# **hp** StorageWorks

# Modular Smart Array 1000 (MSA1000) Command Line Interface

First Edition (September 2003)

This guide details the use of the Command Line Interface used to configure storage on the Modular Smart Array 1000.

**Note:** Documentation titled HP StorageWorks Modular SAN Array 1000 or HP StorageWorks Modular Smart Array 1000 both refer to the HP StorageWorks MSA1000.

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# Contents

# About This Guide

This user guide provides information to help you use the MSA1000 Command Line Interface.

"About This Guide" topics include:

- Overview, page 6
- Conventions, page 7
- Getting Help, page 10

# Overview

This section covers the following topics:

- Intended Audience
- Related Documentation

# Intended Audience

This book is intended for use by administrators with a moderate amount of SAN-management experience.

# Related Documentation

In addition to this guide, refer to the *HP StorageWorks MSA1000 Installation Guide* that ships with this system.

# Conventions

Conventions consist of the following:

- Document Conventions
- Text Symbols
- Equipment Symbols

## Document Conventions

The document conventions included in Table 1 apply in most cases.

**Table 1: Document Conventions**

| Element | Convention |
|---|---|
| Cross-reference links | Figure 1 |
| Key and field names, menu items, buttons, and dialog box titles | **Bold** |
| File names, application names, and text emphasis | *Italics* |
| User input, command and directory names, and system responses (output and messages) | Monospace font<br><br>COMMAND NAMES are uppercase monospace font unless they are case sensitive |
| Variables | *<monospace, italic font>* |
| Website addresses | Underlined sans serif font text:<br>http://www.hp.com |

## Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings:

**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

> **Caution:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

> **Note:** Text set off in this manner presents commentary, sidelights, or interesting points of information.

## Equipment Symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings:

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

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

Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

**WARNING:** To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

**WARNING:** To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.

Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

**WARNING:** To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.

Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

# Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website: http://www.hp.com.

## HP Technical Support

In North America, call technical support at 1-800-652-6672, available 24 hours a day, 7 days a week.

**Note:** For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call technical support at the nearest location. Telephone numbers for worldwide technical support are listed on the HP website under support: http://www.hp.com.

Be sure to have the following information available before calling:

■ Technical support registration number (if applicable)

■ Product serial numbers

■ Product model names and numbers

■ Applicable error messages

■ Operating system type and revision level

■ Detailed, specific questions

## HP Website

The HP website has the latest information on this product, as well as the latest drivers. Access storage at: www.hp.com/go/msa1000. From this website, select the appropriate product or solution.

# HP Authorized Reseller

For the name of your nearest HP Authorized Reseller:

- In the United States, call 1-800-345-1518

- In Canada, call 1-800-263-5868

- Elsewhere, see the HP website for locations and telephone numbers: http://www.hp.com.

# Command Line Interface (CLI)

The Command Line Interface (CLI) is used to configure and manage the MSA1000. In addition, the CLI can be used to display system setup information and status. It may also provide information on devices that are attached to the controller.

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**Note:** The CLI is available for all supported operating systems.

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The CLI is accessed through a host server connected to the serial port of the MSA1000.

Some CLI configuration and management tasks include configuring storage units (LUNs), setting the addressing mode, limiting access to storage, and viewing information on MSA1000 components (controller, unit, and cache).

This chapter discusses:

- CLI Overview, page 14
- CLI Setup, page 19
- Help Commands, page 22
- Display Commands, page 26
- Array Controller Configuration Commands, page 33
- LUN Management Commands, page 36
- Server Connection Commands, page 51
- Selective Storage Presentation/Access Control List Commands, page 55

# CLI Overview

After accessing the interface, enter a command string at the CLI prompt (CLI>). Commands must use a specific, preset syntax. After a declarative command is entered and executed, the results are displayed at the CLI prompt.

When using the CLI, the following keystrokes have special meaning:

**Table 2: CLI Special Keys**

| Keyboard Keys | Arrow Key | Meaning |
| --- | --- | --- |
| Ctrl_B | left arrow | move the cursor back one character |
| Ctrl_F | right arrow | move the cursor forward one character |
| Ctrl_P | up arrow | recall the previous command in the command buffer |
| Ctrl_N | down arrow | recall the next command in the command buffer |

**Note:** The CLI uses a zero-based numbering system. For example, LUN number assignments begin with 0.

# MSA1000 Controller Display

Each array controller in an MSA1000 contains an integrated Liquid Crystal Display (LCD). This module is used for displaying informational and error messages, showing the status of the module, and for providing user input when required. Traditional Power-On Self-Test (POST) messages issued by PCI-based array controllers have been combined with runtime event notification messages to create a new set of controller display messages.
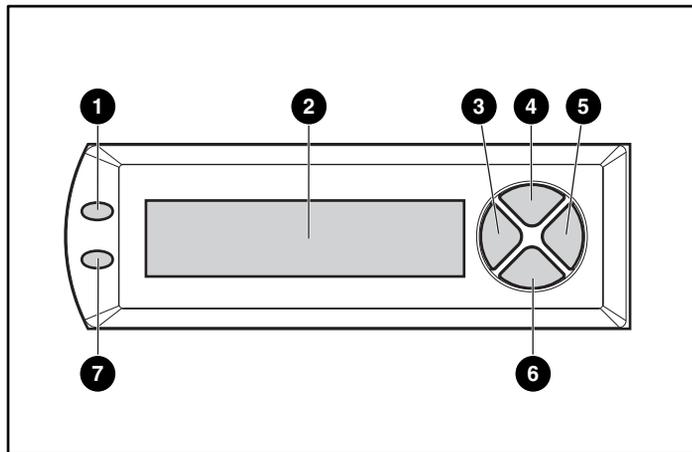


**Figure 1: Controller display**

| Controller Display | Description |
| --- | --- |
| ❶ | Fault indicator (amber) |
| ❷ | Display |
| ❸ | Left push button |
| ❹ | Up push button |
| ❺ | Right push button |
| ❻ | Down push button |
| ❼ | Redundancy Link indicator (green) |

When the MSA1000 has two controllers, the same firmware image is run on both controllers. The two controllers communicate with each other through a PCI bus called the inter-controller link (ICL). Each controller has a serial port and has a CLI available to the users who connect the serial port to a serial terminal.

Some CLI commands are entered from one controller's CLI prompt but are for the other controller to execute. Command syntax instructs the controller to accept user input, pass the command to the other controller, and then display the result.

The following keywords are used in the CLI to indicate a specific controller:

■ `this_controller-`—is included in a command syntax to refer to the controller that the CLI is connected to.

■ `other_controller`—is included in a command syntax to refer to the other controller in the MSA1000.

# CLI Command Syntax

As previously mentioned, CLI commands are entered at the CLI prompt. Commands are **not** case sensitive and must be typed out in full.

