

Sun Storage Common Array Manager

CLI Guide, Version 6.8.0



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Preface

The *Sun Storage Common Array Manager CLI Guide, Version 6.8.0* describes the commands in the `sscs` command-line interface (CLI) for Oracle's Sun Storage J4200, J4400, and J4500 arrays, Sun Storage F5100 Flash Array, Sun StorEdge 6130 array, StorageTek 6140 and 6540 arrays, Sun Storage 6180 array, Sun Storage 6580 and 6780 arrays, Sun Storage 2500-M2 Arrays¹, StorageTek 2500 Series arrays, FlexLine 240, 280, and 380 Systems, and Sun Blade 6000 disk module.

Related Documentation

Oracle's Sun Storage Common Array Manager includes the following documentation integrated within the software:

- Sun Storage Common Array Manager online help
Available via the "Help" button within the Sun Storage Common Array Manager browser interface.
- Service Advisor
Provides guided, FRU-replacement procedures with system feedback for all arrays. You can access Service Advisor from the Sun Storage Common Array Manager browser interface.
- `sscs` man page commands
Provides help on man page commands available on a management host or on a remote CLI client.

The following documents provide additional information related to Sun Storage Common Array Manager:

1. Sun Storage 2500-M2 Arrays is a different array series from StorageTek 2500 Series arrays.

<http://www.oracle.com/technetwork/documentation/disk-device-194280.html>

Application	Title
Getting started with the software	<i>Sun Storage Common Array Manager Quick Start Guide</i>
Software installation and setup	<i>Sun Storage Common Array Manager Installation and Setup Guide</i>
Operation and configuration	<i>Sun Storage Common Array Manager Array Administration Guide</i>
Late-breaking information not included in the information set	<i>Sun Storage Common Array Manager Release Notes</i> Release Notes for your array hardware

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation

<http://www.oracle.com/technetwork/indexes/documentation/index.html>

- Support

<https://support.oracle.com>

- Training

<https://education.oracle.com>

Overview

This chapter provides an overview of the `sscs` administration command for Oracle's storage arrays. It contains the following sections:

- "Overview of the `sscs` Command" on page 1
- "Accessing the CLI Remotely" on page 2
- "Understanding Command Syntax" on page 3
- "Getting Help with Commands and Their Syntax" on page 5
- "Logging In to the `sscs` Environment" on page 7
- "Exit Status Codes" on page 7
- "Using the CLI to Configure Arrays" on page 8
- "Command Quick Reference" on page 9

Overview of the `sscs` Command

The `sscs` command-line interface (CLI) enables you to manage and monitor disk arrays. The CLI can be installed on a local data host or a remote management host.

There are two forms of the CLI:

- Local CLI

This is the version used in a CLI-only installation of Sun Storage Common Array Manager, and should be used if you are root user on the local host. This version does not pass commands through the web server and provides better performance by eliminating the need to authenticate the user. There is no guest-only version of the local `sscs` command, and the login and logout commands aren't supported.

Directory locations for local CLI:

- Solaris: `/opt/SUNWstkcam/bin/sscs`

- Linux: /opt/sun/cam/bin/sscs
- Windows: Program Files\Sun\Common Array Manager\bin
- Remote CLI

This version is required if you are not on the Sun Storage Common Array Manager management station or if you must authenticate as a non-root user. This version passes all requests through the web server, and is more secure than the Local CLI since all traffic is encrypted.

Directory locations for remote CLI:

- Solaris: /opt/se6x20/cli/bin/sscs
- Linux: /opt/sun/cam/se6x20/cli/bin/sscs
- 32 Bit Windows: c:\Program Files\Sun\Common Array Manager\Component\sscs\bin
- 64 Bit Windows: c:\Program Files (x86)\Sun\Common Array Manager\Component\sscs\bin

Note – When using the remote CLI with Windows, list parameters in commands must be enclosed in double quotes. For example:

```
sscs list template "F5100-dual-host,J4500-quad-host"
```

Both CLIs can manage any array that has been registered and added to the Sun Storage Common Array Manager inventory in the same way that the browser interface can manage any array in the inventory. The array type and array management path (in-band, out-of-band, proxy agents) have no limitations with local or remote CLI usage. Both CLIs manage the same arrays with the same command set.

Accessing the CLI Remotely

The local and remote CLIs can be accessed remotely through the full management workstation using:

- Terminal session at the management workstation
Navigate to the Local CLI directory to manage the arrays via the proxy agent.
- A Remote CLI Client from a remote host
This thin scripting client uses HTTPS to communicate with the management host. Login to the management host and navigate to the Local CLI directory to manage the arrays via the proxy agent.

- Telnet session from a remote host

Log in to the management host and navigate to the Local CLI directory to manage the arrays via the proxy agent.

Understanding Command Syntax

Type the `sscs` command with its options from a terminal command line. You can use only the indicated option or options for that subcommand.

[TABLE 1-1](#) describes the conventions that apply to the subcommands and variables.

TABLE 1-1 Syntax Conventions for `sscs` Commands

Convention	Description
Bold	Text in bold should be typed exactly as shown.
<i>Italic</i>	Text in italics is variable and should be replaced with the name or value used at your site. Multiple variables can be separated by a comma, but not with a space. Example: sscs list volume TestVOL, fvm13311
[] (square brackets)	Text in square brackets is optional.
(vertical bar)	Text separated by a vertical bar is exclusive. Specify only one of the options.
{ } (braces)	Text inside braces is a required argument. Numbers in braces, e.g. {0} and {1}, represent variables in some error messages.
Short and long names	The <code>sscs</code> command accepts short or long names for each option. Short name options require a single hyphen (-). Long name options require a double hyphen (--).
Special characters in names	Do not use spaces, commas, colons (:), or the special characters ?, *, !, @, %, or & as a character in any name you specify unless you are prepared to escape them in the shell. Any characters that you enclose within quotation marks are acceptable for names.

Note – Command syntax can vary based upon the array type (e.g., F5100, 6140, etc.) and specific array names as related to installed firmware versions. See [TABLE 1-2](#) for proper usage of the **--help** command to obtain the correct syntax for an array type or specific array name.

Getting Help with Commands and Their Syntax

Use the `--help` or `-H` command to view all available commands, subcommands, and their syntax. TABLE 1-2 describes how to use the `--help` command. Further help can be found in the man pages, which contain the same command information as found in this document:

- For Solaris, see the `sscs(1M)` man page, located in
`/opt/se6x20/cli/man/man1m`
- For Linux, see the `sscs(1M)` man page, located in
`/opt/sun/cam/se6x20/cli/man/man1m`
- For Windows, see the `doc` directory.

TABLE 1-2 How to Use the `--help` Command

Task	Command Syntax
Display a command list non-specific to an array type.	<code>sscs --help</code>
Display a command list specific to an array type or array name.	<code>sscs -H -a <array-type array-name></code> Command example: <code>sscs --help -a 2510</code> Sample Command Output: add create delete disable enable ... revive service snapshot unmap unregister

TABLE 1-2 How to Use the --help Command (*Continued*)

Task	Command Syntax
Display the subcommands available for a command for a specific array type or array name.	<p>sscs <subcommand> -H -a <array-type array-name></p> <p>Command example: sscs list --help -a jbod1</p> <p>Sample Command Output: alarm array device ... storage-system template userrole</p>
Display syntax for a command/subcommand pair for a specific array type or array name.	<p>sscs <subcommand> --help -a <array-type array-name> <resource-type></p> <p>Command example: sscs list --help -a j4400 alarm</p> <p>Sample Command Output: list [-s --severity <0 1 2 3>] [-f --faultdevtype <2510 2530 2540 j4200 j4400 j4500 F5100 6120 6130 6140 6540 6580 6780 FLX240 FLX280 FLX380 B6000 NEM ...>] [-a --advisor] [-S --Summary] alarm [string[,string...]]</p>

Logging In to the sscs Environment

If you are using the local CLI, no login is required; however, you must have root access in Solaris and Linux or administrator privileges in Windows.

A login is required when you use the remote CLI. To log into the remote CLI, follow these steps:

1. From a terminal window, log in to the management host where `SSCS` resides.
2. Enter the following commands:

```
# cd CLI_directory
```

Refer to [“Overview of the sscs Command” on page 1](#) for directory information.

```
# ./sscs login -h cam-hostname -u username
```

where:

- `cam-hostname` is the management host machine where you installed the software.
- `username` is one of the defined users in the management host software.

3. Enter the password for your `SSCS` user account.

For further details about logging in to the `SSCS` using the remote CLI, see the login command and all of its options, go to [“login” on page 65](#).

Exit Status Codes

Upon command completion, the `SSCS` CLI reports the following exit status codes:

TABLE 1-3 Exit Status Codes

Exit Status Code	Description
0	Successful completion
15	Object not found error
25	Command parsing failure
30	Command validation error

TABLE 1-3 Exit Status Codes

Exit Status Code	Description
50	Application error
75	System error
100	Nonspecific error

Using the CLI to Configure Arrays

Once Sun Storage Common Array Manager has been installed, initial configuration can be performed using the CLI. General steps and commands for initial configuration include:

- Providing the installation site information using [modify site](#)
- Registering with Auto Service Request (ASR) using [register sun-connection](#)
- Discovering and registering arrays using [register storage-system](#)

These commands, as well as other commands for configuring storage, are described in detail in this guide.

Command Quick Reference

There are three categories of CLI commands:

- **Monitoring and General Administration Commands**
Discussed fully in Chapter 3, these commands are supported on all arrays supported by Sun Storage Common Array Manager, with a few noted exceptions.
- **Array Configuration Commands**
Discussed fully in Chapter 4, these commands are supported only on those arrays that have one or more RAID controllers.
- **SAS Domain Access Configuration Commands**
Discussed fully in Chapter 5, these commands are supported only on just-a-bunch-of-disks (JBOD) arrays and are specific to Serial Attached SCSI (SAS) domain access configuration.

Monitoring and General Administration Commands

The following table lists the commands used to monitor the array and perform general administration tasks. These commands are for all Oracle arrays, including Sun Storage J4200, J4400, and J4500 arrays, Sun Storage F5100 Flash Array, Sun StorEdge 6130 array, StorageTek 6140 and 6540 arrays, Sun Storage 6180 array, Sun Storage 6580 and 6780 arrays, Sun Storage 2500-M2 Arrays, StorageTek 2500 Series arrays, FlexLine 240, 280, and 380 Systems, and Sun Blade 6000 disk module.

TABLE 1-4 Monitoring and General Administration Commands

Command	Description
add notification	Set up email or SNMP trap notification.
add registeredarray	Discovers an array or all arrays on the same subnet as the management host and registers them.
add userrole	Adds a user name to the user access list and defines the user privileges.
list agent	Lists the fault management agent information.
list alarm	Provides detailed information on a specified alarm or summary information on all alarms.
list array	Lists detailed information about specified arrays or all array names.

TABLE 1-4 Monitoring and General Administration Commands (*Continued*)

Command	Description
<code>list date</code>	Lists the current date and time for the array in hours, minutes, and seconds. (Not supported by J4500 and B6000 JBODs.)
<code>list device</code>	List the details of a device or the devices being monitored.
<code>list devices</code>	List an overview of a device or the devices being monitored.
<code>list disk</code>	List the disk information on an array.
<code>list erc</code>	Lists the error return code of the immediately preceding <code>sscs</code> command.
<code>list event</code>	Lists the Fault Management Service (FMS) event log information.
<code>list firmware</code>	Lists the firmware versions of the field-replaceable units (FRU) in this device.
<code>list fru</code>	Lists the field-replaceable units (FRUs) in this device.
<code>list jobs</code>	Lists job IDs and status associated with the specified array and optionally specified job ID.
<code>list log</code>	Lists the user-initiated actions performed for all registered arrays.
<code>list mgmt-sw</code>	Lists the management software application that you are logged into.
<code>list notification</code>	Lists the remote notification provider and its status.
<code>list registeredarray</code>	Lists registered array information.
<code>list site</code>	Lists pertinent information on the site.
<code>list storage-system</code>	Lists detailed information about one or more arrays.
<code>list sun-connection</code>	Lists information for Auto Service Request (ASR) registration with Oracle Support.
<code>list userrole</code>	Lists the user name and role defining the user's array privileges.
<code>login</code>	Log in to the <code>sscs</code> command-line interface (CLI).
<code>logout</code>	Logs out of the remote <code>sscs</code> command-line interface session.
<code>modify agent</code>	Modify the fault management agent parameters.
<code>modify array</code>	Modifies the name assigned to the array.
<code>modify firmware</code>	Modifies the firmware versions of the specified field-replaceable units (FRUs) of the specified array.
<code>modify mgmt-sw</code>	Stores the specified storage system name for the session. This command is useful for repeated operations with an array.
<code>modify site</code>	Modifies the site properties for this instance of Sun Storage Common Array Manager.

TABLE 1-4 Monitoring and General Administration Commands (*Continued*)

Command	Description
<code>modify storage-system</code>	Modifies the array information.
<code>modify userrole</code>	Change the user role or the IP address from which the user can log in.
<code>register storage-system</code>	Registers a storage system with the host.
<code>register sun-connection</code>	Registers Sun Storage Common Array Manager software and all monitored arrays with Auto Service Request (ASR).
<code>remove alarm</code>	Removes the current alarms.
<code>remove notification</code>	Removes a local or remote notification.
<code>remove registeredarray</code>	Removes one or more arrays from the list of registered arrays.
<code>remove userrole</code>	Removes a user role assigned to a user name.
<code>service contact</code>	Tests connectivity to a specified array (inband communication test).
<code>service disable</code>	Disables a target drive in a specified array.
<code>service enable</code>	Enables a target drive in a specified array.
<code>service locate</code>	Turns on the locator LED for an array, drive, or tray.
<code>service print</code>	Prints physical information available for a specified array.
<code>service set</code>	Changes the name of a specified array.
<code>unregister storage-system</code>	Unregisters an array from the list of registered storage systems.
<code>unregister sun-connection</code>	Stops notifications of system health and performance to Sun using the Auto Service Request (ASR) feature.
<code>version</code>	Shows the version of the Sun Storage Common Array Manager software that you are running on the management host, as well as the version of the <code>sscs</code> client.

Array Configuration Commands

This section identifies the commands used to configure an array. These commands are supported only on those arrays that have one or more RAID controllers, including the Sun StorEdge 6130 array, StorageTek 6140 and 6540 arrays, Sun Storage 6180 array, Sun Storage 6580 and 6780 arrays, Sun Storage 2500-M2 Arrays, StorageTek 2500 Series arrays, and FlexLine 240, 280, and 380 Systems.

TABLE 1-5 Array Configuration Commands

Command	Description
<code>add hostgroup</code>	Adds hosts to a host group.
<code>add license</code>	Adds a license to the specified array.
<code>create host</code>	Creates a storage host.
<code>create hostgroup</code>	Creates a storage host group.
<code>create initiator</code>	Creates an initiator.
<code>create pool</code>	Creates an empty storage pool on the array.
<code>create profile</code>	Creates a storage profile on the array.
<code>create repset</code>	Creates a storage replication set using a peer World Wide Name or remote array name (not applicable to 2500 Series).
<code>create snapshot</code>	Creates a snapshot for the specified volume.
<code>create vdisk</code>	Creates a virtual disk.
<code>create volume</code>	Creates a volume within a specified pool.
<code>create volume-copy</code>	Creates a copy of the volume (not applicable to 2500 Series).
<code>delete host</code>	Deletes one or more hosts.
<code>delete hostgroup</code>	Deletes one or more host groups.
<code>delete initiator</code>	Deletes one or more initiators.
<code>delete iscsi-session</code>	Deletes an iscsi-session.
<code>delete pool</code>	Deletes one or more pools.
<code>delete profile</code>	Deletes one or more profiles.
<code>delete repset</code>	Deletes one or more replication sets (not applicable to 2500 Series).
<code>delete snapshot</code>	Deletes one or more snapshots.
<code>delete vdisk</code>	Deletes one or more named virtual disks.
<code>delete volume</code>	Deletes one or more named volumes.
<code>delete volume-copy</code>	Deletes a volume-copy (not applicable to 2500 Series).
<code>disable snapshot</code>	Disables one or more snapshots.

TABLE 1-5 Array Configuration Commands (*Continued*)

Command	Description
<code>export array</code>	Renders an extensible markup language (XML) representation of the array.
<code>export profile</code>	Exports one or more profiles into an XML representation.
<code>fail disk</code>	Sets a disk to the failed state.
<code>import array</code>	Applies an array configuration file to the specified array.
<code>import profile</code>	Imports one or more profiles from a specified XML file.
<code>initialize disk</code>	Initializes a disk.
<code>list controller</code>	Lists configuration information for the specified controller.
<code>list fcport</code>	Lists Fibre Channel port information for the controller of the specified array.
<code>list host</code>	Lists the host names and details for an individual host.
<code>list hostgroup</code>	Lists host group name and hosts for an individual host group.
<code>list initiator</code>	Lists the initiators and provides a description of each.
<code>list iperformance</code>	Displays iSCSI performance statistics for the 2510 array and enables you to define the type of iSCSI performance statistics to monitor.
<code>list iscsi-port</code>	Lists iSCSI ports.
<code>list iscsi-session</code>	Lists iSCSI sessions.
<code>list iscsi-target</code>	Lists iSCSI target name configured for the specified array.
<code>list license</code>	Shows all licenses that are associated with the array, along with related licensing details (serial number, controller serial number, and further details).
<code>list mapping</code>	Lists mappings for the array. You can filter the output by specifying the name of a storage domain, a host, or a host group.
<code>list os-type</code>	Shows all of the operating systems that are supported by the array. The values returned can be used in subsequent requests to create or modify initiators, or to modify the default host type of the array.
<code>list performance</code>	Shows detailed performance statistics. You can use the following options only if a single array is specified.
<code>list pool</code>	Lists storage pool information.
<code>list profile</code>	Lists the named storage profiles.
<code>list repset</code>	Lists replication set information (not applicable to 2500 Series).

TABLE 1-5 Array Configuration Commands (*Continued*)

Command	Description
<code>list sasport</code>	Lists SAS port information.
<code>list snapshot</code>	Lists the specified snapshot or snapshots associated with this array.
<code>list tray</code>	Lists information about one or more storage trays in the array.
<code>list vdisk</code>	Lists virtual disk (vdisk) or virtual disks information associated with this array.
<code>list volume</code>	Lists volume information.
<code>list volume-copy</code>	Lists volume copy information. If neither the source volume nor the target volume is specified, a summary of all volume copies is listed. If the source volume or the target volume is specified, a detailed listing of each is generated.
<code>map host</code>	Maps one or more volumes and snapshots to a host. Any previous mappings for the given volumes and snapshots are removed.
<code>map hostgroup</code>	Maps one or more volumes and snapshots to a host group. Any previous mappings for the given volumes or snapshots are removed.
<code>map initiator</code>	Maps one or more initiators to a volume or snapshot.
<code>map snapshot</code>	Maps one or more snapshots to a host or host group. If no host or host group is specified, the snapshot or snapshots are mapped into the Default partition.
<code>map volume</code>	Maps one or more volumes to a host or host group. Any previous mappings for the given volume or volumes are removed.
<code>modify array</code>	Modifies the configuration of the specified array.
<code>modify controller</code>	Modifies the controller settings.
<code>modify date</code>	Modifies the date on the array, allowing you to set the time on the array, or to synchronize the time with the management host (that is, setting the array's time to the management host's time.)
<code>modify disk</code>	Specifies the disk role.
<code>modify fcport</code>	Modifies the Fibre Channel port settings on the specified array.
<code>modify host</code>	Modifies the host name.
<code>modify hostgroup</code>	Modifies the host group name.
<code>modify initiator</code>	Modifies an initiator.
<code>modify iperformance</code>	Modifies the settings for iSCSI performance data.
<code>modify iscsi-port</code>	Modifies an iSCSI port.
<code>modify iscsi-target</code>	Modifies an iSCSI target.
<code>modify jobs</code>	Cancels or prioritizes a running or outstanding job.

TABLE 1-5 Array Configuration Commands (*Continued*)

Command	Description
<code>modify license</code>	Activates replication set licenses (applicable to 2500 Series only when running firmware version 07.35.nn.nn or higher).
<code>modify notification</code>	Modifies notification options.
<code>modify performance</code>	Modifies settings for performance monitoring.
<code>modify pool</code>	Modifies the name or description of the storage pool or the profile with which this pool is associated.
<code>modify profile</code>	Modifies a storage profile on the array.
<code>modify registeredarray</code>	Change the locally stored password for a registered array.
<code>modify repset</code>	Modifies the mode, consistency group, or replication priority of the specified replication set (not applicable to 2500 Series).
<code>modify snapshot</code>	Modifies the specified snapshot.
<code>modify tray</code>	Modifies information about one or more storage trays in the array.
<code>modify vdisk</code>	Specifies modifications to a virtual disk.
<code>modify volume</code>	Modifies any of a volume's attributes.
<code>modify volume-copy</code>	Modifies a volume copy (not applicable to 2500 Series).
<code>offline vdisk</code>	Sets a virtual disk offline.
<code>online vdisk</code>	Sets a virtual disk online.
<code>reconstruct disk</code>	Initiates a disk reconstruction.
<code>remove hostgroup</code>	Removes one or more hosts from a host group.
<code>remove license</code>	Removes the replication set feature license from the specified array (not applicable to 2500 Series).
<code>reset array</code>	Resets the specified array.
<code>reset controller</code>	Resets the specified controller.
<code>resnap snapshot</code>	Resnaps one or more existing snapshots.
<code>revive disk</code>	Attempts to bring a disk to the optimal state.
<code>revive vdisk</code>	Revives a virtual disk.
<code>service fail</code>	Places a field-replaceable unit of an array into a failed state.
<code>service redistribute</code>	Redistributes volumes back to their preferred owners.
<code>service revive</code>	Attempts to place the array controller or disk drive into the optimal state. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.
<code>snapshot volume</code>	Creates and manages snapshots.

TABLE 1-5 Array Configuration Commands (*Continued*)

Command	Description
<code>unmap host</code>	Unmaps one or more snapshots or volumes from a host.
<code>unmap hostgroup</code>	Unmaps one or more snapshots or volumes from a host group.
<code>unmap initiator</code>	Removes the mapping from one or more initiators to a volume or snapshot.
<code>unmap snapshot</code>	Removes the mapping from one or more snapshots to a host or hostgroup.
<code>unmap volume</code>	Unmaps one or more volumes from a host or host group.

SAS Domain Access Configuration Commands

This section identifies commands used in SAS domain access configuration. These commands are supported only on Sun JBOD arrays, including Sun Storage J4200, J4400, and J4500 arrays, Sun Storage F5100 Flash Array, and the Sun Blade 6000 disk module.

TABLE 1-6 SAS Domain Access Configuration Commands

Command	Description
<code>disable sas-domain</code>	Disables access configuration for a specified SAS domain.
<code>enable sas-domain</code>	Enables access configuration for a specified SAS domain.
<code>export sas-domain</code>	Copies the configuration of the specified SAS domain to a specified template file.
<code>import sas-domain</code>	Restores configuration information for a specified SAS domain from a specified template file.
<code>list host-agent</code>	Lists the host-agents in a specified SAS domain or the details for specified host-agents in a specified SAS domain.
<code>list sas-domain</code>	Lists SAS domains or the details of specified SAS domains.
<code>list sas-zone</code>	Provides a list of all SAS access configuration groups and details of those groups.
<code>list template</code>	Lists a summary of all SAS domain templates known by the current management station, or lists the details of specified templates.
<code>modify sas-domain</code>	Modifies the specified properties of a SAS domain.
<code>reset sas-domain</code>	Returns the specified SAS domain to the default settings.

Performing Tasks With the CLI

This chapter provides examples of how to perform tasks using a series of CLI commands.

- [“Discovering Arrays” on page 19](#)
 - [“Creating a Volume” on page 21](#)
 - [“Creating a Snapshot” on page 25](#)
 - [“T10 Protection Information Tasks” on page 30](#)
-

Discovering Arrays

[TABLE 2-1](#) identifies the sequence of CLI commands used when registering arrays with Sun Storage Common Array Manager.

TABLE 2-1 CLI Commands Used When Discovering Arrays

CLI Command	Description
sscs list storage-system sscs list devices	Lists the arrays that are already registered with Sun Storage Common Array Manager.
sscs register -d storage-system	Directs Sun Storage Common Array Manager to discover all available arrays.
sscs list storage-system sscs list devices	Lists all arrays registered, including the newly discovered arrays.
sscs unregister storage-system	Unregisters select arrays.

Command Sequence

1. Identify the names of the arrays currently registered with Sun Storage Common Array Manager.

```
sscs list storage-system
```

```
Array: Snoopy1
```

```
Array: Snoopy2
```

```
Array: Linus1
```

Note – The command `list devices` can also be used to identify the names of arrays currently registered with Sun Storage Common Array Manager.

2. Discover all arrays.

```
sscs register -d storage-system
```

Name	Type	Network Address	Serial Number
Snoopy1	6140	xx.xx.xx.103	SUN.xxxxxx-00.xxxxxxxxxxxx
unlabeled	6140	xx.xx.xx.112	SUN.xxxxxx-00.xxxxxxxxxxxx
Onyx	2540	xx.xx.xx.9	SUN.xxxxxx-00.xxxxxxxxxxxx
Hal	6140	xx.xx.xx.72	SUN.xxxxxx-00.xxxxxxxxxxxx
Linus1	6140	xx.xx.xx.16	SUN.xxxxxx-00.xxxxxxxxxxxx
Snoopy2	6140	xx.xx.xx.106	SUN.xxxxxx-00.xxxxxxxxxxxx
Johnny5	6140	xx.xx.xx.67	SUN.xxxxxx.
Pedro1	2540	xx.xx.xx.6	SUN.xxxxxx-00.xxxxxxxxxxxx

3. Unregister the array Onyx.

```
sscs unregister storage-system Onyx
```

4. Verify the list of registered arrays to ensure that Onyx is no longer registered.

```
sscs list storage-system
```

```
Array: Snoopy1
```

```
Array: unlabeled
```

```
Array: Hal
```

```
Array: Linus1
```

```
Array: Snoopy2
```

```
Array: Johnny5
```

```
Array: Pedro1
```

Creating a Volume

TABLE 2-2 identifies the sequence of CLI commands used when creating a volume.

TABLE 2-2 CLI Commands Used When Creating a Volume

CLI Command	Description
sscs list volume	List volumes that already exist on a specified array.
sscs create volume	Create a new volume on an array.
sscs list jobs	Verify that the volume creation job is in progress.
sscs list volumes	Verify the volume characteristics.
sscs list vdisk	Verify the characteristics of the virtual disk used by the newly created volume.
sscs list host	Identify the hosts available for mapping to the volume.
sscs map volume	Map the volume to a host.

Sample Data

In this example, the following sample data are used in the execution of the commands:

TABLE 2-3 Sample Data

Array Name:	den-toi-6130
Pool Name:	den-pool-64k-r5
Volume Name:	vol0-64k-r5
Profile Name:	den-profile-64k-r5
Disk Names:	t1d01, t1d02, t1d03, t1d04

Command Sequence

1. Identify the names of the volumes that already exist on the array den-toi-6130.

```
sscs list -a den-toi-6130 volume
```

```
Volume: ACC Type: Standard Pool: Default Profile: Default  
Volume: RCV Standard Pool: Default Profile: Default.
```

2. Identify the names of the storage pools that already exist on the array den-toi-6130.

```
sscs list -a den-toi-6130 pool
```

```
Pool: newNFSMirroringPool Profile: NFS_Mirroring Configured  
Capacity: 0.000 MB  
Pool: RAID1-32KB-NoReadAhead Profile: RAID1-32KB-NoReadAhead  
Configured Capacity: 0.000 MB  
Pool: RAID5-512KB-NoReadAhead Profile: RAID5-512KB-NoReadAhead  
Configured Capacity: 0.000 MB  
Pool: poolFortest6731502Raid5threeDisk Profile:  
test6731502Raid5threeDisk Configured Capacity: 0.000 MB  
Pool: den-pool-64k-r Profile: RAID0-564KB-ReadAhead Configured  
Capacity: 0.000 MB
```

3. Verify the characteristics of the storage pool den-pool-64k-r5.

```
sscs list -a den-toi-6130 pool den-pool-64k-r
```

```
Description:          null  
Profile:              RAID5-64KB-ReadAhead  
Total Capacity:      0.000 MB  
Configured Capacity: 0.000 MB  
Available Capacity:  1.197 TB
```

4. Create a new volume on array den-toi-6130.

The new volume is named vol0-64k-r5, uses the storage pool named den-pool-64k-r5, and has 5GB of storage capacity:

```
sscs create -a den-toi-6130 -p den-pool-64k-r5 -s 5GB volume  
vol0-64k-r5
```

5. Verify that the volume creation job is in progress.

```
sscs list -a den-toi-6130 jobs
```

```
Job ID: VOL:0B70418253F6 Status: In progress
```

6. Verify the characteristics of the volume named vol0-64k-r5.

```
sscs list -a den-toi-6130 volume vol0-64k-r5
```

```
Volume: vol0-64k-r5
Type: Standard
WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B
:70:41:82:53:F6
Pool: den-pool-64k-r5
Profile: den-profile-64k-r5
Virtual Disk: 1
Size: 5.000 GB
Status: Online
Action: Ready
Condition: Optimal
Read Only: No
Controller: A
Preferred Controller: A
Modification Priority: High
Write Cache: Enabled
Write Cache with Mirroring: Enabled
Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
```

7. List the virtual disks available on den-toi-6130.

```
sscs list -a den-toi-6130 vdisk
```

```
Virtual Disk: 1
```

8. Verify the characteristics of the virtual disk named 1.

```
sscs list -a den-toi-6130 vdisk 1
```

```
Virtual Disk: 1
Status: Online
Number of Disks: 4
Maximum Volume Size: 198.599 GB
RAID Level: 5
Total Capacity: 203.599 GB
Configured Capacity: 5.000 GB
Available Capacity: 198.599 GB
Disk Type: FC
Disk: t1d04
Disk: t1d03
Disk: t1d02
Disk: t1d01
Volume: vol0-64k-r5
```

9. Identify the hosts available of the array den-toi-6130.

```
sscs list -a den-toi-6130 host
Host: 450e
```

10. Map the volume vol0-64k-r5 to the host 450e.

```
sscs map -a den-toi-6130 -h 450e -l 1 volume vol0-64k-r5
```

11. Ensure that the mapping was successful by verifying the characteristics of the volume named vol0-64k-r5.

```
sscs list -a den-toi-6130 volume vol0-64k-r5
```

```
Volume: vol0-64k-r5
Type: Standard
WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B
:70:41:82:53:F6
Pool: den-pool-64k-r5
Profile: den-profile-64k-r5
Virtual Disk: 1
Size: 5.000 GB
Status: Online
Action: Ready
Condition: Optimal
Read Only: No
Controller: A
Preferred Controller: A
Modification Priority: High
Write Cache: Enabled
Write Cache with Mirroring: Enabled
Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
Associations:
Host: 450e LUN: 1 Initiator: 450e-qlc5 WWN:
21:00:00:E0:8B:06:02:E9
Host: 450e LUN: 1 Initiator: 450e-qlc6 WWN:
21:00:00:E0:8B:06:FC:E8
```

Creating a Snapshot

The following section demonstrates the commands used when creating a snapshot of a volume.

Commands Used

TABLE 2-4 identifies the sequence of CLI commands used when creating a volume snapshot.

TABLE 2-4 CLI Commands Used When Creating a Volume Snapshot

CLI Command	Description
sscs list volume	Verify the existence and characteristics of a volume.
sscs create snapshot	Create a snapshot of a volume
sscs list snapshot	Verify the existence and characteristics of the snapshot
sscs list host	Identify the hosts available for mapping to the snapshot.
sscs map snapshot	Map the snapshot to a host.
sscs unmap snapshot	Unmap the snapshot from a host.
sscs delete snapshot	Remove the snapshot.

