select Cleaning. If the default entry is not the tape drive to be cleaned, press Drive in the Destination Element Type box to sequence through the available tape drive choices. Or, use the Decimal Keypad Backspace and Numeric Keys to enter the tape drive number directly.
5. When the destination entry is correct, select Execute Clean.
6. When the cleaning cycle completes, the unit returns the cleaning cartridge back to the cleaning cartridge slot. To remove the cleaning cartridge, select Magazine Access from the unit’s Status screen.

# Replacing a Cleaning Cartridge in a Reserved Slot

When the cleaning cartridge has been used up, a message appears on the front panel display indicating that the cleaning cartridge has expired. Examine the unit’s Status screen to make sure that the cleaning cartridge has been unloaded from the tape drive. If not, then unload it using the Move Media menu option from the ACL Status screen.

## Replacing a Cleaning Cartridge in the Right Magazine

1. Select Magazine Access from the ACL Status screen.
2. Remove the magazine from the ACL.
3. Remove the expired cleaning cartridge from the last slot. Mark it EXPIRED and then properly dispose of it.
4. Place a new cleaning cartridge in the last slot of the magazine.
5. Replace the right magazine.

# 6 Troubleshooting

This section includes:



## Platform Problems

An incorrect installation or configuration can cause platform problems. In this case, the unit appears to be operating normally, but no data can be interchanged. You also might or might not get an error code on the Graphical User Interface (GUI) touch screen. To identify an error caused by this type of problem, check your installation and configuration setup. See Installing and Configuring the ACL Tape Drive for the NonStop NS-Series Server for information on how to correctly install and configure the unit.

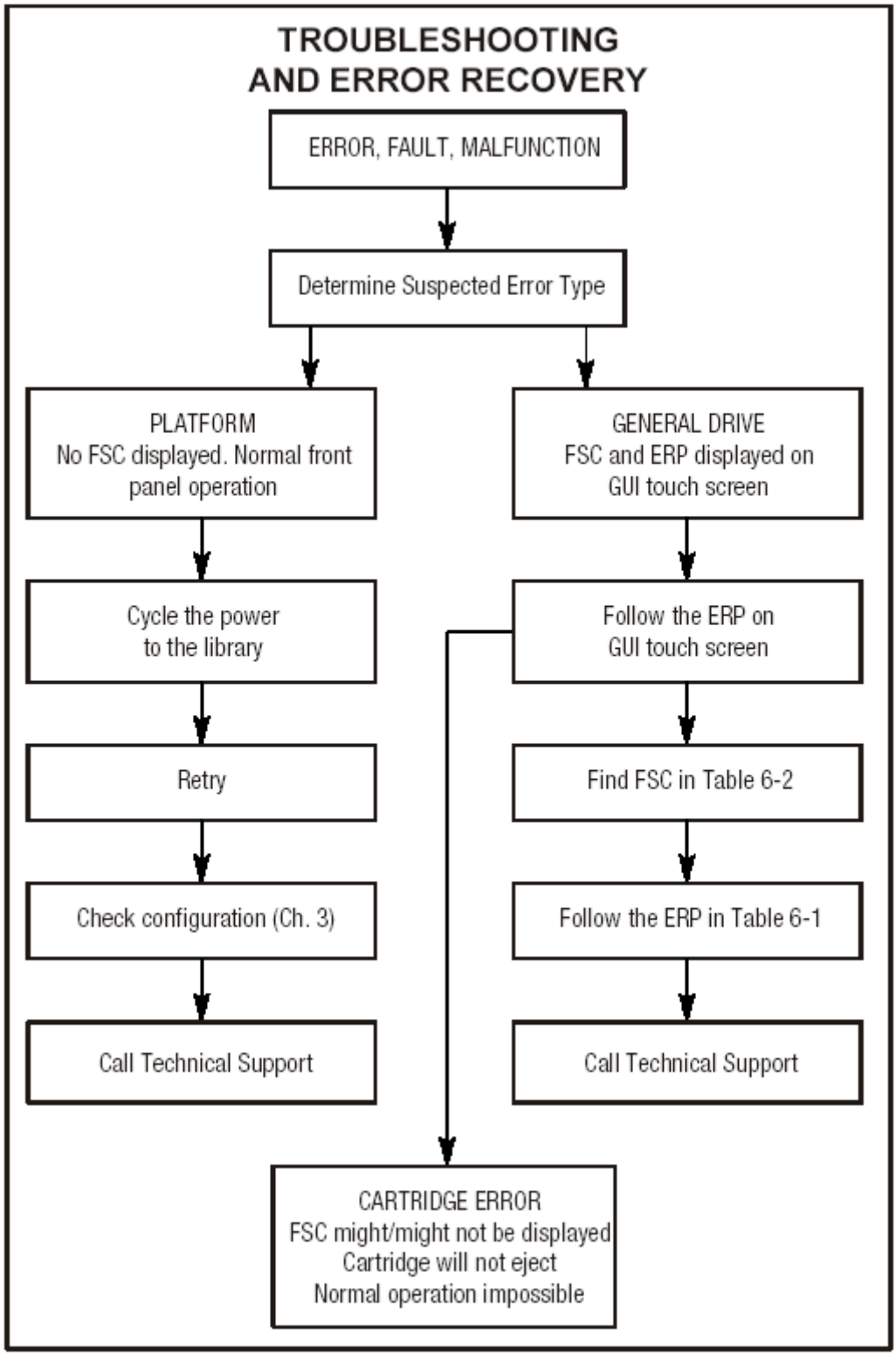
General drive errors usually result from a miscommunication between the ACL and tape drive or a mechanical malfunction within the ACL. Both platform problems and general drive errors display an error message and a Fault Symptom Code (FSC) on the GUI touch screen. Use an FSC to report errors to your service provider, or in some cases, to determine a recovery procedure.

