



show ...

SANtricity commands

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show ...

Show drive download progress

The `show allDrives downloadProgress` command returns the status of firmware downloads for the drives that are targeted by the `download drive firmware` command or the `download storageArray driveFirmware` command.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show allDrives downloadProgress
```

Parameters

None.

Notes

When all of the firmware downloads have successfully completed, this command returns good status. If any firmware downloads fail, this command shows the firmware download status of each drive that was targeted. This command returns the statuses shown in this table.

Status	Definition
Successful	The downloads completed without errors.
Not Attempted	The downloads did not start.
Partial Download	The downloads are in progress.
Failed	The downloads completed with errors.

Minimum firmware level

6.10

Show drive performance statistics

The `show allDrives performanceStats` command returns information about drive performance.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

For each drive in the storage array, this command returns the following information:

- The storage array containing the drive or drives
- The current I/O latency
- The maximum I/O latency
- The minimum I/O latency
- The average I/O latency

Syntax

```
show (allDrives |drive [trayID,[drawerID],slotID] | drives [trayID1  
,[drawerID1],slotID1 ... trayIDn,[drawerIDn],slotIDn]) performanceStats
```

Parameters

Parameter	Description
allDrives	The setting to return information about all of the drives in the storage array.

Parameter	Description
drive or drives	<p>For high-capacity drive trays, specify the tray ID value, the drawer ID value, and the slot ID value for the drive. For low-capacity drive trays, specify the tray ID value and the slot ID value for the drive. Tray ID values are 0 to 99. Drawer ID values are 1 to 5.</p> <p>All slot ID maximums are 24. Slot ID values either begin at 0 or 1, depending on the tray model. Drive trays compatible with E2800 and E5700 controllers have slot ID numbers starting at 0. Drive trays compatible with E2700 and E5600 controllers have slot ID numbers starting at 1.</p> <p>Enclose the tray ID value, the drawer ID value, and the slot ID value in square brackets ([]).</p>

Notes

The `drive` parameter supports both high-capacity drive trays and low-capacity drive trays. A high-capacity drive tray has drawers that hold the drives. The drawers slide out of the drive tray to provide access to the drives. A low-capacity drive tray does not have drawers. For a high-capacity drive tray, you must specify the identifier (ID) of the drive tray, the ID of the drawer, and the ID of the slot in which a drive resides. For a low-capacity drive tray, you need only specify the ID of the drive tray and the ID of the slot in which a drive resides. For a low-capacity drive tray, an alternative method for identifying a location for a drive is to specify the ID of the drive tray, set the ID of the drawer to 0, and specify the ID of the slot in which a drive resides.

The `show drive performanceStats` command returns drive performance statistics as shown in this example:

```
"Performance Monitor Statistics for Storage Array: remote_pp -
Date/Time: 10/23/12 3:47:27 PM -
Polling interval in seconds: 5"

"Objects","Current IO Latency","Maximum IO Latency","Minimum IO Latency",
"Average IO Latency"

"Capture Iteration: 1","","","",""
"Date/Time: 10/23/12 3:47:27 PM","","","",""
"Drive Tray 0, Slot 1","0.0","0.0","0.0","0.0"
```

Minimum firmware level

7.86

Show drive

The `show allDrives` command returns information about the drives in the storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

For each drive in the storage array, this command returns the following information:

- The total number of drives
- The type of drive (SAS, or NVMe4K)
- Information about the basic drive:
 - The tray location and the slot location
 - The status
 - The capacity
 - The data transfer rate
 - The product ID
 - The firmware level
- Information about wear life of SSD drives (this information is only valid for the E2800 and E5700/EF570 and is not shown if the array does not contain SSD drives):
 - The average erase count.
 - The spare blocks remaining.
 - The percent endurance used (new in the 11.41 release). The percent endurance used is the amount of data written to the SSD drives to date divided by the total theoretical write limit for the drives.
- Information about the drive channel:
 - The tray location and the slot location
 - The preferred channel
 - The redundant channel
- Hot spare coverage
- Details for each drive



Date of Manufacture information is not available for NVMe drives.

Syntax

```
show allDrives [driveMediaType=(HDD | SSD | unknown | allMedia)] |  
[driveType=( SAS | NVMe4K)] | (drive [trayID,[drawerID],slotID] | drives  
[trayID1,[drawerID1],slotID1 ... trayIDn,[drawerIDn],slotIDn]  
summary
```

Parameters

Parameter	Description
allDrives	The setting to return information about all of the drives in the storage array.
driveMediaType	<p>The type of drive media for which you want to retrieve information. The following values are valid types of drive media:</p> <ul style="list-style-type: none">• HDD — Use this option when you have hard drives in the drive tray.• SSD — Use this option when you have solid state drives in the drive tray.• unknown — Use this option if you are not sure what types of drive media are in the drive tray.• allMedia — Use this option when you want to use all types of drive media that are in the drive tray.
driveType	<p>The type of drive for which you want to retrieve information. You cannot mix drive types.</p> <p>Valid drive types are:</p> <ul style="list-style-type: none">• SAS• NVMe4K <p>If you do not specify a drive type, the command defaults to any type.</p>

Parameter	Description
<code>drive</code> or <code>drives</code>	<p>For high-capacity drive trays, specify the tray ID value, the drawer ID value, and the slot ID value for the drive. For low-capacity drive trays, specify the tray ID value and the slot ID value for the drive. Tray ID values are 0 to 99. Drawer ID values are 1 to 5.</p> <p>All slot ID maximums are 24. Slot ID values either begin at 0 or 1, depending on the tray model. Drive trays compatible with E2800 and E5700 controllers have slot ID numbers starting at 0. Drive trays compatible with E2700 and E5600 controllers have slot ID numbers starting at 1.</p> <p>Enclose the tray ID value, the drawer ID value, and the slot ID value in square brackets ([]).</p>
<code>summary</code>	The setting to return the status, the capacity, the data transfer rate, the product ID, and the firmware version for the specified drives.

Notes

To determine information about the type and location of all of the drives in the storage array, use the `allDrives` parameter.

To determine the information about the SAS drives in the storage array, use the `driveType` parameter.

To determine the type of drive in a specific location, use the `drive` parameter, and enter the tray ID and the slot ID for the drive.

The `drive` parameter supports both high-capacity drive trays and low-capacity drive trays. A high-capacity drive tray has drawers that hold the drives. The drawers slide out of the drive tray to provide access to the drives. A low-capacity drive tray does not have drawers. For a high-capacity drive tray, you must specify the identifier (ID) of the drive tray, the ID of the drawer, and the ID of the slot in which a drive resides. For a low-capacity drive tray, you need only specify the ID of the drive tray and the ID of the slot in which a drive resides. For a low-capacity drive tray, an alternative method for identifying a location for a drive is to specify the ID of the drive tray, set the ID of the drawer to 0, and specify the ID of the slot in which a drive resides.

Minimum firmware level

5.43

7.60 adds the `drawerID` user input and the `driveMediaType` parameter.

8.41 adds wear life reporting information, in the form of the percentage of endurance used, for SSD drives in an E2800, E5700, or EF570 system.

Show host ports

The `show allHostPorts` command returns information about configured host ports.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

For all of the host ports that are connected to a storage array, this command returns this information:

- The host port identifier
- The host port name
- The host type

Syntax

```
show allHostPorts
```

Parameters

None.

Notes

This command returns HBA host port information similar to this example.

HOST PORT IDENTIFIER	HOST PORT NAME	HOST TYPE
12:34:56:54:33:22:22:22	Jupiter1	Solaris
12:34:56:78:98:98:88:88	Pluto1	Windows 2000/Server 2003
Clustered		
54:32:12:34:34:55:65:66	Undefined	Undefined

Minimum firmware level

5.40

Show SNMP communities

The `show allSnmpCommunities` command returns information about the Simple Network Management Protocol (SNMP) communities defined for the storage array. SNMP communities are collections of devices, such as routers, switches, printers, storage devices, grouped together to manage and monitor the devices.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Context

Information returned includes the following:

- The total number of communities
- The total number of trap destinations
- The names of the SNMP communities

Syntax

```
show (allSnmpCommunities |
snmpCommunity communityName="snmpCommunityName" |
snmpCommunities [snmpCommunityName1 ... snmpCommunityNameN])
[summary]
```

Parameters

Parameter	Description
<code>allSnmpCommunities</code>	This parameter returns information about all of the SNMP communities in the storage array.
<code>communityName</code>	The name of the SNMP community for which you want to retrieve information. Enclose the SNMP community name in double quotation marks (" ").

Parameter	Description
snmpCommunities	<p>The names of several SNMP communities for which you want to retrieve information. Enter the names of the SNMP communities using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
summary	<p>This parameter returns a list of the total number of SNMP communities and the total number of SNMP trap destinations. When you use this parameter, all of the detail information is omitted.</p>

Notes

SNMP supports one or more *communities* to which managers and managed devices belong. SNMP requests contain a *community string* in the data packets passed over the network that acts as a crude password. SNMP agents can reject GET or SET requests with an unrecognized community string. A community string is also included in TRAP notifications sent from agent to manager as well.

The embedded SNMP agent supports both IPV4 and IPV6.

This command returns SNMP community information similar to this example.

```
SNMP COMMUNITIES-----
SUMMARY
  Total SNMP Communities: 2
  Total SNMP Trap Destinations: 1
DETAILS
  SNMP Community: TestComm1
  SNMP Permission: Read Only
    Associated Trap Destination:
      Trap Receiver IP Address: 10.113.173.133
      Send Authentication Failure Traps: true
  SNMP Community: Test2
  SNMP Permission: Read Only
    Associated Trap Destination:
```

Minimum firmware level

8.30

Show SNMPv3 USM user

The `show allsnmpUsers` command returns information about the Simple Network Management (SNMP) USM users defined for the storage array.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin role.

Syntax

```
show (allSnmpUsers |  
    snmpUser userName="snmpUsername" |  
    snmpUsers [snmpUserName1 ... snmpUserNameN])  
[summary]
```

This command returns SNMP user information similar to the following



```
SNMP USERS-----

SUMMARY

    Total SNMP Users: 2
    Total SNMP Trap Destinations: 1

DETAILS

    SNMP User: TestUser1
    SNMP Engine ID: local
    SNMP Permission: Read Only
    SNMP Authentication Protocol: sha
    SNMP Privacy Protocol: aes128

        Associated Trap Destination:

            Trap Receiver IP Address    Send Authentication Failure
Traps                                10.113.173.133                false

    SNMP User: TestUser2
    SNMP Engine ID: local
    SNMP Permission: Read Only
    SNMP Authentication Protocol: sha256
    SNMP Privacy Protocol: none

        Associated Trap Destination:
```

Parameters

Parameter	Description
allSnmpUsers	This parameter returns information about all of the SNMP users in the storage array.
userName	The name of the SNMP user for which you want to retrieve information. Enclose the SNMP user name in double quotation marks (" ").

Parameter	Description
snmpUsers	<p>The names of several SNMP users for which you want to retrieve information. Enter the names of the SNMP users using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
summary	<p>This parameter returns a list of the total number of SNMP users and the total number of SNMP trap destinations. When you use this parameter, all of the detail information is omitted.</p>

Minimum firmware level

8.72

Show array label

The `Show array label` command returns information about whether a storage array label has been defined or all existing storage array labels.

Supported Arrays

This command applies to the EF600 storage arrays.

Syntax

```
show storageArrayLabel label userDefinedString
show storageArrayLabel all
```

Parameters

Parameter	Description
userDefinedString	<p>Allows you to specify a user-defined label for the storage array.</p>

Minimum firmware level

8.60

Show asynchronous mirror groups

The `show asyncMirrorGroup summary` command displays configuration information for one or more asynchronous mirror groups.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, and E5700 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Storage Admin role.

Context

This command also displays the asynchronous mirrored pairs associated with each asynchronous mirror group, including incomplete asynchronous mirrored pairs.

You also can use this command to show the progress of periodic data synchronization on all of the mirrored pairs within the asynchronous mirror group.

Syntax