Sample Data

In this example, the sample data listed in TABLE 2-5 are used in the execution of the commands:

TABLE 2-5 Sample Data

Array Name:	den-toi-6130
Pool Name:	den-pool-64k-r5
Volume Name:	vol0-64k-r5
Profile Name:	den-profile-64k-r5
Snapshot Name:	snapshot-vol0
Reserve Volume Name:	reserve-vol0
Host Name:	450e

Command Sequence

1. Verify the existence and characteristics of the volume vol0-64k-r5.

```
sscs list -a den-toi-6130 volume vol0-64k-r5
```

```
Volume: vol0-64k-r5
Type: Standard
WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B
:70:41:82:53:F6
Pool: den-pool-64k-r5
Profile: den-profile-64k-r5
Virtual Disk: 1
Size: 15.000 GB
Status: Online
Action: Ready
Condition: Optimal
Read Only: No
Controller: A
Preferred Controller: A
Modification Priority: Highest
Write Cache: Enabled
Write Cache with Mirroring: Enabled
Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
Associations:
Host: 450e LUN: 1 Initiator: 450e-qlc5 WWN:
21:00:00:E0:8B:06:02:E9
Host: 450e LUN: 1 Initiator: 450e-qlc6 WWN:
21:00:00:E0:8B:06:FC:E8
```

2. Create the snapshot volume named snapshot-vol0.

```
sscs create -a den-toi-6130 -V vol0-64k-r5 -L full -f failsnapshot
-m reserve-vol0 -w 100 snapshot snapshot-vol0
```

3. Verify that the specified volume, vol0-64k-r5, now has a snapshot named snapshot-vol0 associated with it.

```
sscs list -a den-toi-6130 volume vol0-64k-r5
```

```
Volume: vol0-64k-r5
Type: Standard
```

```

WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B
:70:41:82:53:F6
Pool: den-pool-64k-r5
Profile: den-profile-64k-r5
Virtual Disk: 1
Size: 15.000 GB
Status: Online
Action: Ready
Condition: Optimal
Read Only: No
Controller: A
Preferred Controller: A
Modification Priority: Highest
Write Cache: Enabled
Write Cache with Mirroring: Enabled
Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
Snapshots:
Snapshot Volume: vol0-snap1 Creation Date: Sat Oct 25 07:40:00
36797 Reserve Volume: res-vol0
Snapshot Volume: snapshot-vol0 Creation Date: Mon Apr 25 11:40:00
36805 Reserve Volume: reserve-vol0
Associations:
Host: 450e LUN: 1 Initiator: 450e-qlc5 WWN:
21:00:00:E0:8B:06:02:E9
Host: 450e LUN: 1 Initiator: 450e-qlc6 WWN:
21:00:00:E0:8B:06:FC:E8

```

4. Verify the characteristics assigned to the snapshot volume, snapshot-vol0.

```
sscs list -a den-toi-6130 snapshot snapshot-vol0
```

```

Volume: snapshot-vol0
Type: Snapshot
WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B:7A:41:86:0B:02
Virtual Disk: 1
Size: 14.999 GB
Status: Active
Action: Ready
Condition: Optimal
Controller: A
Preferred Controller: A
Modification Priority: High
Write Cache: Enabled
Write Cache with Mirroring: Enabled

```

```

Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
Percent Full: 0
Failure Policy: failsnapshot
Warning Threshold: 100
Creation Date: Mon Apr 25 11:40:00 36805
Base Volume: vol0-64k-r5
Reserve Volume: reserve-vol0
Reserve Status: Online
Reserve Size: 14.999 GB

```

5. Identify the hosts available on the array den-toi-6130.

```
sscs list -a den-toi-6130 host
```

```
Host: 450e
```

6. Map a snapshot to the host 450e.

```
sscs map -a den-toi-6130 -h 450e snapshot snapshot-vol0
```

7. Verify the characteristics assigned to the snapshot volume, snapshot-vol0.

```
sscs list -a den-toi-6130 snapshot snapshot-vol0
```

```

Volume: snapshot-vol0
Type: Snapshot
WWN: 60:0A:0B:80:00:13:B9:8B:00:00:0B:
7A:41:86:0B:02

Virtual Disk: 1
Size: 14.999 GB
Status: Active
Action: Ready
Condition: Optimal
Controller: A
Preferred Controller: A
Modification Priority: High
Write Cache: Enabled
Write Cache with Mirroring: Enabled
Write Cache without Batteries: Disabled
Flush Cache After: 10 Sec
Disk Scrubbing: Enabled
Disk Scrubbing with Redundancy: Disabled
Percent Full: 0
Failure Policy: failsnapshot
Warning Threshold: 100

```

```

Creation Date:                Mon Apr 25 11:40:00 36805
Base Volume:                  vol0-64k-r5
Reserve Volume:               reserve-vol0
Reserve Status:               Online
Reserve Size:                 14.999 GB
Associations:
Host: 450e LUN: 2 Initiator: 450e-qlc5 WWN:
21:00:00:E0:8B:06:02:E9
Host: 450e LUN: 2 Initiator: 450e-qlc6 WWN:
21:00:00:E0:8B:06:FC:E8

```

8. Unmap the snapshot names snapshot-vol0.

```
sscs unmap -a den-toi-6130 -h 450e snapshot snapshot-vol0
```

9. Verify that snapshot-vol0 was successfully unmapped.

```
sscs list -a den-toi-6130 snapshot snapshot-vol0
Volume: snapshot-vol0
Type:                               Snapshot
WWN:                                 60:0A:0B:80:00:13:B9:8B:00:00:0B
                                       :7A:41:86:0B:02
Virtual Disk:                         1
Size:                                 14.999 GB
Status:                               Active
Action:                               Ready
Condition:                           Optimal
Controller:                          A
Preferred Controller:                 A
Modification Priority:                High
Write Cache:                          Enabled
Write Cache with Mirroring:           Enabled
Write Cache without Batteries:        Disabled
Flush Cache After:                    10 Sec
Disk Scrubbing:                       Enabled
Disk Scrubbing with Redundancy:        Disabled
Percent Full:                         0
Failure Policy:                       failsnapshot
Warning Threshold:                    100
Creation Date:                        Mon Apr 25 11:40:00 36805
Base Volume:                          vol0-64k-r5
Reserve Volume:                       reserve-vol0
Reserve Status:                       Online
Reserve Size:                         14.999 GB

```

10. Delete the snapshot named snapshot-vol0.

```
sscs delete -a den-toi-6130 snapshot snapshot-vol0
```

T10 Protection Information Tasks

The following information provides an overview of the CLI commands used for the T10 protection information (PI) feature. Further information concerning T10 PI, including requirements for using the feature, can be found in the CAM online help (within the browser interface) or in the *Sun Storage Common Array Manager Array Administration Guide*.

The following topics are discussed:

- [“Viewing Disk PI Capability” on page 30](#)
- [“Creating a PI-enabled Virtual Disk” on page 32](#)
- [“Creating a PI-enabled Volume” on page 33](#)
- [“Other PI-related Tasks” on page 34](#)

Note – The below syntax may not represent all available options. Consult the complete command syntax by following the link for each stated command.

Viewing Disk PI Capability

Protection Information is a feature of disks that may not be modified. You can view PI capability of a disk by issuing the `list disk` command:

```
list -a <array-name> disk <disk-name>
```

Example

In this example, the `storage1` array is asked to report a list of its disks. In the below output, three disks are reported. Notice the `Protection Information` line. Two disks have PI capability (`t0d02`, `t0d03`), one does not (`t0d10`).

```
sscs list -a storage1 disk
```

```
Tray: 0      Disk: t0d02
  Capacity:          558.912 GB
  Type:              SAS
```

```

Speed (RPM):          10020
Status:               Optimal
State:                Enabled
Role:                 Unassigned
Mirror Disk:          -
Virtual Disk:         -
Firmware:             0804
Serial number:        001022P15D8A      PPG15D8A
WWN:
20:00:00:00:C9:9F:5E:1F:00:00:00:00:00:00:00:00:00
Security Capable:     None
Security Enabled:     Disabled
Disk Locked:          False
Security Key Id:      -
Protection Information: Capable

Tray: 0      Disk: t0d03
Capacity:     558.912 GB
Type:         SAS
Speed (RPM):  10020
Status:       Optimal
State:        Enabled
Role:         Unassigned
Mirror Disk:  -
Virtual Disk: -
Firmware:    0804
Serial number: 001022P15DEA      PPG15DEA
WWN:
20:00:00:00:C9:9F:59:D3:00:00:00:00:00:00:00:00:00
Security Capable:     None
Security Enabled:     Disabled
Disk Locked:          False
Security Key Id:      -
Protection Information: Capable

Tray: 0      Disk: t0d10
Capacity:     279.396 GB
Type:         Fibre Channel
Speed (RPM):  15015
Status:       Optimal
State:        Enabled
Role:         Unassigned
Mirror Disk:  -
Virtual Disk: -
Firmware:    091C
Serial number: 0910C19F7N      3QP19F7N

```

```

WWN:
20:00:00:1D:38:D3:0E:C1:00:00:00:00:00:00:00:00
Security Capable:      None
Security Enabled:     Disabled
Disk Locked:          False
Security Key Id:      -
Protection Information:  None

```

Creating a PI-enabled Virtual Disk

Virtual disks with Protection Information may be created by ensuring that all the disks that compose it are PI-capable. From the previous example, we know that disks `t0d02` and `t0d03` are PI-capable. To create a virtual disk, issue the `create vdisk` command:

```
create -a <array-name> -p <pool-name> -d <disk-name[, disk-name...]> vdisk
<virtual-disk-name>
```

Note – There is no difference in syntax for creating a virtual disk with PI capability and a virtual disk without PI capability. To create a PI-capable virtual disk, all specified disks must be PI-capable.

Example

In this example, a PI-capable virtual disk named `PI_vdisk` is created using PI-capable disks on the `storage1` array using the `Default` storage pool. Then, the `list vdisk` command is used to verify the new virtual disk.

```
sscs create -p Default -d t0d02,t0d03 -a storage1 vdisk PI_vdisk
sscs list -a storage1 vdisk PI_vdisk
```

```
Virtual Disk: PI_vdisk
Status:          Optimal
State:           Ready
Number of Disks: 2
RAID Level:     5
Total Capacity: 1.092 TB
Configured Capacity: 0.000 MB
Available Capacity: 1.092 TB
Array Name:     storage1
Array Type:     6180
Disk Type:      SAS
```

```

Security:                               Non-secure
Protection Information:                 Capable
Maximal Volume Size:                   1.092 TB
Associated Disks:
  Disk:                                 t0d02
  Disk:                                 t0d03

```

Creating a PI-enabled Volume

To create a PI-enabled volume on a PI-capable virtual disk, the **-i,--protection-information** option must be specified using a [create volume](#) command variant supporting this option. For example:

```

create -a <array-name> -p <pool-name> -s
<number><TB|GB|MB|KB|Bytes|BLK>> [-n <1..224>] [-d <disk-name[,disk-
name...]>] [-c <A|B>] [-S] [-i] volume <volume-name>

```

Example

In this example, a PI-enabled volume named `vol1-PI` is created on array `storage1` using the Default storage pool and a 100MB volume size. Then, the [list volume](#) command is used to verify the new volume.

```

sscs create -a storage1 -p Default -s 100MB -i volume vol1-PI
sscs list -a storage1 volume vol1-PI

```

```

Volume: vol1-PI
  Type:                               Standard
  WWN:
60:08:0E:50:00:17:B5:22:00:00:49:8B:4D:8C:2B:
78
  Pool:                                Default
  Profile:                              Default
  Virtual Disk:                          PI_vdisk
  Size:                                  100.000 MB
  State:                                  Free
  Status:                                 Online
  Action:                                 Ready
  Condition:                              Optimal
  Read Only:                              No
  Controller:                             A
  Preferred Controller:                   A
  Modification Priority:                   High

```

RAID Level:	5
Segment Size:	512 KB
Read Cache:	Enabled
Write Cache:	Enabled
Write Cache with Replication:	Enabled
Write Cache without Batteries:	Disabled
Write Cache Active:	True
Flush Write Cache After:	10 s
Disk Scrubbing:	Enabled
Disk Scrubbing with Redundancy:	Disabled
Security:	Non-Secure
Protection Information:	Enabled
Application Tag Ownership:	Controller

Other PI-related Tasks

The following additional PI-related tasks can be performed using the CLI:

- Use the [list vdisk](#) command to view a virtual disk's hot spare coverage.
- Use the [list array](#) command to view the number of PI hot spare pool disks.
- Use [list host](#) and [list hostgroup](#) to view the PI capability of hosts and hostgroups.
- Use [list fcport](#) to view PI capability of Fibre Channel ports.
- Use [modify volume](#) to disable PI on a volume. This is accomplished using the **--disable-protection-information** option with a variant of the command. See the complete command entry for more details.

Caution – This operation cannot be undone. Once disabled, PI cannot be re-enabled on an existing volume. To minimize accidental execution, only the long version of this option is provided.

Monitoring and Administration Commands for All Arrays

This chapter describes the `sscs` commands and their options for monitoring and administrating all Sun arrays, including Sun Storage J4200, J4400, and J4500 arrays, Sun Storage F5100 Flash Array, Sun StorEdge 6130 array, StorageTek 6140 and 6540 arrays, Sun Storage 6180 array, Sun Storage 6580 and 6780 arrays, Sun Storage 2500-M2 Arrays, StorageTek 2500 Series arrays, FlexLine 240, 280, and 380 Systems, and Sun Blade 6000 disk module.

For configuration and other commands that apply only to arrays with RAID controllers, see [Chapter 3](#).

add notification

Enable remote notification.

Synopsis

Add email notification:

```
add -e <email-address [ , email-address... ]> [-c <array-type>] [-r <pager|email>]
[-m <down|critical|major|minor>] [-f] [-k] [-t] [-g] notification
local_email
```

Add an SNMP trap notification:

```
add -i <hostname> -o <port-id> [-m <down|critical|major|minor>] [-c
<string>] [-g] notification trap
```

Add an email filter:

```
add -n <event_id> -s <info|none> notification email-filter
```

Description

Sets up email and SNMP trap notification. You can add one or more email addresses for notifications.

Options

-c, --components <*array-type*>

Specifies the array model number.

-c, --community-string <*string*>

Specifies the SNMP community string.

-e, --email <*email-address* [, *email-address*...] >

Specifies that all notifications are sent to the given email addresses.

-g, --config-change

If option is used, configuration event emails as well as alert e-mails are sent. If option is not used, configuration event emails and alert e-mails are not sent.

-i, --ip <*hostname*>

Specifies that all notifications from the given IP address are sent to the specified email addresses.

-k, --skip-aggregated

If option is used, components of aggregated events are skipped. If option is not used, components of aggregated events are not skipped.

-m, --alarm-level <**down** | **critical** | **major** | **minor**>

Specifies the minimum priority level of alerts to be sent out. By default, all alerts will be sent out.

-n, --event-number <*event_id*>

Specifies the event code to filter.

-o, --port <*port-id*>

Specifies the port ID used to transfer notifications.

-r, --format <**pager** | **email**>

Specifies the format of the message: email or pager. If no value is specified, the command defaults to email.

-s, --severity <**info** | **none**>

Specifies the severity of events to report.

-t, --turn-off-advisor

Turns off Service Advisor information in notifications.

Examples

```
sscs add -e test@oracle.com notification local_email
```

add registeredarray

Discovers an array or all arrays on the same subnet as the management host and registers them.

Synopsis

```
add -d registeredarray
```

```
add -i [-q] registeredarray
```

Description

Discovers arrays and registers them.

Options

-i, --ipaddress

Specifies the IP address of the device.

-d, --discover

Automatically discovers all arrays on the same subnet as the management host and registers them. If discover is specified, all other options are ignored and arrays are automatically discovered.

-q, --query-for-password

Queries for the current password for remote proxy for the registered array.

Examples

```
sscs add -i 10.10.10.1 registeredarray
```

add userrole

Adds a user name to the user access list and defines the user privileges.

Synopsis

```
add -u <user-name> userrole storage | guest
```

Description

Adds a user name to the user access list and defines the user role as having storage or guest privileges.

Options

```
-u, --username <user-name>
```

Specifies a user name. The <user-name> must already be defined on the computer in the operating system.

```
userrole storage | guest
```

Specifies the new user's role.

storage - Provides full storage configuration and monitoring access.

guest - Allows user to view but not change storage configurations.

list agent

Lists the fault management agent information.

Synopsis

```
list agent
```

Description

Lists the current fault management agent information. Fault Management Service (FMS) periodically scans devices for new messages and updated health status. Use the [modify agent](#) command to configure agent settings.

Examples

list agent

```
Agent configuration saved.
Hostname           : camx2200-16
Hostid            : 310af477
IP                : 10.9.174.21
Active            : Y
Monitoring Frequency : 5
Maximum Monitoring Thread Allowed : 1
```

list alarm

Provides detailed information on a specified alarm or summary information on all alarms.

Synopsis

```
list [-s <0|1|2|3>] [-f
<2510|2530|2540|6120|6130|6140|6180|6540|6580|6780|f1x240|f1x280|
f1x380|j4200|j4400|j4500|f5100|b6000|nem>] [-a]
[-S] alarm [Alarm_Id [, Alarm_Id...]]
```

Description

This command provides detailed information on the specified alarms. When alarm IDs are not specified, it provides summary information on all alarms.

Options

-a, --advisor

Specifies for the command output to list Probable Cause and Recommended Action information for listed alarms. By default, this information is not listed.

-s, --severity <0|1|2|3>

Specifies a severity level at which to filter alarms so that only the alarms of that severity or higher are listed.

Severity Levels:

0 – minor

- 1 – major
- 2 – critical
- 3 – down

-f, --faultdevtype
 <2510 | 2530 | 2540 | 6120 | 6130 | 6140 | 6180 | 6540 | 6580 | 6780 | flx240 | flx280 |
 flx380 | j4200 | j4400 | j4500 | f5100 | b6000 | nem>

Specifies the type of device to list.

-S, --Summary

Specifies that the system return a summary of alarm information.

alarm [*Alarm_Id* [, *Alarm_Id*...]]

Specifies the alarm or alarms to display. If no alarm is specified, summary information on all alarms is displayed.

Examples

When **--advisor** option is not specified:

```
sscs list -f j4500 alarm
```

Sample Output:

```
Alarm Id           : alarm39
Severity           : Critical
Type               : j4500.CommunicationLostEvent
Topic              : InBand
Event Code         : 83.12.21
Date               : 2010-03-26 13:58:06
Device             : jbodTop[SUN.j4500.5080020000467400]
Description        : Lost in-band communication with j4500 LokiTop
State              : Open
Acknowledged By    : -
Auto Clear         : Y
Aggregated Count  : 0
```

Found one alert entry in health database.

When **--advisor** option is specified:

```
sscs list -f j4500 -a alarm
```

Sample Output (truncated):

```
Alarm Id           : alarm39
Severity           : Critical
Type               : j4500.CommunicationLostEvent
Topic              : InBand
Event Code         : 83.12.21
Date               : 2010-03-26 13:58:06
Device             : jbodTop[SUN.j4500.5080020000467400]
Description        : Lost in-band communication with j4500 LokiTop
State              : Open
Acknowledged By    : -
Auto Clear         : Y
Aggregated Count  : 0
Sample Description : Lost communication (InBand([Host_Name])) with
[Array_Name].
Probable Cause     :
                    This problem can be caused by:
                    - SAS cable failure
                    - Array power offline
                    - Array controller offline
                    - Array is no longer reporting a valid serial number.
                    - Array didn't report on expanders.

Recommended Action :
data path.
                    1. Verify cables, power, and connections along
serial number
                    2. Verify that the JBOD is reporting a valid
                    by collecting support data.
on the
                    3. Verify that the JBOD is reporting information
expanders by collecting support data.

Found one alert entry in health database.
```

list array

Lists detailed information about one or more arrays.

Synopsis

```
list array [array-name[, array-name...]]
```

Description

Lists detailed information about one or more arrays. If you do not specify an array name, then all array names are listed.

Options

array [*array-name* [, *array-name*...]]

Specifies the array or arrays for which to display detailed information.

Examples

```
sscs list array array00
```

Response Format (summary of arrays when no *<array-name>* value is specified)

Array: *array-name*

...

Array: *array-name*

Response Format (detail of array when the *<array-name>* value is specified)

Note – A value for the Lock Key ID field is displayed only if the array supports Data Encryption Services.

Array: *array-name*

Array Type: *array-type*

Network Address: *network-address*

Device ID: *device-id*

Serial Number: *serial-number*

Firmware Version: *firmware-version*

Array WWN: *array-WWN*

Health Status: OK | Degraded

Hot Spare Pool Disks: *number-of-hot-spare-drives* (FC, SATA, SAS, and SSD; quantity of Full Disk Encryption (FDE) and T10 Protection Information (PI) capable drives also indicated)

Node WWN: *node-WWN*

Disk Scrubbing Enabled: Enabled | Disabled

Disk Scrubbing Duration: *duration*

Default Cache Block Size: 4K | 16K

Default Cache Start %: <0..100>

Default Cache Stop %: <0..100>

Default Host Type: *host-type*

Failover Alert Delay: 1..300 minutes

Next Battery Learn Cycle: *month-day-time-year*

Total Capacity: *capacity*

Available Capacity: *available-capacity*

Lock Key ID: <*lock-key-id*>

Tray ID: *tray-id*

Host: *host*

Host Group: *host-group*

Pool: *pool*

list date

Lists the current date and time for the array in hours, minutes, and seconds.

Synopsis

```
list -a <array-name> date
```

Description

Lists the current date and time for the array in hours, minutes, and seconds. The time zone of the management system is assumed to be the time zone of the array.

Note – This command is not supported by any JBOD array.

Options

-a, --array <array-name>

Specifies the array for which you want to see the date.

Examples

```
sscs list -a array00 date
```

Response Format

Date: *weekday month day HH:MM:SS YYYY*

Example

Tue Dec 20 16:09:36 2004

list device

Provides detailed information on a specified device or summary information on all devices.

Synopsis

```
list [ -n <array-name> ] [ -i <IP-address> ] device [ <device-ID [ ,device-ID...]> ]
```

Description

List the details of a device or the devices being monitored.

Options

-n, --name <array-name>

Specifies the array name for which you want to see the details. If no array is specified, summary information for all arrays is displayed.

Note – Other commands may use **-a,--array** or **-d,--device** in place of **-n,--name**.

-i, --ip <IP-address>

Specifies the IP address of the connected host when using remote proxy.

device-ID

Specifies one or more device IDs.

Examples

sscs list device

```
Device Name      : F5100g
Type             : f5100
IP Address       : camtest17
Monitored On    : camtest17
Key              : SUN.f5100.508002000048f100
Active           : Y
WWN              : 508002000048f100
Alternate IP     : camtest17
Alt IP Number    : 10.9.178.48
Management Level : D
Said             : 508002000048f100
Time Added      : 2008-10-28 13:35:28
```

sscs list -n fms-6780-1 device

```
Device Name      : den-6780-1
Type             : 6780
IP Address       : 192.168.128.101
Monitored On    : camtest29
Key              : SUN.24643-01.SF74700358
Active           : Y
Unique Identifier : 200400a0b829ec26
Alternate IP     : fms-6780-1b
Alt IP Number    : 10.9.176.231
Management Level : D
Said             : 600A0B800029EC260000000048931900
Time Added      : 2009-02-20 15:15:42
Port WWNs       :
201400a0b829ec26,202400a0b829ec26,203400a0b829ec26,204400a0b
829ec26,205400a0b829ec26,206400a0b829ec26,207400a0b829ec26,208400a0b
829ec26,2015
00a0b829ec26,202500a0b829ec26,203500a0b829ec26,204500a0b829ec26,205
500a0b829ec26
,206500a0b829ec26,207500a0b829ec26,208500a0b829ec26
```

sscs list -i 192.168.128.101 device

```
Device Name      : den-6780-1
Type             : 6780
IP Address       : 192.168.128.101
Monitored On    : camtest29
Key              : SUN.24643-01.SF74700358
Active           : Y
Unique Identifier : 200400a0b829ec26
Alternate IP     : fms-6780-1b
Alt IP Number   : 10.9.176.231
Management Level : D
Said             : 600A0B800029EC260000000048931900
Time Added      : 2009-02-20 15:15:42
Port WWNs       :
201400a0b829ec26,202400a0b829ec26,203400a0b829ec26,204400a0b
829ec26,205400a0b829ec26,206400a0b829ec26,207400a0b829ec26,208400a0
b829ec26,2015
00a0b829ec26,202500a0b829ec26,203500a0b829ec26,204500a0b829ec26,205
500a0b829ec26
,206500a0b829ec26,207500a0b829ec26,208500a0b829ec26
```

list devices

Provides summary information on all devices.

Synopsis

```
list devices
```

Description

List a summary of the devices being monitored.

Examples

```
list devices
```

Response Format

Monitored On: *Interface*

Device: *Array/system being monitored*

Type:	<i>Array/system model</i>
IP Address:	<i>IP-address</i>
WWN:	<i>World Wide Name</i>
Active:	<i>Is the device active? Y N</i>
ASR:	<i>Is Auto Service Request on? Y N</i>

list disk

Lists the disk information for an array.

Synopsis

```
list -a <array-name> [-t <tray-name>] disk [disk-name [, disk-name...]]
```

Description

Lists disk information.

Options

-a, --array <array-name>

Specifies the name of the array where the disk resides.

-t, --tray <tray-name>

Specifies to display disk information only within a specified tray in a specified array.

disk [*disk-name* [, *disk-name...*]]

This option provides detailed information on the specified disks. When disks are not specified, this option provides detailed information on all the disks in the tray.

Examples

Note – The information returned in the command output varies based on the type of disk (e.g. SATA, SSD, etc.).

List detailed information for a Fibre Channel disk:

```
list -a fms-6780-1 disk t1d09
```

```

Tray: 0      Disk: t0d09
Capacity:    279.396 GB
Type:        Fibre Channel
Speed (RPM): 15015
Status:      Optimal
State:       Enabled
Role:        Data
Mirror Disk: -
Virtual Disk: 2
Firmware:    091C
Serial number: 0910C19519      3QP19519
WWN:
20:00:00:1D:38:D3:40:B1:00:00:00:00:00:00:00:00
Security Capable:  None
Security Enabled:  Disabled
Disk Locked:      False
Security Key Id:   -
Protection Information:  None

```

List detailed information for a SAS disk:

```
list -a fms-6780-1 disk t1d01
```

```

Tray: 0      Disk: t0d01
Capacity:    558.912 GB
Type:        SAS
Speed (RPM): 10020
Status:      Optimal
State:       Enabled
Role:        Unassigned
Mirror Disk: -
Virtual Disk: -
Firmware:    0804
Serial number: 001022P15DEA      PPG15DEA
WWN:
20:00:00:00:00:C9:9F:59:D3:00:00:00:00:00:00:00:00
Security Capable:  None
Security Enabled:  Disabled
Disk Locked:      False
Security Key Id:   -
Protection Information:  Capable

```

List detailed information for a SATA disk:

```
list -a fms-6780-1 disk t1d05
```

```
Capacity:    931.513 GB
```

```
Type: SATA
Speed (RPM): 7200
Status: Optimal
State: Enabled
Role: Unassigned
Mirror Disk: -
Virtual Disk: -
Firmware: 0710
Serial number: GTF002PBHM81JF
WWN: 20:00:00:A0:B8:62:87:9A:00:00:00:00:00:00:00:00
Security Capable: Not Supported
Security Enabled: Disabled
Disk Locked: false
Security Key Id:
Protection Information: None
```

List detailed information for an SSD disk:

```
list -a fms-6780-1 disk t1d16
```

```
Tray: 1 Disk: t1d16
Capacity: 68.366 GB
Type: SSD
Average Erase Count (%) 0
Remaining Spare Blocks (%) 99
Speed (RPM): 0
Status: Optimal
State: Enabled
Role: Data
Virtual Disk: jzSSD
Firmware: MS04
Serial number: STS0000025F5
WWN: 50:00:A7:20:00:00:35:7C:00:00:00:00:00:00:00:00
Security Capable: false
Security Enabled: false
Disk Locked: false
Security Key Id:
Protection Information: None
```

list erc

Lists the command error return code.

Synopsis

```
list erc
```

Description

Lists the error return code of the immediately preceding `sscs` command.

Examples

The following examples demonstrate the execution of an `sscs` command, followed by the `list erc` command to check the error code.

```
sscs list storage-system
```

```
Array: JBODTest  
Array: Test10x86  
Array: Demo-w2k3  
Array: Demo2_JBOD  
Array: ColoSata  
Array: Denver  
Array: Ruby  
Array: NMS-OZ-12  
Array: JBOD3Test  
Array: JBOD4Top
```

```
sscs list erc
```

```
0
```

```
sscs list storage-system NMS-OZ-12
```

```
Name:                NMS-OZ-12  
ID:                  NMS-OZ-12  
Type:                6130  
Version:             06.19.25.13  
Vendor:              SUN Microsystems  
Model:               Sun StorEdge 6130 System  
Capacity:            2.483 TB  
Available Capacity: 2.077 TB
```

```
sscs list erc
```

```
0
```

```
sscs list storage-system NMS-OZ-21
```

```
NMS-OZ-21: The object was not found.
```

```
sscs list erc
```

```
100
```

list event

Lists the Fault Management Service (FMS) event log information.

Synopsis

```
sscs list [-s <0|1|2|3>] [-d <device_id>] [-t <type>] [-a] [-f <keyword>]  
[-l <limit>] event [event_id[, event_id...]]
```

Description

Lists the FMS event log information. You can filter by device type and severity level.

Options

-s, --severity <0|1|2|3>

Specifies a severity level at which to filter events so that only the events of that severity or higher are listed.

Severity Levels:

0 – minor

1 – major

2 – critical

3 – down

-d, --device <device_id>

List only events for the given device.

Note – Other commands may use **-a,--array** or **-n,--name** in place of **-d,--device**.

-t, --type <type>

List only events of the given event type. Valid types can be obtained by first listing event details.

-a, --aggregated

Specifies to include all aggregated events in the list. By default, all aggregated events are not included.

-f, --filter <keyword>

Filter output on the event Description by using the given keyword parameter.

-1,--last <limit>

Limit the number of events printed by the given number.

event [*event_id* [, *event_id*...]]

Specifies the event ID(s).

Examples

Get details of an event ID:

```
sscs list event 12
```

```
Severity:          Minor
Date:              Wed Jan 21 10:56:57 MST 2009
Device:            ralphie (StorageTek 6140)
Component:         -
Type:              Discovery
Information:        Discovered a device of type 6140 named ralphie
Event Code:        57.14.16
Aggregated:        No
Description:        Discovered a device of type 6140 named ralphie
Probable Cause:    A discovery operation has found a monitorable
device.
Recommended Action: No action required.
```

list firmware

Lists the firmware versions of the field-replaceable units (FRUs) in this device.

Synopsis

```
list [-a <array-name [ , array-name... ]>] [-t <string [ , string... ]>] [-x  
<string [ , string... ]>] firmware
```

Description

Lists the firmware versions of the field-replaceable units in this device. You can define the FRUs to include or exclude.

Options

-a, --array <array-name [, array-name...]>

Shows the firmware revision level of the field-replaceable units for the specified arrays only.

-t, --type <string [, string...]>

Shows the firmware revision level for the specified component types. Substitute the following component types for JBOD arrays: **disk**, **expander**, and **sim**. Substitute the following component types for RAID arrays: **ctrl** (array controller), **system** (NVS RAM), **iom**, and **disk** (disk drive or FMod). The **-t** option can be used multiple times in the same command, or have multiple comma delimited arguments in a single instance.

-x, --exclude <string [, string...]>

Excludes the specified component types from the list of firmware revision levels. Substitute the following component types for JBOD arrays: **disk**, **expander**, and **sim**. Substitute the following component types for RAID arrays: **ctrl** (array controller), **system** (NVS RAM), **iom**, and **disk** (disk drive or FMod). The **-x** option can be used multiple times in the same command, or have multiple comma delimited arguments in a single instance.

Examples

List the component firmware revisions for all arrays:

```
sscs list firmware
```

List the component firmware revisions for a specified array:

```
sscs list -a jbod1 firmware
```

List the component firmware revisions for specified component types in a specified array:

```
sscs list -a jbod1 -t disk -t sim firmware
```

List the component firmware revisions for a specified array, excluding specified component types:

```
sscs list -a array1 -x ctrl -x iom firmware
```

list fru

Lists the field-replaceable units (FRUs) in this device.

Synopsis

```
list -d <array-name> [ -t <type-name> ] [ -s ] fru [<fru-name [ ,fru-name... ]>]
```

Description

Lists the field-replaceable units in this array. You can filter by component type.

Options

-d, --device <array-name>

Specifies the array for which to list installed FRUs.

Note – Other commands may use **-a,--array** or **-n,--name** in place of **-d,--device**.

-t, --type <type-name>

Specifies the type of field-replaceable units installed in this device to list. Use the **-s** option to see which FRU types would be valid for the chosen device.

Note – The **all** option for type name is no longer valid for use.

-s, --summary

Lists a summary of this field-replaceable unit.

fru [<fru-name> [,fru-name...]>]

If no FRU names are specified, lists the FRUs on the specified device. If FRU names are specified, lists the details of those FRUs.

Examples

```
sscs list -d j4400_test fru
```

Name	FRU	Alarm	State	Status	Revision	Unique Id
Disk.00	Disk	-	Enabled	OK	0B92	0751S371QV3

```

LN371QV
Disk.01      Disk -      Enabled OK      0B92      0751S3B1DC3
LN3B1DC
Disk.02      Disk -      Enabled OK      0B92      0749S374JE3
LN374JE

```

```
sscs list -d j4400_test -s fru Disk.00
```

```

Availability      : Running/Full Power
Capacity          : 146GB
Caption           : disk
Enabled State     : Enabled
Firmware          : 0B92
Host Path         : camtest99:/dev/rdisk/c3t97d0p0
Id                : disk00. 0751S371QV      3LN371QV
IdentifyingNumber : 0751S371QV      3LN371QV
Model             : ST314655SSUN146G
Name              : disk00. 0751S371QV      3LN371QV
Physical ID       : disk00. 0751S371QV      3LN371QV
Product Firmware Version : 0B92
Product Name      : SEAGATE ST314655SSUN146G
Revision Level    : 0B92
SAS Address       : 50:00:C5:00:07:BB:59:65
Serial Number     : 0751S371QV      3LN371QV
Speed             : 3G
Status            : OK
Type              : SAS
Valid SUN Disk    : TRUE
Vendor            : SEAGATE
sun-mgmt-data-host : 10.9.178.47
sun-mgmt-data-host-name : camtest99

```

list jobs

Lists job IDs and status associated with the specified array and optionally specified job ID.