CLI command strings include the basic command plus specific command options, some of which are mandatory and some of which are optional.

The CLI does not support line-continuation characters. If all characters of a command do not fit on one line of the CLI, let them wrap around to the next line on the screen. The maximum command length is 255 characters.

### Example Command

```
ADD UNIT 0 DATA="DISK101-DISK103" RAID_LEVEL=0
```

This example command has three portions—the basic command, plus two command options.

### Basic Command

```
add unit
```

The basic command includes a word or phrase used to instruct the controller. Commands usually contain a verb with a noun. Every CLI command must begin with a basic command.

### Command Options

```
0
data="disk101-disk103"
raid_level=0
```

An option is defined as words or phrases listed after the basic command that supply necessary information to support the command.

Some CLI commands require these parameters. If parameters are required but are not entered, the CLI command string is considered invalid. The syntax of the parameter value is uniquely defined for each CLI command, but must be less than 20 alphanumeric characters.

Some CLI commands support options that modify the command, but are not required. If a modifying option is available but not used, a default value will be used.

## Overview of CLI Storage Configuration Procedures

When using the CLI to initially configure the MSA1000 Controller and its storage, use the following sequence:

1. Enter array controller settings, including global parameters.

   See "Array Controller Configuration Commands" for command descriptions.

   **Note:** OpenVMS environments must assign a unique ID number to each controller in the MSA1000. See "Setting Global Variables" for instructions.

2. Create the LUNs.

   See "LUN Management Commands" for command descriptions.

   **Note:** OpenVMS environments must assign a unique ID number to each LUN. See "Assigning a Name or ID to a LUN" for instructions.

3. Enter server connection information to indicate the HBAs that will access the MSA1000.

   See "Server Connection Commands" for command descriptions.

   **Note:** Each server accessing the MSA1000 must identify its profile type. See "Managing Connection Profiles" for instructions.

4. (Optional) Enter Selective Storage Presentation (SSP) and Access Control List (ACL) information.

   See "Selective Storage Presentation/Access Control List Commands" for command descriptions.

# CLI Setup

Before using the serial interface to connect to the MSA1000, a serial connection to the controller must be established.

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**Note:** Any terminal emulator program may be used, but the following instructions demonstrate setting up the serial connection with HyperTerminal.

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## Setting up the Serial Connection

To access the CLI on the MSA1000:

1. Make sure there is an MSA1000 Controller installed in Slot 1 of the MSA1000. (Slot 1 is located on the front right of the MSA1000.)

2. Connect the MSA1000 to a host server using the custom serial cable included in the shipping carton of the MSA1000.

   An additional or replacement custom serial cable can be ordered using part number 259992-001.

   ■ MSA1000 adapter: RJ-45Z

   ■ Host server adapter: serial port on the host server

3. Set up a terminal emulator.

   To set up HyperTerminal:

   a. Access HyperTerminal.

      If you need to load HyperTerminal on the server, navigate the Web and download the latest version.

      If HyperTerminal is already loaded on the server, but its location is unknown, to locate this program on a Windows-based server, go to **Start**, **Search**, **For Files and Folders**. Enter hypertrm.exe as search term.

      After this program is installed or located, if desired, create a shortcut for it to simplify subsequent accesses.

   b. Open HyperTerminal.

      When accessed for the first time, the **New Connection** dialog box is displayed.

      See Figure 2 for an example of the New Connection dialog box.

---
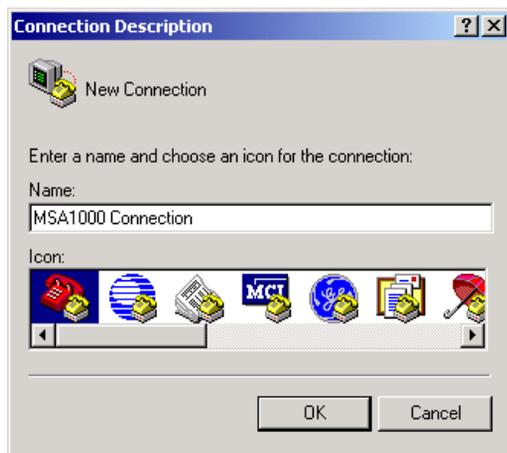
**Figure 2: HyperTerminal New Connection dialog box**

    c.  In the **New Connection** dialog box, type a name to associate with the connection between the MSA1000 and the host server. Then click **OK**.

        The **Connect To** dialog box is displayed.

        See Figure 3 for an example of the **Connect To** dialog box.



**Figure 3: HyperTerminal Connect To dialog box**

d. In the **Connect To** dialog box, expand the **Connect using** drop-down box, select the appropriate COM port, and click **OK**.

Figure 3 illustrates selecting **COM1**.

The **COM Properties** dialog box is displayed.

Figure 4 is an example of the COM1 Properties dialog box.
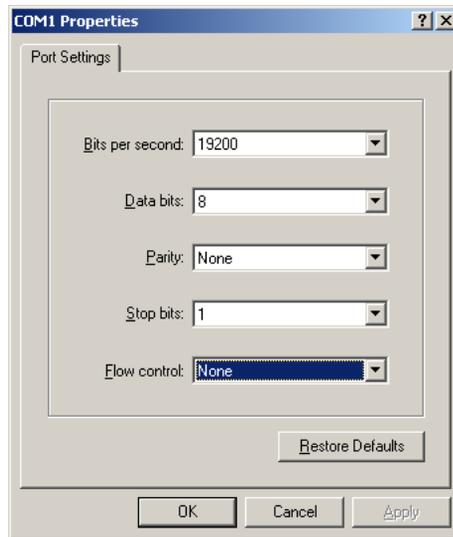


**Figure 4: HyperTerminal COM1 Properties dialog box**

e. In the **COM1 Properties** dialog box, enter the following settings, also listed in Figure 4, and click **OK**.

Bits per Second: 19200
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None

The CLI input screen is displayed.

f. In the CLI session screen, press **Enter** several times to display the command prompt (CLI>).

Commands can now be entered at this CLI prompt.

# Help Commands

Help commands can be used to display a list of all possible commands or to display a detailed description of a specific command. Displayed information may include required command syntax, a brief definition, the number of characters for a command option value, or a list of allowed/disallowed characters.

■ Displaying a List of All Basic Commands

■ Displaying a List of All Available Commands

■ Displaying Help for a Specific Command

The basic command is HELP, but can be modified with command options to more narrowly define the request.

# Displaying a List of All Basic Commands

If the HELP command is entered without a limiting command verb or noun, the CLI will display the available basic commands.