```
show (allAsyncMirrorGroups |
    asyncMirrorGroup [asyncMirrorGroupName] |
    asyncMirrorGroups [asyncMirrorGroupName1 ... asyncMirrorGroupNameN])
[summary]
```

Parameter

Parameter	Description
allAsyncMirrorGroups	Use this parameter if you want to display the properties for all asynchronous mirror groups.
asyncMirrorGroup	The name of an asynchronous mirror group for which you want to show configuration information and the progress of periodic data synchronization. Enclose the asynchronous mirror group name in square brackets ([]). If the asynchronous mirror group name has special characters or numbers, you must enclose the asynchronous mirror group name in double quotation marks (" ") inside square brackets.

Parameter	Description
<code>asyncMirrorGroups</code>	<p>The names of several asynchronous mirror groups for which you want to retrieve information. Enter the names of the asynchronous mirror groups using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Separate each of the names with a space. <p>If the asynchronous mirror group names have special characters or numbers, enter the names using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
<code>summary</code>	This parameter displays a concise list of information about the synchronization progress of one or more asynchronous mirror groups.

Minimum firmware level

7.84

Show asynchronous mirror group synchronization progress

The `show asyncMirrorGroup synchronizationProgress` command displays the progress of *periodic* synchronization of the asynchronous mirror group between the local and remote storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, and E5700 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Storage Admin role.

Context

This command returns the progress of data synchronization on all of the mirrored pairs within the asynchronous mirror group. This command shows the progress as a percentage of data synchronization that has been completed.



There are two types of synchronization: initial synchronization and periodic synchronization. Initial asynchronous mirror group synchronization progress is displayed in the **Long Running Operations** dialog and by executing the `show storageArray longRunningOperations` command.

Syntax

```
show asyncMirrorGroup [asyncMirrorGroupName]
[synchronizationProgress]
[summary]
```

Parameters

Parameter	Description
asyncMirrorGroup	The name of an asynchronous mirror group for which you want to show synchronization of the asynchronous mirror group between the local and remote storage array. Enclose the asynchronous mirror group name in square brackets ([]). If the asynchronous mirror group name has special characters or numbers, you must enclose the asynchronous mirror group name in double quotation marks (" ") inside square brackets.
synchronizationProgress	This parameter displays the periodic synchronization progress of the asynchronous mirror group.
summary	This parameter displays a concise list of information about the synchronization of the asynchronous mirror group between the local and remote storage array.

Minimum firmware level

7.84

Show audit log configuration

The `show auditLog configuration` command shows the audit log configuration settings for the storage array.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show auditLog configuration
```

Parameters

None.

Examples

```
SMcli -n Array1 -c "show auditLog configuration;"
```

```
Logging level: All  
Full policy: Overwrite  
Maximum records: 30,000 count  
Warning threshold: 90 percent
```

```
SMcli completed successfully.
```

Minimum firmware level

8.40

Show audit log summary

The `show auditLog summary` command displays the audit log summary information.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show auditLog summary
```

Parameters

None.

Examples

```
SMcli -n Array1 -c "show auditLog summary;"

Total log records: 1,532
First log record: 1493070393313 (2017-04-24T16:46:33.313-0500)
Last log record: 1493134565128 (2017-04-25T10:36:05.128-0500)

SMcli completed successfully.
```

Minimum firmware level

8.40

Show blocked events

The `show blockedEventAlertList` command returns a list of events that are currently blocked by the `set blockEventAlert` command. The events in this list are the events that will not send any notifications that you have configured using the alert terminals and parameters; that is, the email, syslog, and trap notifications.

Supported Arrays

This command applies only to the E2700 and E5600 storage arrays.

Context



This command is an SMcli command, not a script command. You must run this command from a command line. You cannot run this command from the script editor in the storage management software.

Syntax

```
show blockedEventAlertList
```

Example

The output has one line for each event that is blocked, listing the type of event in a hexadecimal format followed by a description of the event. Following is an example of the output:

```
Executing Script...
0x280D Enclosure Failure
0x282B Tray Redundancy Lost
Script execution complete.
```

Parameters

None.

Minimum firmware level

8.10

Show certificates

The `show certificates` command allows you to view the certificates installed on the CLI package trust store.

Supported Arrays

This command applies to the EF600 storage arrays.

Syntax

```
show localCertificate all | alias alias
```

Parameters

Parameter	Description
alias	Allows you to specify a certificate through the user-defined alias.

Minimum firmware level

8.60

Show consistency group snapshot image

The `show CGSnapImage` command shows one snapshot image or several snapshot images that are in one or more snapshot consistency groups.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and

EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show ((CGSnapImage [(CGSnapImageName | CGSnapImageSequenceNumber)]) |
      (CGSnapImages [(CGSnapImageNumber1 ... CGSnapImageNumbern |
                      CGSnapImageSequenceNumber1 ... CGSnapImageSequenceNumbern)])) |
allCGSnapImages
[summary]
```

Parameters

Parameter	Description
CGSnapImage or CGSnapImages	<p>The name of the snapshot image in a consistency group. The name of a snapshot image is comprised of two parts:</p> <ul style="list-style-type: none">• The name of the consistency group• An identifier for the snapshot image in the consistency group. <p>The identifier for the snapshot image can be one of these:</p> <ul style="list-style-type: none">• An integer value that is the sequence number of the snapshot in the consistency group.• NEWEST — Use this option when you want to show the latest snapshot image created in the consistency group.• OLDEST — Use this option when you want to show the earliest snapshot image created in the consistency group. <p>Enclose the snapshot image name in double quotation marks (" ") inside square brackets ([]).</p> <p>You can enter more than one snapshot image name or sequence number. Enclose all of the snapshot image names in one set of double quotation marks (" ") inside square brackets ([]). Separate each snapshot image name with a space.</p>

Parameter	Description
allCGSnapImages	The setting to return all of the snapshot images from the consistency groups.
summary	The setting to return a concise list of information about all of the snapshot images in the storage array.

Notes

The name of a snapshot image has two parts separated by a colon (:):

- The identifier of the snapshot consistency group
- The identifier of the snapshot image

For example, if you want to show snapshot image 12345 in a snapshot consistency group that has the name snapCGroup1, you would use this command:

```
show CGsnapImage ["snapCGroup1:12345"];
```

To show the most recent snapshot image in a snapshot consistency group that has the name snapCGroup1, you would use this command:

```
show CGsnapImage ["snapCGroup1:newest"];
```

To show the snapshot images in several snapshot consistency groups that have the names snapCGroup1, snapCGroup2, and snapCGroup3, you would use this command:

```
show CGsnapImages ["snapCGroup1:12345 snapCGroup2:newest  
snapCGroup3:oldest"];
```

Note that in these examples the snapshot consistency group name is separated from the snapshot image identifier by a colon (:).

Minimum firmware level

7.83

Show consistency group

The `show consistencyGroup` command returns information about one or more consistency groups.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show (allConsistencyGroups | consistencyGroup [consistencyGroupName] |  
consistencyGroups [consistencyGroupName1 ... consistencyGroupNameN])  
[(summary | schedule)]
```

Parameters

Parameter	Description
allConsistencyGroups	This setting returns information about all of the consistency groups in the storage array.
consistencyGroup	The name of the consistency group for which you are retrieving information. Enclose the consistency group name in square brackets ([]). If the consistency group name has special characters or numbers, you must enclose the consistency group name in double quotation marks (" ") inside square brackets.
consistencyGroups	<p>The names of several consistency groups for which you are retrieving information. All of the volumes will have the same properties. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Separate each of the names with a space. <p>If the volume names have special characters or consist only of numbers, enter the names using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Enclose each of the names in double quotation marks (" ").• Separate each of the names with a space.

Parameter	Description
summary	This setting returns a concise list of information about the consistency groups.
schedule	This parameter returns information about any schedules for a consistency group.

Minimum firmware level

7.83

Show signed certificate

The `show controller arrayManagementSignedCertificate summary` command displays the current signed certificate summary from the specified controller.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show controller [(a|b)] arrayManagementSignedCertificate summary
```

Parameters

Parameter	Description
controller	Allows you to specify the controller on which you want to retrieve the root/intermediate certificates. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Enclose the controller identifier in square brackets ([]).

Example

Sample output may be different than illustrated below.

```
SMcli -n Array1 -c "show controller[a] arrayManagementSignedCertificate
all summary;"
```

```
=====
Controller A Signed Certificate
=====
Subject DN:   CN=Corp Issuing CA 1
Issuer DN:    CN=Corp Root CA
Start:        <date>
Expire:       <date>

SMcli completed successfully.
```

Minimum firmware level

8.40

Show installed root/intermediate CA certificates summary

The `show controller caCertificate` command displays the installed CA certificates summary from the specified controller. This command is useful to use before performing the `delete controller caCertificate` command so that you know the alias names of the certificates to delete.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show controller [(a|b)] caCertificate [all | aliases=("alias1" ... "
aliasN")] summary
```

Parameters

Parameter	Description
controller	Allows the user to specify the controller on which you want to retrieve the root/intermediate certificates. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Enclose the controller identifier in square brackets ([]).
all	Allows the user to specify the retrieval of all root/intermediate certificates.
aliases	Allows the user to specify which root/intermediate certificate to retrieve by alias. Enclose all the aliases in parentheses. If you enter more than one alias, separate them with a space.

Examples

```
SMcli -n Array1 -c "show controller[a] caCertificate all summary;"

SMcli -n Array1 -c "show controller[b] caCertificate alias=("myAlias"
"anotherAlias") summary;"
=====
Controller A Authority Certificates
=====
Alias:          19527b38-8d26-44e5-8c7f-5bf2ca9db7cf
Subject DN:     CN=My Corp Issuing CA 1
Issuer DN:      CN=My Corp Root CA
Start:          date
Expire:         date
-----
Alias:          myAliasName
Subject DN:     CN=My Corp Issuing CA 1
Issuer DN:      CN=My Corp Root CA
Start:          date
Expire:         date

SMcli completed successfully.
```

Minimum firmware level

8.40

Show controller diagnostic status

The `show controller` command returns the status of controller diagnostics started by the `start controller diagnostic` command.

If the diagnostics have finished, the entire results of the diagnostic tests are shown. If the diagnostic tests have not finished, only the results of the tests that are finished are shown. The results of the test are shown on the terminal, or you can write the results to a file.

Syntax

```
show controller [(a| b)] diagnosticStatus [file=filename]
```

Parameters

Parameter	Description
controller	The setting to return information about a specific controller in the storage array. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Enclose the controller identifier in square brackets ([]).
file	The name of the file that contains the results of the diagnostic tests. This command does not automatically append a file extension to the file name. You must add an extension when you enter the file name.

Minimum firmware level

7.70 adds the capability for controller diagnostic status.

Show controller NVSRAM

The `show controller NVSRAM` command returns information about NVSRAM byte values.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

This command returns a list of the NVSRAM byte values for the specified host type. If you do not enter the optional parameters, this command returns a list of all of the NVSRAM byte values.

Syntax

```
show (allControllers | controller [(a|b)])  
NVSRAM [hostType=hostTypeIndexLabel | host="hostName"]
```

Parameters

Parameter	Description
allControllers	The setting to return information about both controllers in the storage array.
controller	The setting to return information about a specific controller in the storage array. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Enclose the controller identifier in square brackets ([]).
hostType	The index label or number of the host type. Use the <code>show storageArray hostTypeTable</code> command to generate a list of available host type identifiers.
host	The name of the host that is connected to the controllers. Enclose the host name in double quotation marks (" ").

Notes

Use the `show controller NVSRAM` command to show parts of or all of the NVSRAM before using the `set controller` command to change the NVSRAM values. Before making any changes to the NVSRAM, contact technical support to learn what regions of the NVSRAM you can modify.

Show controller

The `show controller` command returns information about a controller.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

For each controller in a storage array, this command returns the following information:

- The status (Online or Offline)
- The current firmware and NVSRAM configuration
- The pending firmware configuration and NVSRAM configuration (if any)
- The board ID
- The product ID
- The product revision
- The serial number
- The date of manufacture
- The cache size or the processor size
- The date and the time to which the controller is set
- The associated volumes (including the preferred owner)
- The Ethernet port
- The physical disk interface
- The host interface, which applies only to Fibre Channel host interfaces

Syntax