Note – When using the [Local CLI](#), only Fault Management Service (FMS) jobs are listed.

Synopsis

```
list -a <array-name> jobs [<job-id[,job-id...]>]
```

Description

Lists job IDs and status associated with the specified array and optionally specified job ID.

Options

-a, --array <array-name>

Specifies the name of the array.

jobs [<job-id[,job-id...]>]

Specifies the job's identifier. If one or more job IDs are given, this option lists detailed information on the jobs. If no job ID is given, this option lists summary information on all jobs.

Examples

```
sscs list -a array01 jobs
```

Response Format (when no <job-ID> value is specified)

Job ID: job-ID Status: *job-status*

Response Format (when one or more <job-IDs> values are specified)

Job ID: *job-ID*

Type: *job-type*

Status: Pending | In Progress

% Complete: *complete*

Time to Completion: *time-to-complete* or *Unknown*

Priority: *priority*

Volume: *volume-name*

list log

Lists the user-initiated actions performed for all registered arrays.

Synopsis

```
list [-s <[mmdd] HHMM|mmddHHMM [cc] yy>] [-f <[mmdd]  
HHMM|mmddHHMM [cc] yy>] [-t <integer>] log
```

Description

Lists the user-initiated actions performed for all registered arrays. You can filter the listings by date and time or most recent entries. If you do not specify any options, all log messages are displayed.

Options

```
-s, --start <[mmdd] HHMM|mmddHHMM [cc] yy>
```

Lists all log messages starting at the date specified by the date options. Use with the **-f, --finish** subcommand to specify a date range.

```
-f, --finish <[mmdd] HHMM|mmddHHMM [cc] yy>
```

Lists all log messages ending at the date specified by the date options. Use with the **-s, --start** subcommand to specify a date range.

mmdd

Specifies the month and day. For example, 0331 for March 31.

HHMM

Specifies the hour and minute. The hour is based on a 24-hour clock. For example, 1:30 p.m. is 1330.

cc

Specifies the century part of the year.

yy

Specifies the two-digit year.

```
-t, --tail <integer>
```

Lists the most recent log messages as specified by *integer*.

Examples

```
sscs list -t 100 log
```

Lists the last 100 messages.

Response Format

Timestamp: message

list mgmt-sw

Synopsis

```
list mgmt-sw
```

Description

Lists the management software application that you are logged into.

Examples

```
sscs list mgmt-sw
```

Sample Output

```
Application Name:  "Sun Storage Common Array Manager"  
User:             local  
Current Logins:   1  
Sessions:        none  
Server:          localhost  
Server OS:       SunOS  
Server OS Version: 5.10  
Product Version: 6.8.0.6  
Build Date:      October 21, 2010  
Install Info:    6.8.0.6  
Critical Alarms: 5  
Down Alarms:    0  
Major Alarms:   20  
Minor Alarms:   ONAME
```

list notification

Synopsis

```
list notification [local_email | email-filter | email-server | trap | categories]
```

Description

Lists the remote notification provider and its status.

Options

local_email

Specifies to list only email entry information.

email-filter

Specifies to list email filter information.

email-server

Specifies to list only email server information.

trap

Specifies to list only SNMP trap information.

categories

Specifies to list valid selectable components that can be used in setting up email.

Examples

Example 1: sscs list notification

Response Format

```
Email Configuration  
SMTP Server for Email:server  
SMTP Server User Name:user-name  
SMTP Server Password:password  
Use Secure SMTP Connection:true | false
```

SMTP Port:*mail-port* (if not the default 25)
Path to Email Program:*email-program-path* (optional)
Email Address of Sender:*email-address*
Maximum Email Size MB:*size-in-megabytes*

Email Entries

Entry:*entry-no*
Email/Events:*email-address*
Type:*notification-type*
Device:*device-type*
Priority:*priority*
Events:*events*
Active:*active-flag*

SNMP Trap Configuration

Notifier State:Enabled | Disabled

SNMP Trap Entries

ID:*trap-id*
IP Name/Address:*ip-address*
Port:*port*
Minimum Alert Level:*trap-level*

Example 2: sscs list notification local_email

Response Format

Entry:*entry-no*
Email/Events:*email-address*
Type:*notification-type*
Device:*device-type*
Priority:*priority*
Events:*events*
Active:*active-flag*

Example 3: sscs list notification email-filter

Response Format

Filter Id:*filter-id*
Event Code:*event-code*
New Severity:*new-severity*

Example 4: sscs list notification email-server

Response Format

SMTP Server for Email:*server*
SMTP Server User Name:*user-name*
SMTP Server Password:*password*
Use Secure SMTP Connection:*true | false*
Email Address of Sender:*email-address*
Maximum Email Size MB:*size-in-megabytes*

Example 5: sscs list notification trap

Response Format

ID:*trap-id*
IP Name/Address:*ip-address*
Port:*port*
Minimum Alert Level:*trap-level*

Example 6: sscs list notification categories

Response Format

Component:*component*
Description:*component-description*

list registeredarray

Lists registered array information.

Synopsis

```
list [-a <array-name [, array-name...]>] registeredarray
```

Description

Lists registered array information or the names of all arrays.

Options

-a, --array <array-name [, array-name...]>

Specifies the registered array or arrays to list. If no arrays are specified, a list of all array names is provided.

Examples

```
sscs list registeredarray
```

```
Array: array01  
Array: array02  
Array: j4400_test  
Array: j4500_test2
```

```
sscs list -a array01 registeredarray
```

```
Array: array01  
IP Address: 10.80.194.32  
IP Address: 10.80.194.33
```

list site

Synopsis

```
list site
```

Description

Lists pertinent information for the installation site.

Example

```
sscs list site
```

```
*Company Name      : Oracle Corporation  
*Site Name         : Interop Lab  
Address            :  
Address 2          :  
Mail Stop          :  
*City              : Broomfield  
State              :  
Zip Code           :
```

```
*Country           : USA
*Contact First Name : Fred
*Contact Last Name  : Jones
Telephone Number   :
Extension          :
*Contact Email      : Fred.Jones@oracle.com
```

list storage-system

Lists detailed information about one or more arrays.

Synopsis

```
list storage-system [storage-system-name [ , storage-system-name... ] ]
```

Description

Lists detailed information about one or more arrays. If you do not specify an array name, then all array names are listed.

Options

```
storage-system [storage-system-name [ , storage-system-name... ] ]
```

If no array names are specified, all array names are listed. If array names are specified, details for those arrays will be listed.

Examples

```
sscs list storage-system
```

Response Format

Summary of arrays when no *<storage-system-name>* value is specified

```
Array: array-name
```

```
...
```

```
Array: array-name
```

Detail of array when the `<storage-system-name>` value is specified

```
./sscs list storage-system j4400_test
Name:                j4400_test
ID:                  j4400_test
Type:                 J4400
Version:              3R21
Vendor:               SUN Microsystems
Model:                Sun Storage J4400
Capacity:             3.074 TB
```

list sun-connection

Lists information for Auto Service Request registration with Oracle Support.

Synopsis

```
list sun-connection
```

Description

Lists information for Auto Service Request (ASR) registration with Oracle Support.

Options

```
sun-connection
```

Specifies to list information for ASR registration.

Examples

```
sscs list sun-connection
Registration Status: Not Registered
Oracle Support User Name:
Use Proxy Server:Disabled
Proxy Host Name:
Proxy Port:
Proxy User Name:
```

list userrole

Lists the user name and role defining the user's array privileges.

Synopsis

```
list userrole [storage|guest]
```

Description

Lists the user name and role defining the array privileges.

Options

```
userrole [storage|guest]
```

List the users with the specified role. The storage role allows write access so that the user can configure the array. The guest role can only monitor the array.

Example

```
sscs list userrole storage
```

Response Format

```
User Name: user-name User Role: user-role
```

...

```
User Name: user-name User Role: user-role
```

login

Log in to the sscs command-line interface (CLI).

Synopsis

```
login -h <host-name> [-s <CAM|Legacy>] [-t] [-f] [-u <user-name>]
```

Description

Log in to the `sscs` command-line interface (CLI) on the management system specified by the `-h <host-name>`. This command starts a CLI session on the management host.

There are two versions of the CLI:

- Local
- Remote

The local CLI requires a user to run the command as administrator from a shell on the management host. Because of this limitation, the **login** and **logout** commands are not supported.

Both CLI versions can manage any array that has been registered and added to the Common Array Manager inventory. The array type and array management path (in-band, out-of-band, proxy agents) has no limitations with local or remote CLI usage. Both CLIs manage the same arrays with the same command set.

Logging In and Out Using the CLI

The following explains how to log in to and out of the management host using the CLI. The options for accessing the CLI are presented in the next section.

There are different CLI directories for the remote and local CLIs. For further details, see [“Overview of the `sscs` Command” on page 1](#).

Note – `sscs` has an inactivity timer. The session terminates if you do not enter any `sscs` commands for 30 minutes. You must log in again before you can enter a command after the timeout.

1. Telnet or ssh to the Sun Storage Common Array Manager management host.

```
ssh root@cam_mgmthost1
```

2. Change to the CLI directory (varies by operating system).

a. Access the remote CLI directory:

- Solaris: `/opt/se6x20/cli/bin/sscs`
- Linux: `/opt/sun/cam/se6x20/cli/bin/sscs`
- 32 Bit Windows: `c:\Program Files\Sun\Common Array Manager\Component\sscs\bin`
- 64 Bit Windows: `c:\Program Files (x86)\Sun\Common Array Manager\Component\sscs\bin`

b. Access the local CLI directory:

- Solaris: /opt/SUNWstkcam/bin/sscs
- Linux: /opt/sun/cam/bin/sscs
- Windows: Program Files\Sun\Common Array Manager\bin

3. Log in to the remote CLI by typing the following command:

```
% sscs login -h <host-name> -u <user-name>
```

Note – The local CLI on a data host does not require the login command.

Options

-h, --hostname <host-name>

Required. Specifies the management host name.

-s, --system-type <CAM|Legacy>

This option specifies whether you are logging into any of the current arrays supported by the Common Array Manager or the now legacy 6920 array. In some cases, using the **-s CAM** option may log you in faster as it skips a step of listening for a response from the legacy array.

You no longer have to specify the system type to login.

-t, --http

Enables you to use the HTTP protocol to connect to the Sun Storage Common Array Manager server, instead of HTTPS. An HTTP connector is configured in Tomcat, the servlet container in Java, for the Java Web Console at port 6789. If SSL is not functioning between the client and the server, this might be required.

-f, --force

Exists for backward compatibility with legacy management applications that only allow one login per user. This option forces a login to the management host. If another user with the same user name is already logged on, the duplicate user is then logged off.

-u, --username <user-name>

Specifies the user name to log in.

Example

```
./sscs login -h localhost -u root
```

logout

Synopsis

logout

Description

Logs out of the remote `sscs` command-line interface session. This command is not supported with the local version of the CLI.

Examples

```
./sscs logout
```

modify agent

Modify the fault management agent parameters.

Synopsis

```
modify [-a] [-d] [-r] [-i <integer>] [-t <1|2|4|6|8|10>] agent [<agent-id>[, <agent-id...>]]
```

Description

Modify the fault management agent parameters. Fault Management Service (FMS) periodically scans devices for new messages and updated health status. Use the [list agent](#) command to show current agent settings.

Options

-a, --activate

Specifies that the system activate the monitoring agent.

-d, --deactivate

Specifies that the system deactivate or turn off the monitoring agent.

-r, --run

Specifies that the system schedule the agent to run either immediately or as soon as the currently scheduled run has finished.

-i, --interval <integer>

Specifies the interval, in minutes, before the agent scan runs.

-t, --threads <1|2|4|6|8|10>

Specifies to set the maximum monitoring threads for the agent (1 is the default).

Note – Specifying more than one thread can improve monitoring performance when monitoring many devices. If monitoring all devices exceeds five minutes, it is recommended to increase the number of threads. If monitoring does not exceed five minutes, it is recommended to use the default of 1.

agent [<agent-id> [, agent-id...]]

Specifies the agent that you want to modify. The name of the agent monitoring the device can be retrieved using the `list device` command

Examples

```
sscs modify -i 5 agent
```

modify array

Synopsis

```
modify -N <new-array-name> array <array-name>
```

Description

Modifies the name assigned to the array.

Note – Refer to the `modify array` command in [Chapter 3](#) for extensive configuration options that apply to arrays with RAID controllers.

Options

-N, --new-name <new-array-name>

Specifies the new name of the array.

array <array-name>

Specifies the name of the array to be modified.

Examples

```
sscs modify -N array2 array jbod1
```

modify firmware

Modifies the firmware versions of the specified field-replaceable units (FRUs) of the specified array, and installs the Sun Storage Common Array Manager baseline firmware or user-provided firmware image to the FRUs in the device.

Synopsis

```
modify -a <array-name> [ -f ] [ -o ] [ -t <string[, string...]> ] [ -x  
<string[, string...]> ] [ -p <path> ] [ -c <field-name> ] [ -w ] firmware
```

Description

Modifies the firmware versions of the specified field-replaceable units (FRUs) of the specified array, and installs the Sun Storage Common Array Manager baseline firmware or user-provided firmware image to the FRUs in the device.

Options

-a, --array <array-name>

Modifies the firmware revision level of the specified field-replaceable units for the specified array only.

-c, --component <field-name>

Modifies the firmware for the selected components. To get the valid values, execute the **sscs list -a <array-name> firmware** command. Values for either the Name or Model fields can be used in place of <field-name>. If a Name value is used, only the given component will be modified. If a Model value is used, all components with the given model name will be modified.

Note – For RAID arrays only: NVSRAM does not have a component name or model name. Use **-c system** to install or modify NVSRAM firmware.

-f, --force

Modifies the firmware revision level of the all field-replaceable units even if the firmware revision level is already at the baseline level.

-o, --off-line

Specifies to allow installation of firmware to FRU components excluded from installation by default. Certain FRU component types (such as disk drives, SIMs, and expanders) require I/O operations to stop before a firmware installation. As a precaution, these components are excluded from the firmware installation by default. To install firmware on these component types, stop all I/O operations on these components and use this option.

-p, --path *<path>*

Specifies the full path of the firmware image file. Loads firmware from a file directly onto the array. Caution should be exercised when using this command because unsupported firmware can be loaded onto a field-replaceable unit. If the **-p** option is provided, the **-c** option is required. The full path of the firmware image file must be specified when using the **-p** option. If the **-p** option is not specified, this command will default to the Sun Storage Common Array Manager baseline firmware image.

Note – For Windows OS only, replace \ (backslash) with / (slash) when specifying the firmware image file path. For example, use C:/TEMP/firmware-img.fw instead of C:\TEMP\firmware-img.fw.

-t, --type *<string [, string...]>*

Modifies the firmware revision level of the field-replaceable units of the specified type only. Substitute the following component types for JBOD arrays: **disk**, **expander**, and **sim**. Substitute the following component types for RAID arrays: **ctrl** (array controller), **system** (NVSRAM), **iom**, and **disk** (disk drive or FMod). The **-t** option can be used multiple times in the same command, or have multiple comma delimited arguments in a single instance.

-w, --no-warn

Modifies the firmware without displaying the standard warning.

-x, --exclude *<string [, string...]>*

Excludes the specified component type from the firmware install. Substitute the following component types for JBOD arrays: **disk**, **expander**, and **sim**. Substitute the following component types for RAID arrays: **ctrl** (array controller), **system** (NVSRAM), **iom**, and **disk** (disk drive or FMod). The **-x** option can be used multiple times in the same command, or have multiple comma delimited arguments in a single instance.

Examples

```
modify -a MyArray -f firmware
```

modify mgmt-sw

Stores or clears the specified storage system name for the session.

Synopsis

```
modify -X [storage-system-name] mgmt-sw
```

Description

Stores the specified storage system name for the session. This command is useful for repeated operations on one particular array. After this command is executed, the **-a** option for subsequent **scs** commands is not necessary. If no value is provided for **-X**, the stored storage system name is cleared.

Options

```
-X, --storage-system <array-name>
```

Specifies the name of the storage system. If no value is provided for the **-X** option, the stored storage system name is cleared.

Example

```
modify -X MyArray mgmt-sw
```

modify site

Modifies the site properties for this instance of Sun Storage Common Array Manager.

Synopsis

```
modify [-r <site-info [ , site-info... ]>] site [<site-info=value [ , site-info=value... ]>]
```

Description

Modifies the site properties for this instance of Sun Storage Common Array Manager. The site properties contain information needed for notification providers. Upon command execution, updated site information is displayed.

Options

```
-r, --remove <site-info [ , site-info... ]
```

Removes the specified site information. Possible values for *site-info* are: **address**, **address2**, **mailStop**, **state**, **zip**, **phone**, and **extension**.

```
site [<site-info=value [ , site-info=value... ]]
```

Modifies existing site settings or adds new site information. Possible values for *site-info* are: **customer**, **contract**, **name**, **address**, **address2**, **mailStop**, **city**, **state**, **zip**, **country**, **contact**, **phone**, **extension**, and **email**. Possible values for *value* consist of an alphanumeric string. If the string includes spaces, enclose the values in quotes.

Examples

```
sscs modify site name="Development Lab"
```

```
sscs modify -r mailStop site
```

modify storage-system

Modifies the array information.

Synopsis

```
modify [-N <storage-system-name>] [-q] storage-system <storage-system-name>
```

Description

Modifies array information.

Options

```
-N, --new-name <storage-system-name>
```

Changes the array name.

```
-q, --query-for-password
```

Specifies to query for the current array password to update the management software's registration database.

```
storage-system <array-name>
```

Specifies the array where the changes will take effect.

Example

```
sscs modify -q storage-system MyArray
```

Enter the array password:

Confirm password:

modify userrole

Change the user role or the IP address from which the user can log in.

Synopsis

```
modify -u <user-name> -p <true|false> -i <ANY|IP-address[ , IP-address...]>  
userrole <storage|guest>
```

Description

Modifies a user role or the IP address from which the user can log in. The storage role can perform configuration changes while the guest role can just monitor an array.

Options

-u, --username *<user-name>*

Specifies the user name that has an assigned role (storage or guest).

-p, --password-required true | false

Specifies whether to require user login with a password.

-i, --ip-address ANY | *<ip-address [, ip-address...]>*

Specifies the IP addresses from which the user can log in. You can let the user log in from anywhere or restrict access to specified IP addresses.

userrole storage | guest

Specifies the role assigned to the user.

Examples

```
sscs modify -u bsmith -p true -i ANY userrole guest
```

register storage-system

Synopsis

```
register -i <ip-address> [-s <array-name>] [-q] storage-system
```

```
register -d storage-system
```

Description

Registers a storage system with the host.

Options

-d, --discover

Specifies to scan the local network for available storage systems that are not yet registered.

-i, --ipaddress *<ip-address>*

Specifies the IP address of the storage system that you want to register.

-s, --set-name *<array-name>*

Specifies an array name.

-q, --query-for-password

Specifies to query for the current array password to update the management software's registration database.

register sun-connection

Registers Sun Storage Common Array Manager software and all monitored arrays with Auto Service Request.

Synopsis

```
register [-u <oracle-support-username>] [-H <proxy-host-name>] [-P <proxy-port-number>] [-U <proxy-username>] [-t] sun-connection
```

Description

Registers Sun Storage Common Array Manager software and all monitored arrays with Auto Service Request. Auto Service Request monitors the array system health and performance and automatically notifies Support when critical events occur. Critical alarms generate an Auto Service Request case. The notifications enable Support to respond faster and more accurately to critical on-site issues. All newly discovered arrays will also be registered with the saved registration options.

Options

-H, --proxyHost <proxy-host-name>

Specifies the proxy host name.

-P, --proxyPort <proxy-port-number>

Specifies the proxy port number.

-t, --testMessage

Specifies to send a test message using the current settings.

-U, --proxyUser <proxy-username>

A proxy host authenticated user name.

-u, --user <oracle-support-username>

Specifies a valid Oracle online account user name.

sun-connection

Specifies that you are registering the Sun Storage Common Array Manager software and all monitored arrays with Auto Service Request.

Examples

```
sscs register -H Proxy1 -P 8080 -u MyAcctId sun-connection
```

remove alarm

Synopsis

```
remove [-s <0|1|2|3>] [-f <device-type>] [-A] alarm [<alarm-ID[ , alarm-ID...]>]
```

Description

Removes the current alarms.

Options

-f, --faultdevtype <device-type>

Removes alarms by the device type using a device key filter.

-s, --severity 0 | 1 | 2 | 3

Removes alarms with severity levels up to and including the level specified.

Severity Levels:

0 – minor

1 – major

2 – critical

3 – down

-A, --All

Removes all of the alarms.

alarm [<Alarm-ID[, Alarm-ID...]>]

Specifies the alarm ID or alarm IDs you want to remove.

Examples

```
sscs remove -f 6140 alarm
```

```
sscs remove -s 2 alarm
```

```
sscs remove -A alarm
```

remove notification

Removes a local or remote notification provider.

Synopsis

```
remove -e <email-id [ ,email-id... ]> notification
```

```
remove -t <trapnumber [ ,trapnumber... ]> notification
```

```
remove -f <filter-id [ ,filter-id... ]> notification
```

Description

Removes a local or remote notification.

Options

```
-e, --email-id <email-id [ ,email-id... ]>
```

Stops notifications to the specified email ID(s). Use [list notification](#) to view valid email IDs.

```
-f, --email-filter-id <filter-id [ ,filter-id... ]>
```

Removes the email filter from the notification.

```
-t, --trap-id <trapnumber [ ,trapnumber... ]>
```

Stop notifications for the specified trap number(s).

Examples

```
sscs remove -e 2 notification
```

```
sscs remove -t 2 notification
```

remove registeredarray

Removes one or more arrays from the list of registered arrays.

Synopsis

```
remove -a <array-name [ , array-name... ]> registeredarray
```

Description

Removes one or more arrays from the list of registered arrays.

Options

```
-a, --array <array-name [ , array-name... ]>
```

Specifies the registered arrays to remove.

Example

```
sscs remove -a array00 registeredarray
```

remove userrole

Removes a user role assigned to a user name.

Synopsis

```
remove -u <user-name [ , user-name... ]> userrole <storage | guest>
```

Description

Removes the privileges (storage or guest role) assigned to a user name.

Options

```
-u, --username <user-name [ , user-name... ]>
```

Specifies the user name.

```
userrole storage | guest
```

Specifies the user's role to remove.

Examples

```
sscs remove -u jf39992 userrole guest
```

service contact

Tests connectivity to a specified array (inband communication test).

Synopsis

```
service -a <array-name> contact
```

Description

Tests connectivity to a specified array (inband communication test).

Options

```
-a, --array <array-name>
```

Specifies the array to which connectivity is tested.

Examples

```
sscs service -a j4400_test contact
```

```
Executing the contact command on j4400_test  
Completion Status: Success
```

service disable

Disables a target drive in a specified array.

Synopsis

```
service -a <array-name> -t <fru-name> disable
```

Description

Disables a target drive in a specified array.

Options

-a, --array <array-name>

Specifies the array containing the target drive to disable.

-t, --target <fru-name>

Specifies the name of the field-replaceable unit to disable. This parameter needs to be set to either the FRU name or the FRU ID, both of which can be obtained using variations of the `list fru` command. See [“list fru” on page 54](#) for further details.

Examples

```
sscs service -a j4400_test -t Disk.00 disable
```

service enable

Enables a target drive in a specified array.

Synopsis

```
service -a <array-name> -t <target-fru-name> enable
```

Description

Enables a target drive in a specified array.

Options

-a, --array <array-name>

Specifies the array containing the target drive to enable.

-t, --target <target-fru-name>

Specifies the name of the field-replaceable unit to enable. This parameter needs to be set to either the FRU name or the FRU ID, both of which can be obtained using variations of the `list fru` command. See [“list fru” on page 54](#) for further details.

Examples

```
service -a j4400_test -t Disk.00 enable
```

service locate

Turns on the locator LED for an array, drive, or tray.

Synopsis

```
service -a <array-name> [ -t <target-fru-name> ] [ -o ] locate
```

Description

Identifies the array, drive, or tray whose locator LED will be turned on.

Options

-a, --array <array-name>

Specifies the array whose locator LED will be turned on, or the array containing a specified target FRU.

-t, --target <target-fru-name>

Specifies the name of the field-replaceable unit whose locator LED will be turned on. This parameter needs to be set to either the FRU name or the FRU ID, both of which can be obtained using variations of the `list fru` command. See [“list fru” on page 54](#) for further details.

-o, --off

Specifies to turn off the locate LED.

Examples

Turn on the locate LED for a specified array:

```
service -a j4500_rocky locate
```

Turn on the locate LED for a target disk in a specified array:

```
service -a j4500_rocky -t Disk.00 locate
```

Turn off the locate LED for a target disk in a specified array:

```
service -a j4500_rocky -t Disk.00 -o locate
```

service print

Prints physical information available for a specified array.

Synopsis

```
service -a <array-name> -t arrayprofile print
```

Description

Prints the contents of the array profile for a specified array.

Options

```
-a, --array <array-name>
```

Specifies the array for which information is printed.

```
-t, --target arrayprofile
```

Specifies a target file to print.

Examples

Print the specified array's profile:

```
service -a j4500_rocky -t arrayprofile print
```

service set

Changes the name of a specified array.

Synopsis

```
service -a <array-name> set name=<new-array-name>
```

Description

Changes the name of a specified array.

Options

-a, --array *<array-name>*

Specifies the array for which you want to change the name.

Examples

Change array name from `array_bob` to `array_steve`:

```
sscs service -a array_bob set name=array_steve
```

unregister storage-system

Unregisters an array from the list of registered storage systems.

Synopsis

```
unregister storage-system <array-name [ , array-name... ]>
```

Description

Unregisters an array from the list of registered storage systems.

Options

storage-system *<array-name [, array-name...]>*

Specifies the storage system or systems that you want to unregister from the list of registered storage systems.

Example

```
sscs unregister storage-system array19
```

unregister sun-connection

Stops notifications of system health and performance to Sun using the Auto Service Request (ASR) feature.

Synopsis

```
unregister sun-connection
```

Description

Unregisters Sun Storage Common Array Manager software and all monitored arrays from Auto Service Request (ASR) which monitors the array system health and performance and automatically notifies the Sun Technical Support Center when critical events occur. Newly discovered arrays will not be registered with the saved registration options.

Examples

```
sscs unregister sun-connection
```

version

Shows the version of the Sun Storage Common Array Manager software that you are running on the management host, the version of the `sscs` client, or the version of the `pclient`.

Synopsis

```
-v, --version
```

If running the remote CLI, shows the version of the Sun Storage Common Array Manager software that you are running on the management host and the version of the `sscs` client. If running the local CLI, only the version of the current Sun Storage Common Array Manager installation will be shown.

```
-v
```

If running the remote CLI, shows the version of the `pclient`. Not valid with the local CLI.

Description

Shows the version of the Sun Storage Common Array Manager software that you are running on the management host, the version of the `sscs` client, or the version of the `pclient`.

Examples

```
sscs -v
```

```
Sun Storage Common Array Manager v6.7.0.7  
sscs client v2.1.4
```

```
sscs -v
```

```
$Id: pclient.c,v 1.1 2007/03/24 18:55:51 wf142404 Exp $
```

Configuration Commands for Arrays with RAID Controllers

This chapter describes the `sscs` commands and their options for arrays with RAID controllers, including the Sun StorEdge 6130 array, StorageTek 6140 and 6540 arrays, Sun Storage 6180 array, Sun Storage 6580 and 6780 arrays, Sun Storage 2500-M2 Arrays, StorageTek 2500 Series arrays, and FlexLine 240, 280, and 380 Systems.

For monitoring and administration commands for all Sun arrays, see [Chapter 3](#).

add hostgroup

Synopsis

Adds hosts to a host group.

```
add -a <array-name> -h <host-name [ , host-name... ]> hostgroup <host-group-name>
```

Description

Adds hosts to a host group.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this host.

```
-h, --host <host-name [ , host-name... ]>
```

Specifies the host or hosts that you want to add to the host group.

hostgroup *<host-group-name>*

Specifies a host group name of up to 16 alphanumeric characters, underscores, dashes, and spaces.

Examples

```
sscs add -a array00 -h host01,host02 hostgroup hg01
```

add license

Adds a license to the specified array.

Synopsis

```
add -a <array-name> -l <license-file> license
```

Description

Adds a license to the specified array.

Options

-a, --array *<array-name>*

Specifies the array to associate with this license.

-l, --license *<license-file>*

Specifies the license to associate with this array. The location specified must be a regular file path supported by the management host OS (URL paths are not supported). The license file can be in either the .xml or .key formats.

Note – The file extension does not need to be specified.

Examples

```
sscs add -a array_test -l C:\temp\licenses\snapshot-license license
```

Adds a license to the `array_test` array from the specified location.

create host

Creates a storage host.

Synopsis

```
create -a <array-name> [ -g <host-group-name> ] host <host-name>  
create -a <array-name> [-g <hostgroup-name>] [-w <string[,string...]>] [-d  
<description-text>] host <host-name>
```

Description

Creates a storage host where data is initiated.

Options

-a,--array <array-name>

Specifies the name of the array on which you want to create a host. For cross-platform compatibility, you can substitute `-X`, `--storage-device` in place of the `-a`, `--array` option.

-w,--wwn <string>

Specifies the initiator World Wide Name (WWN).

-d,--description <description-text>

Specifies the host description.

-g,--hostgroup <host-group-name>

Specifies a host group with which you associate this new host.

host

Specifies the name of the host that you want to create, using up to 16 alphanumeric characters, underscores, dashes, and spaces.

Examples

```
sscs create -a array00 host host1
```

create hostgroup

Creates a storage host group.

Synopsis

```
create -a <array-name> hostgroup <host-group-name>
```

Description

Creates a group of hosts to share storage.

Options

```
-a, --array <array-name>
```

Specifies the array on which you want to create a host group.

```
hostgroup <host-group-name>
```

Specifies the name of the host group that you want to create, using up to 16 alphanumeric characters, underscores, dashes, and spaces.

Examples

```
sscs create -a array00 hostgroup hg1
```

create initiator

Creates an initiator.

Synopsis

```
create -a <array-name> -h <host-name> [-o <string>] [-i <iqn-string>] [ -u  
<none|CHAP>] initiator <initiator-name>
```

Creates an iSCSI initiator.

```
create -a <array-name> -w <initiator-WWN> [-h <host-name>] [-o <string>]  
initiator <initiator-name>
```

Creates a FC initiator.

Description

Creates a FC or iSCSI initiator.

Options

-a, --array <array-name>

Specifies the array. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-h, --host <host-name>

Specifies the data storage host name.

-i, --iqn <iqn-string>

Specifies the iSCSI qualified name (IQN) for the initiator.

-o, --os-type <string>

Specifies the operating system (OS) type. Use the command **sscs list -a <array-name> os-type** to view all of the operating systems that are supported by the array. Then, use an applicable OS type value for <string>.

-u, --authentication <none|CHAP>

Specifies to use the Challenge Handshake Authentication Protocol (CHAP) authentication method for accessing the target. Values are CHAP or none.

-w, --wwn <initiator-WWN>

Specifies the initiator World Wide Name (WWN). For example: 210000e08b047212.

initiator <initiator-name>

Specifies an initiator name of up to 16 alphanumeric characters, underscores, dashes, and spaces.

Examples

Create iSCSI initiator:

```
sscs create -a IEC_iSCSI_LCA -h Myhost_19852 -o SOLARIS_MPXIO -i
iqn.2001-06.com.sun:fvt3init21.sys1 -u CHAP initiator initiSCSI
```

Create FC initiator:

```
sscs create -a array00 -w 210000e08b047212 -h host01 -o AIX initiator
myInitiator-01
```

create pool

Creates an empty storage pool on the array.

Synopsis

```
create -a <array-name> -p <profile-name> [ -d <description> ] pool <pool-name>
```

Description

Creates an empty storage pool on the array and assigns a profile to it.

Options

-a, --array <array-name>

Specifies the array. For cross-platform compatibility, you can substitute **-x, --storage-device** in place of the **-a, --array** option.

-d, --description <description>

Specifies a description of the pool. The description can be up to 256 alphanumeric characters, which can include underscores, dashes, colons, commas, parentheses, curly brackets, square brackets, ticks, tildes, bars, periods, or spaces.

-p, --profile <profile-name>

Specifies a profile to associate with the pool.

pool <pool-name>

Specifies a pool name of up to 32 characters including A-Z, a-z, 0-9, - (dash), and _ (underscore). Spaces are not allowed.

Examples

```
sscs create -a array00 -p Database pool SP048763
```

create profile

Creates a storage profile on the array.

Synopsis

```
create -a <array-name> -r <<0|1>|<3|5|6>> -s  
<16K|32K|64K|128K|256K|512K> -h <on|off> -n <variable|<1..224>|<1..30>>  
[-k <ANY|FC|SAS|SATA|SSD>] [-H <yes|no>] [-d <profile-description>] profile  
<profile-name>
```

Description

Profiles for the most common configurations come with the software. This command creates a custom storage profile and assigns it to an array.

Options

-a, --array <array-name>

Specifies the array name.