### Example Command

```
CLI> HELP
CLI> ?
```

**Note:** "HELP" and "?" are interchangeable.

### Example Command Output

```
CLI> HELP

Possible command verbs:
                  help              add
delete            migrate           expand
extend            accept            rename
set               locate            show

Possible command nouns:
unit              connection        acl
spare             units             unit_id
this_controller_id other_controller_id globals
prompt            disk              bus
box               all               cancel
connections       this_controller   other_controller
version           disks             profile
tech_support

Specify command word:
```

# Displaying a List of All Available Commands

To see a list of all commands:

### Example Command

```
CLI> HELP DISPLAY_ALL
```

### Command Options

DISPLAY_ALL—a list of all currently supported commands will be displayed.

### Example Command Output

```
CLI> HELP DISPLAY_ALL

Displaying list of all currently supported CLI commands:
?                          help
add unit                   add connection
add acl                    add spare
delete unit                delete connection
delete acl                 delete spare
migrate unit               expand unit
extend unit                accept unit
accept units               rename connection
set unit_id                set this_controller_id
set other_controller_id    set globals
set acl                    set connection
set prompt                 set unit
locate disk                locate unit
locate bus                 locate box
locate all                 locate cancel
show connections           show unit
show units                 show unit_id
show this_controller       show other_controller
show version               show disks
show globals               show acl
show profile               show tech_support

CLI>
```

# Displaying Help for a Specific Command

When the basic HELP command is followed by a specific command verb or command verb and noun, the CLI will display helpful information about that command.

### Example Command

```
CLI> HELP ADD ACL
```

### Command Options

ADD ACL—the specific command about which to display help.

### Example Command Output

```
CLI> HELP ADD

Possible command nouns:
unit                connection          acl
spare

Specify command noun:
```

### Additional Command Example and Output

```
CLI> HELP ADD ACL

'add acl connection=name/wwpn=xxxxxxxx-xxxxxxxx unit=#'
adds access rights for one connection to one or all units.

CLI>
```

# Using the `show tech_support` Command

The CLI provides a single command that will execute the following commands as a batch.

- `show version`
- `show profile`
- `show globals`
- `show acl`
- `show connections`
- `show disks`
- `show units`
- `show this_controller`
- `show other_controller`

### Basic Command

```
SHOW TECH_SUPPORT
```

### Example Command

```
CLI> SHOW TECH_SUPPORT
```

The commands will execute using the standard output. For more information on these commands, see the sections below.

# Display Commands

Several commands are available to view system information and setup, including:

- Viewing Physical Disk Information
- Viewing LUN Information
- Viewing LUN Names
- Viewing Controller Settings
- Viewing Global Settings
- Viewing Version Information

Each of these procedures uses the SHOW command, which displays the configuration of the MSA1000. These procedures are discussed in the following paragraphs.

## Viewing Physical Disk Information

The following information can be displayed for the disks:

- Disk number
- Enclosure box and bay number
- Enclosure bus number and ID
- Disk size
- LUN in which the disk is used
- Disks assigned as spares

To display a list of physical disks contained in the MSA1000 and attached external storage enclosures:

### Basic Command

```
SHOW DISKS
```

### Example Command

```
CLI> SHOW DISKS
```

**Example CLI Response**

```
CLI> SHOW DISKS
 Disk List:   (box,bay)    (bus,ID)      Size        Units
   Disk101    (1,01)       (0,00)       18.2GB         0
   Disk102    (1,02)       (0,01)       18.2GB         0
   Disk103    (1,03)       (0,02)       18.2GB        none
   Disk104    (1,04)       (0,03)       18.2GB        none
   Disk105    (1,05)       (0,04)       18.2GB        none
   Disk106    (1,06)       (0,05)       18.2GB        none
   Disk107    (1,07)       (0,08)       18.2GB        none
   Disk108    (1,08)       (1,00)       18.2GB        none
   Disk109    (1,09)       (1,01)       18.2GB        none
   Disk110    (1,10)       (1,02)       18.2GB        none
   Disk111    (1,11)       (1,03)       18.2GB        none
   Disk112    (1,12)       (1,04)       18.2GB        none
   Disk113    (1,13)       (1,05)       18.2GB        none
   Disk114    (1,14)       (1,08)       18.2GB        none

 CLI>
```

# Viewing LUN Information

The following information can be displayed for the LUN:

■ Unit identifier (user-defined name)

■ LUN status, including OK, Failed, and Rebuilding

■ List of the disks included in the LUN

■ List of the disks assigned as spares to the LUN

■ RAID level

■ Unit size, in MB

### Basic Command

```
SHOW UNIT
```

### Example Command

To display all defined LUNs:

```
CLI> SHOW UNITS
```

To display a specific LUN:

```
CLI> SHOW UNIT 1
```

### Example CLI Response

```
Unit 1:
In PDLA mode, Unit 1 IS LUN 2; In VSA mode, Unit 1 is LUN 1
Unit Identifier:
Device Indentifier:600805F3-00006B20-AE277D4B-B0D100F7
Cache Status:Enabled
Max Boot Partition:Disabled
Volume Status: VOLUME OK
Parity Init Status: 3% complete
5 Data Disk(s) used by lun 1:
  Disk107: Box 1, Bay 07,  (SCSI bus 0, SCSI id 8)
  Disk108: Box 1, Bay 08,  (SCSI bus 1, SCSI id 0)
  Disk207: Box 2, Bay 07,  (SCSI bus 2, SCSI id 8)
  Disk208: Box 2, Bay 08,  (SCSI bus 2, SCSI id 9)
  Disk307: BOX 3, Bay 07,  (SCSI bus 3, SCSI id 8)
  Disk308: Box 3, Bay 08,  (SCSI bus 3, SCSI id 9)
Spare Disk(s) used by lun 1:
  No spare drive is designated.
Logical Volume Raid Level: DISTRIBUTED PARITY FAULT TOLERANCE
(RAID 5)
                 stripe_size=16KB
Logical Volume Capacity: 173,658MB
```

**Note:** PDLA and VSA addressing method reference information is included in the display. PDLA represents Peripheral Device LUN Addressing, which is used by the majority of system profiles. VSA represents Volume Set Addressing, which is used by the HP_UX profile.

# Viewing LUN Names

To view the user-defined names that have been assigned to the LUNs:

### Basic Command

```
SHOW UNIT_ID
```

### Example Command

```
CLI> SHOW UNIT_ID 0
```

### Command Options

0–the number of the LUN to display.

### Example CLI Response

```
Unit 0: ABC
```

*ABC* represents the assigned user-defined name.