## Error Recovery

Figure 6-1 on page 6-2 outlines the recommended steps for error recovery. You should follow this chart in all cases.

Error Recovery Procedures (ERPs) are listed in detail in Table 6-1 on page 6-3; FSCs are listed in Table 6–2 along with their related ERPs.

**Figure 6-1. Troubleshooting Flow Chart**



# Error Recovery Procedures

Table 6-1 lists ERPs for errors reported on the GUI touch screen of the ACL. This list includes only procedures that can be safely performed by an end user.

**Table 6-1. Error Recovery Procedures**

| ERP Code | Procedure/Description |
|---|---|
| C | Cycle power to the ACL using the Power option on the GUI touch screen. Wait 30 seconds to power on again. |
| D | Turn off power to the ACL and inspect connectors and cables. |
| F | Invalid operation. Select parameters correctly and try again. |
| G | Call Technical Support. |

# Fault Symptom Codes (FSCs)

FCSs that appear on the GUI touch screen are described in the below tables. A descriptive message and instructions for clearing the fault accompany each FSC. If a fault persists, look up the FSC in Table 6-1 on page 6-3 to determine the error recovery procedure or to report it to your service provider.

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Novram Update Error | 0306 | G | The non-volatile configuration area in flash memory could not be updated (programming error). |
| Barcode Not Active Error | 0501 | D, G | Catastrophic Smx operating system error - task creation error, unexpected error. |
| OS Task Exit Error | 0902 | G | SmxNet (Ethernet, Web TLC) task error - server spawn error, TCP/IP fatal error. |
| Invalid Ethernet (MAC) Address | 0A01 | F | The ACL's Ethernet (MAC) address stored in the non-volatile configuration is not valid - the last 3 octets are either 0:0:0 or 255:255:255. |
| Invalid IP Subnet Mask (255.255.255.255) | 0A02 | F | The Ethernet subnet mask stored in the non-volatile configuration is not valid - 255.255.255.255. |
| SCSI Firmware Error | 1001 | D, G | Internal SCSI task processing error - unexpected state or hardware status. |
| SCSI FIFO Empty | 1002 | D, G | The SCSI controller data FIFO is empty but should contain more data bytes. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| SCSI FIFO Error | 1003 | D, G | The SCSI controller data FIFO should be empty but still contains data bytes. |
| SCSI Gross Error | 1004 | C, D, G | The SCSI controller detected a gross error condition - invalid SCSI bus phase or DMA error. |
| Illegal SCSI Cnt Cmd | 1005 | C, D, G | Either an invalid command was sent to the SCSI controller, or the controller was not in the correct mode. |
| SCSI Invalid Element | 1007 | D, G | Internal SCSI task processing error - invalid element type was detected. |
| SCSI Invalid Int. | 1009 | D, G | The SCSI controller posted an invalid interrupt status. |
| Loader Not Ready | 2004 | C, G | Fail to fetch, stow, scan, move passthru, Or when loader detects invalid command, aborts command. |
| Door Open (status only) | 2009 | F | Door is force opened or door sensor failed. |
| Cart Inaccessible | 200C | F | For an LTO, indicates the tape is not ejected. Cartridge in drive is not accessible from changer. |
| Drive In Error | 200D | C, G | A general drive error detected by control task. |
| No Magazine | 200E | F | Cannot move, element not installed, from changer. |
| Removal Prevented | 200F | F | Receive medium prevent removal from drive for a fetch. |
| Ctl. Firmware Error | 2010 | C, G | Internal inter task processing error. Unexpected event. SMX send or receive error. |
| Drive Time-out Error | 2030 | C, G | Can’t communicate with DLT drive. |
| Drive Code Update Command Error | 2080 | C, G | Update code from SCSI or from TAPE failed. |
| Move Command Failure | 2081 | C, G | Move command from / to drive slot failed, detected by control task. |
| Open Mail Slot Fault | 2090 | C, G | Door open sensor time-out detected when open door. |
| Open Left Door Fault | 2091 | C, G | Door open sensor time-out detected when open door. |
| Open Right Door Fault | 2092 | C, G | Door open sensor time-out detected when open door. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Open Doors Fault | 2093 | C, G | Door open sensor time-out detected when open door. |
| Open DLT Handle Fault | 2094 | C, G | Failed to open DLT handle. |
| No IP Address Found | 20a0 | C, G | SMC router failed to get an IP address. |
| No IP Address Mode Fault | 20a1 | C, G | SMC router failed to detected static or ip address Mode. |
| Unknown exchange for the async message | 20b0 | C, G | Unexpected exchange detected when process Messages. |