-d, --description <profile-description>

Specifies a profile description of up to 256 alphanumeric characters, which can include underscores, dashes, colons, commas, parentheses, curly brackets, square brackets, ticks, tildes, bars, periods, or spaces.

-k, --disk-type <ANY|FC|SAS|SATA|SSD>

Specifies the disk type:

ANY - Any type of disk

FC - Fibre Channel

SAS - Serial Attached SCSI

SATA - Serial Advanced Technology Attachment

SSD - Solid State Device

-h, --readahead <on|off>

Specifies whether the read ahead option is on or off.

-H, --dedicated-hot-spare <yes|no>

Specifies whether you want this disk to be a dedicated hot spare.

-n, --number-of-disks <variable|<1..224>|<1..30>>

Specifies the number of disks. variable indicates that the number of disks is not fixed and can change. <1..224> is used in combination with RAID levels 0 and 1. <1..30> is used in combination with RAID levels 3, 5, and 6.

-r, --raid-level <<0|1>|<3|5|6>>

Specifies the RAID level. <0|1> is used in combination with number-of-disks 1 to 224. <3|5|6> is used in combination with number-of-disks 1 to 30.

-s, --segsz <16K|32K|64K|128K|256K|512K>

Specifies the segment size.

profile <profile-name>

Specifies a profile name of up to 32 characters including A-Z, a-z, 0-9, - (dash), and _ (underscore). Spaces are not allowed.

Examples

```
sscs create -a array00 -r 1 -s 64K -h on -n variable -D FC -d Custom-Database-Profile profile DatabaseProfile
```

create repset

Creates a storage replication set using a peer World Wide Name or remote array name (not applicable to 2500 Series).

Synopsis

Create a storage replication set linking the local volume with the remote volume via a peer World Wide Name (not applicable to 2500 Series):

```
create -a <array-name> -l <volume-name> -w <peer-WWN> -o <volume-name> -m <sync|async> [-G <yes|no>] [-R <lowest|low|medium|high|highest>] [-s <enable|disable>] repset
```

Create a replication set linking the local volume with the remote volume via a remote array name (not applicable to 2500 Series):

```
create -a <array-name> -l <volume-name> -A <remote-array-name> -o <volume-name> -m <sync|async> [-G <yes|no> ] [-R <lowest|low|medium|high|highest>] [-s <enable|disable>] repset
```

Description

Creates a storage replication set using a peer World Wide Name or remote array name (not applicable to 2500 Series).

Options

-a, --array <array-name>

Specifies the array. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-A, --remote-array <remote-array-name>

Specifies the remote array. Options **-A** and **-w** are mutually exclusive.

-G, --consistency-group <yes|no>

Specifies whether or not you want to add this replication set to the array consistency group. Note that the default value (no) is only allowed with the asynchronous mode option.

-l, --local-volume <volume-name>

Specifies the local volume name.

-m, --mode <sync|async>

Specifies whether the mode is synchronous or asynchronous.

-o, --remote-volume <remote-volume-name>

Specifies the remote volume name.

-R, --replication-priority <lowest|low|medium|high|highest>

Specifies the priority of this replication set. If no priority is specified, the default is medium.

-s, --auto-sync <enable|disable>

Specifies whether the auto synchronization policy is enabled. If it is not specified, the default is disabled.

-w, --peer-wwn <peer-WWN>

Specifies the peer World Wide Name.

Examples

```
sscs create -a europe -l euro_sales -w  
17:76:18:12:18:49:18:62:19:14:19:39:19:47:19:61 -o euro_sales -m async -G  
no -R medium -s enable repset
```

Creates a replication set of the euro_sales volume that exists on the array named europe. In the process, it uses the euro_sales volume on the array whose WWN is 17:76:18:12:18:49:18:62:19:14:19:39:19:47:19:61 and sets it to

synchronize asynchronously with a medium priority with the write order not preserved and resynchronization performed automatically. This repset is called `euro_sales/1`.

```
sscs create -a corp_west -l crm-sales -w  
17:76:18:12:18:49:18:62:19:14:19:39:19:47:19:61 -o crm-sales -m async -G  
no -R medium -s enable repset
```

Creates a replication set of the `crm-sales` volume that exists on the array named `corp_west`. In so doing, it uses the `crm-sales` volume on the array whose WWN is `17:76:18:12:18:49:18:62:19:14:19:39:19:47:19:61` and sets it to synchronize asynchronously with the highest priority with the write order preserved and resynchronization performed automatically. This repset is called `crm-sales/1`.

```
sscs create -a europe -l euro_sales -A corporate -o euro_sales -m async -  
G no -R medium -s enable repset
```

Creates a replication set of the `euro_sales` volume that exists on the array named `europe`. In the process, it uses the `euro_sales` volume on the `corporate` array and sets it to synchronize asynchronously with a medium priority with the write order not preserved and resynchronization performed automatically. This repset is called `euro_sales/1`.

```
sscs create -a corp_west -l crm-sales -A corporate -o crm-sales -m  
async -G yes -R highest -s enable repset
```

Creates a replication set of the `crm-sales` volume that exists on the array named `corp_west`. In so doing, it uses the `crm-sales` volume on the `corporate` array and sets it to synchronize asynchronously with the highest priority with the write order preserved and resynchronization performed automatically. This repset is called `crm-sales/1`.

create snapshot

Creates a snapshot for the specified volume.

Synopsis

```
create -a <array-name> -v <source-volume-name> [-f  
<failbasewrite|failsnapshot>] [-v <virtual-disk-name>] [-m <volume-name>]  
[-w <0..100>] [-n <<1..224>|<1..30>>] [-d <disk-name [, disk-name...]>] [-r  
<<0|1>|<3|5|6>>] [-k <ANY|FC|SAS|SATA|SSD>] [-Z  
<number><TB|GB|MB|KB|Bytes|BLK>>] [-C <integer>] [-L  
<low|verylittle|little|average|high|full>] [-l <0..100>] [-P <pool-  
name>] [-D <description-text>] snapshot <snapshot-name>
```

Description

Creates a snapshot for the specified volume. Once the snapshot volume is created, it can be treated as any other volume, with the exception that it cannot be used to create another snapshot.

Options

-a, --array <array-name>

Specifies the array associated with this snapshot. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-C, --snapshot-count <integer>

Specifies the number of intended snapshots for the volume.

-D, --description <description-text>

Specifies a description of the snapshot.

-d, --disk <disk-name [, disk-name...]>

Specifies the name of the disk or disks that will be used to create the snapshot volume. Options **-d** and **-n** cannot be used at the same time, and specification of either one results in a new virtual disk being created.

-f, --fail-policy <failbasewrite | failsnapshot>

The fail policy specifies what to do if and when the snapshot fills up:

failbasewrite - Stop allowing writes to the base volume.

failsnapshot - Stop allowing writes to the snapshot. This is the default.

-k, --disk-type <ANY | FC | SAS | SATA | SSD>

Specifies the disk type:

ANY - Any type of disk

FC - Fibre Channel

SAS - Serial Attached SCSI

SATA - Serial Advanced Technology Attachment

SSD - Solid State Device

-L, --snapshot-level <low | verylittle | little | average | high | full>

The snapshot level should be set to the percentage of the base volume that is expected to be overwritten during the snapshot's lifetime. This determines the amount of storage allocated to the snapshot (that is, the size of its reserve volume). To maintain the snapshot of the base volume's state, data in the base volume that is about to be overwritten is copied into the snapshot reserve space.

The snapshot levels equate to the following percentages:

10% - low

25% - verylittle

40% - little

50% - average

75% - high

100% - full

-l, --snapshot-percentage <0..100>

Specifies what percentage of the volume is to be used for snapshot creation.

-m, --reserve-name <volume-name>

Specifies the name of the reserve volume. If no name is specified, a name is created and assigned automatically.

-n, --number-of-disks <<1..224>|<1..30>>

Specifies the number of disks in the snapshot volume. <1..224> is used in combination with RAID levels 0 and 1. <1..30> is used in combination with RAID levels 3, 5, and 6.

-P, --snapshot-pool <pool-name>

Specifies the name of the snapshot.

-r, --raid-level <<0|1>|<3|5|6>>

Specifies the RAID level. <0|1> is used in combination with number-of-disks 1 to 224. <3|5|6> is used in combination with number-of-disks 1 to 30.

-v, --reserve-vdisk <virtual-disk-name>

This option is mutually exclusive from the **-d**, **-k**, **-n**, and **-r** options.

If a reserve virtual disk is not specified:

- An existing virtual disk is used if possible.
- If no existing virtual disk is found, a new virtual disk is created, if that possibility exists; otherwise, an error message is reported.

If a reserve virtual disk is specified:

- If it is incompatible with the reserve volume, it results in a failure.
- If there is not enough free space, it results in an error.

-V, --volume <source-volume-name>

Specifies the source volume from which to take a snapshot.

-w, --warning-threshold <0..100>

Specifies when to inform you that the snapshot reserve volume is near capacity. If a warning threshold is not specified, 50% is used.

-Z, --snapshot-reserve-size <number<TB|GB|MB|KB|Bytes|BLK>>

Specifies the amount of space you want to reserve for capacity of the snapshot reserve volume.

snapshot <snapshot-name>

Specifies the snapshot name of up to 16 alphanumeric using characters, underscores, dashes, and spaces.

Examples

```
sscs create -a array00 -V vol0 snapshot vol01_snap
```

create vdisk

Creates a virtual disk.

Synopsis

```
create -a <array-name> -p <pool-name> -d <disk-name [ , disk-name... ]> [-S] vdisk  
<virtual-disk-name>
```

```
create -a <array-name> -p <pool-name> -n <integer> [-S] vdisk <virtual-disk-  
name>
```

Description

Creates a virtual disk.

Note – For the 6140 array, this command is only supported with firmware version 07.xx.xx.xx.

Options

-a, --array <array-name>

Specifies the array associated with this virtual disk.

-d, --disks <disk-name [, disk-name...]>

Specifies particular disks to be added to the virtual disk.

-n, --number-of-disks <integer>

Specifies the number of disks to be added to the virtual disk.

-p, --pool <pool-name>

Specifies the storage pool associated with this virtual disk.

-S, --secure

Specifies to create a secure virtual disk.

vdisk <virtual-disk-name>

Specifies the virtual disk that you want to modify.

Examples

```
sscs create -a array00 vdisk vdisk1
```

create volume

Creates a volume within a specified pool.

Synopsis

```
create -a <array-name> -p <pool-name> -F [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>  
[-n <1..30>] [-d <disk-name [ , disk-name... ]>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
-C <integer> [-n <1..224>] [-d <disk-name[, disk-name...]>] [-f
<volume|snapshot>] [-w <0..100>] [-v <virtual-disk-name>] [-c <A|B>] volume
<volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
-C <integer> [-n <1..30>] [-d <disk-name[, disk-name...]>] [-f
<volume|snapshot>] [-w <0..100>] [-v <virtual-disk-name>] [-c <A|B>] volume
<volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
[-v <virtual-disk-name>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -F [-c <A|B>] [-S] [-i] volume
<volume-name>
```

```
create -a <array-name> -p <pool-name> -s
<number<TB|GB|MB|KB|Bytes|BLK>> [-n <1..224>] [-d <disk-name[, disk-
name...]>] [-c <A|B>] [-S] [-i] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
-C <integer> [-n <1..224>] [-d <disk-name[, disk-name...]>] [-f
<volume|snapshot>] [-w <0..100>] [-V <virtual-disk-name>] [-c <A|B>] [-S]
[-i] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s
<number<TB|GB|MB|KB|Bytes|BLK>|max> [-v <virtual-disk-name>] [-c <A|B>]
volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
[-n <1..224>] [-d <disk-name[, disk-name...]>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -F [-v <virtual-disk-name>] [-d <disk-
name[, disk-name...]>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s
<number<TB|GB|MB|KB|Bytes|BLK>|max> [-v <virtual-disk-name>] [-d <disk-
name[, disk-name...]>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -C <integer> -Z
<number<TB|GB|MB|KB|Bytes|BLK>> [-v <virtual-disk-name>] [-d <disk-
name[, disk-name...]>] [-f <volume|snapshot>] [-w <0..100>] [-V <virtual-disk-
name>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
-C <integer> -F [-d <disk-name[, disk-name...]>] [-f <volume|snapshot>] [-w
<0..100>] [-V <virtual-disk-name>] [-c <A|B>] volume <volume-name>
```

```
create -a <array-name> -p <pool-name> -F [-c <A|B>] [-S] volume <volume-
name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
[-n <1..224>] [-d <disk-name [ , disk-name... ]>] [-c <A|B>] [-S] volume <volume-
name>
```

```
create -a <array-name> -p <pool-name> -s <number<TB|GB|MB|KB|Bytes|BLK>>
-C <integer> [-n <1..224>] [-d <disk-name [ , disk-name... ]>] [-f
<volume|snapshot>] [-w <0..100>] [-V <virtual-disk-name>] [-c <A|B>] [-S]
volume <volume-name>
```

Description

Creates a volume within a specified pool. You can have up to 2048 volumes per array.

Options

-a, --array <array-name>

Specifies the array. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-C, --snapshot-count <integer>

Specifies the number of intended snapshots for the volume.

-c, --controller <A|B>

Specifies the controller.

-d, --disk <disk-name [, disk-name...]>

Specifies the name of the disk. You can use this option with either the **-n** option or the **-v** option, but not with both **-n** and **-v** at the same time.

-F, --fill-vdisk

Specifies to use all available space on a virtual disk when creating a new volume and virtual disk simultaneously. This creates the largest possible virtual disk that matches the attributes of the specified pool. NOTE: See the **-s,--size** option (with **max** value) to use all available space on an existing virtual disk.

-f, --favor <volume|snapshot>

Favors the volume or snapshot.

-i, --protection-information

Specifies to enable T10 Protection Information (PI) when creating a volume on a PI-capable virtual disk. NOTE: PI can only be enabled on a volume at creation time. After a volume is created, PI can only be disabled using the **modify volume** command. PI cannot be enabled on an existing non-PI volume.

-L, --snapshot-level <low|verylittle|little|average|high|full>

Specifies the level of snapshot activity. The snapshot levels equate to the following percentages:

low - 10%

verylittle - 25%

little - 40%

average - 50%

high - 75%

full - 100%

-l, --snapshot-percentage <0..100>

Specifies what percentage of the volume is to be used for snapshot creation.

-n, --number-of-disks <1..30> or <1..224>

Specifies the number of disks in the volume. You can use this option with either the **-d** option or the **-v** option, but not with both **-d** and **-v** at the same time. Number-of-disks <1..30> is used in combination with a RAID level set at 3, 5, and 6. Number-of-disks <1..224> is used in combination with a RAID level set at 0 or 1.

-P, --snapshot-pool <pool-name>

Specifies the name of the snapshot.

-p, --pool <pool-name>

Specifies the name of the snapshot pool.

-S, --secure

Specifies to create a secure volume.

-s, --size <number<TB|GB|MB|KB|Bytes|BLK>> or
<number<TB|GB|MB|KB|Bytes|BLK>|max>

Specifies the volume size. Sizes can be in terabytes, gigabytes, megabytes, kilobytes, bytes, or blocks. However, some command variants allow use of the **max** value to specify using all available space on an existing virtual disk. NOTE: See the **-F,--fill-vdisk** option to use all available space on a virtual disk when creating a new volume and vdisk simultaneously.

-V, --reserve-vdisk <virtual-disk-name>

Specifies a reserve virtual disk.

-v, --vdisk <virtual-disk-name>

Specifies the name of the virtual disk. You can use this option with either the `-d` option or the `-n` option, but not with both `-d` and `-n` at the same time.

-w, --warning-threshold <0..100>

Specifies when to inform you that the snapshot reserve volume is near capacity. If a `warning-threshold` is not specified, 50% is the default.

-Z, --snapshot-reserve-size <number<TB|GB|MB|KB|Bytes|BLK>>

Specifies the amount of space you want to reserve for capacity of the snapshot reserve volume.

volume <volume-name>

Specifies the volume name of up to 16 alphanumeric characters.

Examples

```
sscs create -a array01 -p pool1 -s 20GB volume ORACLE-1
```

create volume-copy

Creates a copy of the volume (not applicable to 2500 Series).

Synopsis

```
create -a <array-name> -s <source-volume-name> -t <target-volume-name> [ -p  
lowest | low | medium | high | highest ] volume-copy
```

Description

Creates a copy of the volume.

-a, --array <array-name>

Specifies the array associated with this volume.

-p, --priority lowest | low | medium | high | highest

Specifies the priority of this volume copy. If no priority is specified, the default is medium.

-s, --source-volume <volume-name>

Specifies the source volume name associated with this volume copy.

-t, --target-volume *<volume-name>*

Specifies the target volume name associated with this volume copy.

Examples

```
sscs create -a array00 -s vol01 -t vol02 volume-copy
```

delete host

Deletes one or more hosts.

Synopsis

```
delete -a <array-name> host <host-name,...>
```

Description

Deletes one or more hosts.

Options

-a, --array *<array-name>*

Specifies the array associated with this host. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

host *<host-name,...>*

Specifies the host or hosts to delete.

Examples

```
sscs delete -a array00 host host01
```

delete hostgroup

Deletes one or more host groups.

Synopsis

```
delete -a <array-name> hostgroup <host-group-name,...>
```

Description

Deletes one or more host groups.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this host group.

```
hostgroup <host-group-name,...>
```

Specifies the host group or host groups to delete.

Examples

```
sscs delete -a array00 hostgroup hg01
```

delete initiator

Deletes one or more initiators.

Synopsis

```
delete -a <array-name> [-T <iqn|initiator_name>] initiator <initiator-id [, initiator-id...]>
```

Deletes an iSCSI initiator.

```
delete -a <array-name> [-T <wwn|initiator_name>] initiator <initiator-id [, initiator-id...]>
```

Deletes a FC initiator.

Description

Deletes one or more initiators. The initiator or initiators must be unmapped or the command will fail.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this initiator or initiators. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-T, --name-type <<**iqn**|**initiator_name**>|<**wwn**|**initiator_name**>>

Specifies the initiator identifier type. For the iSCSI variant, specify **iqn** for an iSCSI qualified name (IQN) or **initiator_name** for a named initiator. For the FC variant, specify **wwn** for a World Wide Name or **initiator_name** for a named initiator. You can modify the WWN if the initiator is offline only.

initiator <*initiator-id* [, *initiator-id*...]>

Specifies the initiator identifier.

Examples

```
sscs delete -a array00 initiator myInitiator-01,myInitiator-02
```

delete iscsi-session

Deletes an iscsi-session.

Synopsis

```
delete -a <array-name> iscsi-session <session-identifier [, session-identifier...]>
```

Description

Deletes iSCSI sessions associated with a specified array.

Options

-a, --array <*array-name*>

Specifies the name of the array.

iscsi-session <*session-identifier* [, *session-identifier*...]>

Specifies one or more iSCSI sessions to delete.

Examples

```
sscs delete --array iSCSILCA2 iscsi-session 40:00:01:37:00:05:8
```

Deletes iSCSI session 40:00:01:37:00:05:8 for array iSCSILCA2.

delete pool

Deletes one or more pools.

Synopsis

```
delete -a <array-name> pool <pool-name [ , pool-name... ]>
```

Description

Deletes one or more storage pools. This operation removes all associated virtual disks and volumes during the deletion of the storage pool. You can perform this action only when all volumes in the pool are unmapped.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this pool. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

```
pool <pool-name [ , pool-name... ]>
```

Specifies the storage pool or list of pools to delete.

Examples

```
sscs delete -a array00 pool SP048763
```

delete profile

Deletes one or more profiles.

Synopsis

```
delete -a <array-name> profile <profile-name [ , profile-name... ]>
```

Description

Deletes one or more storage profiles. You can only perform this function on a storage profile that has no storage pools associated with it.

Options

-a, --array <array-name>

Specifies the array associated with this profile.

profile <profile-name [, profile-name...]>

Specifies the profile or profiles to delete.

Examples

```
sscs delete -a array00 profile MyProfile
```

delete repset

Deletes one or more replication sets (not applicable to 2500 Series).

Synopsis

```
delete -a <array-name> repset <repset-name [ , repset-name... ]>
```

Description

Deletes one or more replication sets.

Options

-a, --array <array-name>

Specifies the array from which you want to delete the replication set. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

repset <repset-name [, repset-name...]>

Specifies the replication set or sets to delete.

Examples

```
sscs delete -a corporate repset finance/1
```

Deletes the replication of the finance volume on the array named corporate.

```
sscs delete -a corp_west repset crm-sales/1
```

Deletes the replication of the `crm-sales` volume on the array named `corp_west`.

delete snapshot

Deletes one or more snapshots.

Synopsis

```
delete -a <array-name> snapshot <snapshot-name [ , snapshot-name... ]>
```

Description

Deletes the specified snapshot.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this snapshot. For cross-platform compatibility, you can substitute `-X, --storage-device` in place of the `-a, --array` option.

```
snapshot <snapshot-name [ , snapshot-name... ]>
```

Specifies the snapshot or snapshots to delete.

Examples

```
sscs delete -a array00 snapshot snap1
```

delete vdisk

Deletes one or more named virtual disks.

Synopsis

```
delete -a <array-name> vdisk <virtual-disk-name [ , virtual-disk-name... ]>
```

Description

Deletes one or more specified virtual disks.

Options

-a, --array <array-name>

Specifies the array associated with this virtual disk. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

vdisk <virtual-disk-name [, virtual-disk-name...]>

Specifies the vdisk or vdisks to delete.

Examples

```
sscs delete -a array00 vdisk vdisk1
```

delete volume

Deletes one or more named volumes.

Synopsis

```
delete -a <array-name> [-k] volume <volume-name [ , volume-name... ]>
```

Description

Deletes one or more named volumes. The volume must be unmapped or the deletion fails.

Options

-a, --array <array-name>

Specifies the array associated with this volumes. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-k, --keep-vdisk

Specifies to keep the associated virtual disk intact. By default, if the volume targeted for deletion is the last volume on the associated virtual disk, the virtual disk is deleted.

Note – The **-k** option is only supported by 2500 series arrays running firmware version 07.35.nn.nn and above, and 6000 series arrays running firmware version 07.10.nn.nn and above.

volume *<volume-name [, volume-name...]>*

Specifies the volume or volumes to delete.

Examples

```
sscs delete -a array00 volume ORACLE-1
```

delete volume-copy

Deletes a volume-copy (not applicable to 2500 Series).

Synopsis

```
delete -a <array-name> -s <source-volume-name> -t <target-volume-name>  
volume-copy
```

Description

Deletes a volume copy. This operation breaks the copy relationship between the two volumes, but it does not delete the volumes themselves. It also removes the read-only permission on the target volume.

Options

-a, --array *<array-name>*

Specifies the array associated with this volume copy.

-s, --source-volume *<volume-name>*

Specifies the source volume associated with this volume copy.

-t, --target-volume *<volume-name>*

Specifies the target volume associated with this volume copy.

Examples

```
sscs delete -a array00 -s vol01 -t vol02 volume-copy
```

disable snapshot

Disables one or more snapshots.

Synopsis

```
disable -a <array-name> snapshot <snapshot-name[, snapshot-name...]>
```

Description

Disables one or more snapshots. Disabling a volume snapshot does not remove either the volume snapshot or its associated reserve volume.

When you disable a volume snapshot, only the specified snapshots are disabled. All other snapshots remain functional.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this snapshot.

```
snapshot <snapshot-name,...>
```

Specifies the names of the snapshots that you want to resnap.

Examples

```
sscs disable -a array00 snapshot snapshot1, snapshot2
```

Disables snapshot1 and snapshot2 on array00.

export array

Prints the array configuration to standard output.

Synopsis

```
export [-L] array <array-name>
```

Description

Prints the array configuration to standard output (XML format). To save the output to a file, the output must be redirected to a specified file name. That file can then be used for the **import array** command. See example usage below for proper redirect syntax.

Options

-L, --lock-key

Specifies to retrieve the current encryption key from the specified array. The command will prompt you for the encryption key pass phrase. To ensure accuracy, you will be prompted to enter the pass phrase twice. For security, the supplied pass phrase will not be echoed back to you. If the **-L** option is not supplied, the array configuration is exported.

array <array-name>

Specifies the array that you want to export.

Examples

Export array information to the screen:

```
sscs export array array01
```

Export array information to an XML file saved to the sscs working directory:

```
sscs export array array01 > array01-config.xml
```

Export array information to an XML file saved to a specified location:

```
sscs export array array02 > D:\temp\array02-config.xml
```

```
sscs export array array02 > /var/tmp/array02-config.xml
```

export profile

Exports one or more profiles into an XML representation.

Synopsis

```
export -a <array-name> profile [profile-name [ , profile-name... ] ]
```

Description

Exports one or more profiles into an XML representation. This outputs to standard output, and then you redirect it to a file or another mechanism.

Options

-a, --array *<array-name>*

Specifies the array from which you want to export the profile.

profile [*profile-name* [, *profile-name*...]]

Specifies the profile or profiles to export. If no profiles are specified, all profiles are exported.

Examples

```
sscs export - a array00 profile > /tmp/all_profiles.xml
```

fail disk

Sets a disk to the failed state.

Synopsis

```
fail -a <array-name> [ -t <tray-name> ] disk <disk-name>
```

Description

Sets a disk to the failed state. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Options

-a, --array *<array-name>*

Specifies the array on which you want to fail the disk.

-t, --tray *<tray-name>*

Identifies the tray where the disk resides.

disk

Specifies the name of the disk.

Examples

```
sscs fail -a Array01 -t Tray20 disk t20d16
```

```
sscs fail -a Array01 disk t20d16
```

import array

Applies an array configuration file to the specified array.

Synopsis

```
import -x <XML-location> [-L] [-n] array <array-name>
```

Description

Applies an array configuration file to the specified array. This enables you to import the configuration file from one array to overwrite the configuration for this array.

Options

-x, --xml <XML-location>

Specifies the location of the XML file to be imported. The XML location can be in the form of a url (<http://...> or <file:///...>) or a file name.

-L, --list

Specifies that no import take place. Instead, the array is checked against the XML file to ensure that it is compatible.

-n, --noclear

Specifies that the current array configuration will not be cleared. This preserves the current array configuration, including the mapping between the access LUN (LUN 31) and the management host. This mapping is required for in-band management of the array.

array <array-name>

Specifies the array to which the configuration file is applied.

Examples

```
sscs import -x array01-config.xml array array01  
sscs import -x file:///tmp/array00_configuration.xml array array00  
sscs import -x /tmp/array00_configuration.xml array array00
```

import profile

Imports one or more profiles from a specified XML file.

Synopsis

```
import -a <array-name> -x <XML-location> [-f] profile [profile-name [ , profile-name... ]]  
import -a <array-name> -x <XML-location> -L profile [profile-name [ , profile-name... ]]
```

Description

Imports one or more profiles from a specified XML file. This allows you to import the configuration profile from one array to overwrite the configuration profile for this array.

Options

array <array-name>

Specifies the array to which you want to import the profile.

-x, --xml <XML-location>

Specifies the location of an XML file containing the profiles to be imported. The XML location can be in the form of a URL (<http://...> or <file:///...>) or a file name.

-f, --force

Specifies the following actions when conflicts occur with the profiles:

Exists – Profiles are not imported.

Duplicate Settings – Profiles are imported, creating a new profile.

Conflicting – Profiles are imported, replacing the current profile of the same name.

In Use – Profiles are not imported.

New – Profiles are imported.

If the force option is not specified, the following occurs:

Exists – Profiles are not imported.

Duplicate Settings – Profiles are not imported.

Conflicting – Profiles are not imported.

In Use – Profiles are not imported.

New – Profiles are imported.

In all cases, both successful and failed imports are reported.

-L, --list

Lists all profiles. If the list option is specified, no import takes place. All profiles in the XML file (or all those specified by way of the <profile-name>) are listed, and each is identified as follows:

Exists – The profile already exists with all of the same parameter values.

Duplicate Settings – A profile with exactly the same parameters (the description and version can be different), but a different name exists, and no profile with the given name is in use by the system.

Conflicting – A profile with the same name exists, has different parameters, and is not currently in use by the system.

In Use – A profile with the same name exists, has different parameters, and is currently in use by the system.

New – None of the above labels apply.

profile [*profile-name* [, *profile-name*...]]

Specifies the profile or profiles to import. If no profile names are specified, all profiles in the given XML location are used.

Examples

```
sscs import -a array00 -f -x file:///tmp/all_profiles.xml profile
```

Response Format

(when --list option is used)

profile_name: Exists

profile_name: Duplicate Settings

profile_name: New

profile_name: Conflicting

initialize disk

Initializes a disk.

Synopsis

```
initialize -a <array-name> [-t <tray-name>] disk <disk-name>
```

Description

Initializes a disk. If a disk from another array is inserted, and you want to use it in a different array, you might need to initialize it to remove any latent virtual disk information. All data on the disk will be lost. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Options

-a, --array <array-name>

Specifies the array on which you want to initialize the disk.

-t, --tray <tray-name>

Identifies the tray where the disk resides.

disk <disk-name>

Specifies the name of the disk.

Examples

```
sscs initialize -a Array01 -t Tray2 disk Disk6
```

list controller

Lists configuration information for the specified controller.

Synopsis

```
list -a <array-name> controller [ A | B ]
```

Description

Lists configuration information for the specified controller.

Options

-a, --array <array-name>

Specifies the array for which you want to view controller information.

controller **A** | **B**

Specifies the controller for which you want to view information. If no controller is specified, summary information for both controllers is displayed.

Examples

```
sscs list -a array01 controller
```

Response Format

Controller: A | B

Mode: Active | Inactive

Quiesced: True | False

Status: Removed | Optimal | RPA Par Error | Failed | Service Mode

Drive Interface: FC | SATA | SAS | SSD

Cache Memory Size: *n* MB

Manufacturer: *manufacturer*

Serial Number: *serial-number*

Ethernet Port: 1

Use DHCP/BOOTP: On | Off

IP Address: *IP-address*

Gateway: *IP-address*

Net Mask: *net-mask*

list fcport

Lists Fibre Channel port information for the controller of the specified array.

Synopsis

```
list -a <array-name> [-c <A|B>] fcport [fcport-id [ ,fcport-id... ]]
```

Description

Lists Fibre Channel (FC) port information for the controller of the specified array.

Options

-a, --array <array-name>

Specifies the name of the array where the controller resides.

-c, --controller <A|B>

Specifies the controller for which you want Fibre Channel port information.

fcport [*fcport-id* [,*fcport-id*...]]

Specifies the Fibre Channel port or ports for which you want information. Ports are specified as A/1 to A/4 and B/1 to B/4. If no FC port is specified, details for all ports are displayed.

Examples

```
sscs list -a array00 fcport A/1
```

Response Format

Array: *array-name*

Controller: A | B

FCPort: *fcport-ID*

Port WWN: *port-WWN*

Node WWN: *node-WWN*

Topology: ARB Loop | Fabric | PTP | FAB Loop | Unknown

Speed: *current-speed* Gb/s (Gigabits per second)

Maximum Speed: *maximum-speed* Gb/s

Loop ID: 0..127 | N/A | Any

Preferred Loop ID: 0..127 | N/A | Any

Channel Number: *channel-number*

Channel Joined With Another: True | False

Link Status: Up | Down

Protection Information: Capable | None

list host

Lists the host names and details for an individual host.

Synopsis

```
list -a <array-name> host [host-name [, host-name...]]
```

Description

Lists the host names and details for an individual host.

Options

-a, --array <array-name>

Specifies the array associated with this host. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

host [*host-name* [, *host-name*...]]

Specifies the host or hosts that you want to view in detail. When no host is specified, the names of all the hosts in the array are listed.

Examples

```
sscs list -a array00 host
```

Response Format (when no *<host-name>* value is specified)

Host: *host-name*

Protection Information: Capable | None

...

Host: *host-name*

Response Format (host detail when *<host-name>* value is specified)

Host: *host-name*

Host Group: *hostgroup-name*

Initiator: *initiator-name*

...

Initiator: *initiator-name*

Volume: *volume-name* LUN:LUN-ID

...

Volume: *volume-name* LUN:LUN-ID

list hostgroup

Lists host group name and hosts for an individual host group.

Synopsis

```
list -a <array-name> hostgroup [hostgroup-name [, hostgroup-name...]]
```

Description

Lists host group name and hosts for an individual host group.

Options

-a, --array <array-name>

Specifies the array associated with this host group.

hostgroup [*hostgroup-name* [, *hostgroup-name*...]]

Specifies the host group that you want to view. When no host group is specified, the names of all the host groups in the array are listed.

Examples

```
sscs list -a array00 hostgroup
```

Response Format (when no <*host-group-name*> value is specified)

Host Group: *host-group-name*

Protection Information: Capable | None

...

Host Group: *host-group-name*

Response Format (host detail when the <*host-group-name*> value is specified)

Host Group: *host-group-name*

Host: *host-name*

...

Host: *host-name*

Volume: *volume-name* LUN:*LUN-ID*

...

Volume: *volume-name* LUN:*LUN-ID*

list initiator

Lists the initiators and provides a description of each.

Synopsis

```
list -a <array-name> [-T <iqn|initiator_name>] initiator [initiator-id [, initiator-id...]]
```

Lists iSCSI initiators.

```
list -a <array-name> [-T <wwn|initiator_name>] initiator [initiator-id [, initiator-id...]]
```

Lists FC initiators.

