



set ...

SANtricity commands

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set ...

Set asynchronous mirror group

The `set asyncMirrorGroup` command changes the synchronization settings and warning thresholds that the controller owner of the primary side of the asynchronous mirror group uses when it performs an initial synchronization or resynchronization.

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 Support Admin role.

Context


Changing the synchronization settings affects the synchronization operations of all mirrored pairs within the asynchronous mirror group.

Syntax

```
set asyncMirrorGroup [asyncMirrorGroupName]
[volume="repos_xxxx" increaseRepositoryCapacity
(repositoryVolume=("repos_xxxx"))]
[syncInterval=integer (minutes | hours | days)]
[warningSyncThreshold=integer (minutes | hours | days)]
[warningRecoveryThreshold=integer (minutes | hours | days)]
[userLabel="New_asyncMirrorGroupName"]
[warningThresholdPercent=percentValue]
[role=(primary | secondary)]
[autoResync=(TRUE | FALSE)]
```

Parameters

Parameter	Description
asyncMirrorGroup	The name of the asynchronous mirror group that you want to modify. Enclose the asynchronous mirror group name in square brackets ([]). If the asynchronous mirror group name has special characters or numbers, you must enclose the name in double quotation marks (" ") inside square brackets.

Parameter	Description
volume	<p>The name of an asynchronous mirror group repository volume for which you want to increase the capacity.</p> <p>The name of a repository volume is comprised of two parts:</p> <ul style="list-style-type: none"> • The term "repos" • A four-digit numerical identifier that the storage management software assigns to the repository volume name <p>Enclose the name of the repository volume in double quotation marks (" ").</p>
syncInterval	Specify the length of time between automatically sending updates of modified data from the local storage array to the remote storage array. You can specify the length of time in minutes, hours, or days.
warningSyncThreshold	Specify the length of time to wait until a warning is triggered for cases in which the synchronization of all of the volumes within the asynchronous mirror group takes longer than the defined time. You can specify the length of time in minutes, hours, or days.
warningRecoveryThreshold	<p>Specify the length of time to wait until a warning is triggered when the automatic data update for the point-in-time image on the remote storage array is older than the defined time. Define the threshold from the end of the previous update. You can specify the length of time in minutes, hours, or days.</p> <div>  <p>You must set the Recovery Point Threshold to be twice as large as the synchronization interval threshold.</p> </div>
userLabel	The new name that you want to give to the asynchronous mirror group. Use this parameter when you want to rename the asynchronous mirror group. Enclose the new asynchronous mirror group name in double quotation marks (" ").
warningThresholdPercent	Specify the percent value that determines when a warning is triggered when the capacity of a mirror repository volume reaches the defined percentage. Define the threshold by percentage (%) of the capacity remaining.

Parameter	Description
role	Use this parameter to promote the asynchronous mirror group to a primary role or demote the asynchronous mirror group to a secondary role. To define the asynchronous mirror group as the primary role, set this parameter to <code>primary</code> . To define the asynchronous mirror group as the secondary role, set this parameter to <code>secondary</code> .
autoResync	<p>The settings for automatic resynchronization between the primary volumes and the secondary volumes of an asynchronous mirrored pair within an asynchronous mirror group. This parameter has these values:</p> <ul style="list-style-type: none"> • <code>enabled</code> — Automatic resynchronization is turned on. You do not need to do anything further to resynchronize the primary volume and the secondary volume. • <code>disabled</code> — Automatic resynchronization is turned off. To resynchronize the primary volume and the secondary volume, you must run the <code>start asyncMirrorGroup</code> command.

Notes

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

When you use this command, you can specify one or more of the parameters. You do not, however, need to use all of the parameters.

An asynchronous mirror group repository volume is an expandable volume that is structured as a concatenated collection of up to 16 standard volume entities. Initially, an expandable repository volume has only a single volume. The capacity of the expandable repository volume is exactly that of the single volume. You can increase the capacity of an expandable repository volume by attaching additional unused repository volumes to it. The composite expandable repository volume capacity then becomes the sum of the capacities of all of the concatenated standard volumes.

Minimum firmware level

7.84

Set audit log settings

The `set auditLog` command configures the audit log settings.

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

```
set auditLog (logLevel={all | writeOnly} |
  fullPolicy={overwrite | preventSystemAccess} |
  maxRecords=n | warningThreshold=n)
```

Parameters

Parameter	Description
logLevel	Allows you to specify the level of logging. Valid choices are: <code>all</code> and <code>writeOnly</code> . The default value is <code>writeOnly</code> .
fullPolicy	Allows you to specify the policy when the log is full. Valid choices are: <code>overwrite</code> and <code>preventSystemAccess</code> .
maxRecords	Allows the user to specify the maximum number of records to be stored where <i>n</i> is an integer starting at 30000 and ending at 50000.
warningThreshold	Allows you to specify the percentage at which a warning alert will be sent to indicate that the audit log is nearing full when full policy is set to <code>preventSystemAccess</code> . Use integer values between 0 to 100. Setting this parameter to 0 (zero) disables the warning alerts.

Examples

```
SMcli -n Array1 -c "set auditLog logLevel=writeOnly
fullPolicy=preventSystemAccess maxRecords=40000 warningThreshold=90;"

SMcli completed successfully.
```


Minimum firmware level

8.40

Specify AutoSupport HTTP(S) delivery method (for individual E2800 or E5700 arrays)

The `set storageArray autoSupport deliveryMethod` command sets up the delivery method for sending AutoSupport messages to HTTP(S).

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

```
set storageArray autoSupport deliveryMethod={HTTP | HTTPS}
    {direct | proxyConfigScript="proxyConfigScriptUrl" |
proxyServer hostAddress=address portNumber=portNumber
    [userName="username" password="password"] }
```

Parameters

Parameter	Description
deliveryMethod	<p>Allows the user to specify the delivery method for AutoSupport collection. Valid choices are:</p> <ul style="list-style-type: none">• email• HTTP• HTTPS <div> If the email method is configured, then the AutoSupport OnDemand and Remote Diagnostics will be disabled.</div>
direct	<p>Allows the user to connect directly to the destination technical support systems using the HTTP or HTTPS protocol.</p>

Parameter	Description
proxyConfigScript	Allows the user to specify the location of a Proxy Auto-Configuration (PAC) script file
proxyServer	Allows the user to specify the HTTP(S) proxy server details required for establishing connection with the destination technical support system.
hostAddress	Allows the user to specify the proxy server's host address. Required if proxyServer is used.
portNumber	Allows the user to specify the proxy server's port number. Required if proxyServer is used.
username	Allows the user to specify the proxy server's username if it is configured.
password	Allows the user to specify the proxy server's password if it is configured.

Minimum Firmware Level

8.40

Examples

```
SMcli -n Array1 -c "set storageArray autoSupport deliveryMethod=HTTP
direct;"

SMcli -n Array1 -c "set storageArray autoSupport deliveryMethod=HTTP
proxyConfigScript=\"http://company.com/~username/proxy.pac\";"

SMcli -n Array1 -c "set storageArray autoSupport deliveryMethod=HTTPS
proxyServer hostAddress=10.117.12.112 portNumber=8080 userName=\"tracyt\"
password=\"1234456\";"

SMcli completed successfully.
```

Verification

Send a test message using the `start storageArray autoSupport deliveryTest` command to verify that your delivery methods are set up correctly.

Minimum firmware level

8.40

Set consistency group snapshot volume

The `set cgSnapVolume` command creates a unique name for a snapshot volume of a consistency 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 role.

Syntax

```
set cgSnapVolume [cgSnapVolumeName]  
userLabel="cgSnapVolumeName"
```

Parameters

Parameter	Description
<code>cgSnapVolume</code>	The name of the consistency group volume that you want to rename. Enclose the name of the consistency group snapshot volume in square brackets ([]).
<code>userLabel</code>	The new name that you want to give to the snapshot volume in the consistency group. Enclose the new snapshot volume name in double quotation marks (" ").

Notes

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

Minimum firmware level

7.83

Set consistency group attributes

The `set consistencyGroup` command defines the properties for a snapshot consistency 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 role.

Syntax

```
set consistencyGroup ["consistencyGroupName"]
[userLabel="consistencyGroupName"]
[repositoryFullPolicy=(failBaseWrites | purgeSnapImages)]
[repositoryFullLimit=percentValue]
[autoDeleteLimit=numberOfSnapImages]
[rollbackPriority=(lowest | low | medium | high | highest)]
```

Parameters

Parameter	Description
consistencyGroupName	The name of the consistency group for which you are setting properties. Enclose the consistency group name in double quotation marks (") inside square brackets ([]).
userLabel	The new name that you want to give to the snapshot consistency group. Enclose the new consistency group name in double quotation marks (").
repositoryFullPolicy	How you want snapshot processing to continue if the snapshot repository volumes are full. You can choose to fail writes to the base volume (<code>failBaseWrites</code>) or delete (purge) the snapshot images (<code>purgeSnapImages</code>). The default action is <code>purgeSnapImages</code> .

Parameter	Description
<code>repositoryFullLimit</code>	The percentage of repository capacity at which you receive a warning that the snapshot repository volume is nearing full. Use integer values. For example, a value of 70 means 70 percent. The default value is 75.
<code>autoDeleteLimit</code>	Each consistency group can be configured to perform automatic deletion of its snapshot images to keep the total number of snapshot images in the snapshot group at or below a designated level. When this option is enabled, then any time a new snapshot image is created in the snapshot group, the system automatically deletes the oldest snapshot image in the group to comply with the limit value. This action frees repository capacity so it can be used to satisfy ongoing copy-on-write requirements for the remaining snapshot images.
<code>rollBackPriority</code>	The priority for rollback operations for a consistency group while the storage array is operational. Valid values are <code>highest</code> , <code>high</code> , <code>medium</code> , <code>low</code> , or <code>lowest</code> .

Notes

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

When you use this command, you can specify one or more of the parameters. You do not, however, need to use all of the parameters.

The rollback priority defines the amount of system resources that should be allocated to the rollback operation at the expense of system performance. A value of `high` indicates that the rollback operation is prioritized over all other host I/O. A value of `low` indicates that the rollback operation should be performed with minimal impact to host I/O.

Auto delete

You can configure each snapshot group to perform automatic deletion of its snapshot images to keep the total number of snapshot images in the snapshot group at or below a maximum number of images. When the number of snapshot images in the snapshot group is at the maximum limit, the `autoDeleteLimit` parameter automatically deletes snapshot images whenever a new snapshot image is created in the snapshot group. The `autoDeleteLimit` parameter deletes the oldest snapshot images in the snapshot group until the maximum number of images defined with the parameter is met. Deleting snapshot images in this way frees repository capacity so it can be used to satisfy ongoing copy-on-write requirements for the remaining snapshot images.

Minimum firmware level

7.83

Add member to consistency group

The `set consistencyGroup addCGMemberVolume` command adds a new base volume as a member to an existing consistency 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 role.

Context

You can specify an existing repository volume for the new consistency group member, or create a new repository volume. When you create a new repository volume, you identify an existing volume group or an existing disk pool where you want the repository volume.

Syntax for use with an existing repository volume

```
set consistencyGroup ["consistencyGroupName"]
addCGMemberVolume="baseVolumeName"
repositoryVolume="volumeGroupName"
```

Syntax for use when creating a new repository volume in a volume group

```
set consistencyGroup ["consistencyGroupName"]
addCGMemberVolume="baseVolumeName"
repositoryVolume=("volumeGroupName" capacity=
capacityValue(KB|MB|GB|TB|bytes))
```

Syntax for use when creating a new repository volume in a disk pool

```
set consistencyGroup ["consistencyGroupName"]
addCGMemberVolume="baseVolumeName"
repositoryVolume=("diskPoolName" capacity=
capacityValue(KB|MB|GB|TB|bytes))
```

Parameters

Parameter	Description
<code>consistencyGroup</code>	The name of the consistency group to which you want to add a new member volume. The new member volume is the base volume for snapshot operations. Enclose the consistency group name in double quotation marks (" ") inside square brackets ([]).
<code>addCGMemberVolume</code>	<p>The name of a base volume that you want to add. Enclose the volume name in double quotation marks (" ").</p> <p>If the specified volume is an existing repository volume or an existing snapshot volume, the command fails.</p>
<code>repositoryVolume</code>	<p>This parameter performs two functions:</p> <ul style="list-style-type: none"> • In an existing consistency group that has a repository volume, this parameter identifies the repository volume. • When creating a new repository volume this parameter identifies either a volume group or disk pool in which to create the new repository volume. <p>Enclose the volume name in double quotation marks (" ").</p>
<code>capacity</code>	The size of a new repository volume in either a volume group or a disk pool. Size is defined in units of bytes, KB, MB, GB, or TB.

Notes

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

A consistency group is a collection of base volumes that are the source volumes for snapshots. You collect the base volumes in a consistency group so that you can perform the same snapshot operations on each of the base volumes. In the context of this command, the term *member* means a base volume for snapshot operations. You can manipulate snapshot images associated with members of a consistency group through batch-style operations, while maintaining consistency across the snapshot images.

Each member volume must have a corresponding repository volume. You can define the relationship between the member volume and the repository volume using the `repositoryVolume` parameter. The `repositoryVolume` parameter can perform one of these actions:

- Identify an existing repository volume that is connected to the consistency group.
- Identify either a volume group or a disk pool in which you want to create a new repository volume.

Adding a member to a consistency group with an existing repository has two purposes:

- You can create an entirely new repository volume by running the command without the `repositoryVolume` parameter. When you run the command without the `repositoryVolume` parameter, the command creates a new repository volume in the volume group or disk pool in which all the other repository volumes are stored. An example of this command usage is:

```
set consistencyGroup ["First_Images"] addCGMemberVolume="Data_020212"
```

- You can reuse an existing repository volume if that repository volume is empty and is not related to another member volume. You might want to do this if you want to maintain a particular sequence or relationship for the repository volumes. To reuse an existing, empty repository volume you need to know the name of the repository volume. To determine the name of the repository volume use the `show allVolumes` summary command. All repository volume names have the form `repos_XXXX` where `XXXX` is a unique identifier generated by the storage management software. An example of this command usage is:

```
set consistencyGroup ["First_Images"] addCGMemberVolume="Data_020212"  
repositoryVolume="repos_0011"
```

You can place the repository volume in a volume group or a disk pool of your choosing. You are not required to have the repository volume in the same location as other repository volumes. To place the repository volume in a volume group or a disk pool of your choice, use the `repositoryVolume` parameter and identify the volume group or the disk pool and a size for the repository volume. An example of this command usage is:

```
set consistencyGroup ["First_Images"] addCGMemberVolume="Data_020212"  
repositoryVolume=("12" capacity=2 GB)
```

In this example, "12" is the name of an existing volume group or an existing disk pool. The capacity parameter defines the size that you want for the repository volume group.

When you create a new repository volume in either a volume group or a disk pool, you must include parentheses around the volume group name and capacity, or the disk pool name and capacity.

Minimum firmware level

7.83

Set controller DNS settings

The `set controller DNSServers` command updates the Domain Name System (DNS) settings for a controller. DNS is used to resolve fully qualified domain names for the controllers and a Network Time Protocol (NTP) server.

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

Before you begin make sure that:

- A DNS server is configured.
- You know the addresses of a primary DNS server and a backup DNS server, in case the primary DNS server fails. These addresses can be IPv4 addresses or IPv6 addresses.



You need to send this command to both controllers. This command is controller-specific.




If you already configured the array's management ports with DHCP (Dynamic Host Configuration Protocol), and you have one or more DNS or NTP servers associated with the DHCP setup, then you do not need to manually configure DNS/NTP. In this case, the array should have already obtained the DNS/NTP server addresses automatically.

Syntax

```
set controller[a] DNSServers=(auto| (Address1 [Address2]))
```

Parameters

Parameter	Description
DNSServers	<p>This parameter configures the DNS servers for the controller. Specify <code>auto</code> to use the DNS servers provided by DHCP. Otherwise, use a whitespace separated list of one or two DNS servers.</p> <div><p>The management Ethernet ports on the array can support IPv4 or IPv6 protocols simultaneously. The addresses may be an IPv4 address or an IPv6 address. If specifying more than one address, the address types do not need to match.</p></div> <p>If more than one address is specified, they will be used in the order they are specified (first is primary, second is backup).</p>
AddressX	IPv4Address|IPv6Address

Examples

```
set controller[a] DNSServers=auto;
set controller[a] DNSServers=(192.168.1.1);
set controller[b] DNSServers=(192.168.1.1 192.168.1.105);
set controller[b] DNSServers=(2001:0db8:85a3:0000:0000:8a2e:0370:7334
192.168.1.1)
```

Minimum firmware level

8.25

Set controller host port properties

The `set controller hostPort` command changes the network properties for the following types of host ports: iSCSI, iSER, NVMe over InfiniBand, and NVMe over RoCE. Property changes include IPv4 and IPv6 properties, port speed, and maximum frame payload.

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.

Context



This command replaces the deprecated [Set iSCSI host port networking properties](#) command.

Syntax


```

set controller [(a|b)] hostPort ["portLabel"[, "physical"|"virtual"]]
    (IPv4Address=(0-255).(0-255).(0-255).(0-255) |
    IPv6LocalAddress=(FE80):(0000):(0000):(0000):(0-FFFF):(0-FFFF):(0-
FFFF):(0-FFFF) |
    IPv6RoutableAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-
FFFF):(0-FFFF):(0-FFFF) |
    IPv6RouterAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-
FFFF):(0-FFFF):(0-FFFF) |
    enableIPv4=(TRUE | FALSE) |
    enableIPv6=(TRUE | FALSE) |
    enableIPv4Vlan=(TRUE | FALSE) |
    enableIPv6Vlan=(TRUE | FALSE) |
    enableIPv4Priority=(TRUE | FALSE) |
    enableIPv6Priority=(TRUE | FALSE) |
    fecMode=(auto:none:reedSolomon:fireCode) |
    IPv4ConfigurationMethod=(static | dhcp) |
    IPv6ConfigurationMethod=(static | auto) |
    IPv4GatewayIP=(0-255).(0-255).(0-255).(0-255) |
    IPv6HopLimit=[0-255] |
    IPv6NdDetectDuplicateAddress=[0-255] |
    IPv6NdReachableTime=[0-65535] |
    IPv6NdRetransmitTime=[0-65535] |
    IPv6NdTimeOut=[0-65535] |
    IPv4Priority=[0-7] |
    IPv6Priority=[0-7] |
    IPv4SubnetMask=(0-255).(0-255).(0-255).(0-255) |
    IPv4VlanId=[1-4094] |
    IPv6VlanId=[1-4094] |
    maxFramePayload=[1500-9000] |
    tcpListeningPort=(3260 | [49152-65535]) |
    portSpeed=(autoNegotiate | 10 | 25 | 40 | 50 | 100))


```


Parameters

Parameter	Description
controller	Allows you to specify the controller for which you want to define properties.

Parameter	Description
hostPort	<p>Allows you to specify the host port label for which you want to define properties. For 200 GB Host Ports only, you can specify <code>physical</code> or <code>virtual</code> as parameters.</p> <div>  <p>If you do not specify a value for your 200 GB host port connection, the <code>physical</code> parameter is set by default.</p> </div>
IPv4Address	Allows you to enter the address in this format: (0-255).(0-255).(0-255).(0-255).
IPv6LocalAddress	Allows you to enter the address in this format: (FE80):(0000):(0000):(0000): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF).
IPv6RoutableAddress	Allows you to enter the address in this format: (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF).
IPv6RouterAddress	Allows you to enter the address in this format: (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF).
enableIPv4	Allows you to enable IPv4.
enableIPv6	Allows you to enable IPv6. The IPv6 address space is 128 bits. It is represented by eight 16-bit hexadecimal blocks separated by colons.
enableIPv4Vlan	Allows you to enable IPv4 VLAN. A VLAN is a logical network that behaves like it is physically separate from other physical and virtual local area networks (LANs) supported by the same switches, the same routers, or both.
enableIPv6Vlan	Allows you to enable IPv6 VLAN. A VLAN is a logical network that behaves like it is physically separate from other physical and virtual local area networks (LANs) supported by the same switches, the same routers, or both.

Parameter	Description
enableIPv4Priority	Allows you to enable the parameter that determines the priority of accessing the network. In a shared local area network (LAN) environment, such as Ethernet, many stations might contend for access to the network. Access is on a first-come, first-served basis. Two stations might try to access the network at the same time, which causes both stations to back off and wait before trying again. This process is minimized for switched Ethernet, where only one station is connected to a switch port.
enableIPv6Priority	Allows you to enable the parameter that determines the priority of accessing the network. In a shared local area network (LAN) environment, such as Ethernet, many stations might contend for access to the network. Access is on a first-come, first-served basis. Two stations might try to access the network at the same time, which causes both stations to back off and wait before trying again. This process is minimized for switched Ethernet, where only one station is connected to a switch port.
fecMode	Allows you to set the FEC mode for the host port to one of the following options: <ul style="list-style-type: none"> • auto • none • reedSolomon • fireCode
IPv4ConfigurationMethod	Allows you to set IPv4 static or DHCP addressing.
IPv6ConfigurationMethod	Allows you to set IPv6 static or DHCP addressing.
IPv4GatewayIP	Allows you to enter the gateway address in this format: (0-255).(0-255).(0-255).(0-255).
IPv6HopLimit	Allows you to configure the maximum number of hops an IPv6 packet can traverse. The default value is 64.
IPv6NdDetectDuplicateAddress	Allows you to set the number of neighbor-solicitation messages to send in trying to determine IP address uniqueness.

Parameter	Description
IPv6NdReachableTime	Allows you to set the amount of time, in milliseconds, that a remote IPv6 node is considered reachable. The default value is 30000 milliseconds.
IPv6NdRetransmitTime	Allows you to set the amount of time, in milliseconds, to continue to retransmit a packet to an IPv6 node. The default value is 1000 milliseconds.
IPv6NdTimeout	Allows you to set the timeout value, in milliseconds, for an IPv6 node. The default value is 30000 milliseconds.
IPv4Priority	Allows you to set the priority assignment for IPv4 packets.
IPv6Priority	Allows you to set the priority assignment for IPv6 packets.
IPv4SubnetMask	Allows you to enter the subnet mask address in this format: (0-255).(0-255).(0-255).(0-255).
IPv4VlanId	Allows you to set the IPv4 VLAN id.
IPv6VlanId	Allows you to set the IPv6 VLAN id.
maxFramePayload	<p>Allows you to set the maximum size of a packet or frame that is sent in a network. The payload portion of a standard Ethernet frame is set to 1500, and a jumbo Ethernet frame is set to 9000. When using jumbo frames, all the devices that are in the network path should be able to handle the larger frame size. The default value is 1500 bytes per frame.</p> <div>  <p>To ensure best performance in an NVMe over RoCE environment, configure a frame size of 4200.</p> </div>
tcpListeningPort	Allows you to set the TCP port number that is used to listen for iSCSI logins from initiators. The default port is 3260.

Parameter	Description
portSpeed	<p>Allows you to set the speed, in megabits per second (Mb/s), for which the port should be communicating.</p> <div>  <p>This parameter is only supported with a 25 Gbps iSCSI host interface card and a 100 Gbps Ethernet host interface card. For a 25 Gbps iSCSI host interface card, changing the speed of one port changes the speed of all four ports on the card. The allowable options in this case are 10 or 25. For a 100 Gbps Ethernet host interface card, new in release 8.50, changing the speed of one port doesn't affect the other ports on the card. The allowable options in the latter case are autoNegotiate, 10, 25, 40, 50, or 100GbE.</p> </div>

Parameter support by host port type

Parameter support varies by host port type (iSCSI, iSER, NVMe over InfiniBand, or NVMe over RoCE), as described in the following table:

Parameter	iSCSI	iSER	NVMe over InfiniBand	NVMe over RoCE
IPV4Address	Yes	Yes	Yes	Yes
IPV6LocalAddresses	Yes			Yes
IPv6RoutableAddress	Yes			Yes
IPv6RouterAddresses	Yes			Yes
enableIPV4	Yes			Yes
enableIPV6	Yes			Yes
enableIPv4Vlan	Yes			No
enableIPv6Vlan	Yes			No

Parameter	iSCSI	iSER	NVMe over InfiniBand	NVMe over RoCE
enableIPv4Priority	Yes			No
enableIPv6Priority	Yes			No
IPv4ConfigurationMethod	Yes			Yes
IPv6ConfigurationMethod	Yes			Yes
IPv4GatewayIP	Yes			Yes
IPv6HopLimit	Yes			
IPv6NdDetectDuplicateAddress	Yes			
IPv6NdReachableTime	Yes			
IPv6NdRetransmitTime	Yes			
IPv6NdTimeOut	Yes			
IPv4Priority	Yes			No
IPv6Priority	Yes			No
IPv4SubnetMask	Yes			Yes
IPv4VlanId	Yes			No
IPv6VlanId	Yes			No
maxFramePayload	Yes			Yes
tcpListeningPort	Yes			

Parameter	iSCSI	iSER	NVMe over InfiniBand	NVMe over RoCE
portSpeed	Yes			Yes

Minimum firmware level

8.41

8.50 - added information about the NVMe over RoCE environment.

11.70.1 added the `fecMode` parameter.