# Viewing Controller Settings

The following information can be displayed for the controllers:

■ Controller identifier

■ Controller hardware and software versions

■ SCSI compliance information

■ Controller SCSI ID

■ Redundancy information

■ Host Port Information

■ Controller cache configuration and battery information

To view information about the configuration of the controller:

**Basic Command:**

```
SHOW THIS_CONTROLLER
SHOW OTHER_CONTROLLER
```

**Example Command**

```
CLI> SHOW THIS_CONTROLLER
```

**Example CLI Response**

```
Controller:
  MSA1000© Compaq xxxxxxxxxxxxx Software 2.38 Build 122
Hardware 7
  Controller Identifier: 123
  NODE_ID=yyyyyyyy-yyyyyyyy
  SCSI_VERSION=SCSI-3
  Supported Redundancy Mode: Active/Standby
  Current Redundancy Mode: Active/Standby
  Current Role:Active
  Device Port SCSI address 6
Host Port_1:
  REPORTED PORT_ID YYYYYYYY-YYYYYYYY
  PORT_1_TOPOLOGY=F_Port
Cache:
  128 megabytes read cache  128 megabytes write cache  Version 2
  Cache is GOOD, and Cache is enabled
  No unflushed data in cache
Battery:
  Module #1 is fully charged and turned off.
```

# Viewing Global Settings

The following information can be displayed for the global settings of the controller:

- System name
- Rebuild and expand priority settings
- Read and write cache settings
- Power supply and EMU temperatures

To view information about the global settings of the controller:

**Basic Command:**

```
SHOW GLOBALS
```

**Example Command**

```
CLI> SHOW GLOBALS
```

**Example CLI Response**

```
CLI> SHOW GLOBALS

Global Parameters:
  System Name:   ABC
  Rebuild Priority:   high
  Expand Priority:    high

Total Cache:   256MB
  50% Read Cache:  128 MB
  50% Write Cache: 128 MB

Temperature:
  EMU:30 Celsius,86 Farenheit
  PS1:40 Celsius,104 Farenheit
  PS2:40 Celsius,104 Farenheit
```

# Viewing Version Information

The following information can be displayed for the controllers:

- Firmware version
- Hardware revision
- Internal EMU Firmware revision

To view version information about the MSA1000:

**Basic Command:**

```
SHOW VERSION
```

**Example Command**

```
CLI> SHOW VERSION
```

**Example CLI Response**

```
CLI> SHOW VERSION
Firmware version:  2.38 build 122
Hardware revision:  7
Internal EMU Rev:   1.86
```

# Array Controller Configuration Commands

The CLI provides the ability to configure the MSA1000 array controller, including:

- Setting Global Variables
- Setting the Controller ID
- Changing the CLI Prompt

Each of these procedures uses the SET command, which changes the settings of the MSA1000 Controller.

## Setting Global Variables

A single command with a variety of parameters is used to set the expand priority, the read/write ratio, and the system name.

### Basic Command

```
SET GLOBALS
```

### Example Command

```
SET GLOBALS EXPAND_PRIORITY=HIGH REBUILD_PRIORITY=HIGH
SYSTEM_NAME="XXX" READ_CACHE=50 WRITE_CACHE=50
```

### Command Options

EXPAND_PRIORITY=HIGH—the expand priority. Used when expanding an array to set the priority of array expansions in relation to input/output operations. See below for detailed information about these settings.

REBUILD_PRIORITY=HIGH—the rebuild priority. Used when rebuilding an array to set the priority of an array rebuild in relation to input/output operations.

- **Low**—expansion or rebuild takes place only when the array controller is not busy handling normal I/O requests. This setting has minimal effect on normal I/O operations. However, there is an increased risk that data will be lost if another physical drive fails while the rebuild is in progress.

- **Medium**—expansion or rebuild occurs for half of the time, and normal I/O requests are handled during the rest of the time.

- **High**—rebuild or expansion occurs at the expense of normal I/O operations. Although system performance is affected, this setting provides better data protection because the array is vulnerable to additional drive failures for a shorter time.

SYSTEM_NAME="*XXX*"—the system name, where *XXX* represents any user defined phrase, up to 20 alphanumeric characters.

READ_CACHE=50—the read cache. This value must be between 0 and 100.

WRITE_CACHE=50—the write cache. This value must be between 0 and 100.

---

**Note:** Read_cache plus write_cache must equal 100.

---

### Example CLI Response

```
Global Parameters:

System Name:XXX
Rebuild Priority:HIGH
Expand Priority:HIGH

Total Cache:256MB
50% Read Cache:128MB
50% Write Cache:128MB
```

## Setting the Controller ID

A command is used to assign a unique name to each controller installed in the MSA1000:

### Basic Command

```
SET THIS_CONTROLLER_ID
SET OTHER_CONTROLLER_ID
```

### Example Command

```
CLI> SET THIS_CONTROLLER_ID 123
```

### Command Options

123—the user-defined ID for the controller.

The ID can be up to 230 alphanumeric characters or a decimal number in the range of 0 though 65535. In this example, the controller ID will be changed to 123.

### Example CLI Response

```
CLI> SET THIS_CONTROLLER_ID 123
Controller identifier 123 created.
```

> **Note:** To verify the controller ID assignment, use the `SHOW THIS_CONTROLLER` or `SHOW OTHER_CONTROLLER` commands.

# Changing the CLI Prompt

To temporarily change the CLI prompt from the default of "`CLI>`":

### Basic Command

    SET PROMPT

### Example Command

    CLI> SET PROMPT ABC

### Command Options

`ABC`—the user-defined name for the prompt. The name can be up to 24 alphanumeric characters. In this example, the prompt will be changed to ABC.

### Example CLI Response

    ABC>

# LUN Management Commands

The following commands are used to physically locate the specific hard drives in a LUN as well as create, delete, and modify storage LUNs.

- Flashing LEDs/Locating Hard Drives
- Creating LUNs
- Assigning a Name or ID to a LUN
- Adding a Spare to a LUN
- Deleting LUNs
- Deleting Spares
- Recognizing a Failed Unit
- Modifying Arrays and LUNs

## Flashing LEDs/Locating Hard Drives

A variety of commands are available for physically locating specific hard drives. Specifically, you can locate all drives attached to the MSA1000, all drives in a specific storage enclosure, all drives on a specific SCSI bus, all drives in a specific LUN, or a specific individual hard drive.

When these commands are executed, the LEDs of the requested drives will blink. These LEDs are visible from the front of the MSA1000 and its attached storage enclosures.

---

**Note:** If a time limit is not included with the Locate command, the LEDs will blink for 30 seconds.

---

The basic command verb is LOCATE, but a variety of command nouns and command options are available to customize the request.

### Basic Command

```
LOCATE
```

### Command Options

TIME=*xxx*—(optional) the length of time to flash the LEDs, where *xxx* represents the number of seconds.

ALL—all drives connected to the MSA1000 storage sub-system will be flashed.

BOX—the number of the storage enclosure whose disks you want to flash.

    1=the MSA1000 drive shelf
    2=the storage enclosure attached to SCSI port A
    3=the storage enclosure attached to SCSI port B

BUS—the number of the bus whose disks you want to flash.