| Drive In Error | 20c0 | C, G | Control failed to set SCSI id. |
| Drive In Error | 20c1 | C, G | Control failed to installed drive. |
| Drive In Error | 20c0 | C, G | Control failed to set SCSI id. |
| Drive In Error | 20c1 | C, G | Control failed to installed drive. |
| Motor Fault Condition | 3000 | C, G | One of the motors has been disabled and could not be re-enabled. |
| Picker Tach Errors | 3002 | C, G | Picker Tach errors were detected when checking slots. |
| Bin Fetch Failure | 3001 | C, G | Loader failed to fetch a cartridge from a bin. |
| Drive Fetch Failure | 3013 | C, G | Loader failed to fetch a cartridge from the drive. |
| Drive Time-out Failure | 3015 | C, D, G | Loader detects unload command time-out. |
| Drive Status Failure | 3016 | C, D, G | Detected drive error from fetch, stow and wait for handle ok DLT drive operation. |
| Drive In Flux Time-out | 3017 | C, D, G | Time-out waiting for drive to clear the flux status. |
| Drive Load Retry Failed | 3018 | C, G | LTO drive fail to load, detected in drive task. |
| Drive OpenDoor Failed | 3019 | C, G | Failed open DLT door. |
| Drive Close Door Failed | 301A | C, G | Failed close DLT drive door. |
| Drive Communication Error | 301B | C, D, G | Intertask send, receive failed. |
| Drive Get General Status Fail | 301C | C, D, G | Drive communication failed. |
| Drive Get Status 3 Fail | 301D | C, D, G | NOT USED |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Undefined Config | 3020 | C, G | In loader, unexpected config, not a Thunder or Lightning. |
| Orphan Cartridge not flowed | 3030 | C, G | The loader could not successfully stow an orphan cartridge to a bin. |
| Chassis S/N Mismatch. Previous S/N retained | 3031 | G | The serial number scanned from the barcode label doesn't match the value stored in non-volatile memory. |
| Chassis S/N Character count is not correct | 3032 | G | A valid serial number barcode label could not be read. |
| Chassis S/N did not scan | 3033 | G | A valid serial number barcode label could not be read |
| Chassis S/N save operation failed | 3034 | G | The serial number scanned from the barcode label could not be saved to non-volatile memory. |
| Motor Firmware Error | 3040 | C, G | The loader task detected an unexpected status and could not recover (internal target error). |
| Loader Received Invalid Command | 3041 | C, G | The loader task received an unexpected command and could not recover (internal target error). |
| Motor Firmware Error | 3042 | C, G | The loader task detected an unexpected status and could not recover (internal target error). |
| Missing Magazine | 3050 | F | In diag, no magazine installed for diag to run. |
| No Cartridges In ACL | 3051 | F | No cartridge available for diag to run. |
| Too Many Cartridges | 3052 | F | Unable to run cart or drive cycle, loader is full with cartridges. |
| Need 1 Drive Minimum | 3054 | F | No available drive to run diag. |
| Invalid Magazine Type | 3057 | F | Unsupported Magazine type detected. |
| Magazine Type Change Not Handled | 3058 | F | Unsupported magazine type detected. |
| Drive Type Not Supported | 3059 | F | Unsupported drive type detected. |
| Diag Fetch, Drive not loaded | 305b | F | Diag: No cartridge present for a fetch. |
| Diag Time-out waiting for drive empty, ready | 305d | F | Fetch, time-out waiting for drive unload. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Invalid bin number | 305f | F | Invalid bin number detected in diag. |
| Zone Sequence Error | 3060 | C, G | Eject command time-out. |
| Drive 0 Eject Failed | 3074 | C, G | Eject command time-out. |
| Drive 1 Eject Fail | 3075 | C, D, G | Eject command time-out. |
| Drive 2 Eject Fail | 3076 | C, D, G | Eject command time-out. |
| Diag get drive 0 status failed | 3078 | C, D, G | Failed to get drive status, communication error. |
| Diag get drive 1 status failed | 3079 | C, D, G | Failed to get drive status, communication error. |
| Diag get drive 2 status failed | 307a | C, D, G | Failed to get drive status, communication error. |
| Diag get drive 3 status failed | 307b | C, D, G | Failed to get drive status, communication error. |
| Drive Stow Failed, Media Returned to Source | 3082 | F | The DLT drive detected an SDLT cartridge and the cartridge has been returned to its orign. |
| Drive Stow Failed, Media Remains in Drive | 3083 | F | The DLT drive detected an SDLT cartridge but the cartridge could not be returned to its origin. |
| UnSupported Drive For Requested Operation | 3084 | F | Unsupported drive type. |