Set iSCSI host port networking properties

The `set controller iscsiHostPort` command changes the network properties for a host port, including IPv4 and IPv6 properties, port speed, and maximum frame payload.

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.



This command is deprecated and is replaced by the [Set controller host port properties](#) command.

Syntax

```
set controller [(a|b)]
iscsiHostPort [portLabel]
```

```
([IPv4Address=(0-255).(0-255).(0-255).(0-255) ] |
```

```
[IPv6LocalAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) ] |
```

```
[IPv6RoutableAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) ] |
```

```
[IPv6RouterAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF)] |
```

```
[enableIPv4=(TRUE | FALSE) | enableIPv6=(TRUE | FALSE)] |
```

```
[enableIPv4Vlan=(TRUE | FALSE) | enableIPv6Vlan=(TRUE | FALSE)] |
```

```
[enableIPv4Priority=(TRUE | FALSE) | enableIPv6Priority=(TRUE | FALSE)] |
```

```
[IPv4ConfigurationMethod=(static | dhcp)] |
```

```
[IPv6ConfigurationMethod=(static | auto)] |
```

```
[IPv4GatewayIP=(TRUE | FALSE)] |
```

```
[IPv6HopLimit=[0-255]] |
```

```
[IPv6NdDetectDuplicateAddress=[0-256]] |
```

```
[IPv6NdReachableTime=[0-65535]] |
```

```
[IPv6NdRetransmitTime=[0-65535]] |
```

```
[IPv6NdTimeOut=[0-65535]] |
```

```
[IPv4Priority=[0-7] | IPv6Priority=[0-7]] |
```

```
[IPv4SubnetMask=(0-255).(0-255).(0-255).(0-255)] |
```


```
[IPv4VlanId=[1-4094] | IPv6VlanId=[1-4094]] |
```



```
[maxFramePayload=[*frameSize*]] |
```




```
[tcpListeningPort=[3260, 49152-65536] ] |
```


```
[portSpeed=[ (10 | 25) ])
```



Parameters

Parameter	Description
enableIPv4	<p>Available options are:</p> <ul style="list-style-type: none">• TRUE• FALSE
enableIPv4Priority	<p>Select this option to enable the parameter that determines the priority of accessing the network. Use the slider to select a priority between 1 and 7.</p> <p>In a shared local area network (LAN) environment, such as Ethernet, many stations might contend for access to the network. Access is on a first-come, first-served basis. Two stations might try to access the network at the same time, which causes both stations to back off and wait before trying again. This process is minimized for switched Ethernet, where only one station is connected to a switch port.</p> <p>Available options are:</p> <ul style="list-style-type: none">• TRUE• FALSE <div> This parameter is not supported in an NVMe over RoCE environment.</div>

Parameter	Description
enableIPV4Vlan	<p>A VLAN is a logical network that behaves like it is physically separate from other physical and virtual local area networks (LANs) supported by the same switches, the same routers, or both. Available options are:</p> <ul style="list-style-type: none"> • TRUE • FALSE <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>
enableIPV6	<p>The IPv6 address space is 128 bits. It is represented by eight 16-bit hexadecimal blocks separated by colons.</p> <p>Available options are:</p> <ul style="list-style-type: none"> • TRUE • FALSE
enableIPV6Priority	<p>Select this option to enable the parameter that determines the priority of accessing the network. Use the slider to select a priority between 1 and 7.</p> <p>In a shared local area network (LAN) environment, such as Ethernet, many stations might contend for access to the network. Access is on a first-come, first-served basis. Two stations might try to access the network at the same time, which causes both stations to back off and wait before trying again. This process is minimized for switched Ethernet, where only one station is connected to a switch port.</p> <p>Available options are:</p> <ul style="list-style-type: none"> • TRUE • FALSE <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>

Parameter	Description
enableIPV6Vlan	<p>A VLAN is a logical network that behaves like it is physically separate from other physical and virtual local area networks (LANs) supported by the same switches, the same routers, or both.</p> <p>Available options are:</p> <ul style="list-style-type: none"> • TRUE • FALSE <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>
IPV4Address	Enter the address in this format: (0-255).(0-255).(0-255).(0-255)
IPV4ConfigurationMethod	<p>Available options are:</p> <ul style="list-style-type: none"> • static • dhcp
IPV4GatewayIP	<p>Available options are:</p> <ul style="list-style-type: none"> • TRUE • FALSE
IPV4Priority	<p>Enter a value between 0 and 7.</p> <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>
IPV4SubnetMask	Enter the subnet mask in this format: (0-255).(0-255).(0-255).(0-255)
IPV4VlanId	<p>Enter a value between 1 and 4094.</p> <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>
IPV6ConfigurationMethod	<p>Available options are:</p> <ul style="list-style-type: none"> • static • auto

Parameter	Description
IPv6HopLimit	<p>This option configures the maximum number of hops an IPv6 packet can traverse.</p> <p>The default value is 64.</p>
IPv6LocalAddress	<p>Enter the address in this format: (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF)</p>
IPv6NdDetectDuplicateAddress	<p>Enter a value between 0 and 256.</p>
IPv6NdReachableTime	<p>This option configures the amount of time that a remote IPv6 node is considered reachable. Specify a value, in milliseconds, between 0 - 65535.</p> <p>The default value is 30000 milliseconds.</p>
IPv6NdRetransmitTime	<p>This option configures the amount of time to continue to retransmit a packet to an IPv6 node. Specify a value, in milliseconds, between 0 - 65535.</p> <p>The default value is 1000 milliseconds.</p>
IPv6NdTimeOut	<p>This option configures the timeout value for an IPv6 node. Specify a value, in milliseconds, between 0 - 65535.</p> <p>The default value is 30000 milliseconds.</p>
IPv6Priority	<p>Enter a value between 0 and 7.</p> <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>
IPv6RoutableAddress	<p>Enter the address in this format: (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF)</p>
IPv6RouterAddress	<p>Enter the address in this format: (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF)</p>
IPv6VlanId	<p>Enter a value between 1 and 4094.</p> <div>  <p>This parameter is not supported in an NVMe over RoCE environment.</p> </div>

Parameter	Description
maxFramePayload	<p>The <code>maxFramePayload</code> option is shared between IPv4 and IPv6 and is the largest packet or frame that can be sent in a network. The payload portion of a standard Ethernet frame is set to 1500, and a jumbo Ethernet frame is set to 9000. When using jumbo frames, all of the devices that are in the network path should be capable of handling the larger frame size.</p> <p>The default value is 1500 bytes per frame. You must enter a value between 1500 and 9000.</p>
portSpeed	<p>Available options are:</p> <ul style="list-style-type: none"> • 10 • 25 <div>  This option is only valid for the 25Gb/s Ethernet host interface card. Changing the speed of one port changes the speed of all four ports on the card. </div> <div>  Values for the <code>portSpeed</code> option of the <code>iscsiHostPort</code> parameter are in megabits per second (Mb/s). </div>
tcpListeningPort	<p>The listening port is the TCP port number that the controller uses to listen for iSCSI logins from host iSCSI initiators. The default listening port is 3260. You must enter 3260 or a value between 49152 and 65535.</p>

Identifying an iSCSI host port label

You must specify a label for the host port. Follow these steps to specify the host port label:

1. If you do not know the port label for the iSCSI host port, run the `show controller` command.
2. In the Host interface section of the results, locate the host port you want to select.



The port label is the complete value returned for the `Port` field.

3. Enclose the entire value of the port label in both quotes and square brackets: `["portLabel"]`. For example, if the port label is `Ch 2`, specify the iSCSI host port as follows:

```
iscsiHostPort["ch 2"]
```



If you are using a Windows command line and the label contains a pipe (|), the character should be escaped (using ^); otherwise, it will be interpreted as a command. For example, if the port label is e0b|0b, specify the iSCSI host port as follows:

```
iscsiHostPort["e0b^|0b"]
```

For backward compatibility, the `iscsiPortNumber`, enclosed by braces [] rather than quotes and braces [" "] can still be used for E2700, E5600, or EF560 controllers (and other previous generations of E-Series or EF-Series controllers). For those controllers, valid values for `iscsiPortNumber` are as follows:



- For controllers with integrated host ports, the numbering is 3, 4, 5, or 6.
- For controllers with host ports on a host interface card only, the numbering is 1, 2, 3, or 4.

An example of the prior syntax is as follows:

```
iscsiHostPort[3]
```

Minimum firmware level

7.15 adds the new iSCSI host port options.

7.60 adds the `portSpeed` option.

8.10 revises the identification method for iSCSI host ports.

8.40 revises the `portSpeed` option of the `iscsiHostPort` parameter to note that it is only valid for the 25Gb/s Ethernet host interface card, and that changing the speed of one port changes the speed of all four ports on the card.

8.41 This command is deprecated.

Set controller NTP settings

The `set controller NTPServers` command sets the NTP settings for the controller so the controller can automatically synchronize the clocks with an external host using SNTP (Simple Network Time Protocol).

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 Support Admin role.

Context

When this feature is enabled, the controller periodically queries the configured NTP server, and then uses the results to update its internal time-of-day clock. If only one controller has NTP enabled, the alternate controller periodically synchronizes its clock with the controller that has NTP enabled. If neither controller has NTP enabled, the controllers periodically synchronize their clocks with each other.



This command is controller-specific. It is not necessary to configure NTP on both controllers; however, doing so improves the array's ability to stay synchronized during hardware or communication failures.






If you configure NTP using a fully qualified domain name, you must also configure DNS on those controller(s) for the operation to succeed. See [Set controller DNS Settings](#) for more information.

Syntax

```
set controller(a|b) NTPServers=(disabled|auto| (Address1
[keyIdentifier=integerLiteral() keyType=stringLiteral()
passPhrase=stringLiteral()] [Address2 [keyIdentifier=integerLiteral()
keyType=stringLiteral() passPhrase=stringLiteral()] ]))
```

Parameters

Parameter	Description
controller	The controller for which you want to change the NTP settings. Valid controller identifiers are a or b.

Parameter	Description
NTPServers	<p>This parameter configures the NTP servers for the controller.</p> <ul style="list-style-type: none"> Specify <code>disabled</code> to turn off NTP support. Specify <code>auto</code> to use the NTP server addresses provided by a DHCP server. <div>  <p>This option should be used only if at least one management port on the controller is set to get interface parameters via DHCP, and at least one NTP server is configured on the DHCP server.</p> </div> <ul style="list-style-type: none"> Otherwise, specify a whitespace separated list of one or two NTP servers. The addresses may be a domain name, IPv4 address, or IPv6 address. If specifying more than one address, the address types do not need to match. If more than one address is specified, they will be used in the order they are specified (first is primary, second is backup). <div>  <p>Surround the NTP server name with quotes, as shown in the Examples section.</p> </div>
Address	<p>"DomainName"|IPv4Address|IPv6Address</p> <div>  <p>If a domain name is specified, a DNS server must also be configured to allow the controller to resolve the server IP address.</p> </div>
keyIdentifier keyType passPhrase	<p>Optionally, these parameters provide the key credentials for enabling NTP authentication:</p> <ul style="list-style-type: none"> <code>key Identifier</code> is an integer from 0 to 65535. <code>keyType</code> is one of the following: <code>none</code>, <code>sha1</code>, <code>sha224</code>, <code>sha256</code>, <code>sha384</code> or <code>sha512</code>. <code>passPhrase</code> is either a hex digit (0-9, with a-f allowed), which is exactly 40 digits long entered as a <code>stringLiteral</code>, or an alphanumeric character string up to 20 bytes long.

Examples

```
set controller[a] NTPServers=disabled;
set controller[a] NTPServers=auto;
set controller[a] NTPServers=("0.pool.ntp.org" keyIdentifier=3
keyType="sha1" passphrase="SomePassword1" "1.us.pool.ntp.org"
keyIdentifier=3 keyType="sha1" passphrase=" SomePassword1");
set controller[b] NTPServers=(192.168.1.105 keyIdentifier=3 keyType="sha1"
passphrase=" SomePassword1" "1.us.pool.ntp.org");
set controller[b] NTPServers=(set controller[b]
NTPServers=(2001:0db8:85a3:0000:0000:8a2e:0370:7334 keyIdentifier=3
keyType="sha1" passphrase=" SomePassword1");
```

Minimum firmware level

8.25

8.42 adds the key credential parameters for NTP authentication.

Set controller service action allowed indicator

The `set controller` command turns on or turns off the Service Action Allowed indicator light on a controller in a controller tray or a controller-drive tray.

Supported Arrays

This command applies to any individual storage array, including the E2700 and E5600 arrays.

Context

If the storage array does not support the Service Action Allowed indicator light feature, this command returns an error. If the storage array supports the command but is unable to turn on or turn off the indicator light, this command returns an error. (To turn on or turn off the Service Action Allowed indicator light on the power-fan canister or the interconnect-battery canister, use the `set tray serviceAllowedIndicator` command.)



This command is valid only for E2700, E5600, or EF560 (and other previous generations of E-Series or EF-Series controllers). The E2800 controller tray has a single Attention indicator that will illuminate only when 1) there is a failure, and 2) the component that failed can be safely removed.

Syntax

```
set controller [(a| b)]
serviceAllowedIndicator=(on | off)
```

Parameters

Parameter	Description
<code>controller</code>	The controller that has the Service Action Allowed indicator light that you want to turn on or turn off. Valid controller identifiers are <code>a</code> or <code>b</code> , where <code>a</code> is the controller in slot A, and <code>b</code> is the controller in slot B. Enclose the controller identifier in square brackets ([]). If you do not specify a controller, the controller firmware returns a syntax error.
<code>serviceAllowedIndicator</code>	The setting to turn on or turn off the Service Action Allowed indicator light. To turn on the Service Action Allowed indicator light, set this parameter to <code>on</code> . To turn off the Service Action Allowed indicator light, set this parameter to <code>off</code> .

Minimum firmware level

6.14

Set controller

The `set controller` command defines the attributes for the controllers.

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

```

set controller [(a|b)]
[availability=(online | offline | serviceMode)]
[ethernetPort [(1| 2)] ethernetPortOptions]
[globalNVSramByte [nvramOffset]=(nvramByteSetting | nvramBitSetting)]
[hostNVSramByte [hostType, nvramOffset]=(nvramByteSetting |
nvramBitSetting)]
[IPv4GatewayIP=ipAddress]
[IPv6RouterAddress=ipv6Address]
[iscsiHostPort [portLabel] iscsiHostPortOptions]
[rloginEnabled=(TRUE | FALSE)]
[serviceAllowedIndicator=(on | off)]

```

Parameters

Parameter	Description
controller	The controller for which you want to define properties. Valid controller identifiers are <code>a</code> or <code>b</code> , where <code>a</code> is the controller in slot A, and <code>b</code> is the controller in slot B. Enclose the identifier for the controller in square brackets ([]). If you do not specify a controller, the firmware for the controller returns a syntax error.
availability	The mode for the controller, which you can set to <code>online</code> , <code>offline</code> , or <code>serviceMode</code> (service).
ethernetPort	The attributes (options) for the management Ethernet ports. The entries to support this parameter are listed in the Syntax Element Statement Data table that follows. Many settings are possible, including setting the IP address, the gateway address, and the subnet mask address.
globalNVSramByte	A portion of the controller NVSRAM. Specify the region to be modified using the starting byte offset within the region and the byte value or bit value of the new data to be stored into the NVSRAM.
hostNVSramByte	The NVSRAM for the host-specific region. The setting specifies the host index for the specific host, the starting offset within the region, the number of bytes, and the byte value or bit value of the new data to be stored into the NVSRAM.
IPv4GatewayIP	The IP address of the node that provides the interface to the network. The address format for the IPv4 gateway is (0—255).(0—255).(0—255).(0—255)

Parameter	Description
IPv6RouterAddress	The IP address of IPv6 router that connects two or more logical subnets. The address format for the IPv6 router is (0-FFFF) : (0-FFFF) : (0-FFFF) : (0-FFFF) : (0-FFFF) : (0-FFFF) : (0-FFFF) : (0-FFFF) .
iscsiHostPort	This parameter enables you to set options for the iSCSI ports on the controller. Enter the iSCSI port label or number and then select the options for that port. For more information, see the <i>Identifying an iSCSI host port label</i> section below.
rloginEnabled	The setting for whether the remote login feature is turned on or turned off. To turn on the remote login feature, set this parameter to <code>TRUE</code> . To turn off the remote login feature, set this parameter to <code>FALSE</code> .
serviceAllowedIndicator	The setting for whether the Service Action Allowed indicator light is turned on or turned off. To turn on the Service Action Allowed indicator light, set this parameter to <code>on</code> . To turn off the Service Action Allowed indicator light, set this parameter to <code>off</code> .

Identifying an iSCSI host port label

You must specify a label for the host port. Follow these steps to specify the host port label:

1. If you do not know the port label for the iSCSI host port, run the `show controller` command.
2. In the Host interface section of the results, locate the host port you want to select.



The port label is the complete value returned for the `Port` field.

3. Enclose the entire value of the port label in both quotes and square brackets: `["portLabel"]`. For example, if the port label is `Ch 2`, specify the iSCSI host port as follows:

```
iscsiHostPort["ch 2"]
```



If you are using a Windows command line and the label contains a pipe (`|`), the character should be escaped (using `^`); otherwise, it will be interpreted as a command. For example, if the port label is `e0b|0b`, specify the iSCSI host port as follows:

```
iscsiHostPort["e0b^|0b"]
```

For backward compatibility, the `iscsiPortNumber`, enclosed by braces [] rather than quotes and braces [" "] can still be used for E2700, E5600, or EF560 controllers (and other previous generations of E-Series or EF-Series controllers). For those controllers, valid values for `iscsiPortNumber` are as follows:



- For controllers with integrated host ports, the numbering is 3, 4, 5, or 6.
- For controllers with host ports on a host interface card only, the numbering is 1, 2, 3, or 4.

An example of the prior syntax is as follows:

```
iscsiHostPort[3]
```

Options for the `ethernetPort` parameter

```
enableIPv4=(TRUE | FALSE) |
```

```
enableIPv6=(TRUE | FALSE) |
```

```
IPv6LocalAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) |
```

```
IPv6RoutableAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) |
```

```
IPv4Address=(0-255).(0-255).(0-255).(0-255) |
```

```
IPv4ConfigurationMethod=[(static | dhcp)] |
```

```
IPv4SubnetMask=(0-255).(0-255).(0-255).(0-255) |
```

```
duplexMode=(TRUE | FALSE) |
```

```
portSpeed=[(autoNegotiate | 10 | 100 | 1000)]
```

Options for the iSCSIHostPort parameter

IPv4Address=(0-255).(0-255).(0-255).(0-255) |

IPv6LocalAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) |

IPv6RoutableAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) |

IPv6RouterAddress=(0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF): (0-FFFF):(0-FFFF):(0-FFFF):(0-FFFF) |

enableIPv4=(TRUE | FALSE) | enableIPv6=(TRUE | FALSE) |

enableIPv4Vlan=(TRUE | FALSE) | enableIPv6Vlan=(TRUE | FALSE) |

enableIPv4Priority=(TRUE | FALSE) | enableIPv6Priority=(TRUE | FALSE) |

IPv4ConfigurationMethod=(static | dhcp) |

IPv6ConfigurationMethod=(static | auto) |

IPv4GatewayIP=(TRUE | FALSE) |

IPv6HopLimit=[0-255] |

IPv6NdDetectDuplicateAddress=[0-256] |

IPv6NdReachableTime=[0-65535] |


```
IPv6NdRetransmitTime=[0-65535] |
```

```
IPv6NdTimeOut=[0-65535] |
```

```
IPv4Priority=[0-7] | IPv6Priority=[0-7] |
```

```
IPv4SubnetMask=(0-255).(0-255).(0-255).(0-255) |
```

```
IPv4VlanId=[1-4094] | IPv6VlanId=[1-4094] |
```

```
maxFramePayload=[*frameSize*] |
```

```
tcpListeningPort=[3260, 49152-65536] |
```

```
portSpeed=[( 10 | 25)]
```

Notes



Before firmware version 7.75, the `set controller` command supported an `NVSRAMByte` parameter. The `NVSRAMByte` parameter is deprecated and must be replaced with either the `hostNVSRAMByte` parameter or the `globalNVSRAMByte` parameter.

When you use this command, you can specify one or more of the parameters. You do not need to use all of the parameters.

Setting the `availability` parameter to `serviceMode` causes the alternate controller to take ownership of all of the volumes. The specified controller no longer has any volumes and refuses to take ownership of any more volumes. Service mode is persistent across reset cycles and power cycles until the `availability` parameter is set to `online`.

Use the `show controller NVSRAM` command to show the NVSRAM information. Before making any changes to the NVSRAM, contact technical support to learn what regions of the NVSRAM you can modify.

When the `duplexMode` option is set to `TRUE`, the selected Ethernet port is set to full duplex. The default value is half duplex (the `duplexMode` parameter is set to `FALSE`).

To make sure that the IPv4 settings or the IPv6 settings are applied, you must set these `iscsiHostPort` options:

- `enableIPv4= TRUE`
- `enableIPv6= TRUE`

The IPv6 address space is 128 bits. It is represented by eight 16-bit hexadecimal blocks separated by colons.

The `maxFramePayload` option is shared between IPv4 and IPv6. The payload portion of a standard Ethernet frame is set to 1500, and a jumbo Ethernet frame is set to 9000. When using jumbo frames, all of the devices that are in the network path should be capable of handling the larger frame size.

The `portSpeed` option is expressed as megabits per second (Mb/s).

Values for the `portSpeed` option of the `iscsiHostPort` parameter are in megabits per second (Mb/s).

The following values are the default values for the `iscsiHostOptions`:

- The `IPv6HopLimit` option is 64.
- The `IPv6NdReachableTime` option is 30000 milliseconds.
- The `IPv6NdRetransmitTime` option is 1000 milliseconds.
- The `IPv6NdTimeOut` option is 30000 milliseconds.
- The `tcpListeningPort` option is 3260.

Minimum firmware level

7.15 removes the `bootp` parameter, and adds the new Ethernet port options and the new iSCSI host port options.

7.50 moves the `IPV4Gateway` parameter and the `IPV6RouterAddress` parameter from the iSCSI host port options to the command.

7.60 adds the `portSpeed` option of the `iscsiHostPort` parameter.

7.75 deprecates the `NVSRAMByte` parameter.

8.10 revises the identification method for iSCSI host ports.

Set disk pool (modify disk pool)

The `set diskPool` command adds capacity to a disk pool (Dynamic Capacity Expansion or DCE) or changes the controller ownership for the entire 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

These two operations are mutually exclusive.

Syntax

```
set diskPool [diskPoolName]
(addDrives=[trayID1,drawerID1,slotID1 ... trayIDn,drawerIDn,slotIDn] |
addCapacity=(diskPoolCapacity))
[owner=(a| b)]
```

Parameters

Parameter	Description
diskPool	The name of the disk pool that you want to modify. Enclose the disk pool name in square brackets ([]). If the disk pool name has special characters or consists only of numbers, you must enclose the name in double quotation marks (" ") inside square brackets.
addDrives	<p>The drives that you want to add to the disk pool. For high-capacity drive trays, specify the tray ID value, the drawer ID value, and the slot ID value of the drive that you want to add. For low-capacity drive trays, specify the tray ID value and the slot ID value of the drive that you want to add. Tray ID values are 0 to 99. Drawer ID values are 1 to 5. Slot ID values are 1 to 24. Enclose the tray ID value, the drawer ID value, and the slot ID value in square brackets ([]).</p> <div> This feature has a 12-drive limit.</div>
addCapacity	The amount of additional storage capacity that you want to add to the disk pool. This parameter automatically selects the drives to meet the capacity that you want to add. The capacity is defined in units of bytes, KB, MB, GB, or TB.
owner	The controller that owns the disk pool. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. If you do not specify an owner, the controller firmware determines the owner.

Notes

Volumes already in the disk pool remain on line and available for I/O operations while you add new drives. The

disk pool must be in the Complete state before you add capacity. If the disk pool is not in the Complete state, run the `set diskPool complete` command before you add new drives.

To add capacity, specify individual drives with the `addDrives` parameter, or an amount of drive capacity with the `addCapacity` parameter. If you use `addDrives`, the host must validate the drive set before allowing the operation to run. If you use the `addCapacity` parameter, the capacity you specify is taken as the minimum capacity to be added. The candidate drives with the best match for quality of service and a capacity greater than or equal to what you specified are used. If no candidate is available with a minimum match, or the drive list specified is not available or attribute mismatches are detected, the operation fails.

You also can use this command to change ownership of a disk pool from one controller in the storage array to the other. Using this command to change ownership is mutually exclusive with using the command to add drives or to add capacity.

Minimum firmware level

7.83

Set disk pool

The `set diskPool` command sets the attributes associated with a disk pool based on the specified parameters.