Description

Lists the initiators and provides a description of each.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this initiator. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

```
-T, --name-type <<iqn|initiator_name>|<wwn|initiator_name>>
```

Specifies the initiator identifier type. For the iSCSI variant, specify **iqn** for an iSCSI qualified name (IQN) or **initiator_name** for a named initiator. For the FC variant, specify **wwn** for a World Wide Name or **initiator_name** for a named initiator.

```
initiator [initiator-id [, initiator-id...]]
```

Specifies the initiator identifier.

Examples

```
sscs list -a array01 -T initiator_name initiator myInitiator-01
```

```
sscs list -a array01 initiator myInitiator-01
```

```
sscs list -a iSCSILCA_2 -T iqn initiator
```

Response Format

(list of initiators when no <initiator-ID> value is specified)

```
Initiator: initiator-ID
```

```
...
```

```
Initiator: initiator-ID
```

Response Format

(detail about the initiator when an *<initiator-ID>* value is specified)

Initiator: *initiator-ID*

WWN: *initiator-wwn*

Host: *host-name*

OS Type: *host-type*

list iperformance

Displays iSCSI performance statistics for the StorageTek 2510 array and enables you to define the type of iSCSI performance statistics to monitor.

Synopsis

To display the performance statistics:

```
list -a <array-name [ , array-name... ]> -T [-b <true|false>] iperformance
```

To define the type of iSCSI performance statistics to monitor and the sort order of the output:

```
list -a <array-name [ , array-name... ]> -t  
<array_stats|controller_stats|volume_stats> [-c <A|B>] [-h <host-  
name [ , host-name... ]>] [-g <hostgroup-name [ , hostgroup-name... ]>] [-v <volume-  
name [ , volume-name... ]>] [-s  
<name|total_iops|read_percent|write_percent|total_data|avg_read_si  
ze|avg_read_rate|peak_read_rate|avg_write_size|avg_write_rate|peak  
_write_rate|cache_hit_percent>] [-b <true|false>] iperformance
```

Description

Displays iSCSI performance statistics for the 2510 array and enables you to define the type of iSCSI performance statistics to monitor and the sort order of the output.

Note – Only valid for 2510 arrays running firmware version 07.35.nn.nn or higher.

Options

-a, --array <array-name>

Specifies the name of the array associated with this iSCSI performance request.

-b, --baseline <true|false>

Sets the baseline time for the iSCSI array. If true, the current array time is used as the baseline time.

-t, --type <array_stats|controller_stats|volume_stats>

Specifies the type of statistics to list: array, controller, or volume.

-c, --controller <A|B>

Specifies controller A or controller B.

-h, --host <host-name [, host-name...]>

Specifies the host name of one or more hosts.

-g, --hostgroup <hostgroup-name [, hostgroup-name...]>

Specifies the name of one or more host groups.

-v, --volume <volume-name [, volume-name...]>

Specifies one or more volumes.

-s, --sort

<name|total_iops|read_percent|write_percent|total_data|avg_read_size|avg_read_rate|peak_read_rate|avg_write_size|avg_write_rate|peak_write_rate|cache_hit_percent>

Specifies the value for sorting the performance output.

Examples

Display Statistics:

```
sscs list -a iSCSILCA_2 -T iperformance
```

Response Format

Array: iSCSILCA_2

State: Off

Polling Interval: 1 minute

Data Retention Period: 1 hour

BASELINE STATISTICS

Controller A Baseline Time: *date at time*

Controller B Baseline Time: *date at time*

MAC Transmit Statistics

MAC Receive Statistics

TCP Statistics

IPv4 Statistics

IPv6 Statistics

Target (Protocol) Statistics

Define statistics to display:

```
sscs list --array iSCSILCA_2 --type array_stats --sort total_iops  
ipperformance
```

List array statistics for iSCSILCA_2 and sort by total I/O operations per second.

list iscsi-port

Lists iSCSI ports.

Synopsis

```
list -a <array-name> [-c <A|B>] iscsi-port [display.name.iscsiport-  
id[, display.name.iscsiport-id...]]
```

Description

Lists information for one or more iSCSI ports configured for a specified array.

Options

-a, --array <array-name>

Specifies the name of the array.

-c, --controller <A|B>

Specifies controller A or B for which you want information.

iscsi-port [*display.name.iscsiport-id* [, *display.name.iscsiport-id...*]]

Specifies one or more iSCSI port IDs. For a detailed listing, specify controller/port.

Examples

```
sscs list --array iSCSILCA_2 iscsi-port B/1
```

Lists detail for iSCSI port 1 on controller B for array iSCSILCA_2.

Response Format

```
Array: iSCSILCA_2  
Controller: A  
iSCSI Port: B/1  
Port MAC: 00:A0:B8:20:34:69  
Speed: 100 Mbps  
Maximum Speed: 1 Gbps  
Link Status: Up  
Listening Port: 3260  
MTU: 1500  
ICMP Ping Responses: Enabled  
IPv4: Enabled  
DHCP: Off  
IP Address: 10.8.88.167  
Gateway: 10.8.88.1  
Netmask: 255.255.255.0  
VLAN: Disabled  
VLAN ID: 0  
Ethernet Priority: Disabled  
Priority: 3
```

list iscsi-session

Lists iSCSI sessions.

Synopsis

```
list -a <array-name> iscsi-session [session-identifier [, session-identifier...]]
```

Description

Lists iSCSI sessions associated with a specified array. To list details of a specific iSCSI session, include the iSCSI session ID.

Options

-a, --array <array-name>

Specifies the name of the array.

iscsi-session [*session-identifier* [, *session-identifier*...]]

Specifies the iSCSI session ID.

Examples

```
sscs list -a iSCSILCA_2 iscsi-session 40:00:01:37:00:00:8003
```

Response Format

iSCSI Session

iSCSI Target: iqn.1992-01.com.lsi:1535.600a0b80003487c10000000046cc4a1d

iSCSI Session Identifier (SSID): 40:00:01:37:00:00:8003

Initiator Session Identifier (ISID): 40:00:01:37:00:00

Target Portal Group Tag: 2

Initiator iSCSI Name: iqn.1991-05.com.microsoft:funk.sun.com

Initiator iSCSI Label: i1193868006

Initiator iSCSI Alias: fi1193868006

Host: fh1193262432

iSCSI Session Connection ID(s)

Connection ID (CID): 0x1

Ethernet Port: Controller B, Port 2

Initiator IP Address: 10.8.88.103

Negotiated Login Parameters

Authentication Method: None

Header Digest Method: None

Data Digest Method: None

Maximum Connections: 4

Target Alias: iSCSI_LCA2

Initiator Alias: fi1193868006

Target IP Address: 10.8.88.175

Target Portal Group Tag: 2

Initial R2T: Yes

Maximum Burst Length: 262144 Bytes

First Burst Length: 8192 Bytes

Default Time to Wait: 0 Seconds

Default Time to Retain: 60 Seconds

Maximum Outstanding R2T: 16

Error Recovery Level: 0

Maximum Receive Data Segment Length: 65536 Bytes

list iscsi-target

Lists iSCSI targets.

Synopsis

```
list -a <array-name> iscsi-target [target-name]
```

Description

Lists iSCSI target name configured for the specified array. To list details, specify the iSCSI target name. Target name is the iSCSI qualified name (IQN), for example: iqn.199201.com.sun:1535.600a0b80002f9da00000000461255f9.

Options

-a, --array <array-name>

Specifies the name of the array.

iscsi-target [*target-name*]

Specifies the iSCSI qualified name of the iSCSI target.

Examples

```
sscs list --array iSCSILCA_2 iscsi-target
```

Response Format

iSCSI Target Name: iqn.1992-01.com.sun:1535.600a0b80003487c10000000046cc4a1d

```
sscs list --array iSCSILCA_2 iscsi-target iqn.1992-01.com.sun:1535.600a0b80003487c10000000046cc4a1d
```

Response Format

iSCSI Target Name: iqn.1992-01.com.lsi:1535.600a0b80003487c10000000046cc4a1d

Alias: iSCSI_LCA2

Authentication: NONE

CHAP Secret: *****

Unnamed Discovery: Enabled

Sessions: 1

iSNS: Enabled

IPv4: 10.8.88.56

DHCP: Off

Port: 3205

Initiators

server1: iqn.1991-05.com.microsoft:sun-pojdhrbx7tt

server2: iqn.1991-05.com.sun.microsoft.jcz

server3: iqn.1991-05.com.microsoft:sun-pojdhrbx7rr

server4: iqn.1986-03.com.sun:01:0003ba3145ed.47032ecf

server5: iqn.1986-03.com.sun:01:00144f010116.46fa5d9a

server6: iqn.1986-03.com.sun:01:0003ba0442dd.47062a0f

server7: iqn.1991-05.com.microsoft:sun-pojdhrbx7qq

server8: iqn.2001-04.com.example.storage.tape:sys1.xyz

server9: iqn.1991-05.com.microsoft:funk.sun.com

server10: iqn.1991-05.com.microsoft:jim.bur.sun.com

server11: iqn.1991-05.com.microsoft:parash.india.sun.com

server12: iqn.1991-05.com.microsoft:pookawinxp

server13: iqn.1991-05.com.microsoft:nms-lab8

list license

Shows all licenses that are associated with the array, and related licensing details.

Synopsis

```
list -a <array-name> license [license-name [, license-name...]]
```

Description

Shows all licenses that are associated with the array, along with related licensing details (serial number, controller serial number, and further details).

-a, --array <array-name>

Specifies the array associated with this license.

license [*license-name* [, *license-name*...]]

Specifies the name of a license or licenses. If you list specific licenses, then only the details of those licenses are shown.

Examples

```
sscs list -a corporate license
```

Lists all of the licenses on the corporate array.

```
sscs list -a corp_west license ReplicationSet
```

Lists the details of the replication set license on the corp_west array.

Response Format

(when no <*license-name*> values are specified)

Array: *array-name*

WWN: *World-Wide-name*

Serial Number: *serial-number*

Featured Enable Identifier: *identifier*

License: *license-name*

Description: *description*

Status: Enabled | Disabled

Quantity Licensed: *quantity*

Quantity Used: *quantity*

Response Format

(when <license-name> values are specified)

Array: *array-name*

WWN: *World-Wide-name*

Serial Number: *serial-number*

Featured Enable Identifier: *identifier*

License: *license-name*

Description: *description*

Status: enabled | disabled

Quantity Licensed: *quantity*

Quantity Used: *quantity*

Replication License Status: Activated | Deactivated

Repository Volume: *replication-repository-name* **Size:** *number-of-megabytes* **Vdisk:** *virtual-disk-identifier*

Licensed Items Sample Formats:

Snapshot:

Licensed Items:

Base Volume:vol_b13 **Snapshot Volume:**new-snap

Base Volume:dk_rep3 **Snapshot Volume:**dk_snap1

StorageDomain:

Licensed Items:

Host Group: t_hostgroup_2

Host: MIG-1

VolumeCopy

Licensed Items:

```
Source Volume:dk_rep1 Target Volume:dk_rep2
```

```
Source Volume:dk_vol3 Target Volume:dk_rep4
```

list mapping

Lists mappings for the array.

Synopsis

```
list -a <array-name> mapping [DefaultStorageDomain|host-name|hostgroup-name [ ,DefaultStorageDomain|host-name|hostgroup-name... ] ]
```

Description

Lists mappings for the array. You can filter the output by specifying `DefaultStorageDomain`, a host name, or a host group name.

Options

-a, --array <array-name>

Specifies the array for which to list mappings.

mapping [**DefaultStorageDomain**|host-name|hostgroup-name [,**DefaultStorageDomain**|host-name|hostgroup-name...]]

Lists all mappings for the specified array. Optionally, filters the output based on `DefaultStorageDomain`, a host name, or host group name.

Examples

List all mappings for a specified array:

```
sscs list -a array1 mapping
```

```
Volume:PIVol1 LUN: 0 Mapped To: cam-oel Target Type: Host
```

```
Permission: Read/Write
```

```
Volume:PIVol2 LUN: 0 Mapped To: qlhosts Target Type: Host Group
```

```
Permission: Read/Write
```

```
Volume:PIVol3 LUN: 0 Mapped To: Default Storage Domain Target Type:
```

```
Default Storage Domain Permission: Read/Write
```

List mappings filtered by host or hostgroup name:

```
sscs list -a array1 mapping cam-oel
```

Volume:PIVol1 LUN: 0 Mapped To: cam-oe1 Target Type: Host
Permission: Read/Write

List mapping to the default domain:

```
sscs list -a array1 mapping DefaultStorageDomain
```

Volume:PIVol3 LUN: 0 Mapped To: Default Storage Domain Target Type:
Default Storage Domain Permission: Read/Write

list os-type

Shows the operating system types on this array.

Synopsis

```
list -a <array-name> os-type
```

Description

Shows all of the operating systems that are supported by the array. The values returned can be used in subsequent requests to create or modify initiators, or to modify the default host type of the array.

Options

```
-a, --array <array-name>
```

Shows the array name.

```
os-type
```

Shows all of the operating systems that are supported by the array.

Examples

```
sscs list -a testarray os-type
```

```
SOLARIS_MPXIO - Solaris (with Traffic Manager)  
SOLAVT - Solaris (with Veritas DMP or other)  
SOLTPGS - Solaris Target Port Group Support  
W2KNETNCL - Windows 2000/Server 2003 non-clustered  
W2KNETCL - Windows 2000/Server 2003 clustered  
W2KNETNCLDMP - Windows 2000/Server 2003 non-clustered (with Veritas  
DMP)
```

W2KNETCLDMP - Windows 2000/Server 2003 clustered (with Veritas DMP)
AIX - AIX
AIXAVT - AIX (with Veritas DMP)
AIX_FO - AIX failover (6xxx)
IBM_TS_SAN_VCE
HPX - HPUX
IRX - Irix
LNX - Linux
LNXAVT - Linux (with Veritas DMP)
NWRFO - Netware failover
VMWARE - VMware
HPXTPGS - HPUX Target Port Group Support

list performance

Shows detailed performance statistics.

Synopsis

```
list -a <array-name [ ,array-name... ]> -T performance  
  
list -a <array-name [ ,array-name... ]> -t  
<array_stats|controller_stats|volume_stats> [-c <A|B>] [-h <host-  
name [ ,host-name... ]>] [-g <hostgroup-name [ ,hostgroup-name... ]>] [-v <volume-  
name [ ,volume-name... ]>] [-s  
<name|total_iops|read_percent|write_percent|total_data|avg_read_si  
ze|avg_read_rate|peak_read_rate|avg_write_size|avg_write_rate|peak  
_write_rate|cache_hit_percent>] performance
```

Description

Shows detailed performance statistics. You can use the following options only if a single array is specified:

--controller, --volume, --host, and --hostgroup

Note – When using the local CLI `sscs` command, performance monitoring must be enabled before executing the **list performance** subcommand. Performance monitoring is turned on via the **modify performance** subcommand. See [“modify performance” on page 182](#) for further information.

Options

-a, --array <array-name>

Specifies the array or arrays associated with this performance request.

-T, --settings

Shows the current settings for the array, including state, polling interval, and data retention period. If this option is specified, all other options (except array) are ignored.

-t, --type <array_stats|controller_stats|volume_stats>

Specifies the type of statistics to list: array, controller, or volume.

-c, --controller <A|B>

Specifies the controller name.

-v, --volume <volume-name[, volume-name...]>

Specifies the volume name or volume names associated with this performance request.

-h, --host <host-name[, host-name...]>

Specifies the host name or host names associated with this volume.

-g, --hostgroup <hostgroup-name[, hostgroup-name...]>

Specifies the host group or host groups associated with this volume.

-s, --sort

<name|total_iops|read_percent|write_percent|total_data|avg_read_size|avg_read_rate|peak_read_rate|avg_write_size|avg_write_rate|peak_write_rate|cache_hit_percent>

Specifies the sorting mechanism.

performance

Specifies the performance subcommand.

Examples

Response Format

(if settings are specified)

Array: *array-name*

State: on | off

Polling Interval: 1 minute | 5 minutes | 15 minutes

Data Retention Period: forever | 1 hour | 2 hours | 4 hours | 1 day

Response Format

```
NAME TOT IOPS READ % WRITE% TOT DATA AVG R SIZE AVG R /s PEAK R /s ....
==== =====
vol1      0.0    0.00    0.00      0.0        0.0        0.0        0.0
...
vol2      3.6    7.32   34.77   1030.3      32.7        4.5       10.4
```

list pool

Lists storage pool information.

Synopsis

```
list -a <array-name> pool [pool-name[, pool-name...]]
```

Description

Lists storage pool information.

Options

-a, --array <array-name>

Specifies the array associated with this pool. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

pool [pool-name[, pool-name...]]

Specifies the pool or pools for which you want detailed information. If no pools are specified, this subcommand lists summary information for all pools.

Examples

```
sscs list -a array01 pool SP048763
```

Response Format

(summary of all pools when no *<pool-name>* value is specified)

Pool: *pool-name* **Profile:** *profile-name* **Configured Capacity:** *capacity*

....

Pool: *pool-name* **Profile:** *profile-name* **Configured Capacity:** *capacity*

Response Format

(detail of a pool when a *<pool-name>* value is specified)

Pool: *pool-name*

Description: *description*

Profile: *profile-name*

Total Capacity: *capacity* MB | GB | TB

Configured Capacity: *capacity* MB | GB | TB

Available Capacity: *capacity* MB | GB | TB

Volume: *volume-name1*

Volume: *volume-name2*

list profile

Lists the named storage profiles.

Synopsis

```
list -a <array-name> profile [profile-name [, profile-name...]]
```

Description

Lists the named storage profiles.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this profile.

profile [*profile-name* [, *profile-name*...]]

Specifies the profile or profiles for which you want detailed information. If no profiles are specified, this subcommand lists summary information for all profiles.

Examples

```
sscs list -a array00 profile MyProfile
```

Response Format

(summary of all profiles when no *<profile-name>* value is specified)

Profile: *profile-name*

...

Profile: *profile-name*

Response Format

(detail of a profile when a *<profile-name>* value is specified)

Profile: *profile-name*

Profile in Use: yes | no

Factory Profile: yes | no

Description: *profile-description*

RAID Level: 0 | 1 | 3 | 5 | 6

Segment Size: 8 KB | 16 KB | 32 KB | 64KB | 256KB

Read Ahead: on | off

Optimal Number of Drives: variable | 2..30

Disk Type: ANY | FC | SATA | SAS | SSD

Pool: *pool-name*

....

Pool: *pool-name*

list repset

Lists replication set information (not applicable to 2500 Series).

Synopsis

```
list -a <array-name> repset [repset-name [, repset-name...]]
```

Description

Lists replication set information.

Options

-a, --array <array-name>

Specifies the array from which you want to obtain replication set information. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

repset [repset-name [, repset-name...]]

Specifies the replication set or sets. If you do not specify a replication set, then a summary of all the replication sets on the array is listed.

Examples

```
sscs list -a corporate repset
```

Lists all of the repsets on the array named corporate.

```
sscs list -a corporate repset mail/1
```

Lists the details of the replication set mail/1 on the array named corporate.

Response Format

(summary of all replication sets when no replication set name is specified)

```
Replication set: local-volume-name/1 Consistency Group: yes | no Remote volume: remote-vol Replication Peer: replication-peer-name
```

...

```
Replication set: local-volume-name/1 Consistency Group: yes | no Remote volume: remote-vol Replication Peer: replication-peer-name
```

Response Format

(details when a replication set name is specified)

Replication set: *repset-name*

Local volume: *volume-name*

Synchronization progress: Replicating | Unsynchronized | Synchronization in progress | Suspended | Failed | Not Ready | Failed Suspended

Role: Primary | Secondary

Size: *size-in-megabytes*

Replication peer: *remote-array-name*

Replication peer WWN: *remote-array-WWN*

Remote volume: *remote-volume-name*

Remote volume WWN: *remote-volume-WWN*

Mode: Synchronous | Asynchronous

Consistency group: yes | no

Replication priority: lowest | low | medium | high | highest

Auto synchronize: Enabled | Disabled

list sasport

Lists SAS port information.

Synopsis

```
list -a <array-name> [-c <A|B>] sasport [sasport-id [, sasport-id...]]
```

Description

Lists pertinent SAS port information.

Options

-a, --array <array-name>

Specifies the array for which you want to obtain SAS port information.

-c, --controller <A|B>

Specifies the controller for which you want to view SAS port information. If no controller is specified, summary information for both controllers is displayed.

sasport [*sasport-id* [, *sasport-id*...]]

Specifies the SAS port or ports for which you want information. Ports are specified as A/1 to A/4 and B/1 to B/4. If no SAS port is specified, details for all ports are displayed.

Examples

```
sscs list -a Quartz sasport
```

```
Array: Quartz
```

```
Controller:      B
SAS Port:        B/1
Port WWN:        50:0A:0B:81:D2:BA:60:04
Speed:           1 Gb/s
Maximum Speed:   7 Gb/s
Channel Number:  1
Link Status:     Up
```

```
Array: Quartz
```

```
Controller:      B
SAS Port:        B/2
Port WWN:        50:0A:0B:81:D2:BA:60:0C
Speed:           1 Gb/s
Maximum Speed:   7 Gb/s
Channel Number:  2
Link Status:     Up
```

Array: Quartz

Controller: B
SAS Port: B/3
Port WWN: 50:0A:0B:81:D2:BA:60:08
Speed: 1 Gb/s
Maximum Speed: 7 Gb/s
Channel Number: 3
Link Status: Up

Array: Quartz

Controller: A
SAS Port: A/1
Port WWN: 50:0A:0B:81:D2:BB:10:04
Speed: 1 Gb/s
Maximum Speed: 7 Gb/s
Channel Number: 1
Link Status: Up

Array: Quartz

Controller: A
SAS Port: A/2
Port WWN: 50:0A:0B:81:D2:BB:10:0C
Speed: 1 Gb/s
Maximum Speed: 7 Gb/s
Channel Number: 2
Link Status: Up

Array: Quartz

```
Controller:      A
SAS Port:       A/3
Port WWN:       50:0A:0B:81:D2:BB:10:08
Speed:          1 Gb/s
Maximum Speed:  7 Gb/s
Channel Number: 3
Link Status:    Up
```

list snapshot

Lists the specified snapshot or snapshots associated with this array.

Synopsis

```
list -a <array-name> snapshot [snapshot-name [ , snapshot-name... ]]
```

Description

Lists the specified snapshot or snapshots associated with this array.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this snapshot.

```
snapshot [snapshot-name [ , snapshot-name... ]]
```

Specifies the snapshot or snapshots you want to view. If you do not specify a snapshot, the names of all the snapshots in the array are listed.

Examples

```
sscs list -a array00 snapshot snap1
```

Response Format

(when no <*snapshot-name*> value is specified)

Snapshot: *snapshot-name*

...

Snapshot: *snapshot-name*

Response Format

(detailed output if one or more *<snapshot-name>* values are specified)

Volume: *snapshot-volume-name*

Type: *snapshot*

WWN: *WWN*

Virtual Disk: *virtual-disk-name-of-parent-volume*

Size: *size-of-parent* MB

State: *state*

Status: *status*

Action: *action*

Condition: Optimal | Degraded | Failed | Impaired

Controller: A | B

Preferred Controller: A | B

Modification Priority: lowest | low | medium | high | highest

Write Cache: Enabled | Disabled

Write Cache With Replication: Enabled | Disabled

Write Cache Without Batteries: Enabled | Disabled

Flush Cache After: *time*

Disk Scrubbing: Enabled | Disabled

Disk Scrubbing With Redundancy: Enabled | Disabled

Percent Full: *0..100%*

Failure Policy: failbasewrite | failsnapshot

Warning Threshold: *0..100*

Creation Date: *date*

Base Volume: *base-volume-name*

Reserve Volume: *reserve-volume-name*

Reserve Status: online | offline

Reserve Size: *n*

Response Format Notes:

Pools and profiles may be empty, and represented by the symbol '-' (dash).

For a standard volume, this indicates that the current configuration for the volume does not fall into any pool's defined parameters. For snapshot volumes these values will always be empty.

list tray

Lists information about one or more storage trays in the array.

Synopsis

```
list -a <array-name> tray [tray-name [, tray-name...]]
```

Description

Lists information about one or more storage trays in the array.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this tray.

```
tray [tray-name [, tray-name...]]
```

Specifies the tray ID or tray IDs you want to display. If no tray ID is specified, then the names of all the trays in the array are listed.

Examples

```
sscs list -a array01 tray 1
```

Response Format

(summary of all trays when no <tray-ID> value is specified)

Tray: *tray-ID*

....

Tray: *tray-ID*

Response Format

(detail of a tray when a <tray-ID> value is specified)

Tray: *tray-ID*

Array Type: 6140

Role: Drive Module | Controller Module | Unknown

State: Enabled | Disabled

Status: OK | ID mismatch | ID conflict | ESM firmware mismatch ESM
miswire | minihub speed mismatch | unsupported

Disk Type: FC | SATA | SAS | SSD

Number of Disks: *n*

list vdisk

Lists virtual disk (vdisk) or virtual disks information associated with this array.

Synopsis

```
list -a <array-name> vdisk [virtual-disk-name [ , virtual-disk-name... ] ]
```

Description

Lists virtual disk (vdisk) or virtual disks information associated with this array.

Options

-a, --array <array-name>

Specifies the array or arrays associated with this virtual disk.

vdisk [*virtual-disk-name* [, *virtual-disk-name...*]]

Specifies the virtual disk or disks you want to show. If no virtual disk names are specified, all virtual disk names are listed.

Examples

```
sscs list -a array01 vdisk 1
```

Response Format (summary of all vdisks when no *<virtual-disk-name>* value is specified)

VDisk: *virtual-disk-name*

....

VDisk: *virtual-disk-name*

Response Format (detail of a vdisk when a *<virtual-disk-name>* value is specified)

Virtual Disk: *virtual-disk-name*

Status: Optimal | Degraded | Failed | Impaired

State: *State (Ready, Degraded, etc.)*

Number of Disks: *number-of-disks*

RAID Level: 0 | 1 | 3 | 5 | 6

Hot Spare Coverage: Yes | No

Total Capacity: *capacity*

Configured Capacity: *capacity*

Available Capacity: *capacity*

Array Name: *array-name*

Array Type: *array-type*

Disk Type: FC | SATA | SAS | SSD

Security: *security-status*

Protection Information: Capable | None

Maximum Volume Size: *size*

Associated Disks:

Disk: *disk-name*

....

Disk: *disk-name*

Associated Volumes:

Volume: *volume-name*

....

Volume: *volume-name*

list volume

Lists volume information.

Synopsis

```
list -a <array-name> [-p <pool-name>] [-v <virtual-disk-name>] volume [volume-name [ , volume-name... ] ]
```

Description

Lists volume information.

Options

-a, --array <array-name>

Specifies the array associated with this volume. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-p, --pool <pool-name>

Specifies the pool name associated with this volume. If a pool is specified, all volumes in that pool are listed.

-v, --vdisk <virtual-disk-name>

Specifies the *virtual-disk* associated with this volume.

volume [*volume-name* [, *volume-name*...]]

Specifies the volume name or names associated with this array. If no volumes are specified, a summary of all volumes is listed. Use pool and virtual-disk to display listed volumes.

Examples

```
sscs list -a array01 -p pool1 volume ORACLE-1
```

Response Format (summary of all volumes when no *<volume-name>* value is specified)

Volume: *volume-name* **Type:** *type* **Pool:** *pool-name* **Profile** *profile-name*

....

Volume: *volume-name* **Type:** *type* **Pool:** *pool-name* **Profile** *profile-name*

Response Format (detailed output if specified volume is a standard, source, or target volume)

Volume: *volume-name*

Type: Standard | Source | Target | Replicated

WWN: *WWN*

Pool: *pool-name*

Profile: *profile-name*

Virtual Disk: *virtual-disk-name*

Size: *size*

State: Free | Mapped

Status: Online | Offline

Action: *current-action*

Condition: Optimal | Degraded | Failed | Impaired

Read Only: Yes | No

Controller: A | B

Preferred Controller: A | B

Modification Priority: Lowest | Low | Medium | High | Highest

Write Cache: Enabled | Disabled

Write Cache With Replication: Enabled | Disabled

Write Cache Without Batteries: Enabled | Disabled

Flush Cache After: *time*

Disk Scrubbing: Enabled | Disabled

Disk Scrubbing With Redundancy: Enabled | Disabled

Security: *security-status*

Protection Information: Enabled | Disabled

Application Tag Ownership: Host | Controller

Volume Copy Targets:

Target Volume: *volume-name*

...

Target Volume: *volume-name*

Snapshot: *snapshot-name* **Creation Time:** *time* **Reserve:** *reserve*

...

Snapshot: *snapshot-name* **Creation Time:** *time* **Reserve:** *reserve*

Associations:

Host: *host-name* **LUN:** *LUN-ID* **Initiator:** *initiator* **WWN:** *WWN* **Permission:** *permission*

or

Host Group: *hostgroup-name* **LUN:** *LUN-ID* **Initiator:** *initiator* **WWN:** *WWN*
Permission: *permission*

Response Format Notes:

Pools and profiles can be empty, in which case they are represented by the symbol '-' (dash).

For a standard volume, this indicates that the current configuration for the volume does not fall into any pool's defined parameters.

list volume-copy

Lists volume-copy information (not applicable to 2500 Series).

Synopsis

```
list -a <array-name> [-s <volume-name [ , volume-name... ]>]  
[-t <volume-name [ , volume-name... ]>] volume-copy
```

Description

Lists volume copy information. If neither the source volume nor the target volume is specified, a summary of all volume copies is listed. If the source volume or the target volume is specified, a detailed listing of each is generated.

Options

-a, --array <array-name>

Specifies the array associated with the volumes that you want to list.

-s, --source-volume <volume-name [, volume-name...]>

Specifies the source volume or volumes that you want to list.

-t, --target-volume <volume-name [, volume-name...]>

Specifies the target volume or volumes that you want to list.

Examples

```
sscs list -a array00 -s vol1,vol3 volume-copy
```

Response Format

(summary of all volume copies when no volume copy name is specified)

```
Source Volume: source-volume-name Target Volume: target-volume-name
```

```
...
```

```
Source Volume: source-volume-name Target Volume: target-volume-name
```

Response Format

(detailed output if a <volume-copy> value is specified)

```
Volume Copy:
```

```
Source Volume: source-volume-name
```

```
Target Volume: target-volume-name
```

```
Target Read Only: Enabled | Disabled
```

```
Status: In Progress | Completed | Stopped
```

```
Percent Complete: 0...100
```

Priority: lowest | low | medium | high | highest

Copy Start Timestamp: *timestamp*

Copy Completion Timestamp: *timestamp*

map host

Maps one or more volumes to a host.

Synopsis

```
map -a <array-name> -s <snapshot-name [, snapshot-name...]> [-l <0..255>] host <host-name>
```

```
map -a <array-name> -v <volume-name [, volume-name...]> [-l <0..255>] host <host-name>
```

Description

Maps one or more volumes and snapshots to a host. Any previous mappings for the given volumes and snapshots are removed.

Options

-a, --array <array-name>

Specifies the array associated with this host. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-l, --lun-id <0..255>

Specifies a logical unit number (LUN). A LUN can be specified only when mapping a single volume. If no LUN is specified, as many successive unused LUNs as needed are used, starting with the first available LUN. You can have up to 256 LUNs per host or hostgroup.

-s, --snapshot <snapshot-name [, snapshot-name...]>

Specifies the snapshot volume name or names associated with this host.

-v, --volume <volume-name [, volume-name...]>

Specifies the volume associated with this host.

host <host-name>

Specifies the host that you want to map to the volume.

Examples

```
sscs map -a array00 -v vol101,vol102 host host01
```

map hostgroup

Maps one or more volumes to a host group.

Synopsis

```
map -a <array-name> [-s <snapshot-name [ , snapshot-name... ]>] [-v <volume-name [ , volume-name... ]>] [-l <0..255>] hostgroup <hostgroup-name>
```

Description

Maps one or more volumes and snapshots to a host group. Any previous mappings for the given volumes or snapshots are removed.

Options

-a, --array <array-name>

Specifies the array associated with this host group.

-v, --volume <volume-name [, volume-name...]>

Specifies the volumes to be mapped to this host group.

-s, --snapshot <snapshot-name [, snapshot-name...]>

Specifies the snapshot volumes to be mapped to this host group.

-l, --lun-id <0..255>

Specifies the LUN ID of the initiator that you want to map to this host group. A LUN can be specified only when mapping a single volume. If no LUN is specified, as many successive unused LUNs as necessary are used, starting with the first available unused LUN. You can have up to 256 LUNs per host or hostgroup.

hostgroup <hostgroup-name>

Specifies the host group name.

Examples

```
sscs map -a array00 -v vol01,vol02 hostgroup hg01
```

map initiator

Maps one or more initiators to a volume or snapshot.

Synopsis

```
map -a <array-name> [-v <volume-name[, volume-name...]>] [-s <snapshot-name[, snapshot-name...]>] [-l <0..255>] initiator <initiator-name>
```

Description

Maps an initiator to a volume or snapshot. Any previous mappings for the given volumes or snapshots are removed.