| No Retry On Fetch/Stow | 308F | F | The loader retried an operation and retries were disabled. |
| Picker Jammed | 3100 | C, G | The picker jammed during loader initialization. |
| Picker Jammed 2 | 3102 | C, G | The picker jammed during a bin stow operation. |
| Picker Jammed 3 | 3103 | C, G | The picker jammed during a bin stow operation. |
| Picker Jammed 4 | 3104 | C, G | The picker jammed during a bin stow operation. |
| Picker Jammed 5 | 3105 | C, G | The picker jammed during a bin stow operation. |
| Picker Jammed 6 | 3106 | C, G | The picker jammed during a bin stow operation. |
| Picker Jammed 7 | 3107 | C, G | The picker jammed during a passthru fetch operation. |
| Picker Jammed 8 | 3108 | C, G | The picker jammed during a pass-thru fetch operation. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Picker Jammed 11 | 310B | C, G | The picker jammed during a drive fetch operation. |
| Picker Jammed on Stow | 310F | C, G | The picker jammed on a stow operation. |
| Picker retries Exceeded 1 | 3111 | C, G | Picker retries exceeded during a pass-thru fetch operation. |
| Picker Retries Exceeded 3 | 3113 | C, G | Picker retries exceeded during a bin stow operation. |
| Picker Retraction Error | 3115 | C, G | The picker did not retract during a bin check operation. |
| Shuttle Jammed | 3200 | C, G | The shuttle could not reach the target location. |
| Rotary Jammed | 3300 | C, G | The rotary track could not reach the target location. |
| Shuttle on Wrong Side Of The Rotary | 3301 | C, G | The zone indicators show that the shuttle is backwards on the rotary track during power-up initialization. |
| Pass through Elevator Jammed | 3400 | C, G | The pass-thru shuttle could not reach the target location. |
| Vertical Elevator Jammed | 3500 | C, G | The vertical elevator could not reach the target location |
| All Slots Empty | 5011 | F | There are no cartridges installed in any of the reserved cleaning slots. |
| DLT Already Loaded | 5014 | F | The cleaning operation failed because the drive already has a cartridge inserted. |
| Expired Clean'g Cart | 5015 | F | The cleaning operation failed due to an expired cleaning cartridge. |
| Not a Clean'g Cart | 5016 | F | The cleaning operation failed because the loaded cartridge is not a cleaning cartridge. |
| DLT Time-out Error | 5035 | C, D, G | The cleaning operation failed because the drive timed out. |
| move Command Fail | 503B | F | A front panel move operation failed. |
| Clean Operation Time-out | 503C | F | The cleaning operation failed because the drive timed out. |
| Drive Status Fail | 503D | F | The cleaning operation failed because the ACL could not retrieve drive status. |
| Command response from unexpected source | 7001 | D, G | A command response was received from a task to which a command had not been sent. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Control command execution failed | 7002 | D, G | A command response opcode from the Control task was not anticipated or is un-identifiable. |
| Control response not matched to a known command | 7003 | D,G | A command response was received from the Control task, but the original command opcode could not be determined. |
| Loader response not matched to a known command | 7004 | D, G | A command response was received from the Loader task, but the original command opcode could not be determined. |
| Drive response not matched to a known command | 7005 | D, G | A command response was received from a Drive task, but the original command opcode could not be determined. |
| Flash response not matched to a known command | 7006 | D, G | A command response was received from the Flash task, but the original command could not be determined. |
| Drive index on Update Status message was invalid | 7007 | C, D, G | An Updated Drive Status message was received from a module, but the drive index was out of range. |
| The Drive response was not expected | 7008 | C, D, G | A command response was received from a Drive task to which a command had not been sent. |
| The opcode for a WORD message was unknown | 7009 | C, D, G | A WORD-sized message was received but the message opcode could not be identified. |
| The opcode for a DWORD message was unknown | 700A | C, D, G | A DWORD-sized message was received but the message opcode could not identified. |
| The button causing ACL to go offline was unknown | 700B | C, D, G | A command to take the ACL offline was completed successfully, but the GUI button that initiated the action could not be identified. |
| Destination Xchg was Null | 700C | C, G | Attempting to send a command to a task, but the argument exchange pointer was NULL. |