```
show (allControllers | controller [(a|b)])  
[summary]
```

Parameters

Parameter	Description
allControllers	The setting to return information about both controllers in the storage array.
controller	The setting to return information about a specific controller in the storage array. Valid controller identifiers are <i>a</i> or <i>b</i> , where <i>a</i> is the controller in slot A, and <i>b</i> is the controller in slot B. Enclose the controller identifier in square brackets ([]).
summary	The setting to return a concise list of information about both controllers in the storage array.

Notes

The following list is an example of the information that is returned by the `show controller` command. This example only shows how the information is presented and should not be considered to represent best practice for a storage array configuration.

Controller in slot A

Status: Online

Current configuration

Firmware version: 96.10.21.00

Appware version: 96.10.21.00

Bootware version: 96.10.21.00

NVSRAM version: N4884-610800-001

Pending configuration

Firmware version: Not applicable

Appware version: Not applicable

Bootware version: Not applicable

NVSRAM version: Not applicable

Transferred on: Not applicable

Board ID: 4884

Product ID: INF-01-00

Product revision: 9610

Serial number: 1T14148766

Date of manufacture: October 14, 2006

Cache/processor size (MB): 1024/128

Date/Time: Wed Feb 18 13:55:53 MST 2008

Associated Volumes (* = Preferred Owner):

1*, 2*, CTL 0 Mirror Repository*, Mirror Repository 1*,
JCG_Remote_MirrorMenuTests*

Ethernet port: 1

MAC address: 00:a0:b8:0c:c3:f5

Host name: ausctlr9

Network configuration: Static

IP address: 172.22.4.249

Subnet mask: 255.255.255.0

Gateway: 172.22.4.1

Remote login: Enabled

Drive interface: Fibre

Channel: 1

Current ID: 125/0x1

Maximum data rate: 2 Gbps

Current data rate: 1 Gbps

Data rate control: Switch

Link status: Up

Drive interface: Fibre

```
Channel: 2
Current ID: 125/0x1
Maximum data rate: 2 Gbps
Current data rate: 1 Gbps
Data rate control: Switch
Link status: Up
Drive interface: Fibre
Channel: 3
Current ID: 125/0x1
Maximum data rate: 2 Gbps
Current data rate: 1 Gbps
Data rate control: Switch
Link status: Up
Drive interface: Fibre
Channel: 4
Current ID: 125/0x1
Maximum data rate: 2 Gbps
Current data rate: 1 Gbps
Data rate control: Switch
Link status: Up
Host interface: Fibre
Port: 1
Current ID: Not applicable/0xFFFFFFFF
Preferred ID: 126/0x0
NL-Port ID: 0x011100
Maximum data rate: 2 Gbps
Current data rate: 1 Gbps
Data rate control: Switch
Link status: Up
Topology: Fabric Attach
World-wide port name: 20:2c:00:a0:b8:0c:c3:f6
World-wide node name: 20:2c:00:a0:b8:0c:c3:f5
Part type: HPFC-5200      revision 10
Host interface: Fibre
Port: 2
Current ID: Not applicable/0xFFFFFFFF
Preferred ID: 126/0x0
NL-Port ID: 0x011100
Maximum data rate: 2 Gbps
Current data rate: 1 Gbps
Data rate control: Switch
Link status: Up
Topology: Fabric Attach
World-wide port name: 20:2c:00:a0:b8:0c:c3:f7
World-wide node name: 20:2c:00:a0:b8:0c:c3:f5
Part type: HPFC-5200      revision 10
```


When you use the `summary` parameter, the command returns the list of information without the drive channel information and the host channel information.

The `show storageArray` command also returns detailed information about the controller.

Minimum firmware level

5.43 adds the `summary` parameter.

Show disk pool

The `show diskPool` command returns information about a disk pool.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

This command returns this information about a disk pool:

- The status (such as optimal, online, offline)
- The total capacity
- The preservation capacity, usable capacity and unusable capacity
- The used capacity, free capacity, and percentage full
- The current owner (the controller in slot A or the controller in slot B)
- The drive media (SAS)
- The drive media type (HDD or SSD)
- The drive interface type (Fibre Channel, iSCSI, InfiniBand, SAS)
- Tray loss protection (yes or no)
- Secure capable - indicates whether the disk pool is composed of all secure-capable drives. Secure-capable drives can be either FDE drives or FIPS drives.
- Secure - Indicates whether the disk pool has drive security turned on (this is called secure enabled).
- The remaining capacity notification settings (critical and early warning)
- The priority settings
- The associated volumes and free capacity
- The associated drives
- Data Assurance capabilities and presence of Data Assurance enabled volumes

- Resource provisioning capabilities

Syntax

```
show diskPool [diskPoolName]
```

Parameter

Parameter	Description
diskPool	The name of the disk pool for which you are retrieving information. Enclose the disk pool name in square brackets ([]). If the disk pool name has special characters or numbers, you must enclose the disk pool name in double quotation marks (" ") inside square brackets.

Notes

Use this command to show the disk pool content of the storage array profile.

Minimum firmware level

7.83

Show drive channel statistics

The `show driveChannel stats` command shows the cumulative data transfer for the drive channel and error information.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

If the controller has automatically degraded a drive channel, this command also shows interval statistics. When you use this command, you can show information about one specific drive channel, several drive channels, or all drive channels.

Syntax

```
show (driveChannel [(1 | 2 | 3 | 4 | 5 | 6 | 7 | 8)] |  
      driveChannels [1 2 3 4 5 6 7 8] |  
      allDriveChannels) stats
```

Parameters

Parameter	Description
driveChannel	<p>The identifier number of the drive channel for which you want to show information. Valid drive channel values are 1, 2, 3, 4, 5, 6, 7, or 8. Enclose the drive channel in square brackets ([]).</p> <p>Use this parameter when you want to show the statistics for only one drive channel.</p>
driveChannels	<p>The identifier numbers of several drive channels for which you want to show information. Valid drive channel values are 1, 2, 3, 4, 5, 6, 7, or 8. Enclose the drive channels in square brackets ([]) with the drive channel value separated with a space.</p> <p>Use this parameter when you want to show the statistics for more than one drive channel.</p>
allDriveChannels	<p>The identifier that selects all of the drive channels.</p>

Notes

None.

Minimum firmware level

6.10

7.15 adds an update to the drive channel identifier.

Show email alert configuration

The `show emailAlert summary` command displays the email alert configuration information.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Syntax

```
show emailAlert summary
```

Parameters

None.

Examples

```
SMcli -n Array1 -c "show emailAlert summary;"
```

```
EMAIL ALERT SETTINGS
```

```
Mail server address: email@company.com
```

```
Mail server encryption: starttls
```

```
Mail server port: 587
```

```
Mail server user name: accountName
```

```
Mail server password: secret123
```

```
Email sender address: no-reply@company.com
```

```
Recipient Email
```

```
    recipient@company.com
```

```
    recipient-two@company.com
```

```
SMcli completed successfully.
```

Minimum firmware level

8.40

11.70.01 added parameters that specify the SMTP encryption (none, SMTPS, STARTTLS), SMTP port, and SMTP credentials (user name and password).

Show current iSCSI sessions

The `show iscsiSessions` command returns information about an iSCSI session for either an iSCSI initiator or an iSCSI target.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show iscsiInitiator ["initiatorName" | <"iqn">] iscsiSessions
```

```
show iscsiTarget ["targetName" | <"iqn">] iscsiSessions
```

Parameters

Parameter	Description
<code>iscsiInitiator</code>	<p>The name of the iSCSI initiator for which you want to obtain session information.</p> <p>If the iSCSI initiator uses a label or an alias, enclose the iSCSI initiator label or alias in double quotation marks (" ") inside square brackets ([]).</p> <p>If the iSCSI initiator uses an iSCSI qualified name (IQN), enclose the IQN in double quotation marks (" ") inside angle brackets (< >).</p>
<code>iscsiTarget</code>	<p>The name of the iSCSI target for which you want to obtain session information.</p> <p>If the iSCSI target uses a label or an alias, enclose the iSCSI target label or alias in double quotation marks (" ") inside square brackets ([]).</p> <p>If the iSCSI target uses an iSCSI qualified name (IQN), enclose the IQN in double quotation marks (" ") inside angle brackets (< >).</p>

Notes

If you enter this command without defining any arguments, this command returns information about all of the iSCSI sessions that are currently running. The following command returns information about all of the current iSCSI sessions:

```
show iscsiSessions
```

To limit the information that is returned, enter a specific iSCSI initiator or a specific iSCSI target. This command then returns information about the session for only the iSCSI initiator or the iSCSI target that you named.

An initiator name can be any combination of alpha or numeric characters from 1 to 30 characters in length. An IQN can be up to 255 characters in length and has this format:

```
iqn.yyyy-mm.naming-authority:unique name
```

Minimum firmware level

7.10

Show replaceable drives

The `show replaceableDrives` command shows all replaceable drives in a storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Context

For each replaceable drive in the storage array, this command returns the following information:

- The tray location and the slot location
- The volume group name to which the drive belongs
- The World Wide Name (WWN)
- The status of the drive

Syntax

```
show replaceableDrives
```

Example output

```
Replaceable drive at Tray 0, Slot 3
    Volume group: 2
    World-wide name: 5000c50028785aff000000000000000000
    Status: Removed
Replaceable drive at Tray 0, Slot 23
    Volume group: 2
    World-wide name: 5000c500095d46df00000000000000000
    Status: Removed
Replaceable drive at Tray 0, Slot 24
    Volume group: 2
    World-wide name: 5000c500287854d70000000000000000
    Status: Removed
```

Minimum firmware level

7.10

Show snapshot group

The `show snapGroup` command returns information about one or more snapshot image groups.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show (allSnapGroups | snapGroup [snapGroupName] |
snapGroups ["snapGroupName1" ... "snapGroupName"])
[summary | schedule]
```

Parameters

Parameter	Description
<code>allSnapGroups</code>	The parameter to return information about all of the snapshot groups in the storage array.

Parameter	Description
snapGroup	The name of the snapshot group for which you want to retrieve information. Enclose the snapshot group name in square brackets ([]). If the snapshot group name has special characters or numbers, you must enclose the snapshot group name in double quotation marks (" ") inside square brackets.
snapGroups	<p>The names of several snapshot groups for which you want to retrieve information. Enter the names of the snapshot groups using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Separate each of the names with a space. <p>If the snapshot group names have special characters or consist only of numbers, enter the names using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
summary	The parameter to return a concise list of information about the snapshot groups.
schedule	The parameter to return a concise list of information about the schedules for the snapshot group copy operations.

Notes

You can use any combination of alphanumeric characters, underscore (_), hyphen (-), and pound (#) for the names. Names can have a maximum of 30 characters.

This command returns snapshot group information as shown in this example:

```

SNAPSHOT GROUP DETAILS

SNAPSHOT GROUPS-----

SUMMARY

```



```
Total Snapshot Groups: 1
Total Snapshot Images: 0
Enabled Snapshot Image Schedules: 0
Status: 1 Optimal, 0 Non Optimal
```

Name	Type	Status	Associated Base Volume
2_SG_01	Standard	Optimal	2

Total Repository Capacity Limit	Available Repository Capacity	Snapshot Image
10.318 GB	10.318 GB (100%)	0

Snapshot Images	Scheduled
0	No

DETAILS

Snapshot Group "2_SG_01"

Status: Optimal
Type: Standard
Associated base volume: 2
Cluster size: 65,536 bytes

Repository

Total repository volumes: 3
Aggregate repository status: Optimal
Total repository capacity: 10.318 GB
Used capacity: 0.000 MB (0%)
Available repository capacity: 10.318 GB (100%)
Repository full policy: Auto-purge Snapshot Images
Utilization alert threshold: 75%

Snapshot images

Total Snapshot images: 0
Auto-delete Snapshot images: Disabled
Snapshot image schedule: Not Applicable

Minimum firmware level

7.83

Show snapshot image

The `show snapImage` command returns information about the snapshot images that a

user had previously created.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax for showing a specific snapshot image

```
show (allSnapImages | snapImage ["snapImageName"] |
snapImages ["snapImageName1" ... "snapImageNameN"])
[summary]
```

Parameters

Parameter	Description
allSnapImages	The parameter to return information about all of the snapshot images in the storage array.
snapImage	<p>The name of a snapshot image for which you want to retrieve information. The name of a snapshot image is comprised of two parts:</p> <ul style="list-style-type: none">• The name of the snapshot group• An identifier for the snapshot image in the snapshot group <p>The identifier for the snapshot image can be one of these:</p> <ul style="list-style-type: none">• An integer value that is the sequence number of the snapshot in the snapshot group.• NEWEST — Use this option when you want to show the latest snapshot image created in the snapshot group.• OLDEST — Use this option when you want to show the earliest snapshot image created in the snapshot group. <p>Enclose the snapshot image name in double quotation marks (" ") inside square brackets ([]).</p>

Parameter	Description
snapImages	<p>The names of several snapshot images for which you want to retrieve information. Enter the names of the snapshot images using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
summary	This parameter returns a concise list of information about the snapshot images.

Notes

The name of a snapshot image has two parts separated by a colon (:):

- The identifier of the snapshot group
- The identifier of the snapshot image

For example, if you want to show snapshot image 12345 in a snapshot group that has the name snapGroup1, you would use this command:

```
show snapImage ["snapGroup1:12345"];
```

To show the most recent snapshot image in a snapshot group that has the name snapGroup1, you would use this command:

```
show snapImage ["snapGroup1:newest"];
```

To show the snapshot images in several snapshot consistency groups that has the names snapGroup1, snapGroup2, and snapGroup3, you would use this command:

```
show snapImages ["snapGroup1:12345 snapGroup2:newest snapGroup3:oldest"];
```

Minimum firmware level

7.83

Show snapshot volumes

The `show snapVolume` command returns information about one or more snapshot volumes.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin role.

Syntax

```
show (allSnapVolumes | snapVolume ["snapVolumeName"] |
snapVolumes ["snapVolumeName1" ... "snapVolumeNameN"])
[summary]
```

Parameters

Parameter	Description
allSnapVolumes	The parameter to return information about all of the snapshot volumes in the storage array.
snapVolume	The name of a snapshot volume about which you want to retrieve information. Enclose the snapshot volume name in double quotation marks (") inside of square brackets ([]).
snapVolumes	The names of several snapshot volumes for which you want to retrieve information. Enter the names of the snapshot volumes using these rules: <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Enclose each of the names in double quotation marks (").• Separate each of the names with a space.
summary	The parameter to return a concise list of information about the snapshot volumes.

Notes

You can use any combination of alphanumeric characters, underscore (_), hyphen (-), and pound (#) for the names. Names can have a maximum of 30 characters.

This command returns snapshot volume information as shown in this example:

SNAPSHOT VOLUME (SNAPSHOT-IMAGE BASED) SUMMARY

SUMMARY

Total Snapshot Volumes: 1

Most Recent Snapshot Volume: Day month date hh:mm:ss yyyy

Status: 1 Optimal, 0 Non Optimal

Name	Type	Status	Capacity	Associated Base Volume
2_SV_0001	Standard	Optimal	3.000 GB	2

Snapshot Volume Timestamp	Snapshot Image Timestamp	Mode
1/23/12 6:44:31 PM IST	1/23/12 6:27:36 PM IST	Read Write

Total Repository Capacity	Available Repository Capacity
1.199 GB	0.125 MB (0%)

The size of your monitor determines how the information wraps and will affect how the information appears.

Minimum firmware level

7.83

Show SNMP MIB II system group variables

The `show snmpSystemVariables` command returns information about the Simple Network Management Protocol (SNMP) system variables. The system variables are maintained in a Management Information Base II (MIB-II) database.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Syntax

```
show snmpSystemVariables
```

Parameters

None.

Notes

This command returns SNMP system variables information similar to this example.

```
SYSTEM VARIABLES
  Sys Name: NONE
  Sys Contact: NONE
  Sys Location: NONE
```

Minimum firmware level

8.30

Show SSD cache statistics

The `show ssdCache` command displays data about the SSD cache usage.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, and E5700 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Support Admin role.

Syntax

```
show ssdCache [ssdCacheName] [ssdCacheStatistics]
[controller=(a|b|both)]
[file="filename"]
```

Parameters

Parameter	Description
<code>ssdCache</code>	The name of the SSD cache for which you want to retrieve information. Enclose the SSD cache name in square brackets ([]). If the SSD cache name has special characters or numbers, you must enclose the SSD cache name in double quotation marks (" ") inside square brackets.
<code>ssdCacheStatistics</code>	An optional parameter to the <code>show ssdCache</code> command that indicates you want to retrieve cache statistics.
<code>controller</code>	Each controller stores SSD cache metadata for the volumes that it owns. Therefore, the SSD cache statistics are maintained and displayed per controller. Valid controller identifiers are <code>a</code> , <code>b</code> , or <code>both</code> , where <code>a</code> is the controller in slot A, <code>b</code> is the controller in slot B, and <code>both</code> is both controllers. Enclose the controller identifier in square brackets ([]). If you do not specify a controller, the default value is <code>both</code> .
<code>file</code>	<p>The file path and the file name to which you want to save the SSD cache statistics. Additional statistics are available when you save the statistics to a file.</p> <p>Enclose the file name in double quotation marks (" "). For example:</p> <pre>file="C:\Program Files\CLI\logs\ssdcachestats.csv".</pre> <p>You can use any file name but you must use the <code>.csv</code> extension.</p>

Notes

The following statistics are displayed on the screen:

- **Reads** — total number of host reads of SSD cache-enabled volumes.

Compare the Reads relative to Writes. The Reads need to be greater than the Writes for effective SSD cache operation. The greater the ratio of Reads to Writes the better the operation of the cache.

- **Writes** — total number of host writes to SSD cache-enabled volumes.
- **Cache Hits** — a count of the number of cache hits.
- **Cache Hits (%)** — derived from Cache Hits/total reads.

The Cache Hit percentage should be greater than 50 percent for effective SSD cache operation. A small number could be indicative of several things:

- Ratio of Reads to Writes is too small.
- Reads are not repeated.
- Cache capacity is too small.



To help determine the ideal SSD cache capacity, you can run the Performance Modeling Tool using the `start ssdCache [ssdCacheName] performanceModeling` command.

- **Cache Allocation (%)** — The amount of SSD cache storage that is allocated, expressed as a percentage of the SSD cache storage that is available to this controller. Derived from allocated bytes / available bytes.

Cache Allocation percentage normally shows as 100 percent. If this number is less than 100 percent, it means either the cache has not been warmed or the SSD cache capacity is larger than all the data being accessed. In the latter case, a smaller SSD cache capacity could provide the same level of performance. Note that this does not indicate that cached data has been placed into the SSD cache, it is simply a preparation step before data can be placed in the SSD cache.

- **Cache Utilization (%)** — The amount of SSD cache storage that contains data from enabled volumes, expressed as a percentage of SSD cache storage that is allocated. This value represents the utilization or density of the SSD cache. Derived from user data bytes / allocated bytes.

Cache Utilization percentage normally is lower than 100 percent, perhaps much lower. This number shows the percent of SSD cache capacity that is filled with cache data. The reason this number is lower than 100 percent is that each allocation unit of the SSD cache, the SSD cache cache-block, is divided into smaller units called sub-blocks, which are filled somewhat independently. A higher number is generally better, but performance gains can be significant even with a smaller number.

These additional statistics are included when you save the data to a file:

- **Read Blocks** — Number of blocks in host reads.
- **Write Blocks** — Number of blocks in host writes.
- **Full Hit Blocks** — Number of block cache hit.

The full hit blocks indicate the number of blocks that have been read entirely from SSD cache. The SSD cache is only beneficial to performance for those operations that are full cache hits.

- **Partial Hits** — Number of host reads where at least one block, but not all blocks, were in the SSD cache. This is an SSD cache **miss** where the reads were satisfied from the base volume.

Partial cache hits and partial cache hit blocks result from an operation that has only a portion of its data in the SSD cache. In this case, the operation must retrieve the data from the cached HDD volume. The SSD cache offers no performance benefit for this type of hit. If the partial cache hit blocks count is higher than the full cache hit blocks, it is possible that a different I/O characteristic type (file system, database, or web server) could improve the performance.

- **Partial Hits — Blocks** — Number of blocks in Partial Hits.

Partial cache hits and partial cache hit blocks result from an operation that has only a portion of its data in the SSD cache. In this case, the operation must retrieve the data from the cached HDD volume. The SSD cache offers no performance benefit for this type of hit. If the partial cache hit blocks count is higher than the full cache hit blocks, it is possible that a different I/O characteristic type (file system, database, or web server) could improve the performance.

- **Misses** — Number of host reads where none of the blocks were in the SSD cache. This is an SSD cache miss where the reads were satisfied from the base volume.
- **Misses — Blocks** — Number of blocks in Misses.
- **Populate Actions (Host Reads)** — Number of host reads where data was copied from the base volume to the SSD cache.
- **Populate Actions (Host Reads) — Blocks** — Number of blocks in Populate Actions (Host Reads).
- **Populate Actions (Host Writes)** — Number of host writes where data was copied from the base volume to the SSD cache.

The Populate Actions (Host Writes) count may be zero for the cache configuration settings that do not fill the cache as a result of a Write I/O operation.

- **Populate Actions (Host Writes) — Blocks** — Number of blocks in Populate Actions (Host Writes).
- **Invalidate Actions** — Number of times data was invalidated/removed from the SSD cache. A cache invalidate operation is performed for every host write request, every host read request with Forced Unit Access (FUA), every verify request, and in some other circumstances.
- **Recycle Actions** — Number of times that the SSD cache block has been re-used for another base volume and/or a different LBA range.

For effective cache operation, it is important that the number of recycles is small compared to the combined number of read and write operations. If the number of Recycle Actions is close to the combined number of Reads and Writes, then the SSD cache is thrashing. Either the cache capacity needs to be increased or the workload is not favorable for use with SSD cache.

- **Available Bytes** — Number of bytes available in the SSD cache for use by this controller.

The available bytes, allocated bytes, and user data bytes are used to compute the Cache Allocation % and the Cache Utilization %.

- **Allocated Bytes** — Number of bytes allocated from the SSD cache by this controller. Bytes allocated from the SSD cache may be empty or they may contain data from base volumes.

The available bytes, allocated bytes, and user data bytes are used to compute the Cache Allocation % and the Cache Utilization %.

- **User Data Bytes** — Number of allocated bytes in the SSD cache that contain data from base volumes.

The available bytes, allocated bytes, and user data bytes are used to compute the Cache Allocation % and the Cache Utilization %.

Minimum firmware level

7.84

Show SSD cache

The `show ssdCache` command displays information about the SSD cache.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, and E5700 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Support Admin role.

Syntax

```
show ssdCache [ssdCacheName]
```

Parameter

Parameter	Description
ssdCache	The name of the SSD cache for which you want to retrieve information. Enclose the SSD cache name in square brackets ([]). If the SSD cache name has special characters or numbers, you must enclose the SSD cache name in double quotation marks (" ") inside square brackets.

Notes

This command returns the SSD cache information similar to this example.