Options

-a, --array <array-name>

Specifies the array associated with the initiator. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-l, --lun-id <0..255>

Specifies the logical unit number of this initiator. A LUN can be specified only when mapping a single initiator. If no LUN is specified, the first available LUN is used. You can have up to 256 LUNs per host or hostgroup.

-s, --snapshot <snapshot-name[, snapshot-name...]>

Specifies the snapshot volumes to be mapped to this initiator.

-v, --volume <volume-name[, volume-name...]>

Specifies the volumes to be mapped to this initiator.

initiator <initiator-name>

Specifies the initiator name to which the array is being mapped. If no volume or snapshot is specified, the initiator is mapped into the default partition.

Examples

```
sscs map -a array00 -v v01 initiator init01
```

map snapshot

Maps one or more snapshots to a host or host group.

Synopsis

```
map -a <array-name> [-i <initiator-name>] [-h <host-name>] [-g <hostgroup-name>]  
[-l <0..255>] snapshot <snapshot-name [ , snapshot-name... ]>
```

Description

Maps one or more snapshots to a host or host group. If no host or host group is specified, the snapshot or snapshots are mapped into the Default partition.

Options

-a, --array <array-name>

Specifies the array associated with this snapshot. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-g, --hostgroup <hostgroup-name>

Specifies the host group that you want to map to the snapshots.

-h, --hostname <host-name>

Specifies the host that you want to map to the snapshot.

-i, --initiator <initiator-name>

Specifies the initiator that you want to map to the snapshot.

-l, --lun-id <0..255>

Specifies the logical unit number of this initiator. A LUN can be specified only when mapping a single volume. If no LUN is specified, the first available LUN is used. You can have up to 256 LUNs per host or hostgroup.

snapshot <snapshot-name [, snapshot-name...]>

Specifies the name or names of the snapshot you want to map. Any previous mappings for the snapshots will be removed.

Examples

```
sscs map -a array00 -g hg01 snapshot snap1, snap2
```

map volume

Maps one or more volumes to a host or host group.

Synopsis

```
map -a <array-name> [-i <host-name>] [-h <host-name>] [-g <hostgroup-name>]  
[-l <0..255>] volume <volume-name [ , volume-name... ]>
```

Description

Maps one or more volumes to a host or host group. Any previous mappings for the given volume or volumes are removed.

Options

-a, --array <array-name>

Specifies the array associated with this volume. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-g, --hostgroup <hostgroup-name>

Specifies the host group name associated with this volume.

-h, --host <host-name>

Specifies the host that you want to map to the volume.

-i, --initiator <host-name>

Specifies the initiator that you want to map to the volume.

-l, --lun-id <0..255>

Specifies the logical unit number of this initiator. A LUN can be specified only when mapping a single volume. If no LUN is specified, the first available LUN is used. You can have up to 256 LUNs per host or hostgroup.

volume <volume-name [, volume-name...]>

Specifies the volume name to which the array is being mapped.

If no host or host group is specified, the volume or volumes are mapped into the default partition.

Examples

```
sscs map -a array00 -g hg01 volume vol101,vol102
```

modify array

Modifies the configuration of the specified array.

Synopsis

```
modify -N <array-name> array <array-id>
```

```
modify [-o <string>] [-s <0..100>] [-S <0..100>] [-k <disable|1..30>]  
[-f <0..60>] [-h <0..max-supported>] [-T <wwn|array_name>] [-b  
<4K|8K|16K|32K>] [-N <array-name>] [-p] array <array-id>
```

```
modify -R [-T <wwn|array_name>] array <array-id>
```

```
modify -c  
<HHMM|mmddHHMM|mmddHHMM.SS|mmddHHMMyy|mmddHHMMccyy|mmddHH  
MMccyy.SS> array <array-id>
```

```
modify [-L [prefix]] array <array-id>
```

Description

Modifies the configuration of the specified array.

Options

```
-b, --cache-block-size <4K|8K|16K|32K>
```

Specifies the cache block size.

```
-c, --learn-cycle
```

```
<HHMM|mmddHHMM|mmddHHMM.SS|mmddHHMMyy|mmddHHMMccyy|mmddHH  
MMccyy.SS>
```

Specifies when the next array battery learn cycle will occur:

```
mmdd
```

Specifies the month and day. For example, 0331 is March 31.

HHMM

Specifies the hour and minute. The hour is based on a 24-hour clock. For example, 1:30 p.m. is 1330.

cc

Specifies the century part of the year.

yy

Specifies the two-digit year.

.SS

Specifies the seconds of the hour.

During a learn cycle, the battery is discharged and recharged so the controller can determine the current battery capacity. The default learn cycle interval for StorageTek 2500 series arrays is 13 weeks. The default learn cycle interval for Sun Storage 2500-M2, 6180, 6580, and 6780 arrays is 8 weeks.

Note – A complete learn cycle (discharge and recharge) can take between 8-26 hours, depending on array model. During this time, write caching is disabled for 2500 series arrays. For the 2500-M2 series, 6180, 6580, and 6780 arrays, write caching is not disabled, and the cache remains active during the learn cycle.

-f, --failover-alert <0..60>

Specifies the number of minutes that the management software is to wait after an alert before enacting failover procedures.

-h, --hot-spare <0..max-supported>

Specifies the hot-spare count for the array. When a hot-spare drive count is specified, an algorithm distributes hot-spare drives across the trays of the array. To set a specific drive as a hot spare, use the subcommand [modify disk](#). The hot-spare count limit is dependent on the array:

- Unlimited for StorageTek 6140, 6540, and FlexLine 380 arrays running firmware version 07.15.nn.nn or higher.
- Unlimited for Sun Storage 2500-M2, 6180, 6580, and 6780 arrays.
- 15 for all other Sun StorEdge, StorageTek, and FlexLine arrays.

-k, --disk-scrubbing <disable|1..30>

Specifies the period of days after which the system scrubs the disk. Disk scrubbing is disabled by default.

-L, --lock-key [*<prefix>*]

Specifies for the array to generate a new array lock key using the specified lock key prefix. If no prefix value is specified, the array name is used as the prefix. The command will prompt you for a new pass phrase. To ensure accuracy, you will be prompted to enter the pass phrase twice. If the new pass phrase is accepted, all existing unlocked secure drives on the array will be rekeyed with the new lock key.

Note – Successful execution of this command produces XML standard output that can be redirected to a file on the local system. A copy of the lock key will be retained by Sun Storage Common Array Manager as a backup, with older lock keys being obsoleted.

-N, --new-name <array-name>

Specifies the new name of the array.

-o, --os-type <string>

Specifies the operating system (OS) type. Use the command **sscs list -a <array-name> os-type** to view all of the operating systems that are supported by the array. Then, use an applicable OS type value for <string>.

Note – This specified OS type is applicable for volumes on the specified array mapped via the Default Storage Domain (i.e. not currently mapped to a specific initiator via a host/hostgroup). Volumes mapped explicitly to an initiator use the OS type specified by that initiator.

-p, --password <password>

Specifies to update the array password.

-R, --redistribute-volumes

Specifies to redistribute volumes on the specified array naming type.

-s, --cache-start <0..100>

Specifies the percentage of unwritten data in the cache that will trigger a cache flush. The value of **--cache-start** must be greater than the value for **--cache-stop**.

-S, --cache-stop <0..100>

Specifies the array cache stop.

-T, --name-type <wwn|array_name>

Specifies the array naming type used for <array-id> when specifying the array to be modified. The default is **array_name**.

array <array-id>

Specifies the ID of the array to be modified. The ID can be either the array's name or WWN, as specified for **-T,--name-type**.

Examples

```
sscs modify -f 30 -T array_name array ARRAY1
```

modify controller

Modifies the controller settings.

Synopsis

```
modify -a <array-name> [-e <1|2>] [-d <on|off>] [-i <ip-address>] [-g <ip-address>] [-m <netMask>] controller <A|B>
```

Modifies the Ethernet port of a controller using the specified IP parameters.

```
modify -a <array-name> [-e <1|2>] -d <on|off> controller <A|B>
```

Modifies the IP parameters of a controller's Ethernet port using the Dynamic Host Control Protocol (DHCP).

```
modify -a <array-name> -E controller <A|B>
```

Verifies the network connectivity between the array controller and the management software.

```
modify -a <array-name> -e <1|2> [-d <on|off>] [-v <enable|disable>] [-i <ip-address>] [-g <ip-address>] [-m <netMask>] controller <A|B>
```

Modifies controller IP parameters, including option to enable or disable IPv4.

Note – Not supported by all array models.

```
modify -a <array-name> -e <1|2> [-V <enable|disable>] [-I <v6-ip-address>]
[-r <v6-ip-address>] [-S <enable|disable>] [-s
<PORT_AUTO_NEGOTIATED|PORT_10MBPS_HALF_DUPLEX|PORT_10MBPS_FULL_DUP
LEX|PORT_100MBPS_HALF_DUPLEX|PORT_100MBPS_FULL_DUPLEX|PORT_1000MBP
S_FULL_DUPLEX>] controller <A|B>
```

Modifies controller Ethernet port and IP parameters, including IPv6 options and port speed.

Note – IPv6 and port speed are not supported by all array models and firmware versions.

Options

-a, --array <array-name>

Specifies the array associated with this controller.

-d, --dhcp <on|off>

Specifies whether the dynamic host control protocol (DHCP) is active.

-e, --ethernet-port <1|2>

Specifies the Ethernet port number.

-E, --test-communication

Verifies the network connectivity between the array controller and the management software.

-g, --gateway <gateway-address>

Specifies the gateway IP address. IP addresses can be either Domain Name System (DNS) names or dotted decimal addresses.

-i, --ipaddress <IP-address>

Specifies the controller's IP address. IP addresses can be either Domain Name System (DNS) names or dotted decimal addresses.

-I, --v6-address <v6-ip-address>

Specifies IPv6 IP address.

Note – This option cannot be used in conjunction with the **-S,--stateless** option.

-m, --netmask <netmask>

Specifies the controller's network mask.

-r, --router <v6-ip-address>

Specifies router IP address.

-s, --speed
<PORT_AUTO_NEGOTIATED|PORT_10MBPS_HALF_DUPLEX|PORT_10MBPS_FULL_DUPLEX|PORT_100MBPS_HALF_DUPLEX|PORT_100MBPS_FULL_DUPLEX|PORT_100MBPS_FULL_DUPLEX>

Specifies the port speed. The port speed option is not supported by all array models.

-S, --stateless <enable|disable>

Specifies to enable or disable the capability of the device to auto-generate its address using portions of the router's subnet and the device's interface identifier.

Note – This option cannot be used in conjunction with the **-I,--v6-address** option. The **-I** option is considered stateful and indicates an exact desired address.

-V, --ip-v6 <enable|disable>

Enables or disables IPv6. IPv6 is not supported by all array models and firmware versions.

-v, --ip-v4 <enable|disable>

Enables or disables IPv4.

controller <A|B>

Specifies the controller to modify.

Examples

```
sscs modify -a array00 -g 10.0.5.2 controller A
```

```
sscs modify -a array00 -e 2 -d on controller A
```

```
sscs modify -a array00 -E controller B
```

modify date

Modifies the date on the array.

Synopsis

```
modify -a <array-name> [-G <true|false>] [-s] date  
<HHMM|mmddHHMM|mmddHHMM.SS|mmddHHMMyy|mmddHHMMccyy|mmddHH  
MMccyy.SS>
```

Description

Modifies the date on the array, allowing you to set the time on the array, or to synchronize the time with the management host (that is, setting the array's time to the management host's time.)

Options

-a, --array <array-name>

Specifies the array for which you want to specify date information.

-G, --GMT <true|false>

Specifies whether to set Greenwich Mean Time (GMT) to true or false. If GMT is set to true, the date is GMT time. If GMT is set to false, the local time zone on the host system is assumed.

-s, --synchronize

Specifies whether to synchronize the date with the date on the element manager host. If this option is already set, you will not be able to specify a date.

date

Specifies the date.

mmdd

Specifies the month and day. For example, 0331 is March 31.

HHMM

Specifies the hour and minute. The hour is based on a 24-hour clock. For example, 1:30 p.m. is 1330.

cc

Specifies the century part of the year.

yy

Specifies the two-digit year.

.SS

Specifies the seconds of the hour.

Examples

```
sscs modify -G false date 010112002003.00
```

modify disk

Specifies a disk's role or prepares a secure disk (or disks) for use in non-secure volumes through erasure.

Synopsis

```
modify -a <array-name> -h <true|false> disk <disk-name[ ,disk-name...]>  
modify -a <array-name> -e [-t <tray-name>] disk <disk-name[ ,disk-name...]>
```

Description

This command either specifies a disk's role or prepares a secure disk (or disks) for use in non-secure volumes through erasure.

Options

-a, --array <array-name>

Specifies the array associated with the specified disk(s).

-e, --erase

Specifies to erase all data from specified security-enabled disk(s) not currently used in any volume group. This will prepare the specified disk(s) for use in non-secure volume groups.

Caution – This command will destroy all data on the specified disk(s) and is an irreversible operation.

-h, --hot-spare <true|false>

Specifies whether you want this disk to be a designated hot-spare.

-t, --tray <tray-name>

Specifies the tray name associated with the specified disk(s).

disk <disk-name [, disk-name...]>

Specifies the disk that you want to modify.

Examples

```
sscs modify -a array00 -h true disk t0d01
```

modify fcport

Modifies the Fibre Channel port settings on the specified array.

Synopsis

```
modify -a <array-name> [-c <A|B>] -l <0..125|n/a|any> fcport <fcport-id>
```

Description

Modifies the Fibre Channel port settings on the specified array.

Options

-a, --array <array-name>

Specifies the array associated with this controller.

-c, --controller <A|B>

Specifies the controller.

-l, --loop-id <0..125|n/a|any>

Specifies the preferred loop ID.

fcport <fcport-id>

Specifies the Fibre Channel port number that you want to modify. Ports are specified as A/1 to A/4 and B/1 to B/4. If no FC port is specified, details for all ports are displayed.

Examples

```
sscs modify -a array00 -c B -l 125 fcport 1
```

modify host

Modifies the host name.

Synopsis

```
modify -a <array-name> [-N <host-name>] [-g <hostgroup-name>] host <host-name>
```

Description

Modifies the host name.

Options

-a, --array <array-name>

Specifies the array associated with this host. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-N, --new-name <host-name>

Specifies the new name for the host.

-g, --hostgroup <hostgroup-name>

Specifies the host group into which to include this host.

host <host-name>

Specifies the current host name.

Examples

```
sscs modify -a array00 -N host02 host host01
```

modify hostgroup

Modifies the host group name.

Synopsis

```
modify -a <array-name> -N <hostgroup-name> hostgroup <hostgroup-name>
```

Description

Modifies the host group name.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this host group.

```
-N, --new-name <hostgroup-name>
```

Specifies the new name for the host group.

```
hostgroup <hostgroup-name>
```

Specifies the current name of the host group that you want to rename.

Examples

```
sscs modify -a array00 -N hg02 hostgroup hg01
```

modify initiator

Modifies an initiator.

Synopsis

```
modify -a <array-name> [-h <host-name>] [-N <initiator-name>] [-T  
<iqn|initiator_name>] [-o <string>] [-u <none|CHAP>] initiator <initiator-  
id>
```

Modifies an iSCSI initiator.

```
modify -a <array-name> [-h <host-name>] [-N <initiator-name>] [-T
<wwn|initiator_name>] [-o <string>] initiator <initiator-id>
```

Modifies a FC initiator.

Description

Modifies the initiator.

Options

```
-a, --array-name <array-name>
```

Specifies the array for which you want to modify the initiator. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

```
-h, --host <host-name>
```

Specifies the new host to be associated with this initiator.

```
-N, --new-name <initiator-name>
```

Specifies the new initiator name.

```
-T, --name-type <<iqn|initiator_name>|<wwn|initiator_name>>
```

Specifies the initiator identifier type. For the iSCSI variant, specify **iqn** for an iSCSI qualified name (IQN) or **initiator_name** for a named initiator. For the FC variant, specify **wwn** for a World Wide Name or **initiator_name** for a named initiator. You can modify the WWN if the initiator is offline only.

```
-o, --os-type <string>
```

Specifies the operating system (OS) type. Use the command **sscs list -a <array-name> os-type** to view all of the operating systems that are supported by the array. Then, use an applicable OS type value for <string>.

```
-u, --authentication <none|CHAP>
```

Specifies to use the Challenge Handshake Authentication Protocol (CHAP) authentication method for accessing the target. Values are CHAP or none.

```
initiator <initiator-id>
```

Specifies the initiator identifier.

Examples

```
sscs modify -a array00 -N Lexington_01 initiator myInitiator_01
```

modify iperformance

Modifies the settings for iSCSI performance data.

Synopsis

```
modify -a <array-name> [-S <on|off>] [-p <1|5|15>] [-r  
<forever|1HR|2HR|4HR|1DAY>] [-b <true|false>] iperformance
```

Description

Modifies the settings for iSCSI performance data.

Options

-a, --array <array-name>

Specifies the name of the array for which you want to modify.

-S, --status <on|off>

Enables or disables iSCSI performance monitoring.

-p, --poll <1|5|15>

Specifies the poll interval frequency as 1, 5, or 15 minutes.

-r, --retention <forever|1HR|2HR|4HR|1DAY>

Specifies the period of time you want to retain the performance data in cache.

-b, --baseline <true|false>

Sets the baseline time for the iSCSI array. If true, the current array time is used as the baseline time.

Examples

```
sscs modify -a iSCSILCA_2 -S on -p 5 iperformance
```

modify iscsi-port

Modifies an iSCSI port.

Synopsis

```
modify -a <array-name> [-c <A|B>] [-p <3260|49152..65535>] [-m <1500..9000>]
[-P <enable|disable>] [-d <on|off>] [-i <ip-address>] [-g <ip-address>] [-n
<netMask>] [-v <enable|disable>] [-V <0..4096>] [-e <enable|disable>]
[-E <0..7>] iscsi-port <iscsi-port-id>
```

```
modify -a <array-name> [-c <A|B>] [-p <3260|49152..65535>] [-m <1500..9000>]
[-P <enable|disable>] [-i6 <enable|disable>] [-I <v6-ip-address>] [-r
<router ip Address>] [-r1 <routable ip address #1>] [-r2 <routable ip address #2>] [-S
<enable|disable>] [-v6 <enable|disable>] [-V6 <0..4096>] [-e6
<enable|disable>] [-E6 <0..7>] iscsi-port <iscsi-port-id>
```

Description

Modifies an iSCSI port configured for a specified array.

Options

a, --array <array-name>

Specifies the array for which you want to modify the iSCSI port.

-c, --controller <A|B>

Specifies the controller.

-d, --dhcp <on|off>

Turns DHCP on or off.

-E, --ethernet-priority-value <0..7>

Specifies the ethernet priority value.

-e, --ethernet-priority <enable|disable>

Enables or disables the ethernet priority.

-E6, --ipv6-ethernet-priority-value <0..7>

Specifies the IPv6 ethernet priority value.

-e6, --ipv6-ethernet-priority <enable|disable>

Specifies to enable or disable IPv6 ethernet priority.

-g, --gateway <ip-address>

Specifies the IP address gateway.

-i, --ipaddress <ip-address>

Specifies the IP address.

-i6,--ip-v6 <enable|disable>

Specifies to enable or disable IPv6.

-I,--ipv6-address <v6-ip-address>

Specifies the IPv6 address.

-m,--max-trans-unit <1500..9000>

Specifies the max-trans-unit.

-n,--netmask <netMask>

Specifies the netMask.

-P,--icmp-ping <enable|disable>

Enables or disables the ICMP ping feature.

-p,--port <3260|49152..65535>

Specifies the default port number, 3260, or a port number from 49152 to 65535.

-r,--router <router ip Address>

Specifies the router IP address.

-r1,--routable-ipaddress1 <routable ip address #1>

Specifies the routable IP address #1.

-r2,--routable-ipaddress2 <routable ip address #2>

Specifies the routable IP address #2.

-S,--stateless <enable|disable>

Specifies to enable or disable the capability of the device to auto-generate its address using portions of the router's subnet and the device's interface identifier. NOTE: This option cannot be used in conjunction with the **-I,--ipv6-address** option. The **-I** option is considered stateful and indicates an exact desired address.

-v,--VLAN <enable|disable>

Enables or disables the VLAN feature.

-V,--VLAN-id <0..4096>

Specifies the VLAN ID.

-v6,--ipv6-VLAN <enable|disable>

Specifies to enable or disable the IPv6 VLAN feature.

-V6, --ipv6-vlan-id <0..4096>

Specifies the IPv6 VLAN ID.

iscsi-port <iscsi-port-id>

Specifies the iSCSI port ID.

modify iscsi-target

Modifies an iSCSI target.

Synopsis

```
modify -a <array-name> [-A <alias-name>] iscsi-target <target-name>
```

```
modify -a <array-name> -p <3205|49152..65535> iscsi-target <target-name>
```

```
modify -a <array-name> -u <none|CHAP|BOTH> iscsi-target <target-name>
```

```
modify -a <array-name> -n <enable|disable> iscsi-target <target-name>
```

```
modify -a <array-name> -i <enable|disable> -d <on|off> [-q <string>] [-p <3205|49152..65535>] iscsi-target <target-name>
```

```
modify -a <array-name> -i <enable|disable> -s <enable|disable> [-h <string>] [-p <3205|49152..65535>] iscsi-target <target-name>
```

Description

Modifies an iSCSI target configured for a specified array.

Options

-a, --array <array-name>

Specifies the array for which you want to modify the iSCSI target.

-A, --alias <alias-name>

An alias defined for the array.

-p, --port <3205|49152..65535>

Specifies the default port number, 3205, or a port number from 49152 to 65535.

-u, --authentication <none|CHAP|BOTH>

Specifies authentication as none, CHAP, or both.

-n, --unnamed-discovery <enable|disable>

Specifies to enable or disable unnamed discovery.

-s, --stateless <enable|disable>

Specifies to enable or disable the capability of the device to auto-generate its address using portions of the router's subnet and the device's interface identifier.

Note – This option cannot be used in conjunction with the **-h, --ip-v6-address** option. The **-h** option is considered stateful and indicates an exact desired address.

-h, --ip-v6-address <string>

Specifies the IPv6 address.

Note – This option cannot be used in conjunction with the **-s, --stateless** option.

-i, --isns <enable|disable>

Specifies to enable or disable iSNS.

-d, --dhcp <on|off>

Specifies to set DHCP to on or off.

-q, --ip-address <string>

Specifies to set the IP address to IPv4.

iscsi-target <target-name>

Specifies the iSCSI qualified target name. For example: iqn.1992-01.com.sun:1535.600a0b80002f9da000000000461255f9

Examples

```
sscs modify --alias fred iscsi-target
iqn.199201.com.sun:1535.600a0b80002f9da000000000461255f9
```

modify jobs

Cancels or prioritizes a running or outstanding job.

Synopsis

```
modify -a <array-name> [-k] [-p <lowest|low|medium|high|highest>] jobs  
<job-ID>
```

Description

Cancels or prioritizes a running or outstanding job using the job identification number.

Options

-a, --array <array-name>

Specifies the array for which you want to modify the job or jobs.

-k, --kill

Cancels a running or outstanding job or jobs.

-p, --priority <lowest|low|medium|high|highest>

Specifies an order of priority from which to determine the action of the modification.

jobs <job-id>

Specifies the job to be cancelled or prioritized.

Examples

```
sscs modify -p low jobs VOL:00C1408F84C2
```

modify license

Activates replication set licenses (not applicable to all firmware versions).

Synopsis

```
modify -a <array-name> -A [-v <virtual-disk-name>] license ReplicationSet
```

Activates replication set licenses on the specified array using the designated virtual disk for replication set repository volumes. If the virtual disk is omitted, the manager chooses an appropriate virtual disk to create the repository volumes.

```
modify -a <array-name> -A -r 1 -n <1..224> [-k <ANY|FC|SAS|SATA|SSD>] license ReplicationSet
```

```
modify -a <array-name> -A -r <3|5|6> -n <1..30> [-k <ANY|FC|SAS|SATA|SSD>] license ReplicationSet
```

```
modify -a <array-name> -A -r <1|3|5> -n <1..30> [-k <ANY|FC|SAS|SATA|SSD>] license ReplicationSet
```

Activates replication set licenses on the specified array, creating a new virtual disk with the designated RAID level and disk type for the replication set repository volumes.

```
modify -a <array-name> -A -r <1|3|5|6> -d <disk-name[, disk-name...]> license ReplicationSet
```

```
modify -a <array-name> -A -r <1|3|5> -d <disk-name[, disk-name...]> license ReplicationSet
```

Activates replication set licenses on the specified array, creating a new virtual disk with the designated RAID level and names of disks to be used for the replication set repository volumes.

```
modify -a <array-name> -I license ReplicationSet
```

Deactivates replication set licenses on the specified array and deletes the replication set repository volumes.

Description

Activates replication set licenses (not applicable to all firmware versions).

Options

```
-a, --array <array-name>
```

Specifies the array for which you want to activate or deactivate a replication set license. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

```
-A, --activate
```

Activates a replication set license.

```
-I (that is, uppercase letter "i"), --deactivate
```

Deactivates a replication set license.

-v, --virtual-disk <virtual-disk-name>

Specifies the virtual disk that you want to select.

-r, --raid-level <1> | <3 | 5 | 6> | <1 | 3 | 5>

Specifies the RAID level in accordance with number of disks.

-n, --number-of-disks <1..224> | <1..30>

Specifies the number of disks in accordance with the RAID level.

-k, --disk-type <ANY | FC | SAS | SATA | SSD>

Specifies the disk type:

ANY - Any type of disk.

FC - Fibre Channel

SATA - Serial Advanced Technology Attachment

SAS - Serial Attached SCSI

SSD - Solid State Device

-d, --disk <disk-name>

Specifies the named disk.

license

Specifies that you want to modify a license.

ReplicationSet

Specifies the license that you want to modify.

Examples

```
sscs modify -a europe -A -v 3 license ReplicationSet
```

Activates replication set licenses on the array named *europe* using existing virtual disk 3 for the replication set repository volumes.

```
sscs modify -a corporate -A -r 3 -n 3 -D FC license ReplicationSet
```

Activates replication set licenses on the array named *corporate*, creating a new virtual disk of RAID level 3 with 3 Fibre Channel disks for the replication set repository volumes.

```
sscs modify -a corporate -A -r 1 -d t1d01,t2d02 license  
ReplicationSet
```

Activates replication set licenses on the *corporate* array, creating a new virtual disk of RAID level 1 with 2 specific disks for the replication set repository volumes.

```
sscs modify -a europe -I license ReplicationSet
```

Deactivates replication set licenses on the *europe* array. The replication set repository volumes will be deleted.

modify notification

Modifies notification options.

Synopsis

```
modify -d notification <local_email|trap>
```

```
modify -e notification <local_email|trap>
```

```
modify -p <string>] [-i <string>] [-k <true|false>] [-f <string>]  
[-u <string>] [-q] [-z <2|4|6|8|10|15|20|30|40|50>] [-o <integer>]  
notification <local_email>
```

Note – **trap** is not a valid option for the above command variant.

```
modify -m <string> -r <string> notification <local_email|trap>
```

Description

Modifies notification options.

Options

-d, --disable

Disables notification.

-e, --enable

Enables notification.

-f, --from <string>

Specifies the origin of the notification message.

-i, --ip <string>

Specifies the IP address of the device.

-k, --secure <true | false>

Specifies whether security is used.

-m, --test-message <string>

Specifies to send test message.

-o, --port <integer>

Specifies the port.

-p, --path <string>

Specifies the path.

-q, --query-for-password

Queries for the current password for the registered array.

-r, --test-address <string>

Specifies address where test message will be sent.

-u, --user <string>

Specifies the user for which notification will be modified.

-z, --max-size <2 | 4 | 6 | 8 | 10 | 15 | 20 | 30 | 40 | 50>

Specifies the maximum size of the notification message.

notification <local_email | trap>

local-email

Specifies your local email address at which you want to modify the notification.

trap

Specifies the SNMP trap notification method to use to receive the notification.

modify performance

Modifies settings for performance monitoring.

Synopsis

```
modify -a <array-name> [ -S on | off ] [ -p 1 | 5 | 15 ] [ -r forever | 1HR | 2HR | 4HR | 1DAY ] performance
```

Description

Modifies settings for performance monitoring. To reset performance settings, toggle the status to off and back on again.

Options

-a,--array <array-name>

Specifies the array for which you want to modify the performance.

-S,--status on | off

Enables or disables performance monitoring.

-p,--poll 1 | 5 | 15

Specifies the poll interval frequency in minutes. The default is 15.

-r,--retention forever | 1HR | 2HR | 4HR | 1DAY

Specifies the amount of time to retain data in cache. The default data retention period is 1 hour.

Examples

```
sscs modify -a array00 -S on -p 5 performance
```

modify pool

Modifies the name or description of the storage pool or the profile with which this pool is associated.

Synopsis

```
modify -a <array-name> [ -N <new-pool-name> ] [ -d <description> ] [ -p <new-profile-name> ] pool <pool-name>
```

Description

Modifies the name or description of the storage pool or the profile with which this pool is associated.

You can change the segment size of a volume by a factor of 2 only. For example, a volume with segment size of 32K can only be changed to a segment size of 64K or 16K. To change the segment size to 256K, the volume would first need to be changed to 64K, then 128K, then 256K. Any changes made to the profile of a pool must maintain this segment size restriction for all affected volumes.

Options

-a, --array *<array-name>*

Specifies the name of the array to associate with this pool. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-N, --new-name *<new-pool-name>*

Specifies a new name for this pool.

-d, --description *<description>*

Specifies a description of the pool. The description can be up to 256 alphanumeric characters, which can include underscores, dashes, colons, commas, parentheses, curly brackets, square brackets, ticks, tildes, bars, periods, or spaces.

-p, --profile *<profile-name>*

Specifies the name of the profile to associate with this pool.

pool *<pool-name>*

Specifies the pool that you want to modify.

Examples

```
sscs modify -a array00 -d Lexington_01 pool SP048763
```

modify profile

Modifies a storage profile on the array.

Synopsis

```
modify -a <array-name> [-r <0|1>] [-s <8K|16K|32K|64K|128K|256K|512K>]
[-N <new-profile-name>] [-d <profile-description>] [-h <on|off>] [-n
<variable|1..224>] [-H <yes|no>] [-k <ANY|FC|SAS|SATA|SSD>] profile
<profile-name>
```

```
modify -a <array-name> [-r <3|5|6>] [-s
<8K|16K|32K|64K|128K|256K|512K>] [-N <new-profile-name>] [-d <profile-
description>] [-h <on|off>] [-n <variable|1..30>] [-H <yes|no>] [-k
<ANY|FC|SAS|SATA|SSD>] profile <profile-name>
```

```
modify -a <array-name> [-r <0|1|3|5>] [-s
<8K|16K|32K|64K|128K|256K|512K>] [-N <new-profile-name>] [-d <profile-
description>] [-h <on|off>] [-n <variable|1..30>] [-H <yes|no>] [-k
<ANY|FC|SAS|SATA|SSD>] profile <profile-name>
```

Description

Modifies a storage profile on the array. You cannot modify a profile that is in use and is associated with a storage pool.

Options

-a, --array <array-name>

Specifies the name of the array to associate with this profile.

-r, --raid-level <0|1>|<3|5|6>|<0|1|3|5>

Specifies the RAID level, in accordance with number of disks.

-s, --segsize <8K|16K|32K|64K|128K|256K|512K>

Specifies the segment size.

-N, --new-name <new-profile-name>

Specifies a new name for the profile.

-d, --description <profile-description>

Specifies a profile description. The description can be up to 256 alphanumeric characters, which can include underscores, dashes, colons, commas, parentheses, curly brackets, square brackets, ticks, tildes, bars, periods, or spaces. Enclosing the description in quotation marks retains it exactly as you want it.

-h, --readahead <on|off>

Specifies if the readahead setting is on or off.

-n, --number-of-disks <variable|1..30>|<variable|1..224>

Specifies the number of disks, in accordance with the RAID level.

-H, --dedicated-hot-spare <yes|no>

Specifies whether you want this disk to be a designated hot-spare.

-k, --disk-type <ANY|FC|SAS|SATA|SSD>

Specifies the disk type:

ANY - Any type of disk.

FC - Fibre Channel

SATA - Serial Advanced Technology Attachment

SAS - Serial Attached SCSI

SSD - Solid State Device

profile <profile-name>

Specifies the name of the profile to be modified.

Examples

```
sscs modify -d "my profile description" profile random_5
```

modify registeredarray

Change the locally stored password for a registered array.

Synopsis

```
modify -a <array-name> -q registeredarray
```

Description

Modifies the locally stored password for a registered array.

Options

-a, --array <array-name>

Specifies the name of the array.

-q, --query-for-password

Specifies to query for the current registered array password to update the management software's registration database.

Examples

```
sscs modify -a array00 -q registeredarray
```

Enter the array password:

Confirm password:

modify repset

Modifies the mode, consistency group, or replication priority of the specified replication set (not applicable to 2500 Series).