| Sending of a cmd failed | 700D | C, G | An attempt to place a command on a task exchange failed. |
| Deactivating a drive that is not attached | 700E | C, G | The Control task is indicating that a request to deactivate a drive failed because the drive is not attached. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Deactivation of a drive failed | 700F | C, G | The Control task is indicating that a request to deactivate a drive failed; reason is not known. |
| Drive removal failed | 7010 | C, G | The Drive task is indicating that a request to power-down a drive failed; reason is not known. |
| Drive is Active failed | 7012 | C, G | The Drive task is indicating that a request to determine if a drive is executing a host command failed; reason is not known. |
| Control Com Unidentified | 7013 | C, G | During HotSwap, a command response from the Control task could not be associated with any outstanding command. |
| Drive status updated failed | 7014 | C, G | The Drive task is indicating that a request to determine the current state of a drive failed; reason is not known. |
| Loader command execution failed | 7015 | C, G | The Loader task is indicating that a command has failed to complete successfully. |
| Sequential command execution failed | 7016 | C, G | The Sequential task is indicating that a command has failed to complete successfully. |
| Destination Xchg for msg. was Null | 7017 | C, G | Attempting to send a message to a task, but the argument exchange pointer was Null. |
| Bad src mod in peg msg | 7018 | C, G | A message was received from a remote module, but the module number was out of range. |
| A Peg message has a pointer to Null. | 7019 | C, G | Peg message wrapping a Null msg. ptr. |
| Xchg conversion failed | 701A | C, G | Attempt to determine the module number containing the task that is returning a command response failed. |
| Invalid L-drive number to convert | 701B | C, G | Attempt to send a command to a drive, but the logical drive number is out of range. |
| Invalid P-drive number to convert | 701C | C, G | Attempt to send a command to a drive, but the physical drive number is out of range. |
| Invalid mod number to convert | 701D | C, G | Attempt to send a command to a drive in a remote module, but the module number is out of range. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| Unknown | 701E | C, G | Attempt to show detailed drive status of a drive whose type is unknown. |
| The SCSI response was not expected | 701F | C, G | The command response from the SCSI task in a remote module was unexpected. |
| The Flash response was not expected | 7020 | C, G | The command response from the Flash task in a remote module was unexpected. |
| SCSI response not matched to a known command | 7021 | C, G | A command response was received from a SCSI task, but the original command opcode could not be determined. |
| Unexpected state after NonVolConfig cmd | 7022 | C, G | After successfully completing a NonVolCofigPut command, the current state of the save operation was unknown |
| Unexpected state after SCSI mode cmd | 7023 | C, G | After successfully completing a SCSIUpdateModeParameters command, the current state of the save operation was unknown. |
| Unexpected state after SCSI init cmd | 7024 | C, G | After successfully completing a SCSIInitcommand, the current state of the save operation was unknown. |
| Cartridge reject recovery failed | 8001 | C, D, G | The DLT drive failed to successfully load a tape even after retries. |
| Drive Fan stalled | 8002 | C, D, G | The fan in the drive hot-swap shoe is either not installed or has stalled. |
| Drive load did not complete | 8003 | C, D, G | The drive failed to successfully load a tape. |
| Invalid drive was installed | 8004 | F | One or more installed drives are of a type either unknown or not supported in the current ACL personality. |
| LTO unmask drive failed | 8005 | F | The LTO drive unmask operation failed. |
| LTO mask drive failed | 8006 | F | The LTO drive mask operation failed. |
| LTO unload drive (In load retry) failed | 8007 | F | The LTO drive failed to unload a cartridge during a load retry operation. |
| Is Drive Unloaded Failed | 8008 | F | The LTO drive failed to return status when being polled for unloaded state. |
| Orphan cartridge recovery failed | 9001 | C, D, G | The master module could not successfully return an orphan cartridge to a slot location. |
| Master pass-thru opto failed | 9003 | C, D, G | The master module opto sensor was not detected during the power-up pass-thru module inventory. |