```
SSD Cache name: my_cache
```

```
Status:                               Optimal
Type:                                   Read Only
I/O characteristic type:              File System
Maximum capacity allowed:              1,862.645 GB
Current capacity:                      557.792 GB
Additional capacity allowed             1,304.852 GB
Drive capacities:                      All 278.896 GB
Quality of Service (QoS) Attributes
  Security capable:                    No
  Secure:                              No
  Data Assurance (DA) capable:         No
Associated drives:

Tray      Slot
0          4
0          11
Volumes using SSD cache:               volume_test
```

Minimum firmware level

7.84

Show storage array auto configuration

The `show storageArray autoConfiguration` command shows the default auto-configuration that the storage array creates if you run the `autoConfigure storageArray` command.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

If you want to determine whether the storage array can support specific properties, enter the parameter for the properties when you run this command. You do not need to enter any parameters for this command to return configuration information.


Syntax

```
show storageArray autoConfiguration
[driveType=(SAS | NVMe4K)
driveMediaType=(HDD | SSD | unknown | allMedia)
raidLevel=(0 | 1 | 3 | 5 | 6)
volumeGroupWidth=numberOfDrives
volumeGroupCount=numberOfVolumeGroups
volumesPerGroupCount=numberOfVolumesPerGroup
hotSpareCount=numberOfHotspares
segmentSize=segmentSizeValue
cacheReadPrefetch=(TRUE | FALSE)
securityType=(none | capable | enabled)
secureDrives=(fips | fde)]
```

Parameters

Parameter	Description
driveType	<p>The type of drives that you want to use for the storage array.</p> <p>The <code>driveType</code> parameter is not required if only one type of drive is in the storage array. You must use this parameter when you have more than one type of drive in your storage array.</p> <p>Valid drive types are:</p> <ul style="list-style-type: none">• SAS• NVMe4K

Parameter	Description
driveMediaType	<p>The type of drive media that you want to use for the mirror repository volume group. Valid drive media are these:</p> <ul style="list-style-type: none"> • <code>HDD</code> — Use this option when you have hard drives in the drive tray. • <code>SSD</code> — Use this option when you have solid state drives in the drive tray. • <code>unknown</code> — Use if you are not sure what types of drive media are in the drive tray. • <code>allMedia</code> — Use this option when you want to use all types of drive media that are in the drive tray. <p>Use this parameter when you use the <code>repositoryDriveCount</code> parameter.</p> <p>You must use this parameter when you have more than one type of drive media in your storage array.</p>
raidLevel	The RAID level of the volume group that contains the drives in the storage array. Valid RAID levels are 0, 1, 3, 5, or 6.
volumeGroupWidth	The number of drives in a volume group in the storage array, which depends on the capacity of the drives. Use integer values.
volumeGroupCount	The number of volume groups in the storage array. Use integer values.
volumesPerGroupCount	The number of equal-capacity volumes per volume group. Use integer values.
hotSpareCount	The number of hot spares that you want in the storage array. Use integer values.
segmentSize	The amount of data (in KB) that the controller writes on a single drive in a volume before writing data on the next drive. Valid values are 8, 16, 32, 64, 128, 256, or 512.
cacheReadPrefetch	The setting to turn on or turn off cache read prefetch. To turn off cache read prefetch, set this parameter to <code>FALSE</code> . To turn on cache read prefetch, set this parameter to <code>TRUE</code> .

Parameter	Description
<code>securityType</code>	<p>The setting to specify the security level when creating the volume groups and all associated volumes. These settings are valid:</p> <ul style="list-style-type: none"> • <code>none</code> — The volume group and volumes are not secure. • <code>capable</code> — The volume group and volumes are capable of having security set, but security has not been enabled. • <code>enabled</code> — The volume group and volumes have security enabled.
<code>secureDrives</code>	<p>The type of secure drives to use in the volume group. These settings are valid:</p> <ul style="list-style-type: none"> • <code>fips</code> — To use FIPS compliant drives only. • <code>fde</code> — To use FDE compliant drives. <div>  <p>Use this parameter along with the <code>securityType</code> parameter. If you specify <code>none</code> for the <code>securityType</code> parameter, the value of the <code>secureDrives</code> parameter is ignored, because non-secure volume groups do not need to have secure drive types specified.</p> </div>

Notes

If you do not specify any properties, this command returns the RAID Level 5 candidates for each drive type. If RAID Level 5 candidates are not available, this command returns candidates for RAID Level 6, RAID Level 3, RAID Level 1, or RAID Level 0. When you specify auto configuration properties, the controllers validate that the firmware can support the properties.

Drives and volume groups

A volume group is a set of drives that are logically grouped together by the controllers in the storage array. The number of drives in a volume group is a limitation of the RAID level and the controller firmware. When you create a volume group, follow these guidelines:

- Beginning with firmware version 7.10, you can create an empty volume group so that you can reserve the capacity for later use.
- You cannot mix drive types, such as SAS and Fibre Channel, within a single volume group.
- The maximum number of drives in a volume group depends on these conditions:
 - The type of controller
 - The RAID level

- RAID levels include: 0, 1, 10, 3, 5, and 6 .
 - In a CDE3992 or a CDE3994 storage array, a volume group with RAID level 0 and a volume group with RAID level 10 can have a maximum of 112 drives.
 - In a CE6998 storage array, a volume group with RAID level 0 and a volume group with RAID level 10 can have a maximum of 224 drives.
 - A volume group with RAID level 3, RAID level 5, or RAID level 6 cannot have more than 30 drives.
 - A volume group with RAID level 6 must have a minimum of five drives.
 - If a volume group with RAID level 1 has four or more drives, the storage management software automatically converts the volume group to a RAID level 10, which is RAID level 1 + RAID level 0.
- If a volume group contains drives that have different capacities, the overall capacity of the volume group is based on the smallest capacity drive.
- To enable tray/drawer loss protection, refer to the following tables for additional criteria:

Level	Criteria for Tray Loss Protection	Minimum number of trays required
Disk Pool	The disk pool contains no more than two drives in a single tray.	6
RAID 6	The volume group contains no more than two drives in a single tray.	3
RAID 3 or RAID 5	Each drive in the volume group is located in a separate tray.	3
RAID 1	Each drive in a RAID 1 pair must be located in a separate tray.	2
RAID 0	Cannot achieve Tray Loss Protection.	Not applicable

Level	Criteria for drawer loss protection	Minimum number of drawers required
Disk Pool	The pool includes drives from all five drawers and there are an equal number of drives in each drawer. A 60-drive tray can achieve Drawer Loss Protection when the disk pool contains 15, 20, 25, 30, 35, 40, 45, 50, 55, or 60 drives.	5
RAID 6	The volume group contains no more than two drives in a single drawer.	3

Level	Criteria for drawer loss protection	Minimum number of drawers required
RAID 3 or RAID 5	Each drive in the volume group is located in a separate drawer.	3
RAID 1	Each drive in a mirrored pair must be located in a separate drawer.	2
RAID 0	Cannot achieve Drawer Loss Protection.	Not applicable

Hot spares

With volume groups, a valuable strategy to protect data is to assign available drives in the storage array as hot spare drives. A hot spare is a drive, containing no data, that acts as a standby in the storage array in case a drive fails in a RAID 1, RAID 3, RAID 5, or RAID 6 volume group. The hot spare adds another level of redundancy to the storage array.

Generally, hot spare drives must have capacities that are equal to or greater than the used capacity on the drives that they are protecting. Hot spare drives must be of the same media type, the same interface type, and the same capacity as the drives that they are protecting.

If a drive fails in the storage array, the hot spare is normally substituted automatically for the failed drive without requiring your intervention. If a hot spare is available when a drive fails, the controller uses redundancy data parity to reconstruct the data onto the hot spare. Data evacuation support also allows data to be copied to a hot spare before the software marks the drive "failed."

After the failed drive is physically replaced, you can use either of the following options to restore the data:

When you have replaced the failed drive, the data from the hot spare is copied back to the replacement drive. This action is called copyback.

If you designate the hot spare drive as a permanent member of a volume group, the copyback operation is not needed.

The availability of tray loss protection and drawer loss protection for a volume group depends on the location of the drives that comprise the volume group. Tray loss protection and drawer loss protection might be lost because of a failed drive and the location of the hot spare drive. To make sure that tray loss protection and drawer loss protection are not affected, you must replace a failed drive to initiate the copyback process.

The storage array automatically selects Data Assurance (DA)-capable drives for hot spare coverage of DA-enabled volumes.

Make sure you have DA-capable drives in the storage array for hot spare coverage of DA-enabled volumes. For more information about DA-capable drives, refer to Data Assurance feature.

Secure-capable (FIPS and FDE) drives can be used as a hot spare for both secure-capable and non-secure-capable drives. Non-secure-capable drives can provide coverage for other non-secure-capable drives, and for secure-capable drives if the volume group does not have the security enabled. A FIPS volume group can only use a FIPS drive as a hot spare; however, you can use a FIPS hot spare for non-secure-capable, secure-capable, and secure-enabled volume groups.

If you do not have a hot spare, you can still replace a failed drive while the storage array is operating. If the drive is part of a RAID 1, RAID 3, RAID 5, or RAID 6 volume group, the controller uses redundancy data parity to automatically reconstruct the data onto the replacement drive. This action is called reconstruction.

Segment size

The size of a segment determines how many data blocks that the controller writes on a single drive in a volume before writing data on the next drive. Each data block stores 512 bytes of data. A data block is the smallest unit of storage. The size of a segment determines how many data blocks that it contains. For example, an 8-KB segment holds 16 data blocks. A 64-KB segment holds 128 data blocks.

When you enter a value for the segment size, the value is checked against the supported values that are provided by the controller at run time. If the value that you entered is not valid, the controller returns a list of valid values. Using a single drive for a single request leaves other drives available to simultaneously service other requests. If the volume is in an environment where a single user is transferring large units of data (such as multimedia), performance is maximized when a single data transfer request is serviced with a single data stripe. (A data stripe is the segment size that is multiplied by the number of drives in the volume group that are used for data transfers.) In this case, multiple drives are used for the same request, but each drive is accessed only once.

For optimal performance in a multiuser database or file system storage environment, set your segment size to minimize the number of drives that are required to satisfy a data transfer request.

Cache read prefetch

Cache read prefetch lets the controller copy additional data blocks into cache while the controller reads and copies data blocks that are requested by the host from the drive into cache. This action increases the chance that a future request for data can be fulfilled from cache. Cache read prefetch is important for multimedia applications that use sequential data transfers. Valid values for the `cacheReadPrefetch` parameter are `TRUE` or `FALSE`. The default is `TRUE`.

Security type

Use the `securityType` parameter to specify the security settings for the storage array.

Before you can set the `securityType` parameter to `enabled`, you must create a storage array security key. Use the `create storageArray securityKey` command to create a storage array security key. These commands are related to the security key:

- `create storageArray securityKey`
- `export storageArray securityKey`
- `import storageArray securityKey`
- `set storageArray securityKey`
- `enable volumeGroup [volumeGroupName] security`
- `enable diskPool [diskPoolName] security`

Secure drives

Secure-capable drives can be either Full Disk Encryption (FDE) drives or Federal Information Processing Standard (FIPS) drives. Use the `secureDrives` parameter to specify the type of secure drives to use. The

values you can use are `fips` and `fde`.

Example command

```
show storageArray autoConfiguration securityType=capable
secureDrives=fips;
```

Minimum firmware level

7.10 adds RAID Level 6 capability and removes hot spare limits.

7.50 adds the `securityType` parameter.

7.75 adds the `dataAssurance` parameter.

8.25 adds the `secureDrives` parameter.

Show AutoSupport configuration

The `show storageArray autoSupport` command displays the AutoSupport bundle collection settings for the storage array.

Supported Arrays

This command is operational for either the E2800, E5700, EF600, and EF300 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Context

The command output from this command shows the following configuration information:

- The activation status for this management domain of the AutoSupport feature, the AutoSupport OnDemand feature, and the AutoSupport Remote Diagnostics feature
- Delivery parameters that depend on the configured delivery method:
 - Delivery method is Email (SMTP): Destination email address, mail relay server, and sender email address are shown
 - Delivery method is HTTP or HTTPS:
 - Direct connection - destination IP address is shown
 - Proxy server connection - Host address, port number, and authentication details are shown
 - Automatic proxy configuration script (PAC) connection - script location is shown
- Autosupport daily and weekly preferred time ranges
- Information about ASUP capabilities, the chassis serial number, and the configured daily and weekly

schedules

Syntax

```
show storageArray autoSupport
```

Parameters

None.

Examples

```
SMcli -n Array1 -c "show storageArray autoSupport;"
```

The AutoSupport feature is enabled on this storage array.

The AutoSupport OnDemand feature is enabled on this storage array.

The AutoSupport Remote Diagnostics feature is enabled on this storage array.

Delivery Method: Email (SMTP)

Destination email address: <http://support.mycompany.com/put/AsupPut/>

Mail relay server: ra.eng.netapp.com

Sender email address: user@netapp.com

-or-

Delivery Method: HTTP

Destination IP address: <http://support.mycompany.com/put/AsupPut/>

Connection: Direct

-or-

Connection: Proxy server

Host Address: 10.227.76.178

Port number: 8080

Authentication required: Yes

User name: admin

Password: *****

-or-

Connection: Automatic proxy configuration script (PAC)

Script location: <http://esgweb.eng.mycompany.com/proxy.pac>

The AutoSupport daily schedule preferred time range is from 12:00 AM to 01:00 AM.

The AutoSupport weekly schedule preferred time range is from 10:00 PM to 11:00 PM on Thursday, Saturday.

AutoSupport Capable	AutoSupport OnDemand Capable	Chassis Serial
Number	Daily Schedule	Weekly Schedule
Yes (enabled)	Yes	SX94500434
12:55 AM	10:08 PM on Thursdays	

SMcli completed successfully.

Minimum firmware level

8.40

Show storage array cache mirror data assurance check enable

The `show storageArray cacheMirrorDataAssuranceCheckEnable` command returns the enablement status of the cache mirror data assurance check feature.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray cacheMirrorDataAssuranceCheckEnable
```

Parameters

None.