UNIT—the number of the LUN whose disks you want to flash.

DISK*xxx*-DISK*yyy*—a range of drives to flash. Disks are identified by box number and bay number.

DISK*zzz*—a specific drive to flash. Disks are identified by box number and bay number.

## Locating all Drives Attached to the MSA1000

To flash the LEDs of all drives attached to the MSA1000:

### Example Command

```
CLI> LOCATE ALL
```

## Locating all Drives in a Specific Storage Enclosure

To flash the LEDs of all drives in the MSA1000 drive shelf or additional storage enclosures:

### Example Command

```
CLI> LOCATE BOX 3
```

BOX 3—the drives in the storage enclosure attached to SCSI port B will be flashed.

## Locating all Drives for a Specific SCSI Bus

To flash the LEDs of all drives connected to a specific SCSI bus:

### Example Command

```
CLI> LOCATE BUS 1
```

BUS 1—all drives connected to bus number 1 will be flashed.

## Locating all Drives in a Specific LUN

To flash the LEDs and locate all drives associated with a specific LUN:

### Example Command

```
CLI> LOCATE UNIT 1
```

UNIT 1—the drives in LUN 1 will be flashed.

UNIT ALL—all drives incorporated into LUNs will be flashed.

## Locating Specific Drives

To flash the LEDs to locate an individual drive or group of drives:

### Example Command

```
CLI> LOCATE DISK DISK102-DISK106
```

DISK DISK102-DISK106—the LEDs on drives in bays 2 through 6 in box 1 will blink.

## Canceling a LOCATE Request

To stop the flashing of the drive LEDs caused by a previous Locate command and return the drive LEDs to normal operations:

### Example Command

```
CLI> LOCATE CANCEL
```

There are no available options for this command.

## Creating LUNs

A LUN is a logical storage unit comprised of one or more hard drives.

When a LUN is initially created, the LUN Unit ID is automatically set to the number assigned to the LUN. If desired, this LUN ID name can be changed. See "Assigning a Name or ID to a LUN" for procedural information.

The basic command is ADD UNIT. A variety of options are available to modify the command.

### Basic Command

    ADD UNIT

### Command Options

DATA="DISKzzz"—the number of an individual drive to incorporate into the LUN. Disks are identified by box number and bay number. For example, DISK110 identifies disk 10 in box number 1.

DATA="DISKxxx-DISKyyy"—a range of drives is to be incorporated into the LUN. Disks are identified by box number and bay number. For example, DISK101-DISK105 identifies disks 1 through 5 in box number 1.

---

**Note:** Quotation marks must be entered both before and after the data disk drives that are to be included in the LUN.

---

RAID_LEVEL=xxx—the RAID fault-tolerance level to use, where xxx represents:

    0  = RAID 0 (no fault tolerance)
    1  = RAID 1 (mirroring)
    5 = RAID 5 (distributed parity)
    ADG = Advanced Data Guarding (ADG)

---

**Note:** If more than one pair of drives are included in a RAID 1 array, the data is striped across the first half of the drives in the array and then each drive is mirrored to a drive in the remaining half of the drives for fault tolerance. This method is referred to as RAID 1+0.

---

STRIPE_SIZE=*xxx*—(optional) the stripe size to assign (in KB), where *xxx* represents 8, 16, 32, 64, 128, or 256 Kilobytes.

> RAID 0 uses stripe sizes 8, 16, 32, 64, 128, and 256 (Default: 128 KB)
> RAID 1 uses stripe sizes 8, 16, 32, 64, 128, and 256 (Default: 128 KB)
> RAID 5 uses stripe sizes 8, 16, 32, and 64 (Default: 16 KB)
> RAID ADG uses stripe sizes 8, 16, 32, and 64 (Default: 16 KB)

SIZE=*xxxxyy*—(optional) how much of the available space on the indicated drives is to be used for the LUN, where *xxxx* represents the LUN size and *yy* indicates MB or GB. (When GB is entered, all return displays will be converted to MB.) If no size is specified, the maximum available space of the included disks will be assigned to the unit. See "Creating Multiple LUNs on a Group of Drives" for an example of using the Size command option.

SPARE=DISK*xxx*—(optional) disk(s) to assign as a spare to the unit, where *xxx* represents the disk number. More than one disk can be assigned as a spare to a LUN.

MAXBOOT=ENABLE/DISABLE—(optional) changes the size of the boot partition.

> Enable = 8-GB boot partition (default)
> Disable = 4-GB boot partition

CACHE=ENABLE/DISABLE—(optional) determines whether to use the array controller cache for the LUN.

> Enable = (default) use the array controller cache
> Disable = not use the array controller cache

## Creating a Single LUN from a Group of Drives

To create one LUN from an individual drive or group of drives:

### Example Command

```
CLI> ADD UNIT 0 DATA="DISK101-DISK107 DISK110" RAID_LEVEL=ADG
STRIPE_SIZE=64
```

---

**Note:** Maintain a record of the units as they are created. These Unit ID numbers are used in other CLI commands. In addition to recording the unit number, the drives included, RAID type and size, *record the order in which they are created*.

---

### Command Options

0—LUN 0 is to be created.

DATA="DISK101-DISK107 DISK110"—drives 1 through 7 and disk 10 in box number 1 are to incorporated into the LUN.

RAID_LEVEL=ADG—RAID level ADG will be used when creating LUN 0.

STRIPE_SIZE=64—stripe size of 64 will be used when creating LUN 0.

### Example CLI Response

```
First volume to be configured on these drives.
Logical Unit size = 69460 MB
RAID overhead = 0 MB
Total space occupied by new unit = 69460 MB
Free space left on this volume = 0 MB
Unit 0 is created successfully.
```

## Creating Multiple LUNs on a Group of Drives

To carve out multiple LUNs from a drive or group of drives, use the ADD UNIT command and include the SIZE= command option. Repeat the command using a unique LUN ID for each LUN, along with the desired size parameter.

### Example Command

```
CLI> ADD UNIT 1 DATA="DISK111-DISK114" RAID_LEVEL=5
STRIPE_SIZE=32 SIZE=1000MB
```

---

**Note:** Maintain a record of the units as they are created. These Unit ID numbers are used in other CLI commands. In addition to recording the unit number, the drives included, RAID type and size, and *record the order in which they are created*.

---

### Command Options

1—LUN 1 is to be created.

DATA="DISK111-DISK114"—drives 11 through 14 in box number 1 to the LUN.

RAID_LEVEL=5—RAID 5 will be used when creating the LUN.

STRIPE_SIZE=32—stripe size of 32 will be used when creating the LUN.

SIZE=1000MB—1000 MB of the available space will be used for the LUN.