**Table 6-2. Fault Symptom Codes**

| Message | FSC | ERP | |
|---|---|---|---|
| SMX send error | A001 | C, G | An attempt to place a message on a task's exchange generated a kernel error. |
| SMX receive error | A002 | C, G | An attempt to receive a message from a task's exchange generated a kernel error. |
| Comm free list empty | A003 | C, G | An attempt to acquire a message from the free pool failed because the pool is empty. |
| Invalid comm. put attempt | A004 | C, G | An attempt to place a message on a task's exchange failed because either the argument message pointer was NULL or the argument exchange pointer was NULL. |
| Invalid comm. get attempt | A005 | C, G | An attempt to receive a message from a task's exchange failed because the argument exchange pointer was NULL. |
| Comm initialization error | A006 | C, G | The Comm manager could not be initialized at power-up because the system is out of memory. |
| Put of a NULL comm. | A007 | C, G | An attempt to place a Comm block on a task's exchange failed the argument Comm block pointer was NULL. |
| Msg contains no comm. | A008 | C, G | A message obtained from the free pool did not contain a Comm block. |
| Comm return address in unknown | A009 | C, G | An attempt to return a command response to the originating task failed because the originator could not be determined. |
| Bad Image CRC | F001 | F | The uploaded firmware image has a bad CRC and is probably corrupted. |
| Flash erase sector failed | F002 | F | One of the flash memory sectors could not be programmed. |
| Flash program sector failed | F003 | C, G | One of the flash memory sectors could not be erased. |
| Bad flash CRC | F004 | C, G | The firmware image programmed into flash memory has a bad CRC and is probably corrupted. |
| Flash exit error | F005 | C, G | Internal flash task error. |
| Incompatible image | F006 | F | The uploaded firmware image is not compatible with the ACL hardware, possibly an older firmware version. |
| Buffer allocation failed | F402 | F | The flash task could not allocate a buffer area to hold the firmware image to be uploaded. |

If an error message appears that is not included in Table 6-2, write down the fault code number and follow the recovery procedure. If the same error occurs again, call your service provider.

# Safety and Compliance

This sections contains three types of required safety and compliance statements:

- Regulatory compliance
- Waste Electrical and Electronic Equipment (WEEE)
- Safety

# Regulatory Compliance Statements

The following regulatory compliance statements apply to the products documented by this manual.

## FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by Hewlett-Packard Computer Corporation could void the user's authority to operate this equipment.

## Canadian Compliance

This class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règelment sur le matériel brouilleur du Canada.

## Korea MIC Compliance

**A**급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

## Taiwan (BSMI) Compliance

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

## Japan (VCCI) Compliance

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is a Class A product based on the standard or the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case the user may be required to take corrective actions.