Synopsis

```
modify -a <array-name> [ -m sync | async ] [ -G yes | no ] [ -R lowest  
| low | medium | high | highest ] [ -s enable | disable ] repset  
<repset-name>
```

Modifies the role, mode, consistency group, or replication priority of the specified replication set.

```
modify -a <array-name> [ -r primary | secondary ] [ -f ] repset <repset-  
name>
```

Changes the role of the local volume on the specified array.

```
modify -a <array-name> -c repset <repset-name>
```

Suspends replication on the specified array.

```
modify -a <array-name> -z repset <repset-name>
```

Resumes replication on the specified array.

```
modify -a <array-name> -E repset <repset-name>
```

Tests to determine if the primary volume on the specified array is communicating correctly with its replica (primary or secondary).

Options

```
-a, --array <array-name>
```

Specifies the array for which you want to activate or deactivate a replication set license. For cross-platform compatibility, you can substitute `-X, --storage-device` in place of the `-a, --array` option.

-m, --mode sync | async

Specifies whether the mode is synchronous or asynchronous.

-G, --consistency-group yes | no

Specifies whether or not the replication set is part of a consistency group.

-R, --replication-priority lowest | low | medium | high | highest

Specifies the priority level for this replication set.

-s, --auto-sync enable | disable

Specifies whether or not the auto synchronization policy is enabled. If it is not specified, the default is disable.

-r, --role primary | secondary

Specifies whether the role is primary or secondary.

-f, --force

If specified, it works with the `-r` option to reverse roles. If communication with the replication peer is not functioning, the role change is still forced on the local volume.

-c, --suspend

Suspends temporarily the replication activity. If the replication set is part of a replication consistency group, then all of the replication sets in that group are suspended.

-z, --resume

Resumes replicating a replication set that has been suspended, or starts replicating a replication set. If the replication set is part of a replication consistency group, then it sets all of the replication sets in that group to synchronize.

-E, --test-communication

Tests communications to a replication set.

Examples

```
scs modify -a corporate -r secondary repset oracle/1
```

Changes the role of the local volume on the oracle/1 repset to secondary on the array named corporate.

```
sscs modify -a corp_west -r primary -f repset mail/1
```

Forces the role of the local volume on the mail/1 repset to primary on the sample corp_west array, even if communications cannot be established with the current primary.

```
sscs modify -a corporate -c repset sap_central/1
```

Suspends replication on the sap_central/1 repset on the corporate array.

```
sscs modify -a corporate -z repset sap_central/1
```

Resumes replication on the sap_central/1 repset on the corporate array.

```
sscs modify -a corporate -E repset finance/1
```

Tests to determine if the primary volume finance on the corporate array is communicating correctly with its replica (primary or secondary).

modify snapshot

Modifies the specified snapshot.

Synopsis

```
modify -a <array-name> [-N <snapshot-name>] [-f <failbasewrite | failsnapshot>] [-w <0..100>] snapshot <snapshot-name>
```

Modifies properties of the snapshot.

```
modify -a <array-name> -e <number<TB|GB|MB|KB|Bytes|BLK>> snapshot <snapshot-name>
```

Extends the snapshot reserve volume size by a specified amount. This option is mutually exclusive and cannot be used with any other option.

```
modify -a <array-name> -S snapshot <snapshot-name>
```

Disables the snapshot. This option is mutually exclusive and cannot be used with any other option.

```
modify -a <array-name> -R snapshot <snapshot-name>
```

Resnaps the snapshot. This option is mutually exclusive and cannot be used with any other option.

```

modify -a <array-name> [-m <volume-name>] [-c <A|B>]
[-W <enable|disable>] [-M <enable|disable>] [-b <enable|disable>]
[-F
<immediate|250ms|500ms|750ms|1s|1500ms|2s|5s|10s|20s|60s|120s|300s
|1200s|3600s|infinite>] [-k <enable|disable>] [-r <enable|disable>]
snapshot <snapshot-name>

```

Modifies the volume properties of the snapshot reserve volume.

Description

Modifies the specified snapshot. The arguments resnap and extend are mutually exclusive.

Options

-a, --array <array-name>

Specifies the array associated with this snapshot. For cross-platform compatibility, you can substitute `-X, --storage-device` in place of the `-a, --array` option.

-b, --write-cache-without-batteries <enable|disable>

Specifies whether write-cache-without-batteries is enabled.

-c, --controller <A|B>

Specifies the controller.

-e, --extend <number<TB|GB|MB|KB|Bytes|BLK>>

Extends the snapshot reserve volume size by a specified amount.

-f, --fail-policy <failbasewrite|failsnapshot>

The fail-policy specifies what to do if and when the snapshot fills up:

Failbasewrite - Stop allowing writes to the base volume.

Failsnapshot - Stop allowing writes to the snapshot. This is the default.

-F, --flush-write-cache-after

```

<immediate|250ms|500ms|750ms|1s|1500ms|2s|5s|10s|20s|60s|120s|300s
|1200s|3600s|infinite>

```

Specifies the period of time after which to flush the write cache.

-k, --disk-scrubbing <enable|disable>

Specifies whether disk scrubbing is enabled.

-m, --reserve-name <reserve-volume-name>

Specifies the name of the reserve volume.

-M, --write-cache-with-replication <enable|disable>

Specifies whether write-cache-with-replication is enabled.

-N, --new-name <new-snapshot-name>

Specifies a new name for the snapshot.

-r, --disk-scrubbing-with-redundancy <enable|disable>

Specifies whether disk scrubbing-with-redundancy is enabled.

-R, --resnap

Resnaps the snapshot.

-S, --disable

Disables the snapshot.

-w, --warning-threshold <0..100>

Specifies when to inform you that the snapshot reserve volume is near capacity. If a warning-threshold is not specified, 50% is the default.

-W, --write-cache <enable|disable>

Specifies whether the write cache is enabled.

snapshot *snapshot-name*

Specifies the name of the snapshot to modify.

Examples

```
sscs modify -a array00 -V vol0 snapshot vol01_snap
```

modify tray

Modifies information about one or more storage trays in the array.

Synopsis

```
modify -a <array-name> -N <0..99> tray <tray-name>
```

Description

Modifies information about one or more storage trays in the array.

Options

-a, --array <array-name>

Specifies the array associated with this tray.

-N, --new-name <0..99>

Specifies the new tray name.

tray <tray-name>

Specifies the tray ID or tray IDs you want to modify. If no tray ID is specified, then the names of all the trays in the array are listed.

Examples

```
sscs modify -a array00 -n 99 tray 0
```

modify vdisk

Specifies modifications to a virtual disk.

Synopsis

```
modify -a <array-name> [-N <virtual-disk-name>] [-d <disk-name[, diskname...]>] [-f] [-S] vdisk <virtual-disk-name>
```

Description

Specifies modifications to a virtual disk.

Options

a, --array <array-name>

Specifies the array that is associated with the virtual disk changes.

-d, --disk <disk-name,...>

Specifies particular disks to be added to the virtual disk.

-f, --defragment

Specifies whether to defragment the virtual disk or virtual disks.

-N, --new-name *<virtual-disk-name>*

Specifies new virtual disk name.

-S, --secure

Specifies to make the virtual disk secure.

vdisk *<virtual-disk-name>*

Specifies the virtual disk that you want to modify.

Examples

```
sscs modify -a array00 -d t0d01,t0d02 vdisk vdisk01
```

modify volume

Modifies any of a volume's attributes.

Synopsis

```
modify -a <array-name> [-p <pool-name>] [-e  
<number><TB|GB|MB|KB|Bytes|BLK>>] [-N <volume-name>] [-c <A|B>] [-m  
<lowest|low|medium|high|highest>] [-W <enable|disable>] [-M  
<enable|disable>] [-b <enable|disable>] [-F  
<immediate|250ms|500ms|750ms|1s|1500ms|2s|5s|10s|20s|60s|120s|300s  
|1200s|3600s|infinite>] [-k <enable|disable>] [-r <enable|disable>] [-Z  
<number><TB|GB|MB|KB|Bytes|BLK>>] [-C <integer>] [-L  
<low|verylittle|little|average|high|full>] [-l <0..100>] [-f  
<volume|snapshot>] [-w <0..100>] [-P <pool-name>] [-V <virtual-disk-name>] [-D  
<description-text>] volume <volume-name>
```

```
modify -a <array-name> [-p <pool-name>] [-e  
<number><TB|GB|MB|KB|Bytes|BLK>>] [-N <volume-name>] [-c <A|B>] [-m  
<lowest|low|medium|high|highest>] [-W <enable|disable>] [-M  
<enable|disable>] [-b <enable|disable>] [-F  
<immediate|250ms|500ms|750ms|1s|1500ms|2s|5s|10s|20s|60s|120s|300s  
|1200s|3600s|infinite>] [-k <enable|disable>] [-r <enable|disable>] [-R  
<enable|disable>] [-Z <number><TB|GB|MB|KB|Bytes|BLK>>] [-C  
<integer>] [-L <low|verylittle|little|average|high|full>] [-l <0..100>]
```

```
[-f <volume|snapshot>] [-w <0..100>] [-P <pool-name>] [-V <virtual-disk-name>] [-D <description-text>] [--disable-protection-information] volume <volume-name>
```

```
modify -a <array-name> [-p <pool-name>] [-e <number<TB|GB|MB|KB|Bytes|BLK>>] [-N <volume-name>] [-c <A|B>] [-m <lowest|low|medium|high|highest>] [-W <enable|disable>] [-M <enable|disable>] [-b <enable|disable>] [-F <immediate|250ms|500ms|750ms|1s|1500ms|2s|5s|10s|20s|60s|120s|300s|1200s|3600s|infinite>] [-k <enable|disable>] [-r <enable|disable>] [-R <enable|disable>] [-Z <number<TB|GB|MB|KB|Bytes|BLK>>] [-C <integer>] [-L <low|verylittle|little|average|high|full>] [-l <0..100>] [-f <volume|snapshot>] [-w <0..100>] [-P <pool-name>] [-V <virtual-disk-name>] [-D <description-text>] volume <volume-name>
```

Description

Modifies a volume's attributes with one or more of the following arguments.

You can change the segment size of a volume by a factor of two only. For example, a volume with segment size of 32K can only be changed to a segment size of 64K or 16K. To change the segment size to 256K, the volume would first need to be changed to 64K, then 128K, then 256K. Any changes made to the profile of a pool must maintain this segment size restriction for all affected volumes.

Options

a, --array <array-name>

Specifies the array whose volume you want to modify. For cross-platform compatibility, you can substitute **-X,--storage-device** in place of the **-a,--array** option.

-b, --write-cache-without-batteries <enable|disable>

Specifies whether write-cache-without-batteries is enabled.

-C, --snapshot-count <integer>

Specifies the number of intended snapshots for the volume.

-c, --controller <A|B>

Changes a volume's preferred and current controller.

-D, --description <description-text>

Specifies a description of the snapshot.

--disable-protection-information

Specifies to disable T10 Protection Information capabilities on the volume.

Caution – This operation cannot be undone. Once disabled, PI cannot be re-enabled on an existing volume. To minimize accidental execution, only the long version of this option is provided.

-e, --extend <number<**TB** | **GB** | **MB** | **KB** | **Bytes** | **BLK**>>

Extends the volume size by a specified amount.

-F, --flush-write-cache-after

<**immediate** | **250ms** | **500ms** | **750ms** | **1s** | **1500ms** | **2s** | **5s** | **10s** | **20s** | **60s** | **120s** | **300s** | **1200s** | **3600s** | **infinite**>

Specifies the period of time after which to flush the write cache.

-f, --favor <**volume** | **snapshot**>

Favors the volume or snapshot.

-k, --disk-scrubbing <**enable** | **disable**>

Specifies whether disk scrubbing is enabled.

-L, --snapshot-level <**low** | **verylittle** | **little** | **average** | **high** | **full**>

Specifies the level of snapshot activity as either low, verylittle, little, average, high, or full. The snapshot levels equate to the following percentages:

low - 10%

verylittle - 25%

little - 40%

average - 50%

high - 75%

full - 100%

-l, --snapshot-percentage <0..100>

Specifies what percentage of the volume is to be used for snapshot creation.

-m, --modification-priority <**lowest** | **low** | **medium** | **high** | **highest**>

Specifies the priority of this modification.

-M, --write-cache-with-replication <**enable** | **disable**>

Specifies whether write-cache-with-replication is enabled.

-N, --new-name <new-volume-name>

Specifies a new name for the volume that is being modified.

-P, --snapshot-pool *<pool-name>*

Specifies the name of the snapshot.

-p, --pool *<pool-name>*

Specifies the pool in which the volume resides.

-R, --pre-read-redundancy-check *<enable|disable>*

Specifies whether the pre-read redundancy check is enabled.

-r, --disk-scrubbing-with-redundancy *<enable|disable>*

Specifies whether disk scrubbing-with-redundancy is enabled.

-V, --reserve-vdisk *<virtual-disk-name>*

Specifies a reserve virtual disk.

volume *<volume-name>*

Specifies the volume name.

-w, --warning-threshold *<0..100>*

Specifies when to inform you that the snapshot reserve volume is near capacity. If a warning-threshold is not specified, 50% is the default.

-W, --write-cache *<enable|disable>*

Specifies whether the write cache is enabled.

-Z, --snapshot-reserve-size *<number<TB|GB|MB|KB|Bytes|BLK>>*

Specifies the amount of space you want to reserve for capacity of the snapshot reserve volume.

Examples

```
sscs modify -a array01 -p pool1 -e 10GB volume V1
```

modify volume-copy

Modifies a volume copy (not applicable to 2500 Series).

Synopsis

```
modify -a <array-name> -s [ <source-volume-name> ] -t [ <target-volume-name> ]  
[ -p lowest|low|medium|high|highest ] [ -r enable | disable ] [ -R ]  
[ -S ] volume-copy
```

```
modify -a <array-name> -s <volume-name> -t <volume-name> [-p  
<lowest|low|medium|high|highest>] [-r <enable|disable>] volume-  
copy
```

```
modify -a <array-name> -s <volume-name> -t <volume-name> -R volume-copy
```

```
modify -a <array-name> -s <volume-name> -t <volume-name> -S volume-copy
```

Description

Modifies a volume copy.

Options

-a, --array <array-name>

Specifies the array associated with this volume copy.

-s, --source-volume <source-volume-name>

Specifies the source volume name associated with this volume copy.

-t, --target-volume <target-volume-name>

Specifies the target volume name associated with this volume copy.

-p, --priority **lowest** | **low** | **medium** | **high** | **highest**

Specifies the priority level for this volume copy.

-r, --readonly **enable** | **disable**

Specifies whether this volume copy is read only or modifiable.

-R, --recopy

Specifies that you want to recopy this volume copy.

-S, --stop

Specifies that you want to stop this volume copy while in progress.

volume-copy <volume-copy-name>

Specifies the name of the volume copy that you want to modify.

Examples

```
sscs modify -a array00 -s vol1 -t vol2 -S volume-copy
```

offline vdisk

Sets a virtual disk offline.

Synopsis

```
offline -a <array-name> vdisk [ <virtual-disk-name> ]
```

Description

Sets a virtual disk offline. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Note – This command does not apply to all arrays or firmware versions. Use the **--help** command to check proper syntax for your array. For further information on how to use the **--help** command, see [“Getting Help with Commands and Their Syntax” on page 5](#).

Options

```
-a, --array <array-name>
```

Specifies the array on which you want to set the virtual disk offline.

```
vdisk
```

Specifies the name of the virtual disk.

Examples

```
sscs offline -a Array01 vdisk VirtualDisk33
```

online vdisk

Sets a virtual disk online.

Synopsis

```
online -a <array-name> vdisk [ <virtual-disk-name> ]
```

Description

Sets a virtual disk online. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Options

```
-a, --array <array-name>
```

Specifies the array on which you want to set the vdisk online.

```
vdisk
```

Specifies the name of the virtual disk.

Examples

```
sscs online -a Array01 vdisk
```

reconstruct disk

Initiates a disk reconstruction.

Synopsis

```
reconstruct -a <array-name> [ -t <tray-name>] disk [ <disk-name> ]
```

Description

Reconstructs a disk. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Options

```
-a, --array <array-name>
```

Specifies the array on which you want to reconstruct the disk.

```
-t, --tray <tray-name>
```

Identifies the tray where the physical disk resides.

disk

Specifies the name of the disk.

Examples

```
sscs reconstruct -a Array01 -t Tray2
```

remove hostgroup

Removes one or more hosts from a host group.

Synopsis

```
remove -a <array-name> -h <host-name,...> hostgroup <host-group-name>
```

Description

Removes one or more hosts from a host group.

Options

-a, --array <array-name>

Specifies the array associated with this host group.

-h, --host <host-name,...>

Specifies the host or hosts that you want to remove from this host group.

hostgroup <host-group-name>

Specifies the host group from which you want to remove hosts.

Examples

```
sscs remove -a array00 -h host01,host02 hostgroup hg01
```

remove license

Removes the replication set feature license from the specified array (not applicable to 2500 Series).

Synopsis

```
remove -a <array-name> license <license-name>
```

Description

Removes the specified feature license from the array.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this license.

```
license <license-name>
```

Specifies the license that you want to remove from the array. The license name is one of the well-known license names. Use the command **sscs list license** to see these names.

Examples

```
sscs remove -a corp_west license ReplicationSet
```

Removes a replication set feature license from the array named corp_west.

reset array

Resets the specified array.

Caution – Resetting the array destroys all user data, including volumes, hosts, initiators, and so forth.

Synopsis

```
reset -l <array|volume> array <array-name>  
reset array <array-name>
```

Description

Resets the specified array.

Options

```
-l, --level <array | volume>
```

Specifies either array or volume to reset. If **volume** option is used, only volume information is erased, while array configuration is retained.

Note – This option is only supported by firmware version 07.10.*nn.nn* and higher.

reset controller

Resets the specified controller.

Synopsis

```
reset -a <array-name> controller A | B  
reset -a <array-name> controller <controller-name>
```

Description

Resets the specified controller.

Options

```
-a, --array <array-name>
```

Specifies the array whose controller you want to reset.

```
controller A | B
```

Specifies the name of the controller to reset, A or B.

```
controller
```

Specifies the name of the controller to reset.

Examples

```
sscs reset -a array00 controller A
```

resnap snapshot

Resnaps one or more existing snapshots.

Synopsis

```
resnap -a <array-name> snapshot <snapshot-name[, snapshot-name...]>
```

Description

Resnaps one or more existing snapshots. When you resnap a group of snapshots, an array job is created.

When resnapping a group of snapshots, if the resnap operation fails for one snapshot, then the entire resnap operation is cancelled.

Options

```
-a, --array <array-name>
```

Specifies the array associated with this snapshot.

```
snapshot <snapshot-name,...>
```

Specifies the names of the snapshots that you want to resnap.

Examples

```
sscs resnap -a array00 snapshot snapshot1, snapshot2
```

Resnaps snapshot1 and snapshot2 on array00.

revive disk

Attempts to bring a disk to the optimal state.

Synopsis

```
revive -a <array-name> [ -t <tray-id> ] disk [ <disk-name> ]
```

Description

Attempts to bring a disk to the optimal state. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Options

-a, --array <array-name>

Specifies the array on which you want to revive the disk.

-t, --tray <tray-ID>

Identifies the tray where the disk resides.

disk

Specifies the name of the disk.

Examples

```
sscs revive -a Array01 -t Tray1 disk Disk7
```

revive vdisk

Revives a virtual disk.

Synopsis

```
revive -a <array-name> vdisk [ <virtual-disk-name> ]
```

Description

Revives a virtual disk. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel. A virtual disk must be put offline before attempting revival.

Note – This command does not apply to all arrays or firmware versions. Use the **--help** command to check proper syntax for your array. For further information on how to use the **--help** command, see [“Getting Help with Commands and Their Syntax” on page 5](#).

Options

-a, --array *<array-name>*

Specifies the array on which you want to revive the virtual disk.

vdisk

Specifies the name of the virtual disk.

Examples

```
sscs revive -a Array01 vdisk VirtualDisk33
```

service fail

Places a field-replaceable unit of an array into a failed state.

Synopsis

```
service -a <array-name> -t <target-fru-name> fail
```

Description

Places the specified field-replaceable unit of the array into a failed state.

Caution – Do not initiate this command without first consulting Sun Customer Service personnel.

Options

-a, --array *<array-name>*

Specifies the array to be placed into a failed state.

-t, --target <target-fru-name>

Specifies the name of the field-replaceable unit to be placed into a failed state. This parameter needs to be set to either the FRU name or the FRU ID, both of which can be obtained using variations of the `list fru` command. See [“list fru” on page 54](#) for further details.

Examples

```
service -a myarray -t t0drive12 fail
```

service redistribute

Redistributes volumes back to their preferred owners.

Synopsis

```
service -a <array-name> redistribute
```

Description

Redistributes volumes back to their preferred owners.

Options

```
-a, --array <array-name>
```

Specifies the array on which volumes will be redistributed.

Examples

```
service -a Myarray redistribute
```

service revive

Attempts to place the array controller or disk drive into the optimal state. This can create complications. Do not initiate this command without first consulting Sun Customer Service personnel.

Synopsis

```
service -a <array-name> -t <target-fru-name> [ -w ] revive
```

Description

Attempts to place the controller or disk drive of the specified array into the optimal state.

Options

```
-a, --array <array-name>
```

Specifies the array to be placed into the optimal state.

-t, --target <target-fru-name>

Specifies the name of the field-replaceable unit to be placed into the optimal state. This parameter needs to be set to either the FRU name or the FRU ID, both of which can be obtained using variations of the `list fru` command. See [“list fru” on page 54](#) for further details.

-w, --no warn

Skips the warning prompt.

Examples

```
sscs service -a myarray -t t0drive12 -w revive
```

snapshot volume

Creates and manages snapshots. This command provides cross-compatibility with scripts that are written for the StorageTek 6920 System. The preferred snapshot commands are Create Snapshot and Modify Snapshot.

Synopsis

```
snapshot -a <array-name> -v <source-volume-name> [-C <integer>] [-L <low|verylittle|little|average|high|full>] [-l <0..100>] [-Z <number><TB|GB|MB|KB|Bytes|BLK>>] [-f <volume|snapshot>] [-w <0..100>] [-P <reserve-volume-name>] [-V <virtual-disk-name>] volume <string>
```

```
snapshot -a <array-name> -R volume <string>
```

```
snapshot -a <array-name> -r volume <string>
```

Description

Creates and manages snapshots. This command provides cross-compatibility with scripts that are written for the StorageTek 6920 System. The preferred snapshot commands are Create Snapshot and Modify Snapshot.

Options

-a, --array <array-name>

Specifies the array.

-v, --volume <source-volume-name>

Specifies the volume for which to take a snapshot.

-C, --snapshot-count <integer>

Specifies the number of intended snapshots for the volume.

-l, --snapshot-percentage <0..100>

Specifies what percentage of the volume is to be used for snapshot creation.

-L, --snapshot-level <low|verylittle|little|average|high|full>

Specifies the level of snapshot activity as either low, verylittle, little, average, high, or full. The snapshot levels equate to the following percentages:

low - 10%

verylittle - 25%

little - 40%

average - 50%

high - 75%

full - 100%

-Z, --snapshot-reserve-size <number<TB|GB|MB|KB|Bytes|BLK>>

Specifies the amount of space you want to reserve for capacity of the snapshot reserve volume.

-f, --favor <volume|snapshot>

Favors the volume or snapshot.

-w, --warning-threshold <0..100>

Specifies the threshold, as a percentage, at which the management software will generate messages to indicate the level of space left in the reserve volume. By default, the software generates a warning notification when data in the reserve volume reaches 50 percent of the available capacity. Possible values for the warning threshold are 1 to 100 percent.

-P, --snapshot-pool <reserve-volume-name>

Specifies the name to give to the reserve volume.

-V, --reserve-vdisk <virtual-disk-name>

Specifies the name to give to the reserve virtual disk.

-R, --resnap

Resnaps a volume.

-r, --remove-pool

Removes a snapshot from a storage pool.

volume <<snapshot-volume-name> | <new-snapshot-name>>

Specifies the volume or volumes for the snapshot argument. Once the snapshot volume is created, you can treat it the same as any other volume, except that it cannot be used to create another snapshot.

Examples

To create a snapshot named vol01 from the source volume vol0, type:

```
sscs snapshot -a array01 -v vol0 volume vol01
```

unmap host

Unmaps one or more snapshots or volumes from a host.

Synopsis

```
unmap -a <array-name> [-s <snapshot-name,...>] [ -v <volume-name,...>] host <host-name>
```

Description

Unmaps one or more snapshots or volumes from a host.

Options

-a, --array <array-name>

Specifies the array on which this volume resides. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-s, --snapshot <snapshot-name,...>

Specifies the snapshot or snapshots to unmap from the host.

-v, --volume <volume-name,...>

Specifies the volume or volumes to unmap from the host.

host <host-name>

Specifies the host that you want to unmap from the snapshot or volume.

Examples

```
sscs unmap -a array00 -v vol01,vol02 host host01
```

unmap hostgroup

Unmaps one or more snapshots or volumes from a host group.

Synopsis

```
unmap -a <array-name> [ -s <snapshot-name,...> ] -v <volume-name,...> hostgroup  
<host-group-name>
```

Description

Unmaps one or more snapshots or volumes from a host group.

Options

-a, --array <array-name>

Specifies the array containing the volume that you want to unmap from the host group.

-s, --snapshot <snapshot-name,...>

Specifies the snapshot or snapshots to unmap from the host group.

-v, --volume <volume-name,...>

Specifies the volume or volumes that you want to unmap from the host group.

hostgroup <host-group-name>

Specifies the host group that you want to unmap from the snapshot or volume.

Examples

```
sscs unmap -a array00 -v vol01,vol02 hostgroup hg01
```

unmap initiator

Removes the mapping from one or more initiators to a volume or snapshot.

Synopsis

```
unmap -a <array-name> [ -s <snapshot-volume-name,...> ] [ -v <volume-name,...> ]  
initiator <initiator-name,...>
```

Description

Removes the mapping from an initiator to a snapshot or volume.

Options

-a, --array <array-name>

Specifies the array associated with the volume or snapshot to be unmapped. For cross-platform compatibility, you can substitute `-X, --storage-device` in place of the `-a, --array` option.

-s, --snapshot <snapshot-volume-name,...>

Specifies the snapshot volumes to be unmapped from this initiator.

-v, --volume <volume-name,...>

Specifies the volumes to be unmapped from this initiator.

initiator <initiator-name,...>

Specifies the initiator name to be unmapped.

Examples

```
sscs unmap -a array00 -v vol01 initiator init1
```

unmap snapshot

Removes the mapping from one or more snapshots to a host or hostgroup.

Synopsis

```
unmap -a <array-name> [-i <initiator-name>] [-h <host-name>] [-g <hostgroup-name>] snapshot <snapshot-name[,snapshot-name...]>
```

Description

Removes the mapping from one or more snapshots to a host or hostgroup.

Options

-a, --array <array-name>

Specifies the array.

-i, --initiator <initiator-name>

Specifies the initiator that you want to unmap from the snapshot.

-h, --host <host-name>

Specifies the host that you want to unmap from the snapshot.

-g, --hostgroup <hostgroup-name>

Specifies the hostgroup that you want to unmap from the snapshot.

snapshot <snapshot-name[,snapshot-name...]>

Specifies the snapshot or snapshots to be unmapped.

unmap volume

Unmaps one or more volumes from a host or host group.

Synopsis

```
unmap -a <array-name> [ -h <host-name> | -g <host-group-name> ] volume <volume-name,...>
```

```
unmap -a <array-name> [-i <initiator-name>] [-h <host-name>] [-g <hostgroup-name>] volume <volume-name[,volume-name...]>
```

Description

Unmaps one or more volumes from a host or host group.

Options

-a, --array <array-name>

Specifies the array containing the volume that you want to unmap from the host or host group. For cross-platform compatibility, you can substitute **-X, --storage-device** in place of the **-a, --array** option.

-i, --initiator <initiator-name>

Specifies the initiator that you want to unmap from the volume.

-h, --host <host-name>

Specifies the host that you want to unmap from the volume.

-g, --hostgroup <host-group-name>

Specifies the host group that you want to unmap from the volume.

volume <volume-name,...>

Specifies the volume or volumes to unmap from the host.

Examples

```
sscs unmap -a array00 -g hg01 volume vol01,vol02
```

SAS Domain Access Configuration Commands for JBOD Arrays

This chapter describes the `sscs` commands and their options for SAS domain access configuration on Sun JBOD arrays, including Sun Storage J4200, J4400, and J4500 arrays, Sun Storage F5100 Flash Array, and the Sun Blade 6000 disk module.

For monitoring and administration commands for all Sun arrays, see [Chapter 3](#). For configuration and other commands that apply only to arrays with RAID controllers, see [Chapter 4](#).

This chapter begins with an overview of using the CLI to perform access configuration tasks, followed by the individual commands and their details:

- [“Overview of Access Configuration with the CLI” on page 216](#)
- [“disable sas-domain” on page 222](#)
- [“enable sas-domain” on page 222](#)
- [“export sas-domain” on page 223](#)
- [“import sas-domain” on page 224](#)
- [“list host-agent” on page 225](#)
- [“list sas-domain” on page 227](#)
- [“list sas-zone” on page 232](#)
- [“list template” on page 233](#)
- [“modify sas-domain” on page 234](#)
- [“reset sas-domain” on page 242](#)

Overview of Access Configuration with the CLI

This section provides a brief overview of using the CLI to perform SAS domain access configuration tasks. For detailed information concerning access configuration, see the *Sun Storage Common Array Manager Software Installation and Setup Guide*.

The following topics are discussed:

- [“Viewing Discovered SAS Domains” on page 216](#)
- [“Changing the Domain Name” on page 216](#)
- [“Configuring Access” on page 217](#)
- [“Administering Access Configuration Passwords” on page 220](#)
- [“Configuring Storage Cascading” on page 221](#)

Viewing Discovered SAS Domains

To view a list of SAS domains, issue the following command:

```
sscs list sas-domain
```

This will provide a brief summary of all SAS domains known to the management station. To obtain detailed information for a specific SAS domain or multiple domains, issue the following command:

```
sscs list sas-domain sas-domain-name [ ,sas-domain-name...]
```

To list all initiators and targets visible by each port for a specific SAS domain or multiple domains, issue the following command:

```
sscs list -p sas-domain sas-domain-name [ ,sas-domain-name...]
```

For detailed information on these commands, including examples, see [“list sas-domain” on page 227](#).

Changing the Domain Name

When a SAS domain has been discovered by the management station, its name defaults to the domain’s SAS ID. After viewing the list of discovered SAS domains, if you would like to rename a domain to something more identifiable or meaningful, issue the following command:

```
sscs modify -n <sas-domain-name> sas-domain <sas-domain-name>
```

Note that the first instance of *sas-domain-name* is the new name you choose for the domain, while the second instance is the current domain name.

For detailed information on this command, including alternate variations which change other SAS domain properties, see [“modify sas-domain” on page 234](#).

Configuring Access

Access between initiators and disks within a SAS domain can be configured manually, with a factory pre-configured template, or with a user-configured template. These options are described below.

Manual Configuration

Access configurations can be created manually with one of two variants:

- Between initiators and disks
- Between SAS ports and disks.

Note that each variant must be executed separately (i.e. it is not possible to create an access configuration between initiators, SAS ports, and disks within the same command). The two variants are described below.

Manual Configuration: Initiators to Disks

To configure initiator to disk access manually, stop all I/O operations to any disks within the specified SAS domain, then issue the following command:

```
modify -A -i <initiator-address [ , initiator-address... ] > -d <disk-name [ , disk-name... ] >  
sas-domain <sas-domain-name>
```

This will associate specified initiators with specified disks to create an access configuration. You can associate one or multiple initiators with one or multiple disks. Note that disk SAS addresses are also acceptable for the **-d** option.

For detailed information on this command, including alternate variations which change other SAS domain properties, see [“modify sas-domain” on page 234](#).

Manual Configuration: SAS Ports to Disks

To configure SAS port to disk access manually, stop all I/O operations to any disks within the specified SAS domain, then issue the following command:

```
modify -A -p <sas-port-name [ , sas-port-name... ]> -d <disk-name [ , disk-name... ]>
sas-domain <sas-domain-name>
```

This will associate specified SAS ports with specified disks to create an access configuration. You can associate one or multiple SAS ports with one or multiple disks. Note that disk SAS addresses are also acceptable for the **-d** option.

For detailed information on this command, including alternate variations which change other SAS domain properties, see [“modify sas-domain” on page 234](#).

Factory Template Configuration

The Common Array Manager software includes factory default templates which represent common SAS domain access configuration options. [TABLE 5-1](#) lists the available factory templates.

TABLE 5-1 List of Factory Default Templates

Template Name	Description
F5100-dual-host	Allocate equal numbers of disks to each of two hosts. For use with a single enclosure.
F5100-quad-host	Allocate equal numbers of disks to each of four hosts. For use with a single enclosure.
J4200-dual-host	Allocate equal numbers of disks to each of two hosts. Supports cascade depth of four devices.
J4400-dual-host	Allocate equal numbers of disks to each of two hosts. Supports cascade depth of four devices.
J4500-dual-host	Allocate equal numbers of disks to each of two hosts. Supports cascade depth of three devices.
J4500-quad-host	Allocate equal numbers of disks to each of four hosts. Does not support cascading.
Simple-zone-split	Split all current disks evenly across all current initiators.
Unassigned-zone-split	Split all unassigned disks evenly across all current initiators.