**Example CLI Response**

The following display is a continuation of the previous example, creating three
LUNs on the same group of physical drives.

```
CLI> ADD UNIT 1 DATA="DISK111-DISK114" RAID_LEVEL=5
STRIPE_SIZE=32 SIZE=1000MB
First volume to be configured on these drives.
The logical unit size has been adjusted by 4MB for optimal
performance.
Logical Unit size = 996 MB
RAID overhead = 498 MB
Total space occupied by new unit = 1494 MB
Free space left on this volume = 24533 MB
Unit 1 is created successfully.

CLI> ADD UNIT 2 DATA="DISK111-DISK114" RAID_LEVEL=5
STRIPE_SIZE=32 SIZE=2000MB
Logical Unit size = 2000 MB
RAID overhead = 1000 MB
Total space occupied by new unit = 3000 MB
Free space left on this volume = 21533 MB
Unit 2 is created successfully.

CLI> ADD UNIT 3 DATA="DISK111-DISK114" RAID_LEVEL=5
STRIPE_SIZE=16 SIZE=4000MB
Logical Unit size = 4000 MB
RAID overhead = 2000 MB
Total space occupied by new unit = 6000 MB
Free space left on this volume = 15533 MB
Unit 3 is created successfully.
```

## Creating a LUN with an Assigned Spare

To create a LUN and assign a spare at the same time, use the ADD UNIT command and include the SPARE= command option.

---

**Note:** More than one spare can be assigned to the same LUN and the same spare can be available to multiple LUNs.

---

### Example Command

```
CLI> ADD UNIT 4 DATA="DISK211-DISK212" RAID_LEVEL=1
SPARE="DISK213"
```

---

**Note:** Maintain a record of the units as they are created. These Unit ID numbers are used in other CLI commands. In addition to recording the unit number, the drives included, RAID type and size, and record *the order in which they are created*.

---

### Command Options

4—LUN 4 is to be created.

DATA="DISK211-DISK212"—drives 11 through 12 in box number 2 are to be incorporated into the LUN.

RAID_LEVEL=1—RAID 1 will be used when creating the LUN.

SPARE="DISK213"—the drive in bay 13 of box 2 will be assigned as a spare drive to the LUN.

---

**Note:** Quotation marks must be entered both before and after the disk drive that is to be designated as a spare for the LUN.

---

### Example CLI Response

```
First volume to be configured on these drives.
Logical Unit size = 69460 MB
RAID overhead = 69460 MB
Total space occupied by new unit = 138920 MB
Free space left on this volume = 0 MB
Unit 4 is created successfully.
```

## Assigning a Name or ID to a LUN

If desired (or required by your operating system), each LUN can be assigned a unique name or ID in addition to its number. These user-defined names make it easier to identify specific LUNs in other configuration procedures.

---

**Note:** OpenVMS systems require each LUN to have a unique ID. No two devices in the entire SAN for this OpenVMS system may share ID numbers. LUNs in different storage systems must have different IDs.

---

### Basic Command

```
SET UNIT_ID
```

### Example Command

```
CLI> SET UNIT_ID 0 ABC
```

### Command Options

0—LUN 0 is being assigned a name.

ABC—is the name to assign to LUN 0. The name of this LUN will be ABC.

### Example CLI Response

```
Identifier "ABC" created for unit 0
```

## Adding a Spare to a LUN

To add a spare to an existing LUN:

### Basic Command

```
ADD SPARE
```

### Example Command

```
CLI> ADD SPARE UNIT=2 DISK109
```

### Command Options

UNIT=2—the unit to assign the spare to. This is the same number that was given to the unit when it was created with the ADD UNIT command. In this example, LUN 2 will have use of the spare.

DISK109—indicates the drives to assign as the spare to the LUN. Disks are identified by box number and bay number. In this example, drive 9 in box number 1 is to be used.

---

### Example CLI Response

```
First volume to be configured on these drives.
Logical Unit size = 69460 MB
RAID overhead = 69460 MB
Total space occupied by new unit = 138920 MB
Unit 2 is created successfully.
```

# Deleting LUNs

To delete the last created LUN:

**Note:** If more than one LUN has been created, only the last LUN created can be deleted. It is important to maintain a record of the unit numbers and the order in which they are created.

**Note:** After a LUN is deleted, its unit number goes unused until manually assigned to a new LUN. Unit numbers are not automatically reassigned when a LUN is deleted.

### Basic Command

```
DELETE UNIT
```

### Example Command

```
CLI> DELETE UNIT 4
```

### Command Options

4—the unit to delete. This is the same number that was given to the unit when it was created with the ADD UNIT command. In this example, LUN 4 is to be deleted.

### Example CLI Response

```
Data will be lost after the unit is deleted.
Do you still want to DELETE unit 4 (Y/N)? Y
Please wait while unit 4 is being deleted…
Unit 4 is deleted successfully.
```

## Deleting Spares

To remove a spare from use:

### Basic Command

```
DELETE SPARE
```

### Example Command

```
CLI> DELETE SPARE UNIT=2 DISK109
```

### Command Options

UNIT 2—the unit that will no longer have access to the spare. This is the same number that was given to the unit when it was created with the ADD UNIT command. In this example, LUN 2 will no longer have access to the spare.

DISK109—the spare drive to remove from use. Disks are identified by box number and bay number. In this example, drive 1 in box number 9 will no longer be used as a spare for LUN 2.

## Recognizing a Failed Unit

If all drives of a previously failed unit are in working order, use this command to change the state of the unit back to VOLUME_OK.

To accept media exchange on a unit marked as failed:

### Basic Command

```
ACCEPT UNIT
ACCEPT UNITS
```

### Example Command

```
CLI> ACCEPT UNIT 2
```

### Command Options

#—the unit that you want to activate, where # represents the unit number.

If a unit number is not specified, all units will be reset.

# Modifying Arrays and LUNs

Occasionally, after an array or a LUN has been created, its characteristics need to be changed. The following changes can be made:

- Adding Drives to an Array
- Adding Space to a LUN
- Changing the RAID Characteristics of a LUN
- Changing Attributes of a LUN

Each task is discussed in the following paragraphs.

## Adding Drives to an Array

To add additional physical drives to an array:

---

**Note:** Because this command affects the entire array, all LUNs made from the array are also affected.

---

### Basic Command

```
EXPAND UNIT
```

### Example Command

```
CLI> EXPAND UNIT 4 DISK204-DISK207
```

### Command Options

4—one of the LUN within the target array.

---

**Note:** Any LUN in the array can be entered to identify the array; the space is added to the array and not the LUN.

---

DISK204-DISK207—the physical disks to add to the array. Disks are identified by box number and bay number. In this example, DISK204-DISK207 identifies disks 4 through 7 in box number 2.