## European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (the equivalent international standards are in parenthesis):

- EN55022 (CISPR 22)—Electromagnetic Interference
- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11)—Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2)—Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3)—Power Line Flicker
- EN60950 (IEC950)—Product Safety

## Laser Compliance

This product may be provided with an optical storage device (that is, CD or DVD drive) and/or fiber optic transceiver. Each of these devices contains a laser that is classified as a Class 1 Laser Product in accordance with US FDA regulations and the IEC 60825-1. The product does not emit hazardous laser radiation.

**WARNING: Use the controls or adjustments or performance of procedures other than those specified herein or in the laser product's installation guide may result in hazardous radiation exposure. To reduce the risk of exposure to hazardous radiation:**

- **Do not try to open the module enclosure. There are no user-serviceable components inside.**
- **Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.**
- **Allow only HP Authorized Service technicians to repair the module.**

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the Unites States.

# SAFETY CAUTION

The following icon or caution statements may be placed on equipment to indicate the presence of potentially hazardous conditions:

**DUAL POWER CORDS CAUTION:**

“THIS UNIT HAS MORE THAN ONE POWER SUPPLY CORD. DISCONNECT ALL POWER SUPPLY CORDS TO COMPLETELY REMOVE POWER FROM THIS UNIT."

"ATTENTION: CET APPAREIL COMPORTE PLUS D'UN CORDON D'ALIMENTATION. DÉBRANCHER TOUS LES CORDONS D'ALIMENTATION AFIN DE COUPER COMPLÈTEMENT L'ALIMENTATION DE CET ÉQUIPEMENT".

DIESES GERÄT HAT MEHR ALS EIN NETZKABEL. VOR DER WARTUNG BITTE ALLE NETZKABEL AUS DER STECKDOSE ZIEHEN.

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Any surface or area of the equipment marked with these symbols indicates the presence of electric shock hazards. The enclosed area contains no operator-serviceable parts.

**WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.

## DOUBLE POLE FUSING

CAUTION: DOUBLE-POLE /NEUTRAL FUSING.

ATTENTION: DOUBLE POLE/FUSIBLE SUR LE NEUTRE

## NOT FOR EXTERNAL USE

CAUTION: NOT FOR EXTERNAL USE. ALL RECEPTACLES ARE FOR INTERNAL USE ONLY.

ATTENTION: NE PAS UTILISER A L’EXTERIEUR DE L’EQUIPEMENT

IMPORTANT: TOUS LES RECIPIENTS SONT DESTINES UNIQUEMENT A UN USAGE INTERNE.

VORSICHT: ALLE STECKDOSEN DIENEN NUR DEM INTERNEN GEBRAUCH.

### HIGH LEAKAGE CURRENT

To reduce the risk of electric shock due to high leakage currents, a reliable grounded (earthed) connection should be checked before servicing the power distribution unit (PDU).

Observe the following limits when connecting the product to AC power distribution devices: For PDUs that have attached AC power cords or are directly wired to the building power, the total combined leakage current should not exceed 5 percent of the rated input current for the device.

“HIGH LEAKAGE CURRENT, EARTH CONNECTION ESSENTIAL BEFORE CONNECTING SUPPLY”

“HOHER ABLEITSTROM. VOR INBETRIEBNAHME UNBEDINGT ERDUNGSVERBINDUNG HERSTELLEN”

“COURANT DE FUITE E’LEVE’. RACCORDEMENT A LA TERRE INDISPENSABLE AVANT LE RACCORDEMENT AU RESEAU”

### FUSE REPLACEMENT

CAUTION – For continued protection against risk of fire, replace only with same fuse type TCF15, Rated 600V~, 15A. Disconnect power before changing fuses.

# Waste Electrical and Electronic Equipment (WEEE)

Information about the Waste Electrical and Electronic Equipment (WEEE) directive can be accessed from the left navigation area of the NTL home page: select **NonStop Computing > Waste Electrical and Electronic Equipment (WEEE)**.

# Important Safety Information

Safety information can be accessed from the left navigation area of the NTL home page: select **NonStop Computing>Important Safety Information**. A document window containing a binder of safety information, in several languages, appears. In the document window, click a document title to open the safety information in another language. Local HP support can also help direct you to your safety information.

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