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

```
set (diskPool [diskPoolName] |
diskPools [diskPoolName1 ... diskPoolNameN] | allDiskPools)
[reservedDriveCount=reservedDriveCountValue]
[warningThreshold=(warningThresholdValue | default)]
[criticalThreshold=(criticalThresholdValue | default)]
[criticalPriority=(highest | high | medium | low | lowest)]
[degradedPriority=(highest | high | medium | low | lowest)]
[backgroundPriority=(highest | high | medium | low | lowest)]
[userLabel=diskPoolName]
```

Parameters

Parameter	Description
diskPool	The name of the disk pool for which you are setting attributes. Enclose the disk pool name in square brackets ([]). If the disk pool name has special characters or consists only of numbers, you must enclose the disk pool name in double quotation marks (" ") inside square brackets.
diskPools	<p>The names of several disk pools for which you want to set attributes. Enter the names of the disk pools 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 disk pool 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.
allDiskPools	This parameter sets attributes for all of the disk pools in the storage array.
reservedDriveCount	This parameter reserves space on every drive in the disk pool, to be used exclusively for reconstruction of failed drives. Each unit in this count represents the capacity to reconstruct one failed drive to the remainder of the disk pool.
warningThreshold	<p>The percentage of disk pool capacity at which you receive a warning alert that the disk pool is nearing full. Use integer values. For example, a value of 70 means 70 percent. For best operation, the value for this parameter must be less than the value for the <code>criticalThreshold</code> parameter.</p> <p>Valid values are from 0 to 100.</p> <p>The default value is 50.</p> <p>Setting this parameter to 0 disables warning alerts.</p> <p>If you set this to <code>default</code>, the warning alert threshold value is determined by the controller firmware.</p>

Parameter	Description
<code>criticalThreshold</code>	<p>The percentage of disk pool capacity at which you receive a critical alert that the disk pool is nearing full. Use integer values. For example, a value of 70 means 70 percent. For best operation, the value for this parameter must be greater than the value for the <code>warningThreshold</code> parameter.</p> <p>Valid values are from 0 to 100.</p> <p>The default value is 85 percent.</p> <p>Setting this parameter to 0 disables both warning alerts and critical alerts.</p> <p>If you set this to <code>default</code>, the critical alert threshold value is determined by the controller firmware.</p>
<code>criticalPriority</code>	<p>The priority for reconstruction operations for critical events on the disk pool. For example, disk pool reconstruction after at least two drive failures.</p> <p>Valid values are <code>highest</code>, <code>high</code>, <code>medium</code>, <code>low</code>, and <code>lowest</code>. The default value is <code>highest</code>.</p>
<code>degradedPriority</code>	<p>The priority for reconstruction operations for degraded events on the disk pool. For example, disk pool reconstruction after at one drive failure.</p> <p>Valid values are <code>highest</code>, <code>high</code>, <code>medium</code>, <code>low</code>, and <code>lowest</code>. The default value is <code>high</code>.</p>
<code>backgroundPriority</code>	<p>The priority for background operations on the disk pool.</p> <p>Valid values are <code>highest</code>, <code>high</code>, <code>medium</code>, <code>low</code>, and <code>lowest</code>. The default value is <code>low</code>.</p>
<code>userLabel</code>	<p>The new name that you want to give the disk pool. Enclose the disk pool name in double quotation marks (" ").</p>

Notes

Each disk pool name must be unique. You can use any combination of alphanumeric characters, underscore (_), hyphen (-), and pound (#) for the user label. User labels can have a maximum of 30 characters.

You can specify an arbitrary set of disk pools. If you select multiple disk pools, setting a value for the `userLabel` causes an error.

If you do not specify a value for an optional parameter, a default value is assigned.

Disk pool alert thresholds

Each disk pool has two progressively severe levels of alerts to inform users when the storage capacity of the disk pool is approaching full. The threshold for an alert is a percent of the used capacity to the total usable capacity in the disk pool. The alerts are:

- **Warning** — This is the first level of alert that the used capacity in a disk pool is approaching full. When the threshold for the warning alert is reached a Needs Attention condition is generated and an event is posted to the storage management software. The warning threshold is superseded by the critical threshold. The default warning threshold is 50 percent.
- **Critical** — This is the most severe level of alert that the used capacity in a disk pool is approaching full. When the threshold for the critical alert is reached a Needs Attention condition is generated and an event is posted to the storage management software. The warning threshold is superseded by the critical threshold. The default threshold for the critical alert is 85 percent.

To be effective, the value for a warning alert must always be less than the value for a critical alert. If the value for the warning alert is the same as the value for a critical alert, only the critical alert is sent.

Disk pool background operations

Disk pools support these background operations:

- Reconstruction
- Instant Availability Format (IAF)
- Format
- Dynamic Capacity Expansion (DCE)
- Dynamic Capacity Reduction (DCR)
- Dynamic Volume Expansion (DVE) (For disk pools, DVE is actually not a background operation, but DVE is supported as a synchronous operation.)

Disk pools do not queue background commands. You can start several background commands sequentially, but starting more than one background operation at a time delays the completion of commands that you started previously. The relative priority levels for the supported background operations are:

1. Reconstruction
2. Format
3. IAF
4. DCE/DCR

Minimum firmware level

7.83

Set drive hot spare

The `set drive hotSpare` command assigns or de-assigns one or more drives as a hot spare.

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

```
set (drive [trayID,[drawerID,]slotID] | drives[trayID1,[drawerID1,]slotID1  
... trayIDn,[drawerIDn,]slotIDn])  
hotSpare=(TRUE | FALSE)
```

Parameters

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>
hotSpare	<p>The setting to assign the drive as the hot spare. To assign the drive as the hot spare, set this parameter to <code>TRUE</code>. To remove a hot spare assignment from a drive, set this parameter to <code>FALSE</code>.</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.

Minimum firmware level

6.10

7.60 adds the `drawerID` user input.

Set foreign drive to native

The `set drive nativeState` command adds the missing (foreign) drives back into their original volume group and to make them part of the volume group in the new 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

A drive is considered to be native when it is a part of a volume group in a storage array. A drive is considered to be foreign when it does not belong to a volume group in a storage array or when it fails to be imported with the drives of a volume group that are transferred to a new storage array. The latter failure creates an incomplete volume group on the new storage array.

Use this operation for emergency recovery only: when one or more drives need to be changed from a foreign drive status and returned to a native status within their original volume group.



Possible data corruption or data loss — Using this command for reasons other than what is stated previously might result in data loss without notification.

Syntax

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

Parameters

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, E5700, EF600, and EF300 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>allDrives</code>	The setting to select all of the drives.

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.

Minimum firmware level

7.10

7.60 adds the `drawerID` user input.

Set drive state

The `set drive operationalState` command sets a drive to the Failed state.

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

To return a drive to the Optimal state, use the `revive drive` command.

Syntax

```
set drive [trayID,[drawerID,]slotID] operationalState=failed [copyDrive]
```

Parameter

Parameter	Description
drive	<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.

Minimum firmware level

5.20

7.60 adds the `drawerID` user input.

Set FIPS drive security identifier

The `set drive securityID` command is used to reset a FIPS drive back to the original manufacturer settings.

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 Security Admin role.

Context



This command resets a FIPS drive back to the original manufacturer settings and erases all existing drive data. This operation is completely irreversible. This may be necessary if the drive is locked due to an invalid or missing security key file or unknown pass phrase. All existing drive data will be erased.


To erase an FDE drive, use the `start secureErase` command.

Syntax

```
set drive [trayID, [drawerID,] slotID] securityID="string"
```

Parameters

Parameter	Description
drive	<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>

Parameter	Description
securityID	<p>The security ID of the drive to erase, in string form. This string can have a maximum of 32 characters. The form of the security ID will vary by manufacturer.</p> <div>  <p>To find the security ID, remove the drive and read the security ID on the canister label.</p> </div>

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.

Example

```
set drive [1,31,4] securityID="V2zdVLTdGWdWyTALGHns";
```

Minimum firmware level

8.25

Set drive service action allowed indicator

The `set drive serviceAllowedIndicator` command turns on or turns off the Service Action Allowed indicator light on a drive or drives in drive trays that support the Service Action Allowed indicator light 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 role.

Context

If the storage array does not support the Service Action Allowed indicator light feature, this command returns an error. If the storage array supports the command, but is unable to turn on or turn off the indicator light, this

command returns an error.

Syntax

```
set (drive [trayID,[drawerID,]slotID] | drives[trayID1,[drawerID1,]slotID1  
... trayIDn,[drawerIDn,]slotIDn])  
serviceAllowedIndicator=(on | off)
```

Parameters

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>
serviceAllowedIndicator	<p>The setting to turn on or turn off the Service Action Allowed indicator light. To turn on the Service Action Allowed indicator light, set this parameter to <code>on</code>. To turn off the Service Action Allowed indicator light, set this parameter to <code>off</code>.</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.

Minimum firmware level

6.16

7.60 adds the `drawerID` user input.

Set drive channel status

The `set driveChannel` command defines how the drive channel performs.

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 Support Admin role.

Syntax

```
set driveChannel [(1 | 2 | 3 | 4 | 5 | 6 | 7 | 8)]
status=(optimal | degraded)
```

Parameters

Parameter	Description
<code>driveChannel</code>	The identifier number of the drive channel for which you want to set the status. Valid drive channel values are 1, 2, 3, 4, 5, 6, 7, or 8. Enclose the drive channel number in square brackets ([]).
<code>status</code>	The condition of the drive channel. You can set the drive channel status to <code>optimal</code> or <code>degraded</code> .

Notes

Use the `optimal` option to move a degraded drive channel back to the Optimal state. Use the `degraded` option when the drive channel is experiencing problems, and the storage array requires additional time for data transfers.

Minimum firmware level

6.10

7.15 adds the update to the drive channel identifier.

Specify the Email (SMTP) delivery method

The `set storageArray autoSupport deliveryMethod` command sets up the delivery method for sending AutoSupport messages to email (SMTP).

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

```
set storageArray autoSupport deliveryMethod=email  
mailRelayServer="serverAddress" senderEmail="emailAddress"
```

Parameters

Parameter	Description
deliveryMethod	<p>Allows the user to specify the delivery method for AutoSupport collection. Valid choices are:</p> <ul style="list-style-type: none">• email• HTTP• HTTPS <div> If the email method is configured, then the AutoSupport OnDemand and Remote Diagnostics will be disabled.</div>
mailRelayServer	Allows the user to specify the mail relay server for the AutoSupport collection.
senderEmail	Allows the user to specify send email address for the AutoSupport collection.

Examples

```
SMcli -n Array1 -c "set storageArray autoSupportConfig  
deliveryMethod=email mailRelayServer=\"mailserver.company.com\"  
senderEmail=\"user@company.com\";"  
  
SMcli completed successfully.
```


Verification

Send a test message using the `start storageArray autoSupport deliveryTest` command to verify that your delivery methods are set up correctly.

Minimum Firmware Level

8.40

Configure email alert settings

The `set emailAlert` command configures the email to send an email to a specified technical support or organization. The email alert contains a summary of the event, detailed information about the affected storage, and customer contact information.

Supported Arrays

This command applies to the E2800, E5700, EF600, and EF300 storage arrays. However, you can use the command as an SMcli command, not a script command, for E2700 or E5600 arrays. In this case, the command applies to all of the arrays in the management domain.

Syntax

```
set emailAlert
  serverAddress="serverAddress" |
  serverEncryption=none | smtps | starttls |
  serverPort=port value |
  serverUsername="username" |
  serverPassword="password" |
  senderAddress="emailAddress" |
  additionalContactInfo="filename" |
  (recipientAddresses=("emailAddress1" ... "emailAddressN") |
  addRecipientAddresses=("emailAddress1" ... "emailAddressN"))
```

Parameters

Parameter	Description
serverAddress	Allows you to set the email server address. The email server address can be a fully qualified domain name, IPv4 address, or IPv6 address.

Parameter	Description
serverEncryption	<p>The encryption to be used to communicate with the server. The value may be one of the following:</p> <ul style="list-style-type: none"> • <i>none</i> - No encryption • <i>smtps</i> - Create an SSL/TLS connection (implicit TLS) • <i>starttls</i> - Create an unencrypted connection and then establish an SSL/TLS session (explicit TLS)
serverPort	<p>The TCP port to be used to connect to the server. The default value will depend on the encryption type.</p> <ul style="list-style-type: none"> • <i>none</i> - Defaults to port 25 • <i>smtps</i> - Defaults to port 465 • <i>starttls</i> - Defaults to port 587
serverUsername	<p>The user name to provide authentication credentials to the server. If the user name is specified, the password must also be specified.</p>
serverPassword	<p>The password to provide authentication credentials to the server. If the password is specified, the user name must also be specified.</p>
senderAddress	<p>Allows you to set the sender's email address.</p>
additionalContactInfo	<p>Allows you to provide the filename that contains the additional contact information to be used in the email alert.</p>
recipientAddresses	<p>Allows you to set one or more recipient email addresses. Using this set option will clear out existing email addresses. Enclose all of the names in parentheses. Enclose each of the names in double quotation marks ("""). Separate each of the names with a space.</p>
addRecipientAddresses	<p>Allows you to add one or more recipient email addresses to the existing list. Enclose all of the names in parentheses. Enclose each of the names in double quotation marks ("""). Separate each of the names with a space.</p>

Examples

```
SMcli -n Array1 -c "set emailAlert
serverAddress="email.server.domain.com"
serverEncryption=("smtps") |
serverPort="smtps" |
serverUsername="username" |
serverPassword="password" |
senderAddress=no-reply@server.domain.com
additionalContactInfo="C:\additionalInfo.txt"
recipientAddresses=("person1@email.domain.com"
"person2@email.domain.com");"

SMcli -n Array1 -c "set emailAlert
addRecipientAddresses=("person3@netapp.com");"

SMcli completed successfully.
```

Minimum firmware level

8.40

11.70.1 adds the `serverEncryption`, `serverPort`, `serverUsername`, and `serverPassword` parameters.

Set event alert filtering

The `set event alert` commands manage alert event notification by either disabling or enabling notification related to a specific alertable event. To prevent notification about a specific alertable event, you *block* it. To enable notification about a specific alertable event, you *unblock* it.

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

Context

When you define your storage array, you can configure alerts and define how the event alerts are managed. If you have configured the storage array to send alerts, a notification is sent to a designated recipient when an alertable event occurs. That notification can be one or all of the following types:

- email
- syslog
- SNMP trap notifications

The set event alert CLI commands work on a single storage array. When you run the commands on a storage array, only that storage array is affected by the commands. Other storage arrays that have not had the CLI command run against them have the default behavior.



Blocking an event alert does not prevent the event from being posted to the system event log. All events continue to be posted to the event log.



Non-alertable events cannot be made alertable using this command.

Syntax to block an event alert

```
set blockEventAlert eventType
```

Syntax to unblock an event alert

```
set unBlockEventAlert eventType
```

Parameters

Parameter	Description
<i>eventType</i>	<p>This parameter is the integer value for the event. Enter the event value in a hexadecimal format, for example, 0x280D. Always begin the hexadecimal value with 0x to indicate that it is in hexadecimal format. If you do not use 0x, the value is interpreted as a decimal and converted to a hexadecimal value, before applying the block or unblock command. This can cause an incorrect event to be blocked or unblocked.</p> <p>An error is displayed if you enter an invalid event.</p>

Minimum firmware level

8.10

Set host

The `set host` command assigns a host to a host group or moves a host to a different host 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 role.

Context

You can also create a new host group and assign the host to the new host group with this command. The actions performed by this command depend on whether the host has individual mappings or does not have individual mappings.

Syntax

```
set host [hostName]
hostGroup=("hostGroupName" | none | defaultGroup)
userLabel="newHostName"
hostType=(hostTypeIndexLabel | hostTypeIndexNumber)
```

Parameters

Parameter	Description
host	The name of the host that you want to assign to a host group. Enclose the host name in square brackets ([]). If the host name has special characters or numbers, you must enclose the host name in double quotation marks (" ") inside square brackets.
hostGroup	The name of the host group to which you want to assign the host. (The following table defines how the command runs if the host does or does not have individual mappings.) Enclose the host group name in double quotation marks (" "). The defaultGroup option is the host group that contains the host to which the volume is mapped.
userLabel	The new host name. Enclose the host name in double quotation marks (" ").

Parameter	Description
hostType	The index label or number of the host type for the host port. Use the <code>show storageArray hostTypeTable</code> command to generate a list of available host type identifiers. If the host type has special characters, enclose the host type in double quotation marks (" ").

Host Group Parameter	Host Has Individual Mappings	Host Does Not Have Individual Mappings
<i>hostGroupName</i>	The host is removed from the present host group and is placed under the new host group defined by <i>hostGroupName</i> .	The host is removed from the present host group and is placed under the new host group defined by <i>hostGroupName</i> .
none	The host is removed from the host group as an independent partition and is placed under the root node.	The host is removed from the present host group and is placed under the default group.
defaultGroup	The command fails.	The host is removed from the present host group and is placed under the default group.

Notes

When you use this command, you can specify one or more of the optional parameters.

For the names, you can use any combination of alphanumeric characters, hyphens, and underscores. Names can have a maximum of 30 characters.

Minimum firmware level

6.10

Set host channel

The `set hostChannel` command defines the loop ID for the host channel.

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

```
set hostChannel [hostChannelNumber]  
preferredID=portID
```

Parameters

Parameter	Description
hostChannel	<p>The identifier number of the host channel for which you want to set the loop ID. Enclose the host channel identifier number in square brackets ([]).</p> <p>Use a host channel value that is appropriate for your particular controller model. A controller tray might support one host channel or as many as eight host channels. Valid host channel values are a1, a2, a3, a4, a5, a6, a7, a8, b1, b2, b3, b4, b5, b6, b7, or b8.</p>
preferredID	The port identifier for the specified host channel. Port ID values are 0 to 127.

Minimum firmware level

6.10

6.14 adds an update to the host channel identifier.

7.15 adds an update to the host channel identifier.

Set host group

The `set hostGroup` command renames a host 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 role.

Syntax

```
set hostGroup [hostGroupName]
userLabel="newHostGroupName"
```

Parameters

Parameter	Description
hostGroup	The name of the host group that you want to rename. Enclose the host group name in square brackets ([]). If the host group name has special characters or numbers, you must enclose the host group name in double quotation marks (" ") inside square brackets.
userLabel	The new name for the host group. Enclose the new host group name in double quotation marks (" ").

Notes

You can use any combination of alphanumeric characters, hyphens, and underscores for the names. Names can have a maximum of 30 characters.

Minimum firmware level

6.10

Set host port

The `set hostPort` command changes the properties for a host port.

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 does not work in an iSCSI environment, where the host ports are considered initiators. Instead, use the `set iscsiInitiator` command. See [Set iSCSI initiator](#).

Syntax


```
set hostPort [portLabel] userLabel=newPortLabel
[host=hostName]
```

Parameters

Parameter	Description
hostPort	The name of the host port for which you want to change the host type, or for which you want to create a new name. Enclose the host port name in square brackets ([]). If the host port name has special characters or numbers, enclose the host port name in double quotation marks (" ") inside square brackets.
userLabel	The new name that you want to give to the host port. Enclose the new name of the host port in double quotation marks (" ").
host	The name of the host for which you are defining an HBA or HCA host port. Enclose the host name in double quotation marks (" ").

Notes

You can use any combination of alphanumeric characters, hyphens, and underscores for the user label. User labels can have a maximum of 30 characters.

Minimum firmware level

6.10

Set initiator

The `set initiator` command updates the initiator object.

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 role.

Context



This command replaces the deprecated [Set iSCSI initiator](#) command.



This command is applicable only to iSCSI, iSER, NVMe over RoCE, NVMe over InfiniBand, and NVMe over Fibre Channel.

Syntax

```
set initiator ([ "initiatorName" ] | < "initiatorQualifiedName" > )  
([ userLabel = "newInitiatorName" ] |  
[ host = "newHostName" ] | [ chapSecret = "newSecurityKey" ] )
```

Parameters

Parameter	Description
initiator	Allows you to specify the initiator identifier for which you want to set properties. Enclose the name in double quotation marks (" "). You also must enclose the name in square brackets ([]) if the value is a user label or angle brackets (< >) if the value is a qualified name (e.g., iqn or nqn).
userLabel	Allows you to enter a new user label for the initiator object. Enclose the new user label in double quotation marks (" ").
host	Allows you to enter a new host to which the host port is connected. Enclose the host name in double quotation marks (" ").
chapSecret	Allows you to enter a new security key that you want to use to authenticate a peer connection. Enclose the security key in double quotation marks (" "). This parameter is only applicable to iSCSI and iSER host interface types.

Minimum firmware level

8.41

Set iSCSI initiator

The `set iscsiInitiator` command sets the attributes for an iSCSI initiator.

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.





This command is deprecated and is replaced by the [Set initiator](#) command.

Syntax

```
set iscsiInitiator (["initiatorUserLabel"] | <"_iscsiInitiatorName_">)
(userLabel="newName" |
host="newHostName" |
chapSecret="newSecurityKey")
```

Parameters

Parameter	Description
initiatorUserLabel	<div>The iscsi Initiator user label of the iSCSI initiator for which you want to set attributes. Enclose the iSCSI initiator user label in double quotation marks (" ") inside square brackets ([]).</div> <div><div></div><div>Begin the initiator user label with the host name to which the host port is connected. Because there can be more than one host port identifier on a host, use a unique suffix for the host port ID. If the host name is ICTM1590S02H1 the initiator label appears as follows:</div></div> <div><pre>set iscsiInitiator ["ICTM1590S02H1_AA"]</pre></div>

Parameter	Description
iscsiInitiatorName	<p>The name of the initiator for which you want to set attributes. Enclose the <code>iscsiInitiatorName</code> in double quotation marks (" ") inside angle brackets (< >).</p> <div>  <p>The <code>iscsiInitiatorName</code> is the iSCSI Qualified Name (iqn). An example:</p> </div> <pre>set iscsiInitiator <"iqn.2016-11.com.vmware.iscsi:ictm1509s02h1"></pre>
userLabel	<p>The new user label that you want to use for the iSCSI initiator. Enclose the new user label in double quotation marks (" ").</p> <div>  <p>A best practice is to begin the initiator user label with the host name to which the host port is connected. Because there can be more than one host port identifier on a host, use a unique suffix for the host port ID. If the host name is <code>ICTM1590S02H1</code> then an example of the initiator user label is shown below:</p> </div> <pre>set iscsiInitiator ["ICTM1590S02H1_AA"]</pre>
host	<p>The name of the new host to which the host port is connected. Enclose the host name in double quotation marks (" "). An example is shown below:</p> <pre>["ICTM1590S02H2"]</pre>
chapSecret	<p>The security key that you want to use to authenticate a peer connection. Enclose the security key in double quotation marks (" ").</p>

Notes

You can use any combination of alphanumeric characters, hyphens, and underscores for the names. Names can have a maximum of 30 characters.

Challenge Handshake Authentication Protocol (CHAP) is a protocol that authenticates the peer of a connection. CHAP is based upon the peers sharing a *secret*. A secret is a security key that is similar to a password.

Use the `chapSecret` parameter to set up the security keys for initiators that require a mutual authentication. The CHAP secret must be between 12 characters and 57 characters. This table lists the valid characters.

Space	!	"	#	\$	%	&	'	()	*	
,	-	.	/	0	1	2	3	4	5	6	7
8	9	:	;	<	=	>	?	@	A	B	C
D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[
\	\]	^	_	'	a	b	c	d	e	f	g
h	i	j	k	l	m	n	o	p	q	r	s
t	u	v	w	x	y	z	{	|	}	~	

Minimum firmware level

7.10

8.41 This command is deprecated.

Set iSCSI target properties

The `set iscsiTarget` command defines properties for 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.



This command is deprecated and is replaced by the [Set target properties](#) command.

Syntax

```
set iscsiTarget ["userLabel"]
authenticationMethod=(none | chap) |
chapSecret=securityKey |
targetAlias="userLabel"
```

Parameters

Parameter	Description
iscsiTarget	The iSCSI target for which you want to set properties. Enclose the <i>userLabel</i> in double quotation marks ("). You must also enclose the <i>userLabel</i> in square brackets ([]) if the user label is a target alias or angle brackets (< >) if the user label is an iSCSI Qualified Name (IQN).
authenticationMethod	The means of authenticating your iSCSI session.
chapSecret	The security key that you want to use to authenticate a peer connection.
targetAlias	The new name that you want to use for the target. Enclose the name in double quotation marks (").

Notes

Challenge Handshake Authentication Protocol (CHAP) is a protocol that authenticates the peer of a connection. CHAP is based upon the peers sharing a *secret*. A secret is a security key that is similar to a password.

Use the `chapSecret` parameter to set up the security keys for initiators that require a mutual authentication. The CHAP secret must be between 12 characters and 57 characters. This table lists the valid characters.

Space	!	"	#	\$	%	&	'	()	*	
,	-	.	/	0	1	2	3	4	5	6	7
8	9	:	;	<	=	>	?	@	A	B	C
D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[
\	\]	^	_	'	a	b	c	d	e	f	g

h	i	j	k	l	m	n	o	p	q	r	s
t	u	v	w	x	y	z	{	|	}	~	

Minimum firmware level

7.10

8.41 This command is deprecated.

Set iSER target

The `set iserTarget` command defines properties for an iSER 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.



This command is deprecated and is replaced by the [Set target properties](#) command.

Syntax

```
set iserTarget ["userLabel"]
authenticationMethod=(none | chap) |
chapSecret=securityKey |
targetAlias="userLabel"
```

Parameters

Parameter	Description
iserTarget	The iSER target for which you want to set properties. Enclose the <i>userLabel</i> in double quotation marks (" "). You must also enclose the <i>userLabel</i> in square brackets ([]) if the user label is a target alias or angle brackets (< >) if the user label is an iSCSI Qualified Name (IQN).
authenticationMethod	The means of authenticating your iSCSI session.