Minimum firmware level

8.41 New command parameter.

Show storage array controller health image

The `show storageArray controllerHealthImage` command shows details of the controller health image on the controller cache, if a controller health image is available, on storage arrays that support the controller health image.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context



With firmware version 8.20 the `coreDump` parameter is replaced with the `controllerHealthImage` parameter.

If the storage array does not support the controller health image feature, this command returns an error.

Syntax

```
show storageArray controllerHealthImage
```

Parameters

None.

Minimum firmware level

7.83

8.20 replaces the `coreDump` parameter with the `controllerHealthImage` parameter.

Show storage array DBM database

The `show storageArray dbmDatabase` command retrieves and shows metadata for the on-board backup locations of a storage array. When there are multiple backup locations, metadata is shown for each location.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray dbmDatabase
```

Parameters

None.

Notes

This command returns the configuration database information in a format similar to this example.

CTL	LOCATION	REVISION	ID	GEN NUMBER	STATUS	ACCESS MODE
A	Cache	X.Y	999999	999999	R/W	Optimal
B	Cache	X.Y	999999	999999	R/W	Optimal
N/A	Disk	X.Y	999999	999999	R/W	Optimal

Minimum firmware level

7.83

Show storage array directory services summary

The `show storageArray directoryServices summary` command displays the directory services configuration summary.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show storageArray directoryServices summary
```

Parameters

None.

Examples

```

SMcli -n Array1 -c "show storageArray directoryServices summary;"

Directory Servers:
  DomainId1
    Domain name(s): company.com, name2, name3
    Server URL: ldaps://hqldap.test.eng.company.com:636
    Bind account:
      CN=prnldap,OU=securedsvccaccounts,OU=systemaccounts,DC=hq,DC=company,DC=com
    Bind password: *****
    Login base: %s@company.com
    Search base DN: OU=_Users,DC=hq,DC=company,DC=com
    Username attribute: sAMAccountName
    Group attribute(s): memberOf, attributeX
    Default role: Monitor
    Roles Mapping
      Group DN
      CN=ng-hsg-bc-
madridsecurity,OU=Managed,OU=CompanyGroups,DC=hq,DC=company,DC=com
    Roles
      storage.monitor, security.admin, storage.admin
    Group DN
    OU=Managed,OU=CompanyGroups,DC=hq,DC=company,DC=com
    Roles
      storage.monitor
  DomainId2
    Domain name(s): aj.MadridSecurity
    Server URL: ldap://10.113.90.166:389
    Search base DN: CN=Users,DC=aj,DC=madridsecurity
    Username attribute: sAMAccountName
    Group attribute(s): memberOf
    Default role: None
    Roles Mapping
      Group DN
      CN=Administrators,CN=Builtin,DC=aj,DC=MadridSecurity
    Roles
      storage.monitor, storage.admin

SMcli completed successfully.

```

Show storage array host connectivity reporting

The `show storageArray hostConnectivityReporting` command returns the enablement status of the host connectivity reporting feature.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray hostConnectivityReporting
```

Parameters

None.

Minimum firmware level

8.42 New command parameter.

Show storage array host topology

The `show storageArray hostTopology` command returns the storage partition topology, the host type labels, and the host type index for the host storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray hostTopology
```

Parameters

None.

Notes

This command returns the host topology information similar to this example.

```
TOPOLOGY DEFINITIONS
DEFAULT GROUP
Default type: Windows 2000/Server 2003 Non-Clustered
Host Group: scott
Host: scott1
Host Port: 28:37:48:55:55:55:55:55
Alias: scott11
Type: Windows 2000/Server 2003 Clustered
Host: scott2
Host Port: 98:77:66:55:44:33:21:23
Alias: scott21
Type: Windows 2000/Server 2003 Clustered
Host: Bill
Host Port: 12:34:55:67:89:88:88:88
Alias: Bill1
Type: Windows 2000/Server 2003 Non-Clustered
NVSRAM HOST TYPE INDEX DEFINITIONS
HOST TYPE                                ALUA/AVT STATUS    ASSOCIATED INDEXS
AIX MPIO                                Disabled           9
AVT_4M                                  Enabled            5
Factory Default                          Disabled           0
HP-UX                                    Enabled            15
Linux (ATTO)                             Enabled            24
Linux (DM-MP)                           Disabled           6
Linux (Pathmanager)                     Enabled            25
Mac OS                                   Enabled            22
ONTAP                                    Disabled           4
SVC                                       Enabled            18
Solaris (v11 or Later)                   Enabled            17
Solaris (version 10 or earlier)           Disabled           2
VMWare                                    Enabled            10 (Default)
Windows                                  Enabled            1
```

Minimum firmware level

5.20

Show storage array negotiation defaults

The `show storageArray iscsiNegotiationDefaults` command returns information about connection-level settings that are subject to initiator-target negotiation.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray iscsiNegotiationDefaults
```

Parameters

None.

Notes

Information returned includes controller tray default settings (that is, those settings that are the starting point for negotiation) and the current active settings.

Minimum firmware level

7.10

Show storage array LUN mappings

The `show storageArray lunMappings` command returns information from the storage array profile about the logical unit number (LUN) or namespace ID (NSID) mappings in the storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

Default group LUN or NSID mappings are always shown. If you run this command without any parameters, this command returns all of the LUN or NSID mappings.

Syntax

```
show storageArray lunMappings (host ["hostName"] |
hostgroup ["hostGroupName"])
```

Parameters

Parameter	Description
host	The name of a specific host for which you want to see the LUN or NSID mappings. Enclose the host name in double quotation marks (" ") inside of square brackets ([]).
hostGroup	The name of a specific host group for which you want to see the LUN or NSID mappings. Enclose the host group name in double quotation marks (" ") inside of square brackets ([]).

Notes

This command returns host topology information similar to this example.

```
MAPPINGS (Storage Partitioning - Enabled (0 of 16 used))
VOLUME NAME  LUN  CONTROLLER  ACCESSIBLE BY  VOLUME STATUS
Access Volume 7  A,B      Default Group  Optimal
21            21  B           Default Group  Optimal
22            22  B           Default Group  Optimal
```

Minimum firmware level

6.10

Show storage array ODX setting

The `show storageArray odxsetting` command returns the current settings for Offloaded Data Transfer (ODX) and VMware vStorage API Array Architecture (VAAI) on the storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

The settings for this command can be one of the following:

- True — ODX and VAAI are turned on.
- False — ODX and VAAI are turned off.
- Inconsistent — The controllers do not have the same settings.
- Unknown — The setting for ODX or VAAI cannot be determined.

Syntax

```
show storageArray odxsetting
```

Parameters

None.

Notes

This command returns the ODX and VAAI information similar to this example.

```
Windows ODX Setting Status
odxEnabled   True | False | Inconsistent | Unknown
vaaiEnabled  True | False | Inconsistent | Unknown
```

Minimum firmware level

8.20

Show storage array power information

The `show storageArray powerInfo` command returns information about the amount of power consumed by the entire storage array and each tray in the storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show storageArray powerInfo
```

Parameters

None.

Notes

This command returns power consumption information similar to this example.

```
total power drawn: 310 watts
number of trays: 1
tray power input details:
  tray id  power supply serial number  input power
    0      0                               160 watts
    0      1                               150 watts
```

Minimum firmware level

8.10

Show certificate revocation check settings

The `show storageArray revocationCheckSettings` command allows you to view the certificate revocation settings for the storage array.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Parameters

None.

Syntax

```
show storageArray revocationCheckSettings
```

Example

```
SMcli -n Array1 c "show storageArray revocationCheckSettings;"
Revocation Checking: Disabled
OCSP Responder Server URL: https://ocspResponderURL.com
SMcli completed successfully.
```

Minimum firmware level

8.42

Display storage array syslog configuration

The `show storageArray syslog` command allows you to view the configuration of a syslog server used for storing audit logs. Configuration information includes a server ID, along with its address, protocol, and port number.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show storageArray syslog (allServers | id="<id>")
```

Parameters

Parameter	Description
allServers	Displays all syslog configurations.
id	Displays the syslog configuration with the matching ID.

Examples

```
SMcli -n Array1 -c "show storageArray syslog allServers;"
SMcli -n Array1 -c "show storageArray syslog id=\"331998fe-3154-4489-b773-b0bb60c6b48e\";"

ID:                331998fe-3154-4489-b773-b0bb60c6b48e
Server Address:    192.168.2.1.com
Port:              514
Protocol:          udp
Components
1. Component Name: auditLog

SMcli completed successfully.
```

Minimum firmware level

8.42

Show installed trusted CA certificates summary

The `show storageArray trustedCertificate summary` command displays the trusted installed CA certificates summary from the array. This command is useful to use before performing the `delete storageArray trustedCertificate` command so that you know the alias names of the certificates to delete.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Security Admin role.

Syntax

```
show storageArray trustedCertificate [all | allUserInstalled|
aliases=("alias1" ... "aliasN")] summary
```

Parameters

Parameter	Description
all	Allows you to specify the retrieval of all certificates, including pre-installed and user installed certificates.
allUserInstalled	Allows you to specify the retrieval of all user installed certificates. This is the default option.
aliases	Allows the user to specify which pre-installed or user installed trusted certificate to retrieve by alias. Enclose all the aliases in parentheses. If you enter more than one alias, separate them with a space.

Examples

Sample output may be different than illustrated below.

```
SMcli -n Array1 -c "show storageArray trustedCertificate allUserInstalled
summary;"
=====
Trusted Certificates
=====
Alias:          19527b38-8d26-44e5-8c7f-5bf2ca9db7cf
Type:           Pre-installed | User installed
Subject DN:     CN=Corp Issuing CA 1
Issuer DN:      CN=Corp Root CA
Start:          date
Expire:         date
-----
Alias:          myAliasName
Type:           Pre-installed | User installed
Subject DN:     CN=Corp Issuing CA 1
Issuer DN:      CN=Corp Root CA
Start:          date
Expire:         date

SMcli completed successfully.
```

Minimum firmware level

8.40

Show unconfigured initiators

The `show storageArray unconfiguredInitiators` command returns a list of initiators that have been detected by the storage array but are not yet configured into the

storage array topology.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

This command replaces the [show storageArray unconfiguredIscsiInitiators](#) command.

Syntax

```
show storageArray unconfiguredInitiators
```

Parameters

None.

Minimum firmware level

8.50

Show storage array unconfigured iSCSI initiators

The `show storageArray unconfiguredIscsiInitiators` command returns a list of initiators that have been detected by the storage array but are not yet configured into the storage array topology.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

This command is deprecated. The command that replaces it is [show storageArray unconfiguredInitiators](#).

Syntax

```
show storageArray unconfiguredIscsiInitiators
```

Parameters

None.

Minimum firmware level

7.10

8.50 deprecated this command.

Show storage array unreadable sectors

The `show storageArray unreadableSectors` command returns a table of the addresses of all of the sectors in the storage array that cannot be read.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

The returned table is organized with column headings for the following information:

- Volume user label
- Logical unit number (LUN)
- Accessible by (host or host group)
- Date/time
- Volume-relative logical block address (hexadecimal format — 0xxxxxxxxx)
- Drive location (tray t, slot s)
- Drive-relative logical block address (hexadecimal format — 0xxxxxxxxx)
- Failure type

The data is sorted first by the volume user label and second by the logical block address (LBA). Each entry in the table corresponds to a single sector.

Syntax

```
show storageArray unreadableSectors
```

Parameters

None.

Minimum firmware level

6.10

Display storage array user session

The `show storageArray userSession` command allows you to view the session timeout period for System Manager.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Parameters

None.

Syntax

```
show storageArray userSession
```

Minimum firmware level

8.41

Show storage array

The `show storageArray` command returns configuration information about the storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage

Admin or Storage Monitor role.



Context


The parameters return lists of values for the components and features in the storage array. You can enter the command with a single parameter or more than one parameter. If you enter the command without any parameters, the entire storage array profile is shown (which is the same information as if you entered the **profile** parameter).

Syntax