### Example CLI Response

```
The actual new array capacity will be 3000MB.
The array with Unit 4 is being expanded.
Use "show unit 4" to monitor progress.
```

---

## Adding Space to a LUN

To add unused, available space in an array to a specific LUN:

### Basic Command

```
EXTEND UNIT
```

### Example Command

```
CLI> EXTEND UNIT 2 ADD_SIZE=1000MB
```

### Command Options

2—the LUN to which the space will be added. In this example, LUN 2 is being extended.

ADD_SIZE=1000MB—how much of the available space in the array to add to the LUN. In this example, 1000 MB of space will be added. The size limit must be specified as GB, MB, or KB. If no size is specified, the maximum available space of the included disks will be assigned to the array.

NEW_SIZE=*xxxxyy*—can be used instead of ADD_SIZE to enter the total new size of the LUN, where *xxxx* represents the size and *yy* indicates GB, MB, or KB.

### Example CLI Response

```
The actual new volume size will be 1992MB.
Unit 2 is being extended.
Use "show unit 2" to monitor progress.
```

## Changing the RAID Characteristics of a LUN

While obeying the constraints of included number of drives and applicable stripe sizes, you can migrate an array from one RAID level to another. If you attempt to move to an unsupported RAID configuration for an array, an error message is displayed.

To change the RAID level or the stripe size of a LUN:

**Note:** Before changing the RAID level or stripe size of a LUN, verify there is available, unused space on the array. Migrating from one RAID level to another may require additional space for parity and organizational purposes.

### Basic Command

```
MIGRATE UNIT
```

### Example Command

```
CLI> MIGRATE UNIT 0 RAID_LEVEL=5 STRIPE_SIZE=32
```

### Command Options

UNIT 0—the number of the LUN to modify. In this example, LUN 0 will be migrated.

RAID_LEVEL=*xxx*—RAID 5 will be assigned to the LUN.
RAID levels include:

    0   = RAID 0 (no fault tolerance)
    1   = RAID 1 (mirroring)
    5   = RAID 5 (distributed parity)
    ADG = Advanced Data Guarding (ADG)

STRIPE_SIZE=*xxx*—(optional) the stripe size of 32 will be used. Other stripe size options include:

    RAID 0 uses stripe sizes 8, 16, 32, 64, 128, and 256 (Default: 128 KB)
    RAID 1 uses stripe sizes 8, 16, 32, 64, 128, and 256 (Default: 128 KB)
    RAID 5 uses stripe sizes 8, 16, 32, and 64 (Default: 16KB)
    RAID ADG uses stripe sizes 8, 16, 32, and 64 (Default: 16 KB)

### Example CLI Response

```
The RAID level of Unit 0 will now be 5.
Unit 0 is being migrated.
Use "show unit 0" to monitor progress.
```

## Changing Attributes of a LUN

To enable or disable the array accelerator cache for a specific LUN:

### Basic Command

```
SET UNIT
```

### Example Command

```
CLI> SET UNIT 0 CACHE=DISABLE
```

### Command Options

UNIT 0—the number of the LUN to modify. In this example, LUN 0 will be modified.

CACHE=ENABLE or DISABLE—either enables or disables the use of the array accelerator cache for the specified LUN.

### Example CLI Response

```
CLI> SET UNIT 0 CACHE=ENABLE
Cache for unit 0 has been enabled.

CLI> SET UNIT 1 CACHE=DISABLE
Cache for unit 1 has been disabled.
```

# Server Connection Commands

For a server to access the storage of the MSA1000, you must first establish a connection that identifies the specific HBA to the MSA1000.

After connections are entered, you may need to restrict access to LUNs to specific servers. Some programs, including the Array Configuration Utility (ACU), use the phrase Selective Storage Presentation (SSP) when discussing storage limitations. The CLI uses an Access Control List (ACL) to enter the list of LUNs a server can access. See the following section "Selective Storage Presentation/Access Control List Commands" for more information about SSP and ACLs.

Each of the following commands is used to enter and manage the connections:

■  Viewing Existing Connections and the HBA World Wide Name

■  Naming a Connection to a server

■  Managing Connection Profiles

# Viewing Existing Connections and the HBA World Wide Name

The following command displays the World Wide Names of each Host Bus Adapter (HBA) attached to the MSA1000. If connections between the HBAs and the MSA1000 have been given user-defined names, these names are also displayed.

### Basic Command

```
SHOW CONNECTIONS
```

### Example Command

```
CLI> SHOW CONNECTIONS
```

### Command Options

CONNECTION NAME—the name of a specific connection to display.

WWPN—the WWPN of a specific connection to display.

### Example CLI Response

```
Connection Name: abc
  Host WWNN = 11111111-11111111
  Host WWPN = 12345678-12345678
  Profile Name = Default
  Unit Offset = 0
  Controller 1 Port 1 Status = Online
  Controller 2 Port 1 Status = Online

Connection Name: <unknown>
  Host WWNN = 22222222-22222222
  Host WWPN = 33333333-33333333
  Profile Name = Default
  Unit Offset = 0
  Controller 1 Port 1 Status = Online
  Controller 2 Port 1 Status = Online
```

## Naming a Connection to a server

This command is used to create an association between the Fibre Channel Initiator (HBA in the server) and the MSA1000, while at the same time naming and identifying the host mode (operating system) of the server.

The name given to a connection is user defined, and according to a naming convention that makes identification and setup of the ACL for this connection easier.

To name a connection between the MSA1000 and a server:

### Basic Command

```
ADD CONNECTION
```

### Example Command

```
CLI> ADD CONNECTION ABC WWPN=12345678-12345678 PROFILE=WINDOWS
```

### Command Options

ABC—the name to give the connection.

WWPN=12345678-12345678—the WWPN of the active HBA inside the server attached to the MSA1000. The show connections command can be used to obtain the WWPN.

WWNN—the WWNN of the active HBA inside the server attached to the MSA1000. The show connections command can be used to obtain the WWNN.

PROFILE=WINDOWS—the platform of the host. If a profile is not specified, the default profile is used.

Profile options include:

Windows (default)
OVMS
Tru64
Linux
Solaris
NetWare
HP

OFFSET=X—(default: 0) the unit offset for assigning logical volumes.

### Example CLI Response

```
Connection has been added successfully.
Profile Windows is set for the new connection.
```

## Managing Connection Profiles

To change the operating-system profile associated with an existing connection:

---

**Note:** The connection profile is sometimes referred to as the Host Mode.

---

### Basic Command

```
SET CONNECTION X PROFILE=Y
```

### Example Command

```
CLI> SET CONNECTION ABC PROFILE=WINDOWS
```

### Command Options

ABC—the name of the connection to modify, in this example ABC.