Parameter	Description
chapSecret	The security key that you want to use to authenticate a peer connection.
targetAlias	The new name that you want to use for the target. Enclose the name in double quotation marks (" ").

Notes

Challenge Handshake Authentication Protocol (CHAP) is a protocol that authenticates the peer of a connection. CHAP is based upon the peers sharing a *secret*. A secret is a security key that is similar to a password.

Use the `chapSecret` parameter to set up the security keys for initiators that require a mutual authentication. The CHAP secret must be between 12 characters and 57 characters. This table lists the valid characters.

Space	!	"	#	\$	%	&	'	()	*	
,	-	.	/	0	1	2	3	4	5	6	7
8	9	:	;	<	=	>	?	@	A	B	C
D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[
\	\]	^	_	'	a	b	c	d	e	f	g
h	i	j	k	l	m	n	o	p	q	r	s
t	u	v	w	x	y	z	{	|	}	~	

Minimum firmware level

8.20

8.41 This command is deprecated.

Set session

The `set session errorAction` command defines how you want the current script engine session to run.

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, Support Admin, Security Admin, or Storage Monitor role.

Context


For the purpose of this command a session is the duration for the running of the commands. This command does not permanently set the parameters for the storage array.



Syntax

```
set session errorAction=(stop | continue)
password="storageArrayPassword"
performanceMonitorInterval=intervalValue
performanceMonitorIterations=iterationValue
```

```
set session errorAction=(stop | continue)
password="storageArrayPassword"
userRole=(admin | monitor)
performanceMonitorInterval=intervalValue
performanceMonitorIterations=iterationValue
```

Parameters

Parameter	Description
errorAction	How the session responds if an error is encountered during processing. You can choose to stop the session if an error is encountered, or you can continue the session after encountering an error. The default value is <code>stop</code> . (This parameter defines the action for execution errors, not syntax errors. Some error conditions might override the <code>continue</code> value.)
password	<div>The password for the storage array. Enclose the password in double quotation marks (" ").</div> <div> When the client type is set to <code>https</code>, this parameter is obsolete. The password must be specified prior to the CLI command script execution, and cannot be changed in the middle of a script.</div>

Parameter	Description
performanceMonitorInterval	<p>The frequency of gathering performance data. Enter an integer value for the polling interval, in seconds, for which you want to capture data. The range of values is 3 to 3600 seconds. The default value is 5 seconds.</p> <div>  <p>When the client type is set to https, this parameter is obsolete. Instead, to change the default interval value, use this parameter with the individual impacted commands. The commands are <code>save storageArray</code>, <code>performanceStats</code> and <code>show drive performanceStats</code>.</p> </div>
performanceMonitorIterations	<p>The number of samples to capture. Enter an integer value. The range of values for samples captured is 1 to 3600. The default value is 5.</p> <div>  <p>When the client type is set to https, this parameter is obsolete. Instead, to change the default iteration value, use this parameter with the individual impacted commands. The commands are <code>save storageArray</code>, <code>performanceStats</code> and <code>show drive performanceStats</code>.</p> </div>

Notes

When you use this command, you can specify one or more of the optional parameters.

Passwords are stored on each storage array in a management domain. If a password was not previously set, you do not need a password. The password can be any combination of alphanumeric characters with a maximum of 30 characters. (You can define a storage array password by using the `set storageArray` command.)

The polling interval and the number of iterations that you specify remain in effect until you end the session. After you end the session, the polling interval and the number of iterations return to the default values.

Minimum firmware level

5.20

8.40 - when the client type is set to https, obsoleted the password, userRole, performanceMonitorInterval, and performanceMonitorIterations parameters.

Set snapshot group schedule

The `set snapGroup enableSchedule` command defines the schedule for taking snapshot images for a snapshot 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 role.

Syntax

```
set snapGroup ["snapGroupName"]
enableSchedule=(TRUE | FALSE)
schedule (immediate | snapshotSchedule)
```

Parameters

Parameter	Description
<code>snapGroup</code>	The name of the snapshot group for which you are setting properties. Enclose the snapshot group name in double quotation marks (") inside of square brackets ([]).
<code>enableSchedule</code>	Use this parameter to turn on or to turn off the ability to schedule a snapshot operation. To turn on snapshot scheduling, set this parameter to <code>TRUE</code> . To turn off snapshot scheduling, set this parameter to <code>FALSE</code> .

Notes

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

The `enableSchedule` parameter and the `schedule` parameter provide a way for you to schedule creating snapshot images for a snapshot group. Using these parameters, you can schedule snapshots daily, weekly, or monthly (by day or by date). The `enableSchedule` parameter turns on or turns off the ability to schedule snapshots. When you enable scheduling, you use the `schedule` parameter to define when you want the snapshots to occur.

This list explains how to use the options for the `schedule` parameter:

- **immediate** — As soon as you enter the command, a snapshot image is created, and a copy-on-write operation begins.
- **startDate** — A specific date on which you want to create a snapshot image and perform a copy-on-write operation. The format for entering the date is `MM:DD:YY`. If you do not provide a start date, the current date is used. An example of this option is `startDate=06:27:11`.
- **scheduleDay** — A day of the week on which you want to create a snapshot image and perform a copy-on-write operation. You can enter these values: `monday`, `tuesday`, `wednesday`, `thursday`, `friday`, `saturday`, `sunday`, and `all`. An example of this option is `scheduleDay=wednesday`.
- **startTime** — The time of a day that you want to create a snapshot image and start performing a copy-on-write operation. The format for entering the time is `HH:MM`, where `HH` is the hour and `MM` is the minute past the hour. Use a 24-hour clock. For example, 2:00 in the afternoon is 14:00. An example of this option is **`startTime=14:27`**.
- **scheduleInterval** — An amount of time, in minutes, that you want to have as a minimum between copy-on-write operations. You can possibly create a schedule in which you have overlapping copy-on-write operations because of the duration of a copy operation. You can make sure that you have time between copy-on-write operations by using this option. The maximum value for the `scheduleInterval` option is 1440 minutes. An example of this option is **`scheduleInterval=180`**.
- **endDate** — A specific date on which you want to stop creating a snapshot image and end the copy-on-write operation. The format for entering the date is `MM:DD:YY`. An example of this option is **`endDate=11:26:11`**.
- **noEndDate** — Use this option if you do not want your scheduled copy-on-write operation to end. If you later decide to end the copy-on-write operations you must re-enter the `set snapGroup` command and specify an end date.
- **timesPerDay** — The number of times that you want the schedule to run in a day. An example of this option is `timesPerDay=4`.
- **timeZone** — Use this parameter to define the time zone in which the storage array is operating. You can define the time zone in one of two ways:
 - `GMT±HH:MM` — The time zone offset from GMT. Enter the offset in hours and minutes. For example `GMT-06:00` is the central time zone in the United States.
 - `Text string` — Standard time zone text strings. For example: `"America/Chicago"` or `"Australia/Brisbane"`. Time zone text strings are case sensitive. If you enter an incorrect text string, GMT time is used. Enclose the text string in double quotation marks.

The code string for defining a schedule is similar to these examples:

```
enableSchedule=true schedule startTime=14:27
```

```
enableSchedule=true schedule scheduleInterval=180
```

```
enableSchedule=true schedule timeZone=GMT-06:00
```

```
enableSchedule=true schedule timeZone="America/Chicago"
```

If you also use the `scheduleInterval` option, the firmware chooses between the `timesPerDay` option and the `scheduleInterval` option by selecting the lowest value of the two options. The firmware calculates an integer value for the `scheduleInterval` option by dividing 1440 by the `scheduleInterval` option value that you set. For example, $1440/180 = 8$. The firmware then compares the `timesPerDay` integer value with the calculated `scheduleInterval` integer value and uses the smaller value.

To remove a schedule, use the `delete volume` command with the `schedule` parameter. The `delete volume` command with the `schedule` parameter deletes only the schedule, not the snapshot volume.

Minimum firmware level

7.83

7.86 adds the `scheduleDate` option and the `month` option.

Set snapshot group repository volume capacity

The `set snapGroup increase/decreaseRepositoryCapacity` command increases or decreases the capacity of a snapshot group repository 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 role.

Syntax for increasing capacity

```
set snapGroup ["snapGroupName"] increaseRepositoryCapacity
(repositoryVolumes="repos_xxxx" | repositoryVolumes=((volumeGroupName
[capacity=capacityValue])) | repositoryVolumes=((diskPoolName
[capacity=capacityValue])))
```

Syntax for decreasing capacity

```
set snapGroup ["snapGroupName"]
decreaseRepositoryCapacity
count=numberOfVolumes
```

Parameters

Parameter	Description
snapGroup	The name of the snapshot group for which you want to increase capacity or decrease capacity. Enclose the snapshot group name in double quotation marks (" ") inside of square brackets ([]).

Parameter	Description
repositoryVolume	<p>The name of the repository volume for which you want to increase capacity. An available standard volume is added to the repository volume to increase the capacity of the repository volume.</p> <p>You have two options for defining the name of a repository volume:</p> <ul style="list-style-type: none"> • Use an existing repository volume: name • Create a new repository volume when you run this command <p>The name of an existing repository volume consists of two parts:</p> <ul style="list-style-type: none"> • The term "repos" • A four digit numerical identifier that the storage management software assigns to the repository volume name <p>Enclose the name of the existing repository volume in double quotation marks (" ").</p> <p>If you want to create a new repository volume when you run this command you must enter the name of either a volume group or a disk pool in which you want the repository volume. Optionally, you can also define the capacity of the repository volume. If you want to define the capacity you can use these values:</p> <ul style="list-style-type: none"> • An integer value that represents a percentage of the base volume capacity • A decimal fraction value that represents a percentage of the base volume capacity • A specific size for the repository volume. Size is defined in units of <code>bytes</code>, <code>KB</code>, <code>MB</code>, <code>GB</code>, or <code>TB</code>. <p>If you do not use the capacity option, the storage management software sets the capacity to 20 percent of the base volume capacity.</p> <p>When you run this command the storage management software creates the repository volume for the snapshot volume.</p>
count	<p>The number of repository volumes that you want to remove from the snapshot group. Use integer values.</p>

Notes

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

The repository volume name is automatically created by the storage management software and the firmware when you create a new snapshot group. You cannot rename the repository volume because renaming the repository volume breaks the linkage with the snapshot images.

A snapshot group repository volume is an expandable volume that is structured as a concatenated collection of up to 16 standard volume entities. Initially, an expandable repository volume has only a single element. The capacity of the expandable repository volume is exactly that of the single element. You can increase the capacity of an expandable repository volume by attaching additional standard volumes to it. The composite expandable repository volume capacity then becomes the sum of the capacities of all of the concatenated standard volumes.

A snapshot group repository volume must satisfy a minimum capacity requirement that is the sum of the following:

- 32 MB to support fixed overhead for the snapshot group and for copy-on-write processing.
- Capacity for rollback processing, which is 1/5000th of the capacity of the base volume.

The minimum capacity is enforcement by the controller firmware and the storage management software.

Minimum firmware level

7.83

Set snapshot group media scan

The `set snapGroup mediaScanEnabled` command runs a media scan on a snapshot 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 role.

Syntax

```
set snapGroup ["snapGroupName"]
mediaScanEnabled=(TRUE | FALSE)
redundancyCheckEnabled=(TRUE | FALSE)
```


Parameters

Parameter	Description
<code>snapGroup</code>	The name of the snapshot group on which you want to run a media scan. Enclose the snapshot group name in double quotation marks (") inside of square brackets ([]).
<code>mediaScanEnabled</code>	The setting to turn on or turn off media scan for the volume. To turn on media scan, set this parameter to <code>TRUE</code> . To turn off media scan, set this parameter to <code>FALSE</code> . (If media scan is disabled at the storage array level, this parameter has no effect.)
<code>redundancyCheckEnabled</code>	The setting to turn on or turn off redundancy checking during a media scan. To turn on redundancy checking, set this parameter to <code>TRUE</code> . To turn off redundancy checking, set this parameter to <code>FALSE</code> .

Notes

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

Minimum firmware level

7.83

Set snapshot group attributes

The `set snapGroup` command defines the properties for a snapshot 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 role.

Syntax

```
set snapGroup ["snapGroupName"]
[userLabel="snapGroupName"] |
[repositoryFullPolicy=(failBaseWrites | purgeSnapImages) |
[repositoryFullLimit=percentValue |
[autoDeleteLimit=numberOfSnapImages] |
[rollbackPriority=(lowest | low | medium | high | highest)]
```

Parameters

Parameter	Description
snapGroup	The name of the snapshot group for which you are setting properties. Enclose the snapshot group name in double quotation marks (" ") inside of square brackets ([]).
userLabel	The new name that you want to give to the snapshot group. Use this parameter when you want to rename the snapshot group. Enclose the new snapshot group name in double quotation marks (" ").
repositoryFullPolicy	How you want snapshot image processing to continue if the repository volumes for the snapshot image group are full. You can choose to fail writes to the base volume (failBaseWrites) or delete (purge) the snapshot images (purgeSnapImages). The default action is purgeSnapImages.
repositoryFullLimit	The percentage of repository volume capacity at which you receive a warning that the snapshot image repository volume is nearing full. Use integer values. For example, a value of 70 means 70 percent. The default value is 75.
autoDeleteLimit	The maximum number of snapshot images that you want to automatically delete if you have selected to purge the snapshot images for a repository full policy. Use integer values. The default value is 32.
rollBackPriority	Use this parameter to determine whether system resources should be allocated to the rollback operation at the expense of system performance. Valid values are highest, high, medium, low, or lowest. A value of high indicates that the rollback operation is prioritized over all other host I/O. A value of lowest indicates that the rollback operation should be performed with minimal impact to host I/O.

Notes

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

When you use this command, you can specify one or more of the parameters. You do not, however, need to use all of the parameters.

Minimum firmware level

7.83

Set read-only snapshot volume to read/write volume

The `set snapVolume convertToReadWrite` command changes a snapshot volume that is a read-only volume to a snapshot volume that is read/write 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 role.

Context

You also can use this command to identify a new repository volume for the read/write volume, or to set a full limit warning level for the repository volume.

Syntax

```
set snapVolume ["snapImageVolumeName"] convertToReadWrite
[(repositoryVolume="repos_xxxx" |
repositoryVolume=(volumeGroupName [capacity=capacityValue])
repositoryVolume=(diskPoolName [capacity=capacityValue))]
[repositoryFullLimit=percentValue]
```

Parameters

Parameter	Description
snapVolume	The name of the snapshot volume that you want to change from read-only to read/write. Enclose the snapshot volume identifier in double quotation marks (" ") inside of square brackets ([]).

Parameter	Description
<code>repositoryVolume</code>	<p>The name of the repository volume that you want to use for the read/write volume.</p> <p>You have two options for defining the name of a repository volume:</p> <ul style="list-style-type: none"> • Use an existing repository volume: name • Create a new repository volume when you run this command <p>The name of an existing repository volume is comprised of two parts:</p> <ul style="list-style-type: none"> • The term "repos" • A four-digit numerical identifier that the storage management software assigns to the repository volume name <p>Enclose the name of the existing repository volume in double quotation marks (" ").</p> <p>If you want to create a new repository volume when you run this command you must enter the name of either a volume group or a disk pool in which you want the repository volume. Optionally, you can also define the capacity of the repository volume. If you want to define the capacity you can use these values:</p> <ul style="list-style-type: none"> • An integer value that represents a percentage of the base volume capacity • A decimal fraction value that represents a percentage of the base volume capacity • A specific size for the repository volume. Size is defined in units of <code>bytes</code>, KB, MB, GB, or TB. <p>If you do not use the capacity option, the storage management software sets the capacity to 20 percent of the base volume capacity.</p> <p>When you run this command the storage management software creates the repository volume for the snapshot volume.</p>
<code>repositoryFullLimit</code>	<p>The percentage of repository volume capacity at which you receive a warning that the snapshot image repository volume is nearing full. Use integer values. For example, a value of 70 means 70 percent. The default value is 75.</p>

Notes

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

The repository volume name is automatically created by the storage management software and the firmware when you create a new snapshot group. You cannot rename the repository volume because renaming the repository volume will break the linkage with the snapshot images.

A snapshot group repository volume is an expandable volume that is structured as a concatenated collection of up to 16 standard volume entities. Initially, an expandable repository volume has only a single element. The capacity of the expandable repository volume is exactly that of the single element. You can increase the capacity of an expandable repository volume by attaching additional standard volumes to it. The composite expandable repository volume capacity then becomes the sum of the capacities of all of the concatenated standard volumes.

A snapshot group repository volume must satisfy a minimum capacity requirement that is the sum of the following:

- 32 MB to support fixed overhead for the snapshot group and for copy-on-write processing.
- Capacity for rollback processing, which is 1/5000th of the capacity of the base volume.

The minimum capacity is enforcement by the controller firmware and the storage management software.

Minimum firmware level

7.83

Set snapshot volume repository volume capacity

The `set snapVolume increase/decreaseRepositoryCapacity` command increases or decreases the capacity of a snapshot volume repository 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 role.

Syntax for increasing capacity

```
set snapVolume["snapVolumeName"] increaseRepositoryCapacity
(repositoryVolumes="repos_xxxx" |
repositoryVolumes=(volumeGroupName [capacity=capacityValue] |
repositoryVolumes=(diskPoolName [capacity=capacityValue])
```

Syntax for decreasing capacity

```
set snapVolume ["snapVolumeName"] decreaseRepositoryCapacity  
count=numberOfVolumes
```

Parameters

Parameter	Description
snapVolume	The name of the snapshot volume for which you are setting properties. Enclose the snapshot volume identifier in double quotation marks (" ") inside of square brackets ([]).

Parameter	Description
repositoryVolume	<p>The name of the repository volume for which you want to increase capacity. An available standard volume is added to the repository volume to increase the capacity of the repository volume.</p> <p>You have two options for defining the name of a repository volume:</p> <ul style="list-style-type: none"> • Use an existing repository volume: name • Create a new repository volume when you run this command <p>The name of an existing repository volume is comprised of two parts:</p> <ul style="list-style-type: none"> • The term "repos" • A four digit numerical identifier that you assign to the repository volume name <p>Enclose the name of the existing repository volume in double quotation marks (" ").</p> <p>If you want to create a new repository volume when you run this command you must enter the name of either a volume group or a disk pool in which you want the repository volume. Optionally, you can also define the capacity of the repository volume. If you want to define the capacity you can use these values:</p> <ul style="list-style-type: none"> • An integer value that represents a percentage of the base volume capacity • A decimal fraction value that represents a percentage of the base volume capacity • A specific size for the repository volume. Size is defined in units of <code>bytes</code>, KB, MB, GB, or TB. <p>If you do not use the capacity option, the storage management software sets the capacity to 20 percent of the base volume capacity.</p> <p>Enclose the name of the new repository volume in parentheses.</p>
count	<p>The number of volumes that you want to remove. Use integer values.</p>

Notes

You can use any combination of alphanumeric characters, underscore (_), hyphen (-), and pound (#) for the

names. Names can have a maximum of 30 characters.

A snapshot repository volume is an expandable volume that is structured as a concatenated collection of up to 16 standard volume entities. Initially, an expandable repository volume has only a single element. The capacity of the expandable repository volume is exactly that of the single element. You can increase the capacity of an expandable repository volume by attaching additional standard volumes to it. The composite expandable repository volume capacity then becomes the sum of the capacities of all of the concatenated standard volumes.

A snapshot group repository volume must satisfy a minimum capacity requirement that is the sum of the following:

- 32 MB to support fixed overhead for the snapshot group and for copy-on-write processing.
- Capacity for rollback processing, which is 1/5000th of the capacity of the base volume.

The minimum capacity is enforcement by the controller firmware and the storage management software.

Minimum firmware level

7.83

Set snapshot volume media scan

The `set snapVolume mediaScanEnabled` command runs a media scan on the drives used for a snapshot 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 role.

Context

Optionally, you also can perform a redundancy check on the data.

Syntax

```
set snapVolume ["snapVolumeName"]  
mediaScanEnabled=(TRUE | FALSE) [redundancyCheckEnabled=(TRUE | FALSE)]
```

Parameters

Parameter	Description
<code>snapVolume</code>	The name of the snapshot volume for which you are setting properties. Enclose the snapshot volume identifier in double quotation marks (") inside of square brackets ([]).
<code>mediaScanEnabled</code>	The setting to turn on or turn off media scan for the snapshot volume. To turn on media scan, set this parameter to <code>TRUE</code> . To turn off media scan, set this parameter to <code>FALSE</code> . (If media scan is disabled at the storage array level, this parameter has no effect.)
<code>redundancyCheckEnabled</code>	The setting to turn on or turn off redundancy checking during a media scan. To turn on redundancy checking, set this parameter to <code>TRUE</code> . To turn off redundancy checking, set this parameter to <code>FALSE</code> .

Notes

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

Minimum firmware level

7.83

Rename snapshot volume

The `set snapVolume` command renames an existing snapshot 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 role.

Syntax

```
set snapVolume ["snapVolumeName"] userLabel="snapImageVolumeName"
```

Parameters

Parameter	Description
snapVolume	The name of the snapshot volume that you want to rename. Enclose the snapshot volume name in double quotation marks (" ") inside of square brackets ([]).
userLabel	A new name that you want to give to the snapshot volume. Enclose the new snapshot volume name in double quotation marks (" ").

Notes

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

Minimum firmware level

7.83

Update SNMP community

The `set snmpCommunity` command creates a new name for an existing Simple Network Management Protocol (SNMP) community.

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

```
set snmpCommunity communityName="snmpCommunityName"
newCommunityName="newSnmpCommunityName"
```

Parameters

Parameter	Description
communityName	The name of the existing SNMP community that you want to rename. Enclose the SNMP community name in double quotation marks (" ").

Parameter	Description
<code>newCommunityName</code>	The new name that you want to give to the SNMP community. Enclose the SNMP community name in double quotation marks (" ").

Minimum firmware level

8.30

Update SNMP MIB II system group variables

The `set snmpSystemVariables` command changes the system variables for the Simple Network Management Protocol (SNMP).

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.

Context

The following system variables are maintained in a Management Information Base II (MIB-II) database:

- Name of the system
- Name of the system contact
- Location of the system

Syntax

```
set snmpSystemVariables
[sysName=newSystemName]
[sysContact=contactName]
[sysLocation=systemLocation]
```

Parameters

Parameter	Description
sysName	The new name that you want to give to the SNMP system. Use standard SNMP and MIB conventions for the system name. Enclose the SNMP system name in square brackets ([]).
sysContact	The name of contact person for the managed system with information on how to contact this person. Enclose the SNMP contact name in square brackets ([]).
sysLocation	The physical location of the system, such as "3rd flr". Enclose the SNMP system location in square brackets ([]).

Minimum firmware level

8.30

Update SNMP trap destination

The `set snmpTrapDestination trapReceiverIP` command turns on or turns off sending authentication failure messages for an SNMP trap destination. Failure occurs when the SNMP agent received a message from an SNMP manager, but the message contained an invalid community name or user name.

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

```
set snmpTrapDestination trapReceiverIP=ipAddress
(communityName="communityName" | (userName="userName" [engineId=(local |
engineId)]))
[sendAuthenticationFailureTraps=(TRUE | FALSE)]
```

Parameters

Parameter	Description
trapReceiverIP	The IP address of the SNMP manager to which you want to send trap messages.
communityName	The name of the SNMP community for which you want to send trap messages.
userName	The name of the SNMP user for which you want to send trap messages.
engineId	The engine ID of the SNMP user for which you want to send trap messages. The engine ID is required if there is more than one USM user with the same user name. The value may be "local" to specify the local SNMP agent is the authoritative agent or a hexadecimal digit string to specify a remote SNMP agent engine ID.
sendAuthenticationFailureTraps	This parameter turns on or turns off sending authentication failure messages to an SNMP manager. To send authentication failure messages, set the parameter to <code>TRUE</code> . To prevent sending authentication failure messages, set the parameter to <code>FALSE</code> . The default is <code>TRUE</code> .

Minimum firmware level

8.30

Update SNMPv3 USM user

The `set snmpUser userName` command updates an existing Simple Network Management Protocol (SNMP) USM user. The USM user to be changed is identified using the user name if there is only one user with the user name. The user is identified using the user name and engine ID if there is more than one user with the same user name and different engine ID.