```
show storageArray
[autoSupport| autoSupportConfig | profile |
batteryAge | connections | defaultHostType | healthStatus |
hostTypeTable | hotSpareCoverage | features | time |
volumeDistribution | longRunningOperations | summary |
preferredVolumeOwners |
iscsiNegotiationDefaults | unconfiguredIscsiInitiators |
autoLoadBalancingEnable |
cacheMirrorDataAssuranceCheckEnable | hostConnectivityReporting]
```

Parameters

Parameter	Description
autoLoadBalancingEnable	<div>The parameter to return the enablement status of the Automatic Load Balancing feature.</div> <div><div></div><div>When the Automatic Load Balancing feature is enabled, the Host Connectivity Reporting feature will also be enabled.</div></div>
autoSupport	<div><div></div><div>This parameter is only valid for E2800 or E5700 storage arrays running with an https client type. For E2800 or E5700 storage arrays running with a client type, use the autoSupportConfig parameter.</div></div>

Parameter	Description
autoSupportConfig	<p>The parameter to return information about the current state of the operation to automatically collect support data. The following information is returned:</p> <ul style="list-style-type: none"> • Whether the operation is enabled or disabled • The location of the folder where the support data file is located <div>  <p>This parameter is only valid for E2800 or E5700 storage arrays running with a <code>symbol</code> client type. For E2800 or E5700 storage arrays running with an <code>https</code> client type, use the autoSupport parameter.</p> </div>
batteryAge	The parameter to show the status, the age of the battery in days, and the number of days until the battery needs to be replaced. The information for both batteries is shown.
cacheMirrorDataAssuranceCheckEnable	The parameter to returns the enablement status of the cache mirror data assurance feature.
connections	The parameter to show a list of where the drive channel ports are located and where the drive channels are connected.
defaultHostType	The parameter to show the default host type and the host type index.
features	The parameter to show the feature configuration of the storage array.
healthStatus	The parameter to show the health, logical properties, and physical component properties of the storage array.
hostConnectivityReporting	The parameter to return the enablement status of the host connectivity reporting feature.
hostTypeTable	The parameter to show a table of all of the host types that are known to the controller. Each row in the table shows a host type index and the platform that the host type index represents.

Parameter	Description
hotSpareCoverage	The parameter to show information about which volumes of the storage array have hot spare coverage and which volumes do not.
iscsiNegotiationDefaults	The parameter to return information about connection-level settings that are subject to initiator-target negotiation.
longRunningOperations	<p>The parameter to show the long running operations for each volume group and each volume in the storage array.</p> <p>The <code>longRunningOperation</code> parameter returns this information:</p> <ul style="list-style-type: none"> • Name of the volume group or volume • Long running operation • Status • % complete • Time left
preferredVolumeOwners	The parameter to show the preferred controller owner for each volume in the storage array.

Parameter	Description
profile	<p>The parameter to show all of the properties of the logical components and the physical components that comprise the storage array. The information appears in several screens.</p> <div>  <p>The profile parameter returns detailed information about the storage array. The information covers several screens on a display. You might need to increase the size of your display buffer to see all the information. Because this information is so detailed, you might want to save the output of this parameter to a file.</p> </div> <p>Use the following command to save the profile output to a file:</p> <pre>c:\...\smX\client>smcli 123.45.67.88 123.45.67.89 -c "show storagearray profile;" -o "c:\folder\storagearray profile.txt"</pre>
summary	The parameter to show a concise list of information about the storage array configuration.
time	The parameter to show the current time to which both controllers in the storage array are set.
unconfiguredIscsiInitiators	The parameter to return a list of initiators that have been detected by the storage array but are not yet configured into the storage array topology.
volumeDistribution	The parameter to show the current controller owner for each volume in the storage array.

Notes

The `profile` parameter shows detailed information about the storage array. The information appears on several screens on a display monitor. You might need to increase the size of your display buffer to see all of the information. Because this information is so detailed, you might want to save the output of this parameter to a file. To save the output to a file, run the `show storageArray` command that looks like this example.


```
-c "show storageArray profile;" -o "c:\\folder\\storageArrayProfile.txt"
```

The previous command syntax is for a host that is running a Windows operating system. The actual syntax varies depending on your operating system.

When you save information to a file, you can use the information as a record of your configuration and as an aid during recovery.



While the storage array profile returns a large amount of data that is all clearly labeled, what's new in the 8.41 release is the additional wear life reporting information for SSD drives in E2800 or E5700 storage arrays. While previously the wear life reporting included information on average erase count and spare blocks remaining, it now includes the percent endurance used. The percent endurance used is the amount of data written to the SSD drives to date divided by the total theoretical write limit for the drives.

The `batteryAge` parameter returns information in this form.

```
Battery status: Optimal  
Age: 1 day(s)  
Days until replacement: 718 day(s)
```

The newer controller trays do not support the `batteryAge` parameter.

The `defaultHostType` parameter returns information in this form.

```
Default host type: Linux (Host type index 6)
```

The `healthStatus` parameter returns information in this form.

```
Storage array health status = optimal.
```

The `hostTypeTable` parameter returns information in this form.

NVSRAM HOST TYPE INDEX DEFINITIONS

HOST TYPE	ALUA/AVT STATUS	ASSOCIATED INDEXS
AIX MPIO	Disabled	9
AVT_4M	Enabled	5
Factory Default	Disabled	0
HP-UX	Enabled	15
Linux (ATTO)	Enabled	24
Linux (DM-MP)	Disabled	6
Linux (Pathmanager)	Enabled	25
Mac OS	Enabled	22
ONTAP	Disabled	4
SVC	Enabled	18
Solaris (v11 or Later)	Enabled	17
Solaris (version 10 or earlier)	Disabled	2
VMWare	Enabled	10 (Default)
Windows	Enabled	1

The `hotSpareCoverage` parameter returns information in this form.

```
The following volume groups are not protected: 2, 1
Total hot spare drives: 0
  Standby: 0
  In use: 0
```

The `features` parameter returns information that shows which features are enabled, disabled, evaluation, and available to be installed. This command returns the feature information in a format similar to this:

PREMIUM FEATURE	STATUS
<code>asyncMirror</code>	Trial available
<code>syncMirror</code>	Trial available/Deactivated
<code>thinProvisioning</code>	Trial available
<code>driveSlotLimit</code>	Enabled (12 of 192 used)
<code>snapImage</code>	Enabled (0 of 512 used) - Trial version expires
<code>m/d/y</code>	
<code>snapshot</code>	Enabled (1 of 4 used)
<code>storagePartition</code>	Enabled (0 of 2 used)
<code>volumeCopy</code>	Enabled (1 of 511 used)
<code>SSDSupport</code>	Disabled (0 of 192 used) - Feature Key required
<code>driveSecurity</code>	Disabled - Feature Key required
<code>enterpriseSecurityKeyMgr</code>	Disabled - Feature Key required
<code>highPerformanceTier</code>	Disabled - Feature Key required

The `time` parameter returns information in this form.

```
Controller in Slot A

Date/Time: Thu Jun 03 14:54:55 MDT 2004
Controller in Slot B

Date/Time: Thu Jun 03 14:54:55 MDT 2004
```

The `longRunningOperations` parameter returns information in this form:

LOGICAL DEVICES	OPERATION	STATUS	TIME REMAINING
Volume-2	Volume Disk Copy	10% COMPLETED	5 min

The information fields returned by the `longRunningOperations` parameter have these meanings:

- `NAME` is the name of a volume that is currently in a long running operation. The volume name must have the "Volume" as a prefix.
- `OPERATION` lists the operation being performed on the volume group or volume.
- `% COMPLETE` shows how much of the long running operation has been performed.
- `STATUS` can have one of these meanings:
 - Pending — The long running operation has not started but will start after the current operation is completed.
 - In Progress — The long running operation has started and will run until completed or stopped by user request.
- `TIME REMAINING` indicates the duration remaining to completing the current long running operation. The time is in an "hours minute" format. If less than an hour remains, only the minutes are shown. If less than a minute remains, the message "less than a minute" is shown.

The `volumeDistribution` parameter returns information in this form.

```
volume name: 10
    Current owner is controller in slot: A

volume name: CTL 0 Mirror Repository
    Current owner is controller in slot: A

volume name: Mirror Repository 1
    Current owner is controller in slot:A

volume name: 20
    Current owner is controller in slot:A

volume name: JCG_Remote_MirrorMenuTests
    Current owner is controller in slot:A
```

Minimum firmware level

5.00 adds the `defaultHostType` parameter.

5.43 adds the `summary` parameter.

6.10 adds the `volumeDistribution` parameter.

6.14 adds the `connections` parameter.

7.10 adds the `autoSupportConfig` parameter.

7.77 adds the `longRunningOperations` parameter.

7.83 returns information that includes the support for the new features released in the storage management software version 10.83. In addition, the information returned has been expanded to show the status of the features in the storage array.

8.30 adds the `autoLoadBalancingEnable` parameter.

8.40 adds the `autoSupport` parameter.

8.40 deprecates the `autoSupportConfig` parameter for E2800 or E5700 storage arrays running with an `https` client type.

8.41 adds wear life monitoring for SSD drives to the storage array profile. This information is only displayed for E2800 and E5700 storage arrays.

8.42 adds the `hostConnectivityReporting` parameter.

8.63 adds the Resource-Provisioned Volumes entry under the `profile` parameter results.

Show synchronous mirroring volume candidates

The `show syncMirror candidates` command returns information about the candidate volumes on a remote storage array that you can use as secondary volumes in a Synchronous Mirroring configuration.

Supported Arrays

This command applies to any individual storage array, with some restrictions. If you are running the command on the E2700 or E5600 array, there are no restrictions.



If you are running the command on the E2800 or E5700 array, the client type must be set to `symbol`. This command will not execute if the client type is set to `https`.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Storage Admin or Storage Monitor role.

Context



In previous versions of this command the feature identifier was `remoteMirror`. This feature identifier is no longer valid and is replaced by `syncMirror`.

Syntax

```
show syncMirror candidates primary="volumeName"  
remoteStorageArrayName="storageArrayName"
```

Parameters

Parameter	Description
<code>primary</code>	The name of the local volume that you want for the primary volume in the remote-mirrored pair. Enclose the primary volume name in double quotation marks (" ").
<code>remoteStorageArrayName</code>	The remote storage array that contains possible volumes for a secondary volume. If the remote storage array name has special characters, you must also enclose the remote storage array name in double quotation marks (" ").

Minimum firmware level

5.40

Show synchronous mirroring volume synchronization progress

The `show syncMirror synchronizationProgress` command returns the progress of data synchronization between the primary volume and the secondary volume in a Synchronous Mirroring configuration.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, and E5700 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800 or E5700 storage array, you must have the Storage Admin or Storage Monitor role.

Context

This command shows the progress as a percentage of data synchronization that has been completed.



In previous versions of this command the feature identifier was `remoteMirror`. This feature identifier is no longer valid and is replaced by **`syncMirror`**.

Syntax

```
show syncMirror (localVolume [volumeName] |
localVolumes [volumeName1... volumeNameN]) synchronizationProgress
```

Parameter

Parameter	Description
volume	The name of the primary volume of the remote mirrored pair for which you want to check synchronization progress. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the volume name in double quotation marks (" ") inside square brackets.

Parameter	Description
volumes	<p>The names of the primary volume of the remote mirrored pair for which you want to check synchronization progress. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Separate each of the names with a space. <p>If the volume names have special characters or consist only of numbers, enter the names using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.

Minimum firmware level

5.40

Show syslog configuration

The `show syslog summary` command displays the syslog alert configuration information.

Supported Arrays

This command applies to an individual E2800, E5700, EF600 or EF300 storage array. It does not operate on E2700 or E5600 storage arrays.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Support Admin or Storage Monitor role.

Syntax

```
show syslog summary
```

Parameters

None.

Examples

```
SYSLOG SUMMARY
  Default facility: 3
  Default tag: StorageArray
  Syslog format: rfc5424
  Syslog Servers
    Server Address          Port Number
    serverName1.company.com 514
    serverName2.company.com 514

SMcli completed successfully.
```

Minimum firmware level

8.40

11.70.1 added the `syslogFormat` parameter to specify the Syslog message format.

Show string

The `show textstring` command shows a string of text from a script file. This command is similar to the `echo` command in MS-DOS and UNIX.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show "textString"
```

Parameters

None.

Notes

Enclose the string in double quotation marks (" ").

Minimum firmware level

6.10

Show volume action progress

The `show volume actionProgress` command returns information about the volume action and amount of the long-running operation that is completed for a long-running operation on a volume.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context



With firmware version 7.77, the `show volume actionProgress` command is deprecated. Replace this command with `show storageArray longRunningOperations`.