WWPN=12345678-12345678—the WWPN of the connection to modify, using the WWPN of the HBA. The "show connections" can be used to obtain the WWPN.

WWNN=12345678-12345678—the WWNN of the connection to modify, using the WWNN of the HBA. The "show connections" can be used to obtain the WWNN.

PROFILE=WINDOWS—the platform of the host, which in this example is Windows. See "Naming a Connection to a Server" for a list of profile types.

### Example CLI Response

```
The Profile of Connection ABC is set to Windows successfully.
```

# Selective Storage Presentation/Access Control List Commands

When multiple servers access the storage of the MSA1000, it becomes necessary to restrict access to LUNS to specific servers. Some programs, including the Array Configuration Utility (ACU), use the phrase "selective storage presentation" (SSP) when discussing storage limitations. The CLI uses an Access Control List (ACL) to enter the list of LUNs a server can access.

Each of the following commands is used to set up and manage the ACL:

- Viewing the Connection Names
- Viewing the ACL
- Adding to the ACL
- Deleting Information from the ACL
- Changing the Name of a Connection
- Changing the HBA of a Connection
- Deleting a Connection Name
- Disabling the ACL

Each of these tasks is defined in the following sections.

---

**Note:** Many commands are discussed in this section. To set up the ACL, the following commands should be used in sequence:
- Viewing the Connection Names
- Naming a Connection to a server
- Entering ACL information

---

## Viewing the Connection Names

Use the SHOW command to display the connection name associated with each Host Bus Adapter (HBA) attached to the MSA1000.

The connection names are used when entering ACL information.

See "Viewing Existing Connections and the HBA World Wide Name" for details about this command.

## Viewing the ACL

To display the current ACL:

### Basic Command

```
SHOW ACL
```

### Command Options

There are no available options for this command.

### Example CLI Response

```
ACL is enabled:
Connection      WWPN                Units
ABC             11111111-22222222   0,1,2
XYZ             33333333-44444444   2,3,4
Inaccessible Units: 5,6
```

## Adding to the ACL

To indicate the allowable LUNs for each server:

### Basic Command

```
ADD ACL
```

### Command Options

CONNECTION=*xxx*—the name of the connection to grant access, where *xxx* represents the connection name.

UNIT=*xxx*—which LUN to assign to the indicated server.

Options include:

An individual LUN can be assigned by entering one LUN ID (UNIT=0)
A group of LUN can be assigned by entering a range of LUN (UNIT=1-3)
Access to all units can be granted by entering UNIT=ALL.

Two methods of entering LUN assignments are available:

- Adding to the ACL using the connection name
- Adding to the ACL using the WWPN

---

**Note:** There is no command to activate the ACL. Immediately after the first entry is added to the ACL, access to the storage is limited to the servers and LUNs listed in the ACL.

---

## Adding to the ACL using the Connection Name

### Example Command

```
CLI> ADD ACL CONNECTION=ABC UNIT=ALL
```

### Command Options

CONNECTION=ABC—entries will be added to the ACL of the connection named ABC.

UNIT=ALL—all LUN will be accessible to the connection named ABC.

### Example CLI Response

```
Allowing 12345678-12345678 access to unit 2.
```

## Adding to the ACL using the WWPN

### Example Command

```
CLI> ADD ACL WWPN=12345678-12345678 UNIT=2
```

### Command Options

WWPN=12345678-12345678—entries will be added to the ACL of the connection with a WWPN of 12345678-12345678.

UNIT=2—LUN 2 will be accessible to the named connection.

### Example CLI Response

```
Allowing 12345678-12345678 access to unit 2.
```

# Deleting Information from the ACL

After the ACL has been set up, access permissions for certain LUNs may need to be removed.

### Basic Command

```
DELETE ACL
```

### Command Options

CONNECTION=*xxx*—the name of the connection for which to remove permissions.

UNIT=*xxx*—which LUNs to remove from the ACL of the indicated server.

Two methods of removing access to previously assigned LUNs are available:

- Deleting information from the ACL using the connection name
- Deleting information from the ACL using the WWPN

---

**Note:** If all entries in the ACL are being deleted, immediately after the last entry is deleted, all connected servers have unlimited access to the storage.

---

## Deleting Information from the ACL using the connection name

### Example Command

```
CLI> DELETE ACL CONNECTION=ABC UNIT 0
```

### Command Options Used

CONNECTION=ABC—entries will be deleted from the ACL of the connection named ABC.

UNIT=0—LUN 0 is to be deleted from the ACL of the named connection.

### Example CLI Response

```
Disallowing 12345678-12345678 access to unit 0.
```

## Deleting Information from the ACL using the WWPN

### Example Command

```
CLI> DELETE ACL WWPN=12345678-12345678 UNIT=1
```

### Command Options

WWPN=12345678-12345678—entries will be deleted from the ACL of the connection with a WWPN of 12345678-12345678.

UNIT=1—LUN 1 will be removed from the ACL of the named connection.

### Example CLI Response

```
Disallowing 12345678-12345678 access to unit 1.
```

# Changing the Name of a Connection

To change the name associated with a connection:

### Basic Command

```
RENAME CONNECTION
```

### Example Command

```
CLI> RENAME CONNECTION ABC XYZ
```

### Command Options

ABC—the current name of the connection that is to be changed.

XYZ—the new name to assign to the connection, up to 16 alphanumeric characters.

### Example CLI Response

```
Connection(s) has been renamed successfully.
```

# Changing the HBA of a Connection

When a new HBA needs to be associated with an existing connection name:

### Basic Command

```
SET CONNECTION
```

### Example Command

```
CLI> SET CONNECTION ABC WWPN=12345678-Y999999Y
```

### Command Options

`ABC`—the connection to make the changes to.

`WWPN=12345678-12345678`—the World Wide Port Name (WWPN) of the new HBA to associate with the connection.

`WWNN=12345678-12345678`—the World Wide Node Name (WWNN) of the new HBA to associate with the connection.

### Example CLI Response

```
Connection(s) has been set successfully.
The WWPN of connection ABC is set to 12345678-Y999999Y
successfully.
```

# Deleting a Connection Name

To remove the name associated with a connection to a server:

### Basic Command

```
DELETE CONNECTION
```

### Example Command

```
CLI> DELETE CONNECTION ABC
```

### Command Options

`ABC`—the nickname that was assigned to the HBA within the server.

### Example CLI Response

```
Connection(s) has been deleted successfully.
```

## Disabling the ACL

If the ACL has been set up, but the decision has been to not use it and not limit access to the storage, the entries in the ACL need to be deleted. Use the following command to delete all entries in the ACL.

### Basic Command

```
SET ACL DISABLE
```

### Example CLI Response

```
Disabling acl
```

**Note:** When this command is used, all existing ACL entries are automatically deleted. All storage is immediately available to all connected servers.

# Index