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

```
set snmpUser userName="snmpUserName" [engineId=(local | engineId)]  
[newUserName="newSnmpUserName"] [newEngineId=(local | engineId)]  
[authProtocol=(none | sha | sha256 | sha512) authPassword="authPassword"]  
[privProtocol=(none | aes128) privPassword="privPassword"]
```

Parameters

Parameter	Description
userName	The name of the SNMP USM user that you want to update. Enclose the SNMP USM user name in double quotation marks (" ")
engineId	The engine ID of the SNMP USM user that you want to update. The engine ID is required if there is more than one USM user with the same user name. The value may be <code>local</code> to specify the local SNMP agent is the authoritative agent or a hexadecimal digit string to specify a remote SNMP agent engine ID.
newSnmpUserName	The new name that you want to give to the SNMP user. Enclose the SNMP user name in double quotation marks (" "). The default value is the previously defined user name for the user.
newEngineId	The new engineID to use as the identifier of the authoritative SNMP engine ID for the user. The value may be "[.code]local" to specify the local SNMP agent to be the authoritative agent or a hexadecimal digit string to specify a remote SNMP agent engine ID. The default value is the previously defined engine ID for the user.
authProtocol	<p>The authentication protocol (HMAC) to be used for the user. The value may be one of the following:</p> <ul style="list-style-type: none">• <code>none</code> - No authentication of SNMP messages (default)• <code>sha</code> - SHA-1 authentication• <code>sha256</code> - SHA-256 authentication• <code>sha512</code> - SHA-512 authentication <p>The default value is the previously defined authentication protocol for the user.</p>

Parameter	Description
authPassword	The password to be used for authentication for the user. Must be specified if the authentication protocol is sha, sha256 or sha512
privProtocol	<p>The privacy protocol (encryption) to be used for the user. The value may be one of the following:</p> <ul style="list-style-type: none"> • none - No encryption of SNMP messages (default) • aes128 - AES-18 encryption <p>The default value is the previously defined privacy protocol for the user.</p>
privPassword	The password to be used for privacy/encryption for the user. Must be specified if the privacy protocol is "[.code]`aes128`".

Minimum firmware level

8.72

Set storage array to enable or disable automatic load balancing

The `set storageArray autoLoadBalancingEnable` command enables or disables the Automatic Load Balancing 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 role.

Syntax

```
set storageArray autoLoadBalancingEnable=(TRUE | FALSE)
```

Parameter

Parameter	Description
storageArray	Indicates that this parameter works on a storage array.
autoLoadBalancingEnable	This parameter turns on or turns off Automatic Load Balancing on the controller. Set the parameter to <code>TRUE</code> to turn on Automatic Load Balancing. Set the parameter to <code>FALSE</code> to turn off Automatic Load Balancing.

What is Automatic Load Balancing?

The Automatic Load Balancing feature provides improved I/O resource management by reacting dynamically to load changes over time and automatically adjusting volume controller ownership to correct any load imbalance issues when workloads shift across the controllers.

The workload of each controller is continually monitored and, with cooperation from the multipath drivers installed on the hosts, can be automatically brought into balance whenever necessary. When workload is automatically re-balanced across the controllers, the storage administrator is relieved of the burden of manually adjusting volume controller ownership to accommodate load changes on the storage array.

When Automatic Load Balancing is enabled, it performs the following functions:

- Automatically monitors and balances controller resource utilization.
- Automatically adjusts volume controller ownership when needed, thereby optimizing I/O bandwidth between the hosts and the storage array.

Enabling and disabling Automatic Load Balancing

Automatic Load Balancing is enabled by default on all storage arrays that ship with SANtricity OS (controller software) 8.30 or later. Linux, Windows, and VMware multipath drivers can use the Automatic Load Balancing feature. If you upgrade your controller from SANtricity OS (controller software) 8.25 or earlier to 8.30 or later, Automatic Load Balancing is disabled by default on the storage array.

You might want to disable Automatic Load Balancing on your storage array for the following reasons:

- You do not want to automatically change a particular volume's controller ownership to balance workload.
- You are operating in a highly tuned environment where load distribution is purposefully set up to achieve a specific distribution between the controllers.

In SANtricity Storage Manager, select the **Storage Array > Configuration > Automatic Load Balancing** menu option to enable or disable the Automatic Load Balancing feature for an individual storage array.

In SANtricity System Manager, select **Settings > System**, scroll down to the **Additional Settings** section, click the **Enable/Disable Automatic Load Balancing** link, and select the **Enable/Disable automatic load balancing** checkbox to enable or disable the feature for an individual storage array.

Examples


```
SMcli -n Array1 -c "set storageArray autoLoadBalancingEnable=true;"
```

```
SMcli completed successfully.
```



An active "Drive Lost Primary Path" condition will result in the Automatic Load Balancing incapable of balancing workloads. This condition must be inactive to ensure workloads are balanced through the Automatic Load Balancing feature.

Minimum firmware level

8.30

Set AutoSupport message collection schedule

The `set storageArray autoSupport schedule` command sets the daily and weekly times and days of the week that AutoSupport messages are sent.

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.

Context

- If AutoSupport is enabled, the management software sends both daily AutoSupport messages and weekly AutoSupport messages.
- You can specify a range (hour-level granularity) of when to send daily and when to send weekly messages for the storage arrays in your management domain.
- For the weekly schedule, you select preferred days of the week for AutoSupport collection and transmission.

Syntax

```
set storageArray autoSupport schedule dailyTime=startTime-endTime  
[dayOfWeek=(Sunday Monday Tuesday Wednesday Thursday Friday Saturday)]  
weeklyTime=startTime-endTime
```

Parameters

Parameter	Description
dailyTime	<startTime> - <endTime> Specifies the time of day that you want to start and end the collection of AutoSupport data for all storage arrays. The startTime and endTime must be in the 24-hour form of HH:00 and must be on the hour. For example, 9:00 p.m. should be entered as 21:00.
dayOfWeek	(Sunday|Monday|Tuesday|Wednesday|Thursday|Friday|Saturday) Specifies the preferred days of the week (Sunday through Saturday) that you want to collect AutoSupport bundle collection data. The dayOfWeek parameter must be surrounded by parentheses and separated with a space.
weeklyTime	<startTime> - <endTime> Specifies the time of day that you want to start and end the collection of the AutoSupport bundle collection data for each day of the week that you have selected. The startTime and endTime must be in the form of HH:MM[am|pm].

Examples

```
SMcli -n Array1 -c "set storageArray autoSupport schedule dailyTime=14:00-15:00 weeklyTime=1:00-5:00;"
```

```
SMcli -n Array1 -c "set storageArray autoSupport schedule dailyTime=14:00-15:00 dayOfWeek=(Monday Friday) weeklyTime=1:00-5:00;"
```

```
SMcli completed successfully.
```

Verification

Use the `show storageArray autoSupport` command to see the resulting change to the schedule.

Minimum Firmware Level

8.40

Enable or disable AutoSupport maintenance window (for individual E2800 or E5700 arrays)

The `set storageArray autoSupportMaintenanceWindow` command turns on or turns off the AutoSupport maintenance window feature.

Use a maintenance window to suppress automatic ticket creation on error events. Under normal operation

mode the storage array will use AutoSupport to open a case with Technical Support if there is an issue. When AutoSupport is placed in a maintenance window this feature is suppressed.

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

```
set storageArray autoSupportMaintenanceWindow (enable | disable)
  emailAddresses=("emailAddress1" "emailAddress2" ...)
  [duration=<duration_in_hours>];
```

Parameters

Parameter	Description
emailAddresses	The list of email addresses to receive a confirmation email that the maintenance window request has been processed. You can specify up to five email addresses.
duration	Optional. The duration (in hours) to enable maintenance window. If omitted, the maximum supported duration (72 hours) is used.

Examples

```
SMcli -n Array1 -c "set storageArray autoSupportMaintenanceWindow enable
  emailAddresses=\"me@company.com\" duration=5;"
```

SMcli completed successfully.

```
SMcli -n Array1 -c "set storageArray autoSupportMaintenanceWindow enable
  emailAddresses=(\"me1@company.com\" \"me2@company.com\");"
```

SMcli completed successfully.

```
SMcli -n Array1 -c "set storageArray autoSupportMaintenanceWindow disable
    emailAddresses=(\"me1@company.com\" \"me2@company.com\"
\"me3@company.com\"
    \"me4@company.com\" \"me5@company.com\");"

SMcli completed successfully.
```

Minimum Firmware Level

8.42

Enable or disable the AutoSupport OnDemand feature

The `set storageArray autoSupportOnDemand` command turns on or turns off the AutoSupport OnDemand feature. This feature allows technical support to coordinate AutoSupport data transmission, and allows them to request the re-transmission of missing support data.

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.

Context

Before enabling this feature, you must first enable the AutoSupport feature on the storage array. After enabling this feature, you can next enable the AutoSupport Remote Diagnostics feature (if desired).

Syntax

```
set storageArray autoSupportOnDemand (enable | disable)
```

Parameters

Parameter	Description
enable | disable	Allows the user to enable or disable AutoSupport OnDemand feature. If AutoSupport is disabled, the enable action will error and asks the user to enable it first. If the Remote Diagnostics feature is enabled, the disable action will also turn off Remote Diagnostics feature.

Examples

```
SMcli -n Array1 -c "set storageArray autoSupportOnDemand enable;"
```

```
SMcli completed successfully.
```

Verification

Use the `show storageArray autoSupport` command to see if you have enabled the feature. The initial two lines of the displayed output show the enable status of the AutoSupport feature, followed by the AutoSupport OnDemand feature:

```
The AutoSupport 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.
```

Minimum Firmware Level

8.40

Enable or disable the AutoSupport Remote Diagnostics feature

The `set storageArray autoSupportRemoteDiag` command turns on or turns off the AutoSupport OnDemand Remote Diagnostics feature. This feature enables technical support to request support data to diagnose problems remotely.

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.

Context

Before enabling this feature, first enable the AutoSupport feature and then the AutoSupport OnDemand feature on the storage array.

You must enable the three features in the following order:

1. Enable AutoSupport
2. Enable AutoSupport OnDemand
3. Enable AutoSupport Remote Diagnostics

Syntax

```
set storageArray autoSupportRemoteDiag (enable | disable)
```

Parameters

Parameter	Description
enable | disable	Allows the user to enable or disable AutoSupport Remote Diagnostics feature. If AutoSupport and AutoSupport OnDemand are disabled, then the enable action will error and asks the user to enable them first.

Examples

```
SMcli -n Array1 -c "set storageArray autoSupportRemoteDiag enable;"  
  
SMcli completed successfully.
```

Verification

Use the `show storageArray autoSupport` command to see if you have enabled the feature. The initial three lines of the displayed output show the enable status of the AutoSupport feature, followed by the AutoSupport OnDemand feature and the AutoSupport Remote Diagnostics feature:

```
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.
```

Minimum Firmware Level

8.40

Set storage array to enable or disable cache mirror data assurance check

The `set storageArray cacheMirrorDataAssuranceCheckEnable` command allows you to enable or disable the cache mirror data assurance check.

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

```
set storageArray cacheMirrorDataAssuranceCheckEnable=(TRUE | FALSE)
```

Parameters

None.

Minimum firmware level

8.41 New command parameter.

Set storage array controller health image allow overwrite

The `set storageArray controllerHealthImageAllowOverWrite` command sets a flag on a controller to allow a new controller health image to overwrite an existing controller health image on storage arrays that support the controller health image 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 role.

Context

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



With firmware version 8.20 the `coreDumpAllowOverWrite` parameter is replaced with the `controllerHealthImageAllowOverWrite` parameter.

Syntax

```
set storageArray controllerHealthImageAllowOverWrite
```

Parameters

None.

Notes

When the controller health image is retrieved, the `allow overwrite` flag is set. If the controller health image is not retrieved, the image expires in 48 hours, after which the `allow overwrite` flag is set. When you use the `set storageArray controllerHealthImageAllowOverWrite` command to set the `allow overwrite` flag, the 48-hour expiration is waived as if the image had been retrieved.

Minimum firmware level

7.86

8.20 replaces the `coreDumpAllowOverWrite` parameter with the `controllerHealthImageAllowOverWrite` parameter.

Set storage array directory server role mapping

The `set storageArray directoryServer roles` command allows you to define role mappings for a specified directory server. These role mappings are used to authenticate users that attempt to execute various SMcli commands.

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.

What you'll need

The following roles are available to be mapped:

- **Storage admin** — Full read/write access to the storage objects (for example, volumes and disk pools), but no access to the security configuration.
- **Security admin** — Access to the security configuration in Access Management, certificate management,

audit log management, and the ability to turn the legacy management interface (SYMBOL) on or off.

- **Support admin** — Access to all hardware resources on the storage array, failure data, MEL events, and controller firmware upgrades. No access to storage objects or the security configuration.
- **Monitor** — Read-only access to all storage objects, but no access to the security configuration.

Syntax

```
set storageArray directoryServer ["domainId"]  
    groupDN="groupDistinguishedName" roles=("role1"... "roleN")
```

Parameters

Parameter	Description
directoryServer	Allows you to specify the domain by its ID for which you want to set up role mappings.
groupDN	Allows you to specify the group's distinguished name (DN) to be added to the mapping list.
roles	Allows you to specify one or more roles for the user(s) in the defined group. If you enter more than one role, separate the values with a space. Valid choices are: <ul style="list-style-type: none">• storage.monitor• storage.admin• security.admin• support.admin

Examples

```
SMcli -n Array1 -c "set storageArray directoryServer ["domain1"]  
    groupDN="CN=ng-hsg-bc-madridsecurity,OU=Managed,  
    OU=MyCompanyGroups,DC=hq,DC=mycompany,DC=com"  
    roles=("storage.monitor" "security.admin"  
"storage.admin");"  
  
SMcli -n Array1 -c "set storageArray directoryServer ["domain1"]  
    groupDN="CN=ng-epg-engr-manageability,OU=Managed,  
    OU=MyCompanyGroups,DC=hq,DC=mycompany,DC=com"  
    roles=("support.admin");"  
  
SMcli completed successfully.
```

Set storage array directory server

The `set storageArray directoryServer` command updates the directory server configuration.

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

```
set storageArray directoryServer ["domainId"]
  (domainNames=("domainName1"..."domainNameN") |
  addDomainNames=("domainName1"..."domainNameN") |
  serverUrl="serverUrl" |
  bindAccount="username" bindPassword="password" |
  searchBaseDN="distinguishedName" |
  usernameAttribute="attributeName" |
  groupAttributes=("attrName1"..."attrNameN") |
  addGroupAttributes=("attrName1"..."attrNameN"))
[skipConfigurationTest={true | false}]
```

Parameters

Parameter	Description
directoryServer	Allows you to specify the domain ID to update the settings.
domainNames	Allows you to set one or more valid domain names for the directory server. If you enter more than one name, separate the values with a space. Using this set option will clear out existing domain names.
addDomainNames	Allows you to add one or more valid domain names for the directory server. If you enter more than one name, separate the values with a space.
serverUrl	Allows you to specify the server URL.

Parameter	Description
bindAccount	Allows you to specify the username to be used as the binding account.
bindPassword	Allows you to specify the password to be used as the binding password.
searchBaseDN	Allows you to specify the search base distinguished name to search for LDAP user objects for determining group membership.
usernameAttribute	Allows you to specify the attribute to be used to search for user objects for determining group membership. If specified, the string must contain the variable {uid} that will be replaced with the username used during login. Example: sAMAccountName={uid}
groupAttributes	<p>Allows you to set one or more group attributes to be used to look for group Distinguished Names. Distinguished names are used to determine group membership for role mapping.</p> <div>  If you enter more than one group, separate the values with a space. </div> <div>  Using this parameter will clear out existing groups. </div>
addGroupAttributes	<p>Allows you to add one or more group attributes to be used to look for group Distinguished Names. Distinguished names are used to determine group membership for the purposes of role mapping.</p> <div>  If you enter more than one group, separate the values with a space. </div>
skipConfigurationTest	Allows you to skip the configuration test before the configuration is saved. The default is <code>false</code> .

Examples

```
SMcli -n Array1 -c "set storageArray directoryServer ["domain1"]
    serverUrl="ldaps://hqldap.eng.mycompany.com:636";"

SMcli -n Array1 -c "set storageArray directoryServer ["domain1"]
    bindAccount="bindDN2" bindPassword="thePassword2"
    searchBaseDN="OU=_Users,DC=hq,DC=mycompany,DC=com"
    usernameAttribute="sAMAccountName"
groupAttributes=("memberOf");"

SMcli completed successfully.
```

Set external key management settings

The `set storageArray externalKeyManagement` command configures the external key management server address 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.

Context



This command applies only to external key management.

Syntax

```
set storageArray externalKeyManagement serverAddress=serverAddress
serverPort=portNumber
```

Parameters

Parameter	Description
<code>serverAddress</code>	Allows you to specify the external key management server address. The server address can be a fully qualified domain name, IPv4 address, or IPv6 address.

Parameter	Description
serverPort	Allows you to specify the port number of the external key management server.

Example

```
SMcli -n Array1 -c "set storageArray externalKeyManagement
serverAddress=192.0.2.1 serverPort=8081;"
```

SMcli completed successfully.

Minimum firmware level

8.40

Enable or disable host connectivity reporting

The `set storageArray hostConnectivityReporting` command enables or disables host connectivity reporting on the 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 Storage Admin role.

Syntax

```
set storageArray hostConnectivityReporting (enable | disable)
```

Context

When you enable host connectivity reporting on the storage array, the storage array continuously monitors the connection between the storage array's controllers and the configured hosts and alerts you if the connection is disrupted due to a loose, damaged, or missing cable or other problems with the host. You are also notified if the host type is incorrectly specified on the storage array (which could result in failover problems).



To disable host connectivity reporting, you must first disable automatic load balancing.



You can keep host connectivity reporting enabled if automatic load balancing is disabled.



Host connectivity reporting and automatic load balancing function only on the Linux DHALUA, Windows/Windows Clustered, and VMware host types.

Parameters

None.

Minimum firmware level

8.42 New command parameter.

Set storage array ICMP response

The `set storageArray icmpPingResponse` command returns the default values for negotiable settings for sessions and connections, which represent the starting point for the storage array for negotiations.

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

```
set storageArray icmpPingResponse=(TRUE | FALSE)
```

Parameter

Parameter	Description
<code>icmpPingResponse</code>	This parameter turns on or turns off Echo Request messages. Set the parameter to <code>TRUE</code> to turn on Echo Request messages. Set the parameter to <code>FALSE</code> to turn off Echo Request messages.

Notes

The Internet Control Message Protocol (ICMP) is used by operating systems in a network to send error messages, test packets, and informational messages related to the IP, such as a requested service is not available or that a host or router could not be reached. The ICMP response command sends ICMP Echo Request messages and receives ICMP Echo Response messages to determine if a host is reachable and the time it takes for packets to get to and from that host.

Minimum firmware level

7.10

Set storage array iSNS server IPv4 address

The `set storageArray isnsIPv4ConfigurationMethod` command sets the configuration method and address for an IPv4 Internet Storage Name Service (iSNS).

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

```
set storageArray isnsIPv4ConfigurationMethod=(static | dhcp)
isnsIPv4Address=ipAddress
```

Parameters

Parameters	Description
isnsIPv4ConfigurationMethod	The method that you want to use to define the iSNS server configuration. You can enter the IP address for the IPv4 iSNS servers by selecting <code>static</code> . For IPv4, you can choose to have a Dynamic Host Configuration Protocol (DHCP) server select the iSNS server IP address by entering <code>dhcp</code> . To enable DHCP, you must set the <code>isnsIPv4Address</code> parameter to <code>0.0.0.0</code> .
isnsIPv4Address	The IP address that you want to use for the iSNS server. Use this parameter with the <code>static</code> value for IPv4 configurations. If you choose to have a DHCP server set the IP address for an IPv4 Internet iSNS server, you must set the isnsIPv4Address parameter to <code>0.0.0.0</code> .

Notes

The iSNS protocol facilitates the automated discovery, management, and configuration of iSCSI devices and Fibre Channel devices on a TCP/IP network. iSNS provides intelligent storage discovery and management

services comparable to those found in Fibre Channel networks, which allow a commodity IP network to function in a similar capacity as a storage area network. iSNS also facilitates a seamless integration of IP networks and Fibre Channel networks, due to its ability to emulate Fibre Channel fabric services and manage both iSCSI devices and Fibre Channel devices.

The DHCP server passes configuration parameters, such as network addresses, to IP nodes. DHCP enables a client to acquire all of the IP configuration parameters that it needs to operate. DHCP lets you automatically allocate reusable network addresses.

Minimum firmware level

7.10

Set storage array iSNS server IPv6 address

The `set storageArray isnsIPv6Address` command sets the IPv6 address for the iSNS server.

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

```
set storageArray isnsIPv6Address=ipAddress
```

Parameter

Parameters	Description
<code>isnsIPv6Address</code>	The IPv6 address that you want to use for the iSNS server.

Notes

The iSNS protocol facilitates the automated discovery, management, and configuration of iSCSI devices and Fibre Channel devices on a TCP/IP network. iSNS provides intelligent storage discovery and management services comparable to those found in Fibre Channel networks, which permits a commodity IP network to function in a similar capacity as a storage area network. iSNS also facilitates a seamless integration of IP networks and Fibre Channel networks, due to its ability to emulate Fibre Channel fabric services, and manage both iSCSI devices and Fibre Channel devices. iSNS provides value in any storage network that has iSCSI devices, Fibre Channel devices, or any combination.

Minimum firmware level

7.10

Set storage array iSNS server listening port

The `set storageArray isnsListeningPort` command sets the iSNS server listening port.

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

```
set storageArray isnsListeningPort=listeningPortIPAddress
```

Parameter

Parameter	Description
isnsListeningPort	<p>The IP address that you want to use for the iSNS server listening port. The range of values for the listening port is 49152 to 65535. The default value is 53205.</p> <p>The listening port resides on the server and performs these activities:</p> <ul style="list-style-type: none">• Monitors incoming client connection requests• Manages traffic to the server <p>When a client requests a network session with a server, the listener receives the actual request. If the client information matches the listener information, then the listener grants a connection to the database server.</p>

Notes

A listening port resides on the database server and is responsible for these activities:

- Listening (monitoring) for incoming client connection requests

- Managing the traffic to the server

When a client requests a network session with a server, a listener receives the actual request. If the client information matches the listener information, then the listener grants a connection to the database server.

Minimum firmware level

7.10

Set storage array iSNS registration

The `set storageArray isnsRegistration` command enables you to list a storage array on either an IPv4 or an IPv6 Internet Storage Name Service (iSNS) server.

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 IPv4

```
set storageArray isnsRegistration=(TRUE | FALSE)
isnsIPv4ConfigurationMethod=[static | dhcp]
isnsIPv4Address=ipAddress
[isnsListeningPort]
```

Syntax for IPv6

```
set storageArray isnsRegistration=(TRUE | FALSE)
isnsIPv6Address=ipAddress
[isnsListeningPort]
```

Parameters

Parameters	Description
<code>isnsRegistration</code>	<p>The means of registering the iSCSI target on the iSNS server. Set the parameter to <code>TRUE</code> to list an iSCSI target.</p> <p>When you set this parameter to <code>TRUE</code> you must also use these parameters for IPV4 configurations:</p> <ul style="list-style-type: none"> • <code>isnsIPV4ConfigurationMethod</code> • <code>isnsIPV4Address</code> <p>When you set this parameter to <code>TRUE</code> you must also use these parameters for IPV6 configurations:</p> <ul style="list-style-type: none"> • <code>isnsIPV6Address</code> <p>Optionally, you can also use the <code>isnsListeningPort</code> parameter to define the port monitor and manage traffic to the server.</p> <p>To remove the registration for the storage array from the iSNS server set this parameter to <code>FALSE</code>.</p>
<code>isnsIPv4ConfigurationMethod</code>	<p>The method that you want to use to define the iSNS server configuration. You can enter the IP address for the IPv4 iSNS servers by selecting <code>static</code>. For IPv4, you can choose to have a Dynamic Host Configuration Protocol (DHCP) server select the iSNS server IP address by entering <code>dhcp</code>. To enable DHCP, you must set the <code>isnsIPv4Address</code> parameter to <code>0.0.0.0</code>.</p>
<code>isnsIPv4Address</code>	<p>The IPv4 address used to connect to the iSNS server. Use this parameter with the <code>static</code> value for IPv4 configurations. If you choose to have a DHCP server set the IP address for an IPv4 Internet iSNS server, you must set the <code>isnsIPv4Address</code> parameter to <code>0.0.0.0</code>.</p>
<code>isnsIPv6Address</code>	<p>The IPv6 address used to connect to the iSNS server.</p>

Parameters	Description
<code>isnsListeningPort</code>	<p>The port number that you want to use for the iSNS server listening port. The range of values for the listening port is 49152 to 65535. The default value is 3205.</p> <p>The listening port resides on the server and performs these activities:</p> <ul style="list-style-type: none"> • Monitors incoming client connection requests • Manages traffic to the server <p>When a client requests a network session with a server, the listener receives the actual request. If the client information matches the listener information, then the listener grants a connection to the database server.</p>

Notes

The iSNS protocol facilitates the automated discovery, management, and configuration of iSCSI devices and Fibre Channel devices on a TCP/IP network. iSNS provides intelligent storage discovery and management services comparable to those found in Fibre Channel networks, which allow a commodity IP network to function in a similar capacity as a storage area network. iSNS also facilitates a seamless integration of IP networks and Fibre Channel networks, due to its ability to emulate Fibre Channel fabric services and manage both iSCSI devices and Fibre Channel devices.

The DHCP server passes configuration parameters, such as network addresses, to IP nodes. DHCP enables a client to acquire all of the IP configuration parameters that it needs to operate. DHCP lets you automatically allocate reusable network addresses.

Minimum firmware level

7.10

Set storage array iSNS server refresh

The `set storageArray isnsServerRefresh` command refreshes the network address information for the iSNS server.

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 is valid for only IPv4.

Syntax

```
set storageArray isnsServerRefresh
```

Parameters

None.