The amount of the long-running operation that is completed is shown as a percentage (for example, 25 means that 25 percent of the long-running operation is completed).

Syntax

```
show volume [volumeName] actionProgress
```

Parameter

Parameter	Description
volume	The name of a volume for which you want to retrieve information about a long running operation. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the name in double quotation marks (" ") inside square brackets.

Minimum firmware level

5.43

Show volume performance statistics

The `show volume performanceStats` command returns information about volume performance.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

For each volume in the storage array, this command returns the following information:

- Storage Arrays
- Total IOs/s
- Read %
- Primary Read Cache Hit %
- Primary Write Cache Hit %
- SSD Cache Hit %
- Current MBs/s
- Maximum MBs/s
- Current IOs/s
- Maximum IOs/s
- Minimum IOs/s
- Average IOs/s
- Minimum MBs/s
- Average MBs/s
- Current IO Latency
- Maximum IO Latency
- Minimum IO Latency
- Average IO Latency

Syntax

```
show (allVolumes | volume ["volumeName"]  
volumes ["volumeName1" ... "volumeNameN"]) performanceStats
```

Parameters

Parameter	Description
<code>allVolumes</code>	The parameter to return performance statistics about all of the volumes in the storage array.
<code>volume</code>	The name of a volume for which you want to retrieve information. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the name in double quotation marks (" ") inside square brackets.
<code>volumes</code>	<p>The names of several volumes for which you want to retrieve information. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Separate each of the names with a space. <p>If the volume names have special characters or numbers, enter the names using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Enclose each of the names in double quotation marks (" ").• Separate each of the names with a space.

Notes

Before you run the `show volume performanceStat` command, run the `set session performanceMonitorInterval` command and the `set session performanceMonitorIterations` command to define how often you collect the statistics.

The `show volume performanceStat` command returns volume performance statistics as shown in this example:

```
Performance Monitor Statistics for Storage Array: Tyler -  
Date/Time: 11/6/12 10:00: 34 AM - Polling interval in seconds: 5
```

```
"Storage Arrays","Total IOs","Read %","Primary Read Cache Hit %",  
"Primary Write Cache Hit %","SSD Read Cache Hit %","Current MBs/sec",  
"Maximum MBs/sec","Current IOs/sec","Maximum IOs/sec","Minimum IOs/sec",  
"Average IOs/sec","Minimum MBs/sec","Average MBs/sec","Current IO  
Latency",  
"Maximum IO Latency","Minimum IO Latency","Average IO Latency"  
  
"Capture Iteration: 1","","","","","","","","","","","","","","","",""  
"Date/Time: 11/6/12 10:00:34  
AM","","","","","","","","","","","","","","","","",  
    "", "", "" "Volume  
Unnamed","0.0","","0.0","0.0","0.0","0.0","0.0","0.0","0.0","0.0",  
    "0.0","0.0","0.0","0.0","0.0","0.0","0.0"
```

Minimum firmware level

6.10

Show volume reservations

The `show volume reservations` command returns information about the volumes that have persistent reservations.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show (allVolumes | volume [volumeName] |  
volumes [volumeName1 ... volumeNameN]) reservations
```

Parameters

Parameter	Description
<code>allVolumes</code>	The parameter to return performance statistics about all of the volumes in the storage array.
<code>volume</code>	The name of a volume for which you want to retrieve information. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the name in double quotation marks (" ") inside square brackets.
<code>volumes</code>	<p>The names of several volumes for which you want to retrieve information. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Separate each of the names with a space. <p>If the volume names have special characters or numbers, enter the names using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.

Minimum firmware level

5.40

Show volume

The `show volume summary` command returns information about a volume.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

For the volumes in a storage array, this command returns the following information:

- The number of volumes

- The name
- The status
- The capacity
- The RAID level
- The volume group where the volume is located
- Details:
 - The volume ID
 - The subsystem ID
 - The drive type (SAS)
 - Tray loss protection
 - The preferred owner
 - The current owner
 - The segment size
 - The modification priority
 - The read cache status (enabled or disabled)
 - The write cache status (enabled or disabled)
 - The write cache without batteries status (enabled or disabled)
 - The write cache with mirror status (enabled or disabled)
 - The flush write cache after time
 - The cache read prefetch setting (TRUE or FALSE)
 - The enable background media scan status (enabled or disabled)
 - The media scan with redundancy check status (enabled or disabled)
- The mirror repository volumes

Syntax

```
show (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN]) summary
```

Parameters

Parameter	Description
allVolumes	This parameter returns performance statistics about all of the volumes in the storage array.

Parameter	Description
volume	The name of a volume for which you want to retrieve information. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the name in double quotation marks (" ") inside square brackets.
volumes	<p>The names of several volumes for which you want to retrieve information. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Separate each of the names with a space. <p>If the volume names have special characters or numbers, enter the names using these rules:</p> <ul style="list-style-type: none"> • Enclose all of the names in square brackets ([]). • Enclose each of the names in double quotation marks (" "). • Separate each of the names with a space.
summary	The setting to return a concise list of information about the volumes.

Show thin volume

The `show volume` command returns the expansion history or the consumed capacity for the specified thin volume or volumes.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN])
(consumedCapacity |
(expansionHistory [file=fileName]))
```

Parameters

Parameter	Description
<code>allVolumes</code>	This parameter returns information about all of the thin volumes in the storage array.
<code>volume</code>	The name of a thin volume for which you are retrieving information. Enclose the thin volume name in square brackets ([]). If the thin volume name has special characters or numbers, you must enclose the thin volume name in double quotation marks (" ") inside square brackets.
<code>volumes</code>	<p>The names of several thin volumes for which you want to retrieve information. Enter the names of the volumes using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Separate each of the names with a space. <p>If the volume names have special characters or numbers, enter the names using these rules:</p> <ul style="list-style-type: none">• Enclose all of the names in square brackets ([]).• Enclose each of the names in double quotation marks (" ").• Separate each of the names with a space.
<code>consumedCapacity</code>	The setting to return a concise list of information about the consumed capacity of the thin volumes.
<code>expansionHistory</code>	The setting to return a concise list of information about the expansion history of the thin volumes.
<code>file</code>	The <code>file</code> parameter specifies a file to log the output of the <code>expansionHistory</code> parameter. The <code>file</code> is valid only when used with the <code>expansionHistory</code> parameter. An invalid file name causes the command to fail.

Notes

With the `expansionHistory` parameter, the command returns information similar to the example shown below.

```
Thin volume name: volume-nameRepository volume Name: REPOS_NNNN
```


Logged Time	Expansion Type	Start Capacity	End Capacity
MM/DD/YYYY HH:MM:SS	Manual Automatic	NNNNNNNN bytes	NNNNNNNN bytes

With the `consumedCapacity` parameter, the command returns information similar to the example shown below.

Volume	Provisioned Capacity	Consumed Capacity	Quota	% Prov.Consumed
volumeName	500.000 GB	230.000 GB	700.000 GB	46%

Minimum firmware level

7.83

Show volume copy target candidates

The `show volumeCopy source targetCandidates` command returns information about the candidate volumes that you can use as the target for a volume copy operation. This command is valid for snapshot volume copy pairs.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show volumeCopy source ["sourceName"] targetCandidates
```

Parameter

Parameter	Description
source	The name of the source volume for which you are trying to find a candidate target volume. Enclose the volume name in square brackets ([]). If the volume name has special characters or numbers, you must enclose the volume name in double quotation marks (" ") inside square brackets.

Show volume copy source candidates

The `show volumeCopy sourceCandidates` command returns information about the candidate volumes that you can use as the source for a volume copy operation. This command is valid for snapshot volume copy pairs.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show volumeCopy sourceCandidates
```

Parameters

None.

Notes

This command returns volume copy source information as shown in this example.

```
Volume Name: finance
  Capacity: 4.0 GB
  Volume Group: 1
Volume Name: engineering
  Capacity: 4.0 GB
  Volume Group: 2
```

Show volume copy

The `show volumeCopy` command returns information about volume copy operations.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

This command returns this information about volume copy operations:

- The copy status
- The start time stamp
- The completion time stamp
- The copy priority
- The source volume World Wide Identifier (WWID) or the target volume WWID
- The target volume Read-Only attribute setting

You can retrieve information about a specific volume copy pair or all of the volume copy pairs in the storage array. This command is valid for snapshot volume copy pairs.

Syntax

```
show volumeCopy (allVolumes | source ["sourceName"] |  
target ["targetName"])
```

Parameters

Parameter	Description
allVolumes	The setting to return information about volume copy operations for all of the volume copy pairs.
source	The name of the source volume about which you want to retrieve information. Enclose the source volume name in double quotation marks (") inside of square brackets ([]).
target	The name of the target volume about which you want to retrieve information. Enclose the target volume name in double quotation marks (") inside of square brackets ([]).

Show volume group export dependencies

The `show volumeGroup exportDependencies` command shows a list of dependencies for the drives in a volume group that you want to move from one storage array to a second storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show volumeGroup [volumeGroupName] exportDependencies
```

Parameter

Parameter	Description
volumeGroup	The name of the volume group for which you want to show export dependencies. Enclose the volume group name in square brackets ([]).

Notes

This command spins up the drives in a volume group, reads the DACstore, and shows a list of import dependencies for the volume group. The volume group must be in an Exported state or a Forced state.

Minimum firmware level

7.10

Show volume group import dependencies

The `show volumeGroup importDependencies` command shows a list of dependencies for the drives in a volume group that you want to move from one storage array to a second storage array.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Syntax

```
show volumeGroup [volumeGroupName] importDependencies  
[cancelImport=(TRUE | FALSE)]
```

Parameters

Parameter	Description
volumeGroup	The name of the volume group for which you want to show import dependencies. Enclose the volume group name in square brackets ([]).
cancelImport	The setting to spin the drives back down after the volume group dependencies have been read. To spin down the drives, set this parameter to <code>TRUE</code> . To let the drives stay spinning, set this parameter to <code>FALSE</code> .

Notes

This command returns the dependencies of a specific volume group, which must be in an Exported state or a Forced state. If a decision is made to retain the listed dependencies, then the `cancelImport` parameter can be enforced to spin the drives back down.

You must run the `show volumeGroup importDependencies` command before you run the `start volumeGroup import` command.

Minimum firmware level

7.10

Show volume group

The `show volumeGroup` command returns information about a volume group.

Supported Arrays

This command applies to any individual storage array, including the E2700, E5600, E2800, E5700, EF600 and EF300 arrays, as long as all SMcli packages are installed.

Roles

To execute this command on an E2800, E5700, EF600, or EF300 storage array, you must have the Storage Admin or Storage Monitor role.

Context

This command returns this information about a volume group:

- The status (Online or Offline)
- The capacity
- The current owner (the controller in slot A or the controller in slot B)
- The RAID level
- The drive media type (HDD or SSD)
- The drive interface type (Fibre Channel, iSCSI, InfiniBand, SAS)
- Tray loss protection (yes or no)
- Secure capable - indicates whether the volume group is composed of all secure-capable drives. Secure-capable drives can be either FDE drives or FIPS drives.
- Secure - Indicates whether the volume group has drive security turned on (this is called secure enabled).
- The associated volumes and free capacity
- The associated drives
- Data Assurance capabilities and presence of Data Assurance enabled volumes
- Resource provisioning capabilities

Syntax

```
show volumeGroup [volumeGroupName]
```

Parameter

Parameter	Description
volumeGroup	The name of the volume group for which you want to show information. Enclose the volume group name in square brackets ([]).

Notes

This command returns volume group information as shown in this example:

Name: SecureGroup

Status: Optimal

Capacity: 120.000 GB

Current owner: Controller in slot A

Quality of Service (QoS) Attributes

RAID level: 5
Drive media type: Hard Disk Drive
Drive interface type: SAS
Shelf loss protection: No
Secure Capable: Yes
Secure: No
Data Assurance (DA) capable: Yes
DA enabled volume present: No
Resource-provisioned: Yes

Total Volumes: 1
Standard volumes: 1
Repository volumes: 0
Free Capacity: 110.000 GB

Associated drives - present (in piece order)

Total drives present: 5

Tray	Slot
99	1
99	2
99	3
99	4
99	5

Minimum firmware level

6.10

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