Once you have chosen the best template for your configuration, use the [list template](#) command to obtain valid anchor point and candidate values for that template. Then, stop all I/O operations to any disks within the specified SAS domain and issue the following command:

```
import -t <template-name> -A <anchorPoint-name [ , anchorPoint-name... ]>
-c <candidate-name [ , candidate-name... ]> sas-domain <sas-domain-name>
```

The factory template configuration will then be applied to the specified SAS domain. For detailed information on this command, including examples, see [“import sas-domain” on page 224](#).

User Template Configuration

In addition to the factory default templates, you can create your own templates to save access configurations for future use.

Saving a User Configuration

To save a configuration, issue the following command:

```
export -t <filename> [ -D <template-description> ] sas-domain <sas-domain-name [ , sas-domain-name... ]>
```

Replace <filename> with a template name of your choice. If desired, replace <template-description> with a description of your choice. Replace <sas-domain-name> with the name of the SAS domain whose configuration you want to save. The new template will then be included in the list of available templates. For detailed information on this command, including examples, see [“export sas-domain” on page 223](#).

Note – For backup purposes, templates should be exported periodically in case of hardware failure. Current SAS domain access configuration data is auto-saved, however, when any access configuration change has been made by the user. This auto-save data is stored in a template file and can be used to recover a previous configuration. By default, a maximum of two auto-save template files are stored. When a new auto-save file is created for a SAS domain, it replaces the oldest file stored for that SAS domain.

Restoring a User Configuration

To restore a user template access configuration, use the [list template](#) command to obtain valid anchor point and candidate values for that template. Then, stop all I/O operations to any disks within the specified SAS domain and issue the following command:

```
import -t <template-name> -A <anchorPoint-name [ , anchorPoint-name... ]>  
-c <candidate-name [ , candidate-name... ]> sas-domain <sas-domain-name>
```

The user template configuration will then be applied to the specified SAS domain. For detailed information on this command, including examples, see [“import sas-domain” on page 224](#).

Administering Access Configuration Passwords

Access configuration passwords are stored in both the Sun Storage Common Array Manager Array Registration Database and JBOD Array SAS Expander, and must match in order to allow modification operations on a SAS domain. Passwords can be administered in three ways, each using a variation of the **modify sas-domain** command. See “[modify sas-domain](#)” on [page 234](#) for complete details.

Clearing the Password

To clear the access configuration password in the Array Registration Database, issue the following command:

```
modify -c sas-domain <sas-domain-name>
```

This will erase the password on the specified SAS domain and reset it to the factory default of no password.

Changing the Password

To change (or set) the access configuration password in both the Array Registration Database and Array SAS Expander, issue the following command:

```
modify -C -P <old-password> -N <new-password> sas-domain <sas-domain-name>
```

Use this command to update the password in the Array Registration Database and Array SAS Expander at the same time. If setting a new password after it has been previously cleared, substitute " " for <old-password>, making sure to escape each quote mark (\ " \").

Synchronizing the Password

To change the access configuration password in the Array Registration Database only, issue the following command:

```
modify -s -N <new-password> sas-domain <sas-domain-name>
```

Use this command to synchronize the Array Registration Database password with the Array SAS Expander password.

Configuring Storage Cascading

The CLI can be used to perform two functions in the overall storage cascading process:

- Prepare for storage cascading.
- Synchronize cascaded array access configurations.

For full details concerning these functions and storage cascade configuration in general, see the *Sun Storage Common Array Manager Software Installation and Setup Guide*.

Prepare for Storage Cascading

To prepare a storage system (i.e. JBOD) for cascading, issue the following command:

```
modify -p sas-domain <sas-domain-name>
```

This will clear any previous access configurations on the specified SAS domain.

Synchronize Cascaded Array Access Configurations

To synchronize the access configurations of cascaded arrays, issue the following command:

```
modify -y sas-domain <sas-domain-name>
```

This will synchronize the merged SAS domain in the cascaded storage (synchronizes access configurations and initializes the connections between arrays).

disable sas-domain

Disables SAS zoning for a specified SAS domain.

Synopsis

```
disable sas-domain <sas-domain-name>
```

Description

Disables SAS zoning for a specified SAS domain.

Options

```
disable sas-domain <sas-domain-name>
```

Disables the specified SAS domain.

Examples

```
disable sas-domain HowiesPlace
```

enable sas-domain

Enables SAS zoning for a specified SAS domain.

Synopsis

```
enable sas-domain <sas-domain-name>
```

Description

Enables SAS zoning for a specified SAS domain.

Options

```
enable sas-domain <sas-domain-name>
```

Enables the specified SAS domain.

Examples

```
enable sas-domain HowiesPlace
```

export sas-domain

Copies the configuration of a specified SAS domain to a specified template file.

Synopsis

```
export -t <filename> [ -D <template-description> ] sas-domain <sas-domain-name [ , sas-domain-name... ]>
```

Description

Copies the configuration of a specified SAS domain to a specified template file.

Note – For backup purposes, templates should be exported periodically in case of hardware failure. Current SAS domain access configuration data is auto-saved, however, when any access configuration change has been made by the user. This auto-save data is stored in a template file and can be used to recover a previous configuration. By default, a maximum of two auto-save template files are stored. When a new auto-save file is created for a SAS domain, it replaces the oldest file stored for that SAS domain.

Options

-D, --template-description <template-description>

Specifies an optional template description.

-t, --template <filename>

Specifies the name of the XML file to which the SAS domain configuration information is saved.

sas-domain <sas-domain-name [, sas-domain-name...]>

Specifies the SAS domain from which configuration information is exported.

Examples

Export current configuration for SAS domain PikesPlace to a new template file named `test_template`:

```
export -t test_template sas-domain PikesPlace
```

import sas-domain

Restores specified SAS domain configuration information from a specified template.

Synopsis

```
import -t <template-name> -A <anchorPoint-name [ , anchorPoint-name... ]> -c  
<candidate-name [ , candidate-name... ]> sas-domain <sas-domain-name>
```

Description

Restores specified SAS domain configuration from a specified template file.

Caution – Before executing this command, stop all I/O operations to any disk within the specified SAS domain.

Options

-A, --anchor-point <anchorPoint-name [, anchorPoint-name...]>

Specifies the name of a sample JBOD configuration found within the specified template. This sample configuration is then applied to an actual JBOD in your live configuration. Anchor points and candidates must be specified when performing a template import, and those specified must agree with the output provided from the [list template](#) command.

-c, --candidates <candidate-name [, candidate-name...]>

Specifies the name of an actual JBOD in your live configuration to be configured using values specified by the specified anchor point. Anchor points and candidates must be specified when performing a template import, and those specified must agree with the output provided from the [list template](#) command.

-t, --template <template-name>

Specifies the name of the template file from which SAS domain configuration information is imported.

sas-domain <*sas-domain-name*>

Specifies the SAS domain to which imported configuration information is copied.

Examples

Import template `Simple-zone-split` to SAS domain `PikesPlace` using anchor point `Array1` and candidate storage system `CAM_Demo_Rocky1`:

```
import -t Simple-zone-split -A Array1 -c CAM_Demo_Rocky1 sas-domain PikesPlace
```

list host-agent

List host-agents in a specified SAS domain or the details for specified host-agents in a specified SAS domain.

Synopsis

```
list [ -d <sas-domain> ] host-agent [<host-agent-name [ , host-agent-name... ]>]
```

Description

Lists the host-agents in a specified SAS domain or the details for specified host-agents in a specified SAS domain.

Options

-d, --sas-domain <*sas-domain*>

Specifies the SAS domain for which host-agents will be listed.

host-agent [<*host-agent-name* [, *host-agent-name*...]>]

If no host agent names are provided, lists host-agents in a specified SAS domain. If host agent names are provided, lists details for specified host-agents in a specified SAS domain.

Examples

List host-agents in a specified SAS domain:

```
list host-agent
```

```
Name: cam-buffalo
```

Name: rocky

List details for specified host-agents in a specified SAS domain:

list host-agent cam-buffalo

Name: cam-buffalo
Host IP: 10.30.12.118
Host ID: 0bba236c
OS Type: SunOS x86
OS Version: 5.10
CAM Version: 6.3.0.6

Registered Arrays

Name: 5080020000592B80
Health: Degraded
Type: F5100
Total Capacity: 68.663 GB
Available Capacity: 0.000 MB
Firmware Version: 5.3.62.0

SAS Domains

Name: 508002000046743f.508002000046747f
Entry SAS Address: 508002000046743f.508002000046747f
No. of Expanders: 2
No. of End Devices: 7

Name: 5080020000592bbf
Entry SAS Address: 5080020000592bbf
No. of Expanders: 1
No. of End Devices: 5

HBAs

SAS Address: 500605b000809e40
SAS Address: 500605b000809e44

list sas-domain

Lists SAS domains or the details of specified SAS domains.

Synopsis

```
list [-p] sas-domain [sas-domain-name [ , sas-domain-name... ]]
```

Description

Lists SAS domains or the details of specified SAS domains.

Options

-p, --port

Specifies to display a table that lists all initiators and targets visible by each port for specified SAS domain(s).

sas-domain [*sas-domain-name* [, *sas-domain-name...*]]

If no SAS domain names are provided, lists all SAS domains. If SAS domain names are provided, lists the details of the specified SAS domains.

Note – If multiple SAS domains are specified, the output is grouped by SAS domain.

Examples

Example 1: List SAS domains

```
list sas-domain
```

Name	Devices	Expanders
500163600004f03f	20	1
50800200004cb4bf	4	1

Example 2: List details of a specified SAS domain

Note – In the following output, “Group” is the current zone group, while “Groups” lists the other zone groups that have permission to view the current group.

list sas-domain 50800200004cb4bf

```
Name           : 50800200004cb4bf
Id             : 50800200004cb4bf
Array Name(s)  : F5100-1
Zoning State   : Disabled
End Device Count : 4
Expander Count : 1
Expanders      : 50800200004cb4bf
Endpoint Count : 40
Initiator Count : 1
Initiator      : 500605b000809e44:4,5,6,7 camtest16.mpt:3:4_5_6_7
ZPSDS         : 50800200004cb4bf
  Connectors   :
    Port       : F5100-1.Chassis.Expander.02.Port_0 -> Initiator
                500605b000809e44:4,5,6,7 camtest16.mpt:3:4_5_6_7
    Port       : F5100-1.Chassis.Expander.02.Port_1
    Port       : F5100-1.Chassis.Expander.02.Port_2
    Port       : F5100-1.Chassis.Expander.02.Port_3
  Group        : 1
  Groups       : 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16, 17,
                18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
30, 31, 32,
                33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44,
45, 46, 47,
                48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59,
60, 61, 62,
                63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74,
75, 76, 77,
                78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89,
90, 91, 92,
                93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103,
104, 105,
                106, 107, 108, 109, 110, 111, 112, 113, 114, 115,
116, 117,
                118, 119, 120, 121, 122, 123, 124, 125, 126, 127
  Member       : Expander 50800200004cb4bf:0
                F5100-1.Chassis.Expander.02.FMod_Slot_0
  Member       : Expander 50800200004cb4bf:1
                F5100-1.Chassis.Expander.02.FMod_Slot_1
  Member       : Expander 50800200004cb4bf:10
                F5100-1.Chassis.Expander.02.FMod_Slot_10
  Member       : Expander 50800200004cb4bf:11
                F5100-1.Chassis.Expander.02.FMod_Slot_11
```

```

Member      : Expander 50800200004cb4bf:12
              F5100-1.Chassis.Expander.02.FMod_Slot_12
Member      : Expander 50800200004cb4bf:13
              F5100-1.Chassis.Expander.02.FMod_Slot_13
Member      : Expander 50800200004cb4bf:14
              F5100-1.Chassis.Expander.02.FMod_Slot_14
Member      : Expander 50800200004cb4bf:15
              F5100-1.Chassis.Expander.02.FMod_Slot_15
Member      : Expander 50800200004cb4bf:16
              F5100-1.Chassis.Expander.02.FMod_Slot_16
Member      : Expander 50800200004cb4bf:17
              F5100-1.Chassis.Expander.02.FMod_Slot_17
Member      : Expander 50800200004cb4bf:18
              F5100-1.Chassis.Expander.02.FMod_Slot_18
Member      : Expander 50800200004cb4bf:19
              F5100-1.Chassis.Expander.02.FMod_Slot_19
Member      : Expander 50800200004cb4bf:2
              F5100-1.Chassis.Expander.02.FMod_Slot_2
Member      : Expander 50800200004cb4bf:20
              F5100-1.Chassis.Expander.02.Port_3
Member      : Expander 50800200004cb4bf:21
              F5100-1.Chassis.Expander.02.Port_3
Member      : Expander 50800200004cb4bf:22
              F5100-1.Chassis.Expander.02.Port_3 Member      :
Expander 50800200004cb4bf:23
              F5100-1.Chassis.Expander.02.Port_3
Member      : Expander 50800200004cb4bf:24
              F5100-1.Chassis.Expander.02.Port_1
Member      : Expander 50800200004cb4bf:25
              F5100-1.Chassis.Expander.02.Port_1
Member      : Expander 50800200004cb4bf:26
              F5100-1.Chassis.Expander.02.Port_1
Member      : Expander 50800200004cb4bf:27
              F5100-1.Chassis.Expander.02.Port_1
Member      : Expander 50800200004cb4bf:28,29,30,31
              F5100-1.Chassis.Expander.02.Port_0 -> Initiator
              500605b000809e44:4,5,6,7 camtest16.mpt:3:4_5_6_7
Member      : Expander 50800200004cb4bf:3
              F5100-1.Chassis.Expander.02.FMod_Slot_3
Member      : Expander 50800200004cb4bf:32
              F5100-1.Chassis.Expander.02.Port_2
Member      : Expander 50800200004cb4bf:33
              F5100-1.Chassis.Expander.02.Port_2
Member      : Expander 50800200004cb4bf:34
              F5100-1.Chassis.Expander.02.Port_2

```

```

Member      : Expander 50800200004cb4bf:35
              F5100-1.Chassis.Expander.02.Port_2
Member      : Expander 50800200004cb4bf:36
              F5100-1.Chassis.Expander.02.Virtual_SSP_(SES)_Target
->
              sas.endpoint.type.VIRTUAL 50800200004cb4bd:0
              50800200004cb4bd:0
Member      : Expander 50800200004cb4bf:37
              F5100-1.Chassis.Expander.02.Virtual_STP_Target
Member      : Expander 50800200004cb4bf:4
              F5100-1.Chassis.Expander.02.FMod_Slot_4
Member      : Expander 50800200004cb4bf:5
              F5100-1.Chassis.Expander.02.FMod_Slot_5
Member      : Expander 50800200004cb4bf:6
              F5100-1.Chassis.Expander.02.FMod_Slot_6
Member      : Expander 50800200004cb4bf:7
              F5100-1.Chassis.Expander.02.FMod_Slot_7 -> Target
              50800200004cb487:0 F5100-1.EXP2.FMod.07 24.575GB
Member      : Expander 50800200004cb4bf:8
              F5100-1.Chassis.Expander.02.FMod_Slot_8 -> Target
              50800200004cb488:0 F5100-1.EXP2.FMod.08 24.575GB
Member      : Expander 50800200004cb4bf:9
              F5100-1.Chassis.Expander.02.FMod_Slot_9 -> Target
              50800200004cb489:0 F5100-1.EXP2.FMod.09 24.575GB

```

Example 3: List all initiators and targets visible by each port for a specified SAS domain

```
list -p sas-domain 50800200004cb4bf
```

```
ZPSDS: 50800200004cb4bf
```

```
Zoning State: Disabled
```

```
Access by Logical SAS Port:
```

Initiators	Connectors	Targets
7,	F5100-1.Chassis.Expander.02.Port_2	F5100-1.EXP2.FMod.0
8,		F5100-1.EXP2.FMod.0
9		F5100-1.EXP2.FMod.0

```

-----
-----
--
                                F5100-1.Chassis.Expander.02.Port_1  F5100-
1.EXP2.FMod.0
7,
                                F5100-1.EXP2.FMod.0
8,
                                F5100-1.EXP2.FMod.0
9
-----
-----

```

```

--
camtest16.mpt:3:4_5_6_7  F5100-1.Chassis.Expander.02.Port_0  F5100-
1.EXP2.FMod.0
7,
                                F5100-1.EXP2.FMod.0
8,
                                F5100-1.EXP2.FMod.0
9
-----
-----

```

```

--
                                F5100-1.Chassis.Expander.02.Port_3  F5100-
1.EXP2.FMod.0
7,
                                F5100-1.EXP2.FMod.0
8,
                                F5100-1.EXP2.FMod.0
9
-----
-----

```

ZPSDS Logical SAS Port Names:

Type	Logical SAS Port Name
Connector	F5100-1.Chassis.Expander.02.Port_0
Connector	F5100-1.Chassis.Expander.02.Port_1
Connector	F5100-1.Chassis.Expander.02.Port_2
Connector	F5100-1.Chassis.Expander.02.Port_3
Hba	camtest16.mpt:3:4_5_6_7
Disk	F5100-1.EXP2.FMod.07
Disk	F5100-1.EXP2.FMod.08
Disk	F5100-1.EXP2.FMod.09

list sas-zone

Provides a list of all SAS access configuration (zone) groups and details of those groups.

Synopsis

```
list sas-zone
```

Description

Provides a list of all SAS access configuration (zone) groups and their details.

Examples

Note – The following example output is truncated. Actual output is often much longer than what is represented here.

```
list sas-zone
```

```
SAS Zone Groups:
```

```
Group: 1
```

```
Group With Permission To Id: 1
```

```
Key: 50800200004696bf.50800200004696ff.0x1
```

```
ZpsdsKey: 50800200004696bf.50800200004696ff
```

```
Members:
```

```
SAS Address: 50800200004696ff
```

```
Type: EXPANDER
```

```
Key: 50800200004696ff:28,29,30,31,32,33,34,35
```

```
SES Reference: j4500:J4500-2-bottom-test2:sasexpander
```

```
Attach Point: 50800200004696bf:28,29,30,31,32,33,34,35
```

```
Capacity: null
```

```
Model: j4500
```

```
Device Name: J4500-2-bottom-test2
```

```
Component Name:
```

```
Class: sasexpander
```

```
SAS Address: 50800200004696bf
```

```
Type: EXPANDER
```

```
Key: 50800200004696bf:28,29,30,31,32,33,34,35
```

```
SES Reference: j4500:J4500-2-bottom-test2:sasexpander
```

```
Attach Point: 50800200004696ff:28,29,30,31,32,33,34,35
```

```
Capacity: null
```

```
Model:          j4500
Device Name:    J4500-2-bottom-test2
Component Name:
Class:          sasexpander
SAS Address:    50800200004696bf
Type:           EXPANDER
Key:            50800200004696bf:36
SES Reference:  j4500:J4500-2-bottom-test2:sasexpander
Attach Point:  50800200004696bd:0
Capacity:      null
Model:          j4500
Device Name:    J4500-2-bottom-test2
Component Name:
Class:          sasexpander
```

list template

Lists a summary of SAS domain templates or details of specified templates.

Synopsis

```
list [-d <sas-domain-name>] template [<template-name [ , template-name... ]>]
```

Description

Lists a summary of all SAS domain templates known by the current management station, a summary of templates in a specified SAS domain, or details of specified templates. Use this command to obtain valid anchor point and candidate values for a specified template when executing the [import sas-domain](#) command.

Options

```
-d, --sas-domain <sas-domain-name>
```

Specifies the SAS domain for which a template summary is requested.

```
template [<template-name [ , template-name... ]>]
```

If no specific template names are specified, a summary of templates will be listed. If specific template names are specified, details for those templates will be listed.

Examples

List all templates:

```
sscs list template
```

```
Name: F5100-dual-host  
Name: F5100-quad-host  
Name: J4200-dual-host  
Name: J4400-dual-host  
Name: J4500-dual-host  
Name: J4500-quad-host  
Name: Simple-zone-split  
Name: Unassigned-zone-split
```

List templates within a specified SAS domain:

```
sscs list -d SAS_Breckenridge template
```

```
Name: F5100-dual-host  
Name: F5100-quad-host  
Name: J4200-dual-host  
Name: J4400-dual-host  
Name: J4500-dual-host  
Name: J4500-quad-host  
Name: Simple-zone-split  
Name: Unassigned-zone-split
```

List details of a specified template:

```
sscs list template "Simple-zone-split"
```

```
Name: Simple-zone-split  
Description: A template that splits all current disks evenly across  
all current initiators.  
Anchor Points  
Name: JBOD  
Description: SAS JBOD Array  
Candidates: J4500-2-bottom-test2, J4500-2-bottom-test2
```

modify sas-domain

Modifies specified properties of a SAS domain. There are ten variations of this command:

- Rename specified SAS domain

- Clear access configuration password in Array Registration Database
- Modify the access configuration password stored in the Array Registration Database and the Array SAS Expander
- Modify the access configuration password stored in the Array Registration Database only (to synchronize with the Array SAS Expander password)
- Associate specified initiators and disks in a SAS domain
- Dissociate specified initiators and disks in a SAS domain.
- Prepare storage for cascading.
- Synchronize cascaded storage access configurations.
- Associate specified SAS ports and disks in a SAS domain.
- Dissociate specified SAS ports and disks in a SAS domain.

Synopsis

```

modify -n <new-sas-domain-name> sas-domain <sas-domain-name>

modify -c sas-domain <sas-domain-name>

modify -C -P <old-password> -N <new-password> sas-domain <sas-domain-name>

modify -s -N <new-password> sas-domain <sas-domain-name>

modify -A -i <initiator-name [ , initiator-name... ]> -d <disk-name [ , disk-name... ]>
sas-domain <sas-domain-name>

modify -D -i <initiator-name [ , initiator-name... ]> -d <disk-name [ , disk-name... ]>
sas-domain <sas-domain-name>

modify -z sas-domain <sas-domain-name>

modify -y sas-domain <sas-domain-name>

modify -A -p <sas-port-name [ , sas-port-name... ]> -d <disk-name [ , disk-name... ]>
sas-domain <sas-domain-name>

modify -D -p <sas-port-name [ , sas-port-name... ]> -d <disk-name [ , disk-name... ]>
sas-domain <sas-domain-name>

```

Description

This command modifies specified properties of a SAS domain.

Options

-A, --associate (in conjunction with **-i, --initiator** and **-d, --disk**)

Associates specified initiators and disks in a SAS domain (i.e. defines an access configuration). Disk common names (e.g., CAM_Demo_Rocky:disk:Disk.01) or SAS addresses (e.g., 5000c50001b9c83d) are used in place of *<disk-name>*. Initiator common names or SAS addresses are used in place of *<initiator-name>*. Association of initiators and disks in combination with ports and disks is not possible within a single command. Both variants of **-A** must be executed separately. When creating a new initiator-disk association (i.e. access configuration), note the following two conditions:

- If an access configuration already exists for the specified initiators, any disks not specified in the current command will retain their previous associations. If a previous disk association is intended for removal, the **-D,--dissociate** option must be used in a separate command instance.
- If you are creating a new access configuration immediately following execution of the [reset sas-domain](#) command, or if this is the first access configuration being created on a default-configured JBOD array from the factory, note that all ports and initiators are associated with all disks by default. Therefore, creating a new association will implicitly dissociate all disks from all ports and initiators before applying the associations you specify.

Caution – Before executing the above command, stop all I/O operations to any disks within the specified SAS domain.

-A,--associate (in conjunction with **-p,--port** and **-d,--disk**)

Associates specified ports and disks in a SAS domain (i.e. defines an access configuration). Disk common names (e.g., CAM_Demo_Rocky:disk:Disk.01) or SAS addresses (e.g., 5000c50001b9c83d) are used in place of *<disk-name>*. Association of ports and disks in combination with initiators and disks is not possible within a single command. Both variants of **-A** must be executed separately. When creating a new port-disk association (i.e. access configuration), note the following two conditions:

- If an access configuration already exists for the specified ports, any disks not specified in the current command will retain their previous associations. If a previous disk association is intended for removal, the **-D,--dissociate** option must be used in a separate command instance.
- If you are creating a new access configuration immediately following execution of the [reset sas-domain](#) command, or if this is the first access configuration being created on a default-configured JBOD array from the factory, note that all ports and initiators are associated with all disks by default. Therefore, creating a new association will implicitly dissociate all disks from all ports and initiators before applying the associations you specify.

Caution – Before executing the above command, stop all I/O operations to any disks within the specified SAS domain.

-C, --change-password

Modifies the access configuration password in the Array Registration Database and the Array SAS Expander so both passwords match. The password can be a maximum of 32 alphanumeric characters. If setting a new password after it has been previously cleared, substitute "" for *<old-password>*, making sure to escape each quote mark (`\"`).

-c, --clear-password

Clears the access configuration password in the Array Registration Database and resets it to the factory default of no password.

Note – If the password in the Array SAS Expander is also not set to the default, modification operations on the SAS domain will be prevented.

-D, --dissociate (in conjunction with **-i, --initiator** and **-d, --disk**)

Dissociates specified initiators and disks in a SAS domain (i.e. defines an access configuration). Disk common names (e.g., CAM_Demo_Rocky:disk:Disk.01) or SAS addresses (e.g., 5000c50001b9c83d) are used in place of *<disk-name>*. Initiator common names or SAS addresses are used in place of *<initiator-name>*. Dissociation of initiators and disks in combination with ports and disks is not possible within a single command. Both variants of **-D** must be executed separately.

Caution – Before executing the above command, stop all I/O operations to any disks within the specified SAS domain.

-D, --dissociate (in conjunction with **-p, --port** and **-d, --disk**)

Dissociates specified ports and disks in a SAS domain. Disk common names (e.g., CAM_Demo_Rocky:disk:Disk.01) and SAS addresses (e.g., 5000c50001b9c83d) are used in place of *<disk-name>*. Dissociation of ports and disks in combination with initiators and disks is not possible within a single command. Both variants of **-D** must be executed separately.

Caution – Before executing the above command, stop all I/O operations to any disks within the specified SAS domain.

-d, --disk *<disk-name [, disk-name...]>*

Specifies the common names of the disks. Disk SAS addresses can also be used. If using this option, a value must be supplied or else an error message will be returned.

-i, --initiator *<initiator-address [, initiator-address...]>*

Specifies the SAS addresses of the initiators. Initiator common names cannot be used. If using this option, a value must be supplied or else an error message will be returned.

-N, --new-password *<new-password>*

Specifies a new access configuration password.

-n, --new-name *<new-sas-domain-name>*

Specifies a new name for the specified SAS domain.

-P, --old-password *<old-password>*

Specifies the existing access configuration password in the Array Registration Database. If setting a new password after it has been previously cleared, substitute "" for *<old-password>*, making sure to escape each quote mark (`\"`).

-z, --prepare-cascade

Clears any previous access configurations on the specified SAS domain in preparation for storage cascading. Refer to the procedures in the *Sun Storage Common Array Manager Software Installation and Setup Guide* for information about configuring cascaded arrays.

-p, --port *<sas-port-name [, sas-port-name...]>*

Specifies the SAS port names to be used when associating or dissociating ports and disks.

-s, --synch-password

Modifies the access configuration password stored in the Array Registration Database only. The password can be a maximum of 32 alphanumeric characters.

Note – If the password in the Array SAS Expander does not match, modification operations on the SAS domain will be prevented.

-y, --synch-cascade

Synchronizes the merged SAS domain in cascaded storage. This action synchronizes the zoning permissions and initializes the connections between arrays. Refer to the procedures in the *Sun Storage Common Array Manager Software Installation and Setup Guide* for information about configuring cascaded arrays.

Examples

These examples use the following sample data:

Current SAS domain name (SAS Address):	50016360000514ff
New SAS domain name:	SAS_Breckenridge
Current access configuration password:	key!stone
New access configuration password:	colo!rado
Initiator-1 SAS address:	500605b0008085d4
Initiator-2 common name:	CAM_Demo_Rocky.mpt:3:0_1_2_3
Disk-1 common name:	CAM_Demo_Rocky:disk:Disk.01
Disk-2 common name:	CAM_Demo_Rocky:disk:Disk.02
Disk-3 common name:	CAM_Demo_Rocky:disk:Disk.03
Disk-3 SAS address:	5000c50001b9c83d
Port-1 name:	CAM_Demo_Rocky:port:SIM.00.Host_In
Port-2 name:	CAM_Demo_Rocky:port:SIM.00.Host_Out
Port-3 name:	CAM_Demo_Rocky:port:SIM.00.SIMLink_Out

Note – When using special characters, such as “!” used in these example passwords, you must escape them or else the shell will misinterpret the command. The password `key!stone` would thus be entered `key\!stone`.

Example 1: Rename a SAS Domain

```
modify -n SAS_Breckenridge sas-domain 50016360000514ff
```

Example 2: Clear Password

```
modify -c sas-domain SAS_Breckenridge
```

Example 3: Change Password

```
modify -C -P key!stone -N colo!rado sas-domain SAS_Breckenridge
```

Example 4: Synchronize Passwords

```
modify -s -N colo!rado sas-domain SAS_Breckenridge
```

Example 5: Associate Initiators and Disks

Single initiator to multiple disks:

```
modify -A -i 500605b0008085d4 -d  
CAM_Demo_Rocky:disk:Disk.01,CAM_Demo_Rocky:disk:Disk.02,5000c50  
001b9c83d sas-domain SAS_Breckenridge
```

Multiple initiators to a single disk:

```
modify -A -i 500605b0008085d4,CAM_Demo_Rocky.mpt:3:0_1_2_3 -d  
CAM_Demo_Rocky:disk:Disk.01 sas-domain SAS_Breckenridge
```

Multiple initiators to multiple disks:

```
modify -A -i 500605b0008085d4,CAM_Demo_Rocky.mpt:3:0_1_2_3 -d  
CAM_Demo_Rocky:disk:Disk.02,5000c50001b9c83d sas-domain  
SAS_Breckenridge
```

Example 6: Dissociate Initiators and Disks

Multiple initiators from a single disk:

```
modify -D -i 500605b0008085d4,CAM_Demo_Rocky.mpt:3:0_1_2_3 -d  
CAM_Demo_Rocky:disk:Disk.02 sas-domain SAS_Breckenridge
```

Dissociate multiple initiators from multiple disks:

```
modify -D -i 500605b0008085d4,CAM_Demo_Rocky.mpt:3:0_1_2_3 -d  
CAM_Demo_Rocky:disk:Disk.01,CAM_Demo_Rocky:disk:Disk.02,5000c50  
001b9c83d sas-domain SAS_Breckenridge
```

Example 7: Prepare for Storage Cascading

```
modify -z sas-domain SAS_Breckenridge
```

Example 8: Synchronize Cascade

```
modify -y sas-domain SAS_Breckenridge
```

Example 9: Associate Ports and Disks

Multiple disks to a single port:

```
modify -A -p CAM_Demo_Rocky:port:SIM.00.Host_In -d  
CAM_Demo_Rocky:disk:Disk.01,CAM_Demo_Rocky:disk:Disk.02,CAM_Dem  
o_Rocky:disk:Disk.03 sas-domain 50016360000514ff
```

Multiple ports to a single disk:

```
modify -A -p  
CAM_Demo_Rocky:port:SIM.00.Host_In,CAM_Demo_Rocky:port:SIM.00.H  
ost_Out -d CAM_Demo_Rocky:disk:Disk.02 sas-domain  
50016360000514ff
```

Multiple ports to multiple disks:

```
modify -A -p  
CAM_Demo_Rocky:port:SIM.00.Host_In,CAM_Demo_Rocky:port:SIM.00.H  
ost_Out -d  
CAM_Demo_Rocky:disk:Disk.01,CAM_Demo_Rocky:disk:Disk.02,CAM_Dem  
o_Rocky:disk:Disk.03 sas-domain 50016360000514ff
```

Example 10: Dissociate Ports

Multiple ports from a single disk:

```
modify -D -p  
CAM_Demo_Rocky:port:SIM.00.Host_In,CAM_Demo_Rocky:port:SIM.00.H  
ost_Out,CAM_Demo_Rocky:port:SIM.00.SIMLink_Out -d  
CAM_Demo_Rocky:disk:Disk.01 sas-domain 50016360000514ff
```

Multiple disks from multiple ports:

```
modify -D -p  
CAM_Demo_Rocky:port:SIM.00.Host_In,CAM_Demo_Rocky:port:SIM.00.H  
ost_Out,CAM_Demo_Rocky:port:SIM.00.SIMLink_Out -d  
CAM_Demo_Rocky:disk:Disk.01,CAM_Demo_Rocky:disk:Disk.02,CAM_Dem  
o_Rocky:disk:Disk.03 sas-domain 50016360000514ff
```

reset sas-domain

Returns the specified SAS domains to their default settings.

Caution – Carefully review the below command description before executing this command.

Synopsis

```
reset sas-domain <sas-domain-name>
```

Description

Upon execution, this command performs the following:

- Returns the specified SAS domain to the default settings.
- Changes the zoning state to Disabled.
- Clears the existing access configuration.
- Resets the SAS domain to the default access configuration. The default access configuration is such that there is open access between all initiators, ports, and disks within the SAS domain.

Options

```
sas-domain <sas-domain-name>
```

Specifies the SAS domain to reset to default settings.

Examples

```
reset sas-domain SAS_Breckenridge
```

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