Notes

If the DHCP server is not operating at full capability, or if the DHCP server is unresponsive, the refresh operation can take between two and three minutes to complete.

The `set storageArray isnsServerRefresh` command returns an error if you did not set the configuration method to DHCP. To set the configuration method to DHCP, use the `set storageArray isnsIPv4ConfigurationMethod` command.

Minimum firmware level

7.10

Set storage array controller battery learn cycle

The `set storageArray learnCycleDate controller` command sets controller battery learn cycles.

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



To set individual learn cycles for each controller in the storage array, send this command to both controllers.



The learn cycles are not linked together and so a disruption in one controller battery learn cycle will not impact the learn cycle for the battery in the other controller.




A learn cycle might take several hours to complete.

Syntax

```
set storageArray learnCycleDate (controller[(a| b)] )  
(daysToNextLearnCycle=numberOfDays |  
day=dayOfTheWeek) time=HH:MM
```

Parameters

Parameter	Description
controller	<p>The controller for which you want to specify a battery learn cycle. 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 ([]). If you do not specify a controller, the controller firmware returns a syntax error.</p> <div><p>Omitting this parameter sets the learn cycle for both controller batteries in a dual-controller array.</p></div>
daysToNextLearnCycle	Valid values are 0 through 7, where 0 is immediately and 7 is in seven days. The <code>daysToNextLearnCycle</code> parameter takes place up to seven days after the next scheduled learn cycle.
day	Valid values for the day parameter include the days of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday). Setting the day causes the next learn cycle to be scheduled on the specified day, after the currently scheduled learn cycle.
time	The time in 24-hour format; for example 8:00 a.m. is entered as 08:00. Nine o'clock p.m. is entered as 21:00, and 9:30 p.m. is entered as 21:30.

Example

```
set storageArray learnCycleDate controller [a] daysToNextLearnCycle=4  
time=08:30;
```

Notes

You can set the learn cycle to occur only once during a seven-day period.

The `time` parameter selects a specific time that you want to run the learn cycle. If a value is not entered, the command uses a default value of `00:00` (midnight).

If the day and time specified are in the past, the next learn cycle takes place on the next possible day specified.

Minimum firmware level

7.15

8.30 - added the `controller` parameter.

Set storage array local user password or SYMBol password

The `set storageArray localUsername` command and the `set storageArray symbol` command allow you to set a local user name password or a SYMBol password for a particular role.

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, Support Admin, Security Admin, or Storage Monitor role.

Syntax

```
set storageArray (localUsername={ admin | storage | security | support |  
monitor}  
| symbol [userRole={admin | monitor}])  
password="string" adminPassword="string"
```

Parameters

Parameter	Description
localUsername	Allows you to specify the user to change the password. Valid choices are: admin, storage, support, monitor, and security.

Parameter	Description
symbol	<p>Allows you to change the SYMbol password. Valid choices are: admin and monitor.</p> <div>  <p>This is the replacement command for the deprecated <code>set storageArray password</code> command.</p> </div>
password	Allows you to specify the password for the role.
adminPassword	Allows you to specify the admin password, which is required to set any new password.

Examples

```
SMcli -n Array1 -c "set storageArray localUsername=storage
password="newPassword" adminPassword="theAdminPassword";"
SMcli -n Array1 -c "set storageArray localUsername=admin
password="newAdminPassword" adminPassword="theAdminPassword";"
SMcli -n Array1 -c "set storageArray symbol userRole=admin
password="newSymbolPassword" adminPassword="theAdminPassword";"

SMcli completed successfully.
```

Minimum firmware level

8.40 adds the command.

Set storage array login banner

The `set storageArray loginBanner` command allows you to upload a text file to be used as a login banner. The banner text can include an advisory notice and consent message, which is presented to users before they establish sessions in SANtricity System Manager or before they run commands.

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

```
set storageArray loginBanner file="path_to_login_banner"
```

Context

After you load the text file, it is saved to the storage array. The banner text appears before the SANtricity System Manager login screen or before you run commands.

Parameters

Parameter	Description
file	<div>The file path and the file name where the login banner text file is stored.</div> <div> The login banner file cannot be empty and must be 5 KB or smaller.</div>

Minimum firmware level

8.41

Set storage array management interface

The `set storageArray managementInterface` command changes the management interface of the controller. Change the management interface type to enforce confidentiality between the storage array and its management software or to access external tools.

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

```
set storageArray managementInterface restOnly={true | false}
```

Parameters

Parameter	Description
<code>restOnly</code>	<p>When set to <code>true</code>, indicates that the RESTful interface is the only management interface allowed. This interface enforces an encrypted connection between the storage array and the management software.</p> <p>When set to <code>false</code>, indicates that the legacy interface between the storage array and the management software is allowed. This interface is not encrypted.</p> <p>Some tools that communicate directly with the legacy management interface, such as the SANtricity SMI-S Provider or OnCommand Insight (OCI), will not work unless the <code>restOnly</code> parameter is set to <code>false</code>. Contact technical support for more information.</p>

Examples

```
SMcli -n Array1 -c "set storageArray managementInterface restOnly=true;"

SMcli completed successfully.
```

Enable or disable ODX

The `set storageArray odxEnabled` command turns on or turns off Offloaded Data Transfer (ODX) for 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 or Support Admin role.

Context

The storage array comes with ODX turned on. Use this command to turn off ODX if you do not want to run ODX, or if ODX is causing issues with the storage array. The only storage array that is affected is the storage array on which the command is run.

Syntax

```
set storageArray odxEnabled=(TRUE | FALSE)
```

Parameter

Parameter	Description
odxEnabled	The setting to turn on or turn off ODX. To turn on ODX set this parameter to <code>TRUE</code> . To turn off ODX set this parameter to <code>FALSE</code> . The default setting is that ODX is turned on.

Notes

ODX provides a way to transfer data without using buffered read and buffered write operations and does not require direct host involvement with the data transfer operation. When ODX is not enabled, data is read from the source storage to the host, and then written to the target storage from the host. With ODX enabled, the data transfer operations are directly managed by the storage infrastructure. The data is moved directly from the source storage to the target storage without going through the host.

Minimum firmware level

8.20

Set storage array password length

The `set storageArray passwordlength` command allows the admin user to set a minimum length for all new or updated passwords on 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

```
set storageArray passwordLength=<INTEGER>
```

Parameters

Parameter	Description
password length	Allows you to set the minimum required length for all new or updated passwords.
INTEGER	Allows you to set the minimum required length, between 0 and 30, for all new or updated passwords.

Examples

```
SMcli <array_ip> -u <username> -p <password> -c "set storageArray  
passwordLength=0;"
```

```
SMcli completed successfully.
```

Minimum firmware level

8.41 adds the command.

Set storage array PQ validation on reconstruct

The `set storageArray pqValidateOnReconstruct` command sets the storage array P/Q validation state on reconstruction. When this capability is enabled, data is reconstructed using both data+P and data+Q, and the results checked for consistency before determining how to proceed.

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 role.

Context

This feature applies to disk pools and RAID 6 volume groups, which have dual parity. In this case, there is still redundancy in the volume group or disk pool when a drive fails, so it is possible to check data and parity consistency during reconstruction. If an inconsistency is found during reconstruction and Data Assurance is enabled for the volume, it may be possible to identify the source of the inconsistency so that data can be reconstructed using the remaining drives. If this feature is enabled, and Data Assurance is not enabled for the volume, or if the inconsistency cannot be isolated to a single drive, then the block being reconstructed is marked as unreadable.

The validation may increase reconstruction times for SSD drives, so this feature can be enabled or disabled based on media type. If enabled for a given media type, the feature is applied to all pools and RAID 6 volume groups using that media type.

Syntax

```
set storageArray pqValidateOnReconstruct (enable | disable)
driveMediaType=(hdd | ssd | allMedia)
```

Parameters

Parameter	Description
pqValidateOnReconstruct	Modifies the P/Q validate on reconstruction capability.
enable or disable	Enables or disables P/Q validation on reconstruction.
driveMediaType	<p>The drive media type on which to set the P/Q validate on reconstruction capability. The following drive media types are supported:</p> <ul style="list-style-type: none">• <code>hdd</code> indicates that you want to set the validation state on hard disk drives• <code>ssd</code> indicates that you want to set the validation state on solid state disks• <code>allMedia</code> indicates that you want to set the validation state on all media in the storage array.

Example with drive media type specified as hard disk drives

```
SMcli -n Array1 -c "set storageArray pqValidateOnReconstruct enable
driveMediaType=hdd;"
```

SMcli completed successfully.

Example with drive media type specified as solid-state drives

```
SMcli -n Array1 -c "set storageArray pqValidateOnReconstruct disable
driveMediaType=ssd;"
```

SMcli completed successfully.

Minimum firmware level

8.42

Set storage array redundancy mode

The `set storageArray redundancyMode` command sets the redundancy mode of the storage array to either simplex or duplex.

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

```
set storageArray redundancyMode=(simplex | duplex)
```

Parameter

Parameter	Description
redundancyMode	Use simplex mode when you have a single controller. Use duplex mode when you have two controllers.

Minimum firmware level

6.10

Set Storage Array Resource Provisioned Volumes

The `set storageArray resourceProvisionedVolumes` command disables the DULBE feature.

Supported Arrays

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

Roles

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

Context

Resource provisioning is an available feature that allows large volumes to be initialized quickly.


A resource provisioned volume is a thick volume in an SSD volume group or pool, where drive capacity is allocated (assigned to the volume) when the volume is created, but the drive blocks are deallocated (unmapped). With a resource provisioned volume, there is no time-bound background initialization. Instead, each RAID stripe is initialized upon the first write to a volume block in the stripe

Resource provisioned volumes are supported only on SSD volume groups and pools, where all drives in the group or pool support the NVMe Deallocated or Unwritten Logical Block Error Enable (DULBE) error recovery capability. When a resource provisioned volume is created, all drive blocks assigned to the volume are deallocated (unmapped). Deallocating blocks can improve SSD wear life and increase maximum write performance. The improvement varies with each drive model and capacity.

Syntax

```
set storageArray resourceProvisionedVolumes=(enable|disable)
```

Parameters

Parameter	Description
resourceProvisionedVolumes	<div><p>The setting to specify if resource provisioning capabilities are enabled. To disable resource provisioning, set this parameter to <code>disable</code>. The default value is <code>enable</code>.</p><div><p>Changing this value only applies to volume groups and pools that are created in the future. It does not change the value of any existing volume groups and pools.</p></div></div>

Minimum firmware level

8.63

Set certificate revocation check settings

The `set storageArray revocationCheckSettings` command allows you to enable or disable revocation checking, and configure an Online Certificate Status Protocol (OCSP) server.

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.

Context

The OCSP server checks for any certificates that the Certificate Authority (CA) has revoked before their scheduled expiration date. You might want to enable revocation checking in cases where the CA improperly issued a certificate or if a private key is compromised.



Make sure a DNS server is configured on both controllers, which allows you to use a fully qualified domain name for the OCSP server.

After you enable revocation checking, the storage array denies an attempted connection to a server with a revoked certificate.

Syntax

```
set storageArray revocationCheckSettings ([revocationCheckEnable =
boolean] &| [ocspResponderUrl=stringLiteral])
```

Parameters

Parameter	Description
revocationCheckEnable	Set to <code>true</code> to enable certificate revocation checking.
ocspResponderUrl	<div>The URL of the OCSP responder server to be used for the certificate revocation check.</div> <div> Specifying an OCSP responder address overrides the OCSP address found in the certificate file.</div>

Minimum firmware level

8.42

Set internal storage array security key

The `set storageArray securityKey` command sets the security key that is used

throughout the storage array to implement the Drive Security 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 Security Admin role.

Context

When any security-capable drive in the storage array is assigned to a secured volume group or disk pool, that drive will be security-enabled using the security key. Before you can set the security key, you must use the `create storageArray securityKey` command to create the security key.



This command applies only to internal key management.

Syntax

```
set storageArray securityKey
```

Parameters

None.

Notes

Security-capable drives have hardware to accelerate cryptographic processing and each has a unique drive key. A security-capable drive behaves like any other drive until it is added to a secured volume group, at which time the security-capable drive becomes security-enabled.

Whenever a security-enabled drive is powered on, it requires the correct security key from the controller before it can read or write data. So, a security-enabled drive uses two keys: the drive key that encrypts and decrypts the data and the security key that authorizes the encryption and decryption processes. The `set storageArray securityKey` command commits the security key to all of the controllers and security-enabled drives in the storage array. The full disk encryption feature ensures that if a security-enabled drive is physically removed from a storage array, its data cannot be read by any other device unless the security key is known.

Minimum firmware level

7.50

Update storage array syslog configuration

The `set storageArray syslog` command allows you to change the syslog server

address, protocol, or 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

```
set storageArray syslog id="<id>"
serverAddress="<address>"
port=<port> protocol=("udp" | "tcp" | "tls")
components=(componentName=("auditLog") ...)
```

Parameters

Parameter	Description
serverAddress	Syslog receiver hostname or IP address.
port	Syslog receiver port number.
protocol	Syslog transmission protocol. Acceptable values include UDP, TCP, or TLS.
components	List of component entries that will be logged to the syslog server. Currently, only audit logs are supported.
componentName	Component name; currently only "auditLog" is supported.

Example

```
SMcli -n Array1 -c "set storageArray syslog
id=\"331998fe-3154-4489-b773-b0bb60c6b48e\"
serverAddress=\"192.168.2.1\" port=514 protocol=\"udp\"
components=(componentName=\"auditLog\");"
ID: 331998fe-3154-4489-b773-b0bb60c6b48e Server Address: 192.168.2.1
Port: 514 Protocol: udp
Components
1. Component Name: auditLog
SMcli completed successfully.
```

Minimum firmware level

8.42

Set storage array time

The `set storageArray time` command sets the clocks on both controllers in a storage array by synchronizing the controller clocks with the clock of the host from which you run this 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

```
set storageArray time
```

Parameters

None.

Minimum firmware level

6.10

Set storage array tray positions

The `set storageArray trayPositions` command defines the position of the trays

in a storage array. You must include all of the trays in the storage array when you enter this 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

```
set storageArray trayPositions=(controller | trayID ... trayIDn)
```

Parameter

Parameter	Description
trayPositions	A list of all of the tray IDs. The sequence of the tray IDs in the list defines the positions for the controller tray and the drive trays in a storage array. Valid values are 0 to 99. Enter the tray ID values separated with a space. Enclose the list of tray ID values in parentheses. For storage arrays where the controller tray has a predefined identifier that is not in the range of valid tray position values, use the <code>controller</code> value.

Notes

This command defines the position of a tray in a storage array by the position of the tray ID in the `trayPositions` list. For example, if you have a controller tray with an ID set to 84 and drive trays with IDs set to 1, 12, and 50, the `trayPositions` sequence (84 1 12 50) places the controller tray in the first position, drive tray 1 in the second position, drive tray 12 in the third position, and drive tray 50 in the fourth position. The `trayPositions` sequence (1 84 50 12) places the controller tray in the second position, drive tray 1 in the first position, drive tray 50 in the third position, and drive tray 12 in the fourth position.



You must include all of the trays in the storage array in the list defined by the `trayPositions` parameter. If the number of trays in the list does not match the total number of trays in the storage array, an error message appears.



The management software visually shows the first position on top, and the other positions in relative order beneath with the last position on the bottom.

Minimum firmware level

6.10

For 6.14 and 6.16, `controller` is not a valid value.

Set storage array unnamed discovery session

The `set storageArray unnamedDiscoverySession` command enables the storage array to participate in unnamed discovery sessions.

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

```
set storageArray unnamedDiscoverySession=(TRUE | FALSE)
```

Parameter

Parameter	Description
<code>unnamedDiscoverySession</code>	This parameter turns on or turns off unnamed discovery sessions. Set the parameter to <code>TRUE</code> to turn on unnamed discovery sessions. Set the parameter to <code>FALSE</code> to turn off unnamed discovery sessions.

Notes

Discovery is the process where initiators determine the targets that are available. Discovery occurs at power-on/initialization and also if the bus topology changes, for example, if an extra device is added.

An unnamed discovery session is a discovery session that is established without specifying a target ID in the login request. For unnamed discovery sessions, neither the target ID nor the target portal group ID are available to the targets.

Minimum firmware level

7.10

Set storage array user session

The `set storageArray userSession` command allows you to set a timeout in System Manager, so that users' inactive sessions are disconnected after a specified time.

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.

Context

Use this command to perform one of these operations:

- Set a timeout in seconds for user sessions. The minimum timeout value is 900 seconds (15 minutes).
- Turn off session timeouts by setting the value to 0.

Parameters

None.

Syntax

```
set storageArray userSession sessionTimeout=n
```

Minimum firmware level

8.41

Enable or disable VAAI

The `set storageArray vaaiEnabled` command turns on or turns off VMware vStorage API Array Architecture (VAAI) for 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

The storage array comes with VAAI turned on. Use this command to turn off VAAI if you do not want to run VAAI, or if VAAI is causing issues with the storage array. The only storage array that is affected is the storage array on which the command is run.


Syntax


```
set storageArray vaaiEnabled=(TRUE | FALSE)
```

Parameter

Parameter	Description
vaaiEnabled	The setting to turn on or turn off VAAI. To turn on VAAI set this parameter to TRUE. To turn off VAAI set this parameter to FALSE. The default setting is that VAAI is turned on.

Notes

- 

VAAI enables some storage tasks to be offloaded from the server hardware to a storage array. Offloading the storage tasks to a storage array increases host performance by reducing the tasks the host must perform.
- 

View the VAAI setting using the `show storageArray odxSetting name`.

Minimum firmware level

8.20

Set storage array

The `set storageArray` command defines the properties of 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



With firmware version 8.10 the `cacheFlushStop` parameter is deprecated and will be removed in a future release of storage management software.



Syntax



```



set storageArray
([autoLoadBalancingEnable=(TRUE | FALSE)]|
[autoSupportMaintenanceWindow AutoSupport Maintenance Window parameters]
[autoSupport schedule AutoSupport Schedule Parameters]|
[autoSupportConfig (enable | disable)]|
[autoSupportOnDemand (enable | disable)]|
[autoSupportRemoteDiag (enable |disable)]|
[cacheBlockSize=cacheBlockSizeValue]|
[cacheFlushStart=cacheFlushStartSize]|
[cacheFlushStop=cacheFlushStopSize]|
[cacheMirrorDataAssuranceCheckEnable=(TRUE | FALSE)]|
[controllerHealthImageAllowOverWrite]|
[defaultHostType=("hostTypeName" |"hostTypeIdentifier")] |
[directoryServer directory server parameters]|
[externalKeyManagement external key management parameters]|
[failoverAlertDelay=delayValue]|
[hostConnectivityReporting (enable | disable)]|
[icmpPingResponse=(TRUE | FALSE)]|
[isnsIPV4ConfigurationMethod isns IPv4 Config Method Parameters]|
[isnsIPv6Address=ipAddress]|
[isnsListeningPort=listeningPortIPAddress]]|
[isnsRegistration=(TRUE | FALSE)]|
[learnCycleDate learn cycle parameters]|
[localUsername=local user name parameters]|
[loginBanner file="path_to_login_banner"]|
[managementInterface restOnly={true | false}]|
[mediaScanRate=(disabled | 1-30)]|
[odxEnabled=(TRUE | FALSE)]|
[password="password"]|
[passwordLength=<INTEGER>]|
[pqValidateOnReconstruct P/Q Validate on Reconstruct parameters]|
[redundancyMode=(simplex | duplex)]|
[revocationCheckSettings revocation check settings parameters]|
[securityKey]|
[symbol SYMbol user name and password parameters]|
[syslog syslog parameters]|
[time]|
[trayPositions=(controller | trayID ... trayIDn)]|
[unnamedDiscoverySession=(TRUE | FALSE)]|
[userLabel="storageArrayName"]|
[userSession sessionTimeout=n]|
[vaaiEnabled=(TRUE | FALSE)])


```



Parameters


Parameter	Description
<code>autoLoadBalancingEnable</code>	<p>This parameter enables auto-load balancing on the controller. To enable the option, set this parameter to <code>TRUE</code>. To disable the option, set this parameter to <code>FALSE</code>.</p> <div>  <p>When the Automatic Load Balancing feature is enabled, the Host Connectivity Reporting feature will also be enabled.</p> </div>
<code>autoSupport schedule</code>	Sets the daily and weekly times and days of the week that AutoSupport messages are sent.
<code>autoSupportConfig</code>	<p>The setting for automatically collecting support data each time the firmware detects a critical MEL event. This parameter has these values:</p> <ul style="list-style-type: none"> • <code>enable</code> — Turns on the collection of support data • <code>disable</code> — Turns off the collection of support data <p>Use this parameter under these conditions only:</p> <ul style="list-style-type: none"> • The AutoSupport (ASUP) feature is not available on the storage array • To support configurations on storage arrays that previously used this parameter <div>  <p>You cannot use this parameter with the ASUP commands.</p> </div>
<code>autoSupportMaintenanceWindow</code>	Turns on or turns off the AutoSupport maintenance window feature and configures the feature.
<code>cacheBlockSize</code>	The cache block size that is used by the controller for managing the cache. Valid values are 4 (4 KB), 8 (8 KB), 16 (16 KB), or 32 (32 KB).
<code>cacheMirrorDataAssuranceCheckEnable</code>	This parameter enables cache mirror data assurance check on the controller. To enable the option, set this parameter to <code>TRUE</code> . To disable the option, set this parameter to <code>FALSE</code> .

Parameter	Description
<code>cacheFlushStart</code>	The percentage of unwritten data in the cache that causes a cache flush. Use integer values from 0 to 100 to define the percentage. The default value is 80.
<code>cacheFlushStop</code>	<div>  <p>This parameter is deprecated and will be removed in a future release.</p> </div> <p>The percentage of unwritten data in the cache that stops a cache flush. Use integer values from 0 to 100 to define the percentage. This value must be less than the value of the <code>cacheFlushStart</code> parameter.</p>
<code>controllerHealthImageAllowOverWrite</code>	Sets a flag on a controller to allow a new controller health image to overwrite an existing controller health image on storage arrays that support the controller health image feature.
<code>defaultHostType</code>	The default host type of any unconfigured host port to which the controllers are connected. To generate a list of valid host types for the storage array, run the <code>show storageArray hostTypeTable</code> command. Host types are identified by a name or a numerical index. Enclose the host type name in double quotation marks (" "). Do not enclose the host type numerical identifier in double quotation marks.
<code>directoryServer</code>	Updates the directory server configuration, including role mappings.
<code>externalKeyManagement</code>	Configures the external key management server address and port number
<code>failoverAlertDelay</code>	The failover alert delay time in minutes. The valid values for the delay time are 0 to 60 minutes. The default value is 5.

Parameter	Description
hostConnectivityReporting	<p>This parameter enables host connectivity reporting on the controller. To enable the option, set this parameter to <code>enable</code>. To disable the option, set this parameter to <code>disable</code>.</p> <div>  <p>If you attempt to disable Host Connectivity Reporting when Automatic Load Balancing is enabled, you receive an error. First disable the Automatic Load Balancing feature, then disable the Host Connectivity Reporting feature.</p> </div> <div>  <p>You can keep Host Connectivity Reporting enabled when Automatic Load Balancing is disabled.</p> </div>
icmpPingResponse	<p>This parameter turns on or turns off Echo Request messages. Set the parameter to <code>TRUE</code> to turn on Echo Request messages. Set the parameter to <code>FALSE</code> to turn off Echo Request messages.</p>
isnsIPv4ConfigurationMethod	<p>The method that you want to use to define the iSNS server configuration. You can enter the IP address for the IPv4 iSNS servers by selecting <code>static</code>. For IPv4, you can choose to have a Dynamic Host Configuration Protocol (DHCP) server select the iSNS server IP address by entering <code>dhcp</code>. To enable DHCP, you must set the <code>isnsIPv4Address</code> parameter to <code>0.0.0.0</code>.</p>
isnsIPv6Address	<p>The IPv6 address that you want to use for the iSNS server.</p>

Parameter	Description
<code>isnsListeningPort</code>	<p>The IP address that you want to use for the iSNS server listening port. The range of values for the listening port is 49152 to 65535. The default value is 53205.</p> <p>The listening port resides on the server and performs these activities:</p> <ul style="list-style-type: none"> • Monitors incoming client connection requests • Manages traffic to the server <p>When a client requests a network session with a server, the listener receives the actual request. If the client information matches the listener information, then the listener grants a connection to the database server.</p>
<code>isnsRegistration</code>	<p>This parameter lists the storage array as an iSCSI target on the iSNS server. To register the storage array on the iSNS server, set this parameter to <code>TRUE</code>. To remove the storage array from the iSNS server, set this parameter to <code>FALSE</code>.</p> <div>  <p>You cannot use the <code>isnsRegistration</code> parameter with any other parameter when running the <code>set storageArray</code> command.</p> </div> <p>For more information about iSNS registration, refer to the <code>set storageArray isnsRegistration</code> command.</p>
<code>learnCycleDate</code>	Sets controller battery learn cycles.
<code>localUsername</code>	Allows you to set a local user name password or a SYMbol password for a particular role.
<code>loginBanner</code>	Allows you to upload a text file to be used as a login banner. The banner text can include an advisory notice and consent message, which is presented to users before they establish sessions in SANtricity System Manager or before they run commands
<code>managementInterface</code>	Changes the management interface of the controller. Change the management interface type to enforce confidentiality between the storage array and its management software or to access external tools.

Parameter	Description
mediaScanRate	The number of days over which the media scan runs. Valid values are <code>disabled</code> , which turns off the media scan, or 1 day to 30 days, where 1 day is the fastest scan rate, and 30 days is the slowest scan rate. A value other than <code>disabled</code> or 1 to 30 does not allow the media scan to function.
odxEnabled	Turns on or turns off Offloaded Data Transfer (ODX) for a storage array.
password	<p>The password for the storage array. Enclose the password in double quotation marks (" ").</p> <div>  <p>With the 8.40 release, this parameter is deprecated. Use the <code>localUsername</code> or the symbol <code>symbol</code> parameters, along with the <code>password</code> or <code>adminPassword</code> parameters, instead.</p> </div>
passwordLength	Allows you to set the minimum required length for all new or updated passwords. Use a value between 0 and 30.
pqValidateOnReconstruct	Modifies the P/Q validate on reconstruction capability.
redundancyMode	Use <code>simplex</code> mode when you have a single controller. Use <code>duplex</code> mode when you have two controllers.
revocationCheckSettings	Allows you to enable or disable revocation checking, and configure an Online Certificate Status Protocol (OCSP) server.
securityKey	<p>Sets the internal security key that is used throughout the storage array to implement the Drive Security feature.</p> <div>  <p>Used for an internal security key. When an external key management server is used, use the <code>create storageArray securityKey</code> command.</p> </div>
symbol	Allows you to set a SYMBol password for a particular role.

Parameter	Description
<code>syslog</code>	Allows you to change the syslog server address, protocol, or port number.
<code>time</code>	Sets the clocks on both controllers in a storage array by synchronizing the controller clocks with the clock of the host from which you run this command.
<code>trayPositions</code>	<p>A list of all of the tray IDs. The sequence of the tray IDs in the list defines the positions for the controller tray and the drive trays in a storage array. Valid values are 0 to 99. Enter the tray ID values separated with a space. Enclose the list of tray ID values in parentheses. For storage arrays where the controller tray has a predefined identifier that is not in the range of valid tray position values, use the <code>controller</code> value.</p> <div>  <p>The <code>controller</code> option is not valid after firmware release 6.14.</p> </div>
<code>unnamedDiscoverySession</code>	Enables the storage array to participate in unnamed discovery sessions.
<code>userLabel</code>	The name for the storage array. Enclose the storage array name in double quotation marks (" ").
<code>userSession</code>	Allows you to set a timeout in System Manager, so that users' inactive sessions are disconnected after a specified time.
<code>vaaiEnabled</code>	Turns on or turns off VMware vStorage API Array Architecture (VAAI) for a storage array

Notes

Except for the `isnsRegistration`, when you use this command you can specify one or more of the optional parameters.

Auto Support data



You cannot use this parameter with the ASUP commands.

When enabled, the `set storageArray autoSupportConfig` command causes all configuration and state information for the storage array to be returned each time a critical Major Event Log (MEL) event is detected. The configuration and state information is returned in the form of an object graph. The object graph contains all relevant logical and physical objects and their associated state information for the storage array.

The `set storageArray autoSupportConfig` command collects configuration and state information in this way:

- Automatic collection of the configuration and state information occurs every 72 hours. The configuration and state information is saved to the storage array zip archive file. The archive file has a time stamp that is used to manage the archive files.
- Two storage array zip archive files are maintained for each storage array. The zip archive files are kept on a drive. After the 72-hour time period is exceeded, the oldest archive file is always overwritten during the new cycle.
- After you enable automatic collection of the configuration and state information using this command, an initial collection of information starts. Collecting information after you issue the command makes sure that one archive file is available and starts the time stamp cycle.

You can run the `set storageArray autoSupportConfig` command on more than one storage array.

Cache block size

When you define cache block sizes, use the 4-KB cache block size for storage arrays that require I/O streams that are typically small and random. Use the 8-KB cache block size when the majority of your I/O streams are larger than 4 KB but smaller than 8 KB. Use the 16-KB cache block size or the 32-KB cache block size for storage arrays that require large data transfer, sequential, or high-bandwidth applications.

The `cacheBlockSize` parameter defines the supported cache block size for all of the volumes in the storage array. Not all controller types support all cache block sizes. For redundant configurations, this parameter includes all of the volumes that are owned by both controllers within the storage array.

Cache flush start

When you define values to start a cache flush, a value that is too low increases the chance that data needed for a host read is not in the cache. A low value also increases the number of drive writes that are necessary to maintain the cache level, which increases system overhead and decreases performance.

Default host type

When you define host types, if Storage Partitioning is enabled, the default host type affects only those volumes that are mapped in the default group. If Storage Partitioning is not enabled, all of the hosts that are attached to the storage array must run the same operating system and be compatible with the default host type.

Media scan rate

Media scan runs on all of the volumes in the storage array that have Optimal status, do not have modification operations in progress, and have the `mediaScanRate` parameter enabled. Use the `set volume` command to enable or disable the `mediaScanRate` parameter.

Password

Passwords are stored on each storage array. For best protection, the password must meet these criteria:

- The password must be between eight and 30 characters long.
- The password must contain at least one uppercase letter.
- The password must contain at least one lowercase letter.

- The password must contain at least one number.
- The password must contain at least one non-alphanumeric character, for example, < > @ +.



If you are using full disk encryption drives in your storage array, you must use these criteria for your storage array password.



You must set a password for your storage array before you can create a security key for encrypted full disk encryption drives.

Minimum firmware level

5.00 adds the `defaultHostType` parameter.

5.40 adds the `failoverAlertDelay` parameter.

6.10 adds the `redundancyMode`, `trayPositions`, and `time` parameters.

6.14 adds the `alarm` parameter.

7.10 adds the `icmpPingResponse`, `unnamedDiscoverySession`, `isnsIPv6Address`, and `isnsIPv4ConfigurationMethod` parameters.

7.15 adds more cache block sizes and the `learnCycleDate` parameter.

7.86 removes the `alarm` parameter because it is no longer used, and adds the `coreDumpAllowOverWrite` parameter.

8.10 deprecates the `cacheFlushStop` parameter.

8.20 adds the `odxEnabled` and `vaaiEnabled` parameters.

8.20 updates the `cacheBlockSize` parameter to add the `cacheBlockSizeValue` of 4 (4 KB).

8.20 replaces the `coreDumpAllowOverWrite` parameter with the `controllerHealthImageAllowOverWrite` parameter.

8.30 adds the `autoLoadBalancingEnable` parameter.

8.40 adds the `localUsername` parameter (used with a user name variable and either the `password` or `adminPassword` parameter). Also adds the `symbol` parameter (used with a user name variable and either the `password` or `adminPassword` parameter).

8.40 deprecates the `password` and `userRole` standalone parameters.

8.40 adds the `managementInterface` parameter.

8.40 adds the `externalKeyManagement` parameter.

8.41 adds the `cacheMirrorDataAssuranceCheckEnable`, `directoryServer`, `userSession`, `passwordLength`, and `loginBanner` parameters.

8.42 adds the `pgValidateOnReconstruct`, `syslog`, `hostConnectivityReporting`, and `revocationCheckSettings` parameters.

Set synchronous mirroring

The `set syncMirror` command defines the properties for a remote-mirrored pair.

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



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


Syntax

```
set syncMirror (localVolume [volumeName] |
localVolumes [volumeName1 ... volumeNameN])
[role=(primary | secondary)]
[syncPriority=(highest | high | medium | low | lowest)]
[autoResync=(enabled | disabled)]
[writeOrder=(preserved | notPreserved)]
[writeMode=(synchronous | asynchronous)]
[force=(TRUE | FALSE)]
```

Parameters

Parameter	Description
<code>localVolume</code>	The name of the local volume for which you want to define properties. Enclose the primary volume name in square brackets ([]). If the primary volume name has special characters or numbers, you must enclose the primary volume name in double quotation marks (" ") inside square brackets.

Parameter	Description
<code>localVolumes</code>	<p>The names of several local volumes for which you want to define 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.
<code>role</code>	<p>The setting for the local volume to act as the primary volume or the secondary volume. To define the volume as the primary volume, set this parameter to <code>primary</code>. To define the volume as the secondary volume, set this parameter to <code>secondary</code>. This parameter applies only when the volume is part of a mirror relationship.</p>
<code>syncPriority</code>	<p>The priority that full synchronization has relative to host I/O activity. Valid values are <code>highest</code>, <code>high</code>, <code>medium</code>, <code>low</code>, or <code>lowest</code>.</p>
<code>autoResync</code>	<p>The settings for automatic resynchronization between the primary volumes and the secondary volumes of a remote-mirrored pair. This parameter has these values:</p> <ul style="list-style-type: none"> • <code>enabled</code> — Automatic resynchronization is turned on. You do not need to do anything further to resynchronize the primary volume and the secondary volume. • <code>disabled</code> — Automatic resynchronization is turned off. To resynchronize the primary volumes and the secondary volume, you must run the <code>resume syncMirror</code> command.
<code>writeOrder</code>	<p>This parameter defines write order for data transmission between the primary volume and the secondary volume. Valid values are <code>preserved</code> or <code>notPreserved</code>.</p>

Parameter	Description
<code>writeMode</code>	This parameter defines how the primary volume writes to the secondary volume. Valid values are <code>synchronous</code> or <code>asynchronous</code> .
<code>force</code>	<p>The role reversal is forced if the communications link between the storage arrays is down and promotion or demotion on the local side results in a dual-primary condition or a dual-secondary condition. To force a role reversal, set this parameter to <code>TRUE</code>. The default value is <code>FALSE</code>.</p> <div>  <p>Use the <code>force</code> parameter only when using the <code>role</code> parameter.</p> </div>

Notes

When you use this command, you can specify one or more of the optional parameters.

Synchronization priority defines the amount of system resources that are used to synchronize the data between the primary volumes and the secondary volumes of a mirror relationship. If you select the highest priority level, the data synchronization uses the most system resources to perform the full synchronization, which decreases the performance for host data transfers.

The `writeOrder` parameter applies only to asynchronous write modes and makes them become part of a consistency group. Setting the `writeOrder` parameter to `preserved` causes the remote-mirrored pair to transmit data from the primary volume to the secondary volume in the same order as the host writes to the primary volume. In the event of a transmission link failure, the data is buffered until a full synchronization can occur. This action can require additional system overhead to maintain the buffered data, which slows operations. Setting the `writeOrder` parameter to `notPreserved` frees the system from having to maintain data in a buffer, but it requires forcing a full synchronization to make sure that the secondary volume has the same data as the primary volume.

Minimum firmware level

6.10

Configure syslog settings

The `set syslog` command configures the syslog alert information. You can configure the event monitor to send alerts to the syslog server whenever an alertable event occurs.

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 role.

Context

- The syslog server address must be available. This address can be a fully qualified domain name, an IPv4 address, or an IPv6 address.
- The UDP port number of the syslog server must be available. This port is typically 514.

Syntax

```
set syslog [defaultFacility=facilityNumber]  
| [defaultTag=defaultTag]  
| [syslogFormat=rfc3164|rfc5424]  
| (serverAddresses=(serverAddress:portNumber ... serverAddress:portNumber)  
| addServerAddresses=(serverAddress:portNumber ...  
serverAddress:portNumber))
```

Parameters

Parameter	Description
defaultFacility	Optional. Allows you to specify the default facility number. The default facility must be a numerical value between 0 and 23.
defaultTag	Optional. Allows you to specify the default tag. Enclose string in quotes.
syslogFormat	The messaging format used for the syslog messages. The value may be one of the following: <ul style="list-style-type: none">• <i>rfc3164</i> - RFC 3164 compliant format• <i>rfc5424</i> - RFC 5424 compliant format
serverAddresses	Allows you to set one or more syslog server addresses with associated port numbers. Using this set option will clear out existing server addresses. A syslog server address can be a fully qualified domain name, IPv4 address, or IPv6 address. The UDP Port must be a numerical value between 0 and 65535. Typically, the UDP Port for syslog is 514. Enclose all the addresses in parentheses. If you enter more than one address, then separate them with a space.

Parameter	Description
addServerAddresses	Allows you to add one or more syslog server addresses with associated port numbers. Using this set option will not clear out existing server addresses. A syslog server address can be a fully qualified domain name, IPv4 address, or IPv6 address. The UDP Port must be a numerical value between 0 and 65535. Typically, the UDP Port for syslog is 514. Enclose all the addresses in parentheses. If you enter more than one address, then separate them with a space.

Examples

```
SMcli -n Array1 -c "set syslog
serverAddresses=("ICTM1402S02H2.company.com:22");"

SMcli -n Array1 -c "set syslog
addServerAddresses=("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.

Set target properties

The `set target` command changes the properties for an iSCSI/iSER target, including authentication method and alias name.

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.

Context



This command replaces the deprecated [Set iSER target](#) and [Set iSCSI target properties](#) commands.

Syntax

```
set target (["targetAliasName"] | <"targetQualifiedName">)  
(authenticationMethod=(none | chap chapSecret="newSecurityKey") |  
targetAlias="newAliasName")
```

Parameters

Parameter	Description
target	Allows you to specify which target you want to set. You can either specify the target's alias name or qualified name (e.g., iqn). Enclose the target identifier in double quotations marks ("). You also must enclose the identifier in square brackets ([]) if it is an alias or angle brackets (< >) if it is a qualified name.
authenticationMethod	Allows you to set the means of authenticating your session. Valid choices are: none or chap.
chapSecret	Allows you to enter the security key to authenticate a peer connection. This is applicable only when authenticationMethod is set to chap.
targetAlias	Allows you to specify the new alias name for the target. Enclose the name in double quotation marks (").

Minimum firmware level

8.41

Set thin volume attributes

The `set volume` command defines the properties for a thin 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 role.

Context


You can use the parameters to define properties for one or more thin volumes.


Syntax

```
set (volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
[newCapacity=capacityValue]
[repositoryMaxCapacity=capacityValue]
[repositoryExpansionPolicy=(automatic|manual)]
[warningThresholdPercent=warningThresholdPercentValue]
[addRepositoryCapacity=capacity-spec] [hostReportingPolicy=(standard |
thin)]
```

Parameters

Parameter	Description
volume	The name of the volume for which you want to define properties. 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.
volume	The World Wide Identifier (WWID) of the volume for which you want to define properties. Enclose the WWID in double quotation marks (" ") inside angle brackets (< >).

Parameter	Description
volumes	<p>The names of several volumes for which you want to define properties. 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.
newCapacity	<p>This parameter increases the virtual capacity of the thin volume. The virtual capacity is the value that the volume will report to a host that is mapped to the volume. Values smaller or equal to the existing capacity will cause an error. Size is defined in units of bytes, KB, MB, GB, or TB.</p> <p>The minimum virtual capacity is 32 MB.</p> <p>The maximum virtual capacity is 63 TB.</p>
repositoryMaxCapacity*	<p>This parameter sets the maximum capacity of the repository volume. The value must not be smaller than the physical capacity of the repository volume. If the new value results in a reduction in capacity to a level below the warning threshold, the command will produce an error.</p> <div>  <p>The command <code>repositoryMaxCapacity</code> works with <code>repositoryExpansionPolicy=automatic</code>.</p> </div>
repositoryExpansionPolic*	<p>This parameter sets the expansion policy to <code>automatic</code> or <code>manual</code>. When you change the policy from <code>automatic</code> to <code>manual</code>, the maximum capacity value (quota) changes to the physical capacity of the repository volume.</p>

Parameter	Description
warningThresholdPercent	<p>The percentage of thin volume capacity at which you receive a warning alert that the thin volume is nearing full. Use integer values. For example, a value of 70 means 70 percent.</p> <p>Valid values are from 1 to 100.</p> <p>Setting this parameter to 100 disables warning alerts.</p>
addRepositoryCapacity	<p>This parameter allocates capacity from the free extent of the disk pool. If insufficient space is available the command fails.</p> <div>  <p>The command <code>addRepositoryCapacity</code> works with <code>repositoryExpansionPolicy=manual</code>.</p> </div>
hostReportingPolicy	<p>This parameter changes the way in which the thin volume is reported to the host. Valid values are <code>standard</code> or <code>thin</code>.</p>

Notes

When you use this command, you can specify one or more of the optional parameters.

The following table lists the capacity limits for a thin volume.

Type of Capacity	Size
Minimum virtual capacity	32 MB
Maximum virtual capacity	63 TB
Minimum physical capacity	4 GB
Maximum physical capacity	64 TB

Thin volumes support all of the operations that standard volumes do with the following exceptions:

- You cannot change the segment size of a thin volume.
- You cannot enable the pre-read redundancy check for a thin volume.
- You cannot use a thin volume as the target volume in a volume copy.
- You cannot use a thin volume in a Synchronous Mirroring operation.

If you want to change a thin volume to a standard volume, use the volume copy operation to create a copy of the thin volume. The target of a volume copy is always a standard volume.

Minimum firmware level

7.83

Set tray attribute

The `set tray` command sets user-defined attributes for an tray.

Syntax

```
set tray [trayID] (chassisName | assetTag)="userID"
```

Parameters

Parameter	Description
tray	Identifies a specific tray for which to set the attribute. Tray ID values are 0 to 99. You must put brackets ([]) around the enclosure ID value.
chassisName	Chassis name or number to give the new enclosure. Chassis names can be any combination of alphanumeric characters with a maximum length of 32 characters. Alphabetical characters can be uppercase or lowercase. You can also use the underscore character (_) and the hyphen (-) character. You cannot use spaces in a chassis name. You must put quotation marks (" ") around the chassis name.
assetTag	Asset tag name or number to give the new enclosure. Asset tags can be any combination of alphanumeric characters with a maximum length of ten characters. Alphabetical characters can be uppercase or lowercase. You can also use the underscore character (_) and the hyphen (-) character. You cannot use spaces in an asset tag name. You must put quotation marks (" ") around the asset tag name.

Minimum firmware level

6.16

Set drawer service action allowed indicator

The `set tray drawer` command turns on or turns off the Service Action Allowed

indicator light on a drawer that holds drives.

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

Drawers are used in high-capacity drive trays. The drawers slide out of the drive tray to provide access to the drives. Use this command only for drive trays that use drawers. If the storage array does not support the Service Action Allowed indicator light feature, this command returns an error. If the storage array supports the command but is unable to turn on or turn off the indicator light, this command returns an error.

Syntax

```
set tray [trayID] drawer [drawerID]
serviceAllowedIndicator=(on | off | forceOnWarning)
```

Parameters

Parameter	Description
tray	The tray where the drawer resides. Tray ID values are 0 to 99 . Enclose the tray ID value in square brackets ([]). If you do not enter a tray ID value, the tray ID of the controller tray is the default value.
drawer	The location of the drawer for which you want to turn on or turn off the Service Action Allowed Indicator light. Drawer ID values are 1 to 5. Enclose the drawer ID value in square brackets ([]).
serviceAllowedIndicator	<p>The setting to turn on or turn off the Service Action Allowed indicator light. To turn on the Service Action Allowed indicator light, set this parameter to on. To turn off the Service Action Allowed indicator light, set this parameter to off.</p> <p>For information about using forceOnWarning, see the Notes.</p>

Notes

Before you can enter this command, the drive tray must meet these conditions:

- The drive tray cannot be over temperature.
- The fans must have a status of Optimal.
- All drive tray components must be in place.
- The volumes in the drive drawer cannot be in a Degraded state. If you remove drives from the drive drawer and a volume is already in a Degraded state, the volume can fail.



Do not issue this command if you cannot meet any of these conditions.

All volumes with drives in the affected drive drawer are checked to make sure that the volumes have drawer loss protection before the command is sent. If the volumes have drawer loss protection, the Set Service Action Allowed command proceeds without stopping I/O activity to the volume.

If any volumes in the affected drawer do not have drawer loss protection, you must stop I/O activity to those volumes. A warning appears, which indicates that this command should not be completed.

To turn on or turn off the Service Action Allowed indicator light for the entire high-capacity drive tray, use the `set tray serviceAllowedIndicator` command.

Use of the `forceOnWarning` parameter

If you are preparing a component for removal and want to override the warning that the volumes do not have drawer loss protection, enter this parameter:

```
serviceAllowedIndicator=forceOnWarning
```

The `forceOnWarning` parameter sends the request to prepare to remove a component to the controller firmware, and forces the `set drawer serviceAllowedIndicator` command to proceed.



This parameter marks all drives in the drawer inaccessible and could result in failed volumes and complex recovery, including the necessity to reboot the host. Use this parameter with caution.

Minimum firmware level

7.60

Set tray identification

The `set tray` command sets the tray ID of a controller tray, a controller-drive tray, or a drive tray 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

This command is valid only for controller trays, controller-drive trays, or drive trays that have tray IDs that you can set through the controller firmware. You cannot use this command for controller trays, controller-drive trays, or drive trays that have a tray ID that you set with a switch.

Syntax

```
set tray ["serialNumber"] id=trayID
```

Parameters

Parameter	Description
tray	The serial number of the controller tray, controller-drive tray, or the drive tray for which you are setting the tray ID. Serial numbers can be any combination of alphanumeric characters and any length. Enclose the serial number in double quotation marks (" ").
id	<div><p>The value for the controller tray tray ID, controller-drive tray tray ID, or the drive tray tray ID. Tray ID values are 0 through 9 or 10 through 99.</p><div><div></div><div>For the DE5600, DE1600, and DE6600 enclosures, precede the serial number with the text string "SN" and a space. For example, SN SV23802522.</div></div><div><div></div><div>You do not need to enclose the tray ID value in parentheses.</div></div><div><div></div><div>Tray values of 00 through 09 are rejected by the controller. Use 0 through 9 to specify those values.</div></div></div>

Notes

This command originally supported the CE6998 controller tray. The CE6998-series controller trays can connect to a variety of drive trays, including those whose tray IDs are set by switches. When connecting a CE6998-series controller tray to drive trays whose tray IDs are set by switches, valid values for tray IDs for the controller

tray are 80 through 99. This range avoids conflicts with tray IDs that are used for attached drive trays.

Set tray service action allowed indicator

The `set tray serviceAllowedIndicator` command turns on or turns off the Service Action Allowed indicator light on a power-fan canister, an interconnect-battery canister, or an environmental services module (ESM) canister.

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 Support Admin role.

Context

If the storage array does not support the Service Action Allowed indicator light feature, this command returns an error. If the storage array supports the command but is unable to turn on or turn off the indicator light, this command returns an error.

To turn on or turn off the Service Action Allowed indicator light on the controller canister, use the `set controller serviceAllowedIndicator` command.

Syntax

```
set tray [trayID]
(powerFan [(left | right | top | bottom)] |
interconnect |
esm [(left | right | top | bottom)]) |
battery [(left | right)] |
fanCanister [(left | right)] |
powerCanister [(top | bottom)] |
serviceAllowedIndicator=(on | off)
```

Parameters

Parameter	Description
tray	The tray where the power-fan canister, the interconnect canister, the ESM canister, or the battery canister resides. Tray ID values are 0 to 99. Enclose the tray ID value in square brackets ([]). If you do not enter a tray ID value, the tray ID of the controller tray is the default value.
powerFan	The Service Action Allowed indicator light on the power-fan canister that you want to turn on or turn off. Valid power-fan canister identifiers are <code>left</code> , <code>right</code> , <code>top</code> , or <code>bottom</code> . Enclose the power-fan canister identifier in square brackets ([]).
interconnect	The Service Action Allowed indicator light for the interconnect-battery canister.
esm	The Service Action Allowed indicator light for an ESM canister. Valid ESM canister identifiers are <code>left</code> , <code>right</code> , <code>top</code> , or <code>bottom</code> .
battery	The Service Action Allowed indicator light for a battery. Valid battery identifiers are <code>left</code> or <code>right</code> .
fanCanister	The Service Action Allowed indicator light for a fan canister. Valid fan canister identifiers are <code>left</code> or <code>right</code> .
powerCanister	The Service Action Allowed indicator light for a power canister. Valid power canister identifiers are <code>top</code> or <code>bottom</code> .
serviceAllowedIndicator	The setting to turn on or turn off the Service Action Allowed indicator light. To turn on the Service Action Allowed indicator light, set this parameter to <code>on</code> . To turn off the Service Action Allowed indicator light, set this parameter to <code>off</code> .

Notes

This command was originally defined for use with the CE6998 controller tray. This command is not supported by controller trays that were shipped before the introduction of the CE6998 controller tray.

Example

This command turns on the Service Action Allowed indicator light for the left ESM in tray 5 with the IP address of 155.155.155.155.


```
SMcli 123.145.167.214 123.145.167.215 -c "set tray [5]
ESM [left] serviceAllowedIndicator=on;"
```

Minimum firmware level

6.14 adds these parameters:

- powerFan
- interconnect

6.16 adds these parameters:

- tray
- esm

7.60 adds the identifiers `top` and `bottom`.

7.60 adds the `powerCanister` and `fanCanister` parameters.

Set volume attributes for a volume in a volume group

The `set volume` command defines the properties for volumes in 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 role.

Context

You can use most parameters to define properties for one or more volumes. You also can use some parameters to define properties for only one volume. The syntax definitions are separated to show which parameters apply to several volumes and which apply to only one volume.



In configurations where volume groups consist of more than 32 volumes, the operation can result in host I/O errors or internal controller reboots due to the expiration of the timeout period before the operation completes. If you experience host I/O errors or internal controller reboots, quiesce the host I/O and try the operation again.

Syntax applicable to one or more volumes

```
set (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
preReadRedundancyCheck=(TRUE | FALSE)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
dataAssuranceDisabled=(TRUE | FALSE)
```

```
set (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
preReadRedundancyCheck=(TRUE | FALSE)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
dataAssuranceDisabled=(TRUE | FALSE)
```

```
set (allVolumes | volume ["volumeName"] |
volumes ["volumeName1" ... "volumeNameN"] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
preReadRedundancyCheck=(TRUE | FALSE)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
dataAssuranceDisabled=(TRUE | FALSE)
```

```

set (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
dataAssuranceDisabled=(TRUE | FALSE)

```

```

set (allVolumes | volume ["volumeName"] |
volumes ["volumeName1" ... "volumeNameN"] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
dataAssuranceDisabled=(TRUE | FALSE)

```

```

set (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
cacheFlushModifier=cacheFlushModifierValue
cacheWithoutBatteryEnabled=(TRUE | FALSE)
mediaScanEnabled=(TRUE | FALSE)
mirrorCacheEnabled=(TRUE | FALSE)
modificationPriority=(highest | high | medium | low | lowest)
owner=(a|b)
readCacheEnabled=(TRUE | FALSE)
writeCacheEnabled=(TRUE | FALSE)
cacheReadPrefetch=(TRUE | FALSE)
reservedFutureOption1=(TRUE | FALSE)

```

Syntax applicable to only one volume

```

set (volume [volumeName] | volume <wwID>)
addCapacity=volumeCapacity
[addDrives=(trayID1,drawerID1,slotID1 ... trayIDn,drawerIDn,slotIDn)]
redundancyCheckEnabled=(TRUE | FALSE)
segmentSize=segmentSizeValue
userLabel=volumeName
preReadRedundancyCheck=(TRUE | FALSE)

```

```

set (volume ["volumeName"] | volume <wwID>)
addCapacity=volumeCapacity
[addDrives=(trayID1,drawerID1,slotID1
... trayIDn,drawerIDn,slotIDn)]
redundancyCheckEnabled=(TRUE | FALSE)
segmentSize=segmentSizeValue
userLabel=volumeName
preReadRedundancyCheck=(TRUE | FALSE)

```


```


set (volume [volumeName] | volume <wwID>)
addCapacity=volumeCapacity
[addDrives=(trayID1,slotID1 ... trayIDn,slotIDn)]
redundancyCheckEnabled=(TRUE | FALSE)
segmentSize=segmentSizeValue
userLabel=volumeName
preReadRedundancyCheck=(TRUE | FALSE)



```

Parameters

Parameter	Description
allVolumes	This parameter sets the properties for all of the volumes in the storage array.
volume	The name of the volume for which you want to define properties. 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
volume	<p>The World Wide Identifier (WWID) of the volume for which you want to define properties. Enclose the WWID in double quotation marks (" ") inside angle brackets (< >).</p> <div>  <p>When running this command, do not use colon separators in the WWID.</p> </div>
volumes	<p>The names of several volumes for which you want to define properties. 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 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.
cacheFlushModifier	<p>The maximum amount of time that data for the volume stays in cache before the data is flushed to physical storage. Valid values are listed in the Notes section.</p>
cacheWithoutBatteryEnabled	<p>The setting to turn on or turn off caching without batteries. To turn on caching without batteries, set this parameter to <code>TRUE</code>. To turn off caching without batteries, set this parameter to <code>FALSE</code>.</p>
mediaScanEnabled	<p>The setting to turn on or turn off media scan for the volume. To turn on media scan, set this parameter to <code>TRUE</code>. To turn off media scan, set this parameter to <code>FALSE</code>. (If media scan is disabled at the storage array level, this parameter has no effect.)</p>
mirrorCacheEnabled	<p>The setting to turn on or turn off the mirror cache. To turn on the mirror cache, set this parameter to <code>TRUE</code>. To turn off the mirror cache, set this parameter to <code>FALSE</code>.</p>

Parameter	Description
modificationPriority	The priority for volume modifications while the storage array is operational. Valid values are highest, high, medium, low, or lowest.
owner	The controller that owns the volume. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Use this parameter only if you want to change the volume owner.
preReadRedundancyCheck	<p>The setting to turn on or turn off pre-read redundancy checking. Turning on pre-read redundancy checking verifies the consistency of RAID redundancy data for the stripes containing the read data. Pre-read redundancy checking is performed on read operations only. To turn on pre-read redundancy checking, set this parameter to <code>TRUE</code>. To turn off pre-read redundancy checking, set this parameter to <code>FALSE</code>.</p> <div>  <p>Do not use this parameter on non-redundant volumes, such as RAID 0 volumes.</p> </div>
readCacheEnabled	The setting to turn on or turn off the read cache. To turn on the read cache, set this parameter to <code>TRUE</code> . To turn off the read cache, set this parameter to <code>FALSE</code> .
writeCacheEnabled	The setting to turn on or turn off the write cache. To turn on the write cache, set this parameter to <code>TRUE</code> . To turn off the write cache, set this parameter to <code>FALSE</code> .
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
dataAssuranceDisabled	<p>The setting to turn off data assurance for a specific volume.</p> <p>For this parameter to have meaning, your volume must be capable of data assurance. This parameter changes a volume from one that supports data assurance to a volume that cannot support data assurance.</p> <div>  <p>This option is only valid for enablement if the drives support DA.</p> </div> <p>To remove data assurance from a volume that supports data assurance, set this parameter to <code>TRUE</code>.</p> <div>  <p>If you remove data assurance from a volume, you cannot reset data assurance for that volume.</p> </div> <p>To reset data assurance for the data on a volume, from which you removed data assurance, perform these steps:</p> <ol style="list-style-type: none"> 1. Remove the data from the volume. 2. Delete the volume. 3. Recreate a new volume with the properties of the deleted volume. 4. Set data assurance for the new volume. 5. Move the data to the new volume.
addCapacity	<p>The setting to increase the storage size (capacity) of the volume for which you are defining properties. Size is defined in units of <code>bytes</code>, <code>KB</code>, <code>MB</code>, <code>GB</code>, or <code>TB</code>. The default value is <code>bytes</code>.</p>

Parameter	Description
<code>addDrives</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> <p>Use this parameter with the <code>addCapacity</code> parameter if you need to specify additional drives to accommodate the new size.</p>
<code>redundancyCheckEnabled</code>	The setting to turn on or turn off redundancy checking during a media scan. To turn on redundancy checking, set this parameter to <code>TRUE</code> . To turn off redundancy checking, set this parameter to <code>FALSE</code> .
<code>segmentSize</code>	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.
<code>userLabel</code>	The new name that you want to give an existing volume. Enclose the new volume name in double quotation marks (" ").
<code>preReadRedundancyCheck</code>	The setting to check the consistency of RAID redundancy data on the stripes during read operations. Do not use this operation for non-redundant volumes, for example RAID Level 0. To check redundancy consistency, set this parameter to <code>TRUE</code> . For no stripe checking, set this parameter to <code>FALSE</code> .

Notes

Host I/O errors might result in volume groups with more than 32 volumes. This operation might also result in internal controller reboots due to the expiration of the timeout period before the operation completes. If you experience this issue, quiesce host I/O, and try the operation again.

When you use this command, you can specify one or more of the optional parameters.

You can apply these parameters to only one volume at a time:

- `addCapacity`
- `segmentSize`
- `userLabel`
- `logicalUnitNumber`

Add capacity, add drives, and segment size

Setting the `addCapacity` parameter, the `addDrives` parameter, or the `segmentSize` parameter starts a long-running operation that you cannot stop. These long-running operations are performed in the background and do not prevent you from running other commands. To show the progress of long-running operations, use the `show volume actionProgress` command.

Cache flush modifier

Valid values for the cache flush modifier are listed in this table.

Value	Description
Immediate	Data is flushed as soon as it is placed into the cache.
.25	Data is flushed after 250 ms.
.5	Data is flushed after 500 ms.
.75	Data is flushed after 750 ms.
1	Data is flushed after 1 s.
1.5	Data is flushed after 1500 ms.
2	Data is flushed after 2 s.
5	Data is flushed after 5 s.
10	Data is flushed after 10 s.
20	Data is flushed after 20 s.
60	Data is flushed after 60 s (1 min.).
120	Data is flushed after 120 s (2 min.).

Value	Description
300	Data is flushed after 300 s (5 min.).
1200	Data is flushed after 1200 s (20 min.).
3600	Data is flushed after 3600 s (1 hr).
Infinite	Data in cache is not subject to any age or time constraints. The data is flushed based on other criteria that are managed by the controller.



Do not set the value of the `cacheFlushModifier` parameter above 10 seconds. An exception is for testing purposes. After running any tests in which you have set the values of the `cacheFlushModifier` parameter above 10 seconds, return the value of the `cacheFlushModifier` parameter to 10 or fewer seconds.

Cache without battery enabled

Write caching without batteries enables write caching to continue if the controller batteries are completely discharged, not fully charged, or not present. If you set this parameter to `TRUE` without an uninterruptible power supply (UPS) or other backup power source, you can lose data if the power to the storage array fails. This parameter has no effect if write caching is disabled.

Modification priority

Modification priority defines the amount of system resources that are used when modifying volume properties. If you select the highest priority level, the volume modification uses the most system resources, which decreases the performance for host data transfers.

Cache read prefetch

The `cacheReadPrefetch` parameter enables the controller to 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. The configuration settings for the storage array that you use determine the number of additional data blocks that the controller reads into cache. Valid values for the `cacheReadPrefetch` parameter are `TRUE` or `FALSE`.

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.

Minimum firmware level

5.00 adds the `addCapacity` parameter.

7.10 adds the `preReadRedundancyCheck` parameter.

7.60 adds the `drawerID` user input.

7.75 adds the `dataAssuranceDisabled` parameter.

8.10 corrects the values for the `cacheFlushModifier` parameter in the cache flush table.

Set volume mapping

The `set volume logicalUnitNumber` command defines the logical unit number (LUN) or namespace ID (NSID) mapping between a volume and a host or host 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 role.

Context

This command is applicable to volumes in either a volume group or disk pool.




You cannot use this command for a snapshot volume that is used in online volume copy.

Syntax

```
set (volume [volumeName] | volume <"wwID"> | accessVolume)
logicalUnitNumber=lun
(host="hostName" |
hostGroup=("hostGroupName" | defaultGroup)
```

Parameter

Parameter	Description
volume	The name of the volume for which you want to define the logical unit number. 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.
volume	The World Wide Identifier (WWID) of the volume for which you want to define the logical unit number. Enclose the WWID in double quotation marks (" ") inside angle brackets (< >).
accessVolume	The logical unit number for the access volume. The logical unit number is the only property that you can set for the access volume.
logicalUnitNumber	<div><div>The logical unit number or namespace ID that you want to use to map to a specific host. This parameter also assigns the host to a host group.</div><div><div>The logical unit number or namespace ID you specify must not already be in use, and must be within the range supported by the host Operating System. There will be no error if you map the volume to a logical unit number or namespace ID not supported by the host, but the host won't be able to access the volume.</div></div></div>
host	The name of the host to which the volume is mapped. Enclose the host name in double quotation marks (" ").
hostGroup	The name of the host group to which the volume is mapped. Enclose the host group name in double quotation marks (" "). defaultGroup is the host group that contains the host to which the volume is mapped.

Notes

A host group is an optional topological element that you can define if you want to designate a collection of hosts that share access to the same volumes. The host group is a logical entity. Define a host group only if you have two or more hosts that can share access to the same volumes.

You can use any combination of alphanumeric characters, hyphens, and underscores for the names. Names

can have a maximum of 30 characters.

The access volume is the volume in a SAN environment that is used for in-band communication between the storage management software and the storage array controller. This volume uses a LUN or NSID address and consumes 20 MB of storage space that is not available for application data storage. An access volume is required only for in-band managed storage arrays. If you specify the `accessVolume` parameter, the only property you can set is the `logicalUnitNumber` parameter.

Minimum firmware level

7.83 adds snapshot volume for disk pools.

Set SSD cache for a volume

The `set volume ssdCacheEnabled` command turns on or off caching using the SSD cache feature for a specific volume.

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.

Context

The volume can be one of these:

- Standard volume, identified by either a name or a WWID
- Snapshot volume
- Consistency group snapshot volume

Syntax applicable to a standard volume

```
set volume ([volumeName] | <"WWID">) ssdCacheEnabled=(TRUE | FALSE)
```

Syntax applicable to a snapshot volume

```
set snapVolume ["snapVolumeName"] ssdCacheEnabled=(TRUE | FALSE)
```

Syntax applicable to a consistency group snapshot volume

```
set cgSnapVolume ["cgSnapVolumeName"] ssdCacheEnabled=(TRUE | FALSE)
```

Parameters

Parameter	Description
<code>volume</code>	The name of the standard volume for which you want to turn on or turn off the SSD cache. Enclose the name of the volume in square brackets ([]). If the name of the volume has special characters or numbers, you must enclose the name of the volume in double quotation marks (" ") inside of square brackets ([]).
<code>volume</code>	The World Wide Identifier (WWID) of the standard volume for which you want to turn on or turn off the SSD cache. Enclose the WWID in double quotation marks (" ") inside angle brackets (< >).
<code>snapVolume</code>	The name of the snapshot volume for which you want to turn on or turn off the SSD cache. Enclose the name of snapshot volume in double quotation marks (" ") inside of square brackets ([]).
<code>cgSnapVolume</code>	The name of the consistency group snapshot volume for which you want to turn on or turn off the SSD cache. Enclose the name of the consistency group snapshot volume in double quotation marks (" ") inside of square brackets ([]).
<code>ssdCacheEnabled</code>	To turn on SSD cache, set this parameter to <code>TRUE</code> . To turn off SSD cache, set this parameter to <code>FALSE</code> .

Notes

You can turn the SSD cache on or off for only one volume at a time.

When you turn off SSD cache for a volume, the SSD cache for that volume is purged.

Minimum firmware level

7.84

Set volume copy

The `set volumeCopy target` command defines the properties for a volume copy pair.

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



With firmware version 7.83 the `copyType=(online | offline)` parameter is no longer used.

This command is valid for snapshot volume copy pairs.

Syntax

```
set volumeCopy target [targetName]  
source [sourceName]  
[copyPriority=(highest | high | medium | low | lowest)]  
[targetReadOnlyEnabled=(TRUE | FALSE)]  
[copyType=(online | offline)]
```

Parameters

Parameter	Description
target	The name of the volume to which the data will be copied. Enclose the target volume name in square brackets ([]). If the target volume name has special characters or numbers, you must enclose the target volume name in double quotation marks (" ") inside square brackets.
source	The name of the volume from which the data will be copied. Enclose the source volume name in square brackets ([]). If the source volume name has special characters or numbers, you must enclose the source volume name in double quotation marks (" ") inside square brackets.
copyPriority	The priority that the volume copy has relative to host I/O activity. Valid values are highest, high, medium, low, or lowest.
targetReadOnlyEnabled	The setting so that you can write to the target volume or only read from the target volume. To write to the target volume, set this parameter to FALSE. To prevent writing to the target volume, set this parameter to TRUE.

Parameter	Description
copyType	 This parameter has been deprecated.

Notes

When you use this command, you can specify one or more of the optional parameters.

Minimum firmware level

5.40

7.83 removes the `copyType=(online | offline)` parameter.

Set volume group forced state

The `set volumeGroup forcedState` command moves a volume group into a Forced state.

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

Use this command if the `start volumeGroup import` command does not move the volume group to an Imported state or if the import operation does not work because of hardware errors. In a Forced state, the volume group can be imported, and you can then identify the hardware errors.

Syntax

```
set volumeGroup [volumeGroupName] forcedState
```

Parameter

Parameter	Description
volumeGroup	The name of the volume group that you want to place in a Forced state. Enclose the volume group name in square brackets ([]).

Notes

You can move the drives that comprise a volume group from one storage array to another storage array. The CLI provides three commands that let you move the drives. The commands are `start volumeGroup export`, `start volumeGroup import`, and `set volumeGroup forcedState`.

In the Forced state, you can perform an import operation on the volume group.

Minimum firmware level

7.10

Set volume group

The `set volumeGroup` command defines the properties for 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 role.

Context



You must perform only one operation (add drives, change the RAID level, or change volume group ownership) per command. You cannot perform more than one operation with a single command.

Syntax

```
set volumeGroup [volumeGroupName]
[addDrives=(trayID1,[drawerID1,]slotID1 ... trayIDn,[drawerIDn,]slotIDn)
]|
[raidLevel=(0 | 1 | 3 | 5 | 6) ]|
[owner=(a|b) ]
```

Parameters

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

Parameter	Description
<code>addDrives</code>	<p>The location of the drive that you want to add to the volume group. 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>raidLevel</code>	The RAID level for the volume group. Valid values are 0, 1, 3, 5, or 6.
<code>owner</code>	The controller that owns the volume group. Valid controller identifiers are a or b, where a is the controller in slot A, and b is the controller in slot B. Use this parameter only if you want to change the volume group owner.

Notes

Host I/O errors might result in volume groups with more than 32 volumes. This operation also might result in internal controller reboots because the timeout period ends before the volume group definition is set. If you experience this issue, quiesce the host I/O operations, and try the command again.

When you use this command, you can specify only one of the parameters.



Specifying the `addDrives` parameter or the `raidLevel` parameter starts a long-running operation that you cannot stop.

The `addDrives` 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.

Troubleshooting

Attempting to expand large volume groups by adding drives, also called Dynamic Capacity Expansion (DCE),

may fail with the following message:

Return code: Error 26 - The modification operation cannot complete because of the number of drives in the volume group and the segment size of the associated volumes. Reduce the segment size of all volumes in the volume group to 128 KB or below using the Change Segment Size option. Then, retry the operation.

Systems running 7.35.xx.xx firmware may fail with the following message instead of the one noted above:

Return code: Error 462 - A SYMbol procedure could not be carried out because the firmware could not allocate sufficient cache memory. Operation when error occurred: PROC_startVolum

In addition to the above messages, a Major Event Log (MEL) event indicating insufficient cache available to complete the DCE operation may occur.

Any controller running 7.xx firmware may encounter this problem.

DCE requires enough memory to buffer the data read from the original volume and the data to be written to the expanded volume. Some combination of number of drives in the expansion operation, stripe size, and whether mirror operations are enabled may result in not enough memory being available to complete the DCE operation.

If the above situation is encountered, possible workarounds are as follows:

- Create the desired size volume group using other unassigned drives.
- Delete the current volume group and then recreate the volume group with the desired number of drives.
- Reduce the segment size being used and then retry the operation.
- If possible, add additional memory to the controller and then retry the operation.

Minimum firmware level

7.10 adds RAID 6 capability.

7.30 removes the `availability` parameter.

7.60 adds the `drawerID` user input.

Set volume attributes for a volume in a disk pool

The `set volumes` command defines the properties for a volume in 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




In configurations where disk pools consist of more than 32 volumes, the operation can result in host I/O errors or internal controller reboots due to the expiration of the timeout period before the operation completes. If you experience host I/O errors or internal controller reboots, bring the host to a quiescent state, and try the operation again.


Syntax

```
set (allVolumes | volume [volumeName] |
volumes [volumeName1 ... volumeNameN] | volume <"wwID">)
addCapacity = capacityValue[KB|MB|GB|TB|Bytes] |
cacheFlushModifier=cacheFlushModifierValue |
cacheReadPrefetch = (TRUE | FALSE) |
cacheWithoutBatteryEnabled=(TRUE | FALSE) |
mediaScanEnabled=(TRUE | FALSE) |
mirrorCacheEnabled=(TRUE | FALSE) |
preReadRedundancyCheck = (TRUE | FALSE) |
readCacheEnabled=(TRUE | FALSE) |
redundancyCheckEnabled = (TRUE | FALSE) |
segmentSize = segmentSizeValue
userLabel = userlabelValue
writeCacheEnabled=(TRUE | FALSE) |
dataAssuranceDisabled=(TRUE | FALSE)
```

Parameters

Parameter	Description
allVolumes	This parameter sets the properties for all of volumes in the storage array.
volume	The name of the volume for which you want to define properties. 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.
volume	<div>The World Wide Identifier (WWID) of the volume for which you want to define properties. Enclose the WWID in double quotation marks (" ") inside angle brackets (< >).</div> <div> When running this command, do not use colon separators in the WWID.</div>

Parameter	Description
volumes	<p>The names of several volumes for which you want to define properties. 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 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.
addCapacity	<p>The setting to increase the storage size (capacity) of the volume for which you are defining properties. Size is defined in units of <code>bytes</code>, <code>KB</code>, <code>MB</code>, <code>GB</code>, or <code>TB</code>. The default value is <code>bytes</code>.</p> <p>This parameter is not valid for thin volumes.</p>
cacheFlushModifier	<p>The maximum amount of time that data for the volume stays in cache before the data is flushed to physical storage. Valid values are listed in the Notes section.</p>
cacheReadPrefetch	<p>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>.</p>
cacheWithoutBatteryEnabled	<p>The setting to turn on or turn off caching without batteries. To turn on caching without batteries, set this parameter to <code>TRUE</code>. To turn off caching without batteries, set this parameter to <code>FALSE</code>.</p>
mediaScanEnabled	<p>The setting to turn on or turn off media scan for the volume. To turn on media scan, set this parameter to <code>TRUE</code>. To turn off media scan, set this parameter to <code>FALSE</code>. (If media scan is disabled at the storage array level, this parameter has no effect.)</p>

Parameter	Description
mirrorCacheEnabled	The setting to turn on or turn off the mirror cache. To turn on the mirror cache, set this parameter to <code>TRUE</code> . To turn off the mirror cache, set this parameter to <code>FALSE</code> .
owner	The controller that owns the volume. Valid controller identifiers are <code>a</code> or <code>b</code> , where <code>a</code> is the controller in slot A, and <code>b</code> is the controller in slot B. Use this parameter only if you want to change the volume owner.
preReadRedundancyCheck	<p>The setting to turn on or turn off pre-read redundancy checking. Turning on pre-read redundancy checking verifies the consistency of RAID redundancy data for the stripes containing the read data. Pre-read redundancy checking is performed on read operations only. To turn on pre-read redundancy checking, set this parameter to <code>TRUE</code>. To turn off pre-read redundancy checking, set this parameter to <code>FALSE</code>.</p> <div>  <p>Do not use this parameter on non-redundant volumes, such as RAID 0 volumes.</p> </div>
readCacheEnabled	The setting to turn on or turn off the read cache. To turn on the read cache, set this parameter to <code>TRUE</code> . To turn off the read cache, set this parameter to <code>FALSE</code> .
redundancyCheckEnabled	The setting to turn on or turn off redundancy checking during a media scan. To turn on redundancy checking, set this parameter to <code>TRUE</code> . To turn off redundancy checking, set this parameter to <code>FALSE</code> .
userLabel	The new name that you want to give an existing volume. Enclose the new volume name in double quotation marks (" ").
writeCacheEnabled	The setting to turn on write cache capability.

Notes

When you use this command, you can specify one or more of the optional parameters.

You can apply these parameters to only one volume at a time:

- `addCapacity`
- `segmentSize`

- `userLabel`

Add capacity and segment size

Setting the `addCapacity` parameter or the `segmentSize` parameter starts a long-running operation that you cannot stop. These long-running operations are performed in the background and do not prevent you from running other commands. To show the progress of long-running operations, use the `show volume actionProgress` command.

Cache flush modifier

Valid values for the cache flush modifier are listed in this table.

Value	Description
Immediate	Data is flushed as soon as it is placed into the cache.
.25	Data is flushed after 250 ms.
.5	Data is flushed after 500 ms.
.75	Data is flushed after 750 ms.
1	Data is flushed after 1 s.
1.5	Data is flushed after 1500 ms.
2	Data is flushed after 2 s.
5	Data is flushed after 5 s.
10	Data is flushed after 10 s.
20	Data is flushed after 20 s.
60	Data is flushed after 60 s (1 min.).
120	Data is flushed after 120 s (2 min.).
300	Data is flushed after 300 s (5 min.).
1200	Data is flushed after 1200 s (20 min.).
3600	Data is flushed after 3600 s (1 hr.).

Value	Description
Infinite	Data in cache is not subject to any age or time constraints. The data is flushed based on other criteria that are managed by the controller.

Cache without battery enabled

Write caching without batteries enables write caching to continue if the controller batteries are completely discharged, not fully charged, or not present. If you set this parameter to `TRUE` without an uninterruptible power supply (UPS) or other backup power source, you can lose data if the power to the storage array fails. This parameter has no effect if write caching is disabled.

Modification priority

Modification priority defines the amount of system resources that are used when modifying volume properties. If you select the highest priority level, the volume modification uses the most system resources, which decreases the performance for host data transfers.

Cache read prefetch

The `cacheReadPrefetch` parameter enables the controller to 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. The configuration settings for the storage array that you use determine the number of additional data blocks that the controller reads into cache. Valid values for the `cacheReadPrefetch` parameter are `TRUE` or `FALSE`.

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.

Minimum firmware level

7.83

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